HSD10 DSSI-to-SCSI Bus Adapter

Installation Guide for BA400 and BA42B-Based VAX 4000 Systems

Order Number: EK–HSD10–IN. A01

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Adapter Overview

BA400-based and BA42B-based VAX 4000 systems with the HSD10 adapter can run both Digital Storage Subsystem Interconnect (DSSI) and/or Small Computer Systems Interface (SCSI) drives. The HSD10 adapter provides current BA400-based VAX 4000 Systems with SCSI capability for up to seven SCSI or SCSI–2 disk and CD–ROM drives, or one SCSI tape drive and six SCSI disk and CD–ROM drives. The HSD10 adapter provides current BA42B-based systems with SCSI capability for up to two SCSI disk drives.

About This Guide

This guide describes how to install the HSD10 DSSI-to-SCSI adapter in both BA400-based systems and BA42B-based VAX 4000 systems. Physically, the HSD10 adapter is a daughterboard mounted to a Q–bus adapter module that is installed in slot 12 when used in the BA400 enclosure. When used in a BA42B based system, it is installed on the upper drive mounting shelf. The BA42B version includes a new SCSI signal cable and a new SCSI power harness with an extra DSSI connector. The BA400 version includes a new SCSI signal cable and a new DSSI signal cable.

Intended Audience

This information is intended for Digital services personnel and properly trained self-maintenance customers.

Supported Devices

The HSD10 adapter is a TMSCP/MSCP-compliant device that performs the translations required to support devices conforming to SCSI or SCSI–2 protocols.

The HSD10 adapter supports the following devices in BA400-based VAX 4000 systems:

- TLZ07 digital audio tape drive
- TZ86 series cartridge tape subsystem
- TZ87 series cartridge tape subsystem
- RZ26 disk drive family
- RZ28 disk drive family
- RZ29 disk drive family
- RZ73 disk drive
- RZ74 disk drive
- RRD43 CD–ROM drive
- RRD45 CD–ROM drive

The HSD10 adapter supports the following devices in BA42B-based VAX 4000 systems:

- TLZ06 digital audio tape drive
- TLZ07 digital audio tape drive
- RZ26 disk drive family
- RZ28 disk drive family
- RRD42 CD–ROM drive
- RRD43 CD–ROM drive
- RRD45 CD–ROM drive

Conventions

The following terms and conventions are used in this guide:

Term or Convention	Meaning
NOTE	Notes provide important additional information.
CAUTION	Cautions provide information required to prevent damage to equipment.
Check Mark ($\sqrt{}$)	A statement marked by a check mark indicates a special instruction related to a step.

Related Documentation

In addition to this guide, you also need the *BA400-Series Enclosures Storage Devices Installation Procedures* manual or the *BA42B-Series Enclosures Storage Devices Installation Procedures* manual for the procedures to install HSD10 adapter supported disk drives, tape drives and CD–ROM drives.

Part number information for this book and other documentation you may find helpful are listed in Table 1.

Table 1   Related Documentation

Document	Order Number
BA400-Series Enclosures Storage Devices Installation Procedures	EK–BA44A–IN
BA42B-Series Enclosures Storage Devices Installation Procedures	EK–BA42B–IN
HSD10 DSSI-to-SCSI Adapter Operation Information for BA42B-Based VAX 4000 Systems	EK–HSD10–OP
BA430/BA440 Enclosure Maintenance	EK–348A*n*[1]–MG
BA42-B Enclosure Maintenance	EK–472AB–MG

[1] *n* indicates the revision level; the latest revision level is always shipped.

1

HSD10 Adapter Preparation

This chapter contains information and procedures for unpacking and configuring the HSD10 adapter. It also describes how to set the device configuration switches to select the DSSI and SCSI IDs for your system.

1.1 Unpacking the HSD10 Adapter

Observe the following when unpacking the HSD10 adapter:

- After removing the HSD10 adapter from its shipping container, inspect the adapter for any signs of external damage. Report any damage to the local carrier, and to Digital services or your local Digital sales office.

- Be sure to thermally stabilize the adapter as described in Section 1.2.

- To prevent damage from electrostatic discharge (ESD), do not touch the HSD10 adapter DSSI or SCSI connectors.

_____ **Note** _____

HSD10 controllers ordered in preconfigured storage subsystems are shipped with SCSI and DSSI ports Enabled. Non-preconfigured HSD10 controllers require enabling of ports through the adapter's serial communications port. Reference Appendix A for further information.

_____

1.2 Environmental Stabilization

Table 1–1 specifies the time required to thermally stabilize the HSD10 adapter based on the ambient shipping temperature.

_____ **CAUTION** _____

Be sure to thermally stabilize the HSD10 adapter in the operating environment prior to installation or operation of the unit. Otherwise, you can damage the associated electronics when power is applied to the unit.

_____

If condensation is visible on the outside of the HSD10 adapter:
Stabilize the adapter in the operating environment for 6 hours or until the condensation is no longer visible, whichever is longer. Do not install the HSD10 adapter until it is fully stabilized.

If condensation is not visible on the outside of the HSD10 adapter:
Thermally stabilize the adapter for the amount of time specified in Table 1–1.

Table 1–1   Thermal Stabilization Specifications

Ambient Temperature Range °C	Ambient Temperature Range °F	Minimum Stabilization Time
60 to 66	140 to 151	3 hours
50 to 59	122 to 139	2 hours
40 to 49	104 to 121	1 hour
30 to 39	86 to 103	30 minutes
18 to 29	65 to 85	None
10 to 17	50 to 64	30 minutes
0 to 9	32 to 49	1 hour
–10 to –1	14 to 31	2 hours
–20 to –11	–4 to 13	3 hours
–30 to –21	–22 to –5	4 hours
–40 to –31	–40 to –21	5 hours

1.3 HSD10 Adapter Switches and Indicators

The following sections describe the switches and indicators for the HSD10 DSSI to SCSI bus adapter for both BA400-based and BA42-based VAX 4000 systems. Figure 1–1 illustrates the switches and indicators contained on the BA400-series HSD10 adapter module board. Figure 1–2 illustrates the switches and indicators contained on the BA42B-series HSD10 adapter module board.

Table 1–2 and Table 1–3 list the switch settings and indicator status.

_____ **CAUTION** _____

To prevent static electricity damage to the integrated circuits, use the antistatic wrist strap and antistatic pad found in the static-protective kit (part number 29–26246–00) when you install the HSD10 adapter.

_____

Figure 1–1 HSD10 Adapter Module Layout for BA400 Series

DS3

DS2

DS1

SCSI
Connector

DSSI
Connector

Serial
Communications
Port

DSSI
Node ID

Not
Used

(Open)

(Closed)

SCSI
ID

SCSI
Termination

Address
Switches
(SW2)
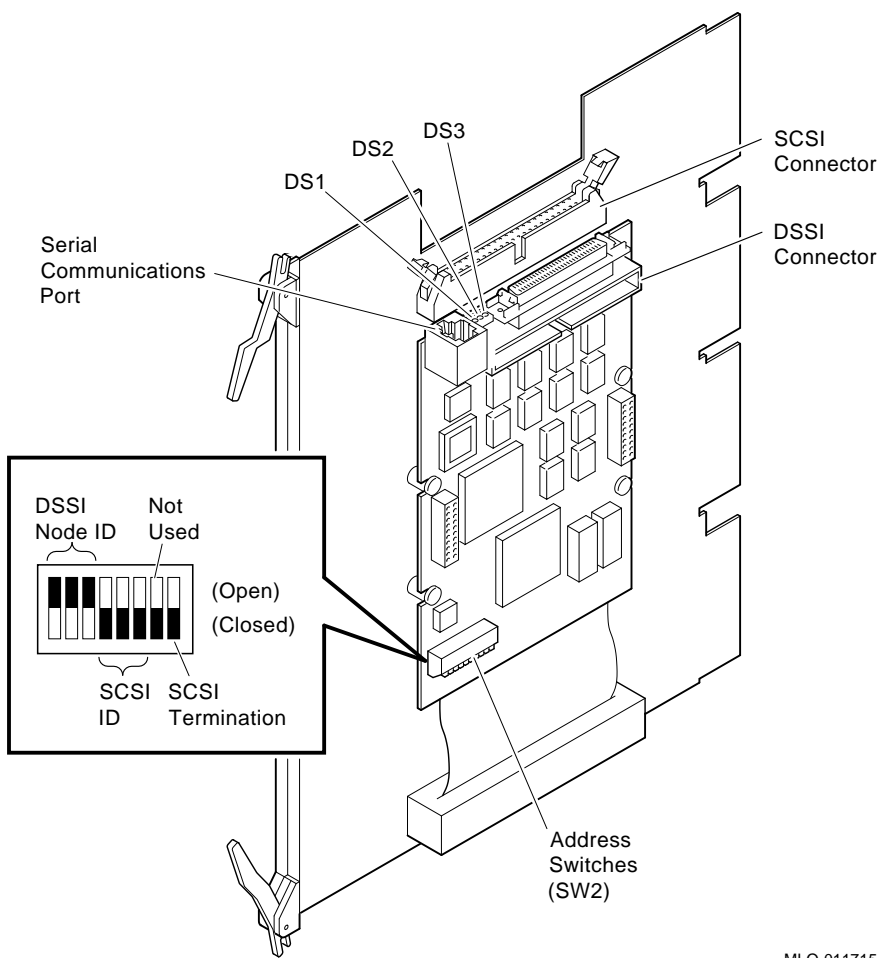
MLO-011715

Figure 1–2 HSD10 Adapter Module Layout for BA42B Series
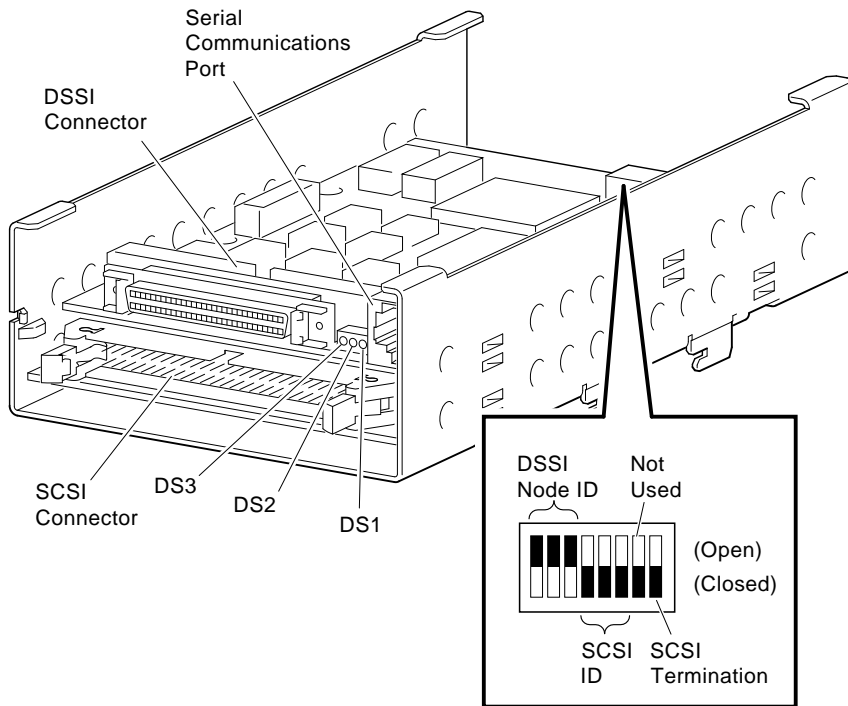
MLO-011720

Table 1–2 lists the switch sections in the device configuration switchpack (SW2). Use the procedure in Section 1.4 to configure the DSSI ID and the SCSI ID. The factory default SCSI ID (or node address) is 7; the DSSI ID is 0. SW2 also has a switch that determines whether the HSD10 adapter provides termination for the SCSI bus (default = enabled).

