
BA42-A

MicroVAX 3100 Platform

BA42-A Enclosure Maintenance

Order Number: EK-A0510-MG.001

November 1991

This manual provides reference, installation, and maintenance information for the BA42-A enclosure. The MicroVAX 3100 Model 30 system uses this enclosure.

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Preface

This manual provides the information that you need to maintain the BA42-A enclosure. It contains physical information about the enclosure, installation information, and procedures for replacing field replaceable units (FRUs).

Audience

This manual is for Digital™ Services personnel who provide support and maintenance for systems that use this enclosure. It is also for customers who have a self-maintenance agreement with Digital Equipment Corporation. Readers of this manual must have experience of replacing hardware components.

Structure of This Manual

This manual is divided into three chapters, two appendixes, a glossary, and an index:

- Chapter 1 provides an overview of the system enclosure and describes the controls, mass storage areas and capacity, signal distribution, power distribution, input and output connections, and configuration guidelines.
- Chapter 2 provides site preparation information and describes how to install the systems that use the enclosure.
- Chapter 3 provides instructions on removing and replacing FRUs.

- Appendix A gives the pin specifications for the ports on the back of the system unit.
- Appendix B gives a list of the recommended spare parts.

Associated Documents

The following documents contain additional maintenance information for BA42-A enclosure systems:

- *Guide to MicroVAX™ 3100 Platform Maintenance Information Kit, EK-A0512-MG*
- *KA45 CPU System Maintenance, EK-A0513-MG*
- *CPU Reference Information, EK-A0574-HR*
- *Options, EK-A0519-MG*

Related Documents

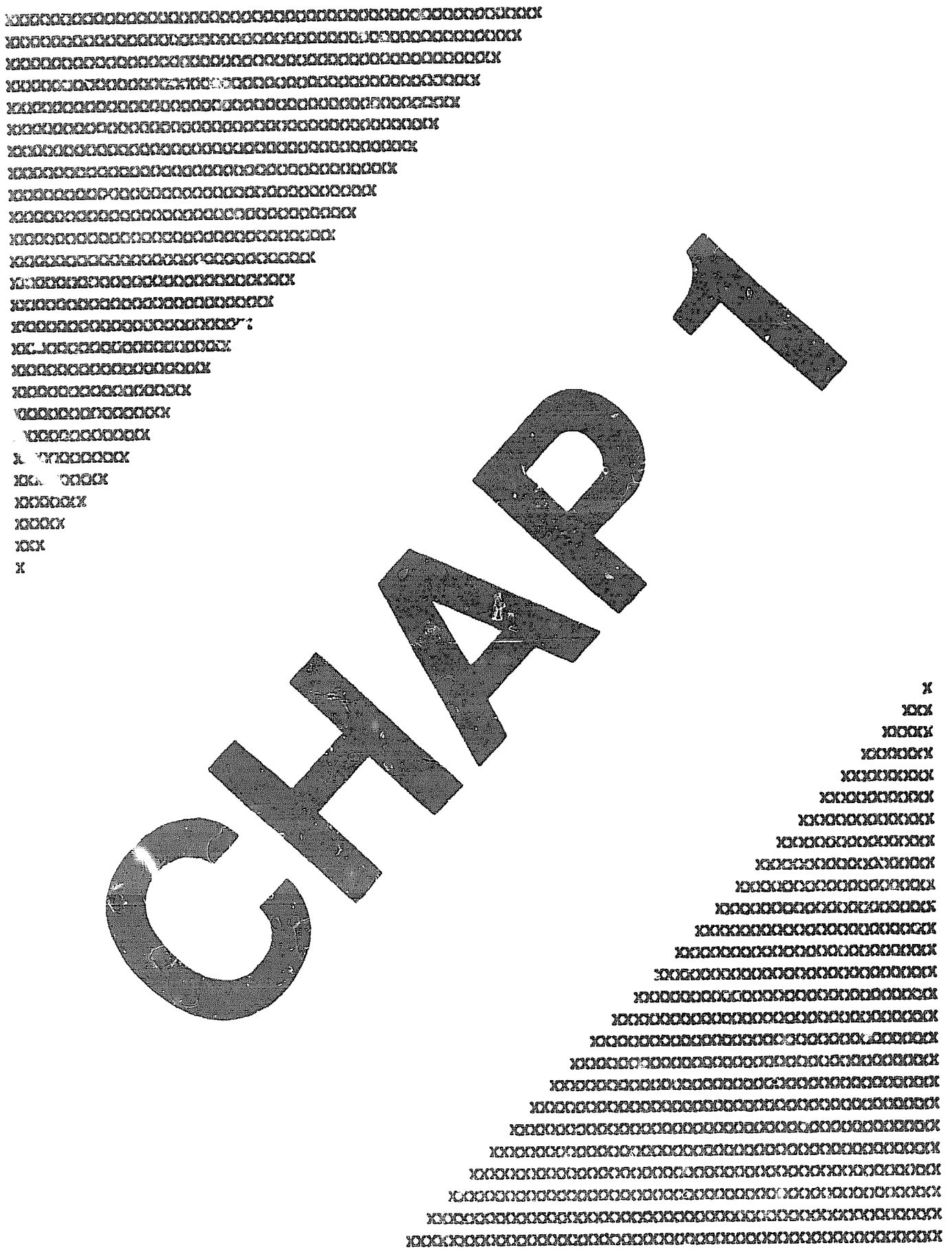
The following documents contain more information about MicroVAX 3100 platform systems:

- *MicroVAX 3100 Model 30 Cover Letter, EK-A0515-CL*
- *MicroVAX 3100 Model 30 Installation Information, EK-A0520-IN*
- *MicroVAX 3100 Model 30 Operator Information, EK-A0521-UG*
- *MicroVAX 3100 Model 30 Customer Technical Information, EK-A0522-TD*
- *MicroVAX 3100 Model 30 Troubleshooting and Diagnostic Information, EK-A0516-TM*
- *VMS Factory Installed Software User Guide, EK-A0377-UG*

Conventions

The following conventions are used in this manual:

Convention	Description
Ctrl/*x*	Ctrl/*x* indicates that you hold down the Ctrl key while you press another key or mouse button (indicated here by *x*).
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.
nn nnn.nnn nn	A space character separates groups of 3 digits in numerals with 5 or more digits. For example, *10 000* equals *ten thousand*.
n.nn	A period in numerals signals the decimal point indicator. For example, *1.75* equals *one and three-fourths*.
Note	A note contains information of special importance to the reader.
Caution	A caution contains information to prevent damage to the equipment.


CHAPTER 1

1

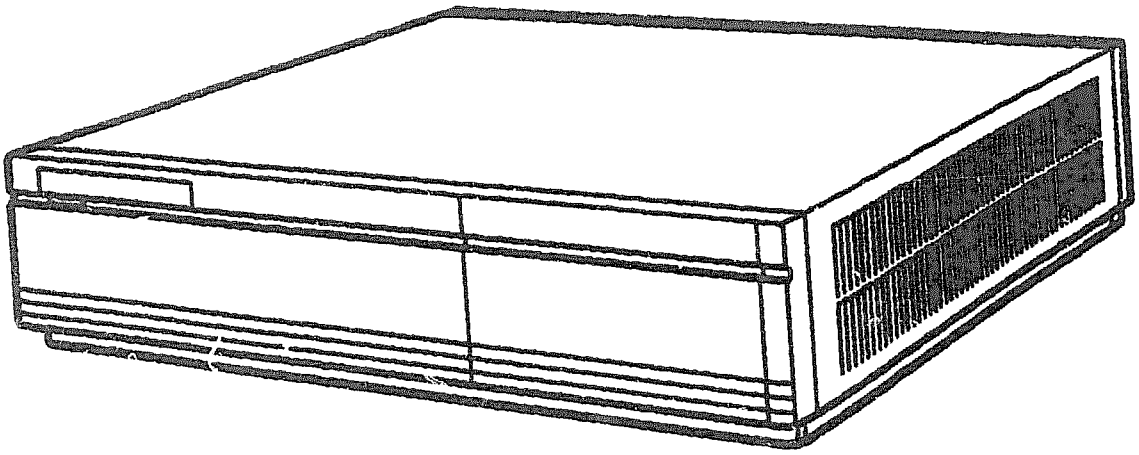
Enclosure Description

This chapter describes the BA42-A enclosure. It gives information on the following:

- Mass storage device areas
- Controls, indicators, ports, and connectors
- Power and signal distribution
- Air circulation
- Configuration guidelines

The BA42-A enclosure houses the system unit of the MicroVAX 3100 Model 30 system. It is a desktop style enclosure (see Figure 1–1).

Figure 1–1 BA42-A Enclosure



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1.1 Mass Storage Device Areas

The BA42-A enclosure can contain 3.5 inch (13.5 cm) and 5.25 inch (20.25 cm) half-height mass storage devices. These mass storage devices are mounted on a drive-mounting shelf. The drive-mounting shelf can contain one, two, or three devices. The orientation of the devices depends on the number of drives you install. See Section 1.5.3 for information about mass storage device combinations and orientation.

1.2 Controls, Indicators, Ports, and Connectors

The power OK indicator (POK) is on the front of the BA42-A enclosure. Figure 1–2 shows the controls, indicators, ports, and connectors on the BA42-A enclosure. Table 1–1 describes the functions of the controls, indicators, ports, and connectors.

