

VAX 4000

BA42B Enclosure System Options

Order Number: EK-474AB-OP. B01

August 1994

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

Digital Equipment Corporation
Maynard, Massachusetts

August 1994

Digital Equipment Corporation makes no representations that the use of its products in the manner described in this publication will not infringe on existing or future patent rights, nor do the descriptions contained in this publication imply the granting of licenses to make, use, or sell equipment or software in accordance with the description.

© Digital Equipment Corporation 1994. All Rights Reserved.

The postpaid Reader's Comments forms at the end of this document request your critical evaluation to assist in preparing future documentation.

The following are trademarks of Digital Equipment Corporation: CompacTape, DEC, Digital, MicroVAX, VAX DOCUMENT, and the DIGITAL logo.

All other trademarks and registered trademarks are the property of their respective holders.

S2486

This document was prepared using VAX DOCUMENT Version 2.1.

Contents

Preface	ix
Overview	xii
DSSI and SCSI Information	xiii
 1 DHW42 Asynchronous Communications Option	
1.1 Ordering Information	1-1
1.2 Option Contents	1-2
1.3 Installation	1-4
1.4 Diagnostic Support	1-10
 2 DSW42 Synchronous Communications Option	
2.1 Ordering Information	2-1
2.2 Option Contents	2-2
2.3 Installation	2-3
2.4 Diagnostic Support	2-9
 3 MS44L and MS44 Memory Options	
3.1 Ordering Information	3-1
3.2 Option Contents	3-2
3.3 Installation	3-3
3.4 Diagnostic Support	3-5
 4 RF31T/RF35/RF36 Disk Drive Options	
4.1 Ordering Information	4-1
4.2 Option Contents	4-1
4.3 Setting the DSSI ID	4-1
4.4 Installation	4-3
4.5 Diagnostic Support	4-6
4.6 Power Requirements	4-6

5 RRD42-EK CD-ROM Drive Option

5.1	Ordering Information	5-1
5.2	Option Contents	5-1
5.3	SCSI ID Information	5-2
5.4	Installation	5-4
5.4.1	Preparing to Install an RRD42 in the Right-Hand Position	5-4
5.4.2	Preparing to Install an RRD42 in the Left-Hand Position . . .	5-5
5.5	Diagnostic Support	5-8
5.6	RRD42 Power Requirements	5-8

6 RRD43-EK CD-ROM Drive Option

6.1	Ordering Information	6-1
6.2	Option Contents	6-1
6.3	SCSI ID Information	6-2
6.4	Installation	6-4
6.4.1	Preparing to Install an RRD43 in the Right-Hand Position	6-4
6.4.2	Preparing to Install an RRD43 in the Left-Hand Position . . .	6-5
6.4.3	Installing the RRD43 CD-ROM Option	6-5
6.5	Diagnostic Support	6-7
6.6	Power Requirements	6-8

7 RX26-EL Disk Drive Option

7.1	Ordering Information	7-1
7.2	Option Contents	7-1
7.3	SCSI ID Information	7-2
7.4	Installation	7-4
7.5	Diagnostic Support	7-8
7.6	Power Requirements	7-8

8 TLZ06/TLZ07 Tape Drive Option

8.1	Ordering Information	8-1
8.2	Option Contents	8-1
8.3	SCSI ID Information	8-2
8.4	Installation	8-4
8.4.1	Preparing to Install a TLZ06/TLZ07 in the Left-Hand Position	8-4

8.4.2	Preparing to Install a TLZ06/TLZ07 in the Right-Hand Position	8-5
8.4.3	Installing the TLZ06/TLZ07 Tape Drive	8-5
8.5	Diagnostic Support	8-7
8.6	Power Requirements	8-7

9 TZ30-EL Tape Drive Option

9.1	Ordering Information	9-1
9.2	Option Contents	9-1
9.3	SCSI ID Information	9-2
9.4	Installation	9-4
9.5	Diagnostic Support	9-8
9.6	Power Requirements	9-8

10 TZK10-HG/TZK11-HG Tape Drive Options

10.1	Ordering Information	10-2
10.2	Option Contents	10-2
10.3	SCSI ID Information	10-2
10.4	Installation	10-4
10.4.1	Preparing to Install a TZK10/TZK11 Option in the Right-Hand Position	10-5
10.4.2	Preparing to Install a TZK10/TZK11 in the Left-Hand Position	10-5
10.4.3	Installing the TZK10/TZK11 Option	10-5
10.5	Diagnostic Support	10-8
10.6	Power Requirements	10-8

Figures

1-1	DHW42 Option	1-3
1-2	Removing the Covers from Asynchronous Communications Port A and Port B	1-5
1-3	DHW42 Input/Output Module Installation	1-6
1-4	DHW42 Input/Output Cable Installation	1-7
1-5	Location of the Standoff Pillars on the KA52/KA53 CPU Module	1-8
1-6	DHW42 Logic Board Installation	1-9
2-1	DSW42 Option	2-2

2-2	Removing the Covers from Synchronous Communications Port 0 and Port 1	2-4
2-3	DSW42 Input/Output Module Installation	2-5
2-4	DSW42 Input/Output Cable Installation	2-6
2-5	Location of the Standoff Pillars on the KA52/53 CPU Module	2-7
2-6	DSW42 Logic Board Installation	2-8
3-1	MS44 and MS44L Memory Modules	3-2
3-2	Memory Module Installation	3-4
4-1	RF31T/RF35/RF36 Option	4-2
4-2	Sample RF31T/RF35/RF36 Disk Drive Option with Mounting Brackets	4-4
4-3	Installing a Sample RF31T/RF35/RF36 Disk Drive Option	4-5
5-1	RRD42-EK Option	5-2
5-2	RRD42 SCSI ID Jumper Wire Locations	5-3
5-3	Connecting the Power Cable and the SCSI Cable	5-6
5-4	Installing the RRD42-EK Option	5-7
6-1	RRD43 Compact Disc Drive Front Panel	6-2
6-2	RRD43 CD-ROM Drive Jumper Locations	6-3
6-3	Connecting the Power and SCSI Cables	6-6
6-4	Installing the RRD43 Option	6-7
7-1	RX26-EL Option	7-2
7-2	Ventilation Slot for SCSI ID Switch Access	7-3
7-3	Installing the RX26 Bezel Insert in a BA42B-Based System	7-5
7-4	Connecting the Power Cables and the SCSI Cable	7-6
7-5	Installing the RX26-EL Option	7-7
8-1	TLZ06/TLZ07 Tape Drive	8-2
8-2	TLZ06/TLZ07 SCSI ID Jumper Switch Locations	8-3
8-3	Connecting the Power Cable and the SCSI Cable	8-5
8-4	Installing the TLZ06/TLZ07 Tape Drive	8-6
9-1	TZ30-EL Option	9-2
9-2	TZ30 SCSI ID Switch Locations	9-3
9-3	Installing the TZ30 Bezel Insert	9-5
9-4	Connecting the Power Cable and the SCSI Cable	9-6
9-5	Installing the TZ30 Option	9-7
10-1	TZK10/TZK11-HG Option	10-2

10-2	TZK10/TZK11 SCSI ID Jumper Wire Locations	10-3
10-3	Connecting the Power Cable and the SCSI Cable	10-6
10-4	Installing the TZK10/TZK11 Option	10-7

Tables

1-1	DHW42 Variants	1-1
1-2	Ordering Information	1-1
1-3	Unique Components of the DHW42 Variants	1-4
2-1	Ordering Information	2-1
2-2	DSW42 External Components	2-3
3-1	MS44 and MS44L Variants	3-1
4-1	RF31T/RF35/RF36 DSSI ID Jumper Wire Combinations	4-2
4-2	RF31T/RF35 Power Requirements	4-6
4-3	RF36 Power Requirements	4-6
5-1	RRD42 SCSI ID Jumper Wire Combinations	5-4
5-2	RRD42-EK Power Requirements	5-8
6-1	RRD43 CD-ROM SCSI ID Jumper Settings	6-4
6-2	RRD43-EK Power Requirements	6-8
7-1	RX26 Diskettes	7-1
7-2	RX26 FDI/SCSI Board SCSI ID Switch Positions	7-4
7-3	RX26 Power Requirements	7-8
8-1	TLZ06/TLZ07 Tape Cartridges	8-1
8-2	TLZ06/TLZ07 SCSI ID Jumper Switch Combinations	8-4
8-3	TLZ06/TLZ07 Power Requirements	8-7
9-1	TZ30 SCSI ID Switch Positions	9-4
9-2	TZ30 Power Requirements	9-8
10-1	TZK10 Tape Cartridges	10-1
10-2	TZK11 Tape Cartridges	10-1
10-3	TZK10/TZK11 SCSI ID Jumper Wire Combinations	10-4
10-4	TZK10/TZK11 Power Requirements	10-8

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 Maintenance*, EK-472AB-MG
- *VAX 4000 Model 100, 100A, 105A KA52/53 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 Customer Letter*, EK-511AA-CL
- *VAX 4000 Model 105A Customer Technical Information*, EK-514AA-TI
- *VAX 4000 Model 105A Installation Information*, EK-512AA-IN
- *VAX 4000 Model 105A Operator Information*, EK-513AA-OP
- *VAX 4000 Model 105A 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
<i>x</i>	A lowercase italic <i>x</i> indicates the generic use of a letter. For example, <i>xxx</i> indicates any combination of three alphabetic characters.
<i>italic type</i>	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

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 BA42B-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 tape drive option
- RRD42-EK CD-ROM drive option
- RRD43-EK CD-ROM drive option
- RX26-EL disk drive option
- TLZ06-HG/TLZ07-HG tape drive option
- TZ30-EL tape drive option
- TZK10-HG/TZK11-HG tape drive option

Note

Your system may differ slightly from some illustrations because this manual randomly depicts VAX 4000 Models 100, 100A, and 105A 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 or 105A, 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 or 105A, 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 or 105A systems support.

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

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 1–1).

Table 1–1 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

1.1 Ordering Information

Table 1–2 lists the order numbers for the DHW42 options that Digital services personnel install in a VAX 4000 BA42-based system.

Table 1–2 Ordering Information

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

DHW42 Asynchronous Communications Option

1.2 Option Contents

1.2 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).

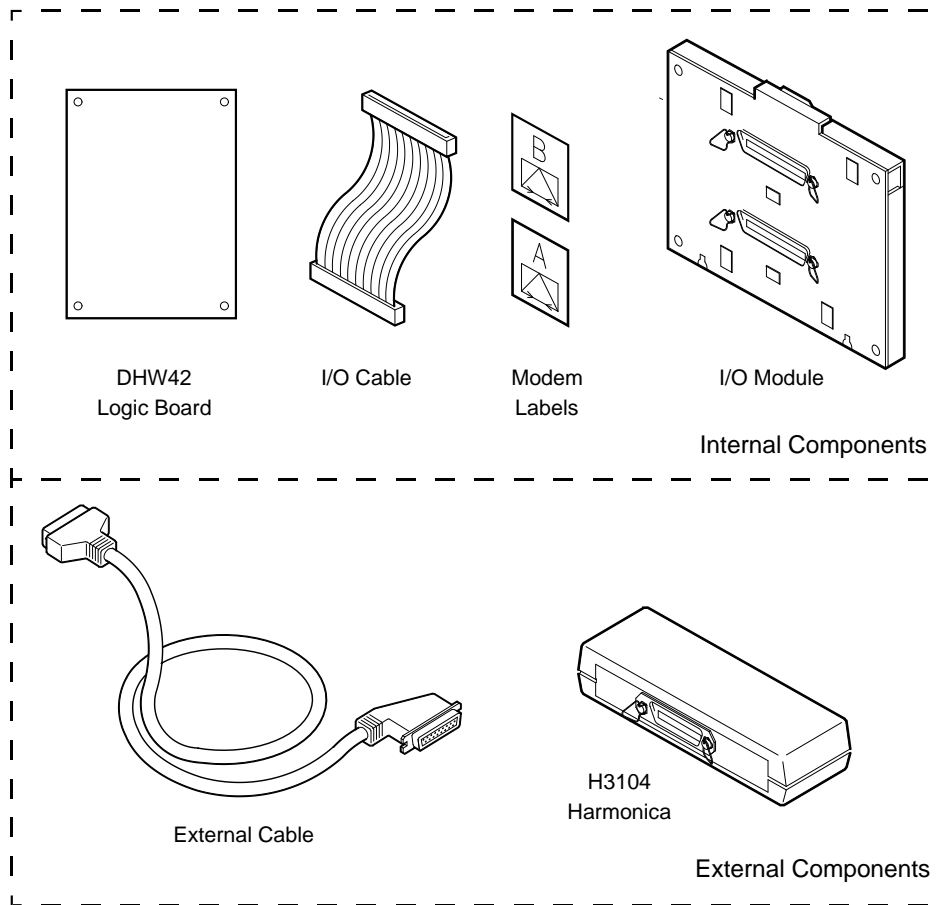
The DHW42 asynchronous communications option contains these components:

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

DHW42 Asynchronous Communications Option 1.2 Option Contents

Figure 1-1 DHW42 Option



MLO-009946

DHW42 Asynchronous Communications Option

1.2 Option Contents

Table 1–3 Unique Components of the DHW42 Variants

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

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

²Two are supplied.

