VAX 4000

BA42B Enclosure System Options

Order Number: EK–474AB–OP. C01

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This manual provides reference, configuration, and installation information for the options supported by the VAX 4000 BA42B Enclosure-based systems (Models 100, 100A, 105A, 106).

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Preface

This manual provides reference, configuration, and installation information for each internal option that the VAX 4000 BA42B Enclosure systems support.

Audience

This manual is for Digital services personnel. It is also for customers who have a self-maintenance agreement with Digital Equipment Corporation.

Structure of This Manual

This manual is divided into ten chapters describing all the options that you can install in a VAX 4000 BA42B Enclosure system.

Related Documents

The following documents contain more information about VAX 4000 BA42B systems:

- *Acoustic Declaration for VAX 4000 BA42B Systems*, EK-464AA-AN

- *VAX 4000 BA42B Enclosure Maintnance*, EK-472AB–MG

- *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/KA54 CPU System Maintenance* EK-472AB–MG

- *VAX 4000 Model 100 Customer Letter*, EK-463AA-CL

- *VAX 4000 Model 100 Customer Technical Information*, EK-467AA-TI

- *VAX 4000 Model 100 Installation Information*, EK-465AA-IN

- *VAX 4000 Model 100 Operator Information*, EK-466AA-OP

- *VAX 4000 Model 100 Troubleshooting and Diagnostics Information*, EK-468AA-TS

- *VAX 4000 Model 100A Customer Letter*, EK-501AA-CL

- *VAX 4000 Model 100A Customer Technical Information*, EK-504AA-TI

- *VAX 4000 Model 100A Installation Information,* EK-502AA-IN

- *VAX 4000 Model 100A Operator Information,* EK-503AA-OP

- *VAX 4000 Model 100A Troubleshooting and Diagnostics Information,* EK-505AA-TS

- *VAX 4000 Model 105A/106A Customer Letter,* EK-511AA-CL

- *VAX 4000 Model 105A/106A Customer Technical Information,* EK-514AA-TI

- *VAX 4000 Model 105A/106A Installation Information,* EK-512AA-IN

- *VAX 4000 Model 105A/106A Operator Information,* EK-513AA-OP

- *VAX 4000 Model 105A/106A Troubleshooting and Diagnostics Information,* EK-515AA-TS

- *OpenVMS Factory Installed Software User Guide,* EK-A0377-UG

Conventions

The following conventions are used in this manual:

Convention	Description
x	A lowercase italic *x* indicates the generic use of a letter. For example, *xxx* indicates any combination of three alphabetic characters.
italic type	Italic type emphasizes important information, indicates variables, and indicates the complete titles of manuals.
boldface type	Boldface type in examples indicates user input. Boldface type in text indicates the first instance of terms defined either in the text, in the glossary, or both.
MONOSPACE	Text displayed on the screen is shown in monospaced type.
Radix indicators	The radix of a number is written as a word enclosed in parentheses, for example, 23(decimal) or 34(hexadecimal).
UPPERCASE	A word in uppercase indicates a command.
Note	A note contains information that is of special importance to the user.
Caution	A caution contains information to prevent damage to the equipment.

Overview

This manual contains descriptions of options that the VAX 4000 BA42B-based systems support. It provides instructions that describe how to install each option into a VAX 4000 BA42-based system. If there is option model-specific information, it is also described. The following is a list of options that the VAX 4000 BA42B-based systems support.

- DHW42-AA, -BA, -CA, -UP asynchronous communications option
- DSW42-AA synchronous communications option
- MS44-DC, MS44L-BC memory options
- RF31T-EK/RF35-EK/RF36-EK disk drive option
- RRD42-EK CDROM drive option
- RRD43-EK CDROM drive option
- RX26-EL/RX23-EL disk drive option
- RZ25L disk drive option
- RZ25M disk drive option
- RZ26/RZ26L/RZ28 disk drive options
- TLZ06-HG/TLZ07-HG tape option
- TZ30-EL tape option
- TZK10-HG/TZK11-HG drive option

_____ **Note** _____

Your system may differ slightly from some illustrations because this manual randomly depicts VAX 4000 Models 100, 100A, 105A, 106A as examples.

Many options may be installed in either right-hand or left-hand mounting positions. Illustrations may differ from the actual position used in your system.

_____

DSSI and SCSI Information

DSSI ID information

You must set the ID of the digital storage systems interconnect (DSSI) device option. In the VAX 4000 Model 100, 100A, 105A, 106A each DSSI device must have a unique DSSI ID.

SCSI ID information

You must set the ID of a small computer system interface (SCSI) device option. In a VAX 4000 Model 100, 100A, 105A, 106A each SCSI device must have a unique SCSI ID. The following table lists the recommended SCSI IDs for the various SCSI devices that the VAX 4000 Model 100, 100A, 105A, 106A systems support.

SCSI ID	Device
0-5	
6	SCSI controller (internal default)
7	

1

Opening the BA42B Enclosure

1.1 Disconnecting the Power and Removing the Enclosure Cover

Use the following steps to open the BA42B enclosure. Reverse these steps to reinstall the cover.

1. Turn off the system power.

2. Disconnect the power cord (Figure 1–1).

Opening the BA42B Enclosure
1.1 Disconnecting the Power and Removing the Enclosure Cover

Figure 1–1   Disconnecting the Power Cord
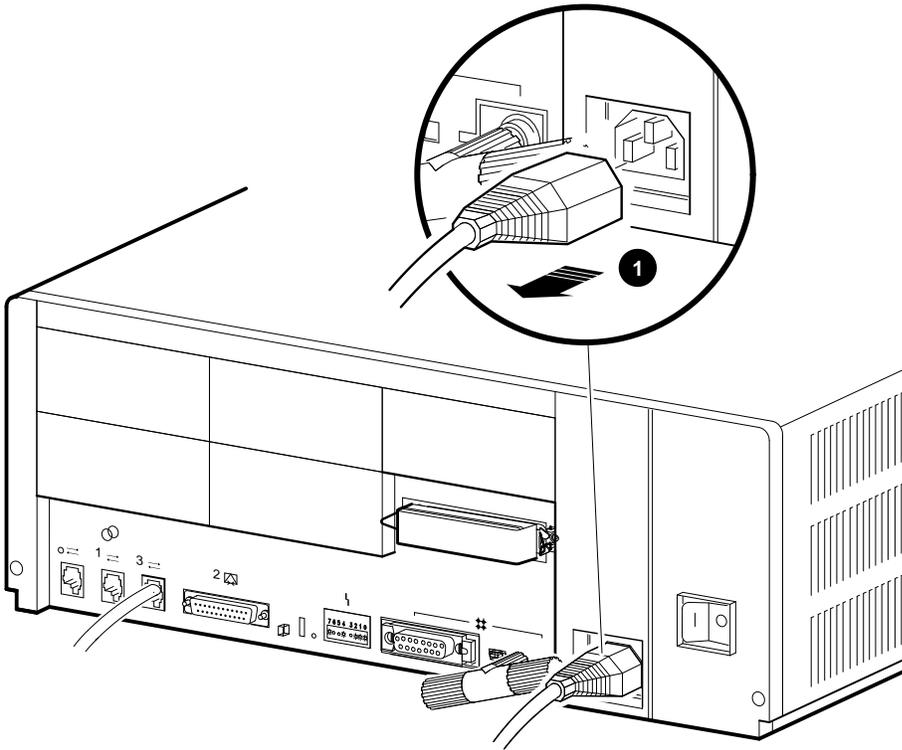
MLO-010959

❶   Power cord

3. Remove the enclosure cover by removing the two screws at the rear of the
    system box and sliding the cover forward (Figure 1–2).

Figure 1–2   Removing the Enclosure Cover
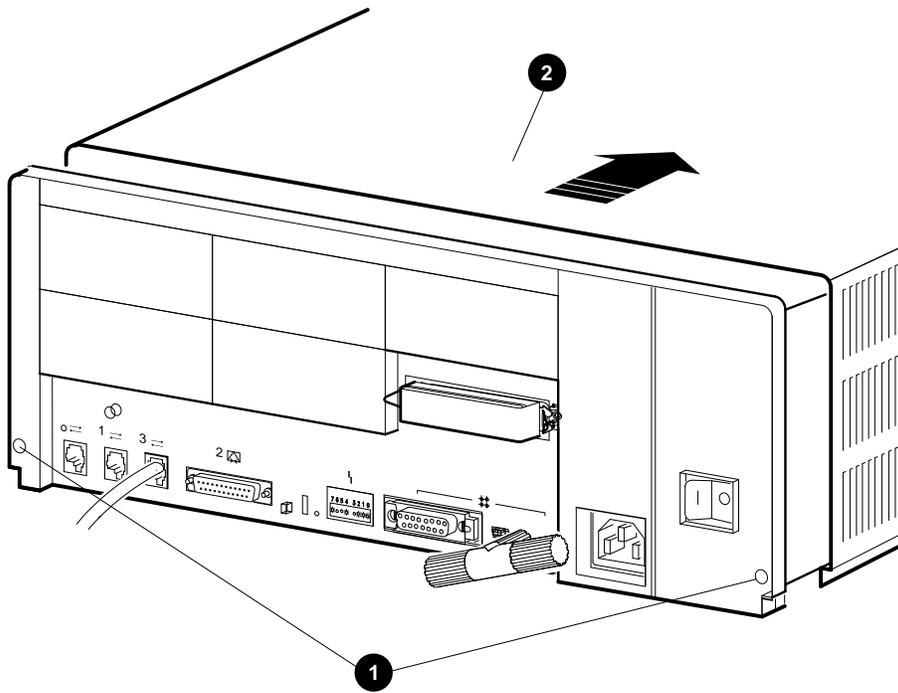
MLO-010960

❶ Screws

❷ Enclosure cover

1.2 Removing the Drive-Mounting Shelves

Unless you need to access the drives on the lower drive-mounting shelf, it is not necessary to separate the upper shelf from the lower shelf; use these steps to remove the drive-mounting shelves as a single unit.

    1. Unfasten the upper and lower drive-mounting shelves together as a single unit (Figure 1–3).

        a. Unscrew the lower three captive screws from the from the shelves, leaving the topmost captive screw for support.

        b. Loosen the two panhead screws so that the shelves can slide out; it is not necessary to remove them.

        c. Loosen the topmost captive screw.

Figure 1–3   Unscrewing the Drive Shelf Screws

MLO-010961

❶ Topmost captive screw   ❸ Panhead screws
❷ Other captive screws

2. Disconnect the internal power cables from the power supply (Figure 1–4).

Figure 1–4 Disconnecting the Internal Power Cables
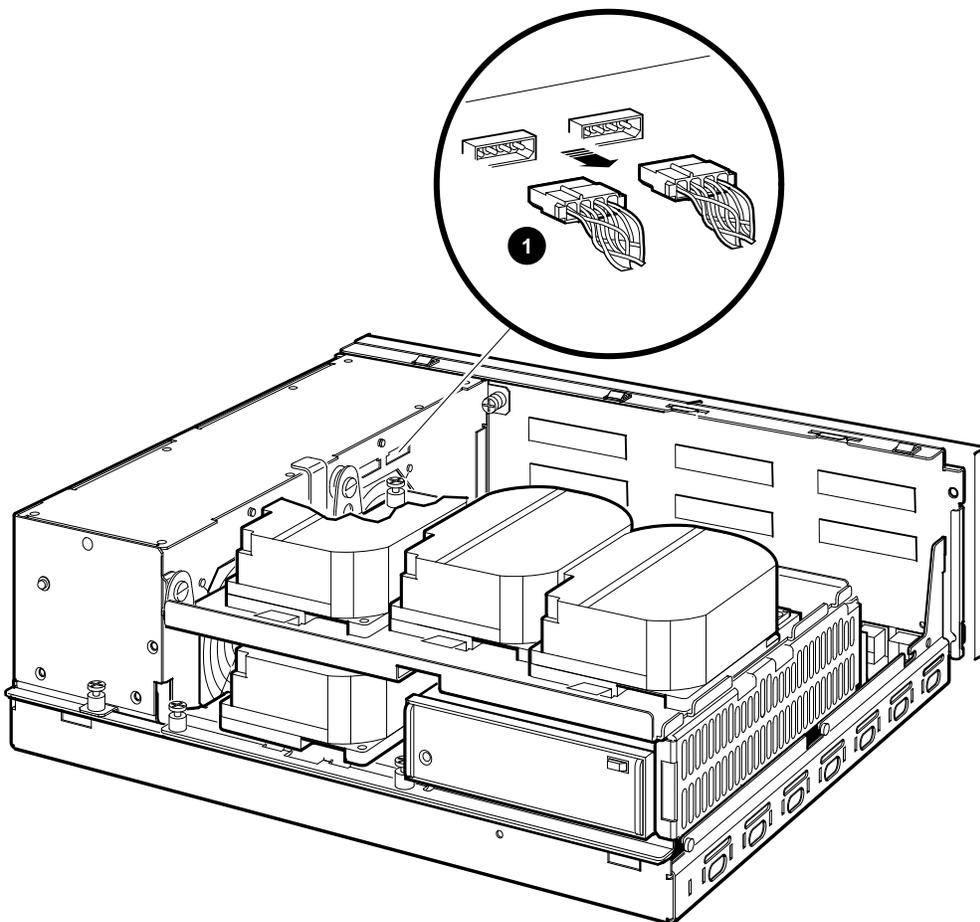
MLO-010803

❶ Internal power cables

3. Disconnect the internal SCSI cable from the mother board (Figure 1–5).

   a. Release the memory module nearest the internal SCSI connector by pressing the tabs on each end, and tip the memory module toward the rear of the enclosure.

b. Disconnect the internal SCSI cable from its connector on the mother board.

Figure 1–5 Disconnecting the Internal SCSI Cable from the Mother Board
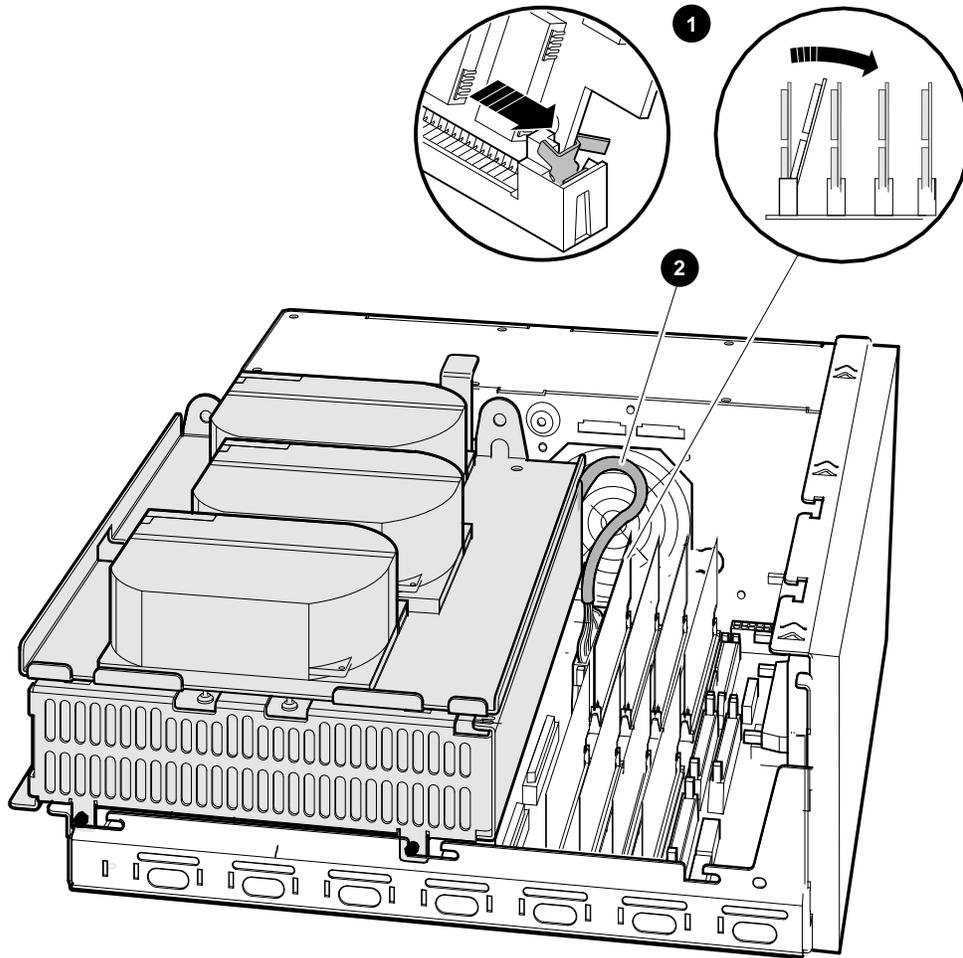
MLO-010805

❶Tipping the memory module forward   ❷Internal SCSI cable

Opening the BA42B Enclosure
1.2 Removing the Drive-Mounting Shelves

4. Remove the shelves as one unit by sliding them forward (Figure 1–6) and lifting them up and away from the enclosure (Figure 1–7). Leave the memory module tipped toward the rear of the enclosure until the shelves are reinstalled.

Figure 1–6 Sliding the Drive Mounting Shelves Forward

MLO-010806

❶ Drive mounting shelves

Figure 1–7   Lifting the Drive Mounting Shelves Upward
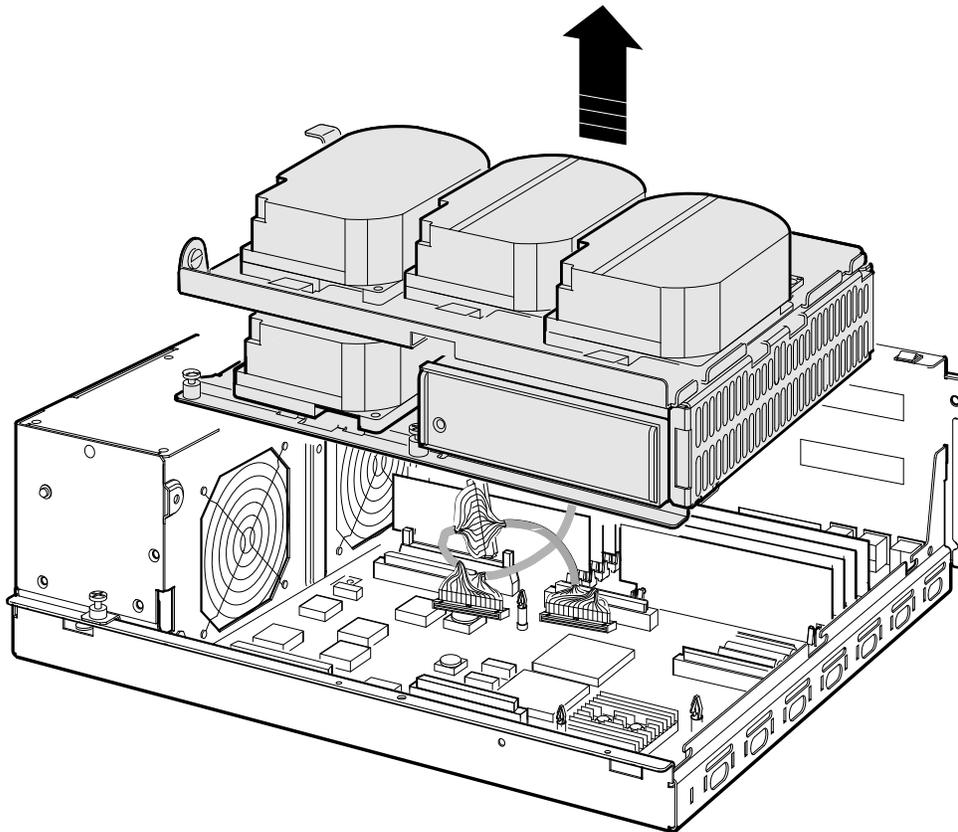
MLO-010962

1.3 Reinstalling the Drive-Mounting Shelves

To reinstall the drive-mounting shelves and the enclosure cover, use the following procedures.

1. Align the upper and lower drive mounting shelves in the system box, simultaneously connecting the internal SCSI cable (17–03588–01 or 17–02943–01) to the mother board.

   a. Position the shelves by lining up the bracket tabs, but do not slide them rearward yet (Figure 1–8).

Figure 1–8 Aligning the Drive Mounting Shelves
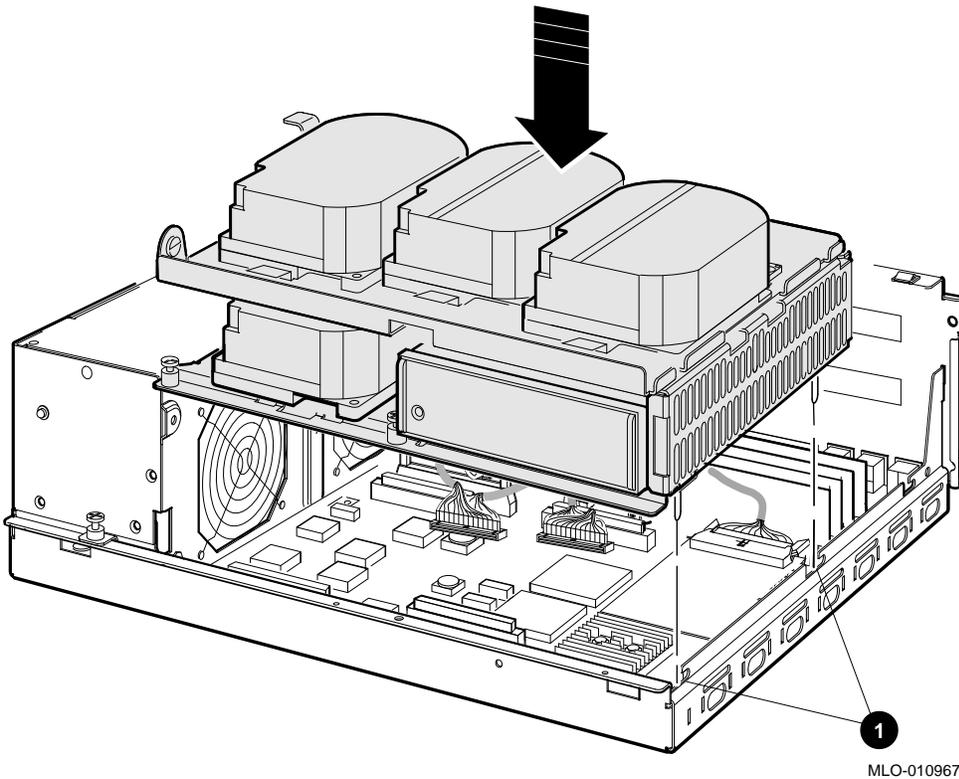
MLO-010967

❶ Bracket tabs

b. Connect the internal SCSI cable to its connector on the mother board.
    (The memory module nearest the internal SCSI connector should
    already be tipped toward the rear of the enclosure; if it is not, see
    Figure 1–5.)

c. Snap the memory module back into its upright position.

d. Slide the shelves down and rearward so that the holes on the bracket
    tabs line up with their cutouts (see Figure 1–9).

Figure 1–9   Reinstalling the Drive Mounting Shelves
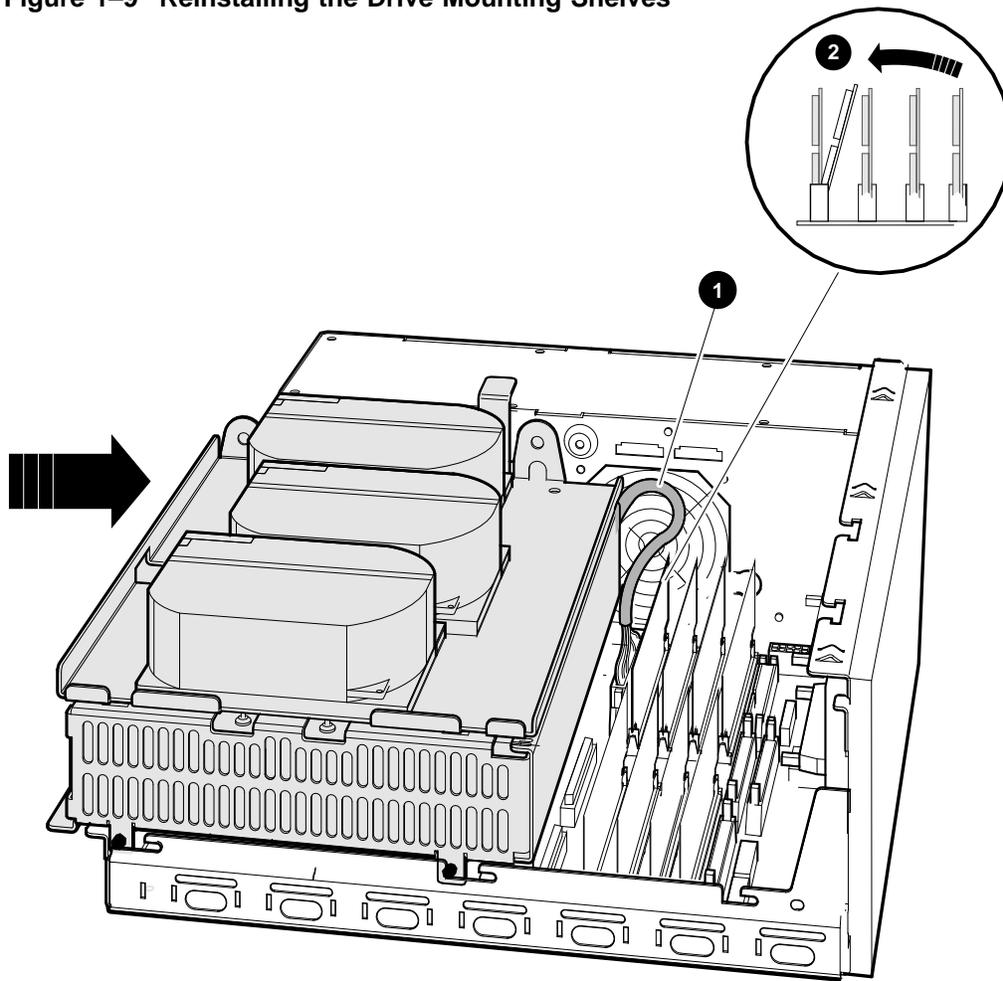
MLO-010829

❶ Internal SCSI cable   ❷ Snapping the memory module upright

2. Tighten the shelves in place using the six screws which held them in originally (Figure 1–10).

   a. Tighten the topmost captive screw first to ensure that the shelves do not fall and damage components underneath.

   b. Tighten the remaining screws.