Figure 1–2 Controls, Indicators, Ports, and Connectors

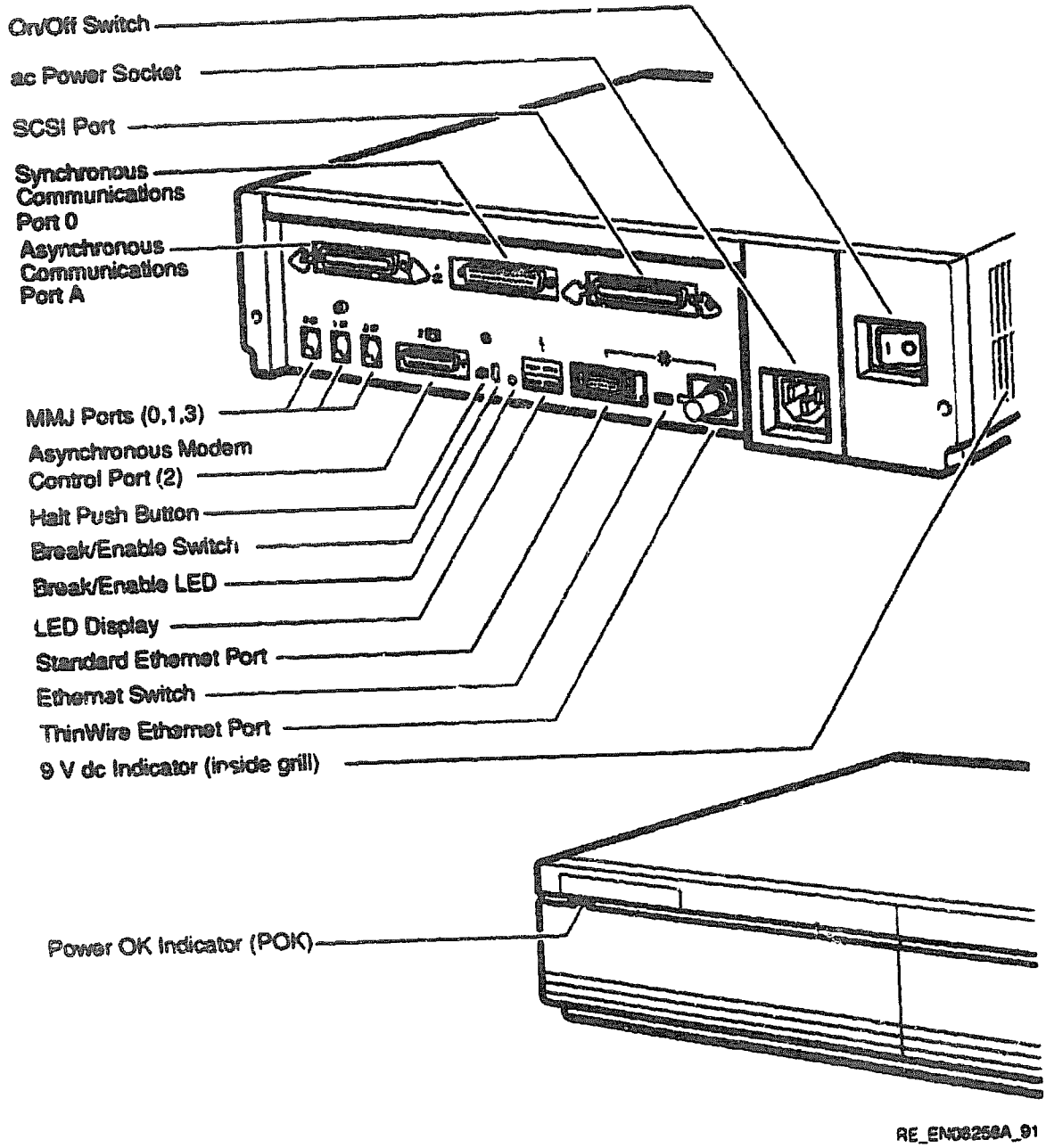


Table 1–1 Functions of the Controls, Indicators, Ports, and Connectors

Component	Description
On/Off switch	Applies and stops the power to the system unit as follows: • On (	) —Applies the ac power to the system unit • Off (O) —Stops the ac power to the system unit
System ac power socket	A socket for the ac power input.
SCSI[1] port	A port that allows you to connect external SCSI devices.
Synchronous communications port 0[2]	A port that provides for the connection of a device with synchronous communications support.
Asynchronous communications port A[2]	A port that provides one of the following two asynchronous communications expansion options: • Eight DEC423 compatible asynchronous ports • Four EIA-232 compatible modem ports
MMJ[3] port 0	DEC423 compatible asynchronous port. This port is the primary console port.
MMJ port 1	DEC423 compatible asynchronous port.
MMJ port 3	DEC423 compatible asynchronous port. This port functions as an alternate console port when the break/enable switch is set in the up position when you turn on the system unit.
Asynchronous modem control port (2)	EIA-232 compatible asynchronous port with modem control.
Halt push button	A momentary-contact push button that puts the system in console mode.

[1]Small computer system interface (SCSI).

[2]Optional ports that depend on the system configuration.

[3]Modified modular jack (MMJ).

(continued on next page)

Table 1–1 (Cont.) Functions of the Controls, Indicators, Ports, and Connectors

Component	Description
Break/enable switch[4]	A two-position switch that determines the function of MMJ port 3 as follows: • Up position—MMJ port 3 functions as a console port. In this state, you can press the Break key on the keyboard of a terminal connected to MMJ port 3 to put the system in console mode. • Down position—MMJ port 3 functions as a normal communications port. MMJ port 0 functions as a console port.
B k/enable LED	A LED[5] indicator that shows the function of MMJ port 3 as follows: • On—MMJ port 3 functions as a console port. • Off—MMJ port 3 functions as a normal communications port.
LED display	A set of eight LEDs that provides power-up and self-test diagnostic code information. This is useful for fault diagnosis when the console terminal is not functioning.
Standard Ethernet port	A port that allows you to connect to a standard Ethernet network.
Ethernet switch	A two-position switch that determines the type of Ethernet that the system uses as follows: • Left position—selects the standard Ethernet type • Right position—selects the ThinWire™ Ethernet type
ThinWire Ethernet port	A port that allows you to connect to a ThinWire Ethernet network.

[4]The system recognizes the position of this switch only when you turn on the power.

[5]Light emitting diode (LED).

(continued on next page)

Table 1–1 (Cont.) Functions of the Controls, Indicators, Ports, and Connectors

Component	Description
9 V dc indicator	A green LED indicator that indicates the status of the 9 V dc power circuit as follows: • On—indicates 9 V dc power circuit is operational • Off—indicates 9 V dc power circuit is not operational This indicator is mounted in the power supply. It can be viewed throught the grill in the chassis of the power supply.

1.3 Power and Signal Distribution

The power supply unit (H7083) provides power to all the units in the enclosure. It accepts alternating current (ac) input voltage in the ranges 100 V ac to 120 V ac (88 V rms[1] to 132 V rms) and 220 V ac to 240 V ac (176 V rms to 264 V rms).

The regulators in the power supply unit maintain the correct direct current (dc) output voltages, which are independent of the fluctuations in the ac input power. The power supply unit can provide a continuous power output of 122 watts (W). The power supply unit has two internal, variable speed, automatically adjusting fans that cool the unit while it operates. Table 1–2 gives the current specifications of the dc circuits.

Table 1–2 Power Supply Unit dc Outputs

Voltage (dc)	Output Current Range (dc)	
	Minimum (A[1])	Maximum (A)
+5.1	3.0	14.5
+12.1	0.0	5.0
-12.0	0.0	0.5
-9.0	0.0	0.2

[1] Amperes (A).

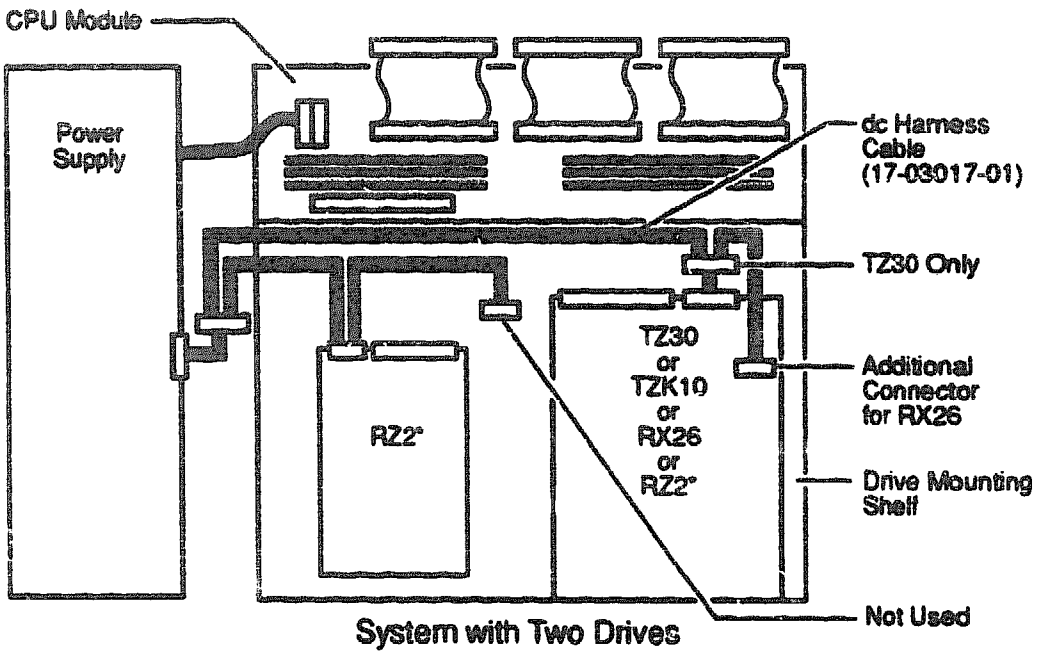
The power supply unit (H7083) has the following output connectors:

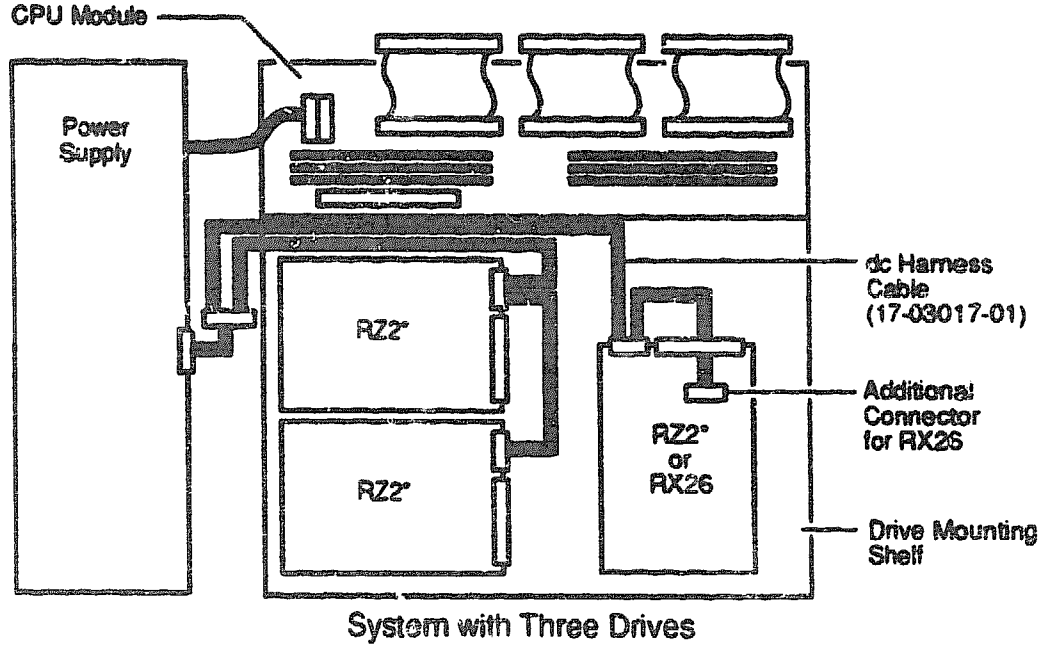
- A flying lead connector that provides the dc power to the central processing unit (CPU) module
- A flying lead connector that provides the dc power to the mass storage devices in the BA42-A enclosure.

Figure 1–3 shows the power cables in the BA42-A enclosure.

[1] Root mean square.

Figure 1–3 Power Distribution





Note: RZ2* denotes RZ23L, RZ24, or RZ25 disk drives.