1.3 Installation

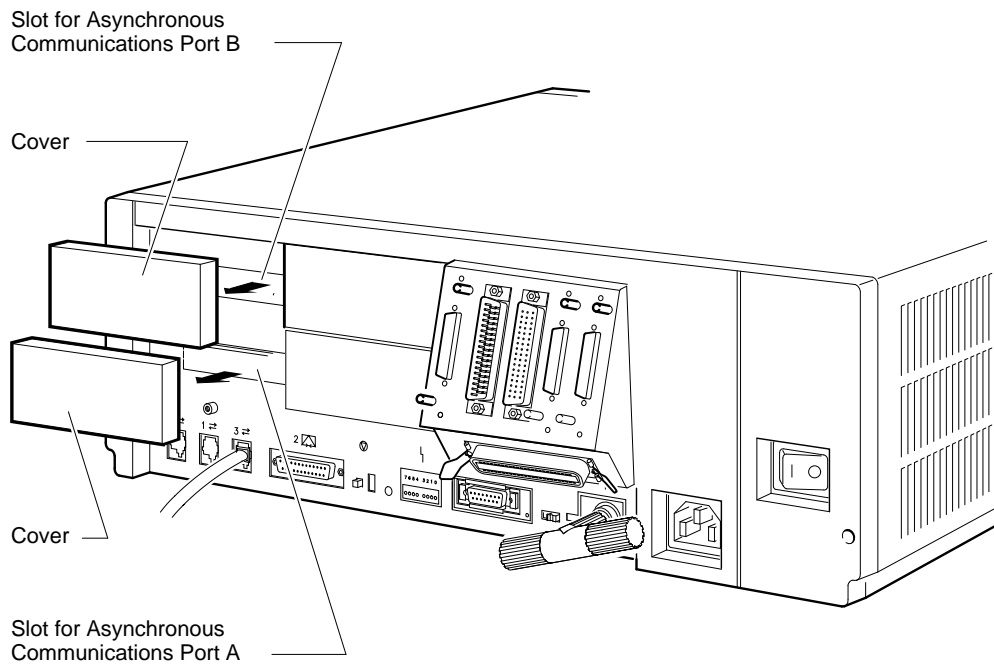
To install the DHW42 option in the system enclosure: remove the enclosure cover and the drive-mounting shelves. (Refer to the *BA42B Enclosure Maintenance* manual for more information.)

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 1–2).

DHW42 Asynchronous Communications Option 1.3 Installation

Figure 1–2 Removing the Covers from Asynchronous Communications Port A and Port B



Note: 1. Remove lower cover first.
2. Remove lower cover only for DHW42-AA.

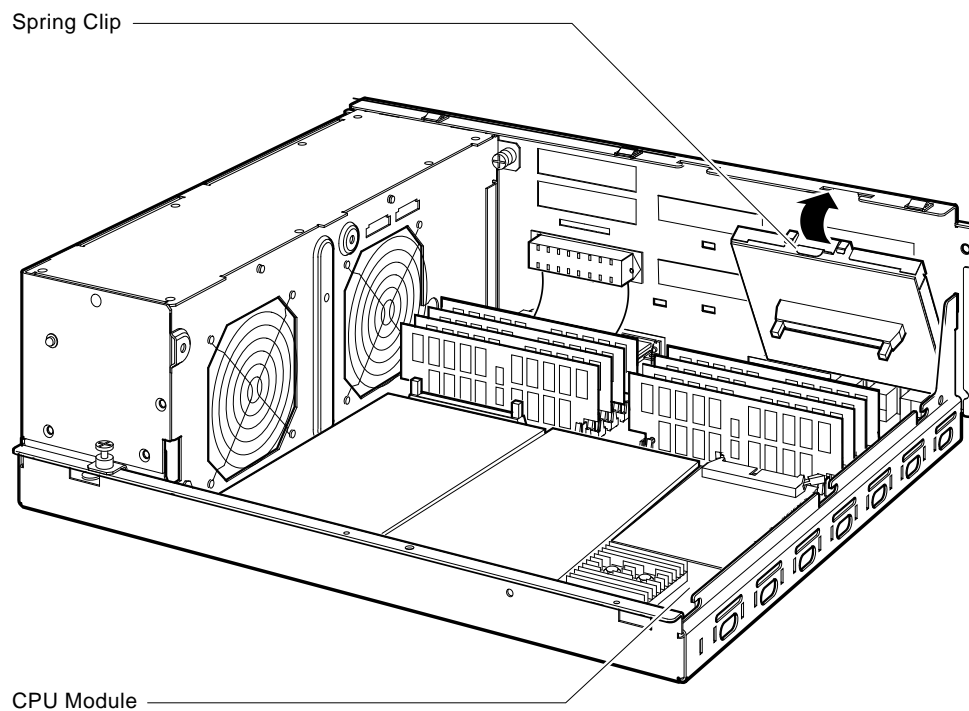
MLO-012387

3. Place the DHW42 input/output module, with external connectors facing out, on the support tabs on the back of the enclosure (see Figure 1–3).
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.

DHW42 Asynchronous Communications Option

1.3 Installation

Figure 1–3 DHW42 Input/Output Module Installation



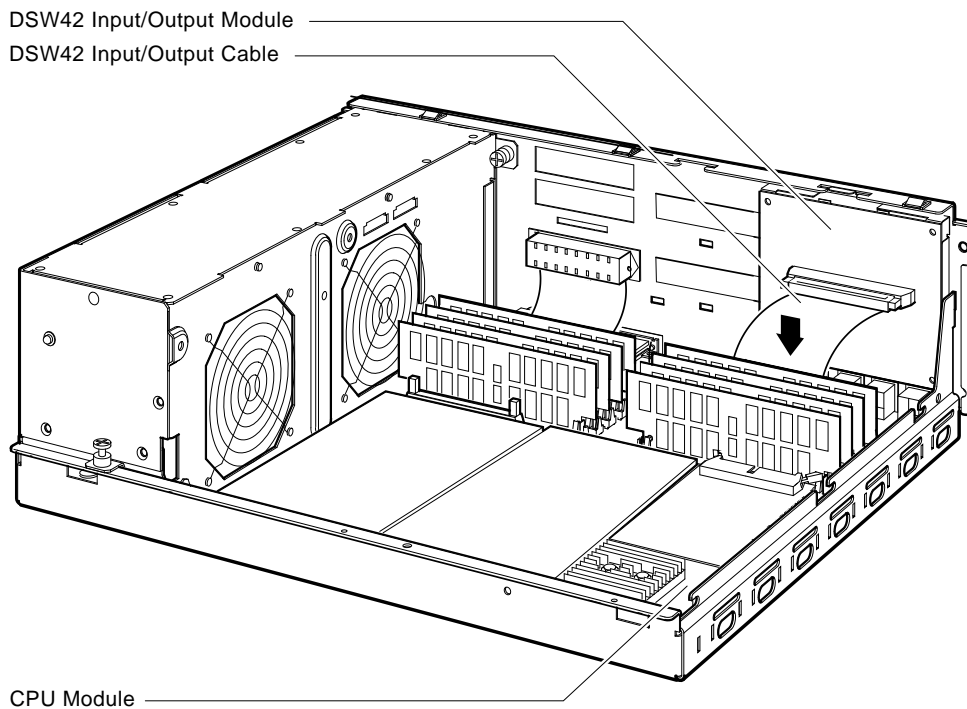
MLO-009891

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 1–4).
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.

DHW42 Asynchronous Communications Option 1.3 Installation

Figure 1–4 DHW42 Input/Output Cable Installation



MLO-009892

Install the DHW42 logic board by following these steps.

Caution

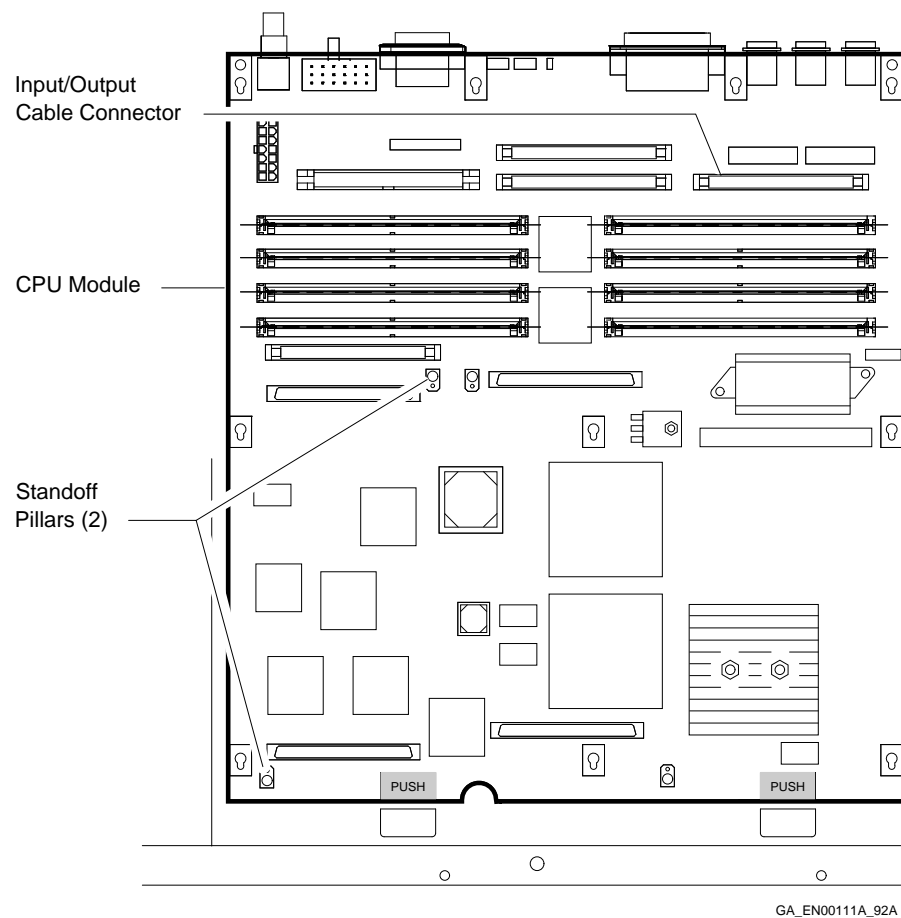
Static electricity can damage integrated circuits. Wear an antistatic wrist strap and place an antistatic mat under the system unit when working with the internal parts of the system unit.

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 1–5 for the location of the standoff pillars on the CPU module.)

DHW42 Asynchronous Communications Option

1.3 Installation

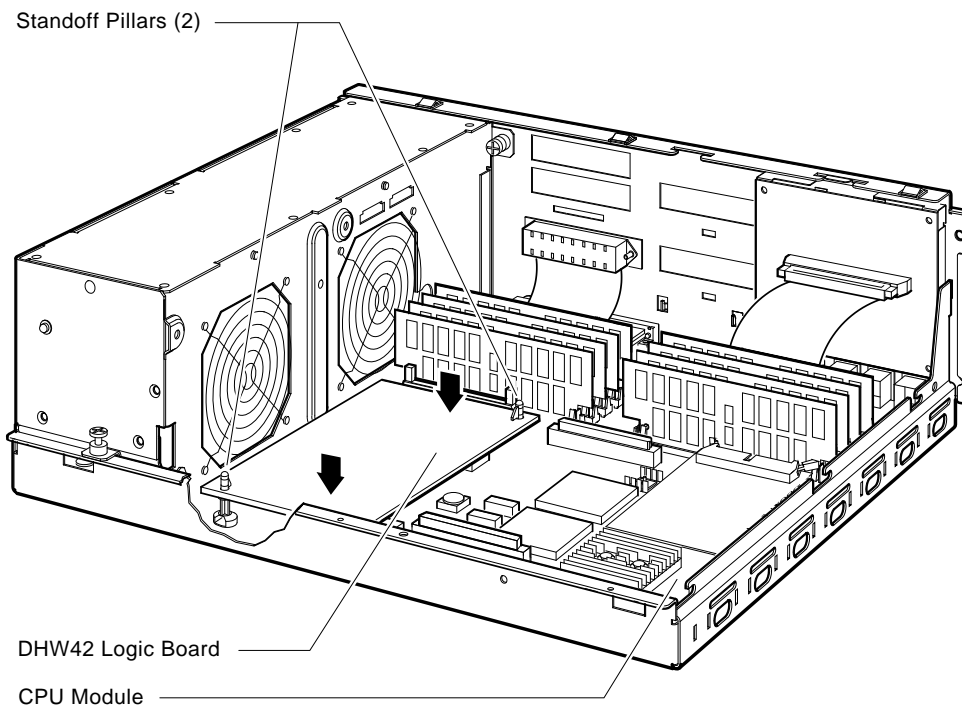
Figure 1–5 Location of the Standoff Pillars on the KA52/KA53 CPU Module



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 1–6.)

DHW42 Asynchronous Communications Option 1.3 Installation

Figure 1–6 DHW42 Logic Board Installation



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).

DHW42 Asynchronous Communications Option

1.4 Diagnostic Support

1.4 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 KA52/KA53 CPU System Maintenance* manual for more information.

2

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 2–1):

- EIA-423/V.10
- EIA-422/V.11

2.1 Ordering Information

Table 2–1 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 2–1 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

¹Includes two BC19D-02 (17-01110-01) cables for the EIA-232/V.24 interface.

²Items must be order separately; two are required.

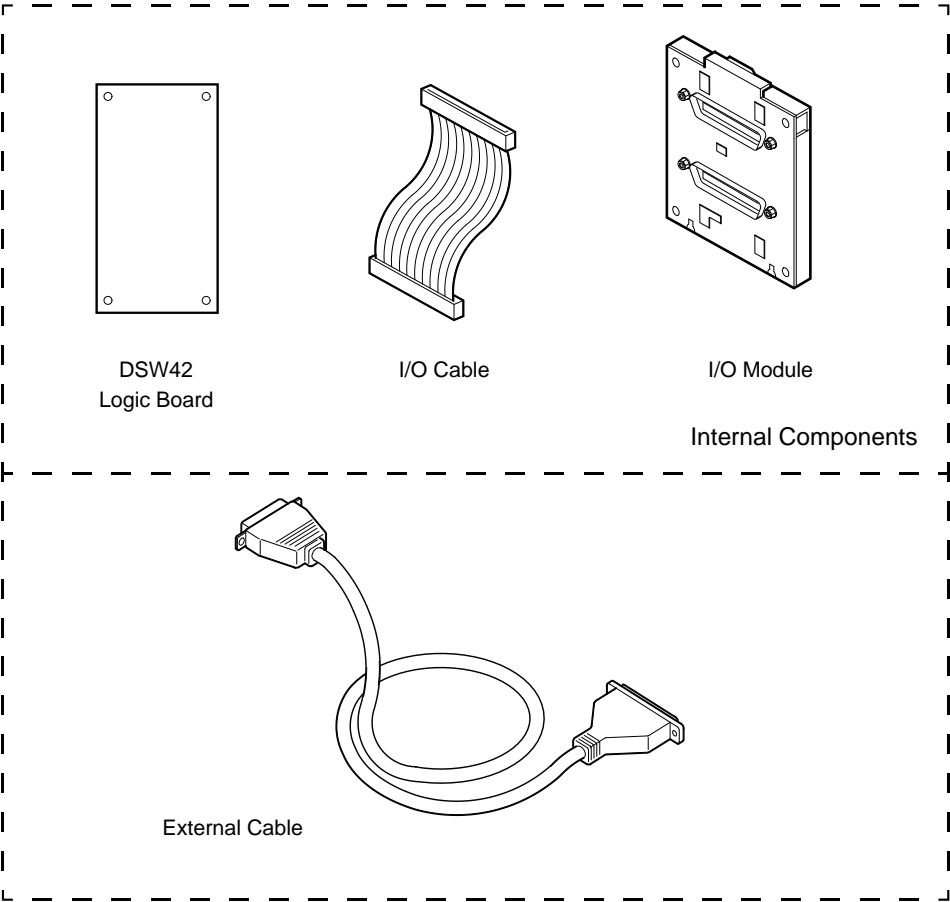
DSW42 Synchronous Communications Option
2.2 Option Contents

2.2 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 2–1 shows the contents of a DSW42 option. Table 2–2 gives further information on the components of this option.