Figure 1–10 Securing the Drive Mounting Shelves
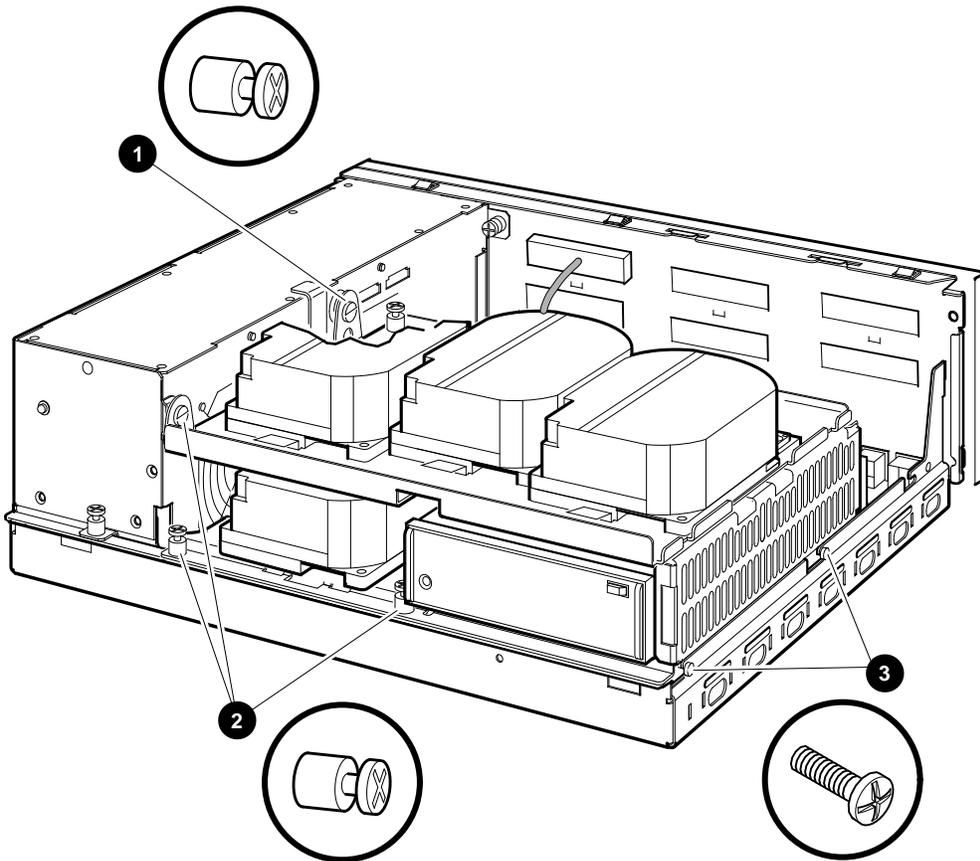
MLO-010968

❶ Topmost captive screw   ❸ Panhead screws
❷ Other captive screws

3. Reinstall the enclosure cover and connect the power cable (see Section 1.1).

1.4 Removing the Upper Drive-Mounting Shelf Only

To reach drives on the lower drive mounting shelf in the BA42B enclosure, you must remove the upper drive-mounting shelf. Depending on the system configuration, the upper drive-mounting shelf can contain one, two, or three disk drives. You can remove the upper drive-mounting shelf with the disk drives attached. Use the following steps to remove the upper drive-mounting shelf. Reverse these steps to reinstall the shelf.

_____ **Note** _____

When disconnecting the cables, you must note which cables connect to which drives. On the SCSI cable, note the number on the connector pull-tab.

_____

1. Remove the enclosure cover (see Section 1.1).

2. Disconnect the power cables from the power supply unit. Figure 1–11 shows where to disconnect the power cables in the BA42B Enclosure.

Figure 1–11   Disconnecting the Internal Power Cables
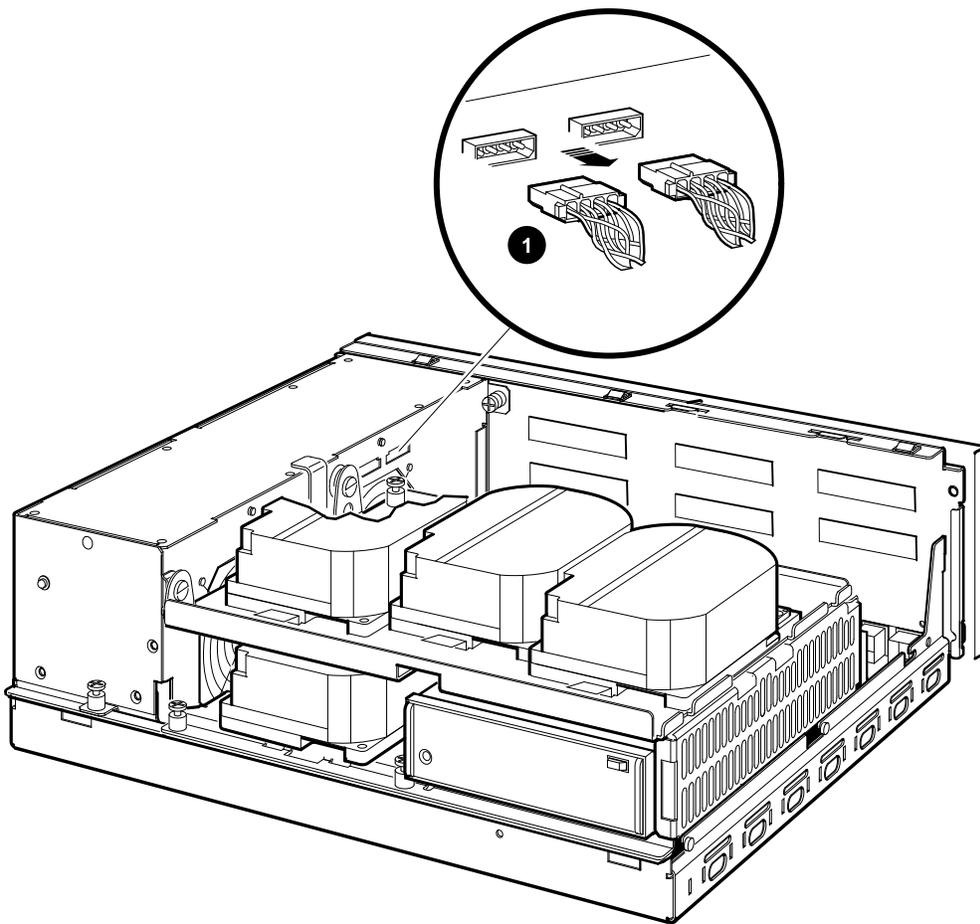
MLO-010803

❶   Internal power cables

3. Disconnect the SCSI cable from the disk drives by pulling the pull-tabs.
    Figure 1–12 shows a typical signal cable being disconnected from a SCSI
    disk drive.

Figure 1–12   Disconnecting the SCSI Cables from the Drives

MLO-010804
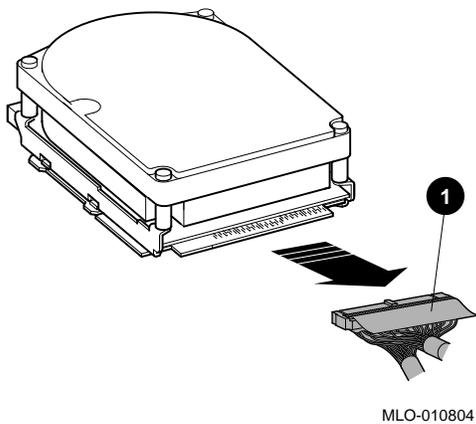
❶   Internal SCSI connector

4. Loosen the three captive screws (see Figure 1–13).

Opening the BA42B Enclosure
1.4 Removing the Upper Drive-Mounting Shelf Only

Figure 1–13   Removing the Upper Drive-Mounting Shelf

Captive
Screws (3)

Upper Drive
Mounting Shelf
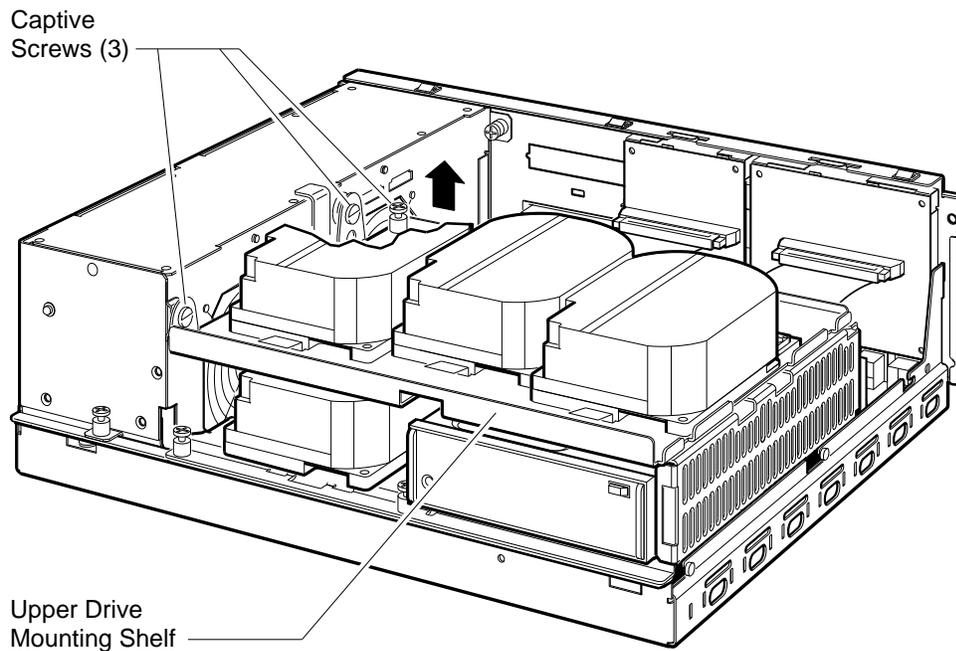
RE_EN06232A_91

5. Lift the left side of the upper drive-mounting shelf, and pull the drive-mounting shelf to the left until the tabs on the right side of the mounting shelf are clear of the cutouts in the lower drive-mounting shelf.

6. Remove the upper drive-mounting shelf from the enclosure.

2

DHW42 Asynchronous Communications Option

The DHW42 is an asynchronous communications option for the VAX 4000 BA42-based systems. There are four variants of this option; three variants provide different communications interfaces, and one variant is an upgrade option (see Table 2–1).

Table 2–1 DHW42 Variants

Variant	Communications Interface
DHW42-AA	Eight DEC423 asynchronous lines
DHW42-BA	Sixteen DEC423 asynchronous lines
DHW42-CA	Eight EIA-232 asynchronous lines with modem control
DHW42-UP	Eight to sixteen DEC423 asynchronous line upgrade

2.1 Ordering Information

Table 2–2 lists the order numbers for the DHW42 options that Digital services personnel install in a VAX 4000 BA42-based system.

Table 2–2 Ordering Information

System Type	Order Numbers
BA42B Enclosure	DHW42-AA
	DHW42-BA
	DHW42-CA
	DHW42-UP

2.2 Option Contents

The DHW42 option contains components that you install in the system enclosure (internal components) and components that you connect to the system (external components).

The DHW42 asynchronous communications option contains these components:

- A logic board (54-20662-01)

- An input/output cable (17-02942-01)

- One of the following input/output modules:

    - 8 data-only line input/output module (70-28542-02)

    - 16 data-only line input/output module (70-28542-03)

    - 8 modem control line input/output module (70-28543-01)

Figure 2–1 shows the contents of a DHW42 option. The DHW42 input/output module and the external components for each variant are different. Table 2–3 gives information about the unique components of each variant.

Figure 2–1 DHW42 Option

DHW42
Logic Board

I/O Cable

Modem
Labels

I/O Module
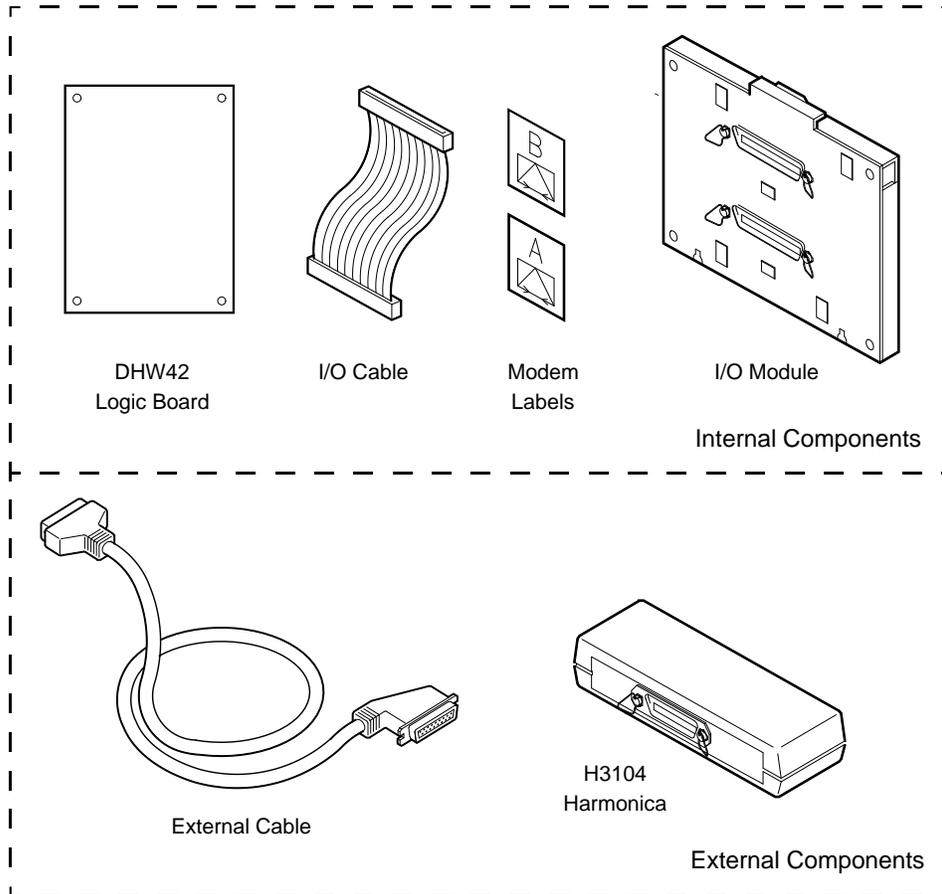
Internal Components

External Cable

H3104
Harmonica

External Components

MLO-009946

Table 2–3   Unique Components of the DHW42 Variants

Variant	I/O Module	External Cable	Harmonica	Modem Labels
DHW42-AA	36-way[1]	BC16C-10	H3104-00	
	(70-28542-02)	(17-01174-01)		
DHW42-BA	36-way	BC16C-10[2]	H3104-00[2]	
	(70-28542-03)	(17-01174-01)		
DHW42-CA	50-way	BC29J-06[2]		36-36016-01
	(70-28543-01)	(17-02941-01)		
DHW42-UP	36-way	BC16C-10	H3104-00	
	(70-28542-03)	(17-01174-01)		

[1]This I/O module contains only one 36-way connector.

[2]Two are supplied.

2.3 Installation

To install the DHW42 option in the system enclosure: remove the enclosure cover and the drive-mounting shelves. (Refer to the *BA42B Enclosure Maintenance* manual for more information.)

To install the DHW42 input/output module you must:

1. Remove the asynchronous communications port covers from the back of the CPU module. The variant of the option determines the covers you remove as follows:

    •   DHW42-AA—remove the cover on the asynchronous communications port A only (the lower cover).

    •   DHW42-BA and DHW42-CA—remove the covers on the asynchronous communications ports A (lower port) and B (upper port).

    •   DHW42-UP—remove the cover on the asynchronous communications port B (the upper cover).

2. To remove a port cover, push up the plastic tab on the cover from inside the enclosure and remove the cover from the enclosure (see Figure 2–2).

**Figure 2–2   Removing the Covers from Asynchronous Communications Port
A and Port B**

Slot for Asynchronous
Communications Port B

Cover

Cover

Slot for Asynchronous
Communications Port A
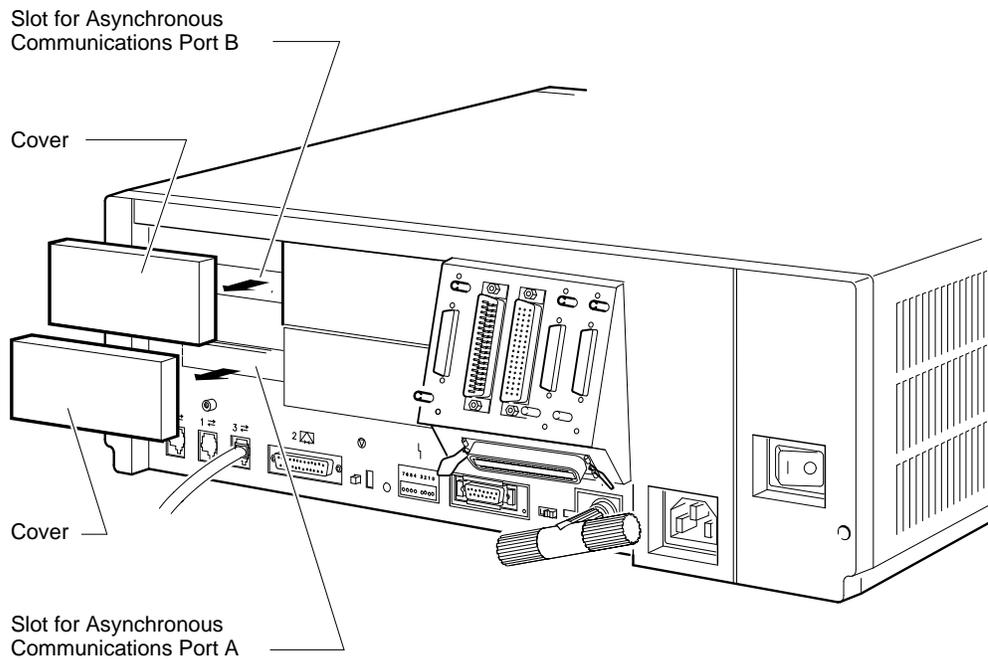
Note: 1. Remove lower cover first.
        2. Remove lower cover only for DHW42-AA.

MLO-012387

3. Place the DHW42 input/output module, with external connectors facing
    out, on the support tabs on the back of the enclosure (see Figure 2–3).

4. Tilt the DHW42 input/output module towards the back of the enclosure
    until the spring clip on the DHW42 input/output module clicks into
    position.

Figure 2–3   DHW42 Input/Output Module Installation

Spring Clip
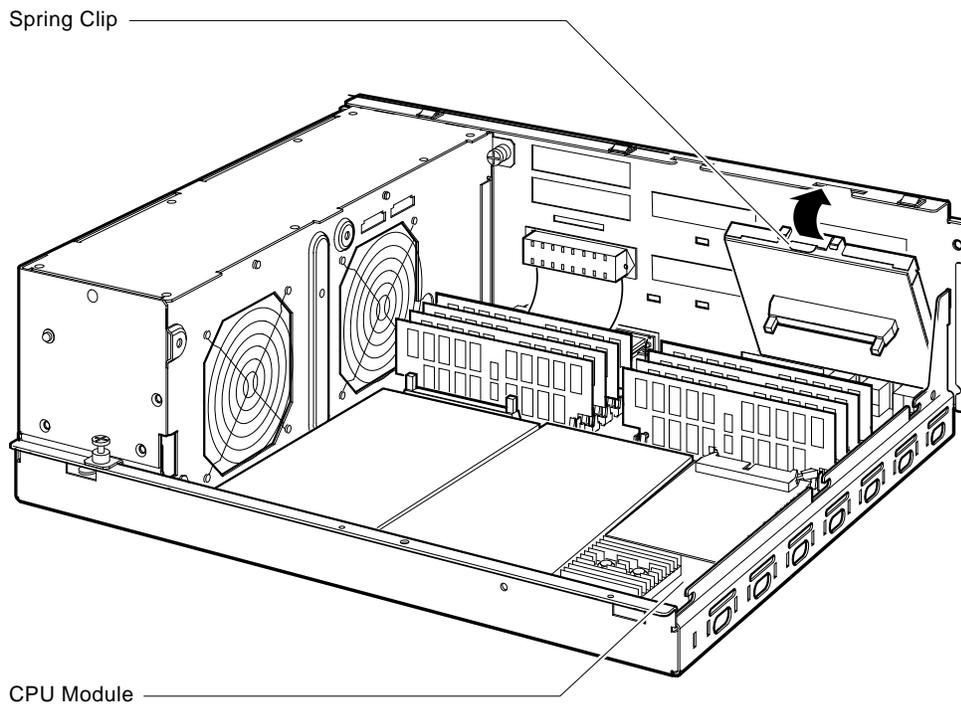
CPU Module

MLO-009891

To install the DHW42 input/output cable:

1. Connect one end of the DHW42 input/output cable to the connector on the
    CPU module (see Figure 2–4).

2. Connect the other end of the DHW42 input/output cable to the DHW42
    input/output module on the back of the enclosure.

3. Ensure that the connector arms lock both cable connectors securely into
    position.

Figure 2–4   DHW42 Input/Output Cable Installation

DSW42 Input/Output Module

DSW42 Input/Output Cable

CPU Module
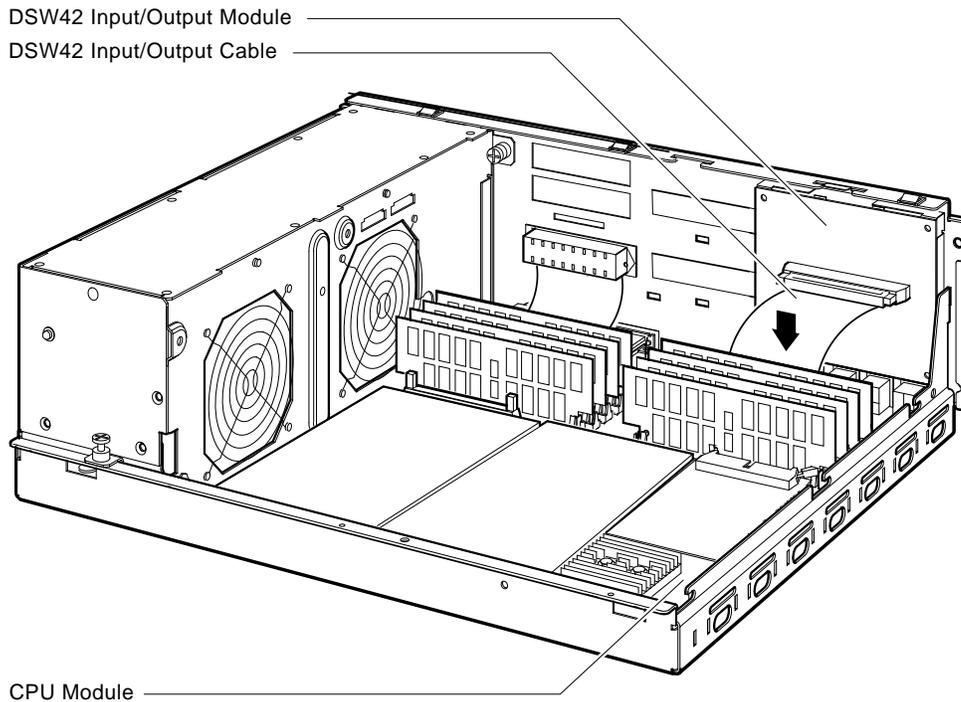
MLO-009892

Install the DHW42 logic board by following these steps.

———————————————— **Caution** ————————————————

Static electricity can damage integrated circuits. Wear an antistatic
wrist strap and place an antistatic mat under the system unit when
working with the internal parts of the system unit.

——

1. Place the DHW42 logic board in the enclosure. Align the connectors on
   the DHW42 logic board with the connectors on the CPU module, and align
   the holes on the DHW42 logic board with the standoff pillars on the CPU
   module. (See Figure 2–5 for the location of the standoff pillars on the CPU
   module.)