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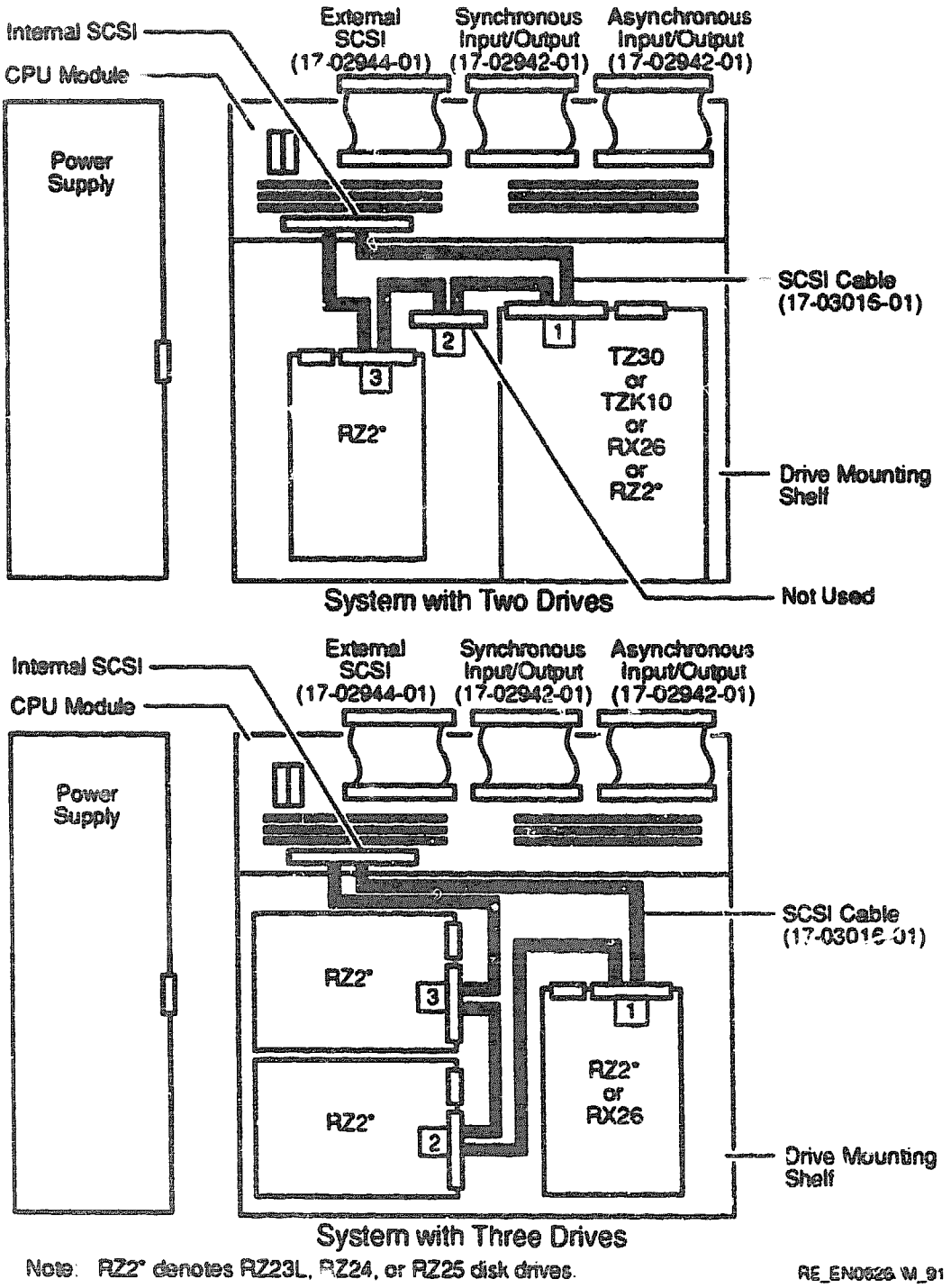
Appendix A provides information on the pin specifications for the connectors. The CPU module is the main source for signal distribution in a BA42-A enclosure system. The SCSI cable is connected to the CPU module. Each of the other connectors on the SCSI cable has a pull-tab. Use the pull-tab to disconnect the cable from a SCSI device. Each pull-tab has a number that identifies the drive to which the SCSI cable connector is connected (see Figure 1–4).

Figure 1–4 Signal Distribution



Note: RZ2* denotes RZ23L, RZ24, or RZ25 disk drives.

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1.4 Air Circulation

The power supply unit (H7083) contains two fans. These fans provide the air circulation for the enclosure. The fans adjust their speed automatically as the temperature of the system unit changes. The air intake is on the right side of the BA42-A enclosure (when viewed from the front), and the air exhaust is on the left side. A typical value of airflow is 0.0104 cubic meters per second (m^3/sec) (22 cubic feet per minute [ft^3/min]).

1.5 Configuration Guidelines

The combination of memory, communications options, and internal mass storage devices determines the configuration of a system. See the *KA45 CPU System Maintenance* manual for a list of the external mass storage devices that a MicroVAX 3100 platform system supports.

1.5.1 Memory

The basic system memory is 8M bytes. This memory is permanently fixed to the CPU module. You can expand the system memory in 8M-byte increments by adding MS44-BA or MS44L-BA memory options. Each MS44-BA memory option consists of two MS44-AA (4M-byte) memory modules. Each MS44L-BA memory option consists of two MS44L-AA (4M-byte) memory modules. Table 1–3 lists the memory configurations. Figure 1–5 shows the location of the memory expansion connectors on the CPU module.

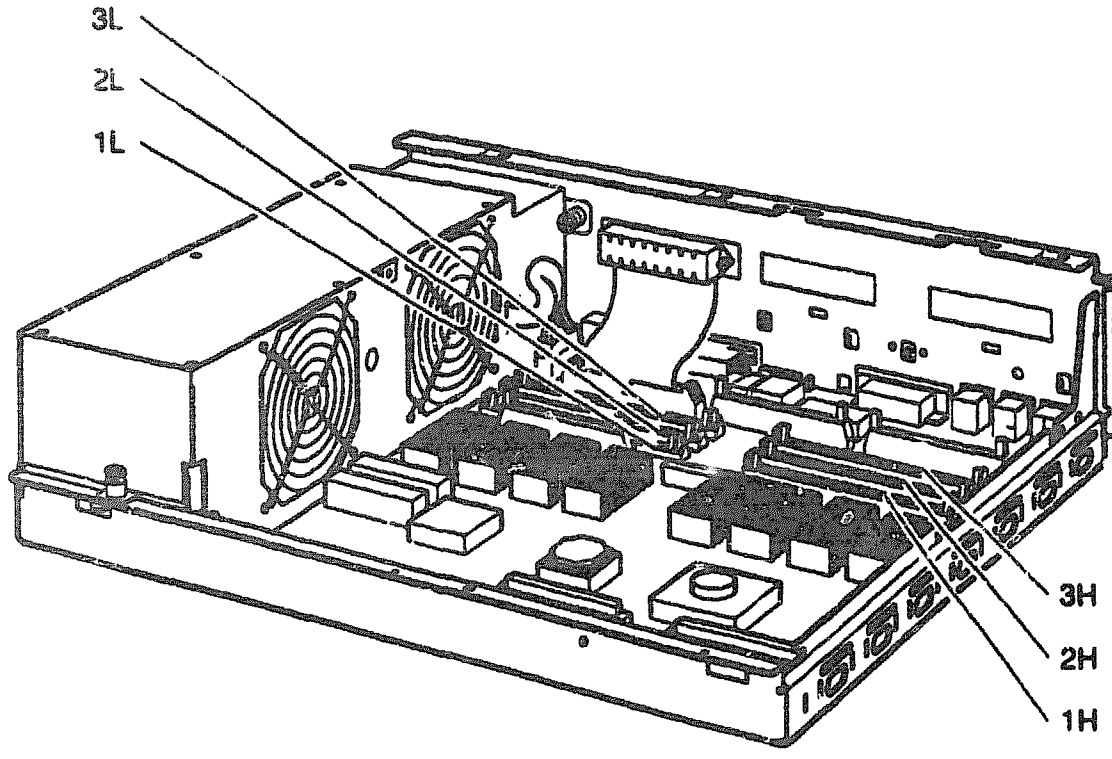
Table 1–3 Memory Configurations for the Model 30 System

Total Memory (bytes)	Onboard Memory (bytes)	Increment 1		Increment 2		Increment 3	
		1H[1]	1L	2H	2L	3H	3L
8M	8M						
16M	8M	MS44-AA[2]	MS44-AA				
24M	8M	MS44-AA	MS44-AA	MS44-AA	MS44-AA		
32M	8M	MS44-AA	MS44-AA	MS44-AA	MS44-AA	MS44-AA	MS44-AA

[1] 1H, 1L, 2H, 2L, 3H, 3L are connector identifiers (see Figure 1–5).

[2] The MS44-AA memory module is a 4M-byte memory module. Each MS44-BA memory option consists of two MS44-AA memory modules. You can use MS44L-AA memory modules in place of MS44-AA memory modules.

Figure 1–5 Memory Expansion Connectors on the KA45 CPU Module



1.5.2 Communications Options

Table 1–4 lists the communications options that a BA42-A enclosure system can contain.

Table 1–4 BA42-A Communications Options

Option Name	Description
Asynchronous Options	
DHW41-AA	Provides eight DEC423 asynchronous lines
DHW41-BA	Provides four EIA-232 asynchronous lines
Synchronous Options	
DSW41-AA[1]	Provides one EIA-232/V.24 synchronous line

[1]This option is supplied with an external cable that supports the EIA-232/V.24 interface.

The DSW41-AA option also supports the communications interfaces listed in Table 1–5, but you must order the external cable separately.

Table 1–5 DSW41-AA Communications Interface Support

Communications Interface	External Cable
EIA-423/V.10	BC19E-02
EIA-422/V.11	BC19B-02

All the communications options fit into the BA42-A enclosure in the same manner (see Figure 1–6). Each option contains three FRUs that are installed in the enclosure as follows:

- A logic board

  The logic board connects directly to the CPU module.

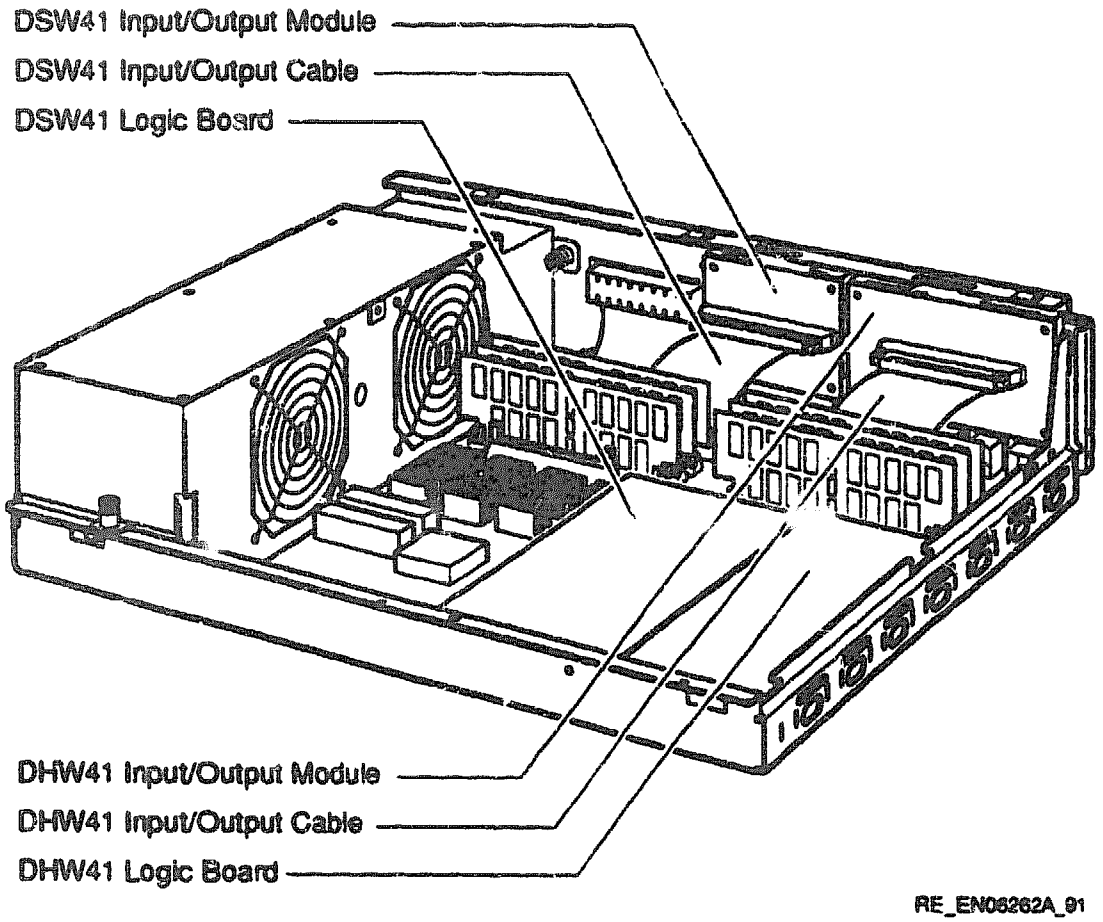
- An input/output cable

  The input/output cable connects the CPU module to the input/output module.