Figure 2–1 DSW42 Option



MLO-009947

DSW42 Synchronous Communications Option

2.2 Option Contents

Table 2–2 DSW42 External Components

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

¹Two supplied with the DSW41-AA option.

²Items must be order separately; two are required.

2.3 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.)

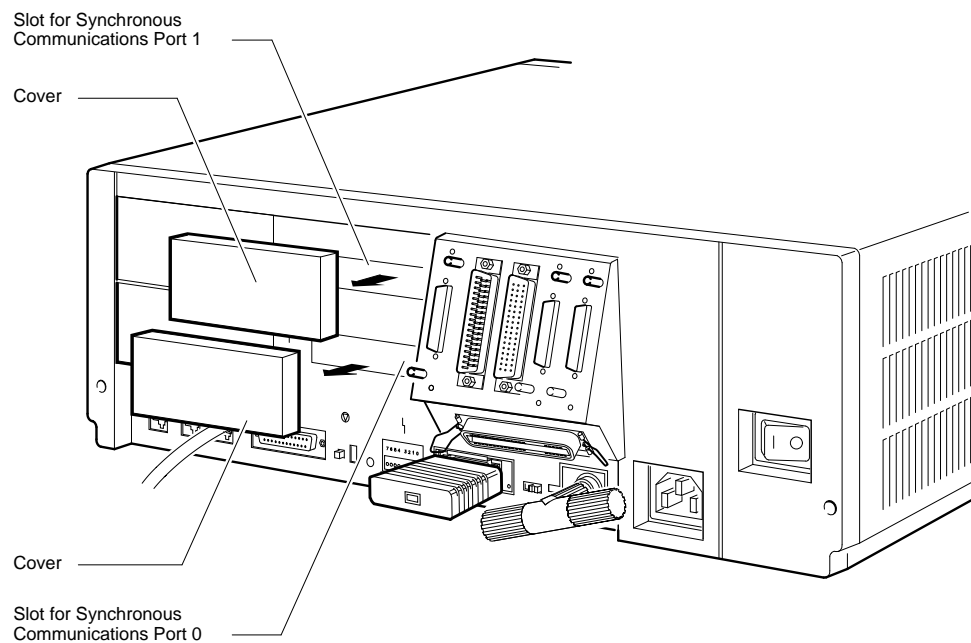
To install the DSW42 input/output module:

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 2–2).

DSW42 Synchronous Communications Option

2.3 Installation

Figure 2-2 Removing the Covers from Synchronous Communications Port 0 and Port 1

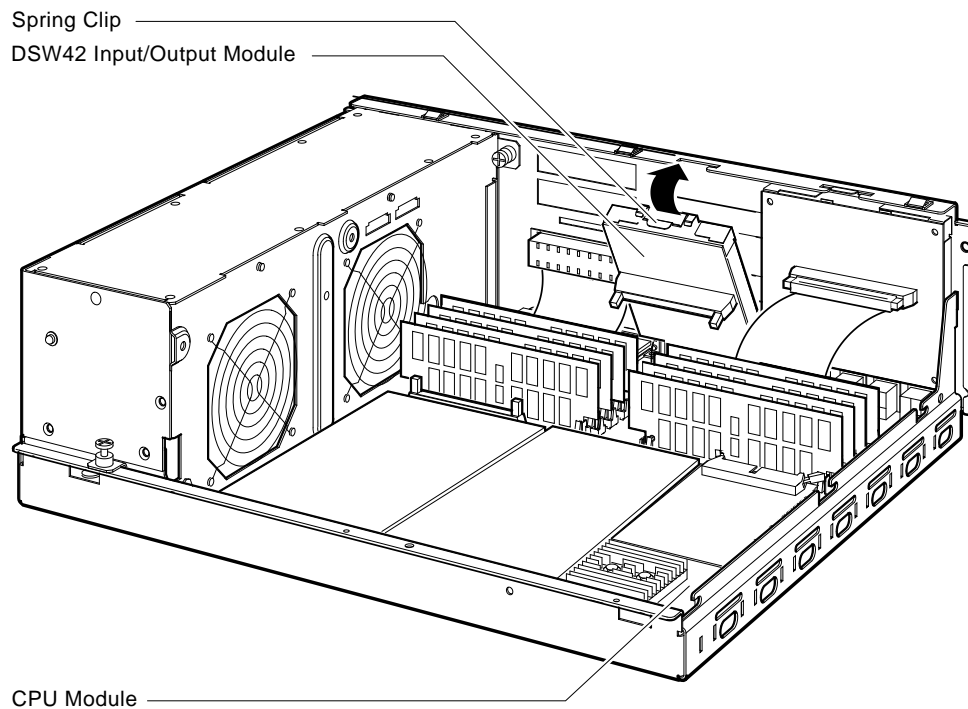


MLO-012386

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

DSW42 Synchronous Communications Option 2.3 Installation

Figure 2-3 DSW42 Input/Output Module Installation



MLO-009894

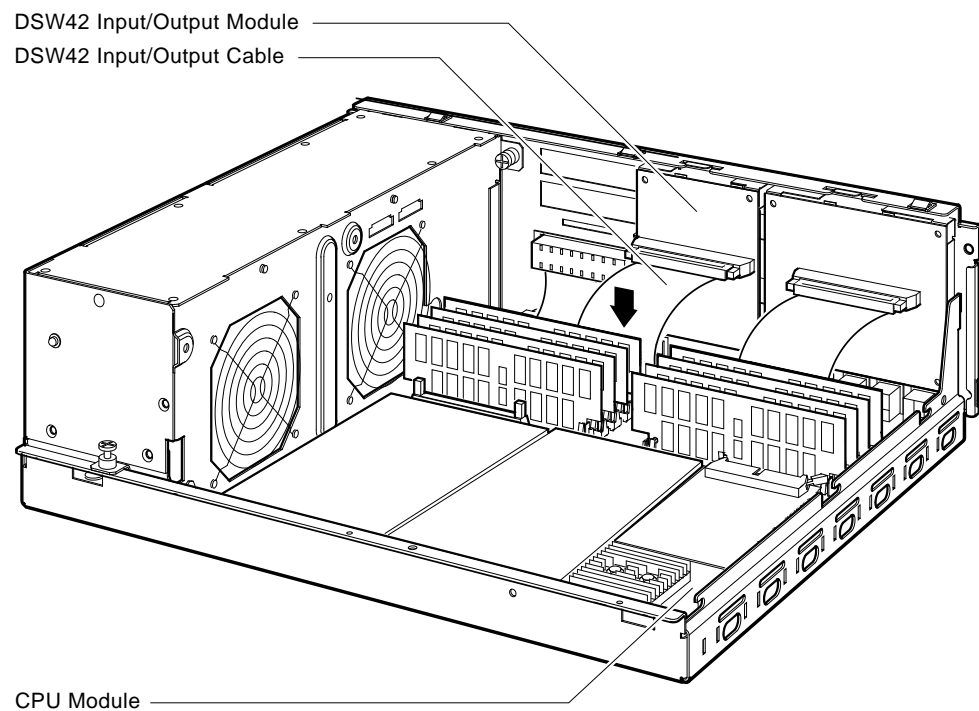
To install the DSW42 input/output cable:

1. Connect one end of the DSW42 input/output cable to the connector on the CPU module (see Figure 2-4).
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 2-4).
3. Ensure that the connector arms lock both cable connectors securely into position.

DSW42 Synchronous Communications Option

2.3 Installation

Figure 2-4 DSW42 Input/Output Cable Installation



MLO-009895

To install the DSW42 logic board, follow these steps.

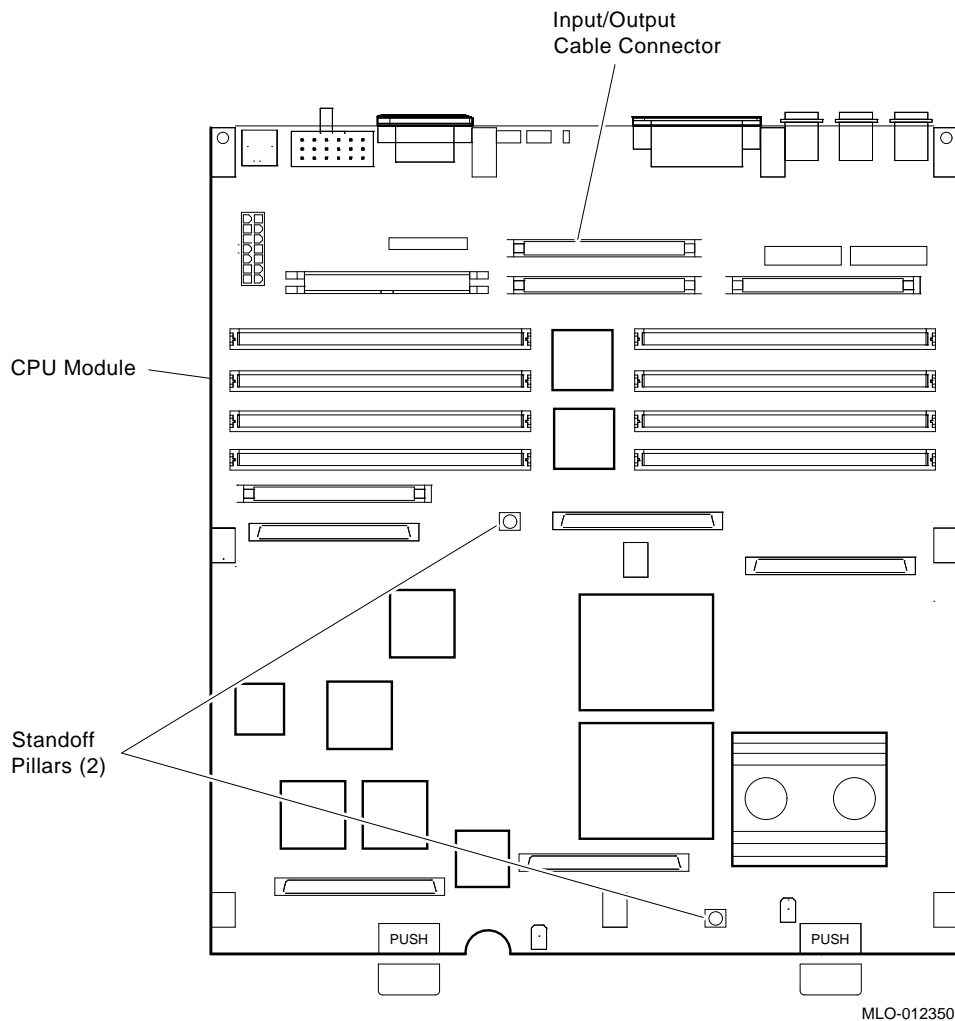
Caution

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 2-5 for the location of the standoff pillars on the CPU Module.)

DSW42 Synchronous Communications Option 2.3 Installation

Figure 2–5 Location of the Standoff Pillars on the KA52/53 CPU Module

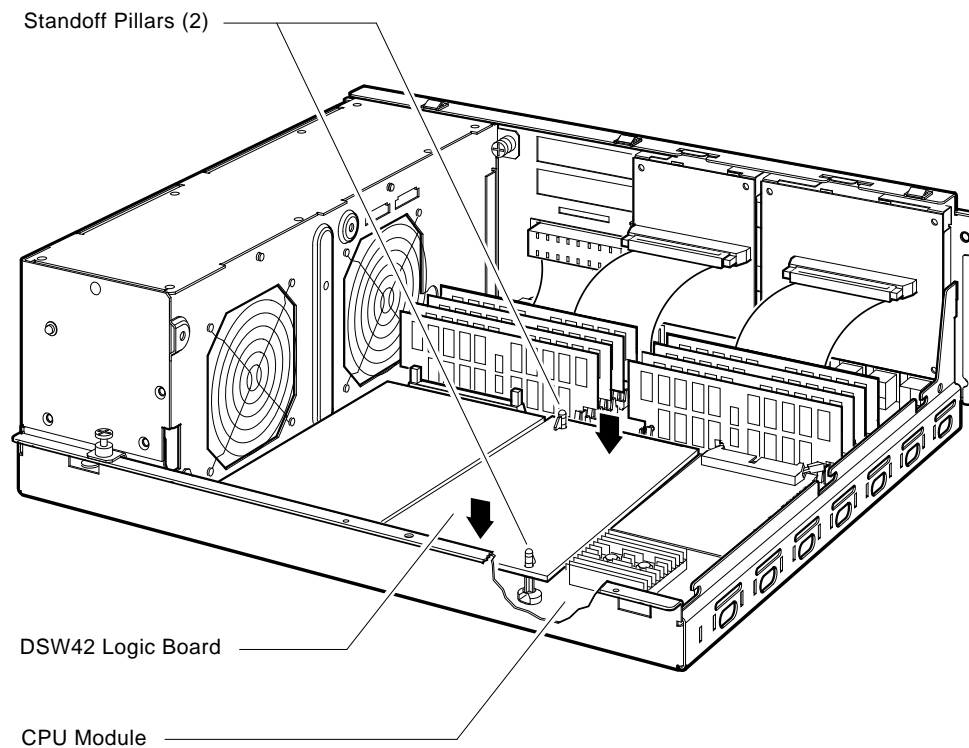


2. Press down the DSW42 logic board until the connectors on the DSW42 logic board engage fully with the connectors on the CPU module and the standoff pillars lock the board in position (see Figure 2–6).

DSW42 Synchronous Communications Option

2.3 Installation

Figure 2–6 DSW42 Logic Board Installation



MLO-009896

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

DSW42 Synchronous Communications Option

2.4 Diagnostic Support

2.4 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 KA52/53 CPU System Maintenance* manual for more information.