Table 1–2 HSD10 Adapter Device Configuration Switchpack (SW2) Sections

Section	Definition	Default
SW2–1	MSB of DSSI ID	Open (DSSI ID = 0)
SW2–2	NSB of DSSI ID	Open
SW2–3	LSB of DSSI ID	Open
SW2–4	MSB of SCSI ID	Closed (SCSI ID = 7)
SW2–5	NSB of SCSI ID	Closed
SW2–6	LSB of SCSI ID	Closed
SW2–7	Spare	Closed
SW2–8	Active SCSI Termination	Closed (terminator installed)

The adapter has three indicators that show the status of the HSD10 adapter as listed in Table 1–3.

Table 1–3 HSD10 Adapter Indicators

Indicator	Color	Status
DS3	Green	Remains ON to show that termination power is applied to the SCSI bus.
DS2	Green	Flashes during normal operation while the subsystem is booted.
DS1	Amber	Flashes for 10 seconds during module boot. If this indicator flashes for longer than 10 seconds, there is a device fault.

1.4 Setting the Device Configuration Switches

This section explains how to set the device configuration switches before you install the adapter in BA400-based or BA42B-based VAX 4000 system.

The device configuration switchpack contains 8 switch elements, divided into DSSI ID and SCSI ID sections as shown in Figure 1–1 and Figure 1–2.

1.4.1 Selecting and Setting the DSSI ID

Each device on the DSSI bus requires a unique device address in the range of
0 through 7. The DSSI ID is factory set to 0; you may need to change this ID
to one that is currently not being used on your system.

Table 1–4 lists the DSSI ID sections of SW2 and the corresponding settings for
each DSSI ID (Closed = down position; Open = up position, toward text "open"
on switch body).

Table 1–4   HSD10 Adapter DSSI ID Switch Settings

DSSI ID	SW2–1	SW2–2	SW2–3
0	Open	Open	Open (default)
1	Open	Open	Closed
2	Open	Closed	Open
3	Open	Closed	Closed
4	Closed	Open	Open
5	Closed	Open	Closed
6	Closed	Closed	Open
7	Closed	Closed	Closed

Use the following procedure to set the DSSI ID:

1. At the system console prompt, enter the console command SHOW DEVICE
   to determine the DSSI ID numbers currently active on the DSSI bus.

2. Select an unused DSSI ID number for the HSD10 adapter.

3. For the BA400-series, refer to Figure 1–1 and Table 1–2 to locate the DSSI
   ID switches on the device configuration switchpack.
   For the BA42B-series, refer to Figure 1–2 and Table 1–2 to locate the DSSI
   ID switches on the device configuration switchpack.

4. Using a small blade screwdriver or similar tool, set the switch to the DSSI
   ID number selected in step 2.

1.4.2 Selecting and Setting the SCSI ID

In the BA400-series, the SCSI port plugs into the SCSI backplane connector (J30) when the HSD10 DSSI-to-SCSI bus adapter is installed in the card cage. In the BA42B-series, the SCSI port in connected by cable to the internal SCSI devices. In either case, the port must have a unique SCSI ID.

The HSD10 adapter is factory set to SCSI ID = 7 to give the adapter the highest priority on the SCSI bus. The other devices in the configuration must have SCSI ID numbers between 0 and 6. For most operations, you do not have to reset the SCSI ID.

Table 1–5 lists the SCSI ID sections of SW2 and the corresponding settings for each SCSI ID (Closed = down position; Open = up position, towards the "open" marking on the switch body).

Table 1–5 HSD10 Adapter SCSI ID Switch Settings

SCSI ID	SW2–4	SW2–5	SW2–6
0	Open	Open	Open
1	Open	Open	Closed
2	Open	Closed	Open
3	Open	Closed	Closed
4	Closed	Open	Open
5	Closed	Open	Closed
6	Closed	Closed	Open
7	Closed	Closed	Closed (default)

To change the default HSD10 SCSI ID (Default = 7), use the following procedure:

1. Refer to Figure 1–1, Figure 1–2, and Table 1–2 to locate the SCSI ID switches on the device configuration switchpack.

2. Using a small blade screwdriver or similar tool, set the switch to the SCSI ID number you have selected.

2

Installing the HSD10–JF Adapter in a Pedestal Enclosure

This chapter describes how to install the HSD10–JF adapter and cables in the BA430/BA440/B400X pedestal enclosures. Be sure you have set the device configuration switches as described in Chapter 1 before installing the adapter.

The HSD10 adapter kit contains the following parts:

- This installation document (EK–HSD10–IN)
- Operation information manual (EK–HSD10–OP)
- SCSI cable
- 3-connector DSSI cable
- SCSI port connector cover plate and mounting screws
- HSD10 adapter module
- HSD10–JF identification label
- Cable routing clamps and spacers

—————————————— **NOTE** ——————————————

In addition to this guide, you need the *BA400-Series Enclosures Storage Devices Installation Procedures* (EK–BA44A–IN) manual for the procedures to install HSD10 supported disk, tape, and CD–ROM drives.

_____

NOTE

If you are installing a new storage device, please refer to the data sheet that comes with the device for setting the appropriate device ID.

2.1 Before You Install the Kit

Before you install the kit:

1. It is the customer's responsibility to back up the system disk before the Digital services representative arrives. This is optional and customer may choose to waive the disk back up procedure.

2. Perform a software shutdown of the system.

2.2 HSD10 Adapter Installation Procedure

The installation procedure for the HSD10 adapter consists of the following:

1. Removing the existing DSSI and SCSI cables—Section 2.2.1.

2. Installing the new DSSI and SCSI cables—Section 2.2.2.

3. Installing the adapter—Section 2.2.3

CAUTION

To prevent static electricity damage to the integrated circuits, use the antistatic wrist strap and antistatic pad found in the static-protective kit (part number 29–26246–00) when you install the HSD10 adapter.

2.2.1 Removing Existing Cables

Remove the existing DSSI and SCSI cables as follows:

1. Open the top and bottom enclosure doors. See Figure 2–1.

2. Power off the system and unplug the power cord from the wall outlet.

Figure 2–1   Opening Enclosure Doors

Key Lock

Top Key Position

Power Switch

Bottom Key Position
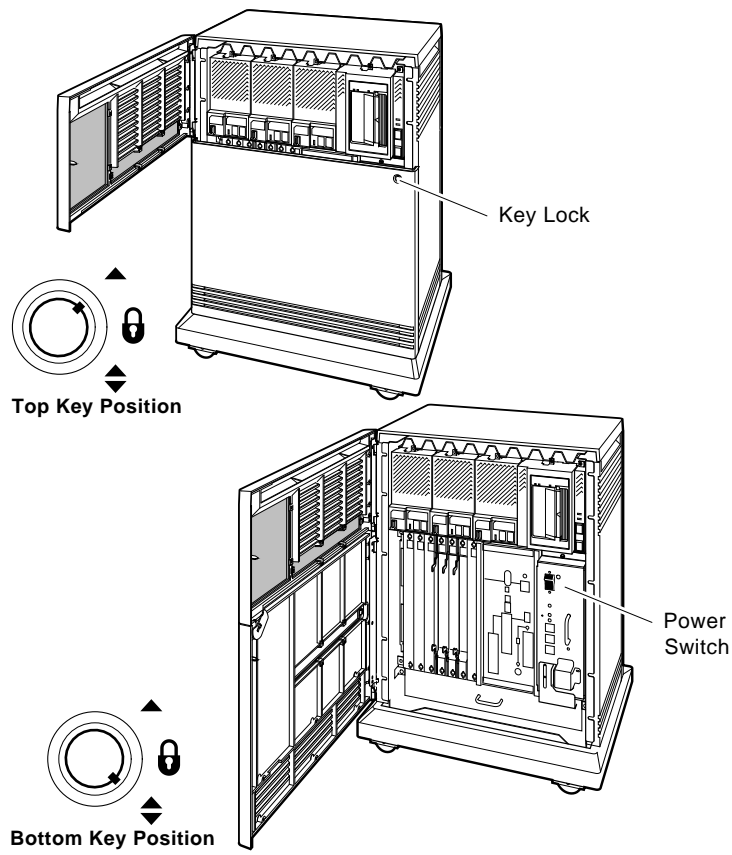
MLO-012859

3. Loosen the Phillips screw at the top of the blank front panel in the leftmost slot (slot 3) of the mass storage area and remove the panel (see **1** in Figure 2–2).

_____ **NOTE** _____

If there is an ISE in slot 3 you must remove it to install the new cables (refer to Figure 2–2).

_____

Figure 2–2 ISE Removal

1 Phillips Screw

2

RZ 5.25-inch   RF/RZ 5.25-inch   RF/RZ 3.5-inch

3 Captive Screws
(loosen)

Guide
Tabs

4 Finger Cutouts
(pull)

MLO-011739

4. Remove the module covers from slots 9 through 12 of the card cage by loosening the captive screws (Figure 2–3).

NOTE

If there are modules in slots 9 through 12 you need to remove them. Be sure to mark all cable connections to the modules and list the module and its particular slot location. It is very helpful to draw a diagram of the module/slot configuration to simplify the installation process.

The HSD10 adapter is normally installed in slot 12. If your system contains an option such as the M9404–PA Q–bus extender that *must* go in slot 12, install the HSD10 adapter in slot 11.

Figure 2–3 Panel Connectors
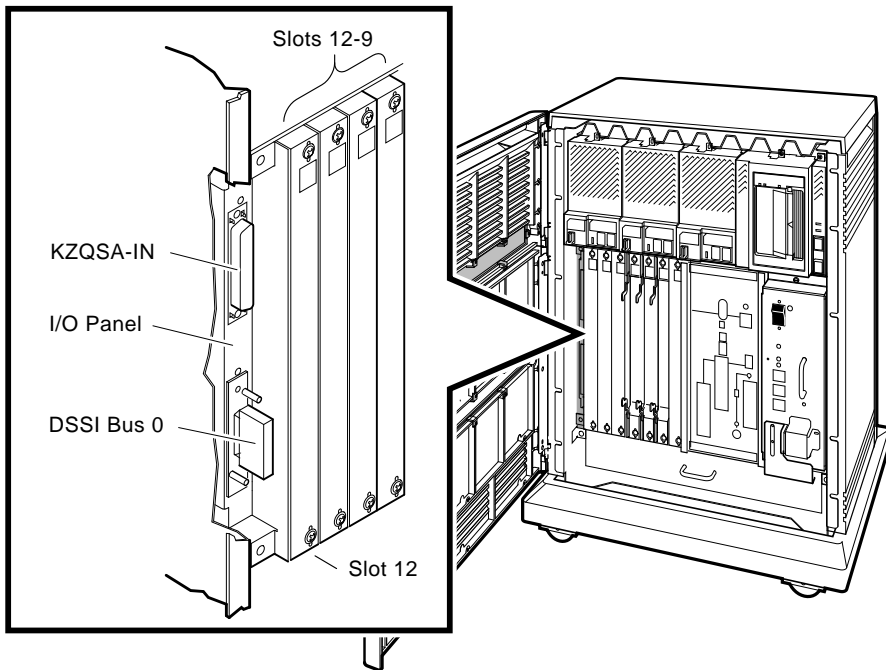
MLO-012726

5. Remove the existing DSSI and SCSI cables from the I/O panel located to the left of slot 12 (Figure 2–4). Be sure to note how the cables are routed so you can run the new cables in the same manner.

   a. Remove any external cables or terminators from the connectors on the panel.

   b. Remove the small cable connector screws and remove the DSSI cable from the panel (DSSI Bus 0).