- An input/output module

  The input/output module is a snap-fit assembly that is attached to the inside of the back panel of the BA42-A enclosure.

Figure 1–6 Communications Options in the BA42-A Enclosure



1.5.3 Mass Storage Devices

Table 1–6 lists the mass storage devices that a BA42-A enclosure system can contain.

Table 1–6 BA42-A Mass Storage Devices

Option Name	Description	Size[1] (in)	Capacity
RZ23L	Disk drive	3.5	120M bytes
RZ24	Disk drive	3.5	200M bytes
RZ25	Disk drive	3.5	400M bytes
TZ30[2]	Tape drive	5.25	95-Mbyte cartridge
TZK10[2]	Tape drive	5.25	Range of cartridges[3]
RX26[2]	Diskette drive	3.5	Range of diskettes[4]

[1]Size of half-height device.

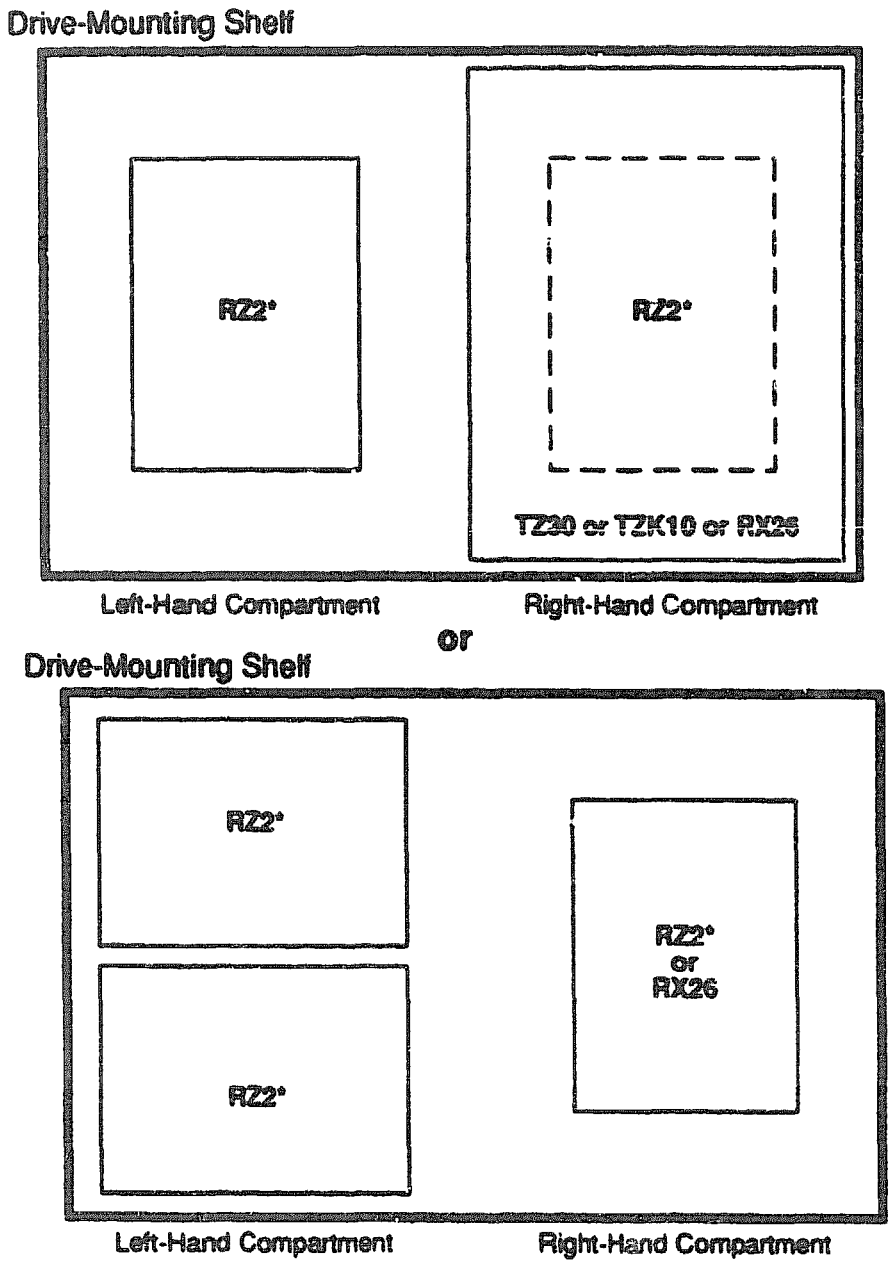
[2]Removable media device.

[3]Supports 320-Mbyte and 525-Mbyte cartridges.

[4]Supports 1.4-Mbyte and 2.8-Mbyte diskettes.

The BA42-A enclosure has a drive-mounting shelf for mass storage devices. The drive-mounting shelf provides two compartments for mass storage devices. The right compartment (when viewed from the front) can contain one device. The left compartment can contain one or two devices depending on the type of the device in the right compartment. The orientation of the devices depends on the number of devices that the system includes. Figure 1–7 shows the combinations of mass storage devices in a BA42-A enclosure.

Figure 1–7 Mass Storage Device Combinations in the BA42-A Enclosure



Note: RZ2* denotes RZ23L, RZ24, or RZ25 disk drives.

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CHAP 2

2
Installation

This chapter describes how to install a BA42-A system. It gives information on the following:

- Preparing the site
- Unpacking the system
- Installing a BA42-A system

2.1 Preparing the Site

Before you unpack the BA42-A system, verify the physical, environmental, and electrical requirements described in this section.

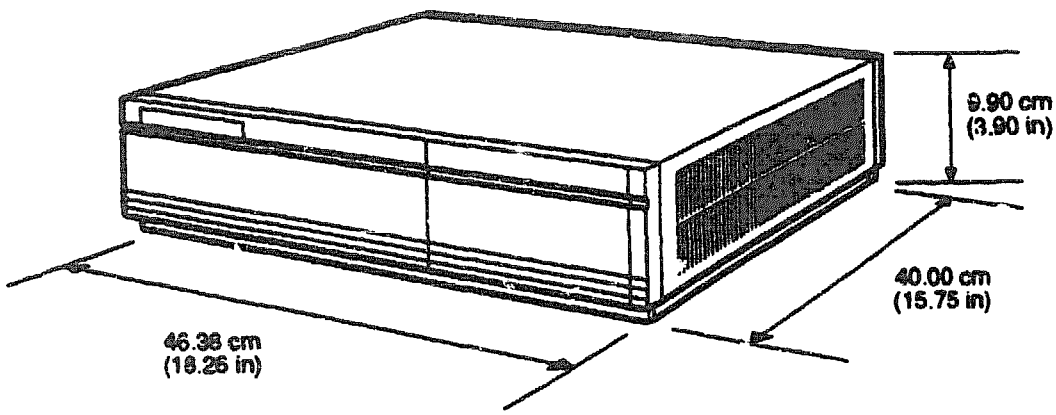
2.1.1 Dimensions

Figure 2–1 shows the dimensions of the BA42-A enclosure.

Caution

The container and enclosure together typically weigh 16.5 kilograms (kg) (36 pounds [lb]). Two people are required to handle the container.

Figure 2–1 BA42-A Dimensions



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The dimensions of the container are as follows:

- Height = 30.6 cm (12.0 inches)
- Width = 61.1 cm (24.0 inches)
- Depth = 51.0 cm (20.0 inches)

2.1.2 Additional Equipment

When you are installing additional equipment, follow these guidelines:

- Make sure that there is sufficient space for the terminals and other peripheral equipment.
- Make sure that you keep the mass storage devices in an area that has the same temperature and humidity as the computer area (see Table 2–1).
- When you plan the cable routing for multiple-terminal systems, consider factors such as safety, convenience, future expansion, and cost. Label and install the cables before you install the system.

2.1.3 Operating Environment

Computer systems in office areas are subject to electrostatic discharge (ESD), temperature changes, and humidity. To install the system in the correct environment, follow these guidelines:

- Install the system in a well-ventilated area where the temperature and humidity ranges listed in Table 2–1 are maintained during the year.
- Do not place a system near heating or cooling devices, large windows, or doors that open to the outside. Rapid changes of temperature can affect the performance of the system.
- Place the system in an area where the air contains a minimum of dust and other abrasive contaminants.

2.1.4 Electrostatic Discharge

ESD can cause system failures and loss of data. To minimize the buildup of static electricity, follow these guidelines:

- Maintain a relative humidity level of at least 40%.
- Place the system away from busy corridors.
- Carpet in the computer area is not recommended. However, if you want to use carpet, antistatic carpet is recommended. When carpet is already in use, put an antistatic mat under the system.

2.1.5 Heat Dissipation

A BA42-A enclosure system typically dissipates heat at the rate of 340 British thermal units/hour (Btu/h).

2.1.6 Temperature, Humidity, and Altitude Ranges

Table 2–1 gives the operating, nonoperating, and storage ranges for the temperature, humidity, and altitude for BA42-A enclosure systems.

Table 2–1 Temperature, Humidity, and Altitude Ranges

Parameter	Operating Range[1]	Nonoperating Range	Storage Range
Temperature	10°C to 40°C (50°F to 104°F)	-40°C to 66°C (-40°F to 151°F)	5°C to 50°C (41°F to 122°F)
Relative humidity[2]	10% to 90%	10% to 95%[2]	10% to 95%
Altitude	2400 m maximum (8000 ft maximum)	4900 m maximum (16 000 ft maximum)	
Rate of change of temperature	11°C per hour maximum (20°F per hour maximum)		

[1]For operation above sea level, decrease the operating temperature by 1.8°C per 1000 m (or 1°F per 1000 ft).

[2]At a temperature of 66°C.