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 3–1 shows the variants of the memory options that the VAX 4000 BA42B-based systems support.

Table 3–1 MS44 and MS44L Variants

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

3.1 Ordering Information

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

- MS44L-BC
- MS44-DC

MS44L and MS44 Memory Options

3.2 Option Contents

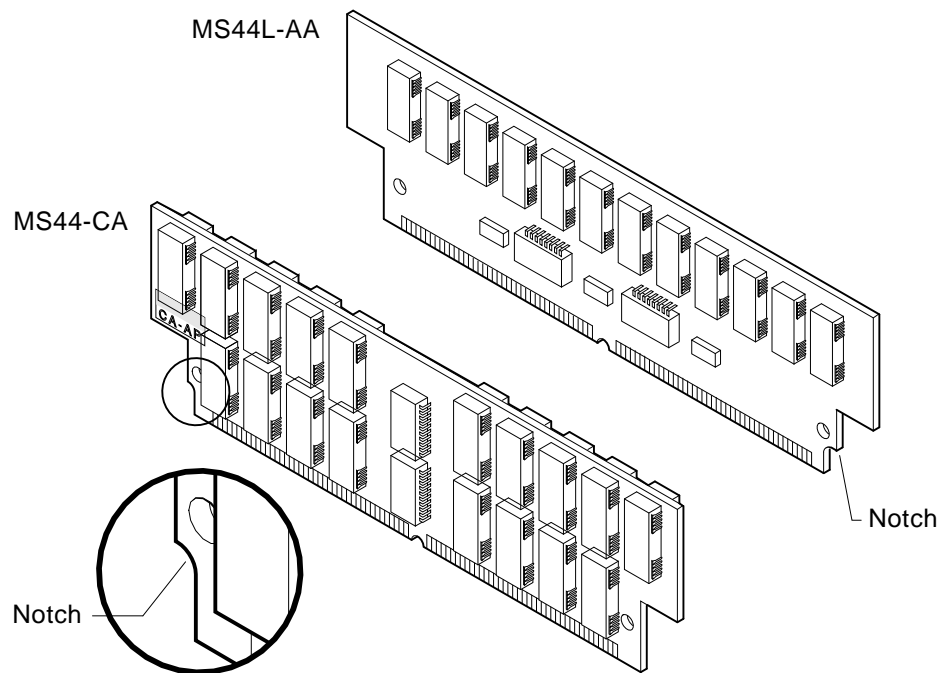
3.2 Option Contents

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 3–1 shows the memory modules.

Figure 3–1 MS44 and MS44L Memory Modules



MLO-009683

MS44L and MS44 Memory Options

3.3 Installation

3.3 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 KA52/53 CPU System Maintenance* manual, for connector identification and memory configuration information.) On the KA52 or KA53 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 3-2).

Caution

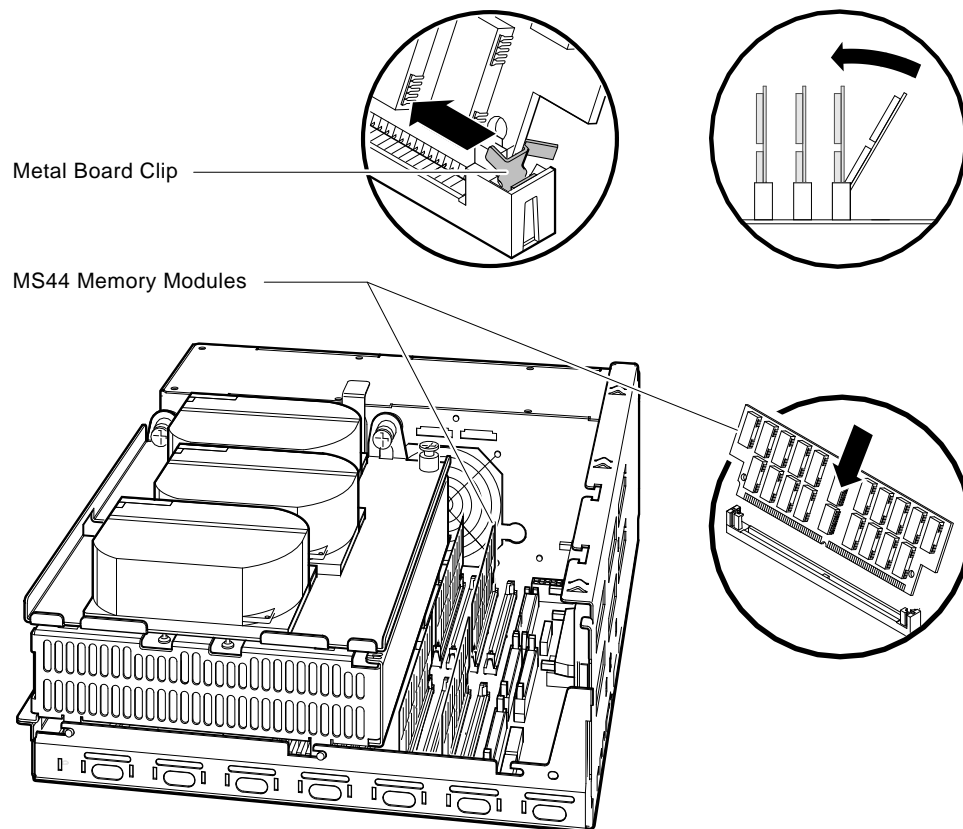
Ensure that you insert the memory module fully into its connector before you tilt the memory module.

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

MS44L and MS44 Memory Options

3.3 Installation

Figure 3–2 Memory Module Installation



MLO-009897

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

MS44L and MS44 Memory Options

3.4 Diagnostic Support

3.4 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 KA52/53 CPU System Maintenance* manual for more information.

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.

4.1 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

4.2 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).

4.3 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 KA52/53 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 4–1).

RF31T/RF35/RF36 Disk Drive Options

4.3 Setting the DSSI ID

Figure 4–1 RF31T/RF35/RF36 Option

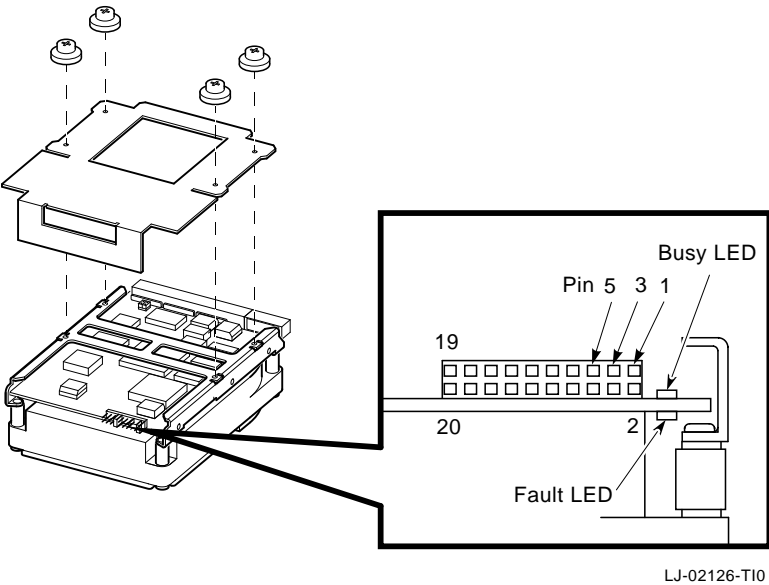


Table 4–1 shows the DSSI ID jumper combinations.

Table 4–1 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.

RF31T/RF35/RF36 Disk Drive Options

4.3 Setting the DSSI ID

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 4–1 lists the DSSI ID numbers and the jumper wire combinations that correspond to them.

4.4 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:

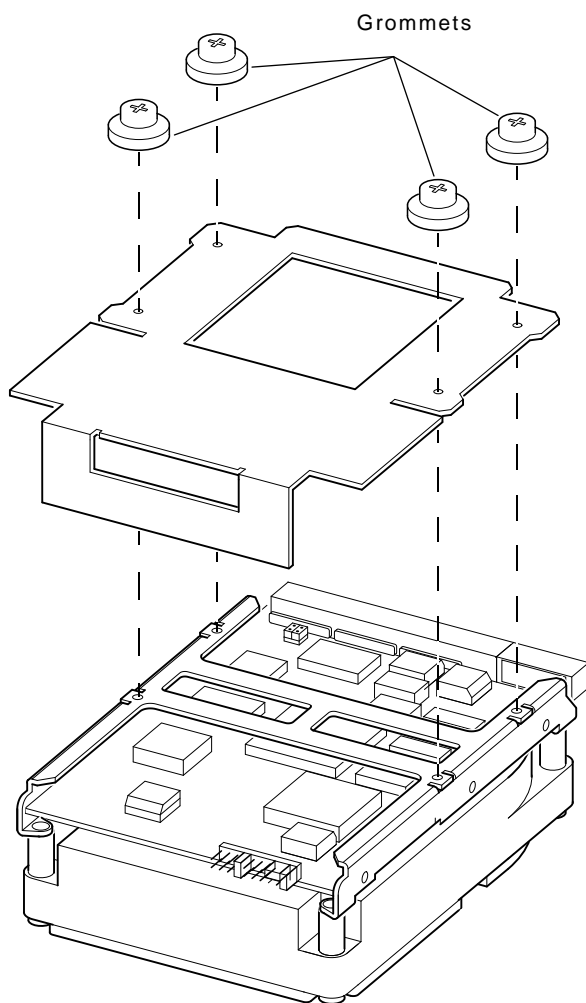
1. Attach the mounting bracket with the four screws. If you receive the drive with the mounting hardware already attached, disregard this step.

Figure 4–2 shows a sample RF31T/RF35/RF36 disk drive option with mounting brackets.

RF31T/RF35/RF36 Disk Drive Options

4.4 Installation

Figure 4-2 Sample RF31T/RF35/RF36 Disk Drive Option with Mounting Brackets



LJ-02164-T10

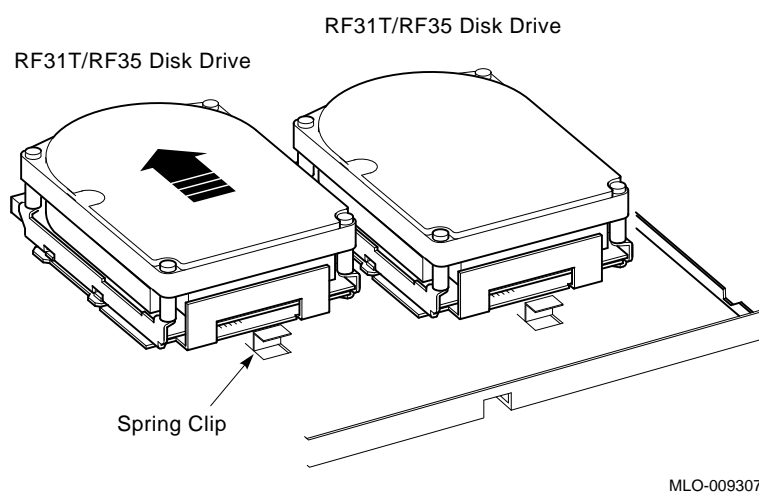
RF31T/RF35/RF36 Disk Drive Options

4.4 Installation

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 4–3). Then remove the lockout screw, if it has not already been removed,

Figure 4–3 shows how to install sample RF31T/RF35/RF36 disk drive option.

Figure 4–3 Installing a Sample RF31T/RF35/RF36 Disk Drive Option



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

RF31T/RF35/RF36 Disk Drive Options

4.4 Installation

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.

4.5 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 KA52/53 CPU System Maintenance* manual for more information.

4.6 Power Requirements

Table 4–2 and Table 4–3 show typical dc power requirements of the RF31T/RF35/RF36 disk drives.

Table 4–2 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 4–3 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

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.

5.1 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

5.2 Option Contents

The RRD42-EK option contains the following components:

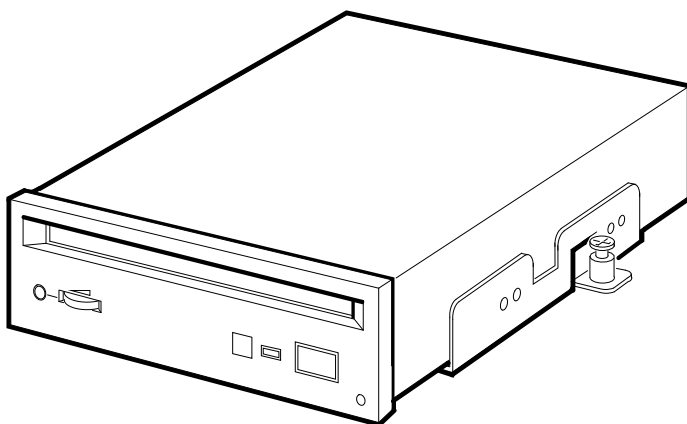
- RRD42-AA CD-ROM drive, with the mounting hardware attached

Figure 5-1 shows the RRD42-EK option.

RRD42-EK CD-ROM Drive Option

5.2 Option Contents

Figure 5–1 RRD42-EK Option



RE_EN06377A_91

5.3 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 KA52/53 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 5–2).
2. Determine the SCSI ID number to be assigned to the RRD42-EK option.

Note

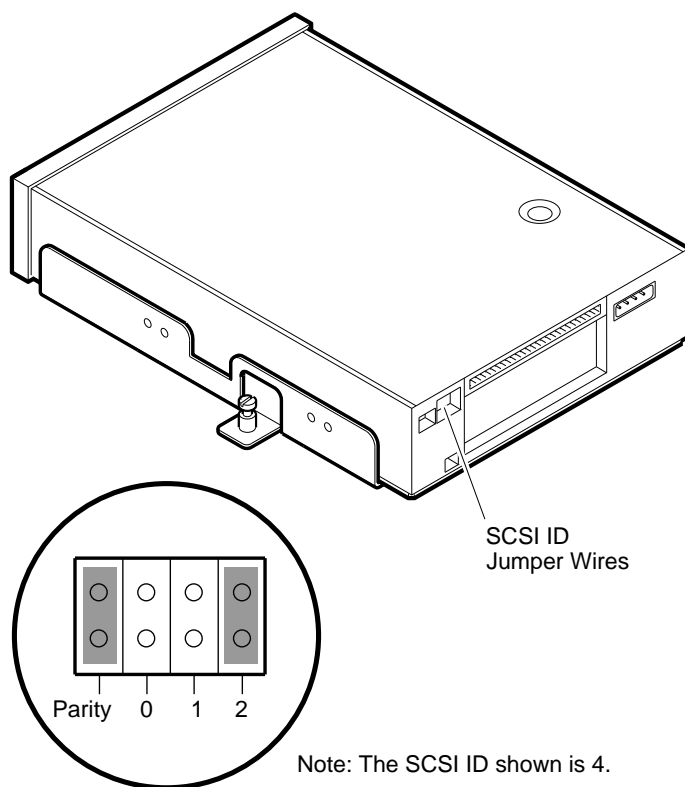
When the system is in console mode, you can use the command **SHOW CONFIG** to view the SCSI ID numbers used by the existing devices in the system.