Figure 2–5 Location of the Standoff Pillars on the KA52/KA53 CPU Module

Input/Output
Cable Connector

CPU Module

Standoff
Pillars (2)

PUSH   PUSH

GA_EN00111A_92A
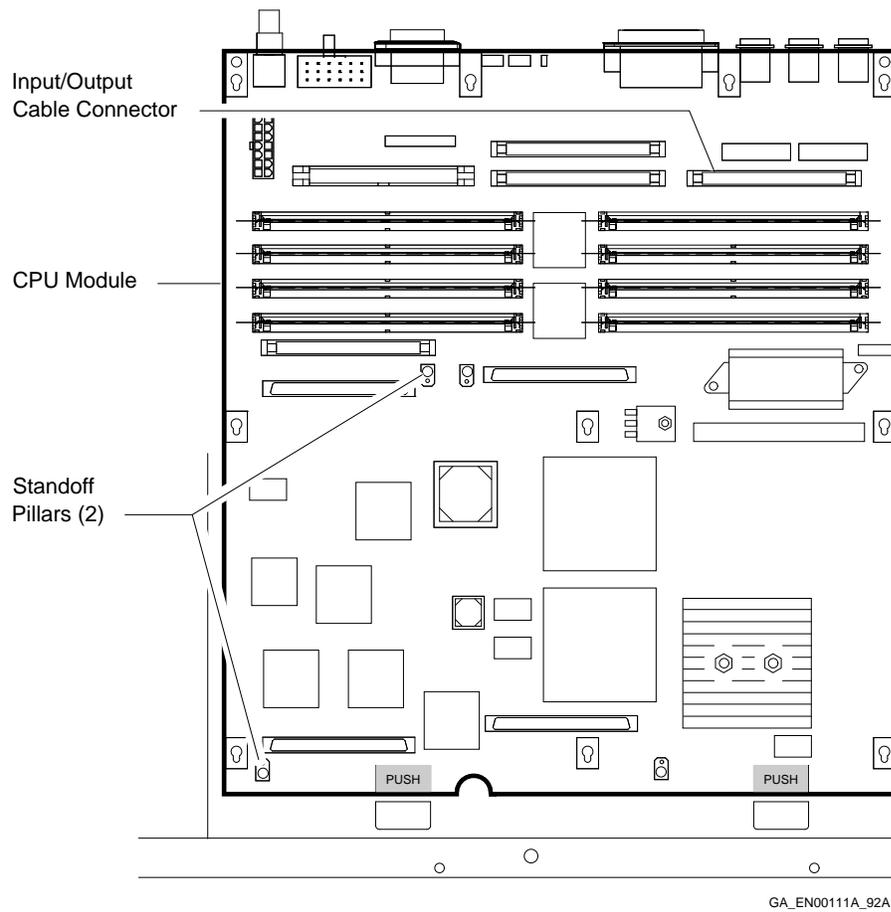
2. Press down the DHW42 logic board until the connectors on the DHW42
    logic board engage fully with the connectors on the CPU module and the
    standoff pillars lock the board in position (see Figure 2–6.)

Figure 2–6   DHW42 Logic Board Installation

Standoff Pillars (2)

DHW42 Logic Board

CPU Module
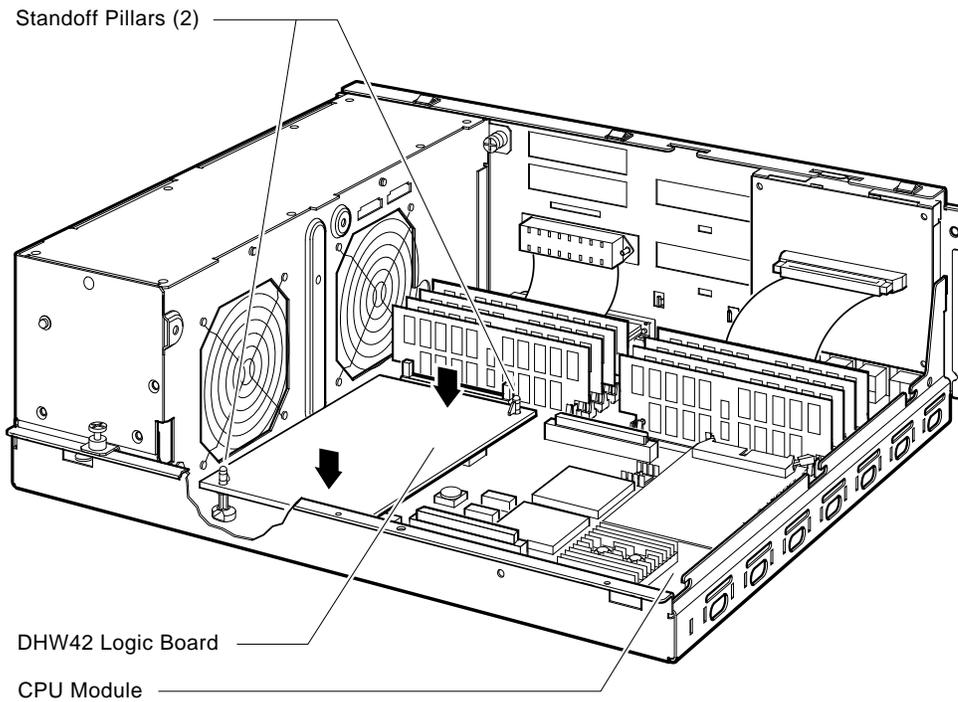
MLO-009893

After you install the DHW42 internal components, install the drive-mounting shelves and the enclosure cover.

When you install the DHW42-CA variant, place the modem labels, supplied with the option, over the existing icons for the asynchronous communications ports A (lower port) and B (upper port).

2.4 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support which tests the operation of a DHW42 option in the system.

First the loopback connectors must be connected to asynchronous ports A and B on the back of the system unit. The loopback connectors that you connect depend on the option variant as follows:

- DHW42-AA—Connect one H3101-00 loopback connector

- DHW42-BA—Connect two H3101-00 loopback connectors

- DHW42-CA—Connect two H4081-A loopback connectors

- DHW42-UP—Connect two H3101-00 loopback connectors

To test the operation of the asynchronous communications option, enter the following command at the console prompt.

>>>**T EC 2**

The test takes approximately 45 seconds to run.

If the system passes the test, install the external components.

If the system fails the test, the console terminal will display an error message.

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/KA53/KA54 CPU System Maintenance* manual for more information.

3

DSW42 Synchronous Communications Option

The DSW42 is a synchronous communications option for the VAX 4000
BA42B-based systems providing two synchronous communications lines. There
is only one variant, DSW42-AA, that supports the EIA-232/V.24 interface
standard. This option also supports the following interface standards; however
you must order the external cables separately (see Table 3–1):

- EIA-423/V.10

- EIA-422/V.11

3.1 Ordering Information

Table 3–1 lists the order numbers for the DSW42 options that Digital services
personnel install in a VAX 4000 BA42B-based system. It also gives the external
cable requirements for the different communications interface standards.

Table 3–1   Ordering Information

System Type	Order Numbers
BA42B Enclosure	DSW42-AA [1]
	BC19E-02 (17-01111-01) cable[2] for EIA-423/V.10 interface
	BC19B-02 (17-01108-01) cable[2] for EIA-422/V.11 interface

[1]Includes two BC19D-02 (17-01110-01) cables for the EIA-232/V.24 interface.
[2]Items must be order separately; two are required.

3.2 Option Contents

The DSW42 option contains components that you install in the system enclosure (internal components) and those that you connect to the system (external components).

Figure 3–1 shows the contents of a DSW42 option. Table 3–2 gives further information on the components of this option.

Figure 3–1 DSW42 Option
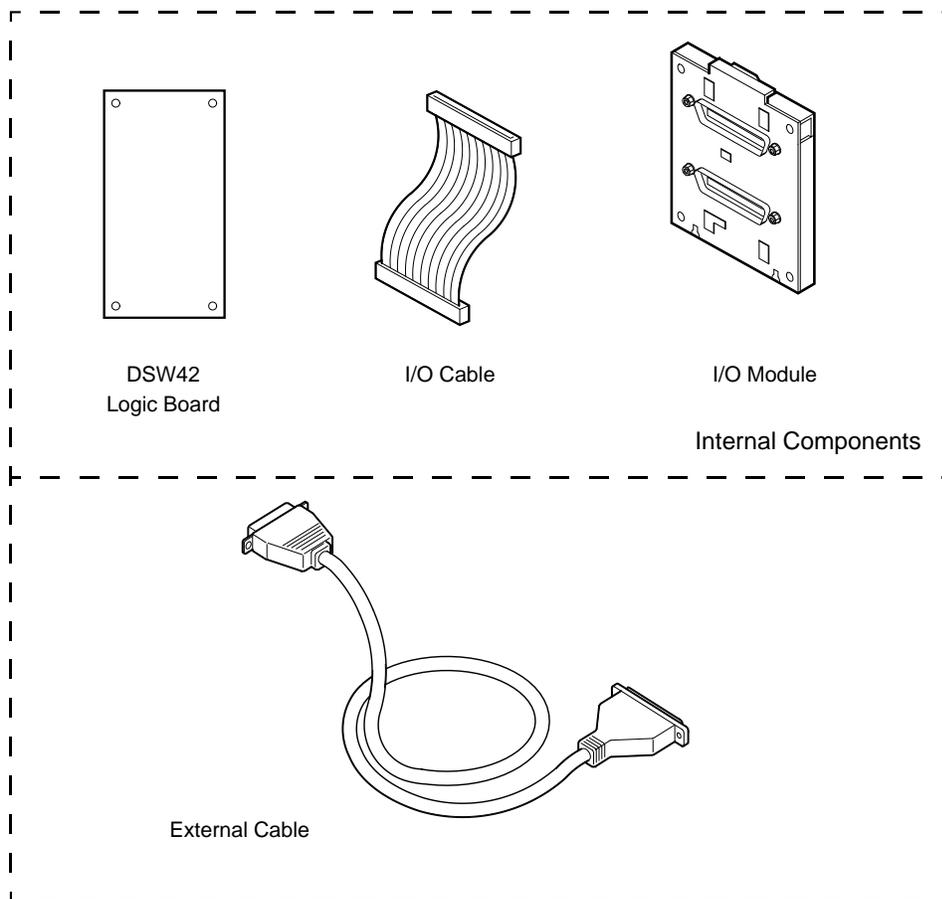
MLO-009947

Table 3–2   DSW42 External Components

Variant	Interface Type	I/O Loopback	External Cable	Cable Loopback
DSW42-AA	EIA-232/V.24	H3199	BC19D-01[1]	H3248[2]
			(17-01110-01)	
	EIA-423/V.10	H3199	BC19E-02[2]	H3198[2]
			(17-01111-01)	
	EIA-422/V.11	H3199	BC19B-02[2]	H3198[2]
			(17-01108-01)	

[1]Two supplied with the DSW41-AA option.

[2]Items must be order separately; two are required.

3.3 Installation

The DSW42 synchronous communications option contains these components:

- A logic board (54-20640-01)

- An input/output cable (17-02942-01)

- An input/output module (70-28542-01)

To install these components in the system enclosure, you must remove the enclosure cover and the drive-mounting shelves. (Refer to *BA42B Enclosure Maintenance* manual for more information.)

To install the DSW42 input/output module:

1. From inside the enclosure, push up the plastic tabs on the covers that conceal synchronous communications port 0 and port 1, and remove the covers from the enclosure (see Figure 3–2).

**Figure 3–2   Removing the Covers from Synchronous Communications Port 0
and Port 1**

Slot for Synchronous
Communications Port 1

Cover

Cover

Slot for Synchronous
Communications Port 0
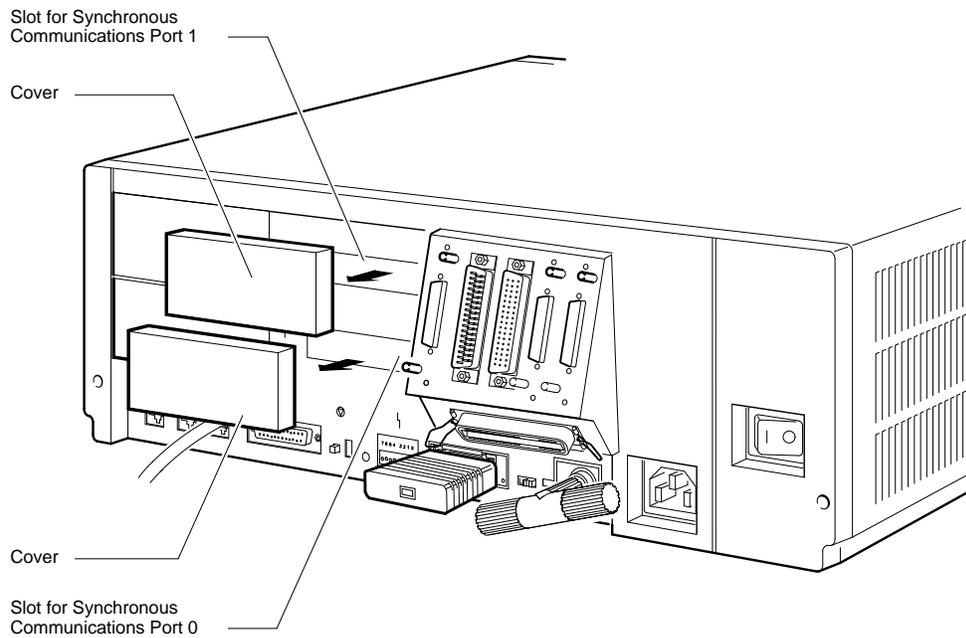
MLO-012386

2. Place the DSW42 input/output module, with external connectors facing out,
    on the support tabs on the back of the enclosure (see Figure 3–3).

3. Tilt the DSW42 input/output module towards the back of the enclosure
    until the spring clip on the DSW42 input/output module clicks into
    position.

Figure 3–3   DSW42 Input/Output Module Installation

Spring Clip

DSW42 Input/Output Module
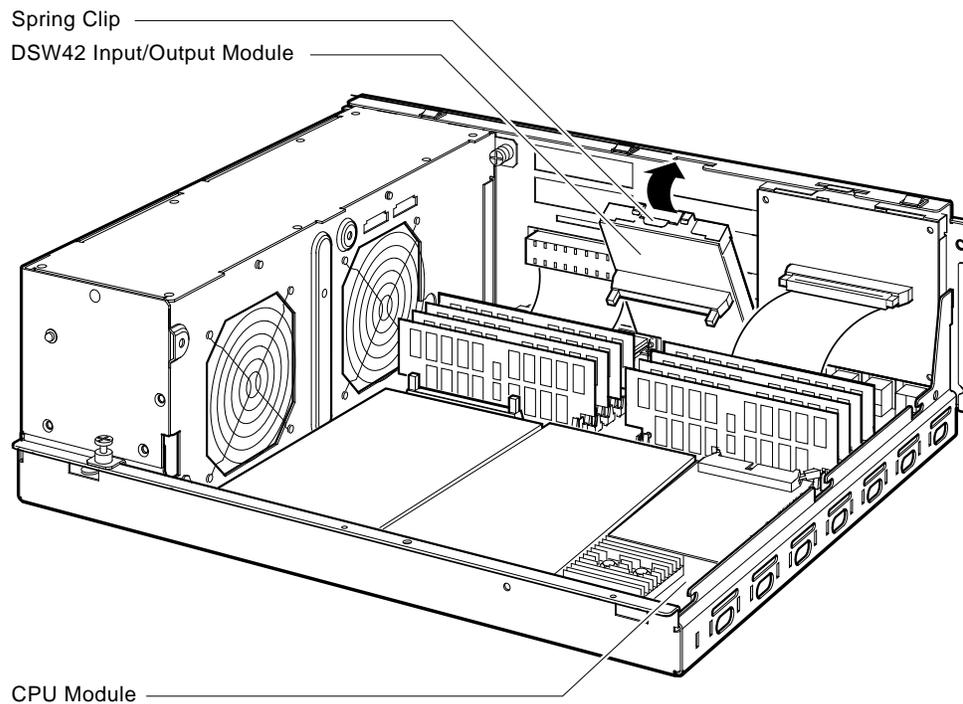
CPU Module

MLO-009894

To install the DSW42 input/output cable:

1. Connect one end of the DSW42 input/output cable to the connector on the CPU module (see Figure 3–4).

2. Connect the other end of the DSW42 input/output cable to the DSW42 input/output module on the back of the enclosure (see Figure 3–4).

3. Ensure that the connector arms lock both cable connectors securely into position.

Figure 3–4 DSW42 Input/Output Cable Installation

DSW42 Input/Output Module ————————

DSW42 Input/Output Cable ————————

CPU Module ————————
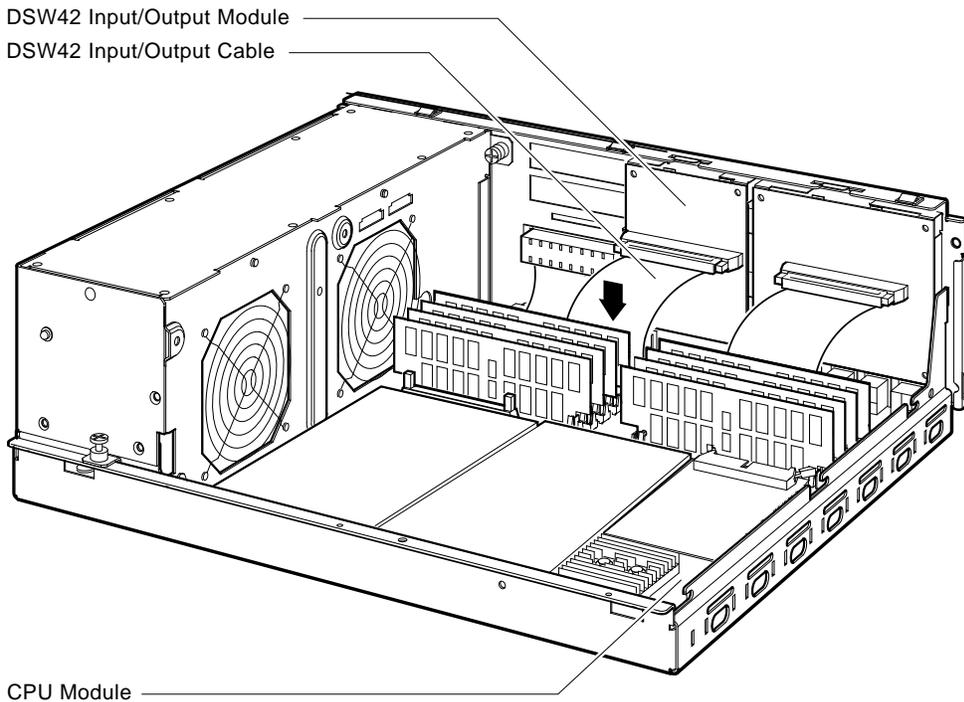
MLO-009895

To install the DSW42 logic board, follow these steps.

_____ **Caution** _____

Static electricity can damage integrated circuits. Wear an antistatic
wrist strap and place an antistatic mat under the system unit when
working with the internal parts of the system unit.

_____

1. Place the DSW42 logic board in the enclosure. Align the connectors on
   the DSW42 logic board with the connectors on the CPU module, and align
   the holes on the DSW42 logic board with the standoff pillars on the CPU
   module. (See Figure 3–5 for the location of the standoff pillars on the CPU
   Module.)

Figure 3–5 Location of the Standoff Pillars on the KA52/53/54 CPU Module

MLO-012350
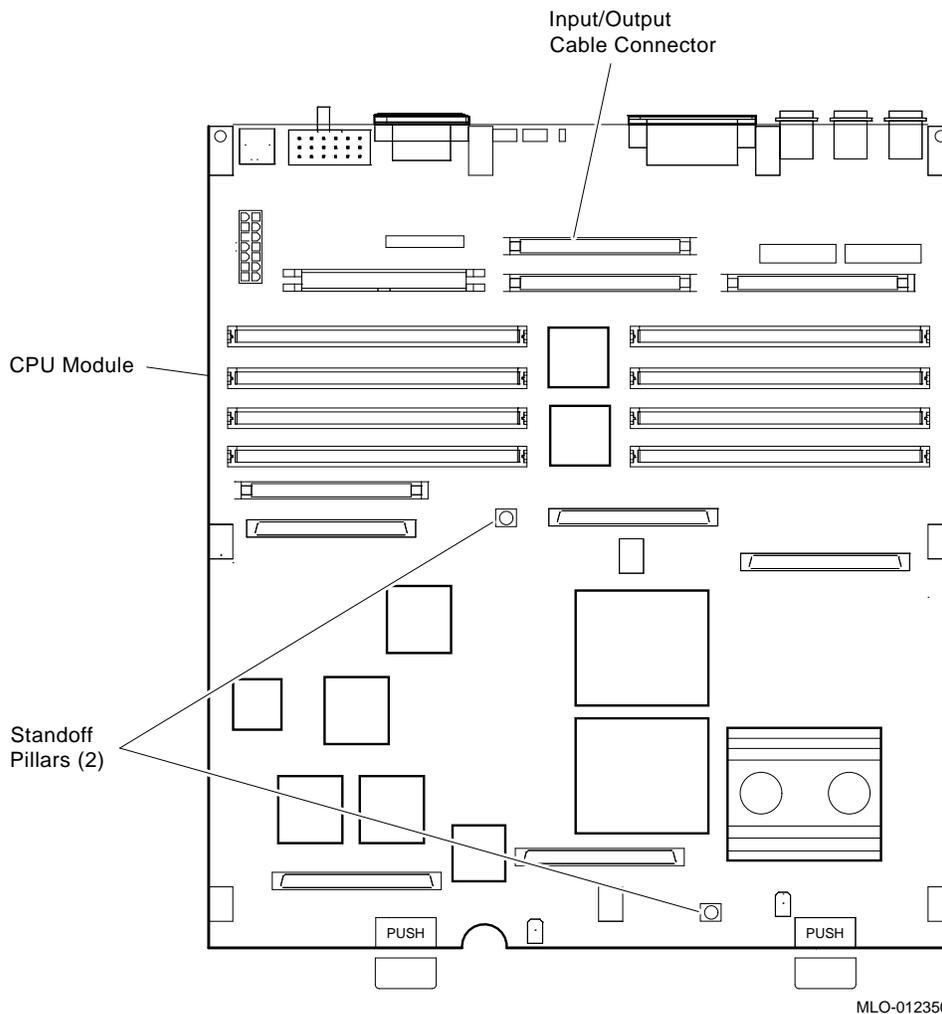
2. Press down the DSW42 logic board until the connectors on the DSW42 logic board engage fully with the connectors on the CPU module and the standoff pillars lock the board in position (see Figure 3–6).

Figure 3–6   DSW42 Logic Board Installation

Standoff Pillars (2)

DSW42 Logic Board

CPU Module
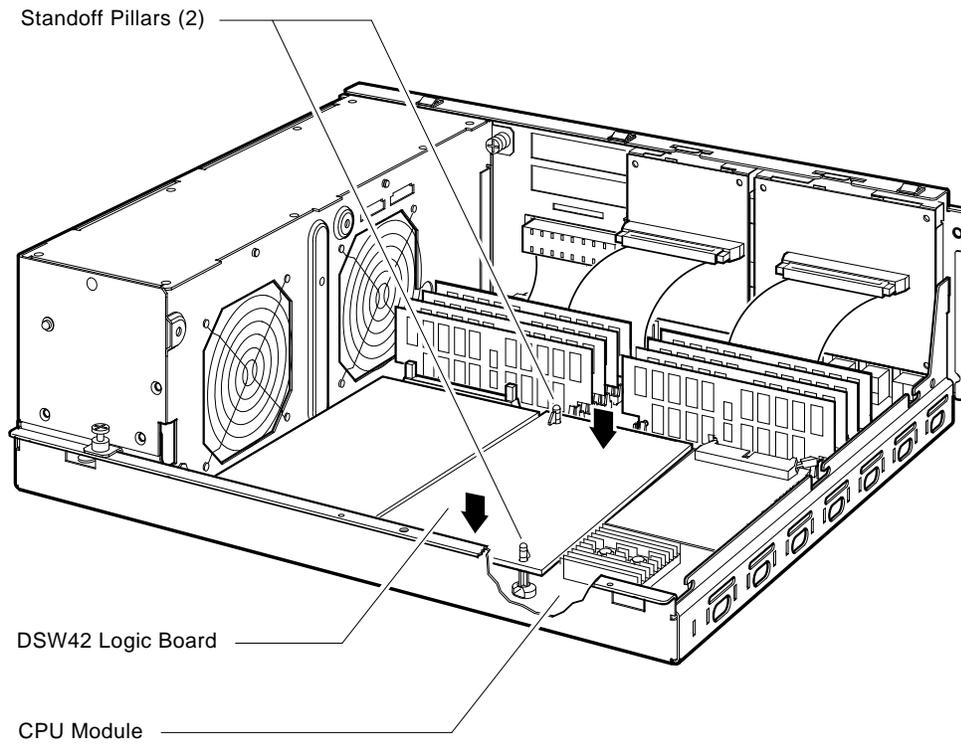
MLO-009896

After you install the DSW42 internal components, install the drive-mounting shelves and the enclosure cover.

3.4 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of a DSW42 option in the system.

Connect the loopback connectors (H3199) to the synchronous ports 0 and 1 on the back of the system unit.

Enter the following command at the console prompt to test the operation of the synchronous communications option:

>>>**T E8 2**

If the system passes the test, install the external cable.

If the system fails the test, the console terminal will display an error message.

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

4

MS44L and MS44 Memory Options

The MS44L-BC and MS44-DC are memory options for the VAX 4000
BA42B-based systems. The MS44-BA and the MS44L-BA are equivalent;
the only difference being the component layout. The memory modules in a
MS44-BA option have components on both sides of the module. The memory
modules in a MS44L-BA option have components on one side only. Table 4–1
shows the variants of the memory options that the VAX 4000 BA42B-based
systems support.