2.1.7 Electrical Requirements

The power source to which the system connects must be capable of providing power to the system unit and any other additional equipment, such as local terminals and expansion boxes. Digital™ recommends that each system operates in a dedicated power circuit. Additional power equipment may be required to avoid power interruptions. Table 2–2 lists the electrical requirements of systems in BA42-A enclosures. The power supply unit in the system is autosensing. You do not have to select the input voltage.

Table 2–2 BA42-A Electrical Requirements

Parameter	Values
Nominal voltages	110 V ac or 220 V ac
Voltage ranges	100 V ac to 120 V ac (88 V rms[1] to 132 V rms) and 220 V ac to 240 V ac (176 V rms to 264 V rms)
Power source phase	Single
Nominal frequencies	50 Hz[2] or 60 Hz
Frequency range	47 Hz to 63 Hz
Maximum running current	1.0 A for 110 V ac systems and 0.5 A for 220 V ac systems
Steady state current	0.8 A for 110 V ac systems and 0.4 A for 220 V ac systems
Maximum inrush current	32 A
Maximum power consumption	100 W

[1]Root mean square (rms).

[2]Hertz (Hz).

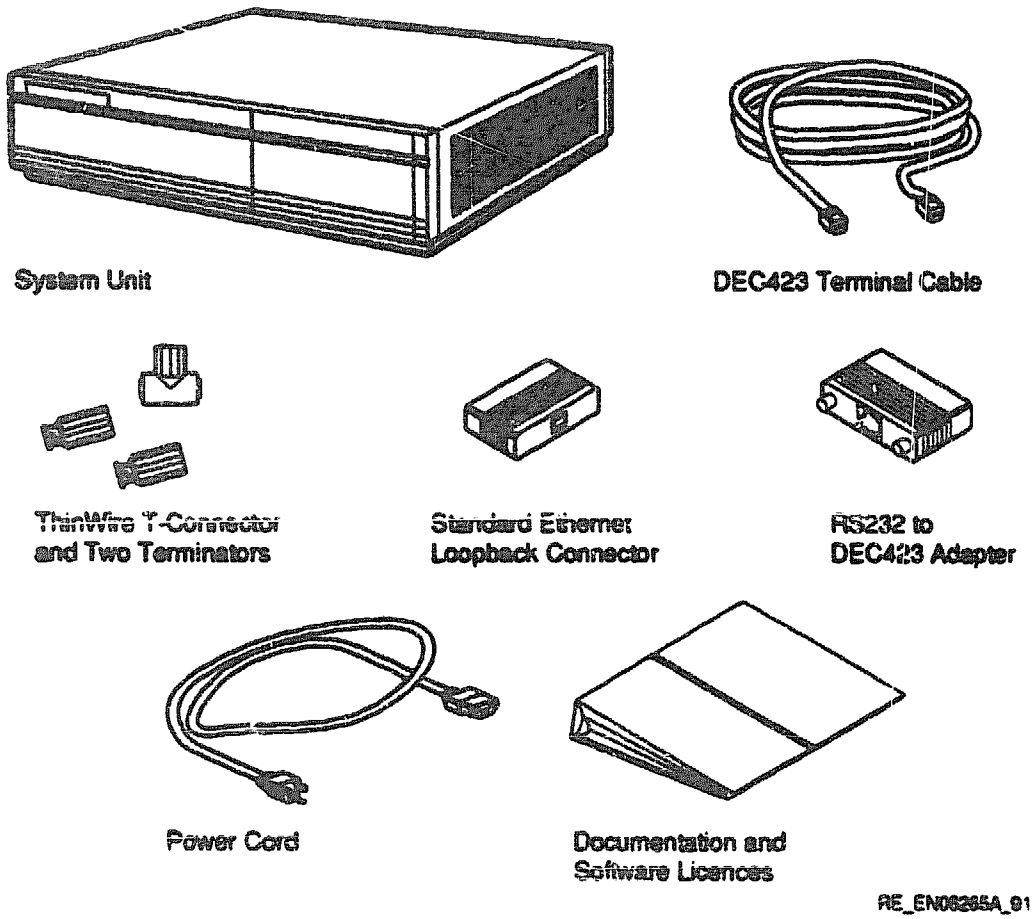
2.2 Unpacking the System

Open the container. Remove the box and the accessory tray. The box contains the system unit. The accessory tray contains the following:

- *Customer Hardware Information Kit*
- *VMS Factory Installed Software User Guide*
- Software licenses
- Power cord
- Other accessories

Expansion boxes are supplied in separate containers.

Figure 2–2 System Unit and Accessory Tray Contents



Depending on the system configuration, the contents of the container may differ from the items shown in Figure 2–2. When unpacking the system, do the following:

1. Check the contents of the container against the packing slip.
2. Store the unused parts for future use. Depending on how you set up the system, you may not use all the components supplied with the system.

Always repack the system unit in its original packing material when moving or relocating the system. This precaution protects the system from damage.

2.3 Installing the BA42-A System

Install the BA42-A enclosure according to the instructions in the following subsections.

2.3.1 Placing the BA42-A Enclosure

After you unpack the system, move the BA42-A enclosure to the location from which it will operate. Place the enclosure so that it satisfies the following space requirements:

- Allow 5 cm (2 inches approximately) of clearance on each side of the enclosure for ventilation.
- Allow 10 cm (4 inches approximately) of clearance on the back of the enclosure for the connection of cables.
- Allow 20 cm (8 inches approximately) of clearance on the front of the enclosure so that you can reach the removable media devices, depending on the system configuration.

2.3.2 Identifying the Ports and Connectors on the System Unit

Figure 1–2 shows the ports and connectors in a BA42-A enclosure system. Section 1.2 describes the functions of the controls, indicators, ports, and connectors in a BA42-A enclosure system.

2.3.3 Connecting the Console Terminal to the System Unit

To connect a console terminal to a BA42-A enclosure system, follow these steps:

1. Make sure that the on/off switch on the terminal is in the off position.
2. Set the communication parameters of the terminal (see Table 2–3).

Table 2–3 Terminal Settings

Feature	Setting
Terminal mode	VTnnn-7bit
Transmit speed	9600 baud
Receive speed	receive = transmit
Character format	8 bits, no parity
Stop bits	1
Comm1 port	DEC-423 (data-leads-only)

See the terminal documentation if you want more information on setting up the terminal.

Note

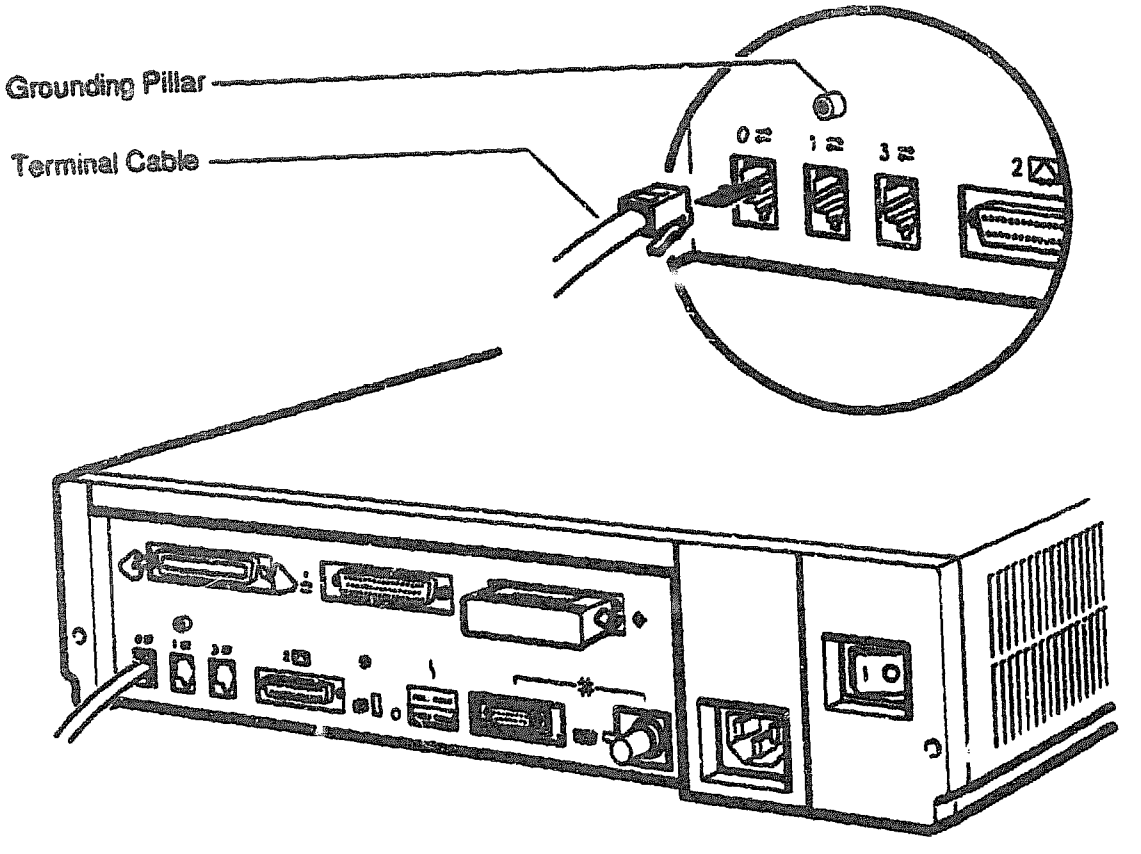
If you connect the terminal cable to one of the MMJ ports on the back of a VT3xx terminal, you must set the port so that it can operate as a DEC423 port. See the terminal documentation for more information.

3. Connect the terminal cable supplied with the system (see Figure 2–2) to MMJ port 3 on the back of the system unit (see Figure 2–3). Connect the other end of the terminal cable to a DEC423 port on the terminal.
4. If the terminal has EIA-232 ports only, connect the EIA-232 to DEC423 adapter to the EIA-232 port on the terminal; then connect the terminal cable to the EIA-232 to DEC423 adapter.

Note

Some terminal cables have an earth drain wire. You must connect this earth drain wire to the grounding pillar above MMJ port 1, using the screw provided with the cable.

Figure 2–3 Connecting the Console Terminal



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2.3.4 Connecting the ThinWire Terminator or Loopback Connector

You can connect a BA42-A enclosure system to either a ThinWire Ethernet network or a standard Ethernet network. To test the Ethernet circuitry in the system unit before you connect to a network, install either the ThinWire terminator or the standard Ethernet loopback connector.

The ThinWire terminator and the standard Ethernet loopback connector are supplied with BA42-A systems (see Figure 2–2). The ThinWire terminator consists of a T-connector and two terminators. The standard Ethernet loopback connector is a single unit.

