

DWLPA PCI PIU Installation Guide

Order Number EK-DWL84-IN. A01

This manual describes the installation of the DWLPA PCI plug-in unit into an AlphaServer 8400 system. The DWLPA PIU option comes with one DWLPA PCI installed. There is room in the PIU for either another DWLPA PCI, the DWLPA-BA, or a StorageWorks option, the BA658 or BA661. This manual covers installation of these options. Also covered is the installation of another option, the KFE70-AA, the PCI-to-EISA bridge.

First Printing, July 1995

The information in this document is subject to change without notice and should not be construed as a commitment by Digital Equipment Corporation.

Digital Equipment Corporation assumes no responsibility for any errors that may appear in this document.

The software, if any, described in this document is furnished under a license and may be used or copied only in accordance with the terms of such license. No responsibility is assumed for the use or reliability of software or equipment that is not supplied by Digital Equipment Corporation or its affiliated companies.

Copyright © 1995 by Digital Equipment Corporation.

All Rights Reserved.
Printed in U.S.A.

The following are trademarks of Digital Equipment Corporation: AlphaGeneration, AlphaServer, DEC, DECchip, DEC LANcontroller, OpenVMS, StorageWorks, VAX, the AlphaGeneration logo, and the DIGITAL logo.

OSF/1 is a registered trademark of the Open Software Foundation, Inc. Presto-serve is a trademark of Legato Systems, Inc. UNIX is a registered trademark in the U.S. and other countries, licensed exclusively through X/Open Company Ltd.

FCC NOTICE: The equipment described in this manual 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 when operated in a commercial environment. Operation of this equipment in a residential area may cause interference, in which case the user at his own expense may be required to take measures to correct the interference.

Contents

Preface	vii
---------------	-----

Chapter 1 Introduction

1.1	DWLPA PIU Placement and Configuration Rules	1-2
1.2	Installation Flowchart	1-4

Chapter 2 DWLPA PIU Installation

2.1	DWLPA-AA/AB Kit Contents	2-2
2.2	Prepare the Cabinet	2-4
2.3	Install the PIU Assembly	2-6
2.4	Install the Hose Cable	2-8

Chapter 3 DWLPA-BA/BB Installation

3.1	DWLPA-BA/BB Kit Contents	3-2
3.2	Install the Airflow Plenum in the DWLPA PIU	3-4
3.3	Install PCI Slides in the DWLPA PIU	3-6
3.4	Prepare the PCI Shelf	3-8
3.5	Place the PCI Shelf into the PIU	3-10
3.6	Connect Cables to the PCI	3-12

Chapter 4 StorageWorks Shelf Installation

4.1	BA658/BA661 Kit Contents	4-2
4.2	Prepare the PIU for the StorageWorks Shelf	4-4
4.3	Install the StorageWorks Shelf	4-6

Chapter 5 KFE70-AA Installation

5.1	KFE70-AA Kit Contents	5-2
5.2	Install KFE70 Modules	5-4
5.3	Remove the CD-ROM Box	5-6
5.4	Install the Floppy Drive.....	5-8
5.5	Prepare the CD-ROM Box for Installation	5-10
5.6	Replace the CD-ROM Box	5-12
5.7	Install Cables from the PCI to the CD-ROM Box	5-14
5.8	Run the EISA Configuration Utility	5-16
5.9	Ferrite Sleeve Installation.....	5-18

Chapter 6 Verification Procedure

6.1	Run System Self-Test	6-2
6.2	Show Commands for Installation	6-4
6.3	Verify SCSI Devices	6-6
6.3.1	Check SCSI Devices Using Console Commands	6-6
6.3.2	Check Console Output Against Physical Devices	6-8
6.4	If Necessary, Run the RAID Configuration Utility	6-10

Examples

5-1	Running ECU	5-16
6-1	Self-Test Display	6-2
6-2	Show Configuration	6-4
6-3	Show Device	6-5
6-4	Checking SCSI Devices	6-6
6-5	Running RCU	6-10

Figures

1-1	System and Expander Cabinet DWLPA PIU Placement	1-2
1-2	Installation Flowchart	1-4
2-1	DWLPA PCI PIU	2-2
2-2	Airflow Plate	2-4
2-3	PIU Assembly Installation	2-6
2-4	Hose Cable Installation and Routing	2-8
3-1	DWLPA—BA/BB Assembly	3-2
3-2	Airflow Plenum Installation	3-4
3-3	Installing PCI Slides	3-6
3-4	Preparing the PCI Shelf	3-8

3-5	Place the PCI into the PIU	3-10
3-6	Cable the PCI	3-12
4-1	BA658/BA661 StorageWorks Shelf Assembly	4-2
4-2	Airflow Plenum	4-4
4-3	StorageWorks Shelf Installation	4-6
5-1	Installation Flowchart	5-2
5-2	KFE70 Module Installation	5-4
5-3	CD-ROM Box Removal	5-6
5-4	Floppy Drive Installation	5-8
5-5	CD-ROM Box (Rear)	5-10
5-6	CD-ROM Box Replacement	5-12
5-7	Cable Installation.....	5-14
5-8	Ferrite Sleeve Installation.....	5-18
6-1	SCSI Disks in StorageWorks Shelves	6-8

Tables

1	AlphaServer 8200 and 8400 Documentation	viii
2	Related Documents	x
1-1	PCI/EISA Slot Usage	1-3
2-1	DWLPA-AA/AB Kit Contents	2-3
3-1	DWLPA-BA/BB Kit Contents	3-3
3-2	PCI Expansion Kit Contents	3-3
4-1	BA658-AA/BA661-AA Kit Contents	4-3
5-1	KFE70-AA Kit Contents	5-3

Preface

Intended Audience

This manual is written for Digital customer service engineers and self-maintenance customers who install DWLPA PIUs and related options, the DWLPA-BA PCI, the BA658 and BA661 StorageWorks options, and the KFE70 option, in AlphaServer 8400 systems.

Document Structure

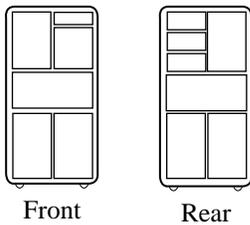
This manual uses a structured documentation design. Topics are organized into small sections for efficient reference. Each topic begins with an abstract. You can quickly gain a comprehensive overview by reading only the abstracts. Next is an illustration or example, which also provides quick reference. Last in the structure are descriptive text and syntax definitions.

This manual has six chapters as follows:

- **Chapter 1, Introduction**, provides a flowchart which summarizes the installation process.
- **Chapter 2, DWLPA PIU Installation**, shows how to install a PCI PIU into either a system or expander cabinet.
- **Chapter 3, DWLPA-BA/BB Installation**, shows how to install a PCI shelf into a DWLPA PIU.
- **Chapter 4, StorageWorks Shelf Installation**, explains how to install either a BA658 or BA661 StorageWorks shelf into a DWLPA PIU.
- **Chapter 5, KFE70-AA Installation**, shows how to install a KFE70 option, the PCI-to-EISA bridge, into a PCI subsystem.
- **Chapter 6, Verification Procedure**, shows how to verify the installations.

Conventions Used in This Document

Icons. The icons shown below are used in illustrations for designating part placement in the system described. A shaded area in the icon shows the location of the component or part being discussed.



Documentation Titles

Table 1 lists the books in the AlphaServer 8200 and 8400 documentation set. Table 2 lists other documents that you may find useful.

Table 1 AlphaServer 8200 and 8400 Documentation

Title	Order Number
Hardware User Information and Installation	
<i>Operations Manual</i>	EK-T8030-OP
<i>Site Preparation Guide</i>	EK-T8030-SP
<i>AlphaServer 8200 Installation Guide</i>	EK-T8230-IN
<i>AlphaServer 8400 Installation Guide</i>	EK-T8430-IN
Service Information Kit	
<i>Service Manual (hard copy)</i>	EK-T8030-SV
<i>Service Manual (diskette)</i>	AK-QKNFA-CA

Table 1 AlphaServer 8200 and 8400 Documentation (Continued)

Title	Order Number
Reference Manuals	
<i>System Technical Manual</i>	EK-T8030-TM
<i>DWLPA PCI Adapter Technical Manual</i>	EK-DWLPA-TM
Upgrade Manuals for Both Systems	
<i>KN7CC CPU Installation Card</i>	EK-KN7CC-IN
<i>MS7CC Memory Installation Card</i>	EK-MS7CC-IN
<i>KFTHA System I/O Module Installation Guide</i>	EK-KFTHA-IN
<i>KFTIA Integrated I/O Module Installation Guide</i>	EK-KFTIA-IN
Upgrade Manuals: 8400 System Only	
<i>AlphaServer 8400 Upgrade Manual</i>	EK-T8430-UI
<i>BA654 DSSI Disk PIU Installation Guide</i>	EK-BA654-IN
<i>BA655 SCSI Disk and Tape PIU Installation Guide</i>	EK-BA655-IN
<i>DWLAA Futurebus+ PIU Installation Guide</i>	EK-DWLAA-IN
<i>DWLMA XMI PIU Installation Guide</i>	EK-DWLMA-IN
<i>DWLPA PCI PIU Installation Guide</i>	EK-DWL84-IN
<i>H7237 Battery PIU Installation Guide</i>	EK-H7237-IN
<i>H7263 Power Regulator Installation Card</i>	EK-H7263-IN
<i>H9F00 Power Upgrade Manual</i>	EK-H8463-UI
<i>KFMSB Adapter Installation Guide</i>	EK-KFMSB-IN
<i>KZMSA Adapter Installation Guide</i>	EK-KXMSX-IN
<i>RRDCD Installation Guide</i>	EK-RRDRX-IN
Upgrade Manuals: 8200 System Only	
<i>DWLPA PCI Shelf Installation Guide</i>	EK-DWL82-IN
<i>H7266 Power Regulator Installation Card</i>	EK-H7266-IN
<i>H7267 Battery Backup Installation Card</i>	EK-H7267-IN

Table 2 Related Documents

Title	Order Number
General Site Preparation	
<i>Site Environmental Preparation Guide</i>	EK-CSEPG-MA
System I/O Options	
<i>BA350 Modular Storage Shelf Subsystem Configuration Guide</i>	EK-BA350-CG
<i>BA350 Modular Storage Shelf Subsystem User's Guide</i>	EK-BA350-UG
<i>BA350-LA Modular Storage Shelf User's Guide</i>	EK-350LA-UG
<i>CIXCD Interface User Guide</i>	EK-CIXCD-UG
<i>DEC FDDIcontroller 400 Installation/Problem Solving</i>	EK-DEMFA-IP
<i>DEC FDDIcontroller/Futurebus+ Installation Guide</i>	EK-DEFAA-IN
<i>DEC FDDIcontroller/PCI User Information</i>	EK-DEFPA-IN
<i>DEC LANcontroller 400 Installation Guide</i>	EK-DEMNA-IN
<i>DSSI VAXcluster Installation/Troubleshooting Manual</i>	EK-410AA-MG
<i>EtherWORKS Turbo PCI User Information</i>	EK-DE435-OM
<i>KZPSA PCI-to-SCSI Storage Adapter User's Guide</i>	EK-KZPSA-UG
<i>RF Series Integrated Storage Element User Guide</i>	EK-RF72D-UG
<i>StorageWorks RAID Array 200 Subsystem Family Installation and Configuration Guide</i>	EK-SWRA2-IG
<i>StorageWorks RAID Array 200 Subsystem Family Software User's Guide for OpenVMS AXP</i>	AA-Q6WVA-TE
<i>StorageWorks RAID Array 200 Subsystem Family Software User's Guide for DEC OSF/1</i>	AA-Q6TGA-TE
Operating System Manuals	
<i>Alpha Architecture Reference Manual</i>	EY-L520E-DP
<i>DEC OSF/1 Guide to System Administration</i>	AA-PJU7A-TE
<i>Guide to Installing DEC OSF/1</i>	AA-PS2DE-TE
<i>OpenVMS Alpha Version 6.2 Upgrade and Installation Manual</i>	AA-PV6XC-TE

Chapter 1

Introduction

The DWLPA plug-in unit (PIU) provides a PCI I/O subsystem bus that can be installed in an AlphaServer 8400 system or expander cabinet. The PIU can hold either another DWLPA PCI shelf or a StorageWorks shelf. The DWLPA PCI bus can have an EISA bridge, the KFE70, installed in it. This chapter describes the placement of the PIUs in both the system and expander cabinets and gives configuration rules. A map of the book is provided since several different installation procedures are described.