      √ Remove only the cable connector screws, adjacent to the connector, that secure the cable to the plate. Do not remove the screws that secure the plate to the panel.

      √ Save the screws to attach the new cable.

   c. Remove the SCSI cable/plate from the panel (KZQSA IN) by removing the top and bottom plate screws.

   d. Disconnect the DSSI and SCSI cables from the backplane and remove the cables from the enclosure.

      √ Be careful not to break the cable clamps when removing the cables from the enclosure. Additional clamps are provided in the HSD10 adapter kit if the original clamps breaks. Be sure to clean the enclosure surface thoroughly (for example, with an alcohol wipe) before attaching a new cable clamp.

      √ Remove the SCSI cable by pulling it through the plate opening in the I/O panel.

This completes the removal of the cables. Go to Section 2.2.2 to install the new cables.

Figure 2–4 Removing Cable Connectors from the I/O Panel

SCSI
Plate Screws
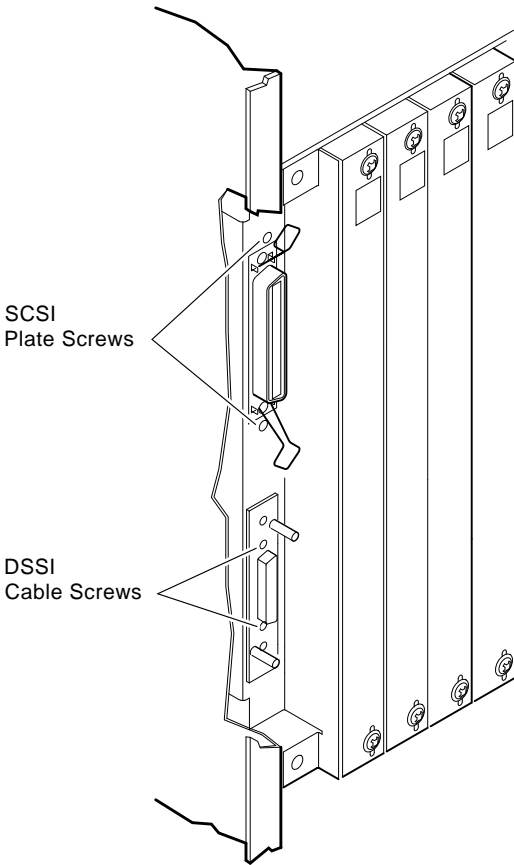
DSSI
Cable Screws

MLO-012834

2.2.2 Installing the New DSSI and SCSI Cables

This section describes how to install the new DSSI and SCSI cables.

_____ **NOTE** _____

If there is a KFDDB (3rd and 4th DSSI bus option) already installed in
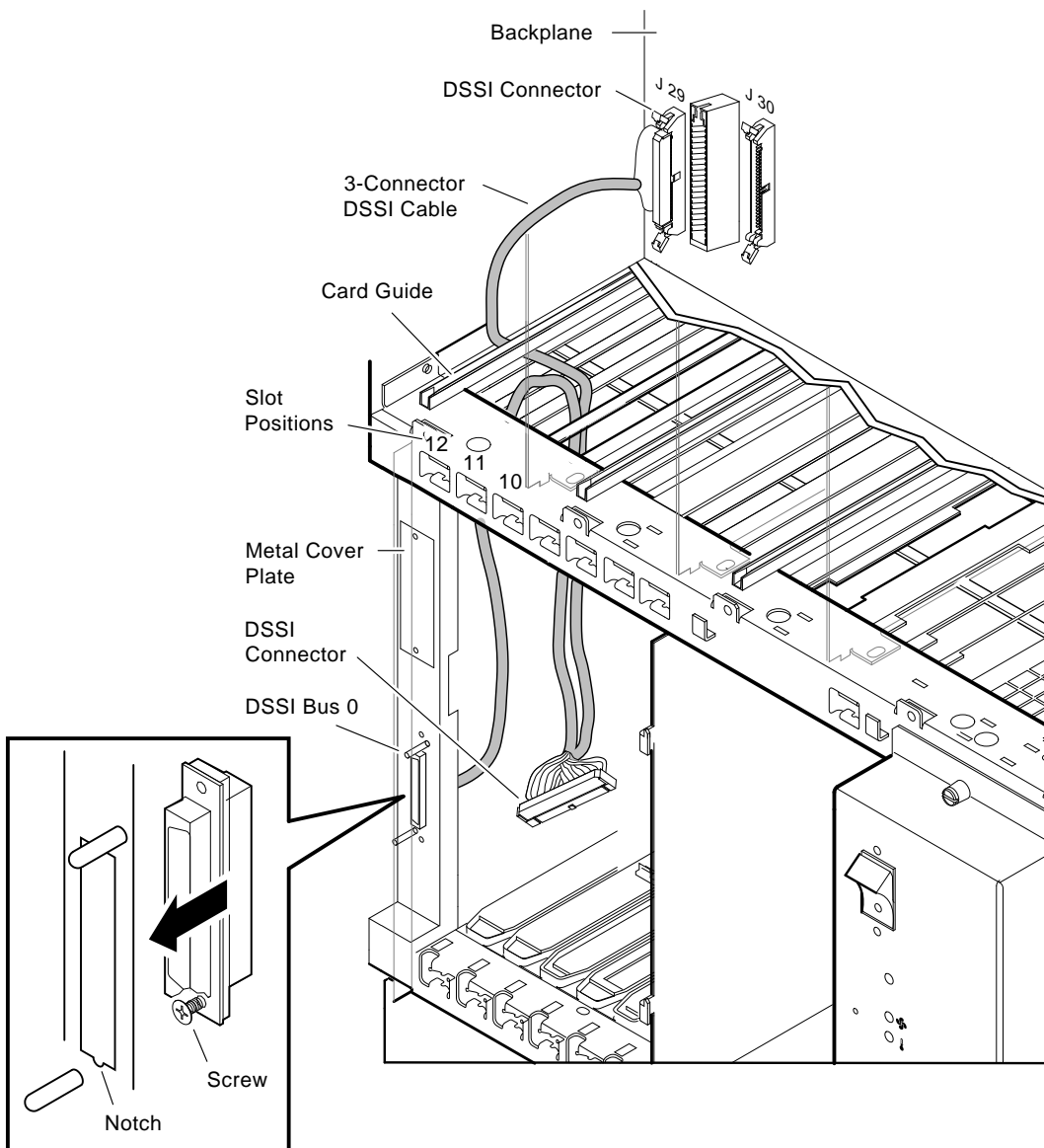slots 11 and 12, you can install the HSD10 adapter in the same slot as
the KFDDB bulkhead.

_____

1. Install the new 3-connector DSSI cable (refer to Figure 2–5 for the cable routing).

   a. Slip the short portion of the cable (plastic connector) up through the opening to the left of slot 12 (slot 11 if the M9404–PA is installed), left through the card cage/mass-storage divider, and up through the opening next to the side of the enclosure.

      √ Connect the cable to the DSSI connector (J29) on the backplane.

   _____ NOTE _____

   The cable must be routed up to the left of the first card guide (shown in Figure 2–5) or you may damage the cable if you try to install an ISE into this slot. The cable must be run to the connector on the backplane just as the original cable was run.

   _____

   b. Slip the long section of the cable (metal connector) up through the opening to the left of slot 12 (slot 11 if the M9404–PA is installed), left through the card cage/mass-storage divider, and down through the opening next to the side of the enclosure.

   c. Insert a connector screw (saved when you removed the original cable) about 3/4 of the way into the bottom of the DSSI cable connector.

      √ The wide side of the connector should be on the right side of the panel opening.

   d. Slip the connector into the DSSI opening (DSSI Bus 0) from the rear of the I/O panel (the screw holds the connector in position).

   e. Insert the other connector screw into the top of the connector and then tighten both screws.

      √ The middle section of the cable should be hanging through the opening above slot 12 (it is not connected at this time).

      √ Route the cable through the 1st (small clamp closest to the DSSI connector opening) and 3rd (wide) cable clamps on the side of the enclosure that the original cable ran through (skip the 2nd small clamp). Additional clamps are provided in the HSD10 adapter kit if the original clamp breaks. Be sure to clean the enclosure surface thoroughly (for example, with an alcohol wipe) before attaching a new cable clamp.

Figure 2–5 Installing the New DSSI Cable

Backplane

DSSI Connector

J 29

J 30

3-Connector
DSSI Cable

Card Guide

Slot
Positions

12

11

10

Metal Cover
Plate

DSSI
Connector

DSSI Bus 0

Screw

Notch

MLO-012796

2. Install the new SCSI cable (refer to Figure 2–6 for the cable routing):

    a. Slip the end of the SCSI cable with the right-angle wires (connector farthest from the cable ID label) up through the opening to the left of slot 12 (slot 11 if the M9404–PA is installed), left through the card cage/mass-storage divider and up through the opening next to the side of the enclosure.

NOTE

The cable must be routed up to the left of the first card guide (shown in Figure 2–6) or you may damage the cable if you try to install an ISE into this slot. The cable must be routed through cable clamp and up over the connectors on the backplane just as the original cable was run.

   √ Connect the cable to the SCSI connector (J30) on the backplane.

   √ Route the cable through the small cable clamp on the side of the enclosure, upper back corner of the storage area, and through the large cable clamp on the backplane adjacent to (J30). Additional clamps are provided in the HSD10 adapter kit if the original clamp breaks. Be sure to clean the enclosure surface thoroughly (for example, with an alcohol wipe) before attaching a new cable clamp.

   √ The other end of the cable should be hanging through the opening above slot 12 (it is not connected at this time).

Go to Section 2.2.3 to install the HSD10 adapter into the enclosure.