Table 4–1   MS44 and MS44L Variants

Variant	Memory Size
MS44L-BC	16M bytes
MS44-DC	64M bytes

4.1 Ordering Information

The MS44 options that Digital services personnel install have the following
order numbers:

- MS44L-BC
- MS44-DC

4.2 Option Contents

The following memory options contain four memory modules as follows:

- MS44L-BC contains four MS44L-AA 4M-byte memory modules

- MS44-DC contains four MS44-CA 16M-byte memory modules

Figure 4–1 shows the memory modules.

Figure 4–1   MS44 and MS44L Memory Modules

MS44L-AA

MS44-CA

CA-AA

Notch

Notch
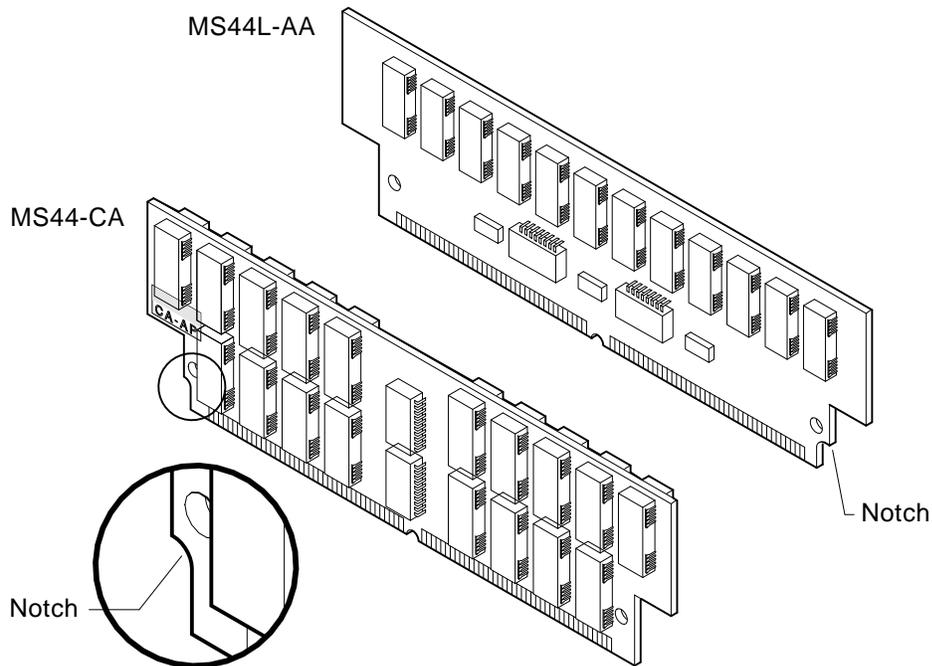
MLO-009683

4.3 Installation

To install an MS44 memory option in a VAX 4000 BA42B-based system, you must remove the enclosure cover. (Refer to the *VAX 4000 BA42B Enclosure Maintenance* manual for more information.)

––––––––––––––––––– **Caution** –––––––––––––––––––

Use only memory modules that are qualified by Digital.

–––

To install an MS44 or MS44L memory option:

1. Identify the connectors on the CPU module into which you must install the MS44 or MS44L memory option. (Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual, for connector identification and memory configuration information.) On the KA52, KA53, or KA54 CPU modules, the memory connectors are labeled: 0A 0B 0C 0D, and 1E 1F 1G 1H. You install a memory option in a set of four connectors that are labeled with the same numerical value (1 or 0).

––––––––––––––––––– **Caution** –––––––––––––––––––

The connectors are keyed so that you can install the MS44 or the MS44L memory modules only with the correct orientation. Do not try to force the modules into the connectors with an incorrect orientation.

–––

2. Insert the first memory module into its connector at an angle (see Figure 4–2).

––––––––––––––––––– **Caution** –––––––––––––––––––

Ensure that you insert the memory module fully into its connector before you tilt the memory module.

–––

3. Tilt the memory module towards the front of the enclosure (see Figure 4–2) until the metal locking clips on the connector lock the memory module in position.

Figure 4–2 Memory Module Installation

Metal Board Clip

MS44 Memory Modules
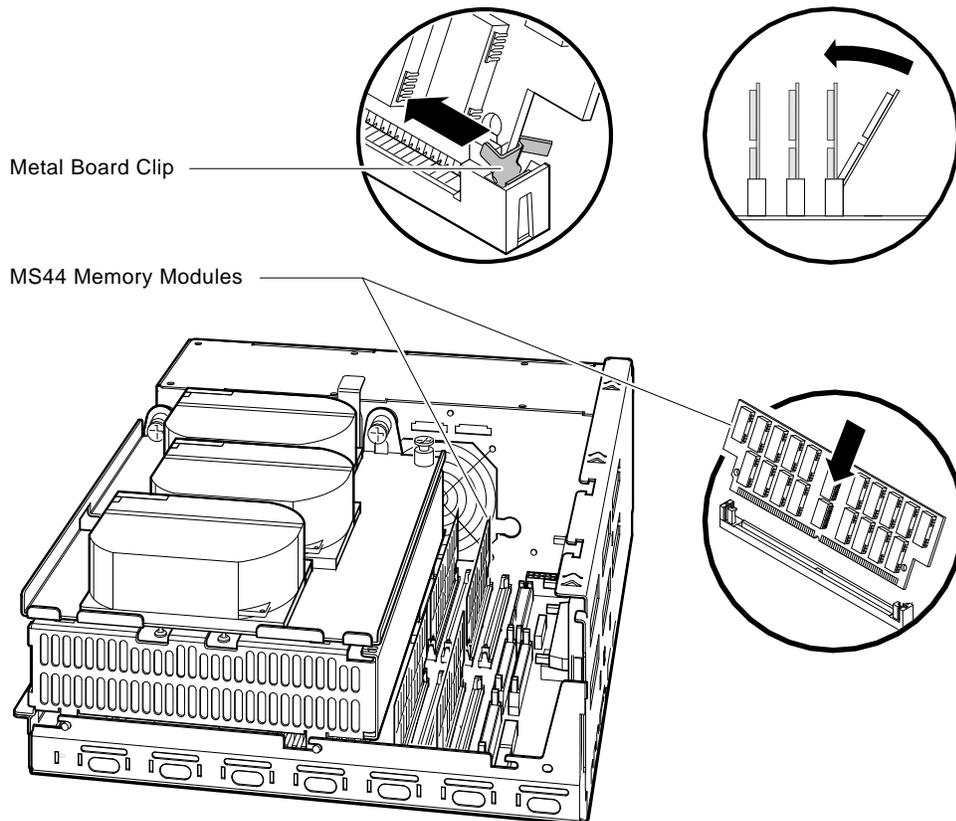
MLO-009897

4. Repeat the procedure in steps 1, 2, and 3 for the other memory modules.

4.4 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of an MS44 or MS44L memory option in the system.

Enter the following command at the console prompt to test the operation of the memory option:

>>>**T A8**

If the memory test acceptance script fails, type **SHOW MEMORY** at the console prompt to identify which SIMM or set of SIMMs caused the failure. Also, always reset newly installed SIMMs if the system fails.

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

5

RF31T/RF35/RF36 Disk Drive Options

The RF31T/RF35/RF36 disk drives are high-performance 3.5-inch DSSI devices. They have a formatted disk capacity of 381 M-bytes, 852 M-bytes, and 1.6 G-bytes respectively. The RF31T/RF35/RF36 disk drives store data in fixed length blocks on thin-film rigid media disks. The storage medium in the disk drive is fixed, not operator-removable.

5.1 Ordering Information

The order numbers for the RF31T/RF35/RF36 disk drives that Digital services personnel install in a VAX 4000 BA42B-based systems are as follows:

- RF31T-EK
- RF35-EK
- RF36-EK

5.2 Option Contents

The RF31T-EK, RF35-EK and RF36-EK options contain the RF31T-EA, RF35-EA, or the RF36-EA disk drive, respectively, a mounting bracket (P/N 74-744226-01), and four screws (P/N 12-31734-01).

5.3 Setting the DSSI ID

In a BA42B-based VAX 4000 system, each DSSI device must have a unique DSSI ID number. When installing RF31T/RF35/RF36 disk drive options, the DSSI ID must be set to an ID that is not used by any other DSSI device in the system. (Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for further information.)

To set the DSSI ID on RF31T/RF35/RF36 disk drive options, follow these steps:

1. Locate the DSSI ID jumper on the disk drive (see Figure 5–1).

Figure 5–1   RF31T/RF35/RF36 Option
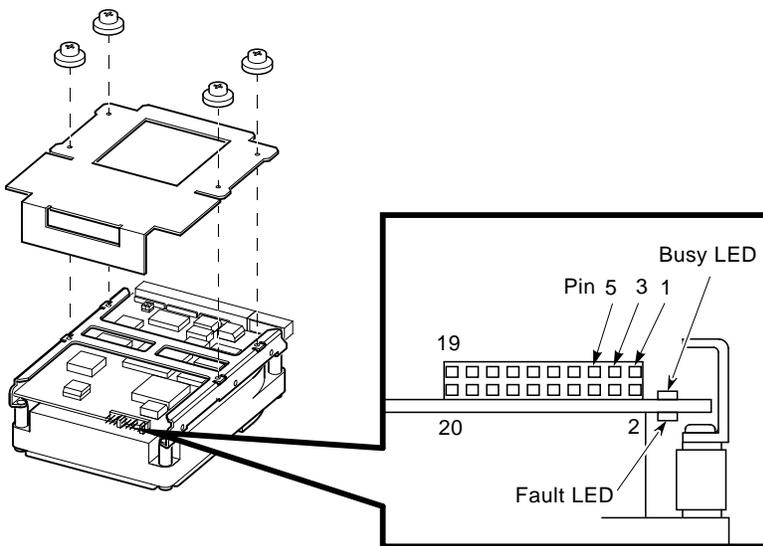
LJ-02126-TI0

Table 5–1 shows the DSSI ID jumper combinations.

Table 5–1   RF31T/RF35/RF36 DSSI ID Jumper Wire Combinations

DSSI ID	Pin 5	Pin 3	Pin 1
0	Out	Out	Out
1	Out	Out	In
2	Out	In	Out
3	Out	In	In
4	In	Out	Out
5	In	Out	In
6	In	In	Out
7	In	In	In

2. Determine the DSSI ID number assigned to the RF31T/RF35/RF36 disk drive option.

_____ **Note** _____

When the system is in console mode, enter the **SHOW DSSI** command
to view the DSSI ID numbers for the existing devices in the system.

_____

3. Position the jumper for the DSSI ID number selected. Table 5–1 lists the
    DSSI ID numbers and the jumper wire combinations that correspond to
    them.

5.4 Installation

Before installing the RF31T/RF35/RF36 disk drive option on the upper
shelf, remove the enclosure cover. (Refer to the *VAX 4000 BA42B Enclosure
Maintenance* manual for more information.) RF31T/RF35/RF36 disk drive
option can only be installed on the upper drive-mounting shelf of a VAX 4000
BA42B-based system.

To install the RF31T/RF35/RF36 disk drive option, follow these steps:

1. Attach the mounting bracket with the four screws. If you receive the drive
    with the mounting hardware already attached, disregard this step.

Figure 5–2 shows a sample RF31T/RF35/RF36 disk drive option with mounting
brackets.

**Figure 5–2 Sample RF31T/RF35/RF36 Disk Drive Option with Mounting
Brackets**

Grommets
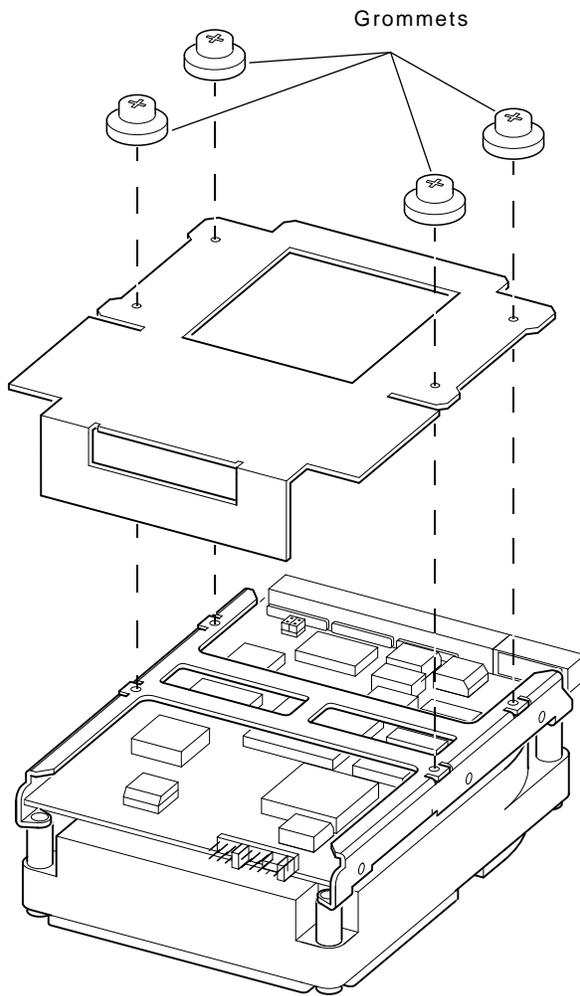
LJ-02164-TI0

2. Identify the drive-mounting shelf position where the RF31T/RF35/RF36
    option is to be installed. (Refer to the *VAX 4000 BA42B Enclosure
    Maintenance* manual for more information about mass storage device
    orientation and combinations.)

3. Identify the power cable that provides power to the drive-mounting shelf
    where the RF31T/RF35/RF36 is to be installed. Connect the power cable to
    the power connector on the back of the disk drive.

4. Identify the DSSI cable connector that has a pull-tab number that
    corresponds to the drive position into which you want to install the RF31T
    /RF35/RF36 disk drive. Connect the DSSI cable connector to the back of
    the disk drive.

5. Identify the spring clip for the drive position where the RF31T/RF35/RF36
    disk drive will be installed (see Figure 5–3). Then remove the lockout
    screw, if it has not already been removed,

    Figure 5–3 shows how to install sample RF31T/RF35/RF36 disk drive
    option.

Figure 5–3 Installing a Sample RF31T/RF35/RF36 Disk Drive Option

RF31T/RF35 Disk Drive

RF31T/RF35 Disk Drive

Spring Clip

MLO-009307
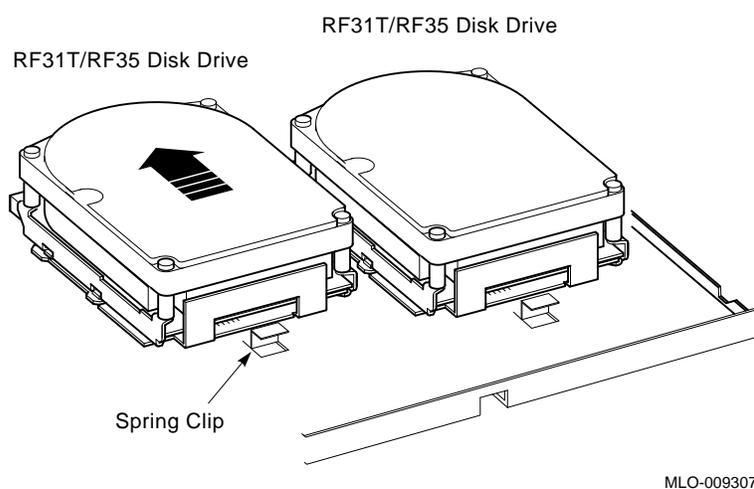
6. Position the rubber grommets attached to the RF31T/RF35/RF36 option in
    the cutouts of the drive-mounting shelf.

7. Push the RF31T/RF35/RF36 disk drive in until the grommets are secure in the cutouts, and the spring clip on the drive-mounting shelf locks the disk drive into position.

After the RF31T/RF35/RF36 disk drive option is installed, replace the enclosure cover.

5.5 Diagnostic Support

The BA42B-based VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of an RF31T/RF35/RF36 disk drive in a BA42B-based VAX 4000 system.

Enter the following command at the console prompt to verify that the RF31T /RF35/RF36 disk drive is visible on the bus:

>>>**SHOW DSSI**

If the system fails the test, the console terminal displays a hard error message containing test mnemonic (DSSI).

Refer to *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

5.6 Power Requirements

Table 5–2 and Table 5–3 show typical dc power requirements of the RF31T /RF35/RF36 disk drives.

Table 5–2   RF31T/RF35 Power Requirements

Mode	Current (Amperes)		Power (Watts)
	5-V Circuit	12-V Circuit	
Random seek	0.71	0.85	13.8
Power only	0.71	0.64	11.23

Table 5–3   RF36 Power Requirements

Mode	Current (Amperes)		Power (Watts)
	5-V Circuit	12-V Circuit	
Random seek	0.78	0.91	14.9
Power only	0.78	0.69	12.18

6

RRD42-EK CD-ROM Drive Option

The RRD42 CD-ROM drive option is a compact disc, read-only memory, SCSI device. It reads data from industry standard 600M-byte discs.

6.1 Ordering Information

The RRD42 CD-ROM drive that Digital services personnel install in a VAX 4000 BA42B-based system has the following order number:

- RRD42-EK

6.2 Option Contents

The RRD42-EK option contains the following components:

- RRD42-AA CD-ROM drive, with the mounting hardware attached

Figure 6–1 shows the RRD42-EK option.

Figure 6–1   RRD42-EK Option
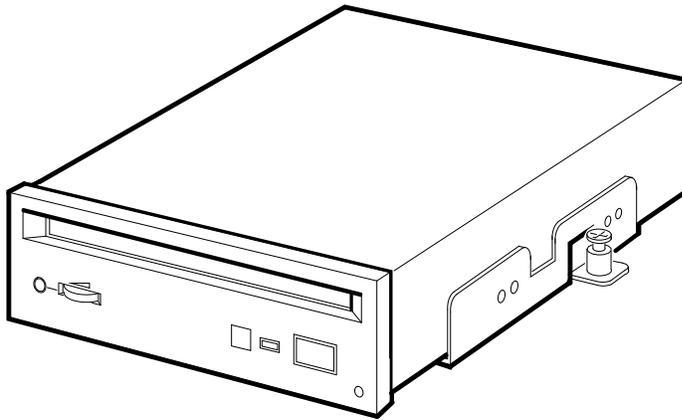
RE_EN06377A_91

6.3 SCSI ID Information

In a VAX 4000 BA42B-based system, each SCSI device must have a unique
SCSI ID number. When you install an RRD42-EK option, you must set the
SCSI ID of that device to an ID that is not used by any other SCSI device in
the system. (Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54
CPU System Maintenance* manual.)

To set the SCSI ID of the RRD42-EK option:

1. Locate the SCSI ID jumper wires on the back of the RRD42-EK option (see
    Figure 6–2).

2. Determine the SCSI ID number to be assigned to the RRD42-EK option.

_____ **Note** _____

When the system is in console mode, you can use the command **SHOW
CONFIG** to view the SCSI ID numbers used by the existing devices in
the system.

_____

3. Position the jumper wires for the SCSI ID number that you want.
    Table 6–1 shows the SCSI ID numbers and the jumper wire combinations
    that correspond to these numbers.

Figure 6–2 RRD42 SCSI ID Jumper Wire Locations

SCSI ID
Jumper Wires

Parity   0   1   2

Note: The SCSI ID shown is 4.
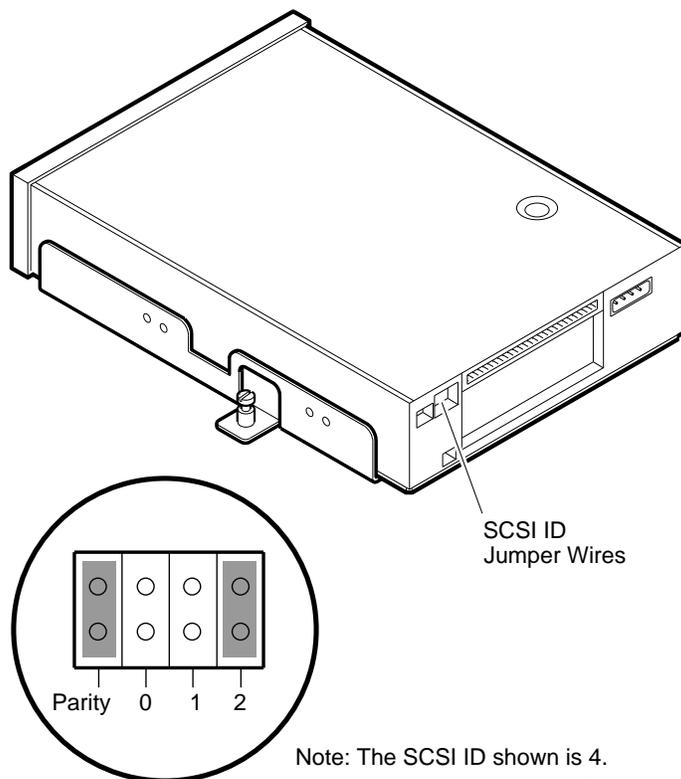
RE_EN06242A_91

Table 6–1   RRD42 SCSI ID Jumper Wire Combinations

SCSI ID	0	1	2
0	Out	Out	Out
1	In	Out	Out
2	Out	In	Out
3	In	In	Out
4[1]	Out	Out	In
5	In	Out	In
6[2]	Out	In	In
7	In	In	In

[1]Recommended SCSI ID for CD-ROM drives.
[2]Reserved for the SCSI controller.

6.4 Installation

You can install the RRD42-EK option in either the left or the right position
on the lower drive-mounting shelf of a VAX 4000 BA42B-based system; the
preparations for installation differ slightly for each position. See Section 6.4.1
to begin a right-hand slot installation, or Section 6.4.2 for the left, before
proceeding to the installation itself.

To install an RRD42-EK option, you must remove the enclosure cover and
the upper drive-mounting shelf. (Refer the *VAX 4000 BA42B Enclosure
Maintenance* manual for more information.)

6.4.1 Preparing to Install an RRD42 in the Right-Hand Position

Before you install an RRD42 CD-ROM drive option in the right storage slot on
the lower drive-mounting shelf in a VAX 4000 BA42B-based system, perform
the following steps:

1. Attach the mounting bracket. Facing the front of the drive, the captive
   screw should be on the left, and the four screws attaching the mounting
   bracket to the drive should be attached through the series of bracket holes
   that are closest to the front of the drive.

2. From inside the enclosure, push out the blank bezel insert that covers the
   right storage slot on the lower drive-mounting shelf.

3. Remove the blank bezel insert from the enclosure.

6.4.2 Preparing to Install an RRD42 in the Left-Hand Position

Before you install an RRD42 CD-ROM drive option in the left storage slot on the lower drive-mounting shelf in a BA42B-based system, perform the following steps:

1. Attach the mounting bracket. Facing the front of the drive, the captive screw should be on the right, and the four screws attaching the mounting bracket to the drive should be attached through the series of bracket holes that are closest to the front of the drive.

2. From inside the enclosure, push out the blank bezel insert that covers the left storage slot on the lower drive-mounting shelf.

3. Remove the blank bezel insert from the enclosure.

To install an RRD42-EK option:

1. Insert lock-out screws to hold down any disk drive clips securely in the drive position on the drive-mounting shelf.

2. Identify the power cable that supplies power to the drive-mounting shelf on which you want to install the RRD42-EK option. Connect this power cable to the power connector on the back of the RRD42-EK option (see Figure 6–3).

Figure 6–3 Connecting the Power Cable and the SCSI Cable
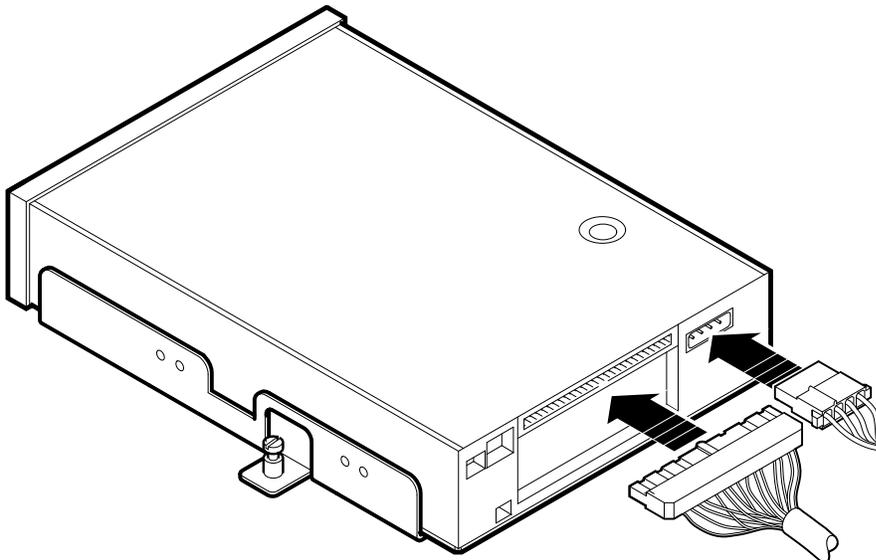
RE_EN06378A_91

3. Identify the SCSI cable connector with a pull-tab number that corresponds to the drive position into which you want to install the RRD42-EK option. Connect this connector to the back of the RRD42-EK option (see Figure 6–3).

4. Align the tabs on the RRD42-EK option mounting bracket with the cutouts in the drive-mounting shelf. Tilt the drive to locate the tabs in the drive-mounting shelf cutouts (see Figure 6–4).