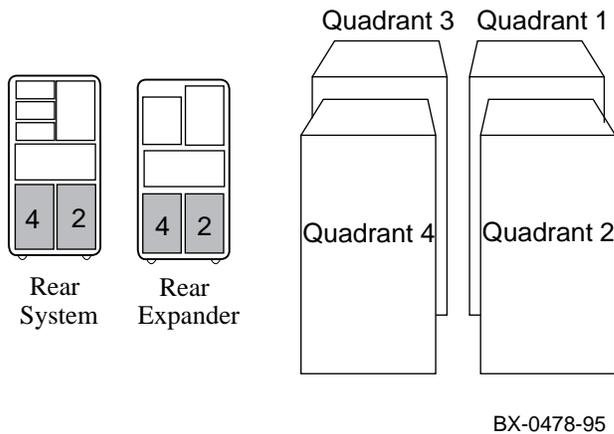
Sections include:

- DWLPA PIU Placement and Configuration Rules
- Installation Flowchart

1.1 DWLPA PIU Placement and Configuration Rules

The DWLPA PIU takes up one quadrant in the bottom rear of either a system or expander cabinet. The PIU is installed in either the right or left rear quadrant of either cabinet.

Figure 1-1 System and Expander Cabinet DWLPA PIU Placement



NOTE: Some options require more than one quadrant front to rear. These options are the XMI PIU and the BA655-AA. When a BA655-AB is installed, a DWLPA-AA can be installed behind it.

Figure 1-1 shows the quadrant designation for system and expander cabinets. The DWLPA PIU is installed in the bottom left or right rear quadrant of either cabinet. The following rules apply:

1. DWLPA PIUs in Systems
 - a. Up to two DWLPA PIUs can be in a system cabinet.
 - b. Up to two DWLPA PIUs can be in an expander cabinet.
 - c. With two PCI shelves in each PIU, a system with two expander cabinets could have a maximum of 12 PCIs.
2. PCI Configuration Rules
 - a. Each DWLPA PCI has 12 slots for option modules.
 - b. When the modules of the KFE70 are installed in slots 0 and 2 of the PCI, ten option slots are available for a mixture of PCI and EISA options. Table 1-1 describes the slot usage.

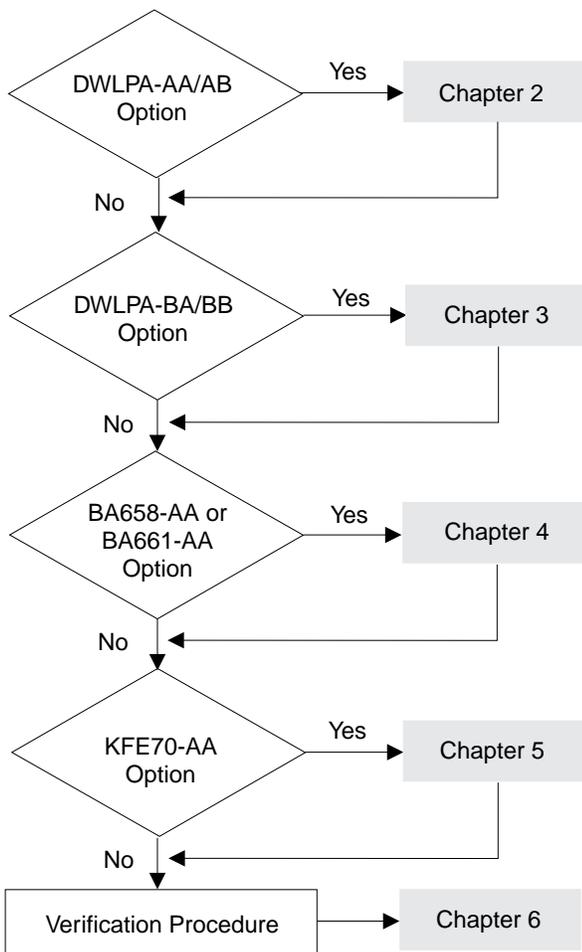
Table 1-1 PCI/EISA Slot Usage

Slot	Usage
0	Standard I/O module (PCI-to-EISA bridge)
1	EISA option only
2	Connector module (floppy, keyboard, and mouse)
3	EISA option only
4	PCI or EISA option
5	PCI or EISA option
6	PCI option only
7	PCI or EISA option
8	PCI or EISA option
9	PCI or EISA option
10	PCI option only
11	PCI or EISA option

1.2 Installation Flowchart

Figure 1-2 charts the installation of the various options covered by this manual. Determine what options you are to install and go to the appropriate chapter and perform the installation.

Figure 1-2 Installation Flowchart



BX-0453-95

Chapter 2

DWLPA PIU Installation

This chapter describes the DWLPA-AA/AB installation.

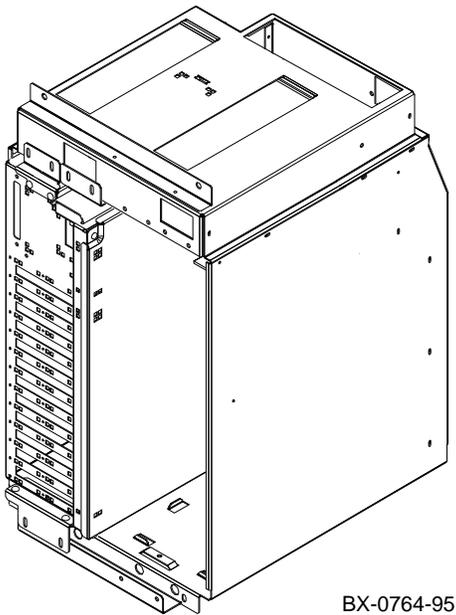
Sections include:

- DWLPA-AA/AB Kit Contents
- Prepare the Cabinet
- Install the PIU Assembly
- Install the Hose Cable

2.1 DWLPA-AA/AB Kit Contents

Figure 2-1 shows the DWLPA PIU. The DWLPA-AA is installed in system cabinets, and the DWLPA-AB is installed in expander cabinets. The only difference between the two kits is the length of the cable that goes from the KFTIA/KFTHA to the PCI.

Figure 2-1 DWLPA PCI PIU



The DWLPA PIU assembly has one PCI I/O subsystem installed. The PIU has space for either another PCI subsystem, a DWLPA-BA/BB, or a StorageWorks shelf, a BA658 or a BA661.

Table 2-1 lists the contents of the DWLPA-AA/AB option.

Table 2-1 DWLPA-AA/AB Kit Contents

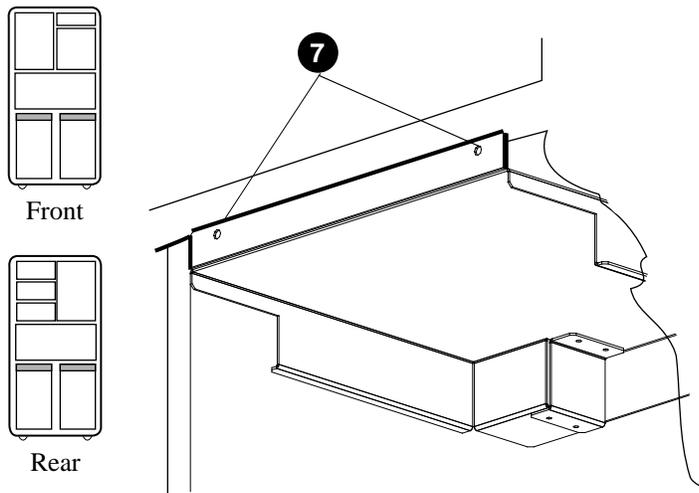
Part Number	Quantity	Description
70-31094-01	1	PCI PIU assembly
17-03085-02	*	1.35 m (4.5 foot) hose cable for the system cabinet (DWLPA-AA variant)
17-03085-01	*	3.0 m (10 foot) hose cable for the expander cabinet (DWLPA-AB variant)

* One hose cable is in each kit.

2.2 Prepare the Cabinet

After you determine which quadrant you want to install the PIU in, remove the airflow plate located below the blower and above that quadrant. See Section 1.1 for quadrant locations.

Figure 2-2 Airflow Plate



BXB-0412B-93

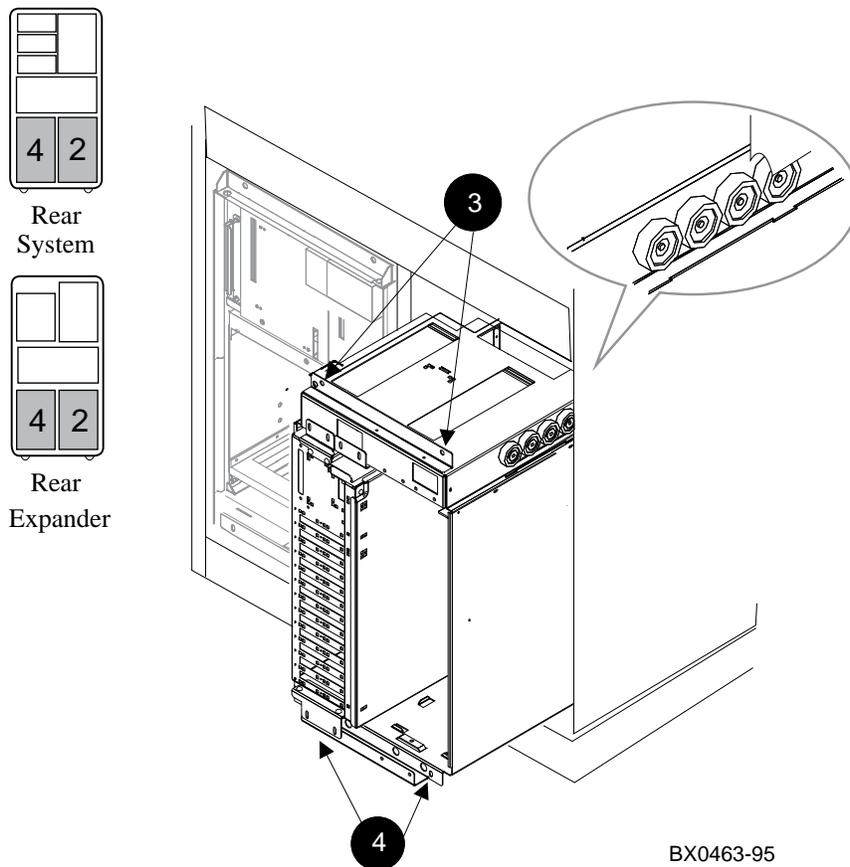
Take the following steps to prepare the system:

1. Perform an orderly shutdown of the system.
2. Turn the keyswitch to Disable.
3. Determine which quadrant will hold the DWLPA PIU. See Section 1.1 for placement rules.
4. Open the rear door of the cabinet. If you are installing the PIU in an expander cabinet, you will need access to the rear of the system cabinet also.
5. Shut the circuit breaker on the AC power box off by pushing down on the breaker. The AC power box is above the blower and to the left in both cabinets.
6. If you are installing the PIU in an expander cabinet, drop the skirts below the rear doors of both cabinets.
7. Remove the airflow plate from the rear of the cabinet (see Figure 2-2) by removing the two screws that hold it in place. Slide the plate out of the cabinet, label, and save. (If the PIU is removed, this plate must be replaced to maintain proper airflow in the cabinet.)

2.3 Install the PIU Assembly

The DWLPA PIU consists of the PCI assembly inside the PIU. Slide the PIU assembly into the cabinet.