Figure 2–6 Installing the New SCSI Cable

Backplane

J 29   J 30

SCSI Cable

SCSI Connector

Card Guide

Slot Positions

12
11
10

SCSI Connector
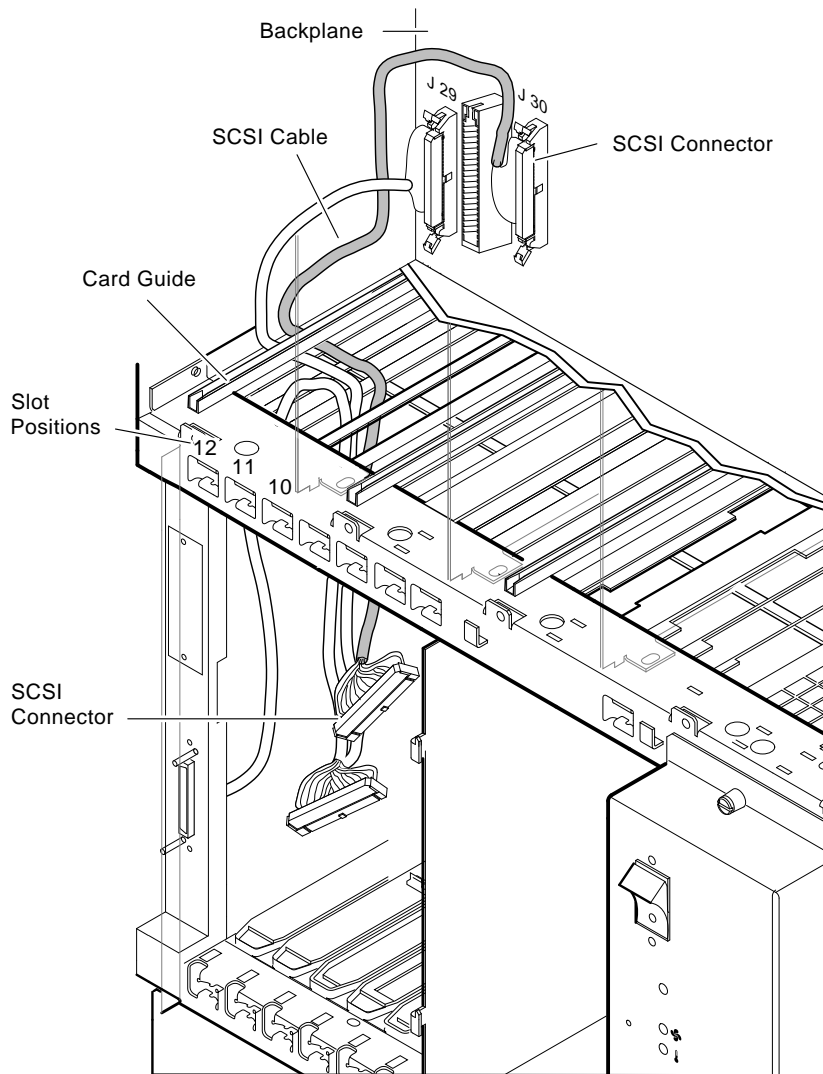
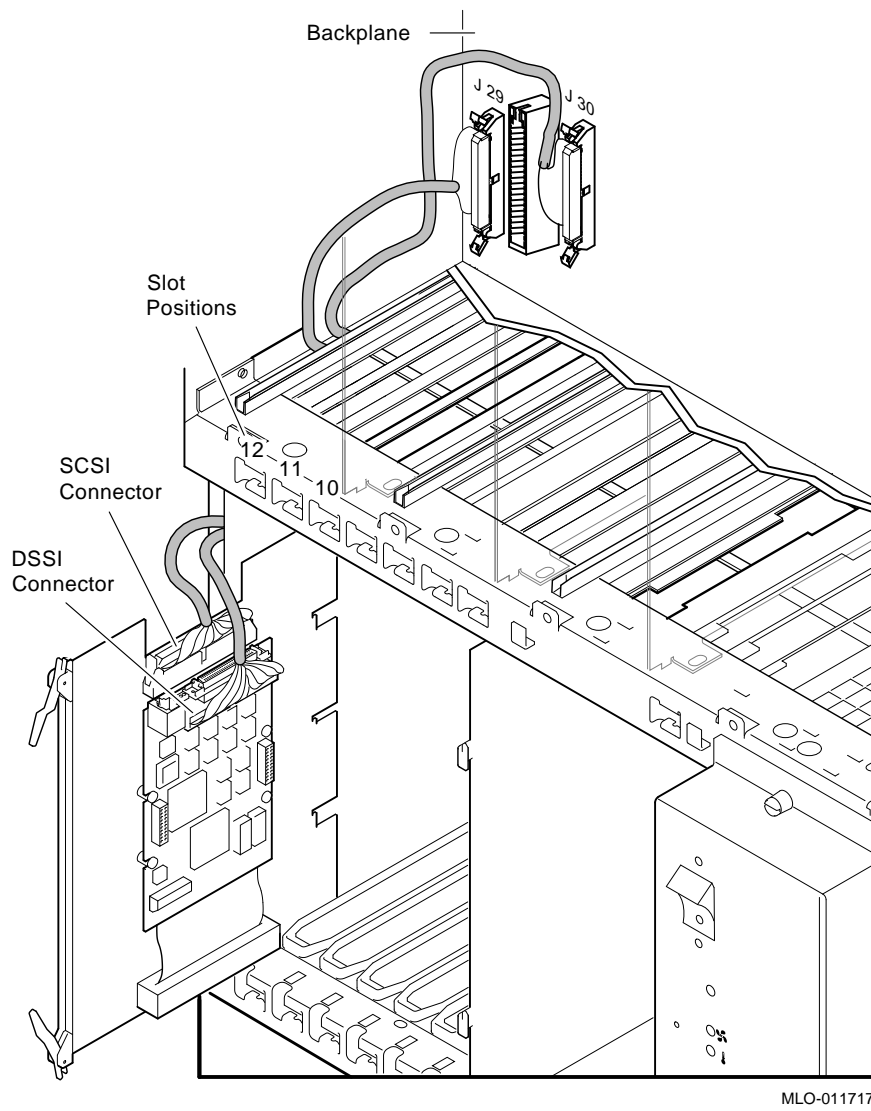MLO-012725

2.2.3 Installing the HSD10 Adapter

Refer to Figure 2–7 to insert the HSD10 adapter into the enclosure.

1. Insert the HSD10 adapter half-way into slot 12 (or slot 11 if necessary).

2. Pull the DSSI and SCSI cables through the opening in the HSD10 adapter.

   √ Use the SCSI opening on the I/O panel to access the cables by slipping a few fingers in the SCSI opening to help coax the cables through the opening in the HSD10 adapter.

3. Connect the SCSI cable to the SCSI connector. Refer to Figure 2–7 for connector identification.

4. Connect the DSSI cable to the DSSI connector. Refer to Figure 2–7 for connector identification.

5. Push the HSD10 adapter all the way into the slot until it makes a positive connection to the backplane. Use the module handles to seat the adapter securely.

6. Check the cables from the HSD10 adapter making sure they are routed sharply to the left and through the opening on the adapter so they do not interfere with a module placed in an adjacent slot.

_____ **NOTE** _____

If you have the KFDDB option installed, the card cage/mass storage divider will be very crowded with cables. Try to keep the cables for each device separated. For example, if your HSD10 adapter cables are located at the back of the divider openings, place the KFDDB cables at the front of the openings. Cables should be routed at the front and rear edges leaving the center of the card cage/mass storage divider clear so that airflow through the unit is not impeded.

_____

Figure 2–7 Connecting the Cables to the HSD10 Adapter

Backplane

J 29   J 30

Slot
Positions

12   11
        10

SCSI
Connector

DSSI
Connector

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7. Replace the blank front panel or reinstall the ISE into slot 3.

8. Replace the modules or module covers for slots 9 through 12.

CAUTION

Be sure to install all modules into their original slots. Use the identification list/diagram you created when removing any existing modules from the system.

Do not operate the system without all the module covers installed. They are required to maintain proper airflow and to meet international regulatory standards.

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9. Attach the metal cover plate, (shipped with the HSD10 Adapter kit), over the SCSI connector opening on the I/O panel using the screws provided in the HSD10 adapter kit.

10. Reinstall any original cables and terminators to the module covers and I/O panel.

11. Attach the gray HSD10–JF identification label on the slot 11 or 12 module
    cover as shown below.

Label Area
(If KFDDB
is not installed.)

Label Area
(If KFDDB
is installed.)
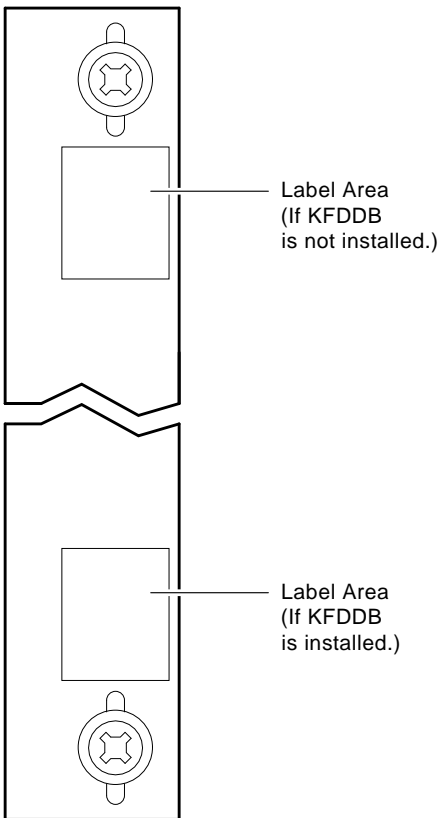
MLO-012727

12. Plug in the power cord and power on the system.

13. Close the top and bottom enclosure doors.

14. Configure the HSD10 - Refer to Appendix A and *HSD10 DSSI-to-SCSI Bus
    Adapter Operation Information for VAX 4000 Systems* manual (EK-HSD10-
    OP).

15. Have the customer perform a software boot of the system.

16. Run diagnostics to verify system operation.

This completes installing the adapter into the enclosure. Go to Appendix A to
select device numbers and complete the installation.

3

Installing the HSD10–JH Adapter in a Rackmount Enclosure

This chapter describes how to install the HSD10–JH adapter and cables in the BA431/BA441/B401X rackmount enclosures. Be sure you set the device configuration switches as described in Chapter 1 before installing the adapter.

The HSD10 adapter kit contains the following parts:

*   This installation document (EK–HSD10–IN) and operator guide (EK-HSD10-OP)

*   SCSI cable

*   3-connector DSSI cable

*   HSD10 adapter module

*   HSD10–JH identification label

*   Cable routing clamps

*   Blank connector plate, mounting screws and spacers

_____ NOTE _____

In addition to this guide, you need the *BA400-Series Enclosures Storage Devices Installation Procedures* (EK–BA44A–IN) manual for the procedures to remove and install HSD10 supported disk, tape, and CD–ROM drives.

_____

NOTE

If you are installing a new storage device, please refer to the data sheet that comes with the device for setting the appropriate device ID.

3.1 Before You Install the Kit

Before you install the kit:

1. It is the customer's responsibility to back up the system disk before the Digital services representative arrives. This is optional and customer may choose to waive the disk back up procedure.