Figure 6–4 Installing the RRD42-EK Option

Captive Screw
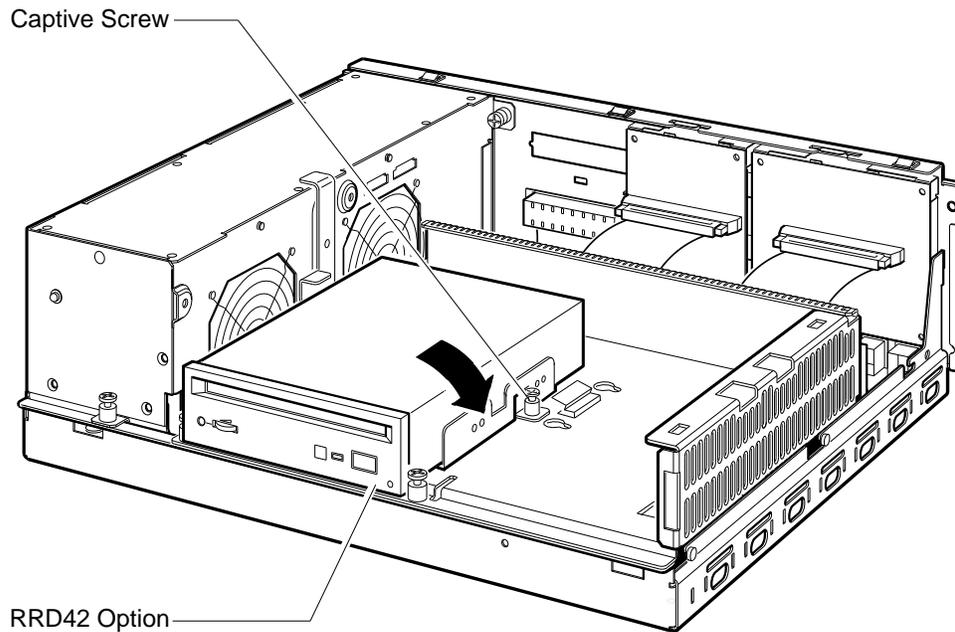
RRD42 Option

RE_EN06379A_91

5. Press down the RRD42-EK option and tighten the captive screw on the
    mounting bracket to secure the RRD42-EK option in position (refer to
    Figure 6–4).

After you install the RRD42-EK option, install the upper drive-mounting shelf
and the enclosure cover.

6.5 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of an RRD42-EK option in the system.

The following commands typed at the console prompt will allow you to view the existing SCSI IDs.

>>>**SHOW SCSI**

>>>**SHOW CONFIG**

Enter the following command at the console prompt to test the operation of the RRD42-EK option.

>>>**SHOW SCSI**

Verify that the device shows up at the configured SCSI ID. Also, verify that all other devices still show up correctly.

The following command provides additional testing of the interface.

>>>**T E0 2**

The console terminal displays an error message if a test fails.

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

6.6 RRD42 Power Requirements

Table 6–2 gives the dc power requirements of the RRD42-EK option.

Table 6–2   RRD42-EK Power Requirements

Mode	Current (Amperes)		Power (Watts)
	5-V Circuit	**12-V Circuit**	
Random	0.25	1.50	19.25
Power only	0.25	0.80	10.85

7

RRD43-EK CD-ROM Drive Option

The RRD43 CD-ROM drive is a compact disc, read-only memory (ROM),
Small Computer Systems Interface (SCSI) device. It reads data from
industry-standard 600 MB discs.

7.1 Ordering Information

The RRD43 CD-ROM drive that Digital services personnel install in a
VAX 4000 BA42B-based system has the following order number:

- RRD43-EK

7.2 Option Contents

Each RRD43-EK option contains the following components:

- RRD43–AA CD-ROM drive
- Mounting bracket (PN 74–42449–01)
- Screws (4) (PN 90–10556–12)
- Bezel insert (not used on the VAX 4000 BA42B-based systems) (PN
  74–37501–01)
- Documentation

Figure 7–1 shows the RRD43 drive and its external features.

Figure 7–1   RRD43 Compact Disc Drive Front Panel
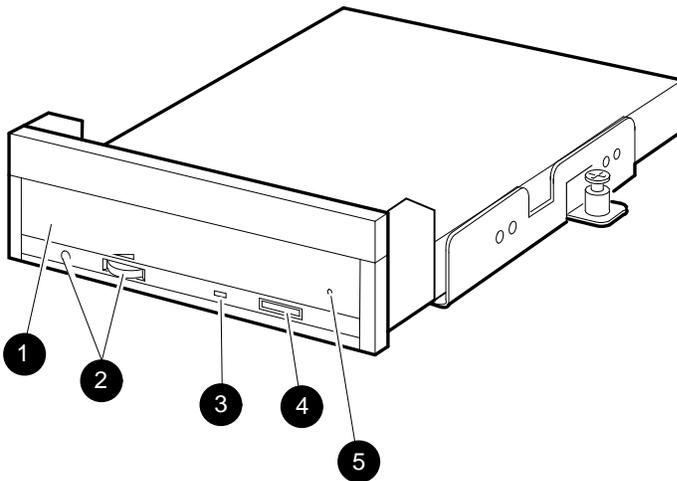
MLO-012261

❶   Disc tray.

❷   Volume control and headphone socket—not used.

❸   Busy LED—This LED turns on when data is read from the disc. It flashes during seek operations.

❹   Eject button—Press this button to eject the disc tray from the RRD43.

❺   Emergency eject hole—Use the emergency eject hole to manually eject the disc tray if a power failure occurs.

7.3 SCSI ID Information

In a VAX 4000 BA42B-based system, each SCSI device must have a unique SCSI ID number. In an RRD43 CD-ROM drive, the SCSI ID number is determined by three jumpers (See Figure 7–2). When installing an RRD43 CD-ROM drive in a system, set the SCSI ID jumpers to a value that is not used by any of the other SCSI devices in the system. See your system documentation for more information about the SCSI bus.

The following procedure describes how to set the SCSI ID number on an RRD43-EK CD-ROM drive option.

1.   Determine the SCSI ID number to be assigned to the RRD43 CD-ROM drive option. Typically, the RRD43 CD-ROM uses SCSI ID 4; however, the system manager may prefer to make this decision.

2. At the console prompt on the system console terminal, enter the SHOW DEVICE command. This will list the SCSI ID numbers for the existing devices in the system. Verify that you are using a number that is not currently assigned to another device.

3. Locate the SCSI ID jumper pins on the CD-ROM drive. See Figure 7–2.

4. Position the jumpers for the SCSI ID number selected. Table 7–1 shows the jumper settings for each SCSI ID.

Figure 7–2   RRD43 CD-ROM Drive Jumper Locations
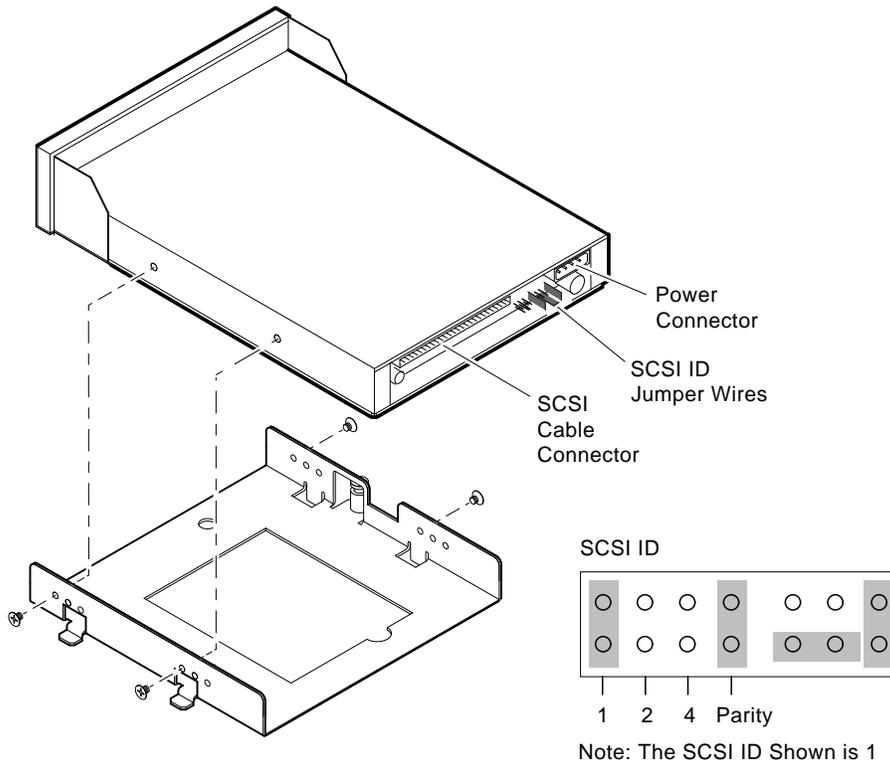
MLO-012257

Table 7–1   RRD43 CD-ROM SCSI ID Jumper Settings

SCSI ID	Jumper 1	Jumper 2	Jumper 4
0	Out	Out	Out
1	In	Out	Out
2	Out	In	Out
3	In	In	Out
4	Out	Out	In
5	In	Out	In
6	Out	In	In
7	In	In	In

A fourth jumper wire (Parity) resides to the right of the SCSI ID jumper wires and must be installed. When the Parity jumper is installed, the drive is in Digital operation mode. When the jumper is removed, the drive is in PC mode.

7.4 Installation

You can install the RRD43-EK option in either the left or the right position on the lower drive-mounting shelf of a VAX 4000 BA42B-based system; the preparations for installation differ slightly for each position. See Section 7.4.1 to begin a right-hand slot installation, or Section 7.4.2 for the left, before proceeding to the installation itself (Section 7.4.3).

To install an RRD43-EK option, you must remove the enclosure cover and the upper drive-mounting shelf. (Refer the *VAX 4000 BA42B Enclosure Maintenance* manual for more information.)

7.4.1 Preparing to Install an RRD43 in the Right-Hand Position

Before you install an RRD43 CD-ROM drive option in the right storage slot on the lower drive-mounting shelf in a VAX 4000 BA42B-based system, perform the following steps:

1. Attach the mounting bracket as shown in Figure 7–2. Facing the front of the drive, the captive screw should be on the left, and the four screws attaching the mounting bracket to the drive should be attached through the series of bracket holes that are closest to the front of the drive.

2. From inside the enclosure, push out the blank bezel insert that covers the right storage slot on the lower drive-mounting shelf.

3. Remove the blank bezel insert from the enclosure.

7.4.2 Preparing to Install an RRD43 in the Left-Hand Position

Before you install an RRD43 CD-ROM drive option in the left storage slot on the lower drive-mounting shelf in a BA42B-based system, perform the following steps:

1. Attach the mounting bracket. Facing the front of the drive, the captive screw should be on the right, and the four screws attaching the mounting bracket to the drive should be attached through the series of bracket holes that are closest to the front of the drive.

2. From inside the enclosure, push out the blank bezel insert that covers the left storage slot on the lower drive-mounting shelf.

3. Remove the blank bezel insert from the enclosure.

7.4.3 Installing the RRD43 CD-ROM Option

After you have prepared the system as described previously, install the RRD43 CD-ROM drive option as follows:

1. Check the storage slot on the drive-mounting shelf to verify that all spring-lock clips are in the locked position. If they are in the released position, install a lock-out screw to secure them.

2. Identify the power cable connector that supplies power to the storage slot where the RRD43 CD-ROM drive will be installed.

3. Connect the power cable to the power connector on the back of the RRD43 CD-ROM option. See Figure 7–3.

4. Identify the SCSI cable connector that has a pull-tab number that corresponds to the storage slot where the RRD43 option will be installed.

5. Connect the SCSI cable to the back of the RRD43 option. See Figure 7–3.

Figure 7–3 Connecting the Power and SCSI Cables
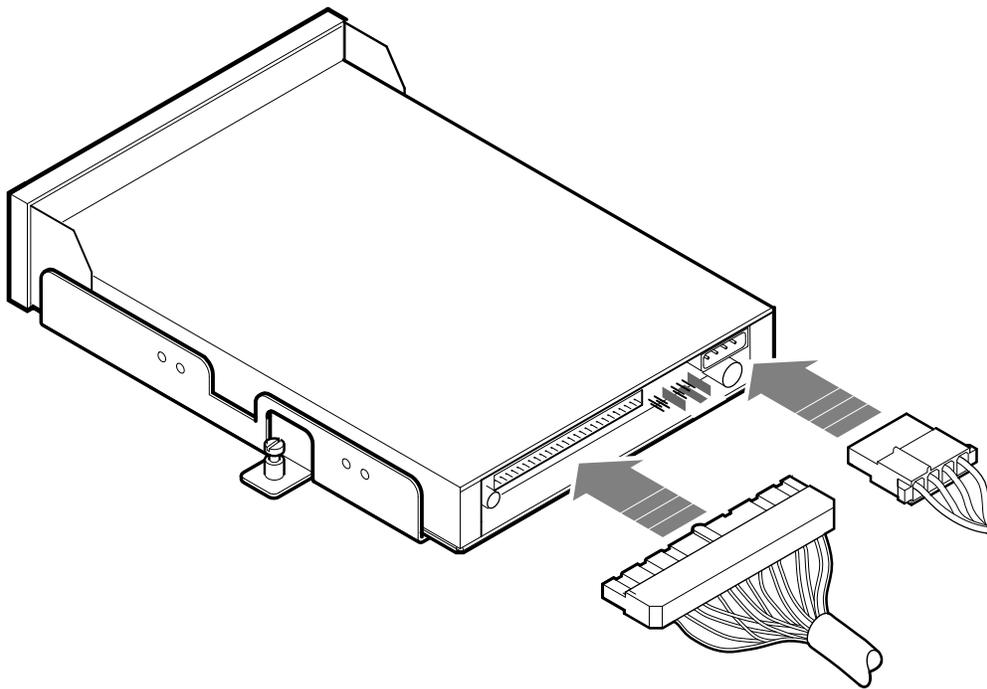
MLO-012259

6. Align the tabs on the mounting bracket with the cutouts in the drive-mounting shelf.

7. Tilt the drive slightly to slide the tabs in the drive-mounting shelf cutouts.

8. Lower the CD-ROM into position and tighten the captive screw on the mounting bracket to secure the tape drive in place. Figure 7–4 shows the installation of an RRD43 option in the left storage slot of the lower drive-mounting shelf.

Figure 7–4 Installing the RRD43 Option

RRD43

Captive Screw
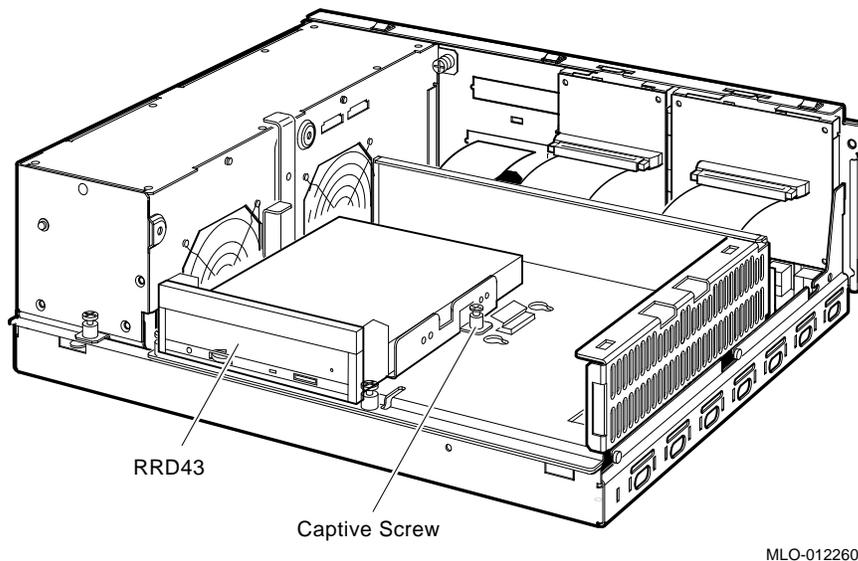
MLO-012260

9. Replace the upper drive-mounting shelf and the enclosure cover.

7.5 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of an RRD43 CD-ROM drive option. Enter the following command at the console prompt to test the operation of the RRD43 option:

```
>>> T E0
```

A successful pass of the test is indicated when the console displays the console prompt.

If the test fails, the LED display on the back of the system unit displays a code in the range A0 to A5 (hexadecimal), and the console terminal displays a hard error message containing the test number (10) and the test mnemonic (SCSI). The following is an example of an error printout.

```
?? 001 10 SCSI 0050
```

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

7.6 Power Requirements

Table 7–2 gives the dc power requirements of the RRD43-EK option.

Table 7–2 RRD43-EK Power Requirements

Mode	Current (Amperes)		Power (Watts)
	5-V Circuit	12-V Circuit	
Random	0.25	1.50	19.25
Power only	0.25	0.80	10.85

8

RX26-EL/RX23-EL Disk Drive Option

The RX26/RX23 diskette drive is a high-density, double-sided, 3.5-inch, SCSI device. It reads data from and writes data to industry-standard diskettes. Table 8–1 lists the types of diskettes that the RX26/RX23 diskette drive supports.

Table 8–1 RX26/RX23 Diskettes

Diskette Type	Capacity (Formatted)
High-density (HD) - RX26 and RX23	1.44M bytes
Extra-density (ED) - RX26 only	2.88M bytes

In the VAX 4000 BA42B-based systems, the only option variants that Digital services personnel install are the RX26-EL or RX23-EL option.

8.1 Ordering Information

The RX26/RX23 diskette drive that Digital services personnel install in a VAX 4000 BA42B-based system have the following order numbers:

- RX26-EL
- RX23-EL

8.2 Option Contents

The RX26-EL/RX23-EL option contains the following components:

- RX26-AA/RX23-AA diskette drive, with the mounting hardware attached
- Floppy disk interface/small computer system interface (FDI/SCSI) board (54-20764-02)
- FDI ribbon cable (17-00285-00)
- Bezel insert (74-39607-01)

Figure 8–1 shows the RX26-EL/RX23-EL option.

Figure 8–1   RX26-EL/RX23-EL Option
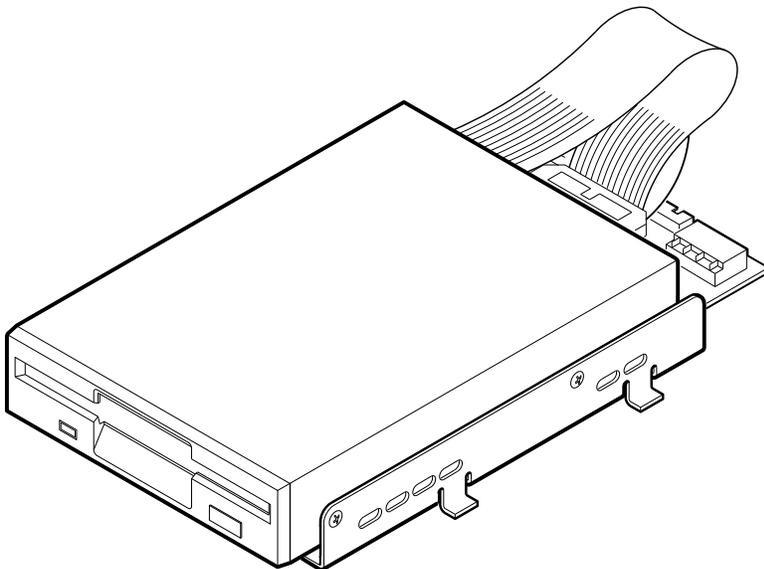
RE_EN06368A_91

8.3 SCSI ID Information

In a VAX 4000 BA42B-based system, each SCSI device must have a unique
SCSI ID number. When you are adding a SCSI device to an existing system,
you must set the SCSI ID of that device to an ID that is not used by any other
SCSI device in the system. (Refer to the *VAX 4000 Model 100, 100A, 105A,
106A KA52/53/54 CPU System Maintenance* manual.)

To set the SCSI ID of the RX26-EL/RX23-EL option:

1. On the RX26/RX23 mounting bracket, locate the ventilation slot that allows
    access to the SCSI ID switches on the FDI/SCSI board (see Figure 8–2).

Figure 8–2 Ventilation Slot for SCSI ID Switch Access
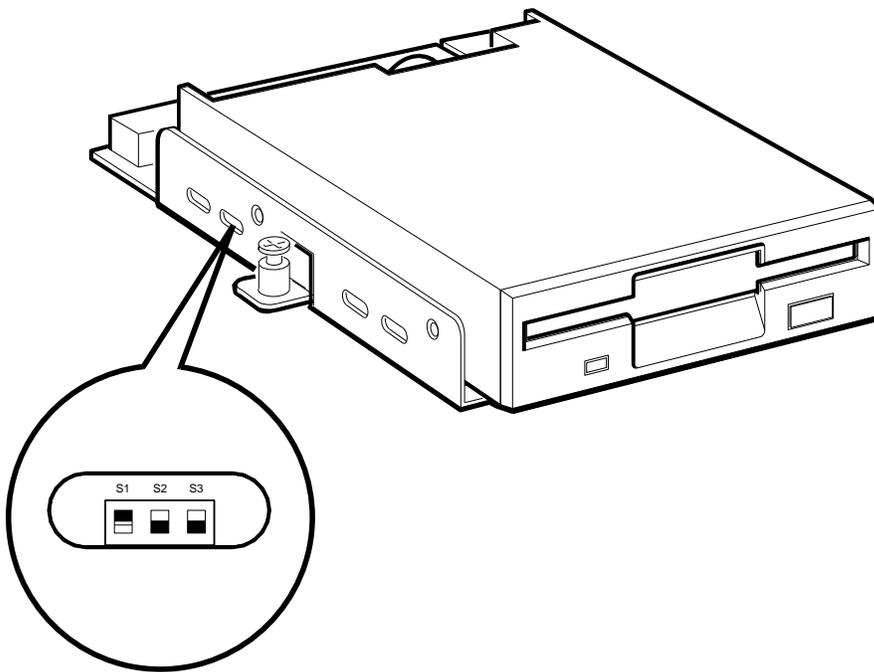
Note: The SCSI ID shown is 4 (S1 is on S2 is off and S3 is off).

RE_EN06471A_91

2. Determine the SCSI ID number that you want to assign to the RX26-EL
/RX23-EL option.

_____ **Note** _____

When the system is in console mode, you can use the command **SHOW
CONFIG** or **SHOW SCSI** to view the SCSI ID numbers used by the
existing devices in the system.

_____

3. Use a small flat-blade screwdriver to set the switches to the SCSI ID
number that you want. Table 8–2 shows the SCSI ID numbers and the
switch positions that correspond to these numbers.

Table 8–2   RX26/RX23 FDI/SCSI Board SCSI ID Switch Positions

SCSI ID	SCSI Switch Positions		
	S1	S2	S3
0	Off	Off	Off
1	Off	Off	On
2	Off	On	Off
3	Off	On	On
4	On	Off	Off
5	On	Off	On
6[1]	On	On	Off
7	On	On	On

[1]Reserved for the SCSI controller.

8.4 Installation

To install an RX26-EL/RX23-EL option in a VAX 4000 BA42B-based system,
you must remove the enclosure cover. Note that when you want to install an
RX26/RX23 option on the lower drive-mounting shelf of a BA42B-based system,
you must also remove the upper drive-mounting shelf. (Refer to the *VAX 4000
BA42B Enclosure Maintenance* manual for more information.)

1. Remove the upper drive-mounting shelf.

2. Identify the drive position into which you want to install the RX26-EL
    /RX23-EL option. (Refer to the *VAX 4000 BA42B Enclosure Maintenance*
    manual for information about mass storage device orientation and
    combinations.)

3. Insert lock-out screws to hold down any disk drive clips securely in the
    RX26/RX23 drive position on the drive-mounting shelf.

4. From inside the enclosure, push the blank bezel insert that covers the
    left or right removable-media drive position out of the front bezel of the
    enclosure.

5. Remove the blank bezel insert from the enclosure.

6. Clip the bezel insert for the BA42B-based system to the front bezel of the
    enclosure (see Figure 8–3).

Figure 8–3   Installing the RX26/RX23 Bezel Insert in a BA42B-Based System
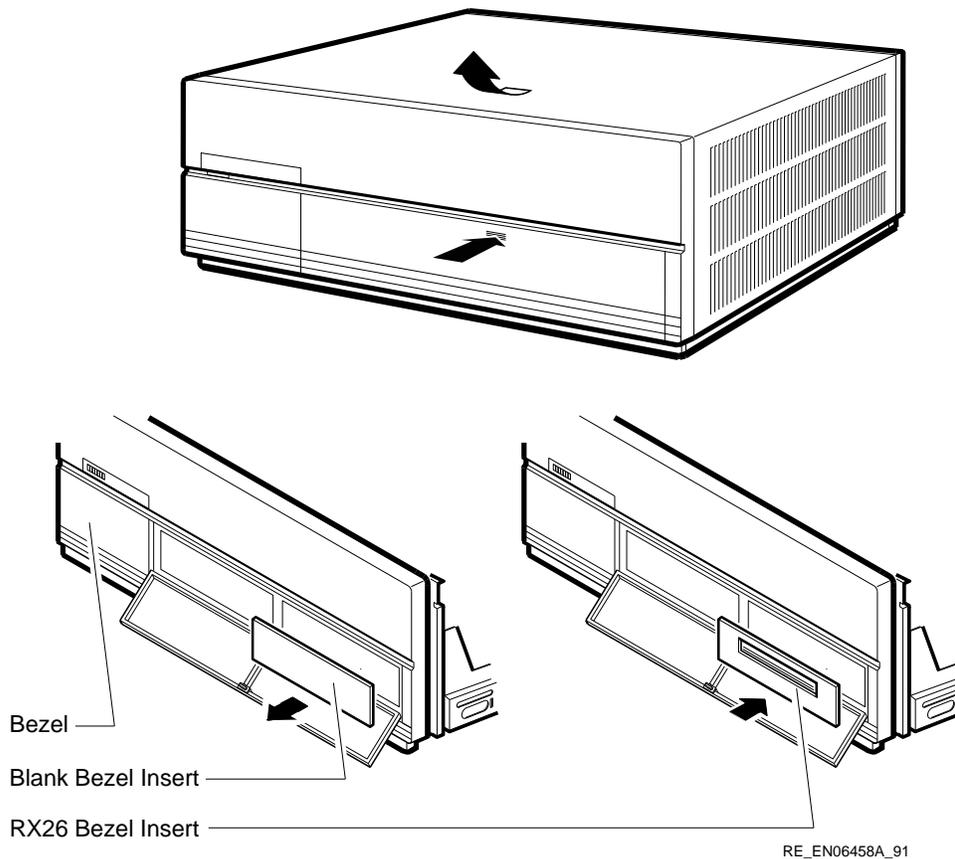
Bezel

Blank Bezel Insert

RX26 Bezel Insert

RE_EN06458A_91

7. Identify the power cable that supplies power to the drive-mounting shelf
    on which you want to install the RX26-EL/RX23-EL option. Connect
    the large power-cable connector to the power connector on the FDI/SCSI
    board, and connect the small power-cable connector to the connector on the
    RX26-EL/RX23-EL option (see Figure 8–4).