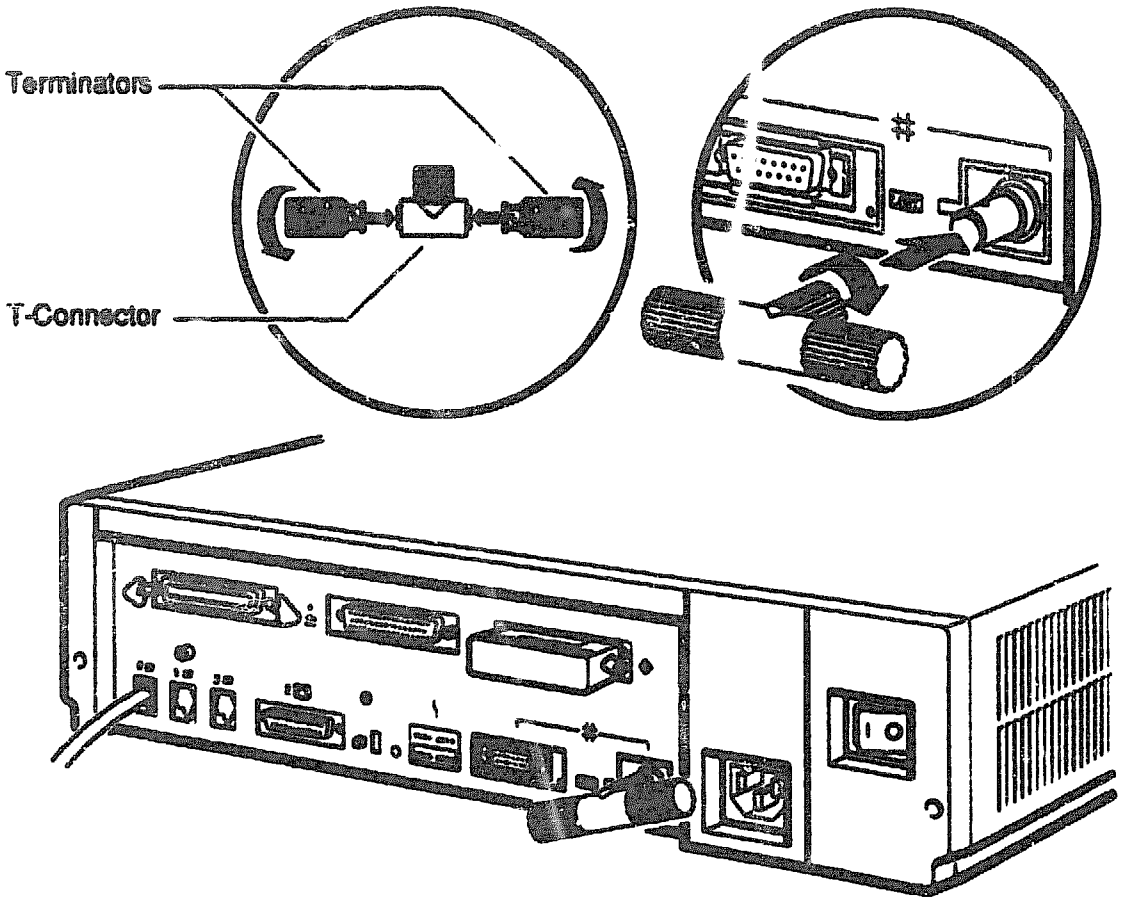
You choose the network type using the Ethernet switch on the back of the system unit (see Figure 1–2). The switch settings for the network types are as follows:

- Left position—standard Ethernet
- Right position—ThinWire Ethernet

When you want to use a ThinWire Ethernet network, follow these steps:

1. Set the Ethernet switch to the right position.
2. To form a ThinWire terminator, connect the two terminators (see Figure 2–4) to the T-connector.
3. Connect the ThinWire terminator to the ThinWire Ethernet port on the back of the system unit turning the barrel connector clockwise until it locks (see Figure 2–4).

Figure 2–4 Connecting the ThinWire Terminator to the System Unit



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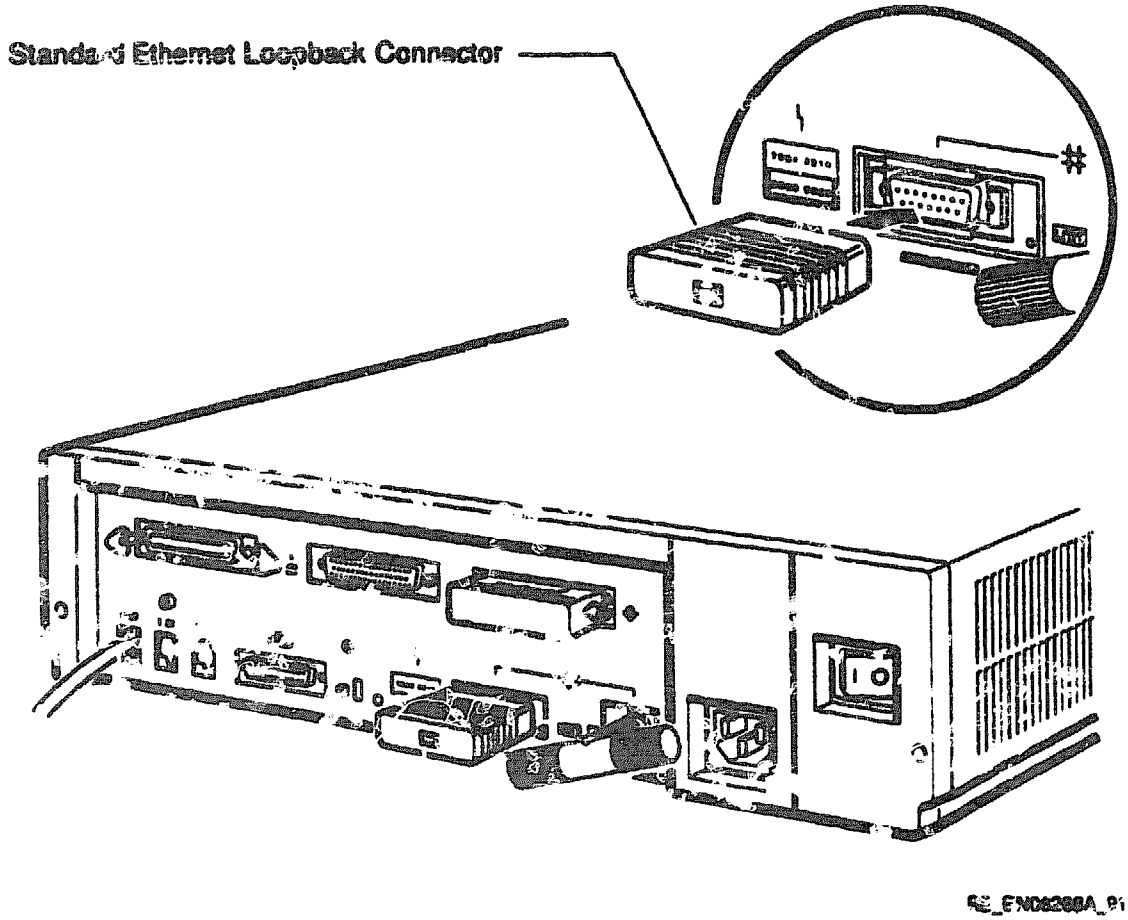
If you want to use a standard Ethernet network, follow these steps:

1. Set the Ethernet switch to the left position.
2. Connect the standard Ethernet loopback connector to the standard Ethernet port on the back of the system unit (see Figure 2–5).

Figure 2–5 Connecting the Standard Ethernet Loopback Connector to the System Unit



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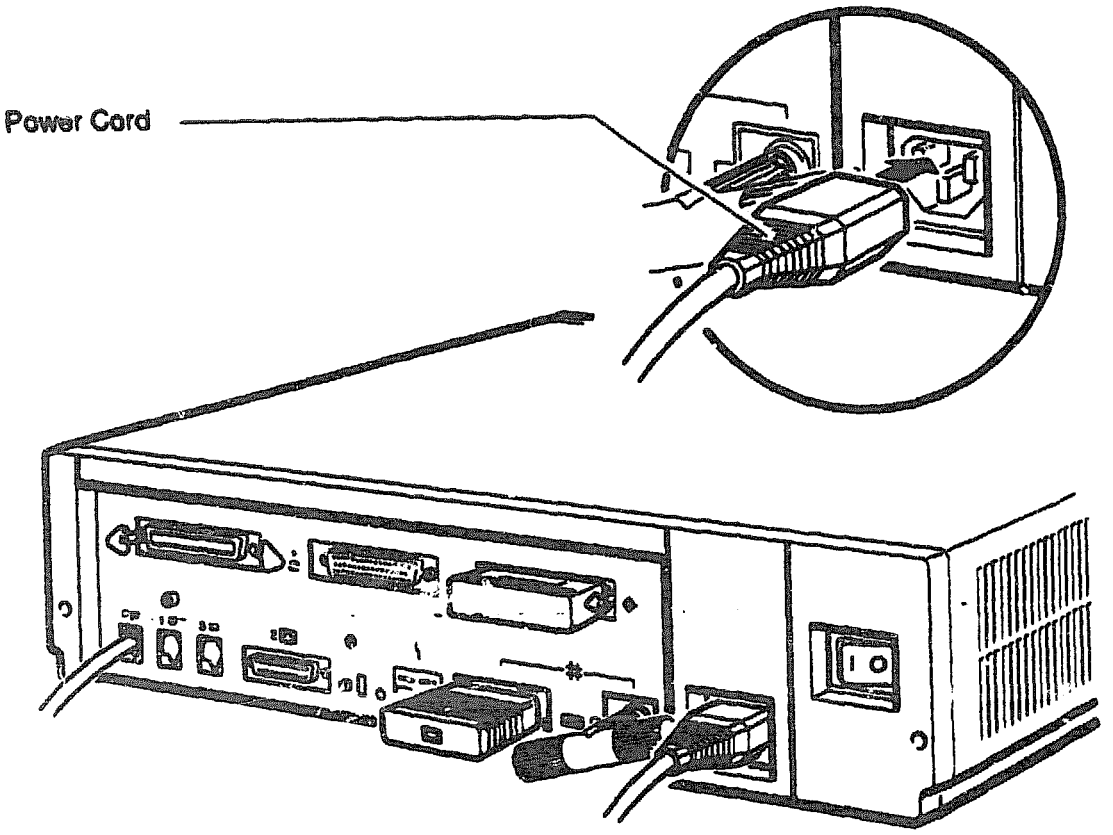
2.3.5 Connecting the System Unit Power Cord

A BA42-A enclosure system accepts 100 V ac to 120 V ac at 50 Hz or 60 Hz, or 220 V ac to 240 V ac at 50 Hz or 60 Hz. The power supply unit is self-sensing. You do not have to select the input voltage. To connect the system unit power cord, follow these steps:

1. Set the on/off switch on the back of the system unit to the off (O) position.
2. Connect the power cord, supplied with the system (see Figure 2–2), to the ac power socket on the back of the system unit (see Figure 2–6).
3. Connect the other end of the power cord to a grounded power outlet.