2. Perform a software shutdown of the system.

3.2 HSD10 Adapter Installation Procedure

The installation procedure for the HSD10 adapter consists of the following:

1. Removing the VAX 4000 from the cabinet—Section 3.2.1

2. Removing the front bezel—Section 3.2.2

3. Removing the ISEs—Section 3.2.3

4. Removing the existing DSSI and SCSI cables—Section 3.2.4.

5. Installing the new DSSI and SCSI cables—Section 3.2.5.

6. Installing the HSD10 adapter—Section 3.2.6

7. Completing the installation—Section 3.2.7

CAUTION

To prevent static electricity damage to the integrated circuits, use the antistatic wrist strap and antistatic pad found in the static-protective kit (part number 29–26246–00) when you install the HSD10 adapter.

3.2.1 Removing the VAX 4000 from Cabinet

To remove the VAX 4000 from the cabinet, do the following:

1. Extend the stabilizing foot (feet) on your cabinet.

2. Release the two captive fasteners (see ❶ in Figure 3–1) on each side of the bezel that secures the chassis to the cabinet, and pull the VAX 4000 forward.

3. Place the main ON/OFF power switch in the OFF position, and disconnect the power cord from the power controller. See ❷ in Figure 3–1.

3.2.2 Removing the Front Bezel

To remove the front bezel, follow this step:

- Remove the four (4) Phillips screws from the front bezel ❸, Figure 3–1.

Figure 3–1 Removal/Breakdown of the VAX 4000 Rackmount System
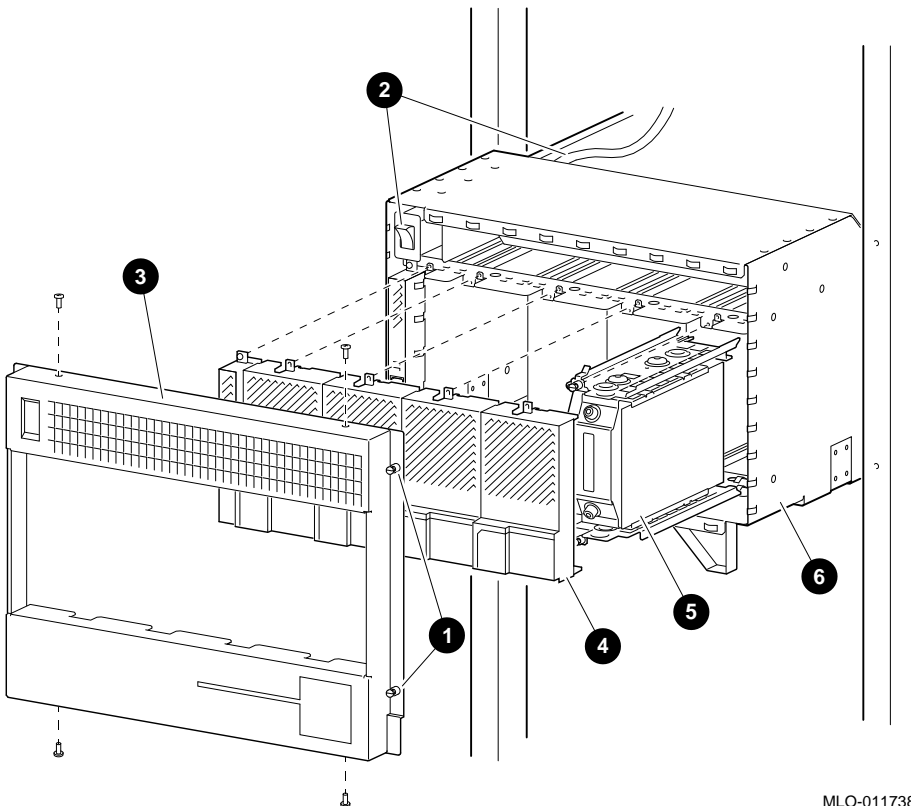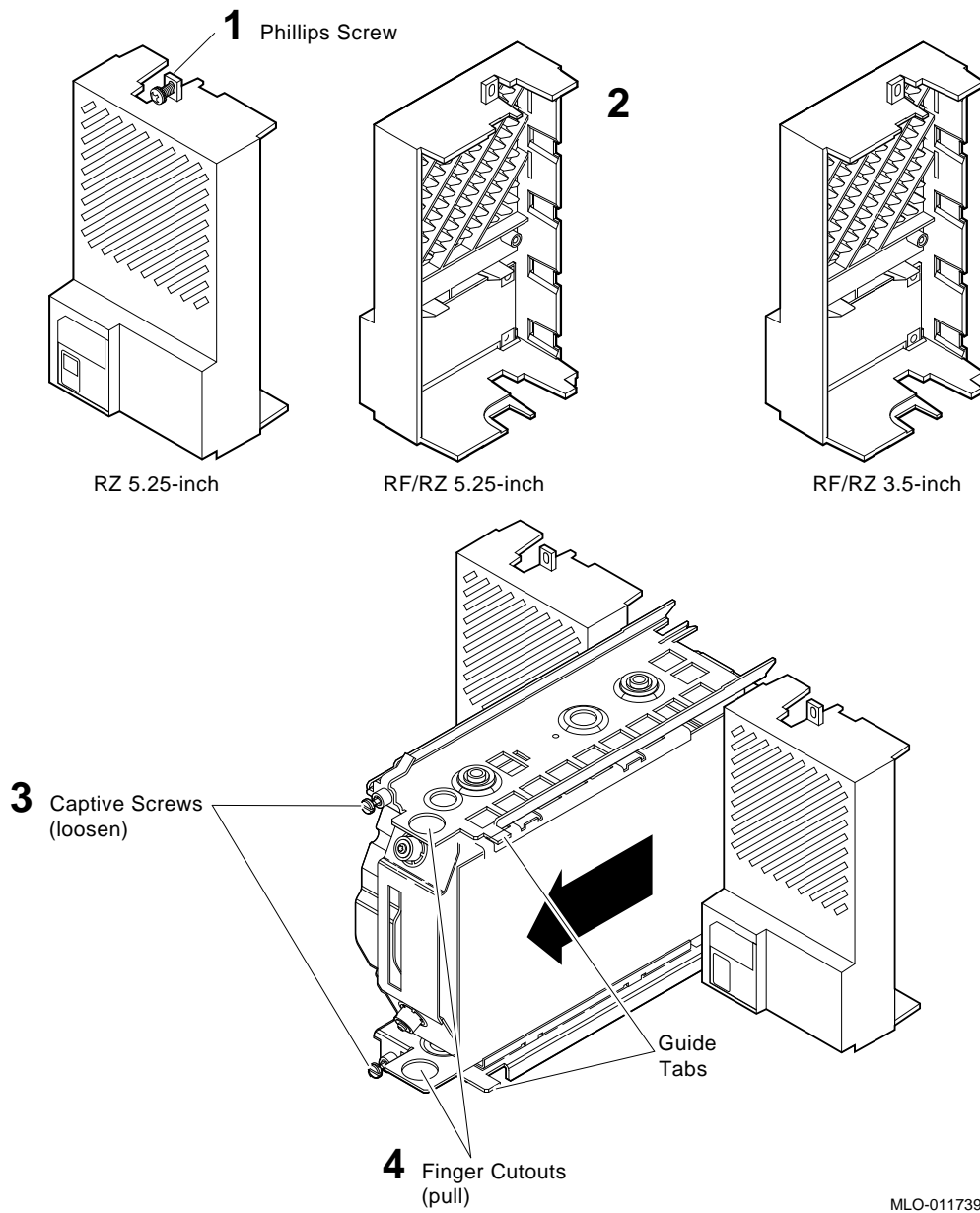

MLO-011738

3.2.3 Removing the ISEs

Identify the three (or four on some systems) ISE slots. See ❹ and ❺ in
Figure 3–1. To remove the ISEs from the I/O slots, follow this step:

• Remove all ISEs starting from left to right. Follow the numbered steps in
  Figure 3–2.

Figure 3–2 ISE Removal

1 Phillips Screw

2

RZ 5.25-inch   RF/RZ 5.25-inch   RF/RZ 3.5-inch

3 Captive Screws
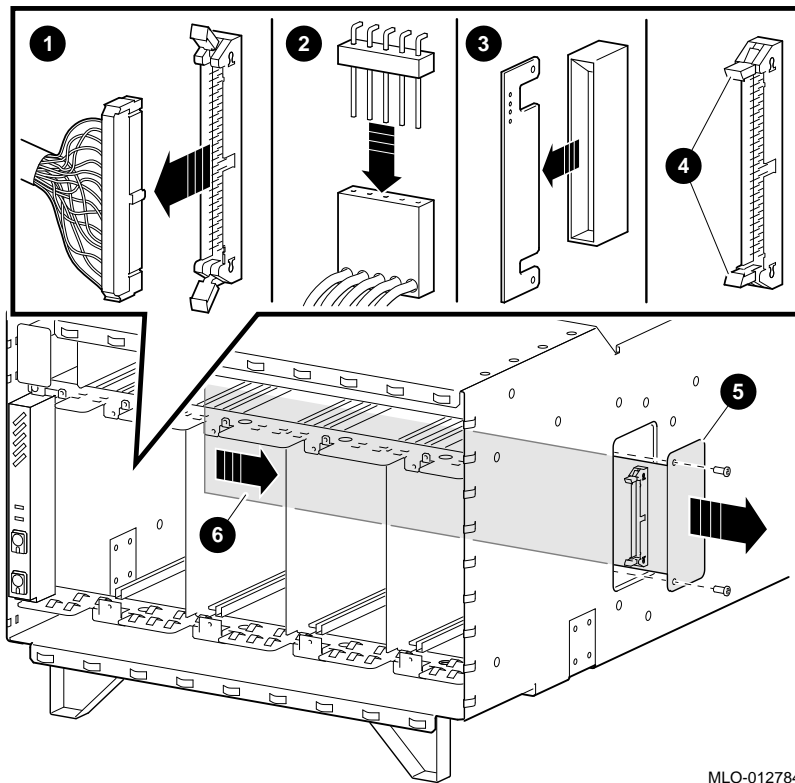(loosen)

Guide
Tabs

4 Finger Cutouts
(pull)

MLO-011739

3.2.4 Removing Existing Cables

Before you remove the existing DSSI and SCSI cables from the I/O area, be sure to note how the cables are routed so you can run the new cables in the same manner.

1. Open the clamps on all SCSI and DSSI cable connectors on the storage backplane assembly. Remove cables from connectors on the storage backplane assembly. See ❶ in Figure 3–3.

2. Remove the power plugs from SCSI/DSSI storage backplane assembly. See ❷ in Figure 3–3.

3. If present, remove the blank module from the leftmost connector on the storage backplane assembly. See ❸ in Figure 3–3.

4. Put clamps on SCSI/DSSI cable connectors in the closed position. See ❹ in Figure 3–3.

5. Remove the two screws from the blank panel on the side of the chassis. See ❺ in Figure 3–3.

6. Reach into the leftmost ISE slot and push the storage backplane assembly to the right. See ❻ in Figure 3–3. Take the assembly out of the VAX 4000 chassis.

Figure 3–3 Preparing to Remove Cables

MLO-012784

7. Remove any terminators and external cables from the connectors on top of the DSSI and SCSI bulkheads.

8. Remove the bulkhead module covers from slots 9 through 12 on the card cage by loosening the captive screws. See ❶ in Figure 3–4.