Figure 8–4 Connecting the Power Cables and the SCSI Cable
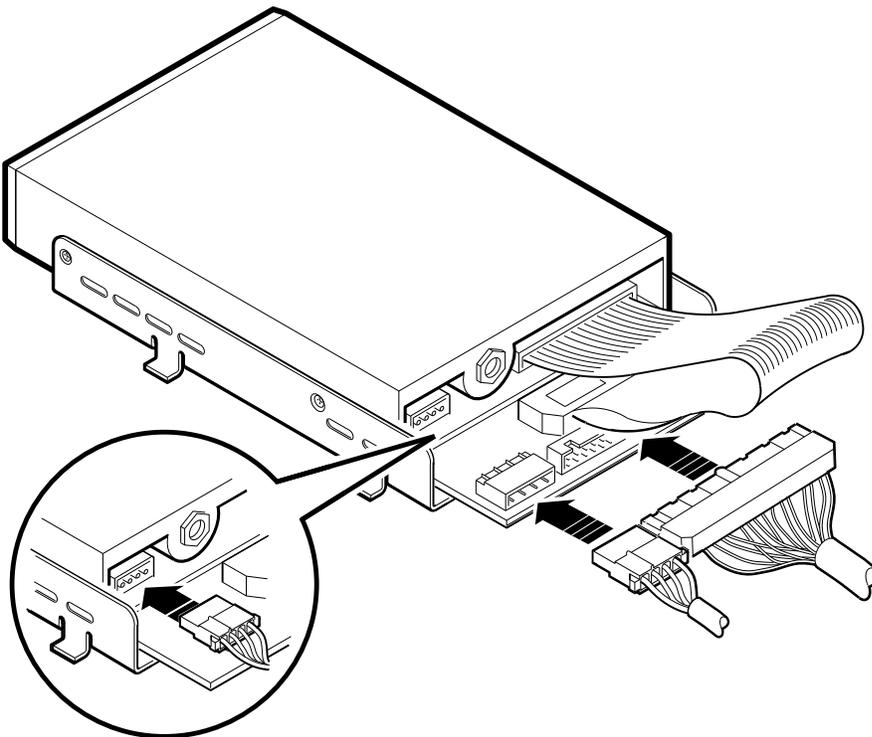
RE_EN06369A_91

8. Identify the SCSI cable connector with a pull-tab number that corresponds
    to the drive position into which you want to install the RX26-EL/RX23-EL
    option. Connect this connector to the FDI/SCSI board (see Figure 8–4).

9. Align the tabs on the RX26-EL/RX23-EL mounting bracket with the
    cutouts in the drive-mounting shelf. Tilt the drive to locate the tabs in the
    drive-mounting shelf cutouts (see Figure 8–5).

Figure 8–5 Installing the RX26-EL/RX23-EL Option

RX26 Option
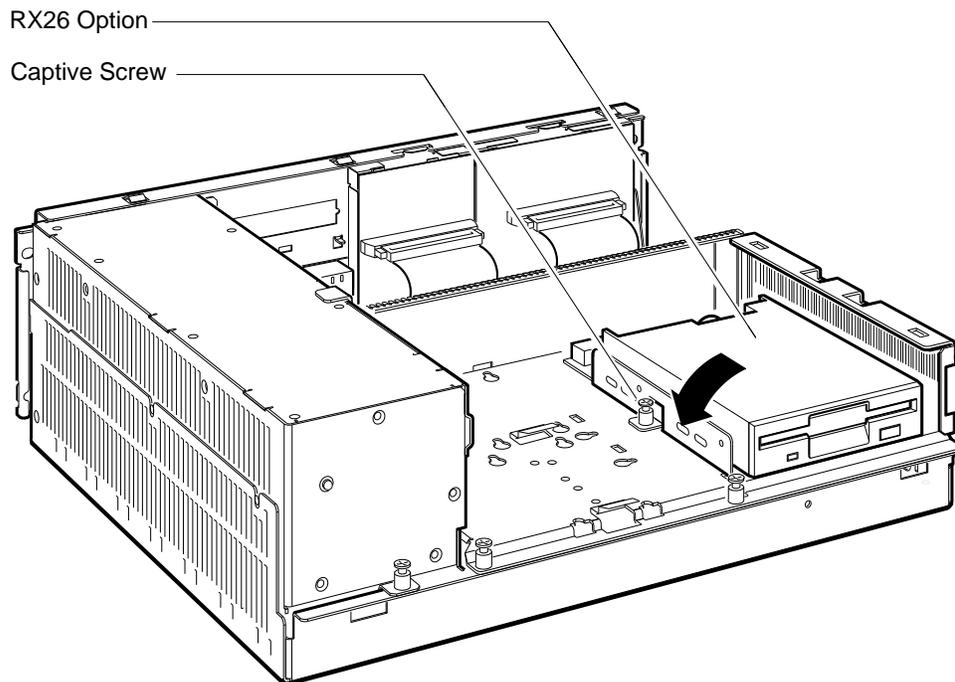
Captive Screw

RE_EN06370A_91

10. Press down the RX26-EL/RX23-EL option and tighten the captive screw on the mounting bracket to secure the RX26-EL/RX23-EL option in position (see Figure 8–5).

After you install the RX26-EL/RX23-EL option, install the drive-mounting shelf (if removed) and the enclosure cover.

8.5 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of an RX26/RX23 diskette drive in the system.

When the system is in the Digital services environment, you must install the test diskette in the RX26/RX23 diskette drive.

Enter the following command at the console prompt to test the operation of the RX26/RX23 diskette drive:

>>>**SHOW SCSI**

Verify that the device shows up at the configured SCSI ID. Also, verify that all other devices still show up correctly.

The following command provides additional testing of the interface.

>>>**T E0 2**

The console terminal displays an error message if the system fails the test.

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

8.6 Power Requirements

Table 8–3 gives the dc power requirements of the RX26/RX23 diskette drive.

Table 8–3   RX26/RX23 Power Requirements

Mode	Current (Amperes)	Power (Watts)
Random seek	0.92	4.60
Power only	0.70	0.35

9

RZ25L Disk Drive Option

9.1 Description

The RZ25L disk drive is a 3.5-inch high-performance SCSI device. It stores up to 535 MB of formatted data on thin-film rigid media disks. The storage medium in the disk drive is fixed (not operator removable).

9.2 Ordering Information

There field-installable option variants installed by Digital Services engineers in a VAX 4000 BA42-based system is as follows:

- RZ25L-EK

9.3 Option Contents

The RZ25L-EK option contains the following components:

- RZ25L-E disk drive
- Mounting bracket (74–44226–01)
- Grommets/screws (4) (12–31734–01)
- Documentation

9.4 SCSI ID Information

In any system, each SCSI device must have a unique identifier called the **SCSI ID number**. In an RZ25L disk drive, the SCSI ID number is determined by three jumpers. See Figure 9–1. When installing an RZ25L disk drive in a system, set the SCSI ID jumpers to a value that is not used by any of the other SCSI devices in the system. See your system documentation for detailed information about the SCSI bus.

RZ25L Disk Drive Option
9.4 SCSI ID Information

The following procedure describes how to set the SCSI ID number on an RZ25L disk drive.

1. Determine the SCSI ID number to be assigned to the RZ25L disk drive option. Typically, the first RZ-series disk in a system uses SCSI ID 1, the second RZ-series disk uses SCSI ID 2, and the third RZ-series disk uses SCSI ID 3; however, the system manager may prefer to make this decision.

2. At the console prompt on the system console terminal, enter the **SHOW CONFIG**, **SHOW DEVICE**, or the **SHOW SCSI** command to list the SCSI ID numbers for the existing devices in the system. Verify that you are using a number that is not currently assigned to another device.

3. Place the drive on an anti-static surface with the HDA down, and the SCSI connector toward you. Figure 9–1 shows the drive orientation.

4. Locate the SCSI ID jumper pins on the disk drive. The RZ25L disk drive has two sets of SCSI ID jumpers. You can use either set, but use only one of the two sets of jumpers to set the SCSI ID number. See Figure 9–1.

5. Position the jumpers for the SCSI ID number selected. Table 9–1 shows the SCSI ID number and the corresponding jumper settings.

Figure 9–1   RZ25L SCSI ID Jumper Locations

MLO-012054

Table 9–1 RZ25L SCSI ID Jumper Settings

SCSI ID	Jumper A2	Jumper A1	Jumper A0
0^1	Out	Out	Out
1^1	Out	Out	In
2^1	Out	In	Out
3^1	Out	In	In
4	In	Out	Out
5	In	Out	In
6^2	In	In	Out
7	In	In	In

[1]Recommended SCSI ID for RZ-series drives.
[2]Reserved for the SCSI controller.

9.5 Installation

To install an RZ25L-EK disk drive option in a VAX 4000 BA42B based system,
follow these steps:

1. Disconnect the power cord and remove the enclosure cover (see Section 1.1).

2. To install the drive on the lower drive-mounting shelf, remove the upper
   drive-mounting shelf (see Section 1.4). If you are installing the drive on
   the upper drive-mounting shelf, skip this step.

3. If mounting hardware is already attached to the drive (see Figure 9–1), go
   to step 5.

4. Attach the mounting bracket with the four grommets/screws. The
   grommets fit into the recessed side of the imprinted pockets on the bracket
   as shown in Figure 9–1.

5. Identify the storage slot where the RZ25L option will be installed. the *VAX
   4000 BA42B Enclosure Maintenance* manual describes the mass storage
   device orientation.

6. Locate the spring clip and lock-out screw for the storage slot where the
   RZ25L disk drive option will be installed (Figure 9–2). Remove the lock-out
   screw if it has not already been removed.

7. Identify the power cable connector that supplies power to the storage slot
   where the RZ25L option will be installed.

8. Connect the power cable to the power connector on the back of the RZ25L disk drive option. See Figure 9–1.

9. Identify the SCSI cable connector that has a pull-tab number that corresponds to the storage slot where the RZ25L disk drive option will be installed.

10. Connect the SCSI cable to the back of the RZ25L disk drive option. See Figure 9–1.

11. Position the grommets attached to the RZ25L option in the cutouts of the drive-mounting shelf (see Figure 9–2).

12. Slide the RZ25L disk drive option away from the spring clip until the grommets are secure in the cutouts and the spring clip locks the disk drive into position.

Figure 9–2   Installing a RZ25L-EK Disk Drive

Lock-out Screw

Spring Clip

Lock-out Screw

Spring Clip

MLO-011304
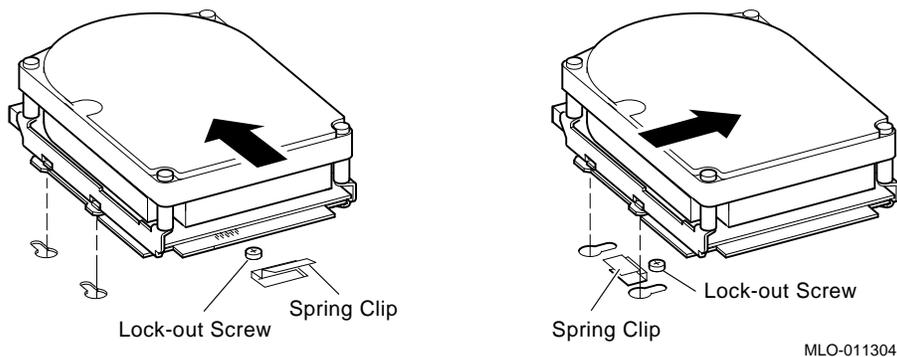
_____ **Note** _____

The left-hand illustration in Figure 9–2 shows how a sample drive is secured in any position on the top drive mounting shelf, or in the left-hand storage slot on the lower shelf. The right-hand illustration shows how the drive is mounted in the right-hand position on the lower shelf only.

_____

13. If you installed the drive on the lower drive-mounting shelf, reinstall the upper drive-mounting shelf (see Section 1.4).

14. Reinstall the enclosure cover and reconnect the power cable (see
Section 1.1).

9.6 Diagnostic Support

The VAX 4000 BA42B based systems provide diagnostic support that tests the
operation of an RZ25L disk drive.

The following commands typed at the console prompt will allow you to view the
existing SCSI IDs.

>>>**SHOW SCSI**

>>>**SHOW CONFIG**

>>>**SHOW DEVICE**

Verify that the device shows up at the configured SCSI ID. Also, verify that all
other devices still show up correctly.

The following command provides additional testing of the interface.

>>>**T E0**

If the test fails, the console terminal displays an error message similar to the
following:

```
? Test_Subtest_E0_04  Loop_Subtest=00  Err_type=FF   DE_SCSI.lis
Vec=0000  Prev_errs=0001   P1=04000001   P2=00000000   P3=00000014
P4=00000000 P5=00000000  P6=00000000   P7=00000000   P8=00000000
P9=00000000  P10=0000005C
Stat=0022 Ext_stat 000E0065 00010000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0066 00020000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0067 00030000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0068 00040000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0069 00050000 00120003 00220000
 dser=0000 cesr=00000000 icsr=01 pcsts=F800 pcctl=FC13 cctl=00000007
 bcetsts=03E0 bcedsts=0F00 cefsts=00019220 nests=00 mmcdsr=00139000
 mesr=00006000
```

Refer to the *VAX 4000 Model 100/100A/105A/106A KA52/53/54 CPU System
Maintenance* manual for more information.

9.7 Power Requirements

The power requirements for the RZ25L disk drive option are as follows:

Mode	Current (Amps)		Power (Watts)
	5 V Circuit	**12 V Circuit**	
Random seek	0.88	0.53	10.76
Idle	0.48	0.38	6.96

10

RZ25M Disk Drive Option

10.1 Description

The RZ25M disk drive is a 3.5-inch high-performance SCSI device. It stores up to 545 MB of formatted data on thin-film rigid media disks. The storage medium in the disk drive is fixed (not operator removable).

10.2 Ordering Information

There field-installable option variants installed by Digital Services engineers in a VAX 4000 BA42B based system is as follows:

- RZ25M-EK

10.3 Option Contents

The RZ25M-EK option contains the following components:

- RZ25M-E disk drive
- Mounting bracket (74–44226–01)
- Grommets/screws (4) (12–31734–01)
- Documentation

10.4 SCSI ID Information

In any system, each SCSI device must have a unique identifier called the **SCSI ID number**. In an RZ25M disk drive, the SCSI ID number is determined by three jumpers. See Figure 9–1. When installing an RZ25M disk drive in a system, set the SCSI ID jumpers to a value that is not used by any of the other SCSI devices in the system. See your system documentation for detailed information about the SCSI bus.

The following procedure describes how to set the SCSI ID number on an
RZ25M disk drive.

1. Determine the SCSI ID number to be assigned to the RZ25M disk drive
    option. Typically, the first RZ-series disk in a system uses SCSI ID 1, the
    second RZ-series disk uses SCSI ID 2, and the third RZ-series disk uses
    SCSI ID 3; however, the system manager may prefer to make this decision.

2. At the console prompt on the system console terminal, enter the **SHOW
    CONFIG**, **SHOW DEVICE**, or the **SHOW SCSI** command to list the SCSI
    ID numbers for the existing devices in the system. Verify that you are
    using a number that is not currently assigned to another device.

3. Place the drive on an anti-static surface with the HDA down, and the SCSI
    connector toward you. Figure 10–1 shows the drive orientation.

4. Locate the SCSI ID jumper pins on the disk drive.

5. Position the jumpers for the SCSI ID number selected. Table 10–1 shows
    the SCSI ID number and the corresponding jumper settings.

Figure 10–1   RZ25M SCSI ID Jumper Locations
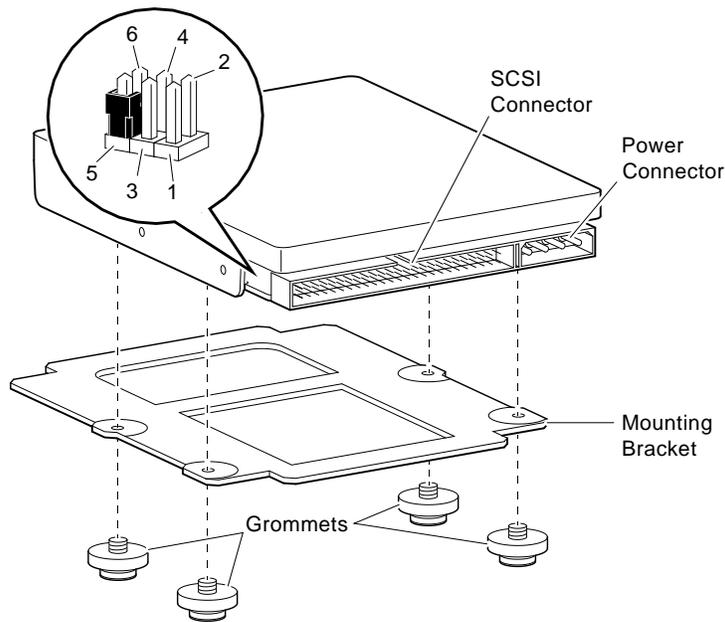
MLO-013146

Table 10–1   RZ25M SCSI ID Jumper Settings

SCSI ID	Pins 1&2	Pins 3&4	Pins 4&5
0[1]	Out	Out	Out
1[1]	Out	Out	In
2[1]	Out	In	Out
3[1]	Out	In	In
4	In	Out	Out
5	In	Out	In
6[2]	In	In	Out
7	In	In	In

[1]Recommended SCSI ID for RZ-series drives.
[2]Reserved for the SCSI controller.

10.5 Installation

To install an RZ25M-EK disk drive option in a VAX 4000 BA42B Enclosure based system, follow these steps:

1. Disconnect the power cord and remove the enclosure cover (see Section 1.1).

2. To install the drive on the lower drive-mounting shelf, remove the upper drive-mounting shelf (see Section 1.4). If you are installing the drive on the upper drive-mounting shelf, skip this step.

3. If mounting hardware is already attached to the drive (see Figure 10–1), go to step 5.

4. Attach the mounting bracket with the four grommets/screws. The grommets fit into the recessed side of the imprinted pockets on the bracket as shown in Figure 10–1.

5. Identify the storage slot where the RZ25M option will be installed. the *VAX 4000 BA42B Enclosure Maintenance* manual describes the mass storage device orientation.

6. Locate the spring clip and lock-out screw for the storage slot where the RZ25M disk drive option will be installed (Figure 10–2). Remove the lock-out screw if it has not already been removed.

7. Identify the power cable connector that supplies power to the storage slot where the RZ25M option will be installed.

8. Connect the power cable to the power connector on the back of the RZ25M disk drive option. See Figure 10–1.

9. Identify the SCSI cable connector that has a pull-tab number that corresponds to the storage slot where the RZ25M disk drive option will be installed.

10. Connect the SCSI cable to the back of the RZ25M disk drive option. See Figure 10–1.

11. Position the grommets attached to the RZ25M option in the cutouts of the drive-mounting shelf (see Figure 10–2).

12. Slide the RZ25M disk drive option away from the spring clip until the grommets are secure in the cutouts and the spring clip locks the disk drive into position.

Figure 10–2 Installing a RZ25M-EK Disk Drive

Lock-out Screw

Spring Clip

Lock-out Screw

Spring Clip

MLO-011304
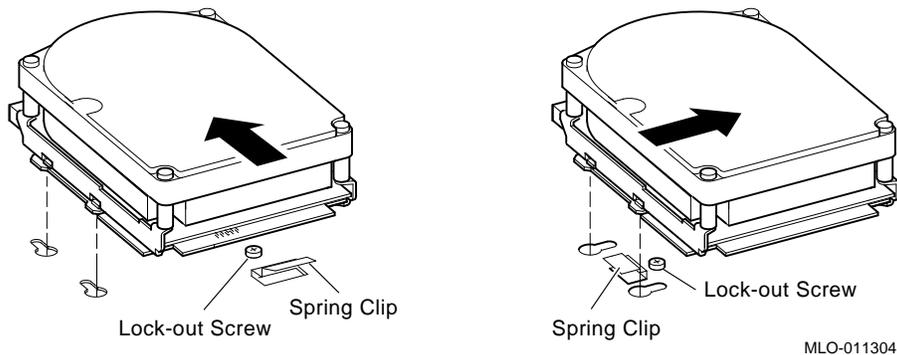
_____ **Note** _____

The left-hand illustration in Figure 10–2 shows how a sample drive
is secured in any position on the top drive mounting shelf, or in the
left-hand storage slot on the lower shelf. The right-hand illustration
shows how the drive is mounted in the right-hand position on the lower
shelf only.

_____

13. If you installed the drive on the lower drive-mounting shelf, reinstall the
upper drive-mounting shelf (see Section 1.4).

14. Reinstall the enclosure cover and reconnect the power cable (see
Section 1.1).

10.6 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the
operation of an RZ25M disk drive.

The following commands typed at the console prompt will allow you to view the
existing SCSI IDs.

>>>**SHOW SCSI**

>>>**SHOW CONFIG**

>>>**SHOW DEVICE**

Verify that the device shows up at the configured SCSI ID. Also, verify that all
other devices still show up correctly.

The following command provides additional testing of the interface.

>>>**T E0**

If the test fails, the console terminal displays an error message similar to the following:

```
? Test_Subtest_E0_04  Loop_Subtest=00  Err_type=FF   DE_SCSI.lis
Vec=0000  Prev_errs=0001   P1=04000001   P2=00000000   P3=00000014
P4=00000000 P5=00000000  P6=00000000   P7=00000000   P8=00000000
P9=00000000  P10=0000005C
Stat=0022 Ext_stat 000E0065 00010000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0066 00020000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0067 00030000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0068 00040000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0069 00050000 00120003 00220000
 dser=0000 cesr=00000000 icsr=01 pcsts=F800 pcctl=FC13 cctl=00000007
 bcetsts=03E0 bcedsts=0F00 cefsts=00019220 nests=00 mmcdsr=00139000
 mesr=00006000
```

Refer to the *VAX 4000 Model 100/100A/105A/106A KA52/53/54 CPU System Maintenance* manual for more information.

10.7 Power Requirements

The power requirements for the RZ25M disk drive option are as follows:

Mode	Current (Amps)		Power (Watts)
	5 V Circuit	**12 V Circuit**	
Random seek	0.35	0.354	6.00
Idle	0.221	0.116	2.50

11

RZ26/RZ26L/RZ28 Disk Drive Options

11.1 Description

The RZ26, RZ26L, and RZ28 disk drives are 3.5-inch high-performance SCSI devices. They store data on thin-film rigid media disks. The storage medium in the disk drive is fixed (not operator removable). The following table lists the capacities of the drives.

Drive	Capacity
RZ26	1.05 Gbyte
RZ26L	1.05 Gbyte
RZ28	2.10 Gbyte

11.2 Ordering Information

The field-installable option variants installed by Digital Services personnel in a VAX 4000 Model 100/100A/105A/106A BA42B-based system are as follows:

- RZ26-EK

- RZ26L-EK

- RZ28-EK

11.3 Option Contents

The RZ26/RZ26L/RZ28-EK option contains the following components:

- RZ26, RZ26L, or RZ28 disk drive

- Grommets/screws (4) (12–31734–01)

- Mounting bracket (74–44226–01)

- Documentation

11.4 SCSI ID Information

In any system, each SCSI device must have a unique identifier called the **SCSI ID number**. In the RZ26, RZ26L, and RZ28 disk drives, the SCSI ID number is determined by three jumpers. See Figure 11–1. When installing an RZ26, RZ26L, or RZ28 disk drive in a system, set the SCSI ID jumpers to a value that is not used by any of the other SCSI devices in the system. See your system documentation for detailed information about the SCSI bus.

The following procedure describes how to set the SCSI ID number on an RZ26, RZ26L, or RZ28 disk drive option.

1. Determine the SCSI ID number to be assigned to the disk drive option. Typically, the first RZ-series disk in a system uses SCSI ID 1, the second RZ-series disk uses SCSI ID 2, and the third RZ-series disk uses SCSI ID 3; however, the system manager may prefer to make this decision.