3. Position the jumper wires for the SCSI ID number that you want. Table 5–1 shows the SCSI ID numbers and the jumper wire combinations that correspond to these numbers.

RRD42-EK CD-ROM Drive Option

5.3 SCSI ID Information

Figure 5-2 RRD42 SCSI ID Jumper Wire Locations



RE_EN06242A_91

RRD42-EK CD-ROM Drive Option

5.3 SCSI ID Information

Table 5–1 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

¹Recommended SCSI ID for CD-ROM drives.

²Reserved for the SCSI controller.

5.4 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 5.4.1 to begin a right-hand slot installation, or Section 5.4.2 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.)

5.4.1 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.

RRD42-EK CD-ROM Drive Option

5.4 Installation

5.4.2 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.

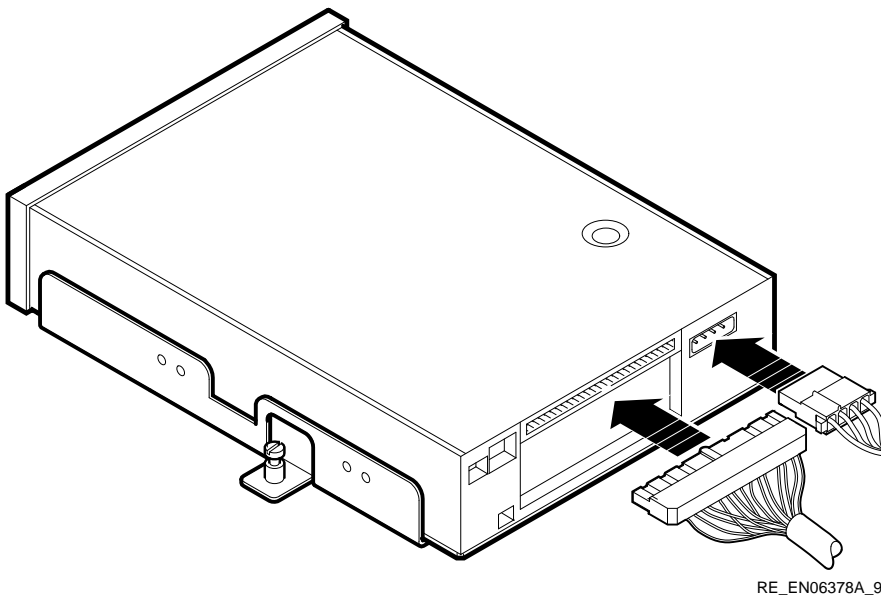
To install an RRD42-EK option:

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 5-3).

RRD42-EK CD-ROM Drive Option

5.4 Installation

Figure 5-3 Connecting the Power Cable and the SCSI Cable

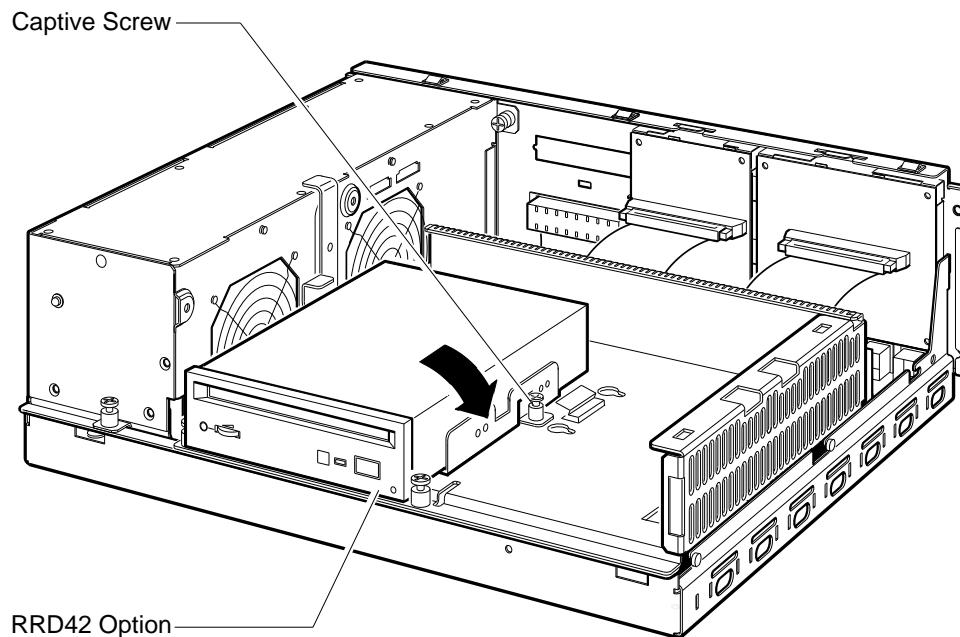


RE_EN06378A_91

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 5-3).
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 5-4).

RRD42-EK CD-ROM Drive Option 5.4 Installation

Figure 5-4 Installing the RRD42-EK 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 5-4).

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

RRD42-EK CD-ROM Drive Option

5.5 Diagnostic Support

5.5 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 KA52/53 CPU System Maintenance* manual for more information.

5.6 RRD42 Power Requirements

Table 5–2 gives the dc power requirements of the RRD42-EK option.

Table 5–2 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

6

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.

6.1 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

6.2 Option Contents

Each RRD43-EK option contains the following components:

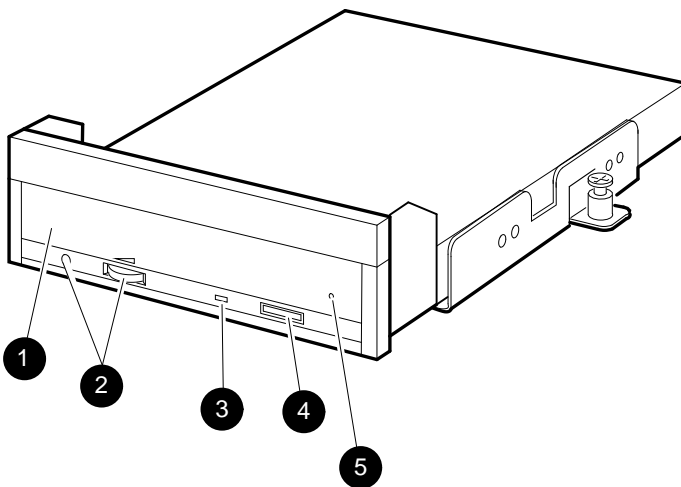
- RRD43-AA CD-ROM drive
- Mounting bracket (PN 74-42449-01)
- Screws (4) (PN 90-10556-12)
- Bezel insert (not used on the VAX 4000 BA42B-based systems) (PN 74-37501-01)
- Documentation

Figure 6-1 shows the RRD43 drive and its external features.

RRD43-EK CD-ROM Drive Option

6.2 Option Contents

Figure 6-1 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.

6.3 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 6-2). 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.

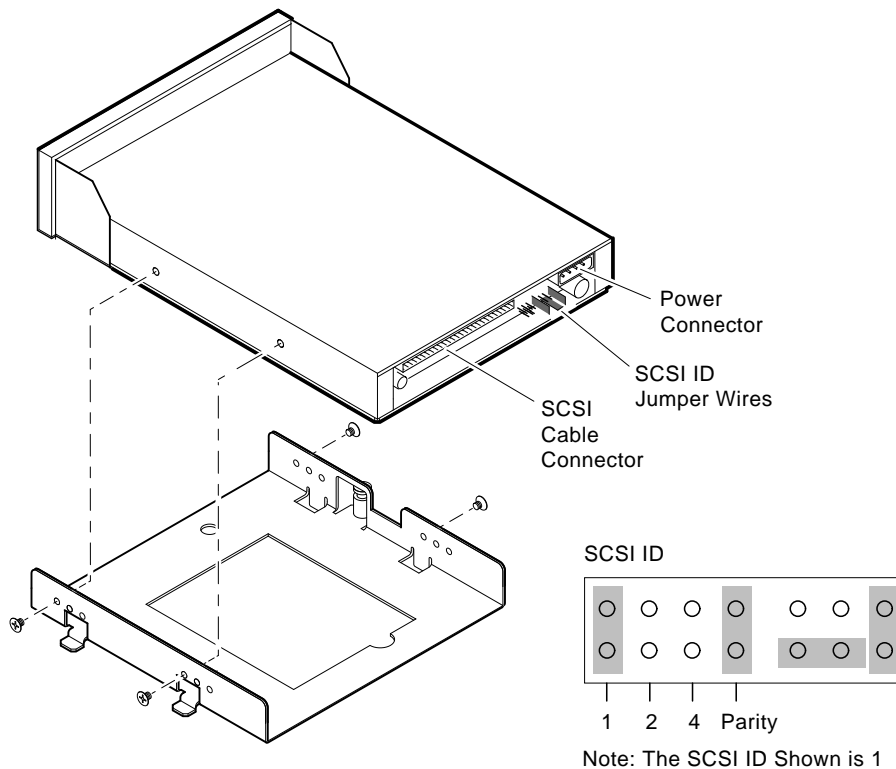
1. Determine the SCSI ID number to be assigned to the RRD43 CD-ROM drive option. Typically, the RRD43 CD-ROM uses SCSI ID 4; however, the system manager may prefer to make this decision.

RRD43-EK CD-ROM Drive Option

6.3 SCSI ID Information

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 6-2.
4. Position the jumpers for the SCSI ID number selected. Table 6-1 shows the jumper settings for each SCSI ID.

Figure 6-2 RRD43 CD-ROM Drive Jumper Locations



MLO-012257

RRD43-EK CD-ROM Drive Option

6.3 SCSI ID Information

Table 6–1 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.

6.4 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 6.4.1 to begin a right-hand slot installation, or Section 6.4.2 for the left, before proceeding to the installation itself (Section 6.4.3).

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.)

6.4.1 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 6–2. 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.

RRD43-EK CD-ROM Drive Option

6.4 Installation

3. Remove the blank bezel insert from the enclosure.

6.4.2 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.

6.4.3 Installing the RRD43 CD-ROM Option

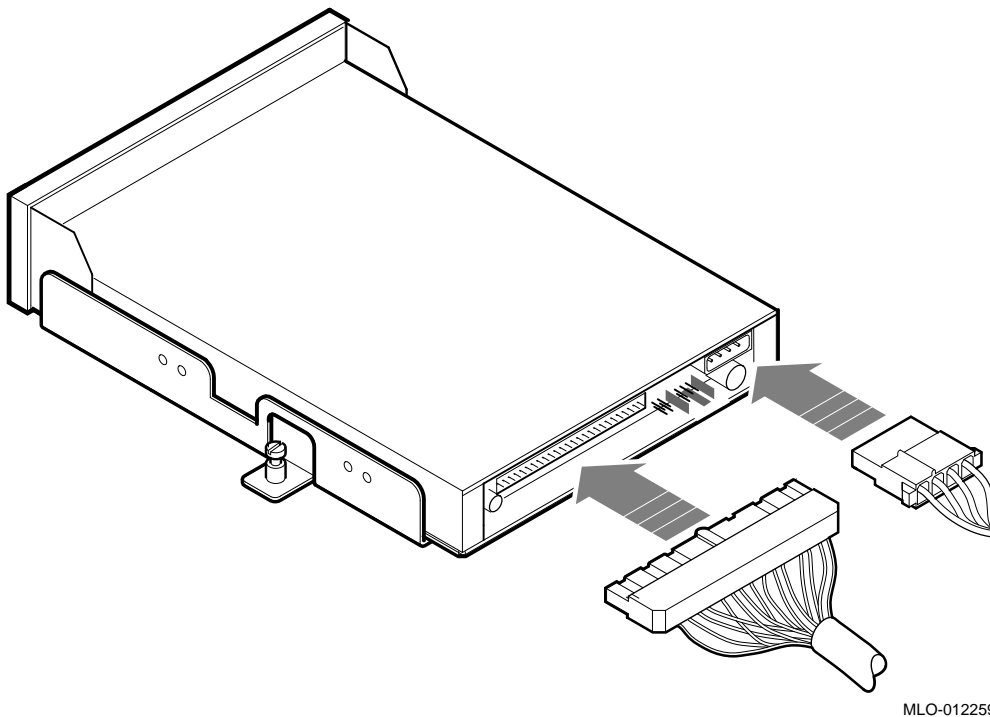
After you have prepared the system as described previously, install the RRD43 CD-ROM drive option as follows:

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 6-3.
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 6-3.

RRD43-EK CD-ROM Drive Option

6.4 Installation

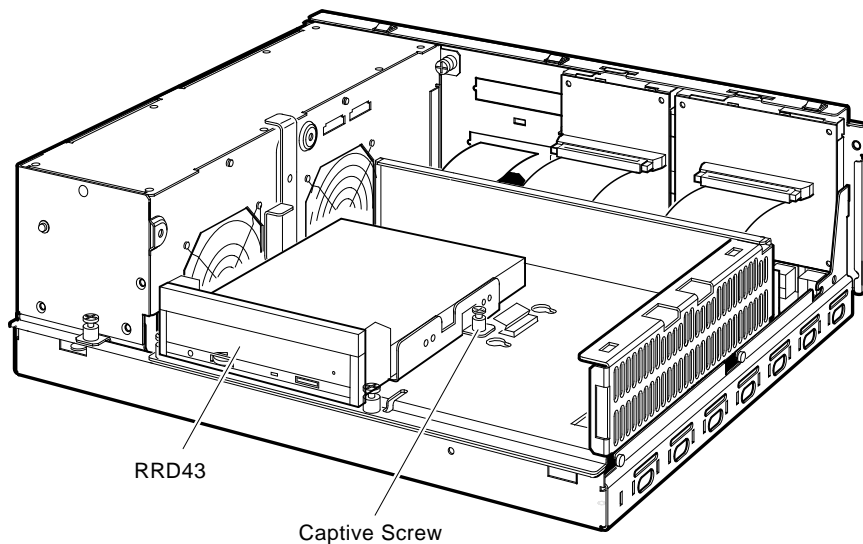
Figure 6-3 Connecting the Power and SCSI Cables



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 6-4 shows the installation of an RRD43 option in the left storage slot of the lower drive-mounting shelf.