9. Remove the SCSI mounting plate screws, and mounting plate. See ❷ in Figure 3–4.

Figure 3–4   DSSI Bulkhead
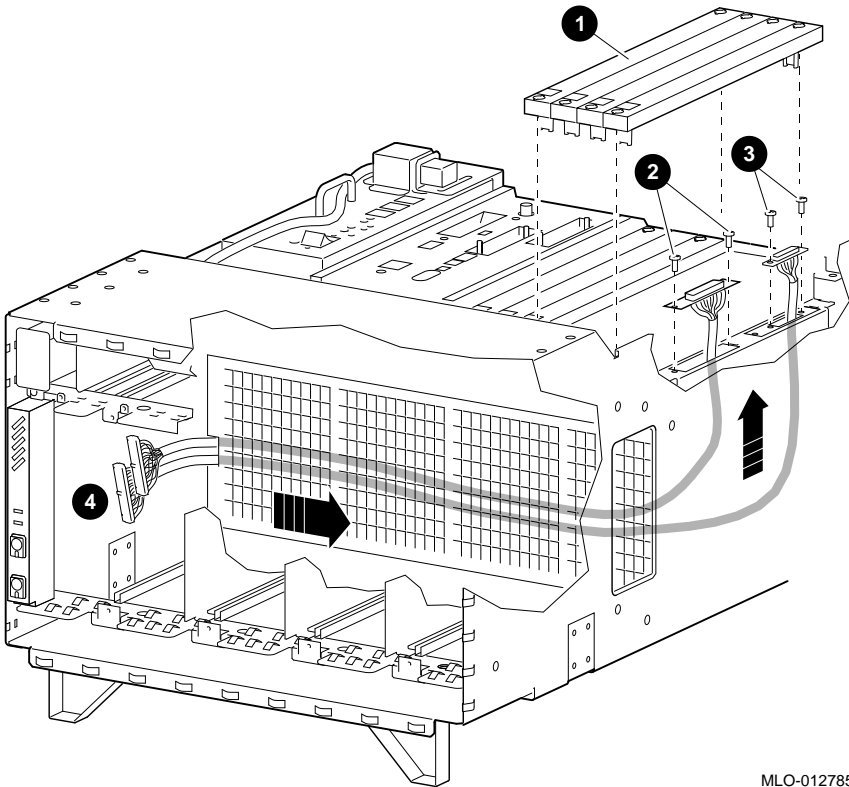
MLO-012785

10. Remove the screws on each side of the DSSI connector (leave the connector plate in place). Set the DSSI connector screws aside for later use. See ❸ in Figure 3–4.

11. Remove the SCSI and DSSI cables. The easiest way to remove the SCSI and DSSI cables is by pulling the cable out by the connector end on the right side of the chassis, and routing the cables through the cutout in the leftmost ISE slot. The DSSI cable/connector must be first dropped into the enclosure and then removed. See (❹ in Figure 3–4).

### 3.2.5 Installing the New DSSI and SCSI Cables

To install the new (longer) DSSI and SCSI cables, follow these steps:

1. Each module slot is numbered in the card cage. Note slots numbered 11 and 12 (shown as white numbers on black squares) in Figure 3–5.

2. If there are modules in slots 9 through 12, you need to remove them. Be sure to mark all cable connections to the modules and list the module and its particular slot location. It may be helpful to draw a diagram of the module/slot configuration to simplify the installation process.

CABLING TIPS

- The HSD10 adapter is normally installed in slot 12. If your system contains an option such as the M9404–PA Q–bus extender that must go in slot 12, then install the HSD10 adapter in slot 11.

- If your system contains only a few modules, route the cables to either the left or right of the HSD10 module. Figure 3–6 shows the cables being dressed to the right of the module.

- If your system contains many modules, the HSD10 cables will be less likely to interfere with other modules if they are dressed to the left of the module slot selected for the HSD10 adapter. For example, if you plan to place the HSD10 module in slot 11, route the cables to the left, through slot 12. If you plan to place the HSD10 module in slot 12, route the cables to slot 12.

Figure 3–5 Cable Routing
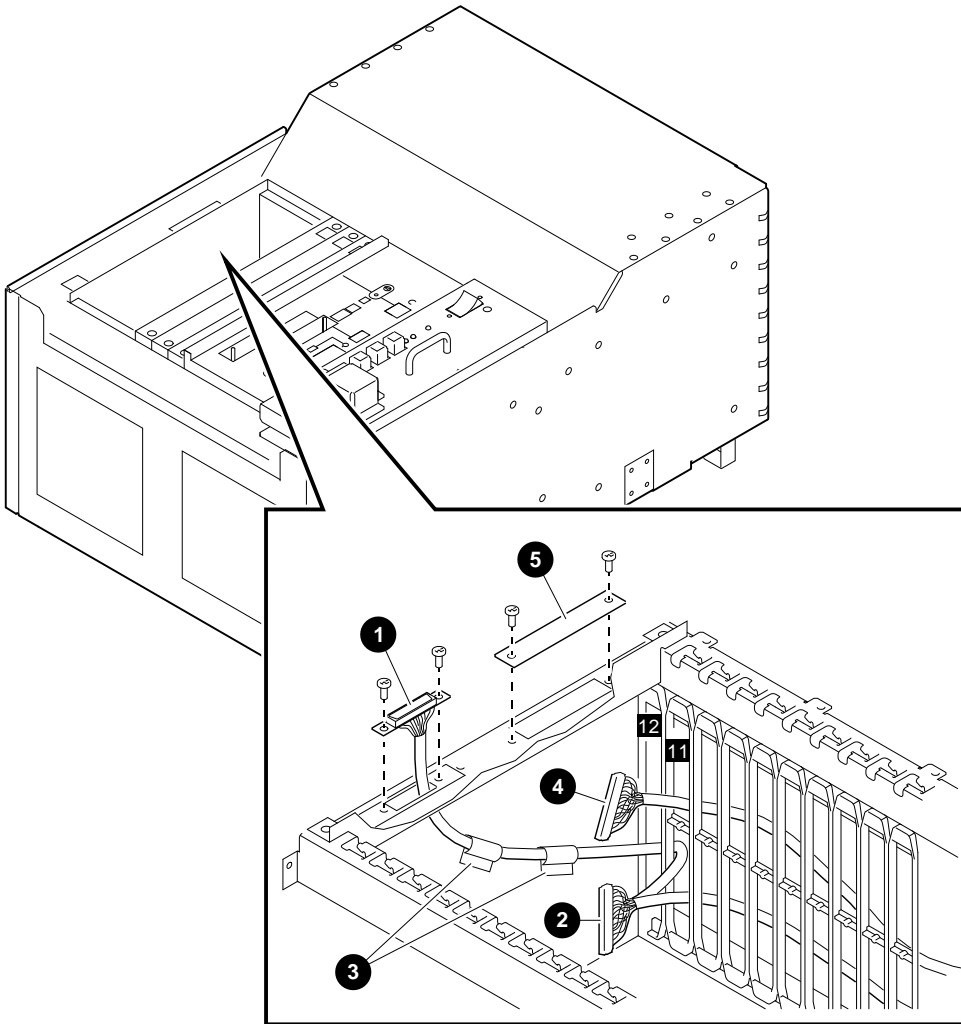
MLO-012786

3. Feed in the metal connector end of the DSSI cable and route the 3-connector DSSI cable into the leftmost ISE slot of the storage backplane assembly (next to the enclosure wall). See ❹ in Figure 3–4.

4. Route the the 3-connector DSSI cable between the cage supports.

   a. Route the DSSI cable connector to its position on the chassis ❶ in Figure 3–5. Secure the DSSI cable connector to the bulkhead, using the screws you saved when you removed the original cable.

_____ NOTE _____

See Section 3.2.5 for cabling tips and routing information.

_____

    b. Route the DSSI plug ❷ through slot 11 or 12 (it is not connected at this time).

    c. Attach the cable routing clamps (if needed) and secure the cable to the chassis. See ❸ in Figure 3–5.

5. Route the SCSI cable into the leftmost ISE slot of the I/O storage backplane assembly cage. See ❹ in Figure 3–4.

6. Route the the SCSI cable in between the cage supports, until it reaches the opening for slot 11 or 12. See ❹ in Figure 3–5.

7. Attach the blank connector plate over the SCSI connector opening on the I/O panel using the screws provided in the HSD10 adapter kit. See ❺ in Figure 3–5.

8. Pull all cable slack into the area between the cage supports.

3.2.6 Installing the HSD10 Adapter

Refer to Figure 3–6 to insert the HSD10 adapter into the enclosure.

1. Remove the HSD10 adapter from its packaging.

2. Turn the adapter so that the small daughter card is facing the center of the enclosure. See ❶ in Figure 3–6.

3. Insert the HSD10 adapter half-way into slot 11 (or slot 12).

4. Open the connector clamps on the SCSI connector. Connect the SCSI cable to the SCSI connector. See ❷ in Figure 3–6. Close the connector clamps.

5. Connect the DSSI cable to the DSSI connector. See ❸ in Figure 3–6.

Figure 3–6 Installing HSD10 Adapter

MLO-011716
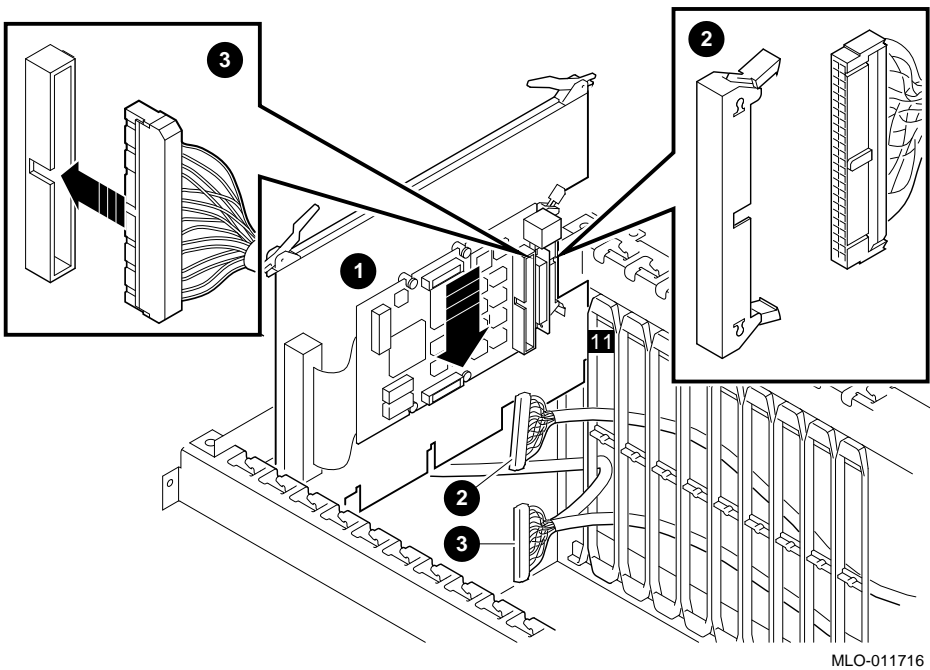
6. Push the HSD10 adapter all the way into the slot until it makes a positive connection to the backplane. Use the module handles to seat the adapter securely.