2. At the console prompt on the system console terminal, enter the **SHOW CONFIG**, **SHOW DEVICE**, or the **SHOW SCSI** command to list the SCSI ID numbers for the existing devices in the system. Verify that you are using a number that is not currently assigned to another device.

3. Locate the SCSI ID jumper pins on the disk drive. See Figure 11–1.

4. Position the jumpers for the SCSI ID number selected. Table 11–1 shows the SCSI ID number and the corresponding jumper settings.

Figure 11–1 SCSI ID Jumper Locations

MLO-010179
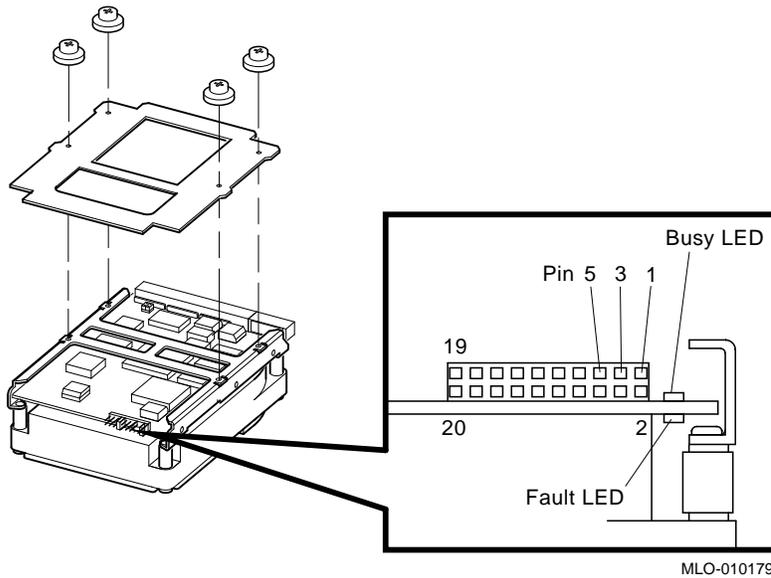
Table 11–1 SCSI ID Jumper Settings

SCSI ID	Jumper Pin 5 to Pin 6	Jumper Pin 3 to Pin 4	Jumper Pin 1 to Pin 2
0[1]	Out	Out	Out
1[1]	Out	Out	In
2[1]	Out	In	Out
3[1]	Out	In	In
4	In	Out	Out
5	In	Out	In
6[2]	In	In	Out
7	In	In	In

[1]Recommended SCSI ID for RZ-series drives.
[2]Reserved for the SCSI controller.

11.5 Installation

To install an RZ26, RZ26L, or RZ28 disk drive option, follow these steps:

1. Disconnect the power cord and remove the enclosure cover (see Section 1.1).

2. To install the drive on the lower drive-mounting shelf, remove the upper drive-mounting shelf (see Section 1.4). If you are installing the drive on the upper drive-mounting shelf, skip this step.

3. If the mounting hardware is already attached to the drive as in Figure 11–2, go to step 5.

4. Attach the mounting bracket with the four grommets/screws. The grommets fit into the recessed side of the imprinted pockets on the bracket as shown in Figure 11–2.

Figure 11–2 RZ26 Disk Drive with Mounting Bracket

Grommets

Mounting
Bracket
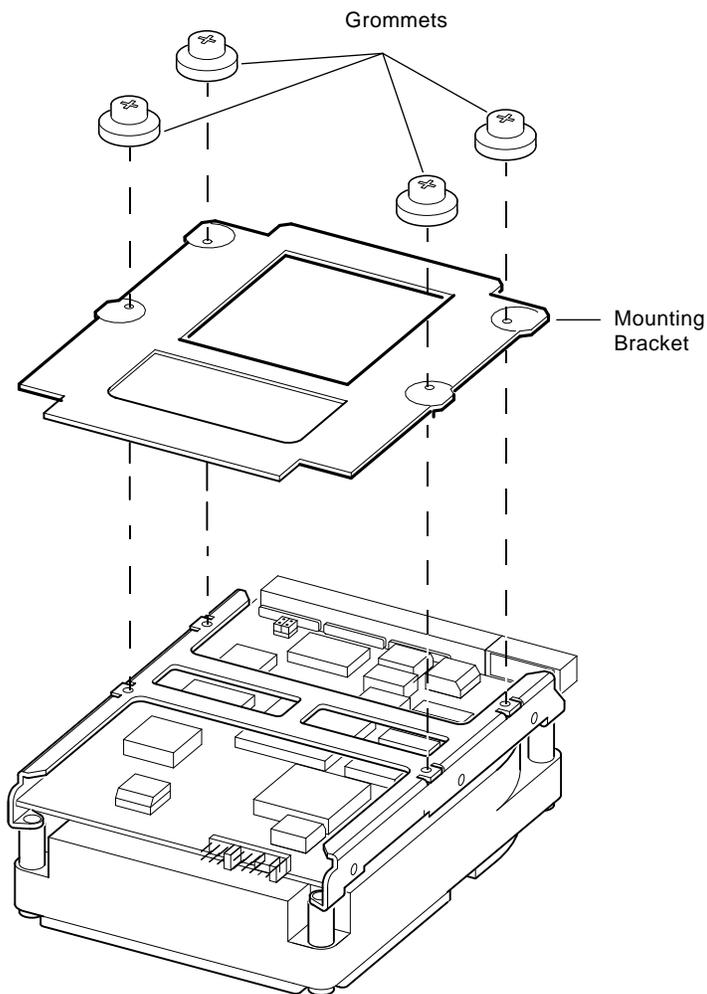
MLO-011302

5. Identify the storage slot where the disk drive option is to be installed. The
   VAX 4000 Model 100/100A/105A/106A BA42B Enclosure Maintenance
   manual describes mass storage device orientation.

6. Identify the power cable connector that supplies power to the storage slot
   where the disk drive will be installed.

7. Connect the power cable to the power connector on the back of the disk
   drive. See Figure 11–3.

8. Identify the SCSI cable connector that has a pull-tab number that corresponds to the storage slot where the disk drive will be installed.

9. Connect the SCSI cable to the back of the disk drive. See Figure 11–3.

Figure 11–3   Connecting the Cables
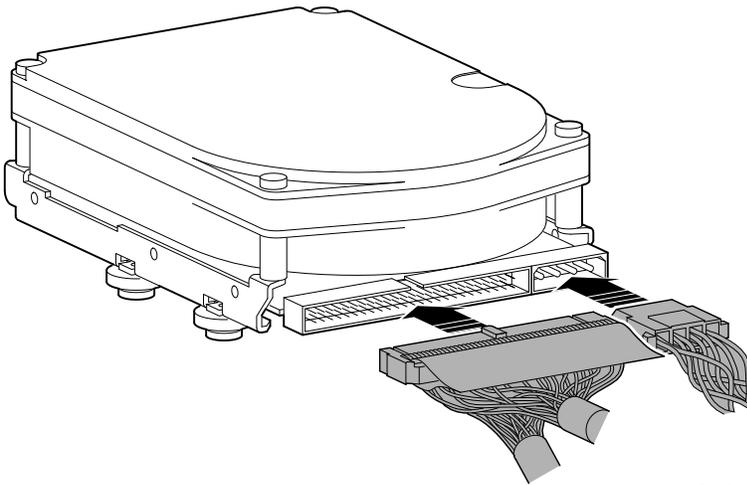
MLO-011311

10. Locate the spring clip and lock-out screw for the storage slot where the disk drive will be installed. See Figure 11–4. Remove the lock-out screw if it has not already been removed.

11. Position the grommets attached to the disk drive in the cutouts of the drive-mounting shelf. See Figure 11–4.

Figure 11–4 Installing a Disk Drive

Lock-out Screw

Spring Clip

Lock-out Screw

Spring Clip

MLO-011304

_____ **Note** _____

The left-hand illustration in Figure 11–4 shows how a sample drive
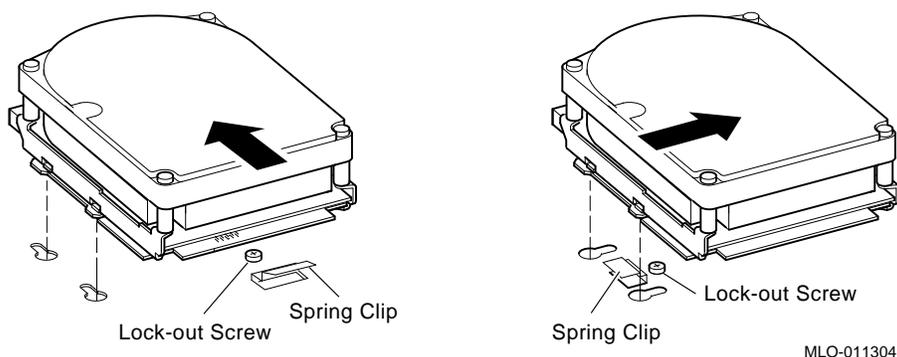is secured in any position on the top drive mounting shelf, or in the
left-hand storage slot on the lower shelf. The right-hand illustration
shows how the drive is mounted in the right-hand position on the lower
shelf only.

_____

12. Slide the disk drive away from the spring clip until the grommets are
    secure in the cutouts and the spring clip locks the disk drive into position.

13. If you installed the drive on the lower drive-mounting shelf, reinstall the
    upper drive-mounting shelf (see Section 1.4).

14. Reinstall the enclosure cover and reconnect the power cable (see
    Section 1.1).

11.6 Diagnostic Support

The VAX 4000 Model 100/100A/105A/106A systems provide diagnostic support
that tests the operation of an RZ26, RZ26L, or RZ28 disk drive.

The following commands typed at the console prompt will allow you to view the
existing SCSI IDs.

>>>**SHOW SCSI**

>>>**SHOW CONFIG**

>>>**SHOW DEVICE**

Verify that the device shows up at the configured SCSI ID. Also, verify that all other devices still show up correctly.

The following command provides additional testing of the interface.

>>>**T E0**

If the test fails, the console terminal displays an error message similar to the following:

```
? Test_Subtest_E0_04  Loop_Subtest=00  Err_type=FF   DE_SCSI.lis
Vec=0000  Prev_errs=0001   P1=04000001   P2=00000000   P3=00000014
P4=00000000 P5=00000000  P6=00000000   P7=00000000   P8=00000000
P9=00000000  P10=0000005C
Stat=0022 Ext_stat 000E0065 00010000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0066 00020000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0067 00030000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0068 00040000 00120003 00220000 00000047 FFFFFFFF
 FFFFFFFF 00000002 000E0069 00050000 00120003 00220000
 dser=0000 cesr=00000000 icsr=01 pcsts=F800 pcctl=FC13 cctl=00000007
 bcetsts=03E0 bcedsts=0F00 cefsts=00019220 nests=00 mmcdsr=00139000
 mesr=00006000
```

Refer to the *VAX 4000 Model 100/100A/105A/106A KA52/53/54 CPU System Maintenance* manual for more information.

11.7 Power Requirements

The power requirements for the RZ26, RZ26L, and RZ28 options are as follows:

Mode	Current (Amps)		Power (Watts)
	5 V Circuit	**12 V Circuit**	
RZ26			
Random seek	0.76	1.56	13.80
Idle	0.71	0.64	11.23
RZ26L			
Random seek	0.90	0.90	1.30
Idle	0.90	0.30	8.5

Mode	Current (Amps)		Power (Watts)
	5 V Circuit	**12 V Circuit**	
RZ28			
Random seek	1.00	1.70	15.00
Idle	1.04	0.53	11.50

12

TLZ06/TLZ07 Tape Drive Option

The TLZ06/TLZ07 tape drive is a 4-mm DAT DDS SCSI-2 device. It reads data from and writes data to industry-standard tape cartridges. Table 12–1 lists the supported tape cartridges.

Table 12–1 TLZ06/TLZ07 Tape Cartridges

Cartridge	Capacity	Capacity with Compression
TLZ04-CA	1.3 GB	Up to 2.6 GB
TLZ06-CA	2.0 GB	Up to 4.0 GB
TLZ07-CA[1]	4.0 GB	Up to 8.0 GB

[1]The TLZ07-CA tape cartridge is only compatible with the TLZ07 tape drive.

12.1 Ordering Information

The TLZ06/TLZ07 tape drive that Digital services personnel install in a VAX 4000 BA42B-based system has the following order number:

- TLZ06-HG
- TLZ07-HG

12.2 Option Contents

The TLZ06/TLZ07 tape drive option contains the following components:
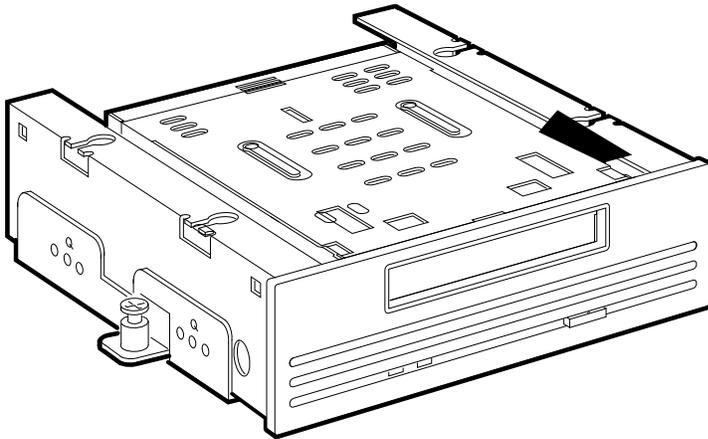
- TLZ06-AA/TLZ07-AA tape drive with mounting hardware
- Mounting bracket (P/N 74-42449-01)
- Four screws (P/N 90-10961-03)

Figure 12–1 shows the TLZ06/TLZ07 tape drive.

Figure 12–1   TLZ06/TLZ07 Tape Drive

GA_EN00177A_92A

12.3 SCSI ID Information

In a VAX 4000 BA42B-based system, each SCSI device must have a unique SCSI ID number. When installing the TLZ06/TLZ07 tape drive, the SCSI ID must be set to an ID that is not being used by any other SCSI device in the system. (Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual.)

To set the SCSI ID on the TLZ06/TLZ07 tape drive:

1. Locate the SCSI ID jumper on the back of the TLZ06/TLZ07 tape drive (see Figure 12–2).

Figure 12–2   TLZ06/TLZ07 SCSI ID Jumper Switch Locations

Mode and SCSI
Address Switches
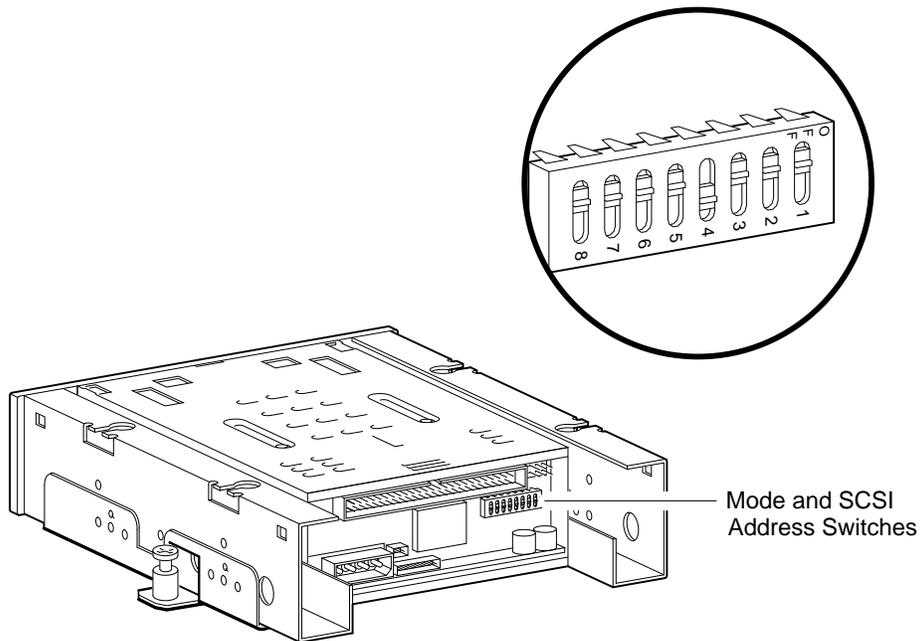
GA_EN00144A_92A

2. Determine the SCSI ID number assigned to the TLZ06/TLZ07 tape drive.

_____ **Note** _____

When the system is in console mode, you can use the command **SHOW CONFIG** to view the SCSI ID numbers used by the devices in the system.

_____

3. Position the switches for the SCSI ID number that you want. Table 12–2 shows the SCSI ID numbers and the jumper switch combinations that correspond to these numbers.

Table 12–2   TLZ06/TLZ07 SCSI ID Jumper Switch Combinations

SCSI ID	Switch 3	Switch 2	Switch 1
0	Up	Up	Up
1	Up	Up	Down
2	Up	Down	Up
3	Up	Down	Down
4	Down	Up	Up
5[1]	Down	Up	Down
6[2]	Down	Down	Up
7	Down	Down	Down

[1]Recommended SCSI ID for tape drives.

[2]Reserved for the SCSI controller.

The other switch positions determine the TLZ06/TLZ07 tape drive. You must leave these switches at their factory-set default settings.

12.4 Installation

To install a TLZ06/TLZ07 tape drive in a VAX 4000 BA42B-based system, you must remove the enclosure cover.

12.4.1 Preparing to Install a TLZ06/TLZ07 in the Left-Hand Position

To prepare a VAX 4000 BA42B-based system for the installation of a TLZ06/TLZ07 tape drive in the left-hand drive position, follow these steps.

1. Attach the mounting bracket as follows: Facing the front of the drive, the captive screw should be on the right, and the four screws attaching the mounting bracket to the drive should be attached through the series of bracket holes that are closest to the front of the drive.

2. From inside the enclosure, push the blank bezel insert that covers the left-hand drive-mounting position on the lower drive-mounting shelf out of the front bezel of the enclosure.

3. Remove the blank bezel insert from the enclosure.

12.4.2 Preparing to Install a TLZ06/TLZ07 in the Right-Hand Position

To prepare a VAX 4000 BA42B-based system for the installation of a
TLZ06/TLZ07 tape drive in the right-hand drive position, follow these steps.

1. Attach the mounting bracket as follows: Facing the front of the drive,
    the captive screw should be on the left, and the four screws attaching the
    mounting bracket to the drive should be attached through the series of
    bracket holes that are closest to the front of the drive.

2. From inside the enclosure, push the blank bezel insert that covers the
    right-hand drive-mounting position on the lower drive-mounting shelf out
    of the front bezel of the enclosure.

3. Remove the blank bezel insert from the enclosure.

12.4.3 Installing the TLZ06/TLZ07 Tape Drive

To install the TLZ06/TLZ07 tape drive:

1. Install lock-out screws to hold down any disk drive clips securely in the
    drive position on the drive-mounting shelf.

2. Identify the power cable that supplies power to the drive-mounting shelf
    where the TLZ06/TLZ07 tape drive will be installed. Connect this power
    cable to the power connector on the back of the TLZ06/TLZ07 tape drive
    (see Figure 12–3).

**Figure 12–3 Connecting the Power Cable and the SCSI Cable**
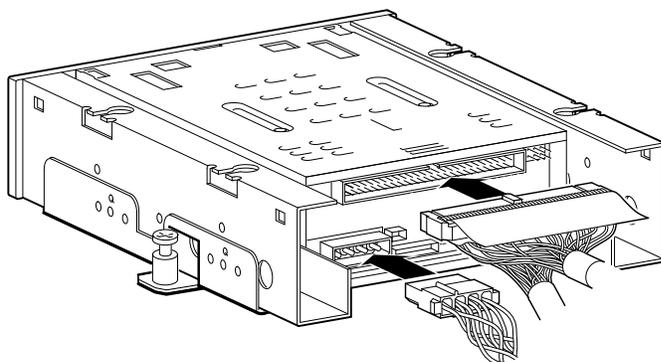
GA_EN00178A_92A

4. Identify the SCSI cable connector with a pull-tab number that corresponds to the drive position into which you want to install the TLZ06/TLZ07 tape drive. Connect this connector to the back of the TLZ06/TLZ07 tape drive (see Figure 12–3).

5. Align the tabs on the TLZ06/TLZ07 tape drive mounting bracket with the cutouts in the drive-mounting shelf. Tilt the drive to locate the tabs in the drive-mounting shelf cutouts (see Figure 12–4).

Figure 12–4   Installing the TLZ06/TLZ07 Tape Drive
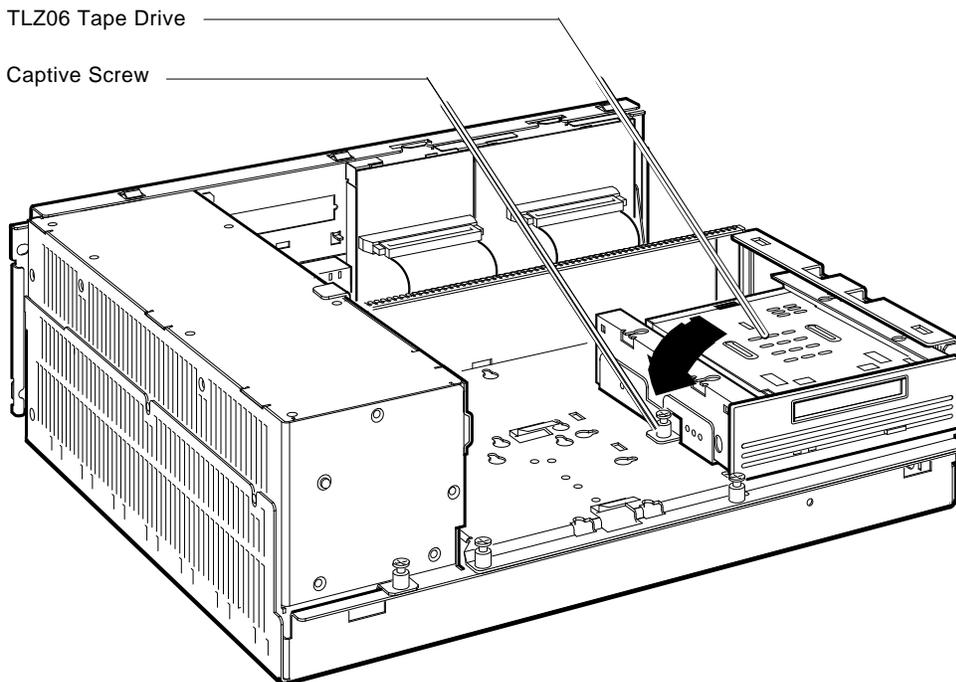
MLO-009898

6. Press down the TLZ06/TLZ07 tape drive and tighten the captive screw on the mounting bracket to secure the TLZ06/TLZ07 tape drive in position (see Figure 12–4).

After installing the TLZ06/TLZ07 tape drive, reinstall the upper drive-mounting shelf (if removed) and the enclosure cover.

12.5 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of a TLZ06/TLZ07 tape drive in the system.

Enter one of the following commands at the console prompt to test the operation of the TLZ06/TLZ07 tape drive:

>>>**SHOW SCSI**

Verify that the device shows up at the configured SCSI ID. Also, verify that all other devices still show up correctly.

The following command provides additional testing of the interface.

>>>**T E0 2**

The console terminal displays an error message if the system fails the test.

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

12.6 Power Requirements

Table 12–3 gives the dc power requirements of the TLZ06/TLZ07 tape drive.

Table 12–3   TLZ06/TLZ07 Power Requirements

Current (Amperes)		Power(Watts)
5-V Circuit	**12-V Circuit**	
0.89	0.2	9.00

13

TZ30-EL Tape Drive Option

The TZ30 tape drive is a single-reel tape, SCSI device. It reads data from and writes data to 95M-byte CompacTape™ or CompacTape II tape cartridges.

13.1 Ordering Information

The TZ30 tape drive that Digital services personnel install in a VAX 4000 BA42B-based system has the following order number:

- TZ30-EL

13.2 Option Contents

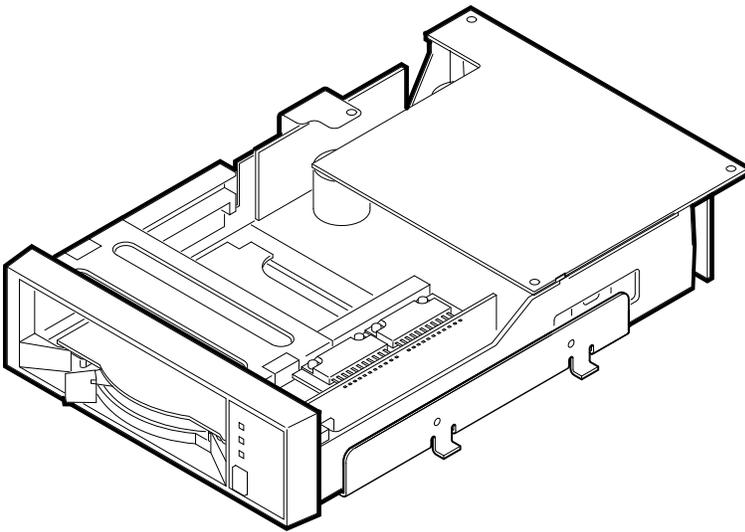The TZ30-EL option contains the following components:

- TZ30-AX tape drive, which has the mounting hardware attached

Figure 13–1 shows the TZ30-EL option.