Figure 2-3 PIU Assembly Installation



BX0463-95

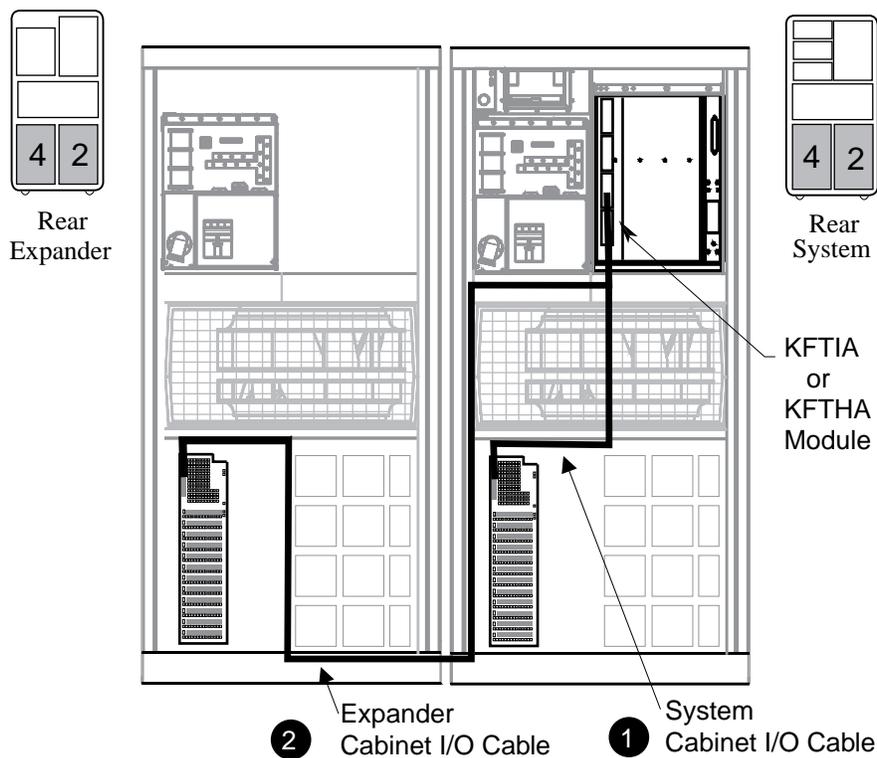
To install the DWLPA PIU:

1. Ground yourself to the cabinet with the antistatic wrist strap from the Electrical Safety Kit.
2. Place the PIU assembly into the cabinet by lining up the rollers on the PIU with the slides in the cabinet. Push the PIU into the cabinet until it seats.
3. Line up and only slightly tighten the two captive screws (Phillips head) at the top of the PIU, ❸ in Figure 2-3.
4. Install the two Phillips head screws removed from the airflow plate at the bottom of the PIU to secure it to the cabinet, ❹. Tighten both the captive screws mentioned in step 3 and the Phillips head screws to 27 inch-pounds.

2.4 Install the Hose Cable

The hose cable, part number 17-03085-02 for the system cabinet or 17-03085-01 for the expander cabinet, connects the DWLPA PCI to the TLSB bus through either the KFTIA or KFTHA. Figure 2-4 shows the cable routing for both system and expander cabinets.

Figure 2-4 Hose Cable Installation and Routing



BX-0464-95

The hose cable is labeled for easy and correct installation. The KFTIA or KFTHA end is labeled IOP, and the opposite end is labeled PIU.

To install the cable:

1. Plug the IOP end of the cable into the hose connection on the KFTIA or KFTHA and secure the end of the cable. Using a torque screwdriver tighten the securing connector screws to 5 or 6 inch-pounds.
2. Route the cable according to Figure 2-4. ❶ shows the routing for the cable in a system cabinet, and ❷ shows the routing for a cable to an expander cabinet. The cable comes down from the blower plenum cable hanger to connect to the DWLPA PCI shelf high on the left. Tighten the connector screws to 6 inch-pounds.
3. Once the cable has been installed, replace the skirt at the back of the cabinet.

At this point the DWLPA-AA/AB installation is complete. If you are not installing other options, proceed to Chapter 6, Verification Procedure. Otherwise continue with the installation.

Chapter 3

DWLPA–BA/BB Installation

This chapter describes installation of a second PCI shelf in a DWLPA PIU.

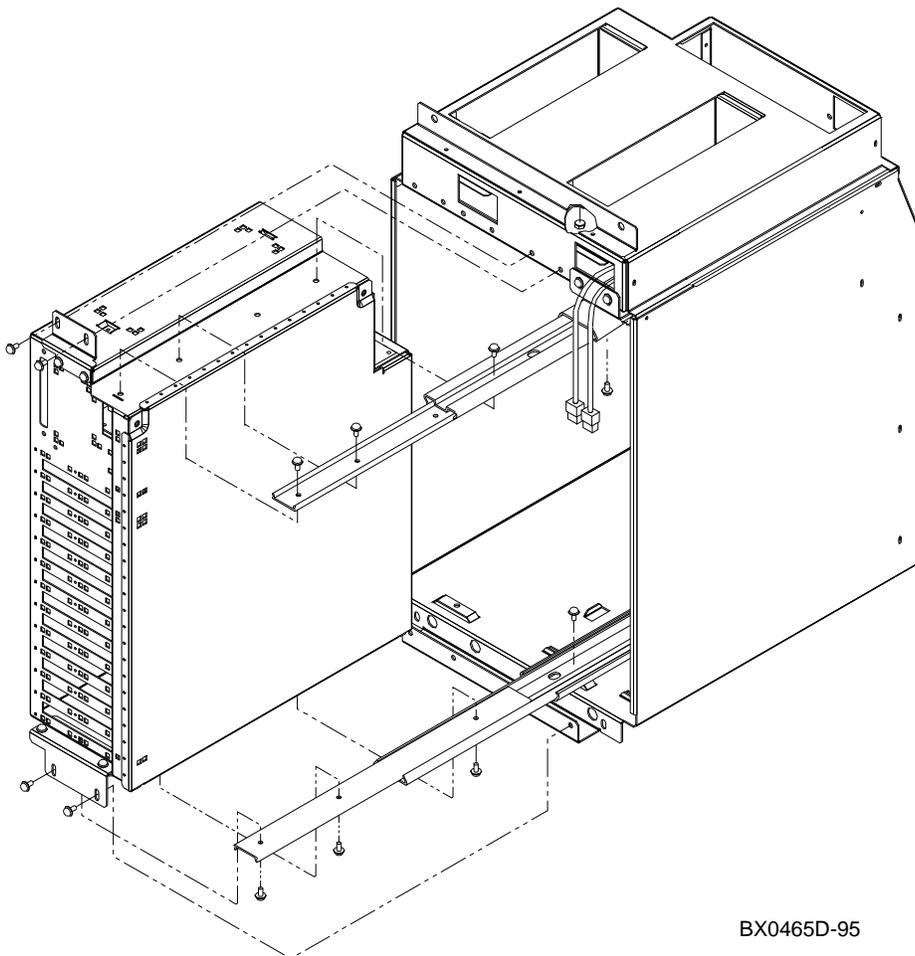
Sections include:

- DWLPA–BA/BB Kit Contents
- Install the Airflow Plenum in the DWLPA PIU
- Install PCI Slides in the DWLPA PIU
- Prepare the PCI Shelf
- Place the PCI Shelf into the PIU
- Connect Cables to the PCI

3.1 DWLPA–BA/BB Kit Contents

Figure 3-1 shows the DWLPA–BA/BB assembly. The DWLPA–BA is installed in a DWLPA–AA, and a DWLPA–BB is installed in a DWLPA–AB. The only difference between the two kits is the length of the hose cable that goes from the KFTIA/KFTHA to the PCI shelf.

Figure 3-1 DWLPA—BA/BB Assembly



BX0465D-95

The DWLPA PIU has space for another PCI shelf or a StorageWorks shelf. The DWLPA-BA/BB is the option that is installed in the PIU.

Table 3-1 and 3-2 list the contents of the two kits.

Table 3-1 DWLPA-BA/BB Kit Contents

Part Number	Quantity	Description
70-31938-01	1	PCI expansion kit
17-03085-02	*	1.35 m (4.5 foot) hose cable for the system cabinet (DWLPA-BA variant)
17-03085-01	*	3.0 m (10 foot) hose cable for the expander cabinet (DWLPA-BB variant)
* One hose cable is in each kit.		

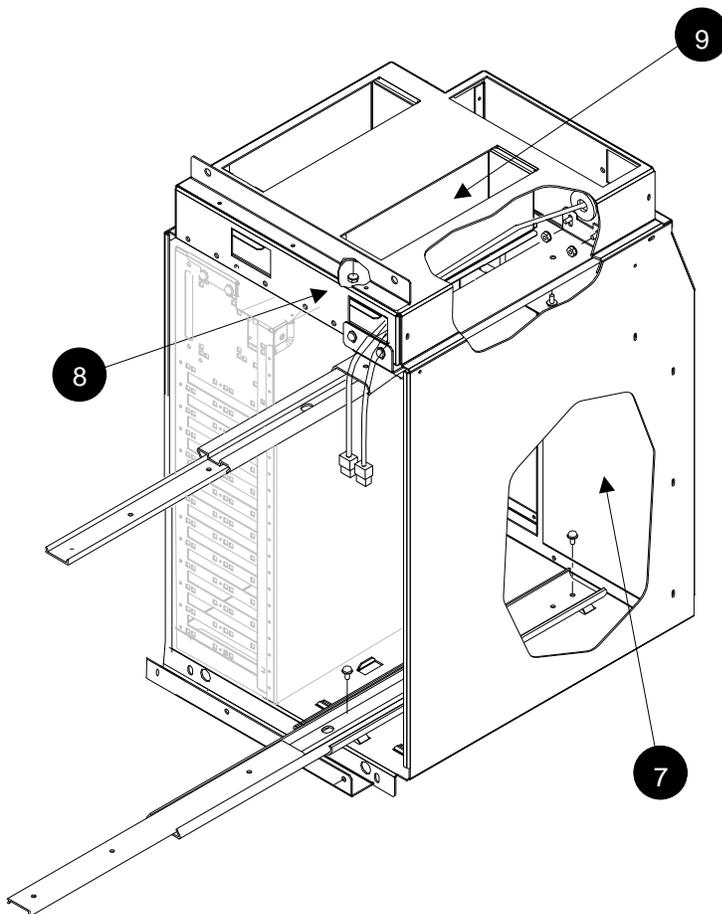
Table 3-2 PCI Expansion Kit Contents

Part Number	Quantity	Description
70-31092-01	1	PCI assembly
74-48357-01	1	Plenum top
74-48370-01	1	Bracket, top PCI mounting
74-48371-01	1	Bracket, bottom PCI mounting
74-48377-01	1	Bracket, top PIU support
12-43353-01	1	Chassis slide, ball bearing, 12" long
12-43353-02	1	Chassis slide, ball bearing, 14" long
90-40203-02	3	7 mm kepnuts
12-42893-01	2	Connector jumpers, MTA, 3 position
74-48366-01	1	Cover, rear airflow
90-06035-01	10	8-32 pan machine screws without washers
90-09984-19	10	Screws with attached washers, 8 mm

3.2 Install the Airflow Plenum in the DWLPA PIU

Preparing the DWLPA PIU to accept a second PCI requires the installation of an airflow plenum and slide rails. This section covers the airflow plenum installation.

Figure 3-2 Airflow Plenum Installation



BX0465A-95

Take the following steps to prepare the system and the PCI:

1. Perform an orderly shutdown of the system.
2. Turn the keyswitch to Disable.
3. Determine which PCI PIU will house a second PCI.
4. Open the rear door of the cabinet. If you are installing the DWLPA–BB in an expander cabinet, you will need access to the rear of the system cabinet also.
5. Shut the circuit breaker on the AC power box off by pushing down on the breaker. The AC power box is above the blower and to the left in both cabinets.
6. If you are installing the DWLPA–BB in the expander cabinet, drop the skirts below the rear doors of both cabinets.
7. Remove the airflow cover plate at the back of the PIU using a Phillips head screwdriver. The bottom of the plate is held in place by a bend in the sheet metal. The two screws that hold the cover in place are on the top flange to the right and left of center. ⑦ in Figure 3-2 points to the cover plate.
8. Using a 7 mm socket, remove the airflow plate at the top of the PIU. One nut holds the plate in place. See ⑧.
9. Load a 7 mm nut into a socket wrench and install the top airflow plenum (74-48357-01) in place of the plate you just removed. ⑨ points to the airflow plenum.

Before the PCI shelf can be placed in the PIU, slides must be installed. There are two slides; the top slide needs to be assembled. For the slides to work properly, use only the screws provided **without washers attached** when securing any part of the slides.