7. Check the cables from the HSD10 adapter making sure they are routed so they do not interfere with a module placed in an adjacent slot. Dress all cables in the cable routing area to the bottom of the unit.

8. Return each module to its original slot in the system. Use the cable identification list/diagram you created when you removed the existing modules from the system.

9. Replace the module covers for slots 9 through 12 using the captive screws.

_____ **CAUTION** _____

Do not operate the system without all the module covers installed. They are required to maintain proper airflow and to meet international regulatory standards.

_____

10. Reinstall any original cables and terminators to the module covers and I/O panel.

3.2.7 Completing the Installation

To complete the installation, follow these steps:

1. Reverse the procedures listed in Section 3.2.3 and Section 3.2.2. Remember to reinstall the blank module in the leftmost SCSI connector to complete the SCSI bus (reverse step 3 in Figure 3–3).

2. Attach the gray HSD10–JH identification label on the slot 11 or 12 module cover as shown below.

Label Area
(If KFDDB
is not installed.)

Label Area
(If KFDDB
is installed.)
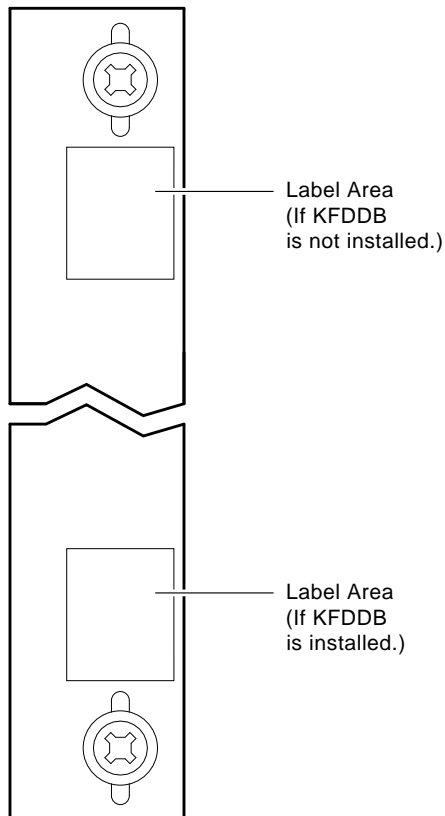
MLO-012727

3. Plug in the power cord and power on the system.

4. Configure the HSD10 - Refer to Appendix A and *HSD10 DSSI-to-SCSI Bus Adapter Operation Information for VAX 4000 Systems* manual (EK-HSD10-OP).

5. Have the customer perform a software boot to the system.

6. Run diagnostics to verify system operation.

This completes the installation of the adapter in a rackmount enclosure. Go to Appendix A to select device numbers and complete the installation.

4

Installing the HSD10–EK Adapter Kit in a Desktop Enclosure

This chapter describes how to install the HSD10–EK adapter and cables in the BA42-B*x* desktop enclosures. Be sure you set the device configuration switches as described in Chapter 1 before installing the adapter.

The typical installation of the HSD10-EK adapter kit in a desktop enclosure will involve removing DSSI drives and replacing them with SCSI drives. However, the new HSD10 power harness allows the possibility of installing the HSD10 adapter with one SCSI drive *and* a DSSI drive.

The HSD10 adapter kit contains the following parts:

- This installation document (EK–HSD10–IN) and operator guide (EK–HSD10–OP)

- HSD10 Adapter Module Assembly

- SCSI cable

- New SCSI power harness with extra DSSI connector and pigtailed CPU connector

_____ **NOTE** _____

In addition to this guide, you need the *BA42B-Series Enclosures Storage Devices Installation Procedures* (EK–BA42B–IN) manual for the procedures to remove and install HSD10 supported disk, tape, and CD–ROM drives.

_____

4.1 Before You Install the Kit

Before you install the kit:

1. It is the customer's responsibility to back up the system disk before the Digital services representative arrives. This is optional and customer may choose to waive the disk back up procedure.

2. Perform a software shutdown of the system.

4.2 HSD10 Adapter Installation Procedure

The installation procedure for the HSD10 adapter consists of the following:

1. Disconnecting power and removing the enclosure cover and power harness— Section 4.2.1

2. Removing the ISEs (as required) and disconnecting the existing DSSI cables—Section 4.2.2

3. Installing the HSD10 adapter—Section 4.2.3

4. Installing the new SCSI cable and SCSI or DSSI drives as required— Section 4.2.4 and Section 4.2.5

5. Completing the installation—Section 4.2.6

CAUTION

To prevent static electricity damage to the integrated circuits, use the antistatic wrist strap and antistatic pad found in the static-protective kit (part number 29–26246–00) when you install the HSD10 adapter.


4.2.1 Installing the HSD10 Adapter Upgrade Kit

To install the HSD10 Adapter Upgrade Kit, use the following steps to open the BA42B Desktop Enclosure. Reverse these steps to reinstall the cover.

1. Turn off the system power.

2. Disconnect the power cord.

3. Remove the enclosure cover by loosening the two captive screws at the rear of the system box and sliding the cover forward.

4. Disconnect the existing DSSI power harness from the power supply unit ❶
    (connector on left side), at the 2-pin pigtail connector at the CPU module ❷
    and at the drives. Discard this power harness. Figure 4–1 shows where to
    disconnect the power harness in the BA42B Enclosure.

Figure 4–1   Disconnecting the internal power cable
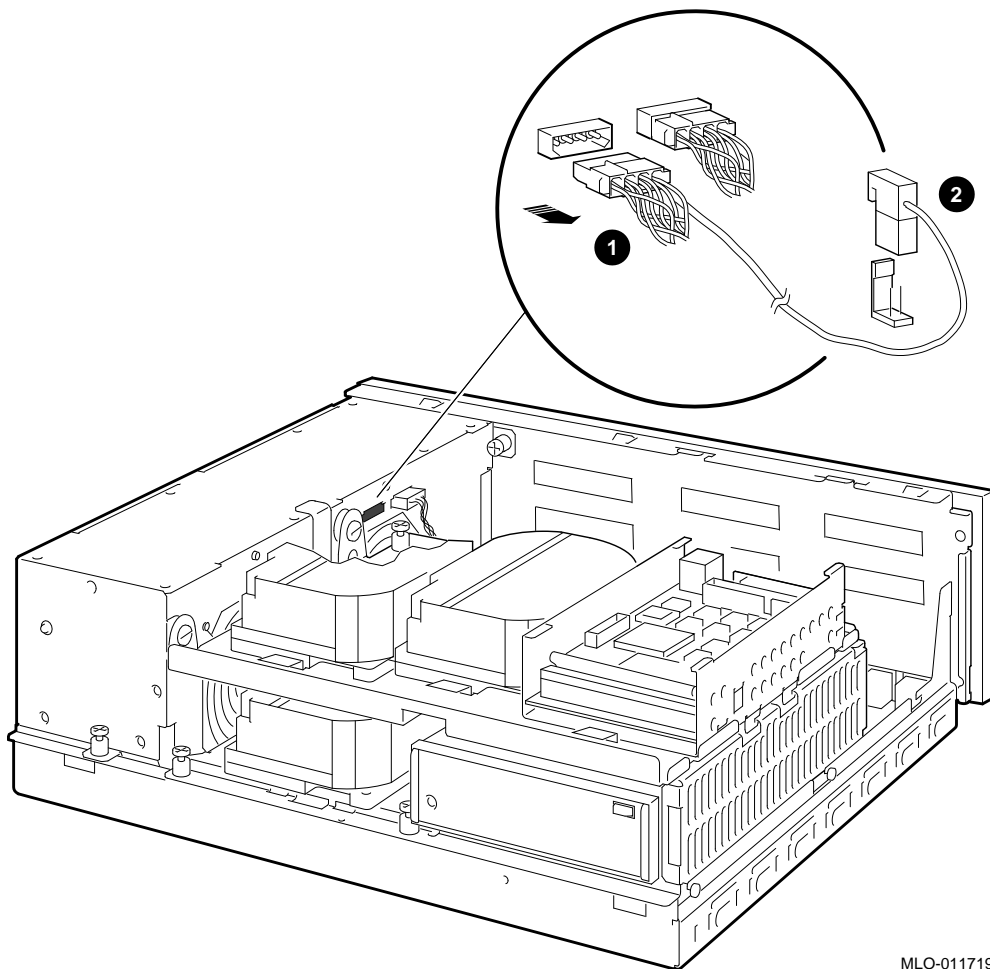
MLO-011719

❶ Internal DSSI power cable for top shelf with pigtailed DSSI Power cable.

❷ CPU module DSSI power cable connector

4.2.2 Removing an RF Series Disk Drive

_____ **Note** _____

RF-series disk drives are only installed on the upper drive mounting shelf in a BA42B enclosure. The illustrations in this section show how to remove the RF-series drive and install an RZ in the center position of the upper drive-mounting shelf, when viewed from the front.

_____

To remove an RF-series drive from the BA42B Enclosure, follow these steps:

1. Depress the spring clip that secures the mounting bracket to the drive-mounting shelf (refer to Figure 4–2).

_____ **Note** _____

You can disconnect the cables from the drive more easily after you remove the drive from the drive-mounting shelf.

_____

Figure 4–2 Removing a Sample RF Series Disk Drive Option

RF-Series Disk Drive

RF-Series Disk Drive

Spring Clip
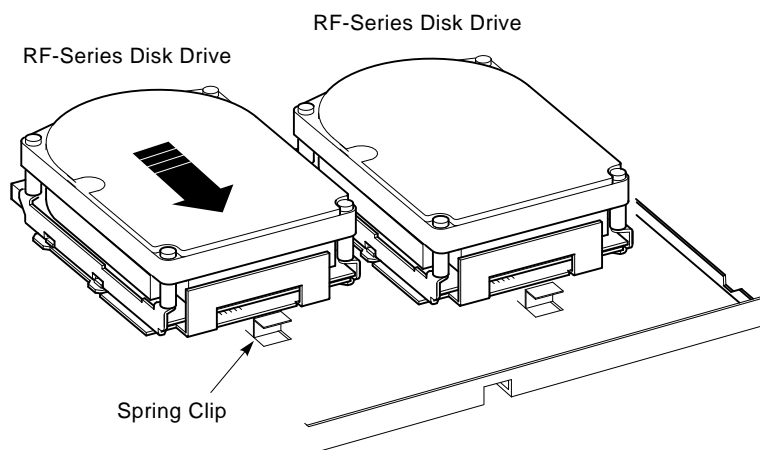
MLO-012389

2. Slide the drive forward until the rubber grommets attached to the mounting bracket are clear of the cutouts in the drive-mounting shelf.

3. Lift the RF-series drive, which has its bracket attached, out of the system unit.

4. Disconnect the power cable from the back of the RF-series drive.

5. Disconnect the DSSI cable from the back of the RF-series drive by pulling the pull-tab. Figure 4–3 shows a typical signal cable being disconnected from a drive.