RRD43-EK CD-ROM Drive Option 6.4 Installation

Figure 6-4 Installing the RRD43 Option



MLO-012260

9. Replace 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 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 KA52/53 CPU System Maintenance* manual for more information.

RRD43-EK CD-ROM Drive Option

6.6 Power Requirements

6.6 Power Requirements

Table 6–2 gives the dc power requirements of the RRD43-EK option.

Table 6–2 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

RX26-EL Disk Drive Option

The RX26 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 7–1 lists the types of diskettes that the RX26 diskette drive supports.

Table 7–1 RX26 Diskettes

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

In the VAX 4000 BA42B-based systems, the only option variant that Digital services personnel install is the RX26-EL option.

7.1 Ordering Information

The RX26 diskette drive that Digital services personnel install in a VAX 4000 BA42B-based system has the following order number:

- RX26-EL

7.2 Option Contents

The RX26-EL option contains the following components:

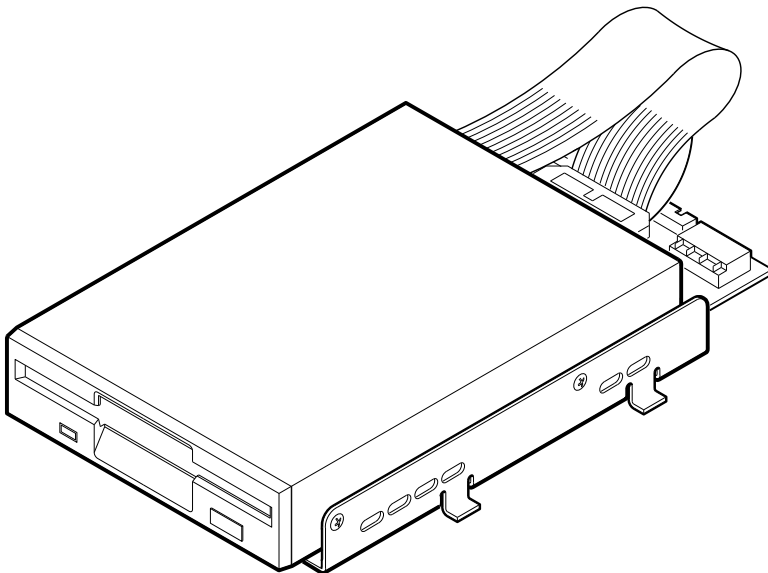
- RX26-AA diskette drive, with the mounting hardware attached
- Floppy disk interface/small computer system interface (FDI/SCSI) board (54-20764-02)
- FDI ribbon cable (17-00285-00)
- Bezel insert (74-39607-01)

RX26-EL Disk Drive Option

7.2 Option Contents

Figure 7–1 shows the RX26-EL option.

Figure 7–1 RX26-EL Option



RE_EN06368A_91

7.3 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 KA52/53 CPU System Maintenance* manual.)

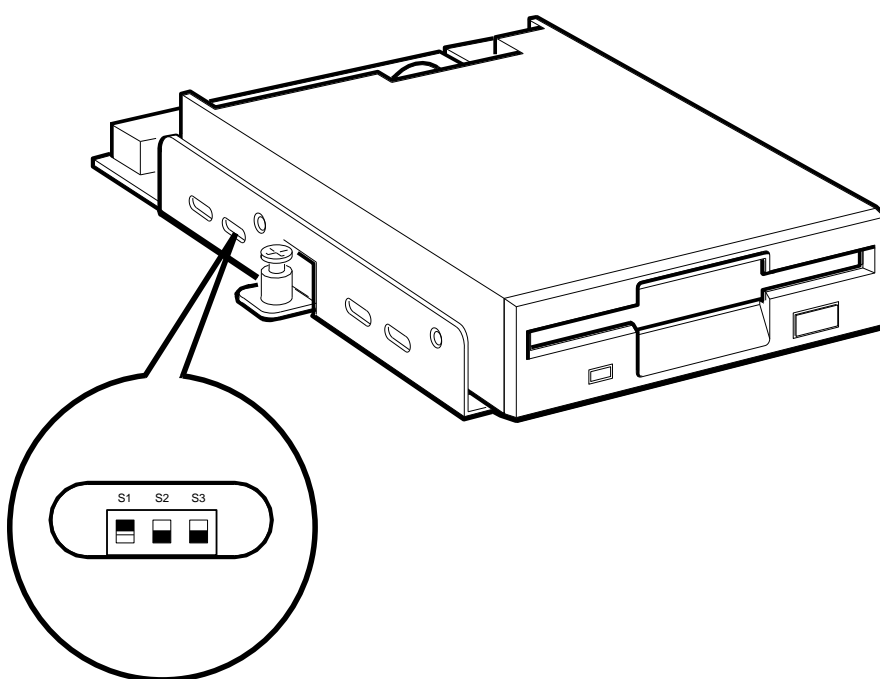
To set the SCSI ID of the RX26-EL option:

1. On the RX26 mounting bracket, locate the ventilation slot that allows access to the SCSI ID switches on the FDI/SCSI board (see Figure 7–2).

RX26-EL Disk Drive Option

7.3 SCSI ID Information

Figure 7-2 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 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 7-2 shows the SCSI ID numbers and the switch positions that correspond to these numbers.

RX26-EL Disk Drive Option

7.3 SCSI ID Information

Table 7–2 RX26 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

¹Reserved for the SCSI controller.

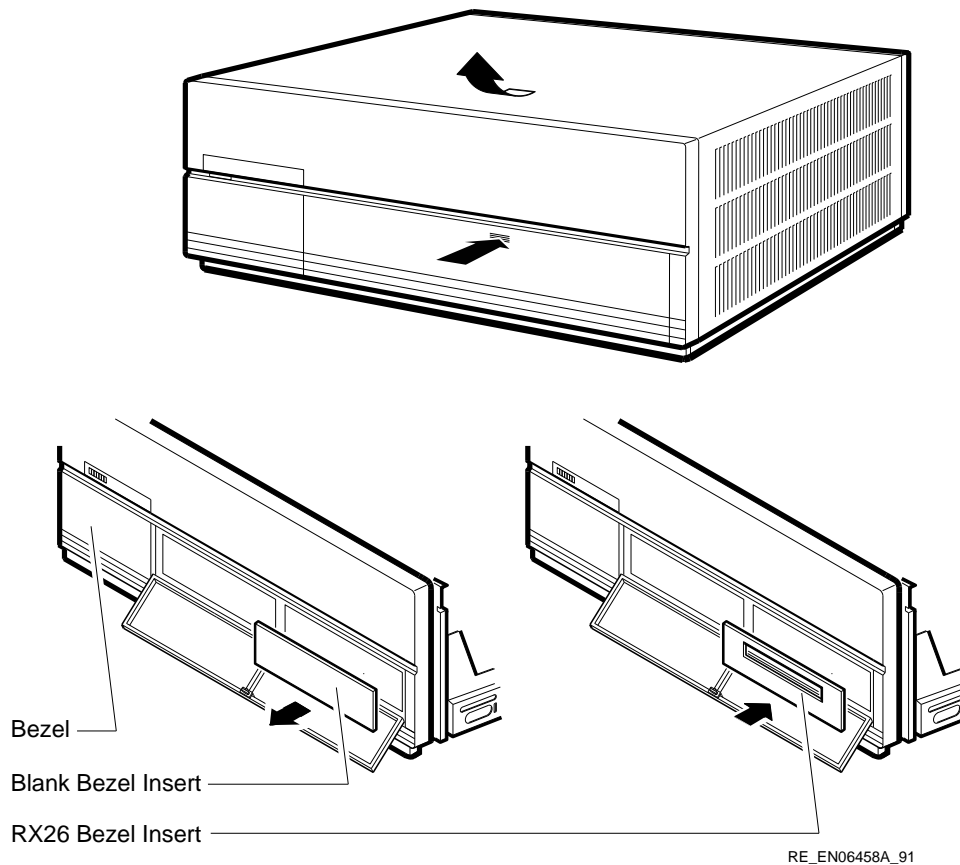
7.4 Installation

To install an RX26-EL option in a VAX 4000 BA42B-based system, you must remove the enclosure cover. Note that when you want to install an RX26 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 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 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 7–3).

RX26-EL Disk Drive Option 7.4 Installation

Figure 7-3 Installing the RX26 Bezel Insert in a BA42B-Based System

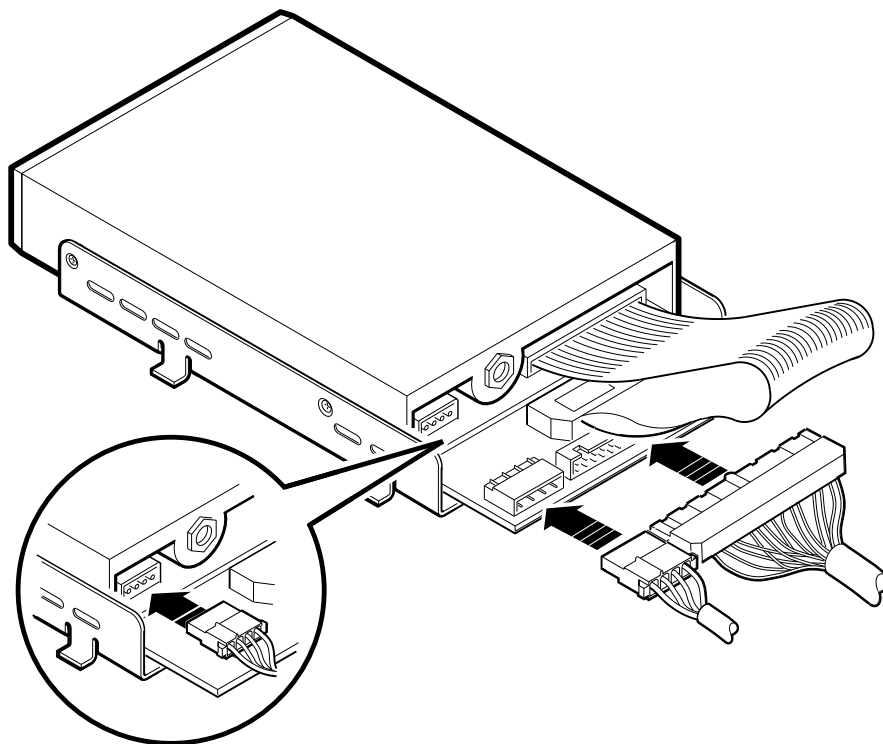


7. Identify the power cable that supplies power to the drive-mounting shelf on which you want to install the RX26-EL option. Connect the large power-cable connector to the power connector on the FDI/SCSI board, and connect the small power-cable connector to the connector on the RX26-EL option (see Figure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

RX26-EL Disk Drive Option

7.4 Installation

Figure 7–4 Connecting the Power Cables and the SCSI Cable

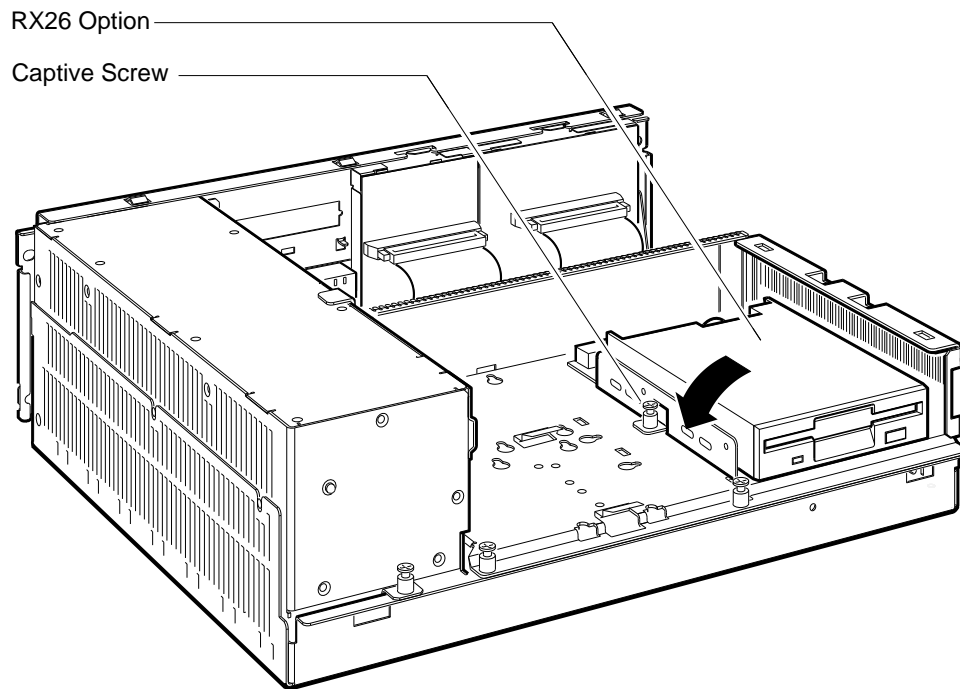


RE_EN06369A_91

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 option. Connect this connector to the FDI/SCSI board (see Figure 7–4).
9. Align the tabs on the RX26-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 7–5).

RX26-EL Disk Drive Option 7.4 Installation

Figure 7-5 Installing the RX26-EL Option



RE_EN06370A_91

10. Press down the RX26-EL option and tighten the captive screw on the mounting bracket to secure the RX26-EL option in position (see Figure 7-5).

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

RX26-EL Disk Drive Option

7.5 Diagnostic Support

7.5 Diagnostic Support

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

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

Enter the following command at the console prompt to test the operation of the RX26 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 KA52/53 CPU System Maintenance* manual for more information.

7.6 Power Requirements

Table 7–3 gives the dc power requirements of the RX26 diskette drive.

Table 7–3 RX26 Power Requirements

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

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 8–1 lists the supported tape cartridges.