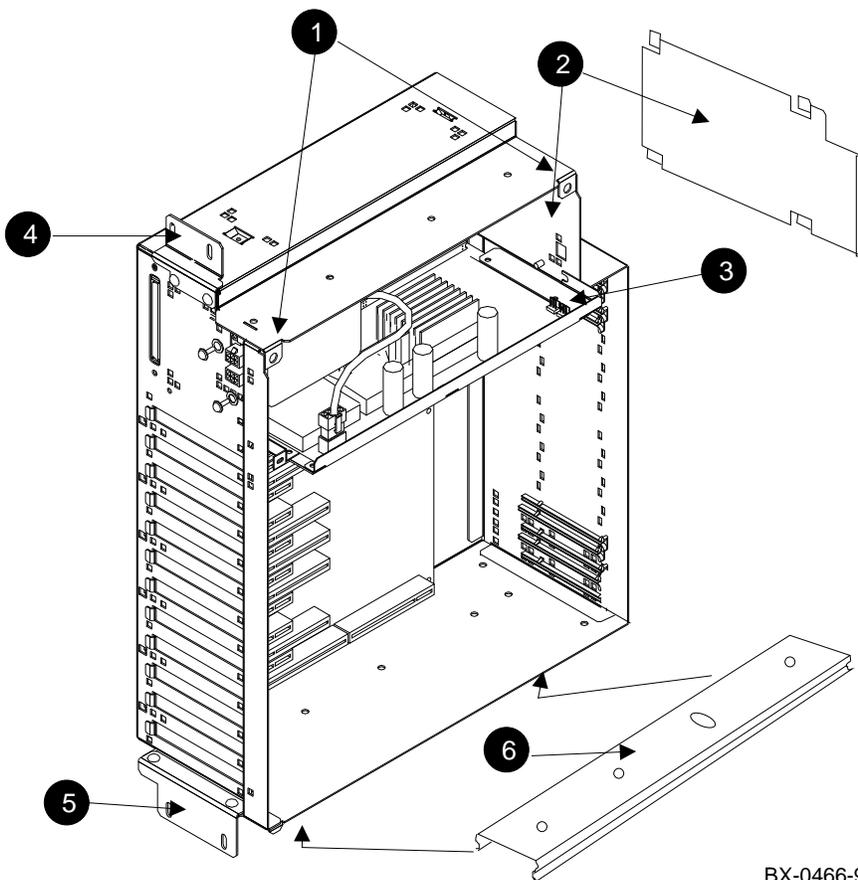
To install the slides:

1. The top slide, the shorter one, requires assembly. Using two 8-32 Phillips head screws (90-06035-02) mount the 12", shorter chassis slide to the top support bracket (74-48377-01). The top support bracket (❶ in Figure 3-3) has two flanges; one is rectangular, the other is notched. The slide telescopes from wide to narrow sliding elements and has stops that prevent it from coming apart. Attach the bracket to the wider element of the slide so that the notched flange of the bracket is next to the stop of the wide element of the slide. See ❶.
2. Place the assembled top slide into the PIU. The notched flange of the top support bracket hangs off two press bolts above the airflow plenum at the back and to the right in the PIU. Hold the slide in place by screwing the bracket to the front of the PIU using two 8 mm screws with washers (90-09984-19). Raise the slide to its highest position and loosely tighten — you will be adjusting this later. See ❷.
3. Secure the back of the slide to the press bolts using two 7 mm nuts. Since these bolts are hard to reach, put a 7 mm socket on an 18" extension (made up of your 6" and 12" socket wrench extensions) on your socket wrench. Place a nut into the socket and thread the extension through the power cord aperture at the front of the PIU to reach the press bolts. Lift the slide and loosely tighten. Leave the slide pushed in. See ❸.
4. The bottom slide, the longer one, requires disassembly. Take it apart by pulling the narrowest sliding element out until it locks. Press the lock on the underside of the narrow element and pull it off. With the slide extended, secure the bottom part of the slide to the bottom of the PIU with two 8-32 Phillips head screws without washers. Place the slide so that it extends out of the PIU. Insert the screws at the front and back of the slide. See ❹.

3.4 Prepare the PCI Shelf

Before the PCI shelf can be placed in the PIU, the bottom slide and the two mounting brackets must be attached to the box, the two jumpers have to be installed on the power module daughter card, and the airflow plate placed in the box.

Figure 3-4 Preparing the PCI Shelf



BX-0466-95

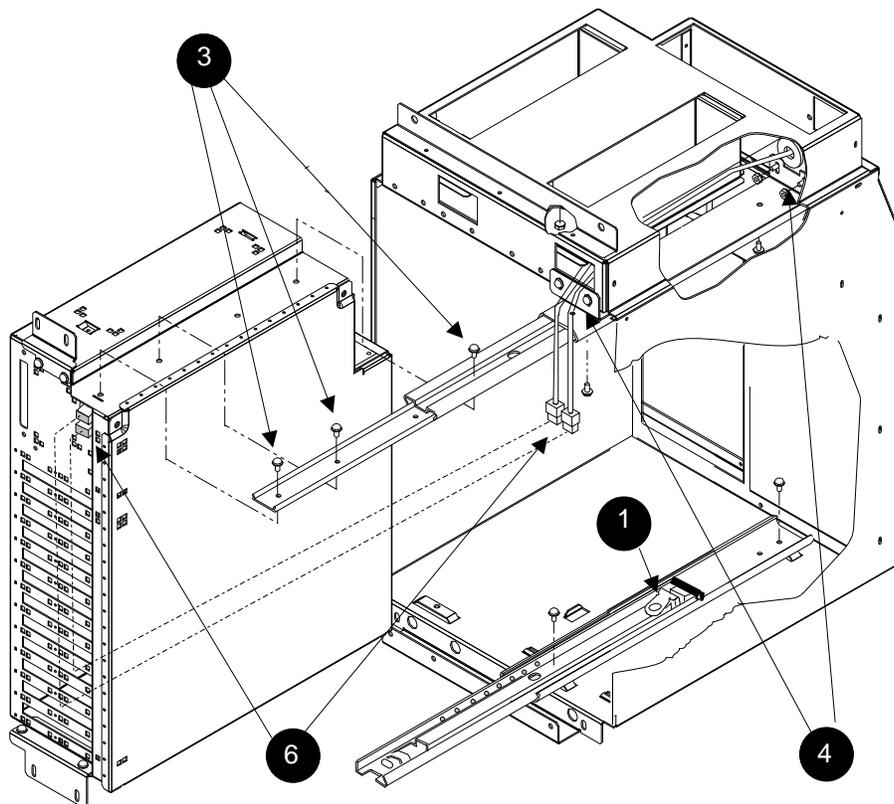
To prepare the PCI shelf for installation, do the following:

1. Remove the side cover by loosening the two Phillips head quarter-turn screws (see ❶ in Figure 3-4) and lifting the cover's edge away from the box. Set aside the cover.
2. Place the rear airflow cover (74-48366-01) over the grate above and to the right of the power board. The cover has four Z bends that hook the cover to the grate. See ❷.
3. Insert the two jumpers (12-42893-01) on the power board. See ❸.
4. Using two 8 mm Phillips head screws with washers, attach the top PCI mounting bracket (74-48370-01) to the box. See ❹.
5. Using two 8 mm Phillips head screws with washers, attach the bottom PCI mounting bracket (74-48371-01) to the box. See ❺.
6. Using three 8 mm Phillips head screws **without** washers, attach the narrow sliding element from the bottom slide to the bottom of the PCI shelf. Place the slide on the box so that the lock opens toward the front of the box. See ❻.

3.5 Place the PCI Shelf into the PIU

With the slides and airflow controls in place in the PIU and the PCI shelf ready, the next step is to place the PCI shelf into the PIU.

Figure 3-5 Place the PCI into the PIU



BX0465C-95

To install the PCI shelf in the PIU, do the following:

1. Pull the middle piece of the bottom slide out and lock it. The lock mechanism is at the far end of the middle piece and pivots either left or right locking the piece out. See ❶ in Figure 3-5.
2. Place the PCI shelf on the bottom slide. To do this, kneel on the floor, pick up the PCI shelf, lower your head so you can mate the middle part of the slide protruding from the PIU with the part of the slide you placed on the PCI shelf. When the two are aligned, push the slide together until it locks.
3. Extend the top slide fully. Loosen the two screws holding the slide up and with the remaining three 8 mm screws without washers, secure the narrowest part of the top slide to the top of the PCI box. See ❸.
4. Unlock the top and bottom slides by depressing the locks and push the shelf into the PIU. Tighten the nuts securing the back of the top slide to the PIU as you did in Section 3.3 step 2 and tighten the screws securing the front of the slide hanger. See ❹.
5. Pull the PCI shelf out (lock the middle sliding mechanism as described in step 1) and install options the customer has ordered.

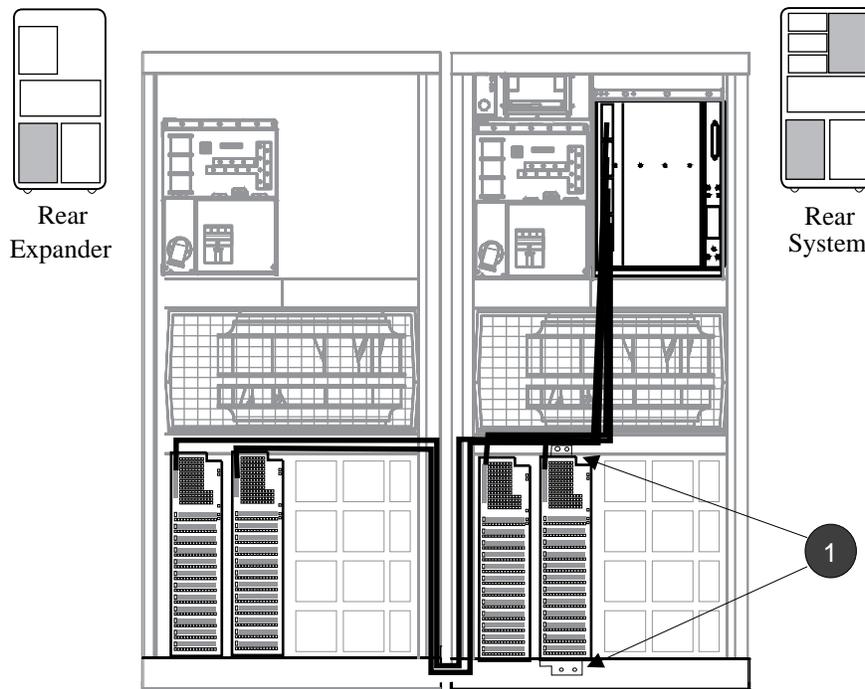
NOTE: You have been working with greasy slides. To prevent poor electrical connections, clean your hands before you start handling options.

After installing options, place the cover back on the shelf and tighten the two Phillips head quarter-turn screws.

3.6 Connect Cables to the PCI

The final steps of the installation are to secure the PCI in the PIU and to connect the I/O hose and the power cables.

Figure 3-6 Cable the PCI



BX0467-95

Complete the installation by attaching cables and securing the PCI to the PIU.

1. Secure the PCI to the PIU using four 8 mm Phillips head screws with washers. See ❶ in Figure 3-6.
2. Secure the end of the cable (17-03085-01 or -02) marked IOP to a hose connector on the KFTIA or the KFTHA using a flathead torque screwdriver (torque to 6 inch-pounds). Figure 3-6 shows the cable routing in system and expander cabinets.
3. Route the cable according to Figure 3-6 and secure the end of the cable marked PIU to the PCI hose connection. Use the same torque as in step 2.
4. Connect the two power connectors to the PCI. See ❷ in Figure 3-5.
5. Replace the skirts on the cabinets.

At this point this installation is complete. Continue with more installations or proceed to Chapter 6, Verification Procedure.

Chapter 4

StorageWorks Shelf Installation

This chapter describes installation of the BA658 or BA661 shelf into a DWLPA PIU.