Figure 2–6 Connecting the System Unit Power Cord



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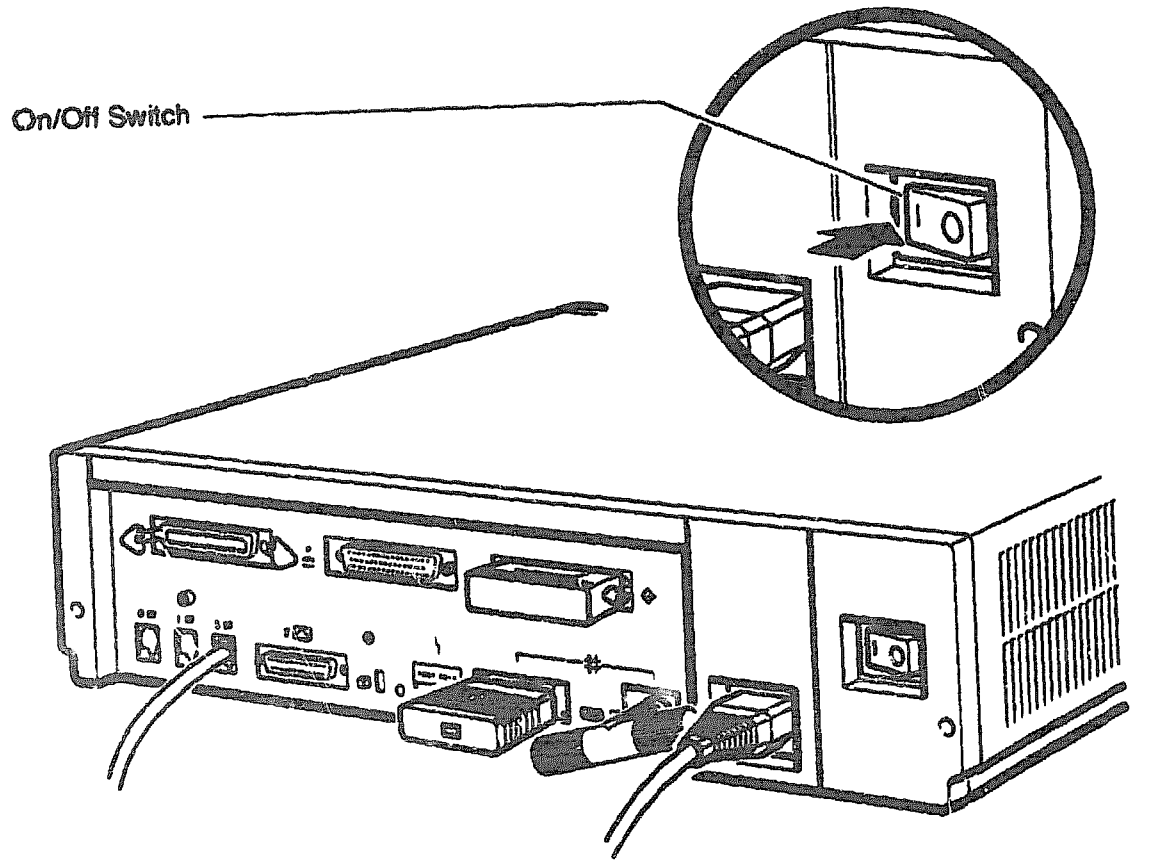
2.3.6 Turning On the System

To turn on the system, follow these steps:

1. Set the on/off switch on the terminal to the on position.
2. Set the on/off switch on the system unit to the on (|) position (see Figure 2–7).

Figure 2–7 Turning On the System Unit



See the *KA45 CPU System Maintenance* manual for information about the self-tests that run when you turn on the system.


CHAP 3

3

Removing and Replacing FRUs

This chapter describes how to remove and replace the FRUs in the BA42-A enclosure. It gives information on the following:

- Removing the enclosure cover
- Removing an MS44 or MS44L memory module
- Removing an RZ23L, RZ24, or RZ25 disk drive from the drive-mounting shelf
- Removing an RX26 diskette drive assembly
- Removing a TZ30 tape drive
- Removing a TZK10 tape drive
- Removing the drive-mounting shelf
- Removing the SCSI cable clamp
- Removing a DSW41 synchronous communications option
- Removing a DHW41 asynchronous communications option
- Removing the CPU module
- Replacing the CPU module
- Removing the power supply unit

Note

Unless otherwise specified, you can replace an FRU by reversing the steps described in the removal procedure.

Table 3–1 lists the major FRUs in the BA42-A enclosure. It also gives the order numbers for the FRUs and a reference to a section in this chapter that gives information on how to replace the FRU. See the *Options* manual for more information about options. Appendix B gives a complete list of the spare parts for the BA42-A enclosure. Figure 3–1 shows the locations of the major FRUs in the BA42-A enclosure.

Caution

- Only qualified personnel should remove or install the FRUs.
- Before you remove or install the FRUs, turn off the system unit and disconnect the power cord.
- Static electricity can damage integrated circuits. Wear a wrist strap and place an antistatic mat under the system unit when working with the internal parts of the system unit.

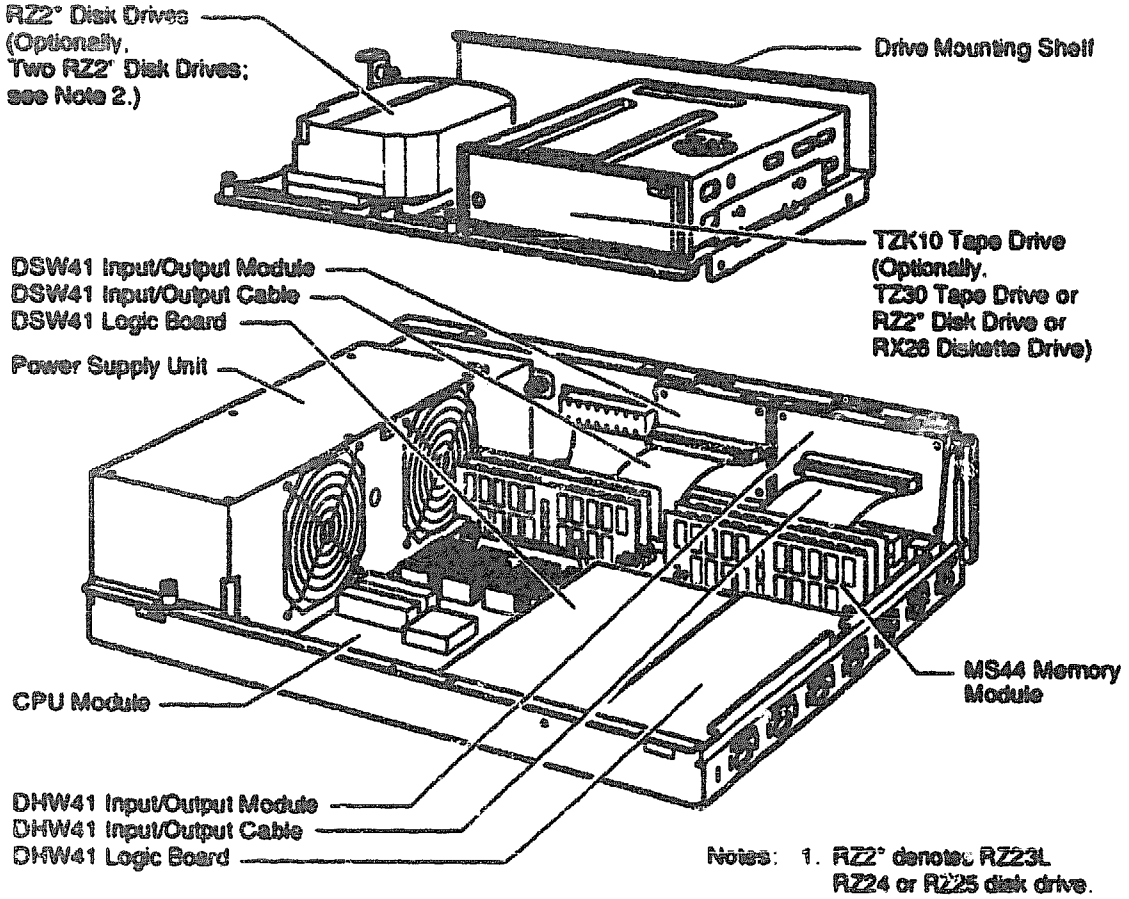
You must have the following tools to replace the FRUs in a MicroVAX 3100 Model 30 system:

- A number 1, Philips screwdriver
- A flat screwdriver

Table 3–1 Major FRUs in the BA42-A Enclosure

FRU	Order Numbers	Section
Memory module	MS44-AA, MS44L-AA	3.2
Disk drive	RZ23L-E	3.3
Disk drive	RZ24-E	3.3
Disk drive	RZ25-E	3.3
Diskette drive	RX26-AA	3.4
Tape drive	TZ30-AX	3.5
Tape drive	TZK10-AA	3.6
Synchronous communications option	DSW41-AA	3.9
Asynchronous communications option	DHW41-AA, -BA	3.10
KA45 CPU module	54-20654-01	3.11
Power supply unit	H7083-AA	3.13

Figure 3–1 Major FRUs in the BA42-A Enclosure



Notes: 1. RZ2* denotes RZ23L, RZ24 or RZ25 disk drive.
2. Applies only when device in right compartment is RZ2* or RX26.

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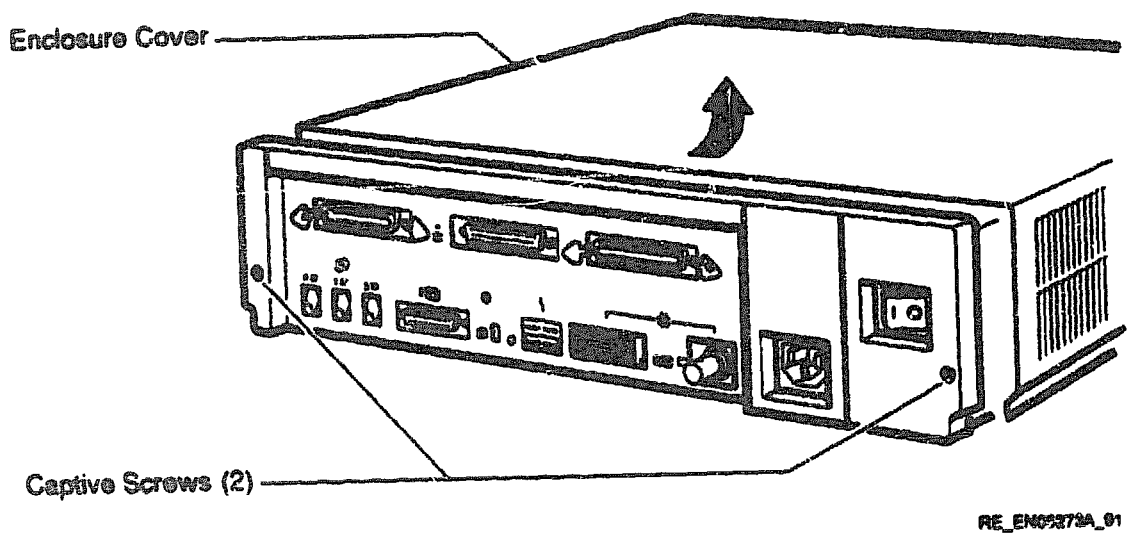
3.1 Removing the Enclosure Cover

To remove the enclosure cover, follow these steps:

1. Set the on/off switch on the system unit to the off (O) position.
2. Disconnect the cables, loopback connectors, and terminators that are connected to the system unit.
3. Loosen the two captive screws (12-30338-05) on the back of the system unit (see Figure 3–2).
4. Slide the cover forward and lift it up from the system unit.