Figure 4–3 Disconnecting the DSSI Cables from the Drives


MLO-010804
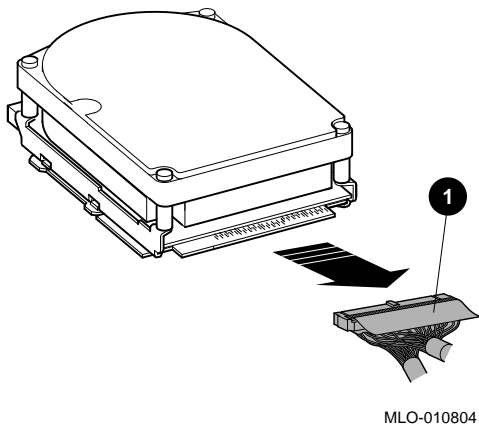
❶ Internal DSSI connector

4.2.3 Installing the HSD10 Adapter In A Desktop Enclosure

Refer to Figure 4–4 to insert the HSD10 adapter into the enclosure.

Refer to Figure 4–5 for DSSI and SCSI cable connections.

1. Remove the HSD10 adapter from its packaging.

2. Refer to Figure 4–4. Align the adapter so that the cable connections face the rear of the enclosure. Slide the tabs ❶ into the slots ❷, slide towards rear of enclosure until spring clip ❸ locks adapter into place. Refer to Figure 4–5 for cabling diagram.

3. Connect the SCSI cable to the SCSI connector on the HSD10 adapter. Refer to Figure 1–2.

4. Connect the DSSI cable to the DSSI connector on the HSD10 adapter. Refer to Figure 1–2.

Figure 4–4 Installing HSD10 Adapter In Desktop Enclosure
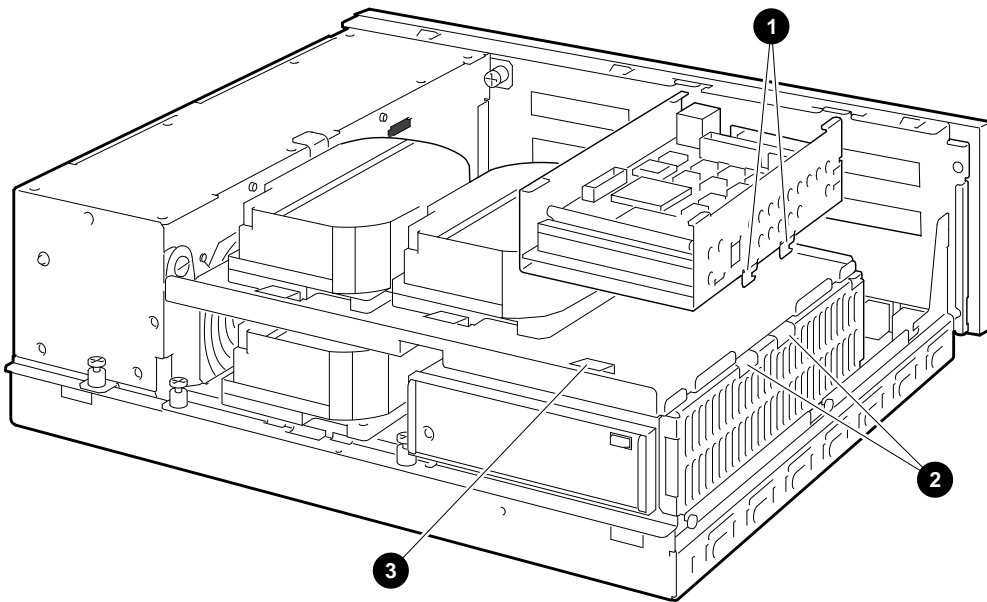
MLO-011718

Figure 4–5 SCSI and DSSI Cable Connections for HSD10 Adapter
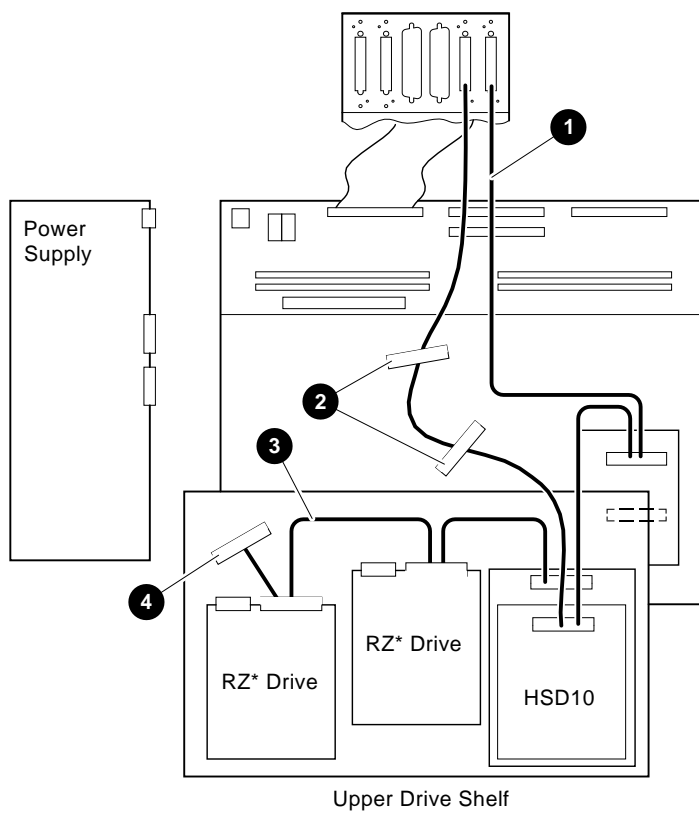
MLO-011721

❶ Existing DSSI signal cable

❷ DSSI connectors - unused

❸ New SCSI cable

❹ Terminator

4.2.4 Installing a SCSI drive

To install a SCSI drive, follow these steps:

1. Secure drive with mounting bracket on the upper drive mounting shelf. For more specific installation instructions, refer to *VAX 4000 BA42B Enclosure Systems Options* manual (EK-474AB-OP).

2. Connect the new SCSI signal cable from the HSD10 adapter to new SCSI drive.

3. Check to make sure the SCSI cable is terminated.

4. Connect the corresponding 4-pin SCSI connectors on the new SCSI power cable to the SCSI drive.

5. Refer to *BA42B-B Enclosure System Options* manual (EK-474AB-OP) for information on setting SCSI and/or DSSI ID's.

4.2.5 Installing a DSSI drive

To install a DSSI drive, follow these steps:

1. Secure drive with mounting bracket on the upper drive mounting shelf. For more specific installation instructions, refer to *VAX 4000 BA42B Enclosure Systems Options* manual (EK-474AB-OP).

2. Connect the correspondingly marked DSSI connector to DSSI drive.

3. Check to make sure the DSSI cable is terminated at the rear expansion port.

4. Connect the 5-pin DSSI connector on the new SCSI power harness to the DSSI drive.

5. Refer to *BA42B-B Enclosure System Options* manual (EK-474AB-OP) for information on setting SCSI and/or DSSI ID's.

4.2.6 Completing the Installation

To complete the installation, follow these steps:

1. Connect new pigtailed power cable to the power supply and the CPU module. Refer to Figure 4–1

2. Replace the enclosure cover by sliding into place and securing the two captive screws.

3. Plug in the power cord and power on the system.

4. Configure the HSD10 - Refer to Appendix A and *HSD10 DSSI-to-SCSI Bus Adapter Operation Information for VAX 4000 Systems* manual (EK-HSD10-OP).

5. Have the customer perform a software boot to the system.

6. Run diagnostics to verify system operation.

This completes the installation of the adapter in a desktop enclosure. Go to Appendix A to select device numbers and complete the installation.

A

Selecting Device Numbers for Multiple DSSI Bus Configurations

Use the following procedure to select a unique device number for the HSD10 adapter and the SCSI ISE devices connected to it. Refer to the *HSD10 DSSI-to-SCSI Bus Adapter Operation Information for VAX 4000 Systems* manual (EK-HSD10-OP) for additional information.

1. At the system console prompt, enter the console command `SHOW DSSI` to verify that the selected HSD10 adapter node address is seen by the system.

2. Take note of the DSSI device numbers in use on the cluster to be sure that all DSSI numbers are unique throughout the cluster. For example, you cannot have a DIA130 and a DIB130 on the same cluster.

   To avoid possible confusion in a system with multiple buses, the suggested device numbering scheme on the HSD10 adapter is "wxyz."

   - "w" is the value of the DSSI bus number

   - "x" is the DSSI ID (default = 0)

   - "y" is the SCSI ID

   - "z" is the SCSI lun number (usually = 0)

   In this example the device name is DIA1230.

   DSSI bus (w) = 1
   DSSI ID (x) = 2
   SCSI ID (y) = 3
   SCSI lun (z) = 0

NOTE

You may need to change the UNITUM and FORCEUNI parameters
on existing DSSI drives in the cluster and the HSD10 UNIT_OFFSET
parameter so that each device has a unique device number.

If a unit number is added which overlaps the unit number of another
device on another controller in the system or cluster, all of the other
devices on that other controller can disappear. In this event, the unit
number conflict should be resolved and controller power should then be
cycled. All lost devices will reappear when the controller is powered on.

---

3. At the command prompt, enter the console command `SET HOST/DUP/DSSI`
   `/BUS:n x PARAMS` to set the DISK_ALCS and TAPE_ALCS parameters to
   the cluster Allocation class.

   Where n = DSSI bus number and where X = the DSSI node name of the
   HSD10 adapter.

4. Set device ID's as determined in Step 2.

5. Set the HSD10 NODENAME and any other desired parameters.

6. Use the RESTART command to save the settings and complete the
   procedure.

7. Install any new SCSI disk, tape, or CD–ROM drives in the BA4xx
   enclosure, making sure the SCSI IDs are unique.

   √ Refer to the *BA400-Series Enclosures Storage Devices Installation
     Procedures* manual (EK–BA44A–IN) and the *BA42-B Enclosures
     System Options* manual (EK–474AB–OP)for the procedures to install
     HSD10 adapter supported options.

8. Enter the console command `SHOW DSSI` or `SHOW DEVICES` to verify that all devices are seen by the system.

9. If all devices are not seen, make sure port 0 (DSSI port) is enabled on the HSD10. You *must* set port-specific configuration characteristics. Use the serial communications command, `SET PORT 0:/ENABLE` to enable the port.

10. Use the RESTART command to save the settings and complete the procedure.

────────────────── **NOTE** ──────────────────

All disk drives appear as RF72s while all tape drives appear as TU81s.

The OpenVMS command `SETHOST/DUP/SERVER=MSCP$DUP /TASK=<taskname> <node>` can be used in place of the console command `SET HOST/DUP/DSSI/BUS:n PARAMS`, once the VMS driver is loaded, by using the command `MC SYSGEN CONNECT FYA0/NOADAPTER`.

Where n = the DSSI bus number.

──

This completes the installation of the HSD10 adapter. Refer to the *HSD10 DSSI-To-SCSI Adapter Operation Information for VAX 4000 Systems* (EK–HSD10–OP) for system operating and troubleshooting information.

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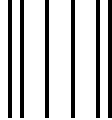For software manuals, please indicate which version of the software you are using: _____

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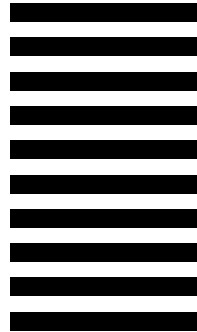Name/Title _____   Dept. _____

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