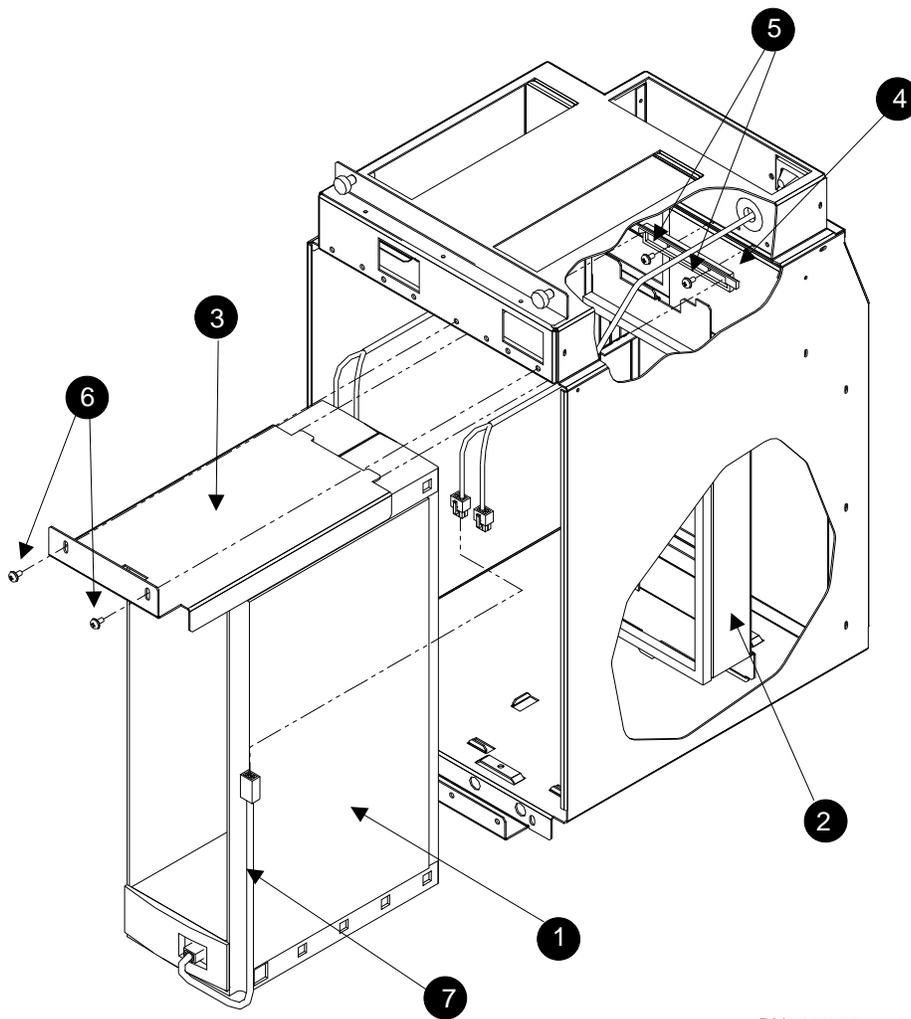
Sections include:

- BA658/BA661 Kit Contents
- Prepare the PIU for the StorageWorks Shelf
- Install the StorageWorks Shelf

4.1 BA658/BA661 Kit Contents

Figure 4-1 shows the BA658/BA661 assembly.

Figure 4-1 BA658/BA661 StorageWorks Shelf Assembly



BX0469-95

The DWLPA PIU can contain a BA658 or a BA661 StorageWorks shelf. Table 4-1 lists the contents of these options. The callouts in Table 4-1 refer to those in Figure 4-1. The BA658 shelf contains an 8-bit single-ended, physical SCSI bus. The BA661 shelf contains a 16-bit, single-ended, physical SCSI bus.

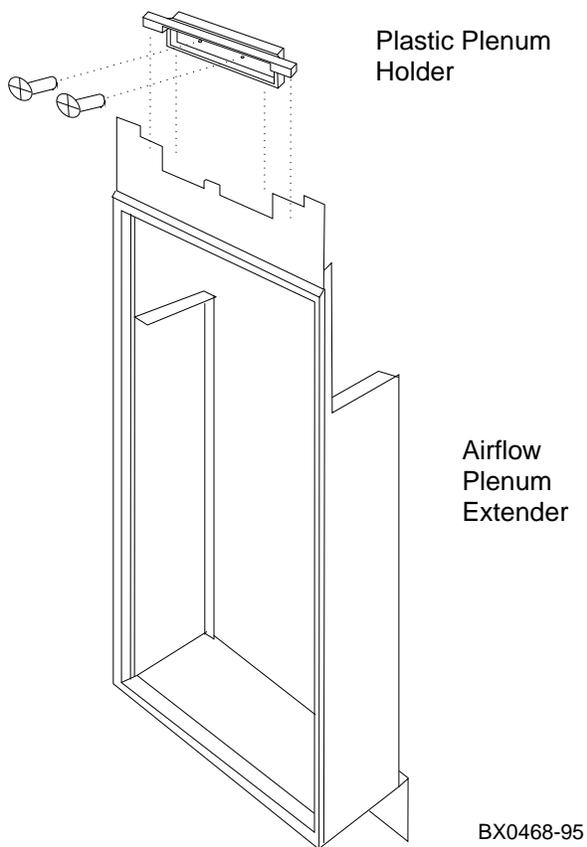
Table 4-1 BA658-AA/BA661-AA Kit Contents

Part Number	Quantity	Description
❶ BA350-LB BA356-LB	*	BA350 StorageWorks shelf without fans BA356 StorageWorks shelf without fans
❷ 74-48378-01	1	Bracket, plenum extender
❸ 74-48486-01	1	Tray, PCI-PIU
❹ 74-45445-01	1	Holder, S-PIU
❺ 90-09984-21	2	Screw, sems M3 pan 10 mm xracs
❻ 90-09984-19	2	Screw, sems M4 pan 8 mm xracs
❼ 17-04044-01	1	Wire cable assembly, 04 conductor, 16/22 AWG
* The BA658-AA contains a BA350-LB StorageWorks shelf, and the BA661-AA contains a BA356-LB StorageWorks shelf.		

4.2 Prepare the PIU for the StorageWorks Shelf

The PIU airflow constraints must be changed for the BA658 or the BA661. Figure 4-2 shows the airflow extension plenum to be installed in the PIU.

Figure 4-2 Airflow Plenum



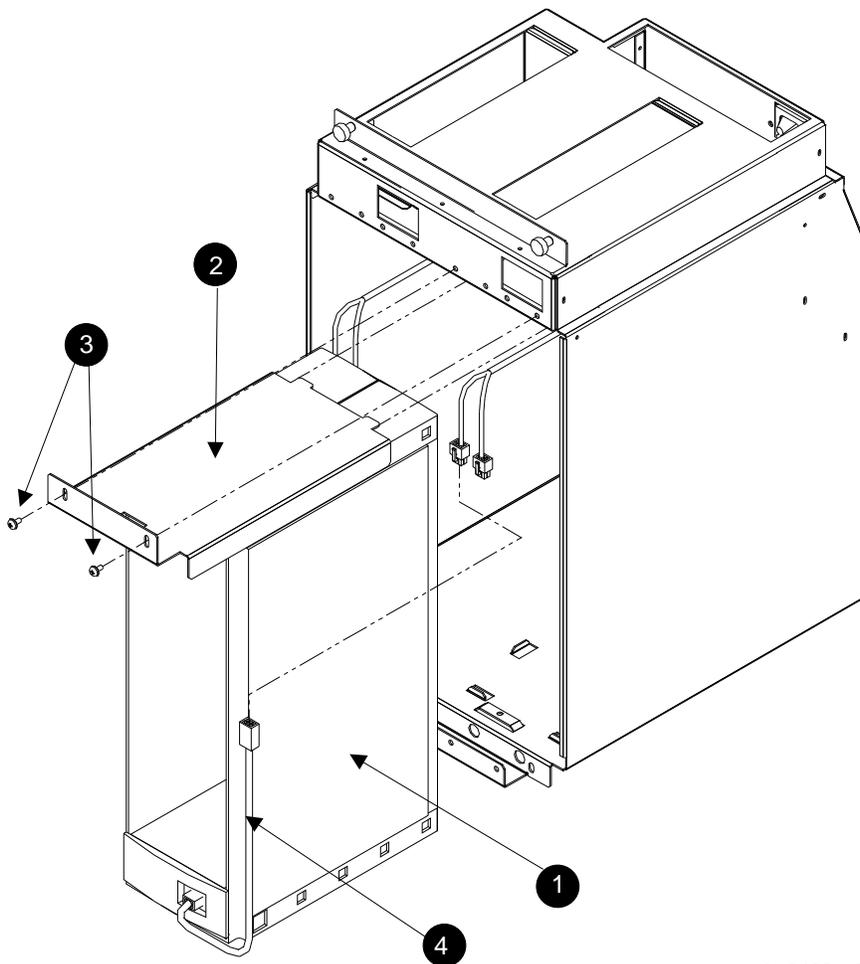
For air to properly cool the StorageWorks shelf, an airflow plenum must be installed.

1. Remove the airflow cover plate at the back of the PIU using a Phillips head screwdriver. The bottom of the cover plate is held in place by a bend in the sheet metal. The two screws that hold the cover in place are on the top flange to the right and left of center. See ⑤ in Figure 4-1.
2. Install the airflow plenum by screwing the plastic holder to the back of the PIU so the metal of the top of the plenum is sandwiched between the PIU and the flanges on the plastic holder. Do not use the screws removed in step 1; instead replace them with the longer ones from the kit (90-09984-21). See Figure 4-2 and callouts ② and ④ in Figure 4-1.

4.3 Install the StorageWorks Shelf

Slide the StorageWorks shelf into the DWLPA PIU. Secure the shelf with the retaining tray and connect the power cable assembly.

Figure 4-3 StorageWorks Shelf Installation



BX0469A-95

The remaining tasks to install the BA658 or BA661 are to slide the shelf into the PIU, secure it with the retaining tray, and connect the power cable. Refer to option documentation to install devices in the shelf and to install options in the system.

Refer to Figure 4-3 while performing the installation.

1. Slide the StorageWorks shelf into place making sure the power cable harness is out of the way and protrudes from the PIU. See ❶.
2. Slide the tray holder (74-48486-01) between the top of the shelf and the PIU as shown in Figure 4-3. The tabs at the back of the tray rest on the plastic air plenum holder. See ❷.
3. Using the two M4 screws, secure the tray to the top of the PIU. See ❸.
4. Connect one end of the power cable assembly (17-04044-01) to the PIU power harness and connect the other end to the power supply at the bottom of the StorageWorks shelf. The PIU power harness has two connectors; either can be used. Push the unused connector back into the PIU. See ❹.

Chapter 5

KFE70-AA Installation

This chapter describes installation of the KFE70.

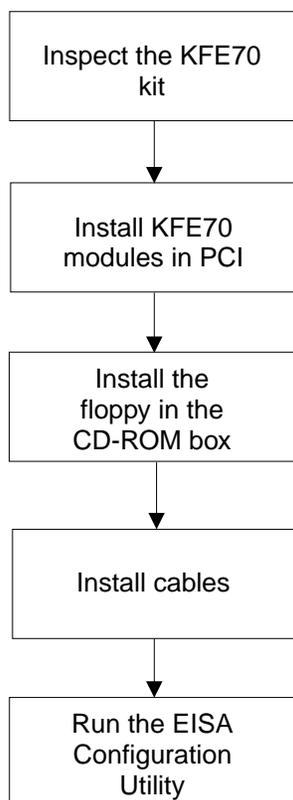
Sections include:

- KFE70-AA Kit Contents
- Install KFE70 Modules
- Remove the CD-ROM Box
- Install the Floppy Drive
- Prepare the CD-ROM Box for Installation
- Replace the CD-ROM Box
- Install Cables from the PCI to the CD-ROM Box
- Run the EISA Configuration Utility
- Ferrite Sleeve Installation

5.1 KFE70-AA Kit Contents

The KFE70 is a PCI-to-EISA bridge installed in a PCI I/O subsystem. Since EISA options require software utility support supplied on floppy disks, this option includes a floppy drive.

Figure 5-1 Installation Flowchart



BX0474-95

Table 5-1 lists the contents of the KFE70 option kit.