Table 8–1 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

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

8.1 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

8.2 Option Contents

The TLZ06/TLZ07 tape drive option contains the following components:

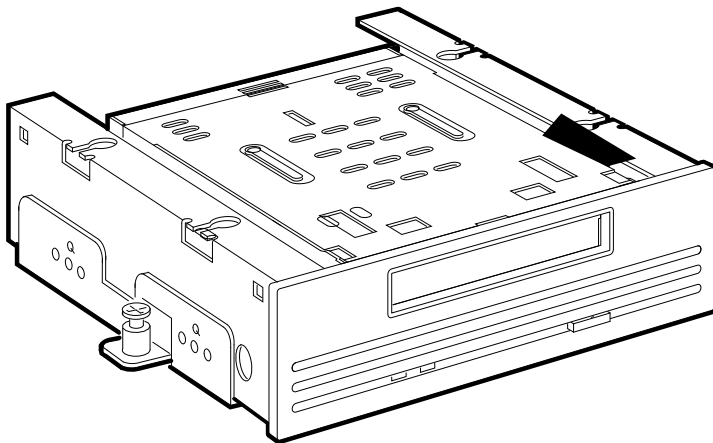
- TLZ06-AA/TLZ07-AA tape drive with mounting hardware
- Mounting bracket (P/N 74-42449-01)
- Four screws (P/N 90-10961-03)

TLZ06/TLZ07 Tape Drive Option

8.2 Option Contents

Figure 8–1 shows the TLZ06/TLZ07 tape drive.

Figure 8–1 TLZ06/TLZ07 Tape Drive



GA_EN00177A_92A

8.3 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 KA52/53 CPU System Maintenance* manual.)

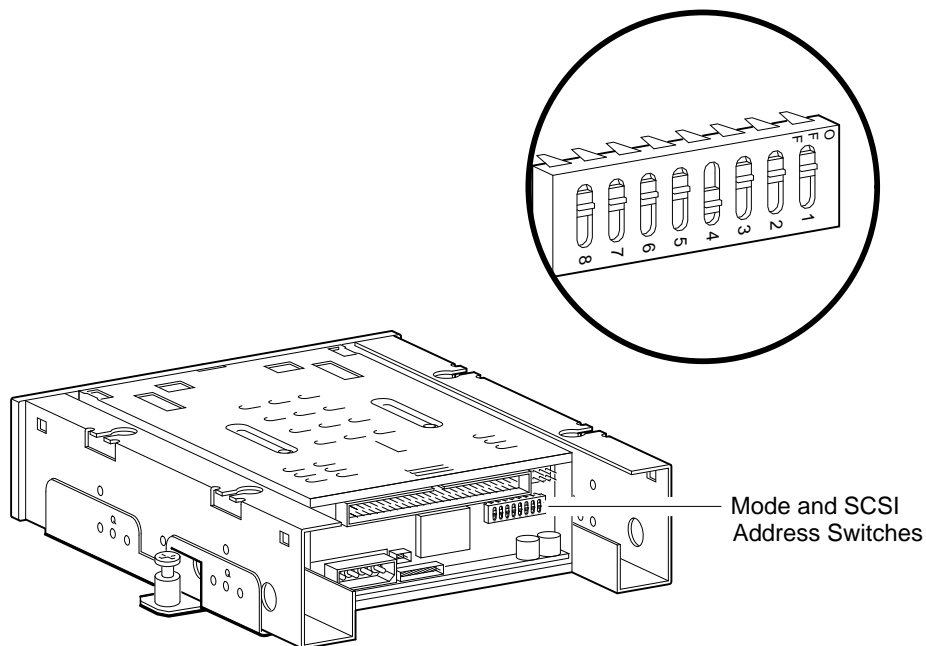
To set the SCSI ID on the TLZ06/TLZ07 tape drive:

1. Locate the SCSI ID jumper on the back of the TLZ06/TLZ07 tape drive (see Figure 8–2).

TLZ06/TLZ07 Tape Drive Option

8.3 SCSI ID Information

Figure 8–2 TLZ06/TLZ07 SCSI ID Jumper Switch Locations



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 8–2 shows the SCSI ID numbers and the jumper switch combinations that correspond to these numbers.

TLZ06/TLZ07 Tape Drive Option

8.3 SCSI ID Information

Table 8–2 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

¹Recommended SCSI ID for tape drives.

²Reserved 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.

8.4 Installation

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

8.4.1 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.

TLZ06/TLZ07 Tape Drive Option

8.4 Installation

8.4.2 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.

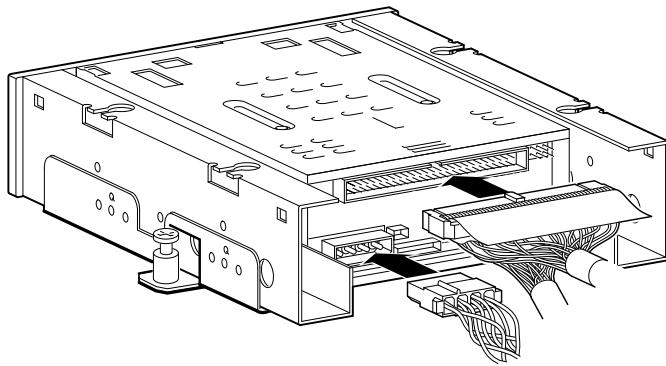
1. Attach the mounting bracket as follows: Facing the front of the drive, the captive screw should be on the left, and the four screws attaching the mounting bracket to the drive should be attached through the series of bracket holes that are closest to the front of the drive.
2. From inside the enclosure,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

8.4.3 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 8–3).

Figure 8–3 Connecting the Power Cable and the SCSI Cable



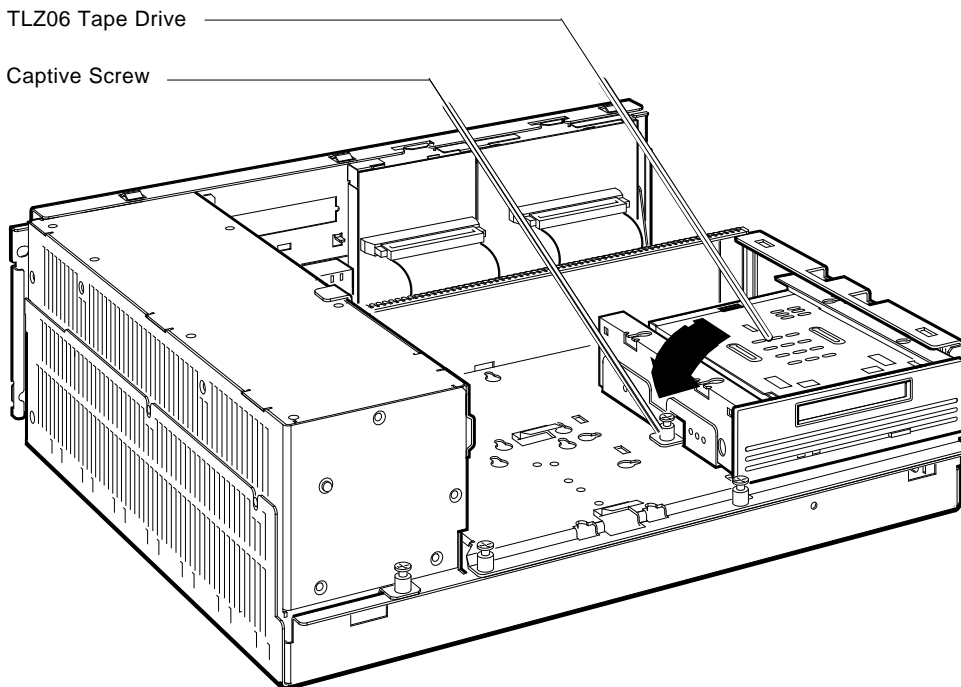
GA_EN00178A_92A

TLZ06/TLZ07 Tape Drive Option

8.4 Installation

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 8–3).
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 8–4).

Figure 8–4 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 8–4).

After installing the TLZ06/TLZ07 tape drive, reinstall the upper 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 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 KA52/53 CPU System Maintenance* manual for more information.

8.6 Power Requirements

Table 8–3 gives the dc power requirements of the TLZ06/TLZ07 tape drive.

Table 8–3 TLZ06/TLZ07 Power Requirements

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

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.

9.1 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

9.2 Option Contents

The TZ30-EL option contains the following components:

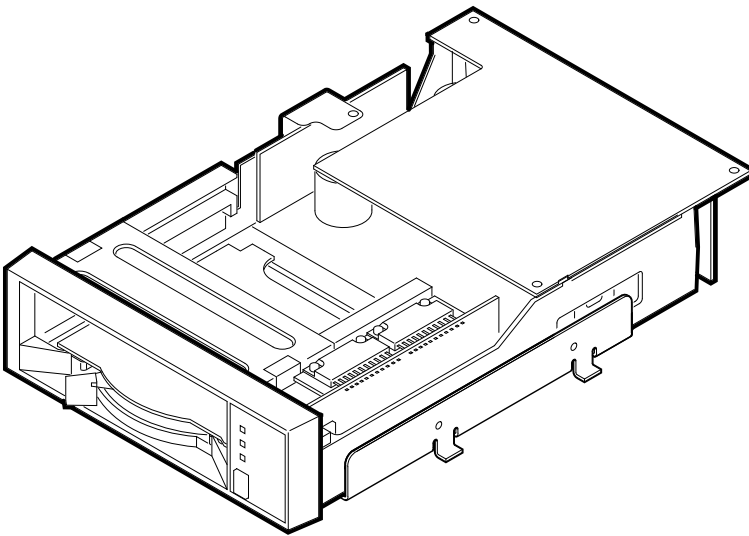
- TZ30-AX tape drive, which has the mounting hardware attached

Figure 9–1 shows the TZ30-EL option.

TZ30-EL Tape Drive Option

9.2 Option Contents

Figure 9–1 TZ30-EL Option



RE_EN06371A_91

9.3 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 KA52/53 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 9–2).
2. Determine the SCSI ID number that you want to assign to the TZ30-EL option.

Note

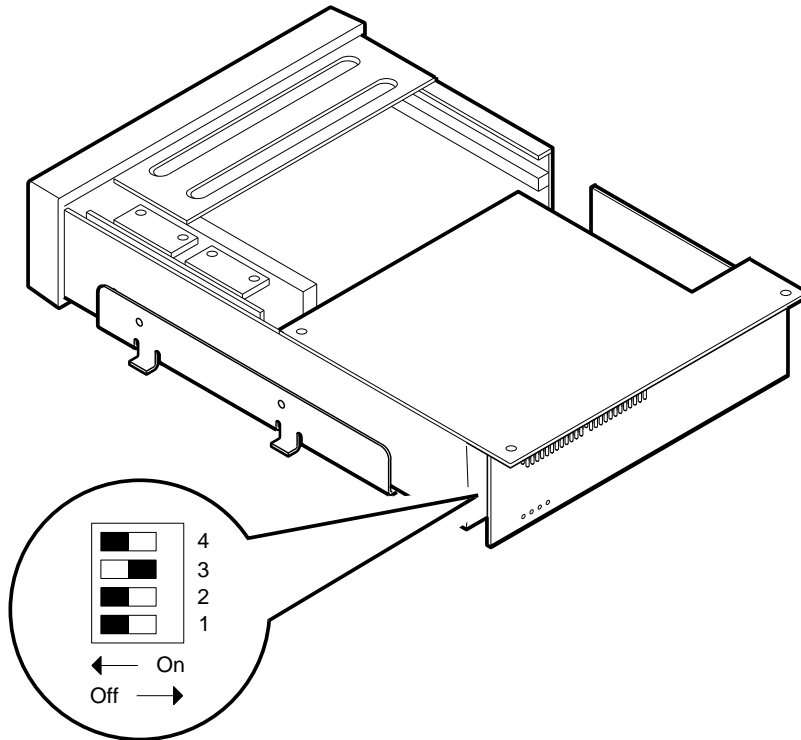
When the system is in console mode, you can use the command **SHOW CONFIG** to view the SCSI ID numbers used by existing devices in the system.

TZ30-EL Tape Drive Option

9.3 SCSI ID Information

3. Set the switches for the SCSI ID number that you want. Table 9–1 shows the SCSI ID numbers and the SCSI ID switch positions that correspond to these numbers.

Figure 9–2 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

TZ30-EL Tape Drive Option

9.3 SCSI ID Information

Table 9–1 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

¹Recommended SCSI ID for tape drives.

²Reserved for the SCSI controller.

9.4 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.)

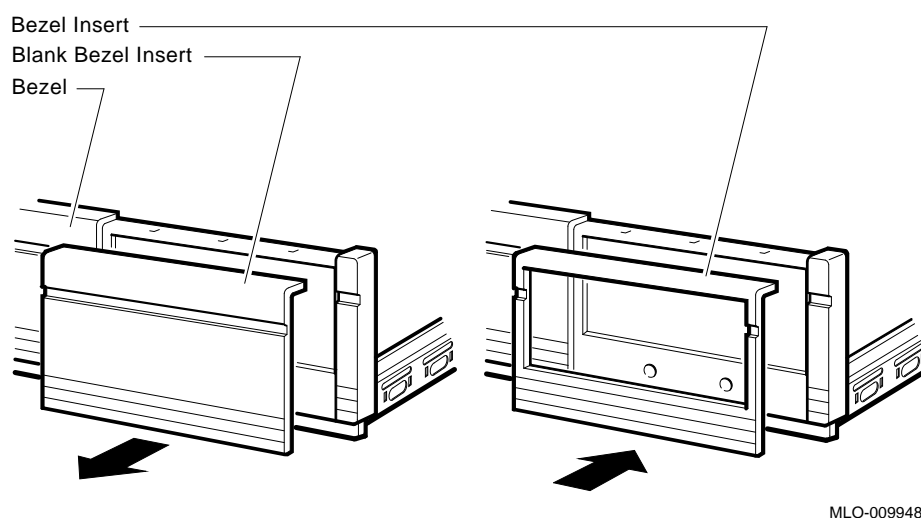
In the VAX 4000 Models 100, 100A, and 105A, the TZ30-EL option be installed only in the right-hand position on the lower drive-mounting shelf.

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.