Figure 13–1 TZ30-EL Option

RE_EN06371A_91

13.3 SCSI ID Information

In a VAX 4000 BA42B-based system, each SCSI device must have a unique
SCSI ID number. When you are adding a SCSI device to an existing system,
you must set the SCSI ID of that device to an ID that is not used by any other
SCSI device in the system. (Refer to the *VAX 4000 Model 100, 100A, 105A,
106A KA52/53/54 CPU System Maintenance* manual.)

To set the SCSI ID of the TZ30-EL option:

1. Locate the SCSI ID switches on the right side of the TZ30-EL option (see
    Figure 13–2).

2. Determine the SCSI ID number that you want to assign to the TZ30-EL
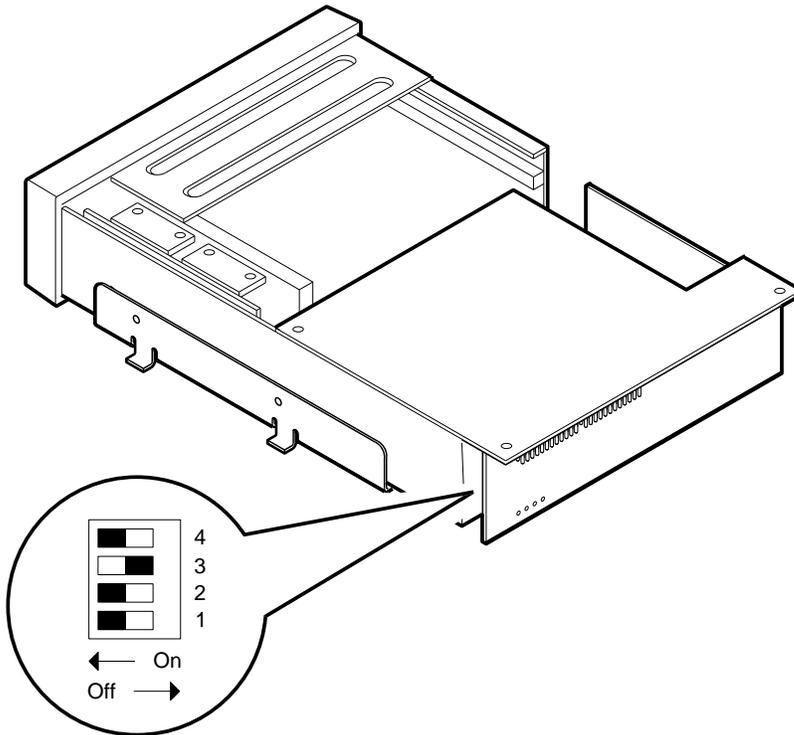   option.

_____ **Note** _____

When the system is in console mode, you can use the command **SHOW
CONFIG** to view the SCSI ID numbers used by existing devices in the
system.

_____

3. Set the switches for the SCSI ID number that you want. Table 13–1 shows
    the SCSI ID numbers and the SCSI ID switch positions that correspond to
    these numbers.

Figure 13–2   TZ30 SCSI ID Switch Locations

Notes: 1. S1 is not used (always on).

2. The SCSI ID shown is 5 (S2 is on, S3 is off, and S4 is on).

RE_EN06238A_91

Table 13–1 TZ30 SCSI ID Switch Positions

SCSI ID	1	2	3	4
0	On	Off	Off	Off
1	On	Off	Off	On
2	On	Off	On	Off
3	On	Off	On	On
4	On	On	Off	Off
5[1]	On	On	Off	On
6[2]	On	On	On	Off
7	On	On	On	On

[1]Recommended SCSI ID for tape drives.

[2]Reserved for the SCSI controller.

13.4 Installation

To install a TZ30-EL option to a VAX 4000 BA42B-based system, you must
remove the enclosure cover. Note that when you want to install a TZ30-EL
option on the lower drive-mounting shelf of a BA42B-based system, you must
also remove the upper drive-mounting shelf. (Refer to the *VAX 4000 BA42B
Enclosure Maintenance* manual for more information.)

In the VAX 4000 Models 100, 100A, 105A, and 106A the TZ30-EL option be
installed only in the right-hand position on the lower drive-mounting shelf.

To install a TZ30-EL option, follow these steps:

1. Use the four mounting screws to attach the mounting bracket to the drive
   so that the captive screw is on the left as you look at the front of the drive.

2. Insert lock-out screws to hold down any disk-drive clips securely in the
   TZ30-EL option mounting position on the drive-mounting shelf.

Figure 13–3 Installing the TZ30 Bezel Insert

Bezel Insert
Blank Bezel Insert
Bezel
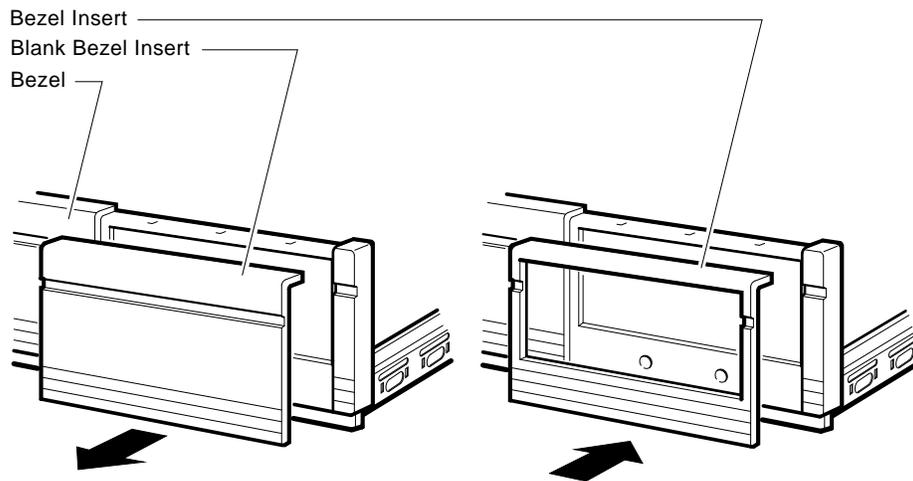
MLO-009948

3. Push the blank bezel insert that covers the right drive-mounting position on the lower drive-mounting shelf. Remove the blank bezel insert from the enclosure (see Figure 13–3.)

4. Identify the power cable that supplies power to the drive-mounting shelf on which you want to install the TZ30-EL option. Connect this power cable to the flying lead connector of the TZ30-EL option (see Figure 13–4).

Figure 13–4   Connecting the Power Cable and the SCSI Cable

RE_EN06372A_91
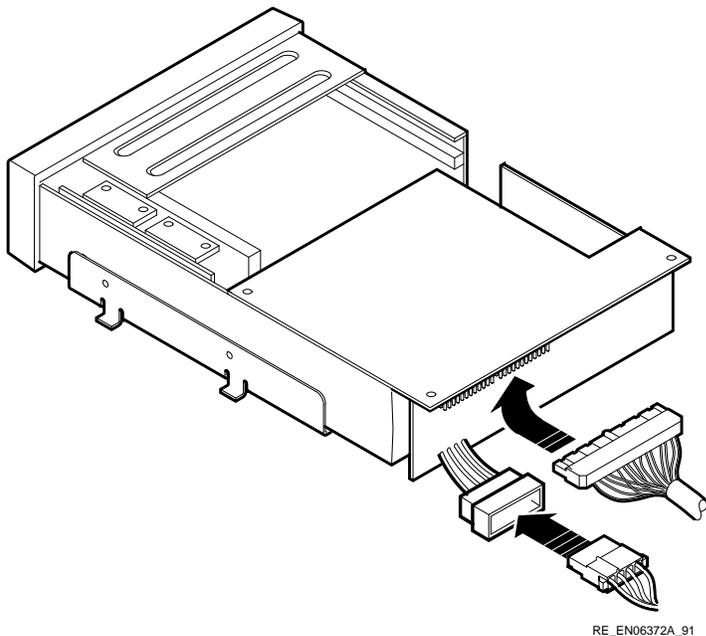
5. Identify the SCSI cable connector with a pull-tab number that corresponds
   to the drive position into which you want to install the TZ30-EL option.
   Connect this connector to the back of the TZ30-EL option (see Figure 13–4).

6. Align the tabs on the TZ30-EL mounting bracket with the cutouts in the
   drive-mounting shelf. Tilt the drive to locate the tabs in the drive-mounting
   shelf cutouts (see Figure 13–5).

Figure 13–5 Installing the TZ30 Option

TZ30 Option
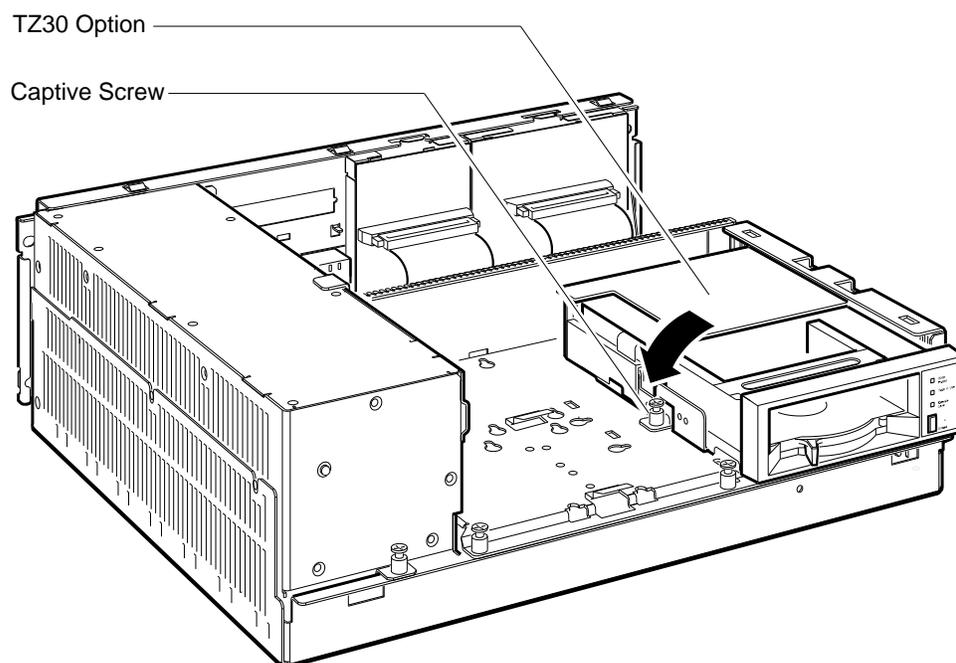
Captive Screw

RE_EN06373A_91

7. Press down the TZ30-EL option and tighten the captive screw on the
    mounting bracket to secure the option in position (see Figure 13–5).

After you install the TZ30-EL option, install the upper drive-mounting shelf (if
removed) and the enclosure cover.

13.5 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of a TZ30 tape drive in the system.

Enter one of the following commands at the console prompt to test the operation of the TZ30-EL option:

>>>**SHOW SCSI**

Verify that the device shows up at the configured SCSI ID. Also, verify that all other devices still show up correctly.

The following command provides additional testing of the interface.

>>>**T E0 2**

The console terminal displays an error message if the system fails the test.

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

13.6 Power Requirements

Table 13–2 gives the dc power requirements of the TZ30-EL option.

Table 13–2 TZ30 Power Requirements

Current (Amperes)		Power (Watts)
5-V Circuit	**12-V Circuit**	
1.20	1.00	20.00

14

TZK10-HG/TZK11-HG Tape Drive Options

The TZK10/TZK11 tape drives are 1/4-inch cartridge (QIC), SCSI devices. They read data from and write data to industry-standard tape cartridges. Table 14–1 shows the tape cartridges that the TZK10 tape drive supports, and Table 14–2 shows the cartridges the TZK11 supports.

Table 14–1 TZK10 Tape Cartridges

Cartridge	Capacity (bytes)	Format
DC6525	Up to 525M	QIC-525
DC6320	Up to 320M	QIC-320

Table 14–2 TZK11 Tape Cartridges

Cartridge	Capacity	Format
DC9200XL	Up to 2.5 GB	QIC-2GB
DC9200	Up to 2.0 GB	QIC-2GB
DC9100L	Up to 1.2 GB	QIC-1GB
DC9100	Up to 1.0 GB	QIC-1GB
DC6525	Up to 525MB	QIC-525
DC6320	Up to 320MB	QIC-320

14.1 Ordering Information

The TZK10/TZK11 tape drives that Digital services personnel install in a
VAX 4000 BA42B-based system have the following order numbers:
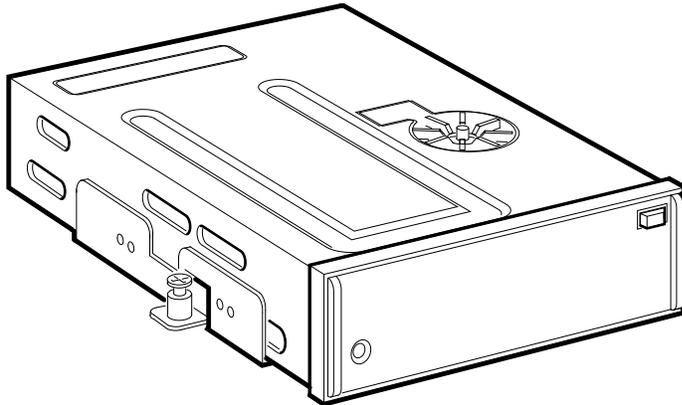
- TZK10-HG

- TZK11-HG

14.2 Option Contents

The TZK10-HG and TZK11-HG tape drive options contain the following
components:

- TZK10-AA or TZK11-AA tape drive, with the mounting hardware attached

Figure 14–1 shows a TZK10/TZK11-HG option.

Figure 14–1   TZK10/TZK11-HG Option

RE_EN06374A_91
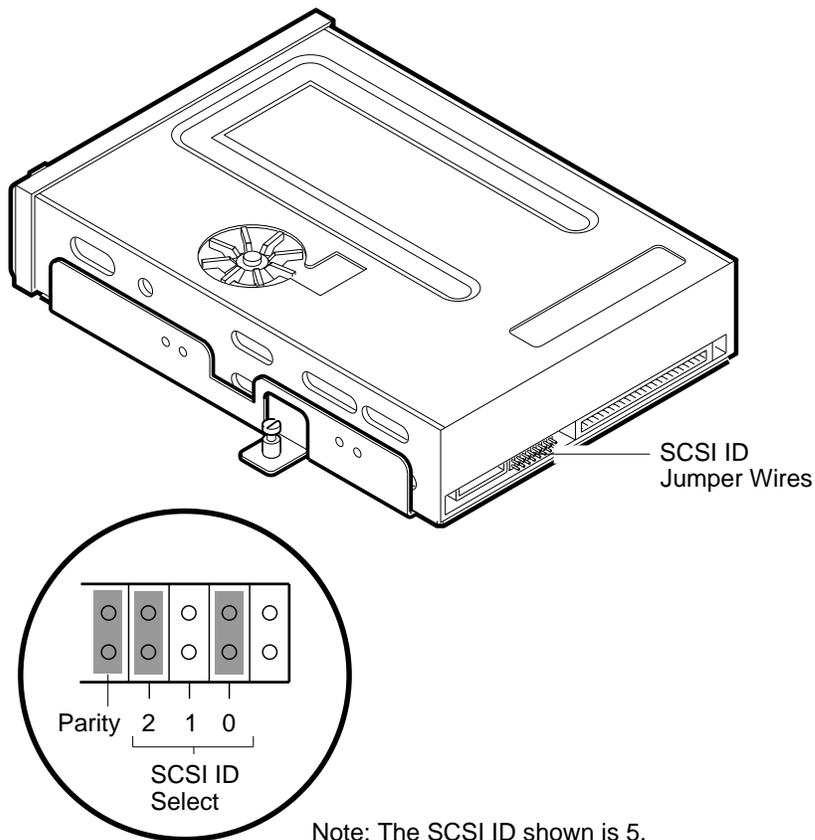
14.3 SCSI ID Information

In a VAX 4000 BA42B-based system, each SCSI device must have a unique
SCSI ID number. When you are adding a SCSI device to an existing system,
you must set the SCSI ID of that device to an ID that is not used by any other
SCSI device in the system. (Refer to the *VAX 4000 Model 100, 100A, 105A,
106A KA52/53/54 CPU System Maintenance* manual.)

To set the SCSI ID of the TZK10/TZK11, follow these steps:

1. Locate the SCSI ID jumper wires on the back of the TZK10/TZK11 (see Figure 14–2).

Figure 14–2   TZK10/TZK11 SCSI ID Jumper Wire Locations

Note: The SCSI ID shown is 5.

RE_EN06240A_91

2. Determine the SCSI ID number that you want to assign to the TZK10/TZK11.

Note

When the system is in console mode, you can use the command **SHOW CONFIG** or **SHOW SCSI** to view the SCSI ID numbers used by devices in the system.

---

3. Position the jumpers for the SCSI ID number that you want. Table 14–3 shows the SCSI ID numbers and the jumper combinations that correspond to these numbers.

Table 14–3   TZK10/TZK11 SCSI ID Jumper Wire Combinations

SCSI ID	2	1	0
0	Out	Out	Out
1	Out	Out	In
2	Out	In	Out
3	Out	In	In
4	In	Out	Out
5[1]	In	Out	In
6[2]	In	In	Out
7	In	In	In

[1]Recommended SCSI ID for tape drives.

[2]Reserved for the SCSI controller.

The other jumper wire positions are not used.

14.4 Installation

To install a TZK10/TZK11 in a VAX 4000 BA42B-based system, you must remove the enclosure cover. Note that when you want to install a TZK10/TZK11 on the lower drive-mounting shelf of a BA42B-based system, you must also remove the upper drive-mounting shelf. (Refer to the *VAX 4000 BA42B Enclosure Maintenance* manual for more information.)

14.4.1 Preparing to Install a TZK10/TZK11 Option in the Right-Hand Position

To prepare a VAX 4000 BA42B-based system for the installation of a TZK10/TZK11 in the right-hand drive position, follow these steps:

1. Attach the mounting bracket as follows: Facing the front of the drive, the captive screw should be on the left, and the four screws attaching the mounting bracket to the drive should be attached through the bracket holes that are labeled Q.

2. From inside the enclosure, push the blank bezel insert that covers the right-hand drive-mounting position on the lower drive-mounting shelf out of the front bezel of the enclosure.

3. Remove the blank bezel insert from the enclosure.

14.4.2 Preparing to Install a TZK10/TZK11 in the Left-Hand Position

To prepare a VAX 4000 BA42B-based system for the installation of a TZK10/TZK11 in the left-hand drive position, follow these steps:

1. Attach the mounting bracket as follows: Facing the front of the drive, the captive screw should be on the right, and the four screws attaching the mounting bracket to the drive should be attached through the bracket holes that are labeled Q.

2. From inside the enclosure, push the blank bezel insert that covers the right-hand drive-mounting position on the lower drive-mounting shelf out of the front bezel of the enclosure.

3. Remove the blank bezel insert from the enclosure.

### 14.4.3 Installing the TZK10/TZK11 Option

Install a TZK10/TZK11 as follows:

1. Install lock-out screws to hold any disk drive clips securely in the drive position on the drive-mounting shelf.

2. Identify the power cable that supplies power to the drive-mounting shelf on which you want to install the TZK10/TZK11. Connect this power cable to the power connector on the back of the tape drive (see Figure 14–3).

Figure 14–3   Connecting the Power Cable and the SCSI Cable
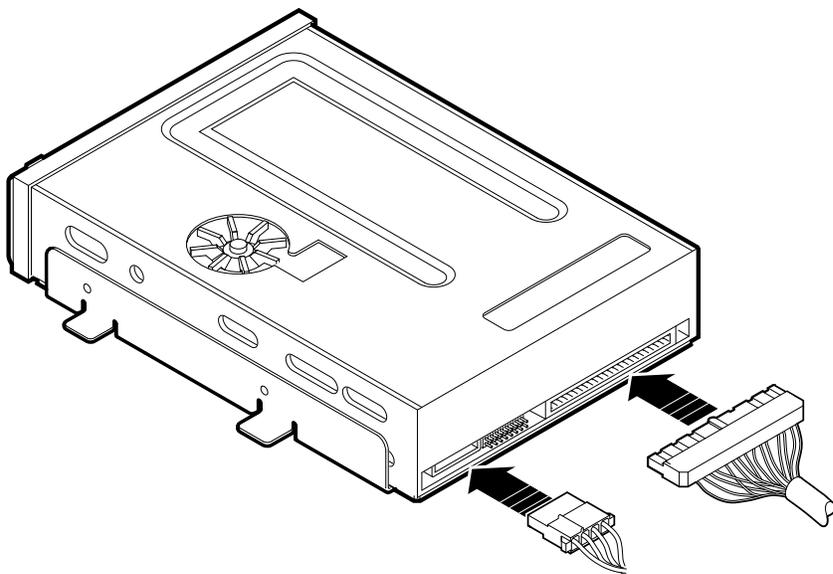

RE_EN06375A_91

3. Identify the SCSI cable connector with a pull-tab number that corresponds
    to the drive position into which you want to install the TZK10/TZK11.
    Attach this connector to the back of the tape drive (see Figure 14–3).

4. Align the tabs on the TZK10/TZK11 mounting bracket with the cutouts
    in the drive-mounting shelf. Tilt the drive to locate the tabs in the
    drive-mounting shelf cutouts (see Figure 14–4).

Figure 14–4   Installing the TZK10/TZK11 Option

TZK10 Option
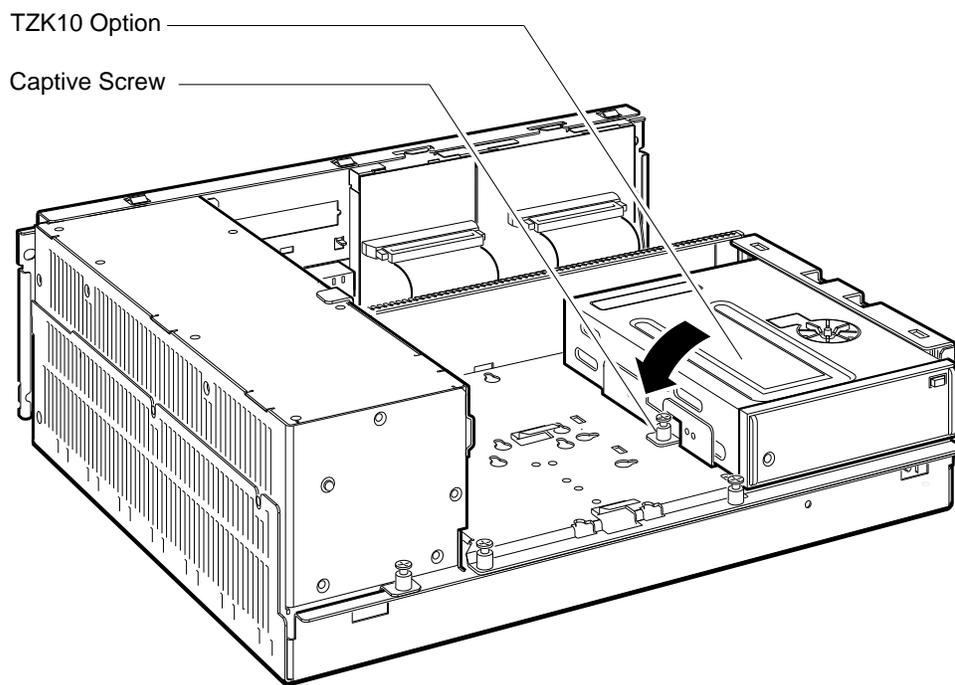
Captive Screw

RE_EN06376A_91

5. Lower the TZK10/TZK11 and tighten the captive screw on the mounting
    bracket to secure the tape drive in position (see Figure 14–4).

After you install the TZK10/TZK11, reinstall the upper drive-mounting shelf (if
removed) and the enclosure cover.

14.5 Diagnostic Support

The VAX 4000 BA42B-based systems provide diagnostic support that tests the operation of a TZK10-HG or TZK11-HG option in the system.

Enter one of the following commands at the console prompt to test the operation of the TZK10/TZK11:

>>>**SHOW DEV**

>>>**SHOW SCSI**

When the system is in the Digital services environment, you must install a test tape in the TZK10/TZK11 tape drive.

If the system fails the test, the LED display on the back of the system unit displays a code in the range A0 to A5(hexadecimal), and the console terminal displays a hard error message containing the test mnemonic (SCSI).

Refer to the *VAX 4000 Model 100, 100A, 105A, 106A KA52/53/54 CPU System Maintenance* manual for more information.

14.6 Power Requirements

Table 14–4 shows the dc power requirements of the TZK10-HG and TZK11-HG options.

Table 14–4   TZK10/TZK11 Power Requirements

Current (Amperes)		Power (Watts)
5-V Circuit	12-V Circuit	
1.00	1.75	25.00

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Thank you for your assistance.

I rate this manual's:	Excellent	Good	Fair	Poor
Accuracy (product works as manual says)	☐	☐	☐	☐
Completeness (enough information)	☐	☐	☐	☐
Clarity (easy to understand)	☐	☐	☐	☐
Organization (structure of subject matter)	☐	☐	☐	☐
Figures (useful)	☐	☐	☐	☐
Examples (useful)	☐	☐	☐	☐
Index (ability to find topic)	☐	☐	☐	☐
Page layout (easy to find information)	☐	☐	☐	☐

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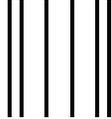For software manuals, please indicate which version of the software you are using: _____

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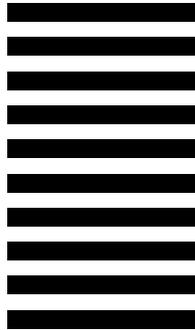
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