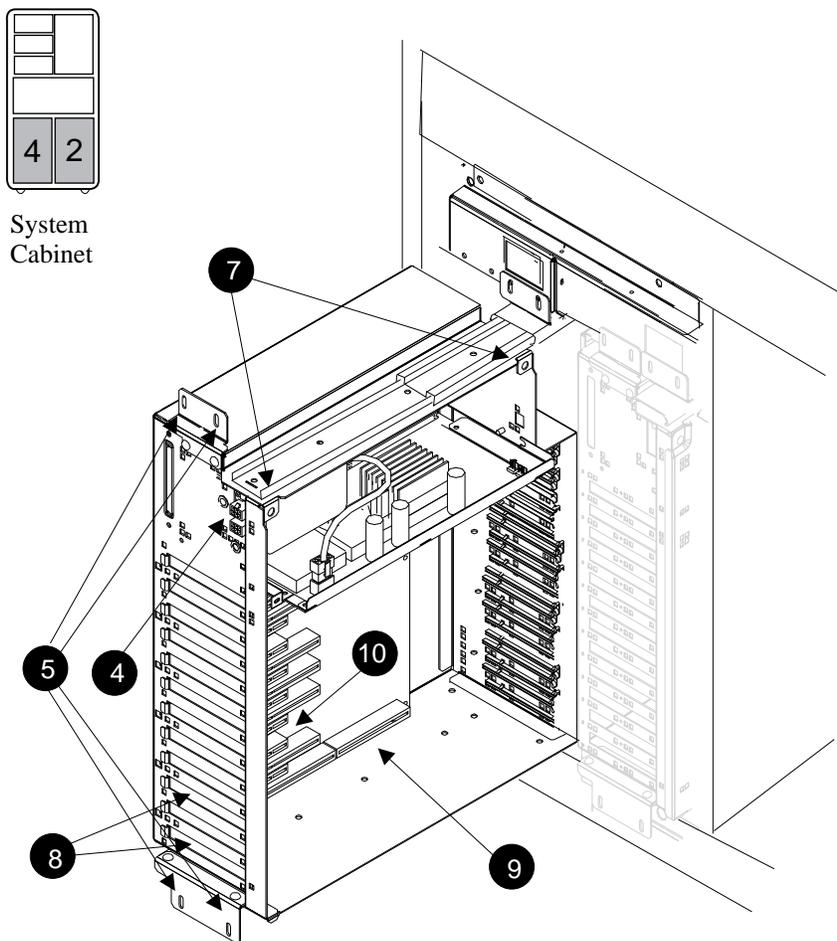
Table 5-1 KFE70-AA Kit Contents

Part Number	Quantity	Description
RX26-AA	1	2.8 Mbyte, 3.5" diskette drive
B2110-AA	1	PCI-to-EISA bridge module
54-23491-01	1	Connector module
17-04115-01	1	Cable assembly, flat, 34 cond (bridge to connector)
17-04116-01	1	Cable assembly, flat, 60 cond (bridge to connector)
17-04100-02	1	Signal cable, RX26, internal to the CD-ROM box
BN21H-02	1	Signal cable, RX26, connector module to CD-ROM box
74-48827-01	1	Floppy bezel
17-04101-02	1	Power cable internal to the CD-ROM box
17-04178-02	1	Power cable, connector module to CD-ROM box
16-25105-14	1	Ferrite sleeve
90-10556-04	4	Screw, machine M3 pan 6 mm (floppy to floppy holder)
12-41427-01	2	Screw, machine 4-40 pan 0.25 (signal cable to CD-ROM box)
QC-01YAA-HC	1	Software EISA configuration kit

5.2 Install KFE70 Modules

Two modules need to be installed in the PCI I/O subsystem, the PCI-to-EISA bridge and the connector module.

Figure 5-2 KFE70 Module Installation



BX0466A-95

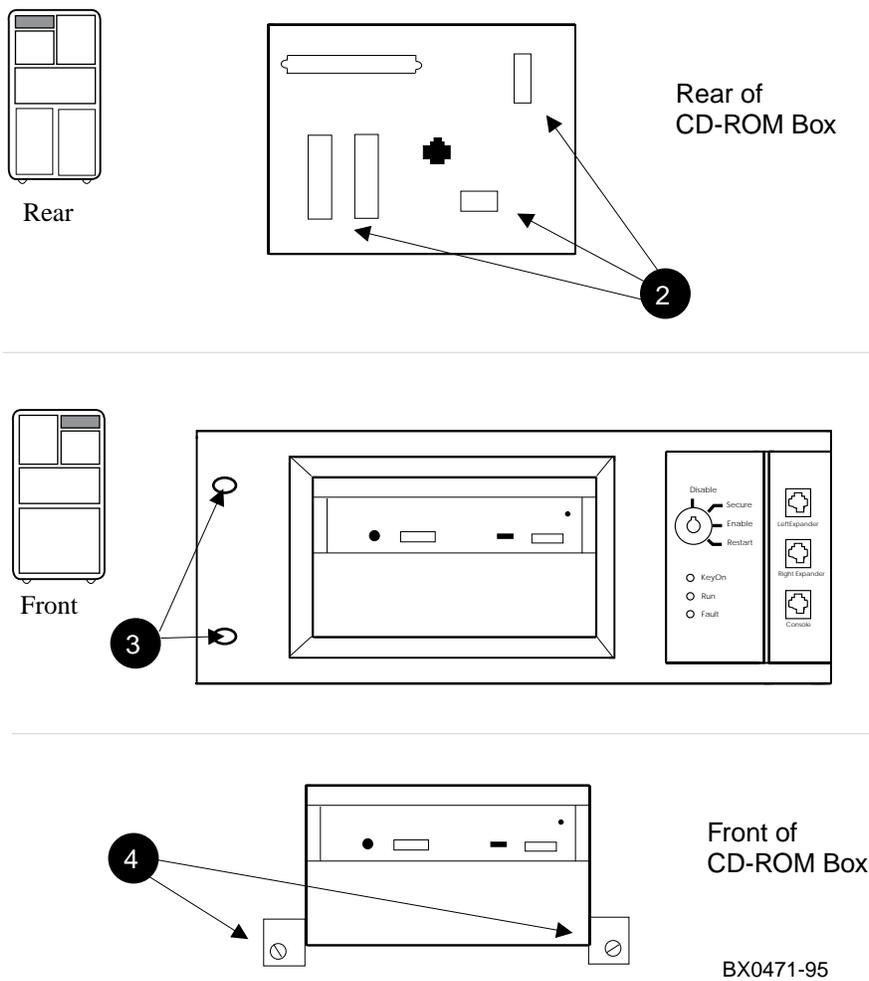
To install the two KFE70 modules:

1. Perform an orderly shutdown of the system and turn the system off using the keyswitch on the control panel.
2. The KFE70 must be placed in the system cabinet.
3. Open the rear door and open the circuit breaker(s).
4. Disconnect the power cables, ④ in Figure 5-2, the I/O hose if necessary, and any other cables that will prevent the PCI shelf from being pulled out.
5. Remove the four Phillips head screws that hold the shelf in the PIU. See ⑤.
6. Pull the shelf out fully.
7. Remove the side cover by loosening the two quarter-turn screws (see ⑦), tilting the top of the cover away from the shelf, and then lifting the cover off the shelf.
8. Remove the face plates from slots 0 and 2 and any other slots you plan to use for PCI or EISA options (see ⑧). The face plates are held in place by a Phillips head screw on the inside right front edge of the card cage. See Table 1-1 for slot usage rules.
9. Install the B2110-AA module in slot 0 (see ⑨). Secure the module to the card cage with a screw removed in step 8.
10. Install the connector module in PCI slot 2 (see ⑩). (The reason PCI slot 2 is used is to allow the use of EISA slot 1.) Secure the module to the card cage with a screw removed in step 8.
11. If you have an EISA or PCI option to go in slot 1, place it there now.
12. Connect the two ribbon cables, 17-04115-01 and 17-04116-01, between the B2110-AA and the connector module. The two cables, one a 34 pin and the other a 60 pin, are keyed to the connectors on the modules.
13. If you have other EISA or PCI options, install them in the shelf now. Be sure to secure the options you install using the screws you removed in step 8.
14. Place the cover back on the PCI shelf and tighten the two quarter-turn screws.
15. Push the shelf back into the PIU by depressing the locks on the slides and sliding the shelf back into the system. The lock on the top slide is easy to see, the one on the bottom you have to feel for.
16. Replace the four Phillips head screws that hold the shelf in place.
17. Replace the power cables to the shelf.
18. Replace any other cables removed from the shelf in step 4.

5.3 Remove the CD-ROM Box

The CD-ROM box must be removed to install the floppy drive in it.

Figure 5-3 CD-ROM Box Removal



At the rear of the system

1. Remove the cover plate (74-42903-01) in the upper left hand corner of the system cabinet exposing the back of the CD-ROM box. Remove the three Phillips head screws holding the plate in place.
2. Disconnect the three cables from the back of the CD-ROM box. See ❷ in Figure 5-3. Note that the cable to the CD-ROM could be connected to either SCSI connector at the back of the box; the other connector holds a terminator.

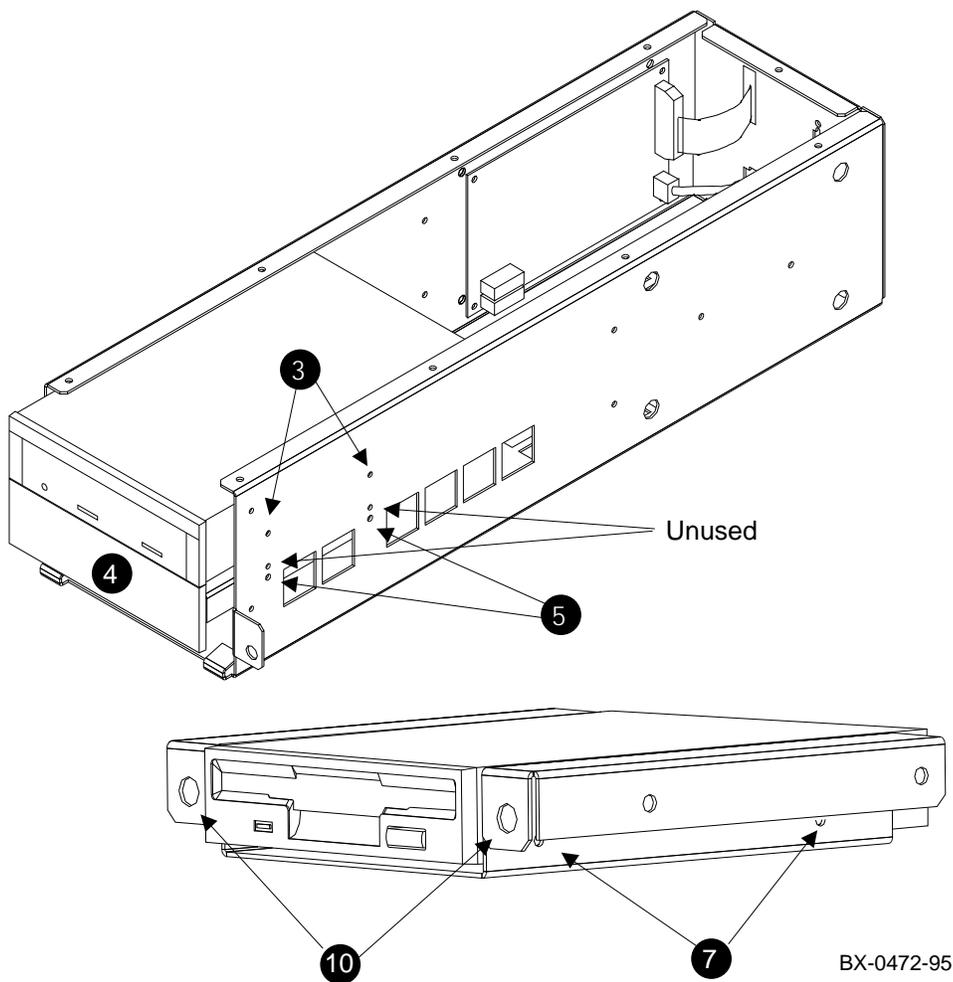
At the front of the system

1. Remove the two Phillips head screws holding the control panel to the system. See ❸ in Figure 5-3.
2. Pull the left side of the panel away from the system about two inches and then pull it gently to the left. The flange securing the right side of the panel will disengage. Disconnect the cable that goes from the panel to the CCL and put the panel aside.
3. Loosen the two slotted captive screws holding the CD-ROM box in the system. (See ❹.)
4. Slide the CD-ROM box forward and remove it from the system.

5.4 Install the Floppy Drive

To install the floppy drive, the CD-ROM and floppy mounting bracket must be removed from the CD-ROM box. The floppy drive is then placed in the bracket and both drives are placed in the CD-ROM box.

Figure 5-4 Floppy Drive Installation



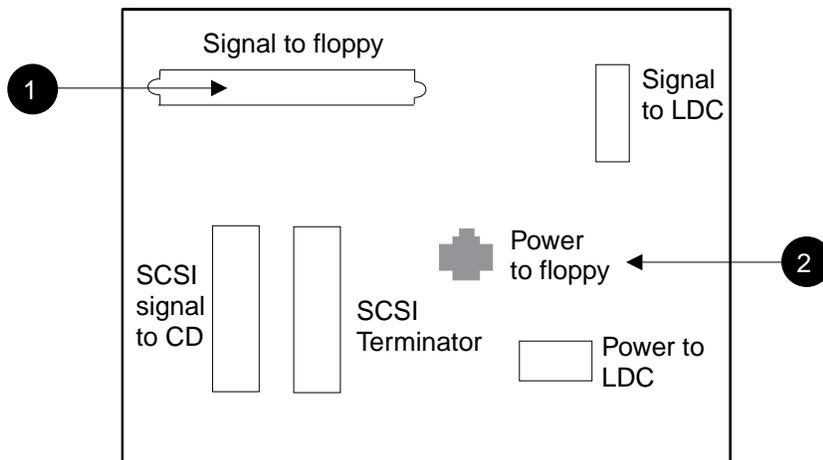
To install the floppy drive in the CD-ROM box:

1. Remove the top of the CD-ROM box by removing the Phillips head screws holding it in place.
2. Disconnect the signal and power cables at the back of the CD drive.
3. Remove the CD drive by removing the four Phillips head screws holding it in place. See ❸ in Figure 5-4.
4. Pry off the plastic filler panel (❹) using a flathead screwdriver.
5. Remove the floppy mounting bracket from the CD-ROM box by removing the four Phillips head screws holding it in place. See ❺.
6. Set the mode switch on the floppy drive to 1. The mode switch is located on the right slide of the drive at the back corner. **Be sure you have done this before doing step 7**, since the mounting bracket covers the switch.
7. Place the floppy drive in the mounting bracket as shown in Figure 5-4 and secure it to the bracket with the four screws (90-10556-04) provided in the kit. Be sure to orient the drive correctly to the bracket. See ❽.
8. Place the floppy drive and mounting bracket into the CD-ROM box and secure with the four screws you removed when you took out the bracket. Use the lowest mounting holes (❾).
9. Place the CD drive back in the CD-ROM box above the floppy drive and secure with the four screws you removed in step 3.
10. Snap the floppy bezel (16-25105-01) in place around the floppy drive in front of the CD-ROM box. The snaps go into the holes. See ❿.