TZ30-EL Tape Drive Option 9.4 Installation

Figure 9–3 Installing the TZ30 Bezel Insert

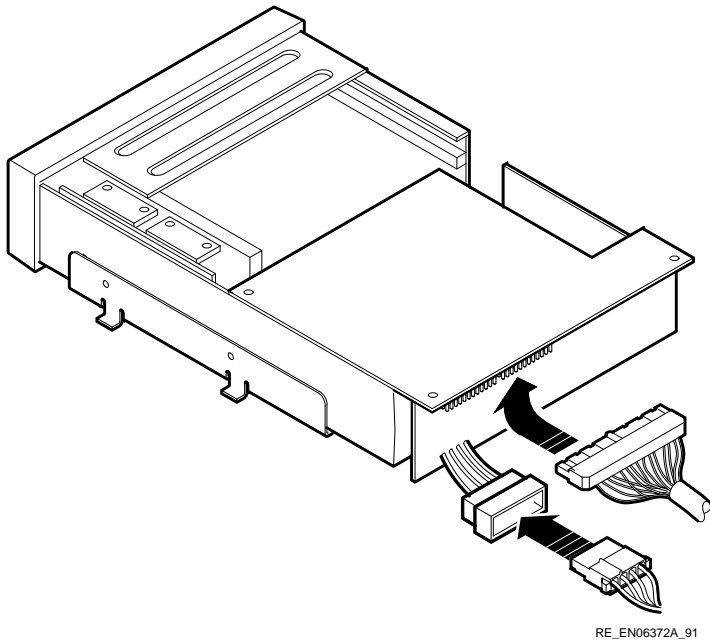


3. Push the blank bezel insert that covers the right drive-mounting position on the lower drive-mounting shelf. Remove the blank bezel insert from the enclosure (see Figure 9–3.)
4. Identify the power cable that supplies power to the drive-mounting shelf on which you want to install the TZ30-EL option. Connect this power cable to the flying lead connector of the TZ30-EL option (see Figure 9–4).

TZ30-EL Tape Drive Option

9.4 Installation

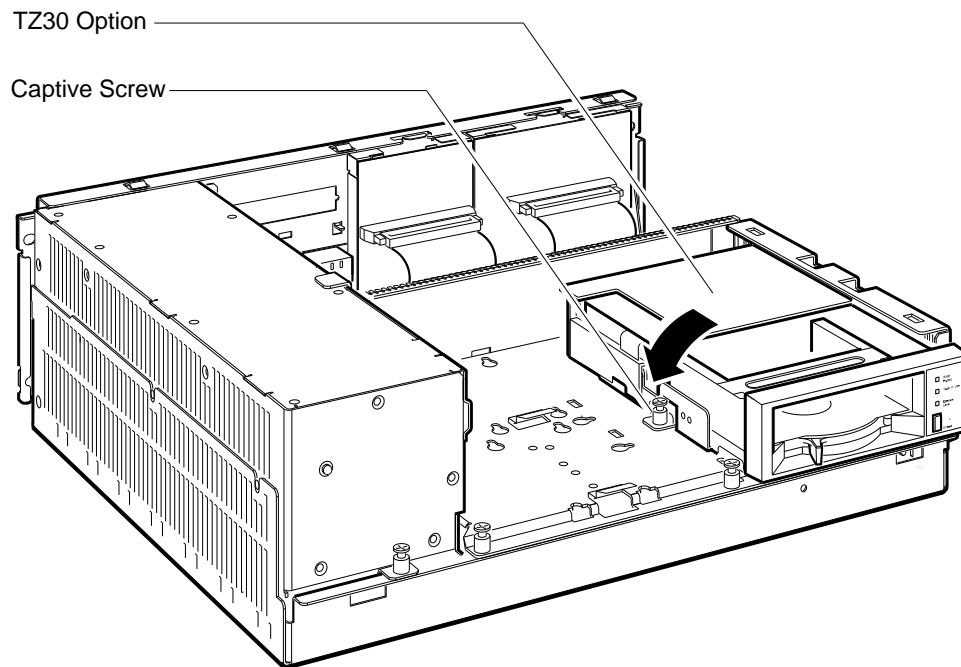
Figure 9–4 Connecting the Power Cable and the SCSI Cable



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 9–4).
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 9–5).

TZ30-EL Tape Drive Option 9.4 Installation

Figure 9-5 Installing the TZ30 Option



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 9-5).

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

9.5 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 KA52/53 CPU System Maintenance* manual for more information.

9.6 Power Requirements

Table 9–2 gives the dc power requirements of the TZ30-EL option.

Table 9–2 TZ30 Power Requirements

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

10

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 10–1 shows the tape cartridges that the TZK10 tape drive supports, and Table 10–2 shows the cartridges the TZK11 supports.

Table 10–1 TZK10 Tape Cartridges

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

Table 10–2 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

TZK10-HG/TZK11-HG Tape Drive Options

10.1 Ordering Information

10.1 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

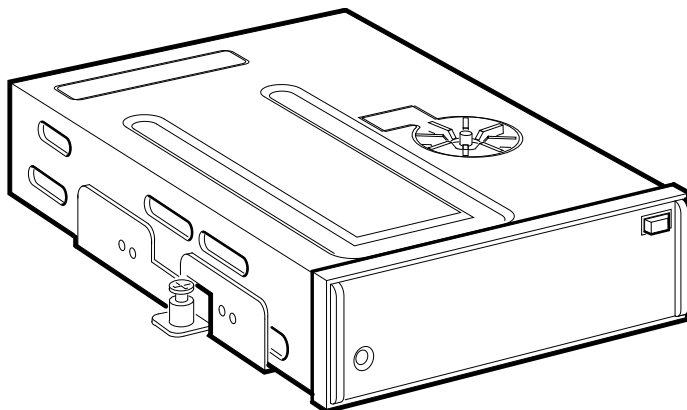
10.2 Option Contents

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 10–1 shows a TZK10/TZK11-HG option.

Figure 10–1 TZK10/TZK11-HG Option



RE_EN06374A_91

10.3 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 KA52/53 CPU System Maintenance* manual.)

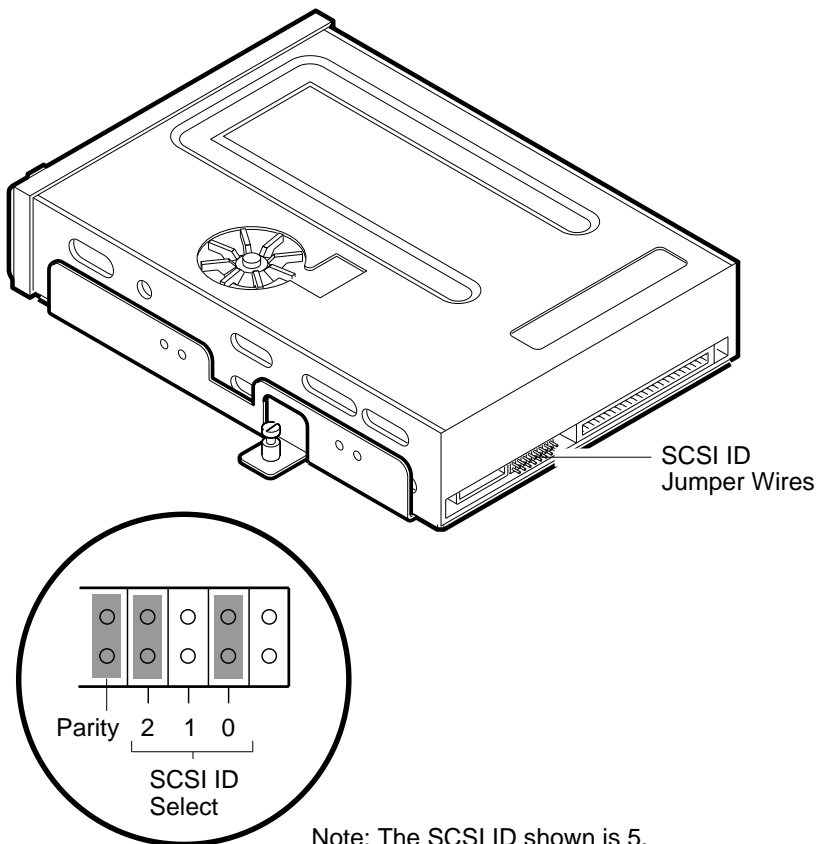
TZK10-HG/TZK11-HG Tape Drive Options

10.3 SCSI ID Information

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 10–2).

Figure 10–2 TZK10/TZK11 SCSI ID Jumper Wire Locations



RE_EN06240A_91

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

TZK10-HG/TZK11-HG Tape Drive Options

10.3 SCSI ID Information

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 10–3 shows the SCSI ID numbers and the jumper combinations that correspond to these numbers.

Table 10–3 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

¹Recommended SCSI ID for tape drives.

²Reserved for the SCSI controller.

The other jumper wire positions are not used.

10.4 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.)

TZK10-HG/TZK11-HG Tape Drive Options

10.4 Installation

10.4.1 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.

10.4.2 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.

10.4.3 Installing the TZK10/TZK11 Option

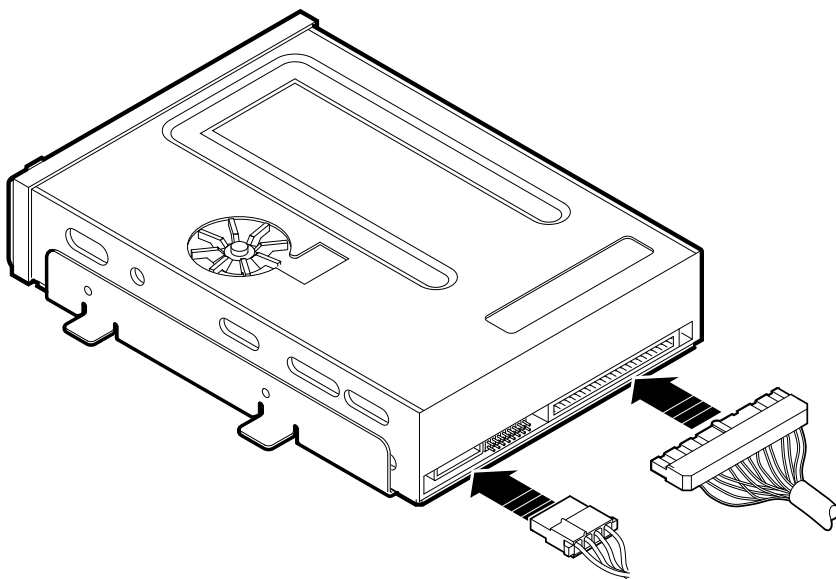
Install a TZK10/TZK11 as follows:

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 10–3).

TZK10-HG/TZK11-HG Tape Drive Options

10.4 Installation

Figure 10–3 Connecting the Power Cable and the SCSI Cable

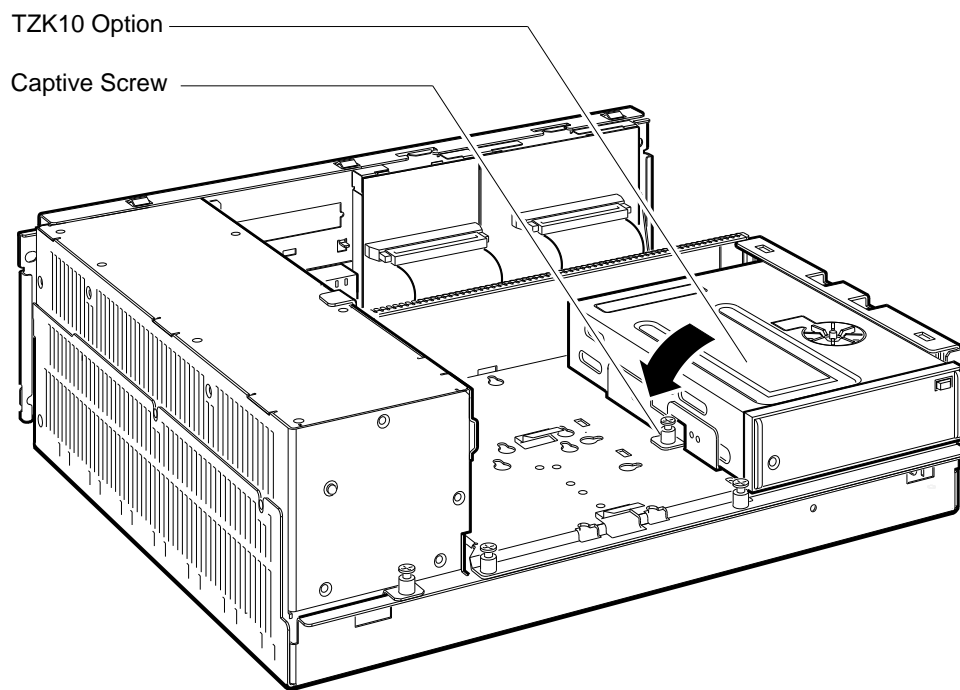


RE_EN06375A_91

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 10–3).
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 10–4).

TZK10-HG/TZK11-HG Tape Drive Options 10.4 Installation

Figure 10–4 Installing the TZK10/TZK11 Option



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 10–4).

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

TZK10-HG/TZK11-HG Tape Drive Options

10.5 Diagnostic Support

10.5 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 KA52/53 CPU System Maintenance* manual for more information.

10.6 Power Requirements

Table 10–4 shows the dc power requirements of the TZK10-HG and TZK11-HG options.

Table 10–4 TZK10/TZK11 Power Requirements

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

Reader's Comments

VAX 4000
BA42B Enclosure System Options
EK-474AB-OP. B01

Your comments and suggestions help us improve the quality of our publications.
Thank you for your assistance.

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

I would like to see more/less _____

What I like best about this manual is _____

What I like least about this manual is _____

I found the following errors in this manual:

Page	Description
_____	_____
_____	_____
_____	_____

Additional comments or suggestions to improve this manual:

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

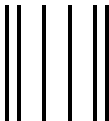
Name/Title _____ Dept. _____

Company _____ Date _____

Mailing Address _____

_____ Phone _____

Do Not Tear - Fold Here and Tape



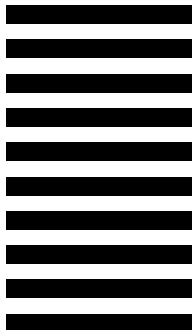
No Postage
Necessary
If Mailed
in the
United States

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 33 MAYNARD MASS.

POSTAGE WILL BE PAID BY ADDRESSEE

DIGITAL EQUIPMENT CORPORATION
Information Design and Consulting
MRO1-3/K10
200 FOREST STREET
MARLBORO, MA 01752-3011



Do Not Tear - Fold Here