5.5 Prepare the CD-ROM Box for Installation

Install the cables in the CD-ROM box that connect to the floppy drive and reconnect those disconnected from the CD drive. Replace the CD-ROM box cover.

Figure 5-5 CD-ROM Box (Rear)



BX-0473-95

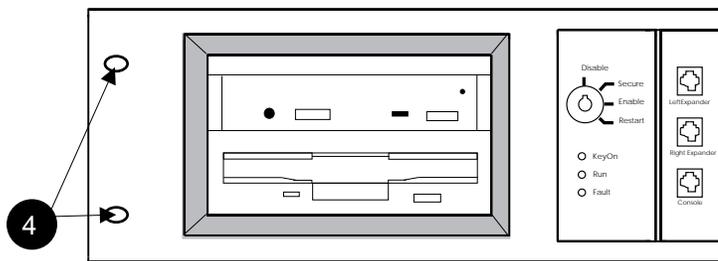
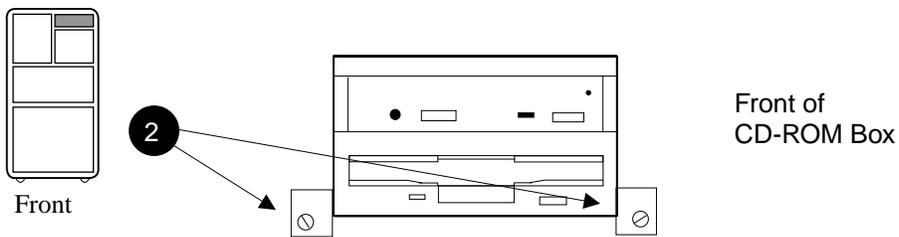
To prepare the CD-ROM box for installation:

1. Identify cable 17-04100-02. Insert the connector end into the right side of the back of the floppy drive; mount the other end using the two mounting screws (12-41427-01) to the back of the CD-ROM box. See **❶** in Figure 5-5.
2. Identify cable 17-04101-02. Insert the connector end into the left side of the back of the floppy drive; snap the other end onto the back of the CD-ROM box. See **❷**.
3. Reconnect the two cables removed from the CD drive. The power cable comes from the LDC on the side of the CD-ROM box, and the signal cable comes from the back of the CD-ROM box.
4. Replace the cover on the CD-ROM box.

5.6 Replace the CD-ROM Box

Place the CD-ROM box back in the system and replace the control panel.

Figure 5-6 CD-ROM Box Replacement



BX0471B-95

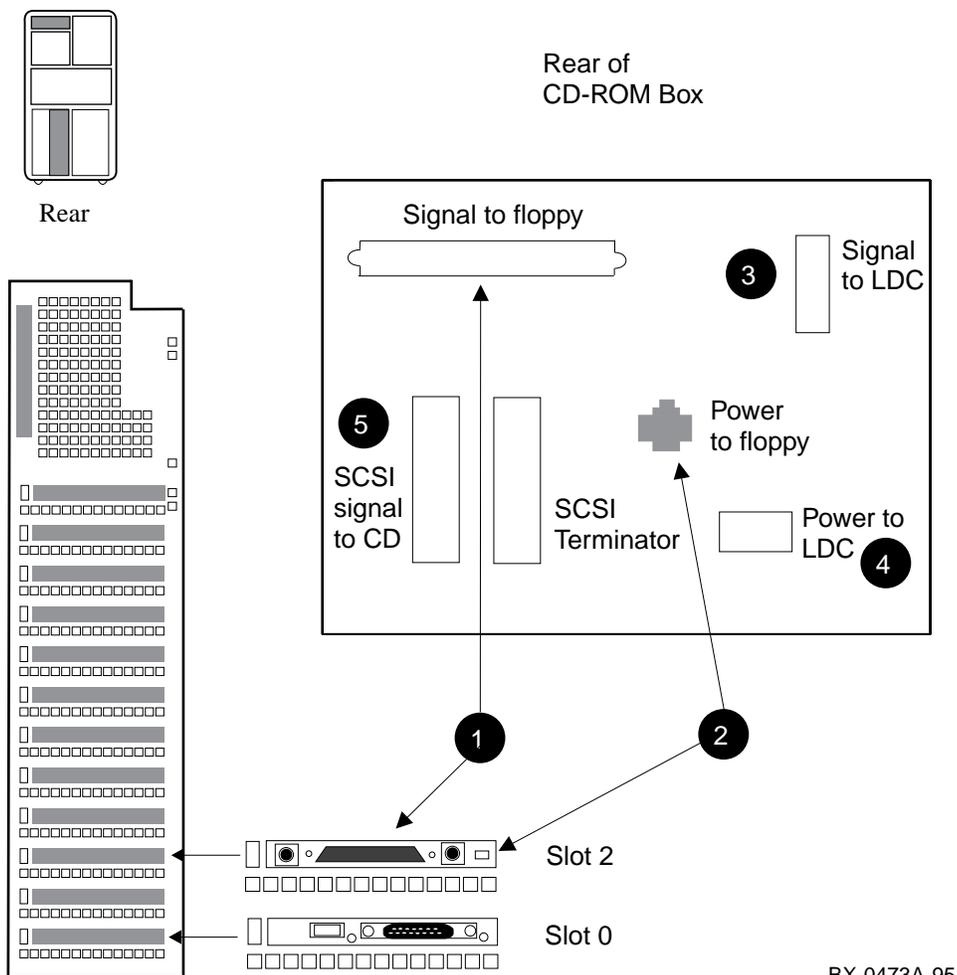
To replace the CD-ROM box:

1. Slide the CD-ROM box back into the system.
2. Secure the box with the two flathead screws you removed earlier. See ❷ in Figure 5-6.
3. Attach the signal cable from the CCL to the back of the control panel.
4. Replace the control panel and secure with the two screws removed earlier. See ❹.

5.7 Install Cables from the PCI to the CD-ROM Box

Install cables between the CD-ROM box and the connector module in the PCI. Reconnect the cable controlling the CD-ROM drive and replace the cover plate.

Figure 5-7 Cable Installation



BX-0473A-95

To complete the installation:

1. Install the floppy signal cable (BN21H-02) from the connector module to the back of the CD-ROM box. See ❶ in Figure 5-7.
2. Install the power cable (17-04178-02) from the connector module to the back of the CD-ROM box. See ❷.
3. Reconnect the signal cable to the LDC, ❸.
4. Reconnect the power cable to the LDC, ❹.
5. Reconnect the SCSI signal cable for the CD drive (see ❺).
6. Replace the cover plate (74-42903-01).
7. Close the circuit breaker and power up the system.

5.8 Run the EISA Configuration Utility

Since you just installed a KFE70, the PCI-to-EISA bridge, you probably installed an EISA option or two. You will need to run the EISA Configuration Utility (ECU) to configure the EISA bus. The console will tell you if this is necessary. ECU comes on a floppy in the kit.

Example 5-1 Running ECU

Power on the system ②

[console display appears]

AlphaServer 8400 Console V1.0, SR0M V1.0, Apr 1 1995 00:00:00

EISA Configuration Error - run the EISA Configuration Utility. ③

P01>>> set arc_enable on ④

P01>>> initialize ⑤

[console display appears]

P01>>> runecu ⑥

The EISA Configuration Utility (ECU) comes on a floppy, has online help, and configures the EISA bus. The **arc_enable** environment variable must be on and in effect for ECU to run. There are two versions of the utility, one that runs on a graphics terminal, and another that runs on character cell terminals. Both versions are on the floppy, and the console determines what kind of terminal is on the system and chooses the correct ECU version to run. Example 5-1 shows how to run ECU.

- ❶ Place the EISA Configuration Utility floppy (QC-01YAA-HC) in the floppy drive.
- ❷ Power on the system or initialize.
- ❸ After self-test, the console displays the message shown here.
- ❹ Enter the **set** command to turn on the **arc_enable** environment variable.
- ❺ **Initialize** the system to make the **set** command take effect.
- ❻ After self-test enter **runecu**, the console command to invoke ECU. The console loads ECU from the floppy drive and passes control to it.

If ECU is not run and OpenVMS is on the system and booted, OpenVMS prints the following message:

```
%SYSTEM-I-NOCONFIGDATA, IRQ Configuration data for EISA  
slot xxx was not found, please run the ECU and reboot.
```

OpenVMS continues to boot after this message and will run without EISA as a system resource.

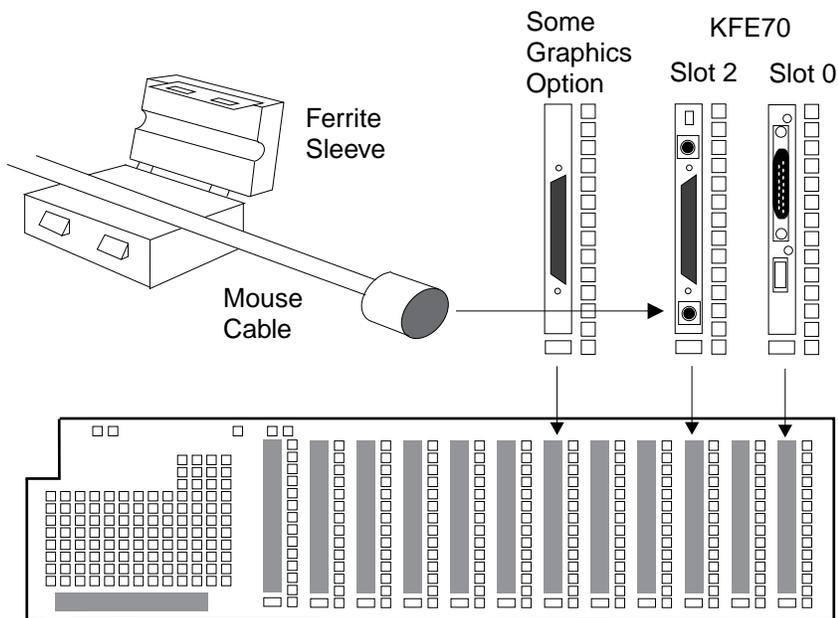
If ECU is not run and UNIX is on the system and booted, no information messages are printed. The operating system boots but does not use any EISA resources.

Proceed to Chapter 6, Verification Procedure, unless a graphics terminal and mouse are to be installed.

5.9 Ferrite Sleeve Installation

A ferrite sleeve is provided with each KFE70 installation in case a graphics option is installed in the PCI shelf. If such an option is present, the ferrite sleeve is installed on the mouse cable.

Figure 5-8 Ferrite Sleeve Installation



BX-0447G-95

To install the ferrite sleeve:

1. The mouse cable attaches to the connector module in slot 2 of the PCI. See Figure 5-8.
2. Place the sleeve on the mouse cable 10 to 15 cm. (4 to 6 in.) from the connection to the connector module and snap the sleeve shut over the cable.

Chapter 6

Verification Procedure

This chapter describes general verification procedures for the options installed.

Sections include:

- Run System Self-Test
- Show Commands for Installation
- Verify SCSI Devices
- If Necessary, Run the RAID Configuration Utility

- ❶ Check the C0 through Cx lines to determine which modules on the PCI I/O subsystem passed self-test. The example shows two PCIs, one internal to the KFTIA in slot 8 and the other connected to the KFTIA through a hose.

NOTE: If any module is badly broken on any bus, the console may not get a response or be able to read whether a device passed self-test. Under such conditions, self-test does not indicate a failure but instead indicates that the slot is empty.

6.2 Show Commands for Installation

Use show commands to verify installation of the options you put into the system.

Example 6-2 Show Configuration

P00>>> show configuration ❶

	Name	Type	Rev	Mnemonic
TLSB				
1++	KN7CC-AB	8014	0000	kn7cc-ab0
7+	MS7CC	5000	0000	ms7cc0
8+	KFTIA	2020	0000	kftia0
C0 Internal PCI connected to kftia0				
				pci0
0+	ISP1020	10201077	0001	isp0
1+	ISP1020	10201077	0001	isp1
2+	DECchip 21040-AA	21011	0023	tulip0
4+	ISP1020	10201077	0001	isp2
5+	ISP1020	10201077	0001	isp3
6+	DECchip 21040-AA	21011	0023	tulip1
7+	PCI NVRAM	71011	0000	pci_nvram0
C1 PCI connected to kftia0				
				pci1
0+	SIO	4828086	0003	sio0
5+	KZPSA	81011	0000	kzpsa0
6+	DECchip 21040-AA	21011	0023	tulip3
8+	ISP1020	10201077	0001	isp4
A+	DAC960	11069	0000	dac0
B+	DEC PCI FDDI	F1011	0000	pfi0
Controllers on SIO				
				sio0
0+	DECchip 21040-AA	21011	0023	tulip2
1+	FLOPPY	2	0000	floppy0
2+	KBD	3	0000	kdb0
3+	MOUSE	4	0000	mouse0
EISA connected to pci1 through sio0				
				eisa0
3+	KFESA	2EA310	0000	kfesa0

Example 6-3 Show Device

```
P08>>> show device ②
polling for units on isp0, slot 0, bus 0, hose0...
dka200.2.0.0.0      DKA200          RZ26L  440C
dka400.4.0.0.0      DKA400          RZ26L  440C
polling for units on isp1, slot 1, bus 0, hose0...
dkb300.3.0.1.0      DKB300          RZ26L  440C
dkb500.5.0.1.0      DKB500          RZ26L  440C
dkb600.6.0.1.0      DKB600          RZ26L  440C
polling for units on isp2, slot 4, bus 0, hose0...
dkc100.1.0.4.0      DKC100          RZ26L  440C
dkc200.2.0.4.0      DKC200          RZ26L  440C
dkc300.3.0.4.0      DKC300          RZ26L  440C
polling for units on isp3, slot 5, bus 0, hose0...
dkd400.4.0.5.0      DKD400          RRD44  0000
dkd500.5.0.5.0      DKD500          RZ26L  440C
```

- ① Use the **show configuration** command to verify that the system sees the modules you just installed. This command shows the module TLSB and PCI slot number, module name, module type, revision, mnemonic, and if self-test passed.
- ② The **show device** command displays information about each I/O device. Polling checks all I/O buses for device configurations. The next line contains the console device name, the name of the device given by the device controller, and the device type. Example 6-3 shows polling of the internal bus of the KFTIA. Example 6-4 shows polling devices off a controller in a PCI shelf.
- ③ The **show network** command, not shown in the example, displays information about network connections. If you are installing a network controller, you will want to verify that the controller is seen.

Using these commands (**show configuration**, **show device**, and **show network**), make sure all devices and system resources are present and "seen" by the console. If something is missing, it is likely broken, or needs reseating.

6.3 Verify SCSI Devices

6.3.1 Check SCSI Devices Using Console Commands

To verify SCSI devices, issue the console command `show device`. Check the output against the devices you installed. Nodes are defined by the physical position of the SBB (storage building blocks) and do not have to be set.

Example 6-4 Checking SCSI Devices

```
Initializing... ❶
      :
      :
      . + + + . + + + C0 PCI +
      . . . . . + . . + . C1 PCI +
      . A0 . . . . . ILV
      . 512 . . . . . 512MB

AlphaServer 8400 Console V1.0 SR0M V1.0 Apr 1 1995 00:00:00
P00>>> show device ❷
polling for units on isp0, slot 0, bus 0, hose0...
polling for units on ispl, slot 1, bus 0, hose0...
polling for units on isp2, slot 4, bus 0, hose0...
polling for units on isp3, slot 5, bus 0, hose0...
dkd400.4.0.5.0 DKD400RRD44 0064
dkd500.5.0.5.0 DKD500RZ26L 440C
polling for units on kzpsa0, slot 5, bus 0, hoses1...
kzpsa0.7.0.5.1 dke TPwr 1 Fast 1 Bus ID 7 C01 A05
dke100.1.0.5.1 DKE100 RZ26L 440C
dke200.2.0.5.1 DKE200 RZ26L 440C
dke300.3.0.5.1 DKE300 RZ26L 440C ❸
dke400.4.0.5.1 DKE400 RZ26L 440C
dke500.5.0.5.1 DKE500 RZ26L 440C
dke600.6.0.5.1 DKE600 RZ26L 440C
```

Basics:

- There are four ways to attach to SCSI devices on the PCI bus:
 - KZPAA, a PCI adapter with a single-ended SCSI port
 - KZPSA, a PCI adapter with a SCSI port
 - KZPSC, the RAID adapter with one to three FWD SCSI ports
 - ISP1020, a PCI chipset on the KFTIA; each KFTIA has three FWD (fast wide differential) SCSI ports and one single-ended SCSI port.
- Each port has a maximum of eight nodes per bus, including the initiator or host.
- Each modular storage shelf (BA350) has a power supply and can hold seven 3.5" SBBs (such as RZ26s or TLZ06s), two 5.25" SBBs (such as the RZ73 drives), or a combination of these.
- SCSI configurations vary depending upon the particular adapter being used. Read the manuals associated with each adapter to learn the configuration rules.

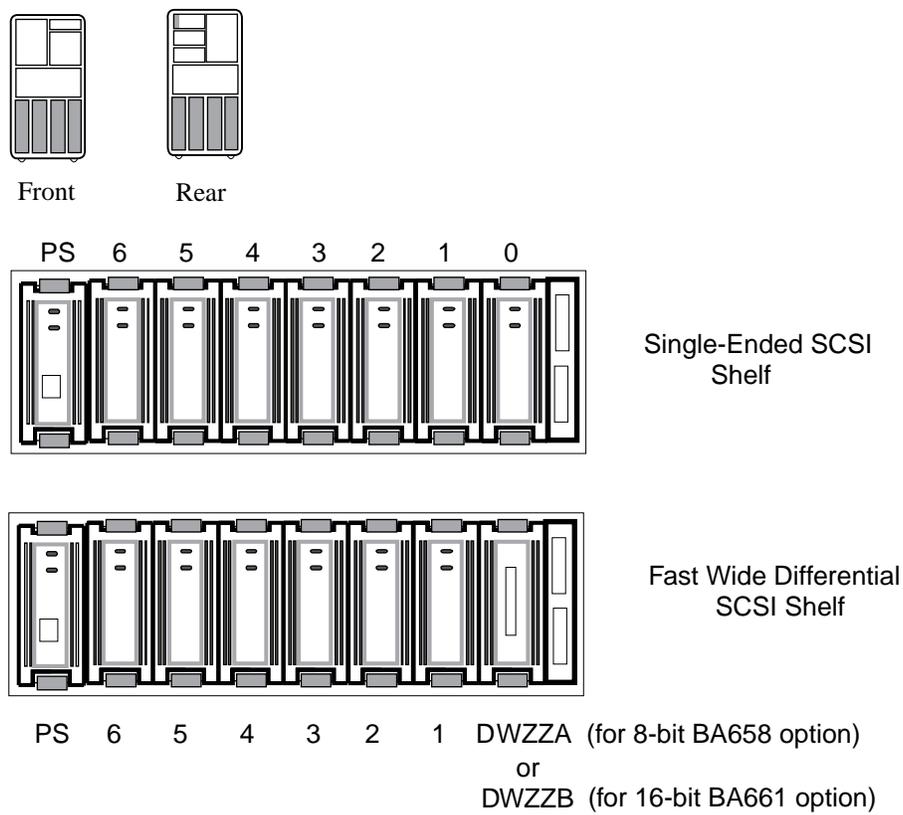
To check the configuration, check self-test and issue a **show device** console command:

- ❶ The system goes through self-test. Check that the KFTIA, the KZPAA, the KZPSA, and/or the KZPSC adapters passed self-test.
- ❷ Issue a **show device** command. In this example, the SCSI ports on the KFTIA are polled first; only two devices are found on the single-ended port ips3. A KZPSA in slot 5 of the PCI that is connected to the KFTIA through hose1 is polled and shows the adapter at node 7 and six RZ26L disks at nodes 1 through 6.
- ❸ Each port connects to a shelf housing up to seven RZxx drives on one bus (see Figure 6-1). All devices in this example are reporting to the console and are working. When a DWZZA or DWZZB is used, it occupies a StorageWorks shelf slot, but it is not a node nor is it "seen" by the console.

6.3.2 Check Console Output Against Physical Devices

Next check the output from the show device command against the physical SBBs in the cabinet(s).

Figure 6-1 SCSI Disks in StorageWorks Shelves



BX-0451D-95

Check the output from the **show device** command against the physical SBBs. There should be a one-to-one correspondence between SBBs reporting to the console and the physical devices mounted. Note that the node number reported by the console corresponds to the physical position of an SBB within a shelf; the slots and nodes are numbered 0 to 6, from right to left (see Figure 6-1).

Figure 6-1 shows two storage shelves: one with a DWZZA or DWZZB and one without. A DWZZA is an 8-bit bidirectional bus converter that converts differential signals to single-ended signals and converts single-ended signals to differential signals. A DWZZB performs the same function as the DWZZA except for a 16-bit bus. Figure 6-1 is not exhaustive; other devices fit into StorageWorks shelves and look very different from the configuration shown.

Each SBB has two LEDs. The green LED on the top lights when the SBB is mounted and is being accessed. For a complete discussion of StorageWorks LED status, see the *StorageWorks Solutions Configuration Guide* (EK-BA350-CG).

If you have problems seeing devices, reseal the devices and reissue **show device**. If you need further testing, use the **test** command. Refer to BA350 documentation if you need to reconfigure the buses.

6.4 If Necessary, Run the RAID Configuration Utility

If you put a KZPSC in the system (it shows up in the console display as the DAC960), you need to run RCU. Example 6-5 shows how to run RCU. See the KZPSC documentation for detailed information on configuring the devices. The RCU software is on a floppy and requires a KFE70.

Example 6-5 Running RCU

```
P00>>> set arc_enable on ①  
P00>>> initialize ②
```

[Console display appears]

```
P00>>> run rcu -p 1  
③ ④
```

The RAID Configuration Utility (RCU) need only be run if a KZPSC controller is in the system. The controller comes with its own documentation describing the utility. The controller operates in several different modes, and the customer should determine how to customize the disk farm. RCU enables these choices. Prior to running the utility, you should read the documentation and discuss which mode the customer wishes. Example 6-5 shows how to run RCU.

Place the RCU floppy in the floppy drive.

- ❶ Use the **set** command to turn on the **arc_enable** environment variable.
- ❷ **Initialize** the system to make the **set** command take effect.
- ❸ After self-test completes, enter **run rcu** to identify to the console what program to run. The **run** command defaults to the floppy as the source of the program for execution so no device need be specified.
- ❹ **-p 1** specifies that PCI1 is to be configured. See Example 6-2 for the PCI number containing the KZPSC (shown by the console as the DAC960). (In this case it is connected to a KFTIA hose.)

Index

B

- BA658
 - kit contents, 4-3
- BA661
 - kit contents, 4-3

C

- CD-ROM box
 - removal, 5-6
 - replacement, 5-12
- Configuration
 - DWLPA placement, 1-3
 - PCI/EISA slots, 1-3

D

- DWLPA
 - kit contents, 3-3
- DWZZA, 6-9
- DWZZB, 6-9

F

- Ferrite sleeve installation, 5-19
- Floppy installation, 5-6, 5-8
- Floppy mode switch, 5-9

K

- KFE70
 - bridge module, 5-3
 - connector module, 5-3
 - kit contents, 5-3
 - module installation, 5-4

P

- PCI box preparation, 3-8, 3-9

PIU preparation for:

- PCI, 3-4, 3-5, 3-6, 3-7
- StorageWorks shelf, 4-4

S

- SCSI
 - devices, 6-6, 6-8
 - LEDs, 6-9
- Self-test
 - C# I/O subsystem line, 6-3
 - display, 6-2
- Show configuration command, 6-4
- Show device command, 6-5, 6-6, 6-9
- Show network command, 6-5
- StorageWorks
 - kit contents, 4-3

U

- Utilities
 - ECU, 5-16
 - RCU, 6-10