Figure 3–2 Removing the Enclosure Cover



3.2 Removing an MS44 or MS44L Memory Module

To remove an MS44 or MS44L memory module, follow these steps:

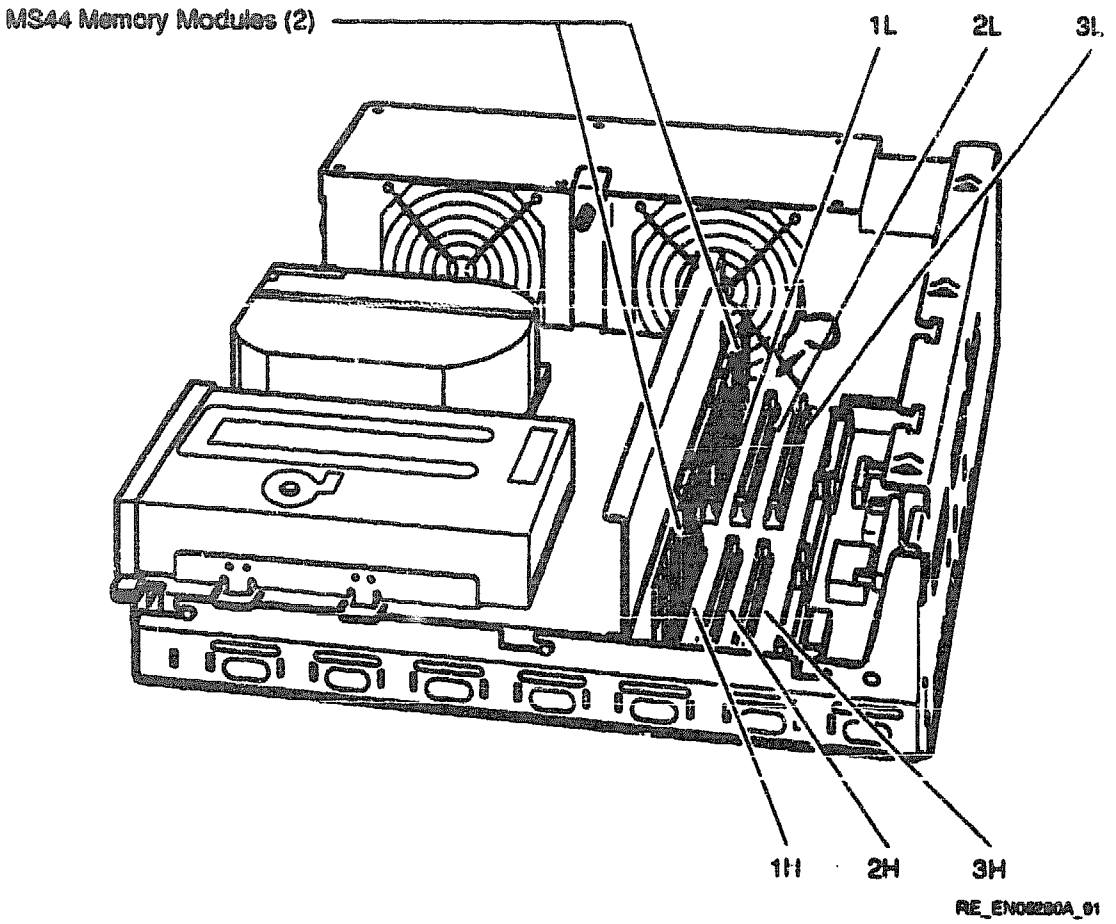
1. Remove the enclosure cover (see Section 3.1).

Caution

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

2. Locate the faulty memory module. Figure 3–3 shows the location of the memory module connectors on the CPU module.

Figure 3–3 Memory Module Connectors on the CPU Module



Note

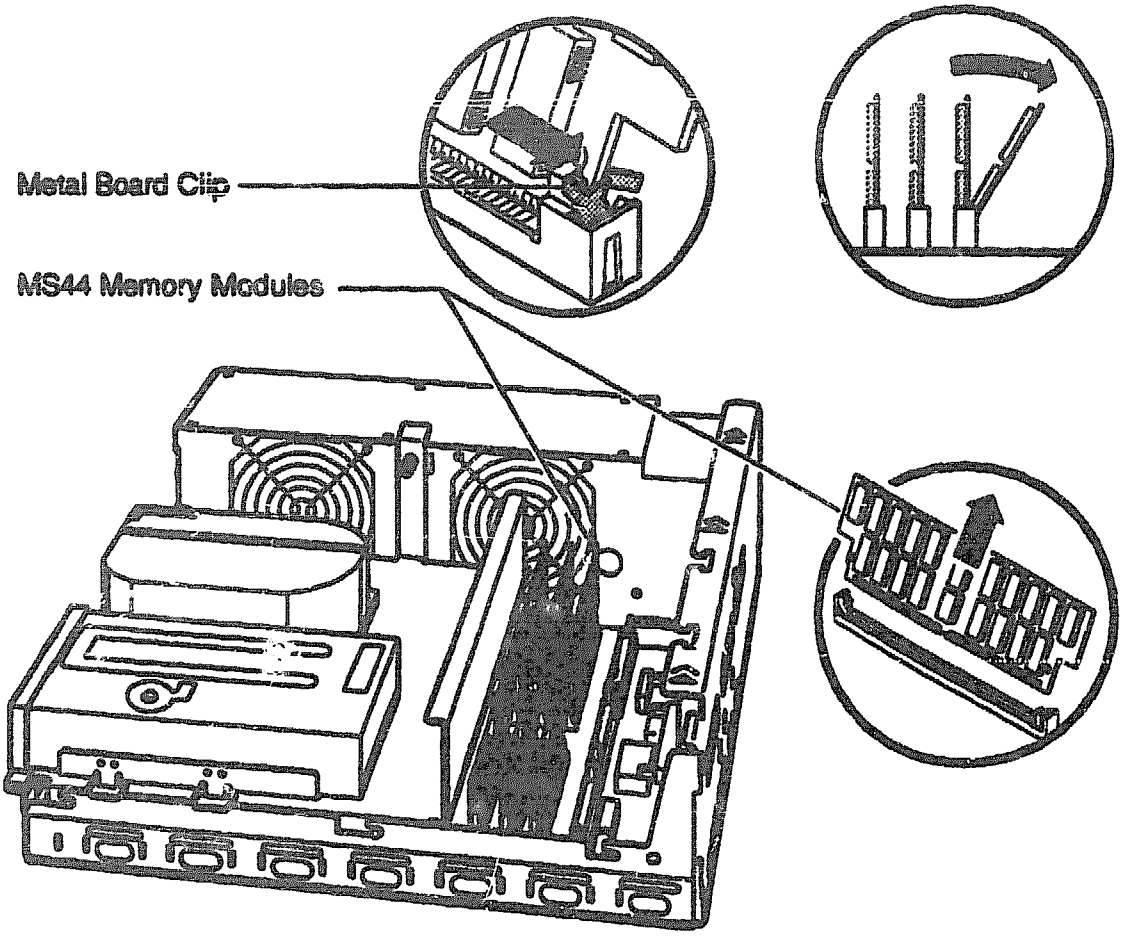
- Note the position of the faulty memory module on the CPU module. You must install a replacement memory module in this position.
- You may have to remove one or two memory modules to reach the faulty memory module. Note carefully the position of each memory module you remove.

3. Push the metal board clips on the memory module connector away from the center. Tilt the memory module towards the back of the enclosure, and lift the memory module out of its connector (see Figure 3–4).

Caution

When installing an MS44L memory module, note that the connectors on the CPU module are keyed so that you cannot install the MS44L memory module with an incorrect orientation. Do not try to force a module into a connector with an incorrect orientation.

Figure 3–4 Removing a Memory Module



3.3 Removing an RZ23L, RZ24, or RZ25 Disk Drive

Depending on the system configuration, the drive-mounting shelf in the BA42-A enclosure can contain RZ23L, RZ24, or RZ25 disk drives in the left and right compartments, when viewed from the front. The orientation of the disk drives in the left compartment depends on the type of device in the right compartment (see Section 1.5). You can remove a disk drive from the enclosure without removing the drive-mounting shelf. To remove an RZ23L, an RZ24, or an RZ25 disk drive from the BA42-A enclosure, follow these steps:

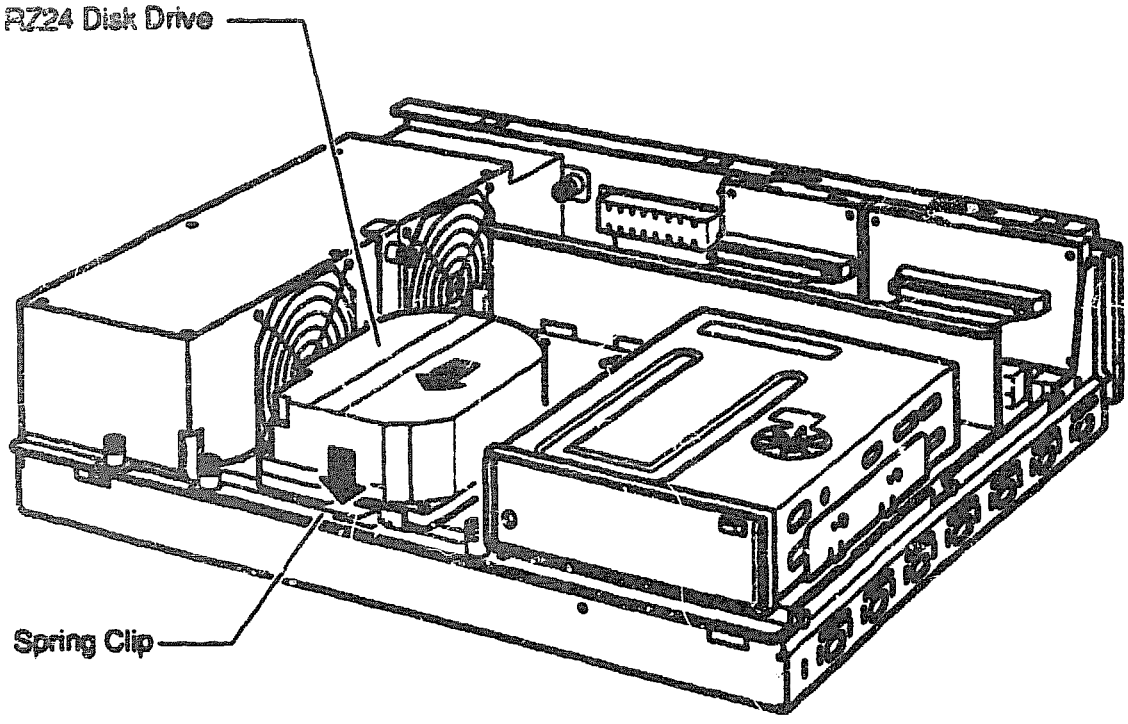
1. Remove the enclosure cover (see Section 3.1).

Note

- You can disconnect the cables from a disk drive more easily after you remove the disk drive from the drive-mounting shelf.
- When disconnecting cables, you must note which cables connect to which drives. On the SCSI cable, note the number on the connector pull-tab.

2. Press and hold the spring clip that locks the disk drive in position.
3. Push the disk drive towards the spring clip until the rubber grommets under the disk drive release from the cutouts in the drive-mounting shelf (see Figure 3–5). Lift the disk drive up from the drive-mounting shelf and release the spring clip.

Figure 3–5 Removing an RZ23L, RZ24, or RZ25 Disk Drive



4. Disconnect the SCSI cable from the back of the disk drive by pulling the pull-tab. Figure 1–4 shows the signal cables in the BA42-A enclosure.
5. Disconnect the power cable from the back of the disk drive. Figure 1–3 shows the power cables in the BA42-A enclosure.

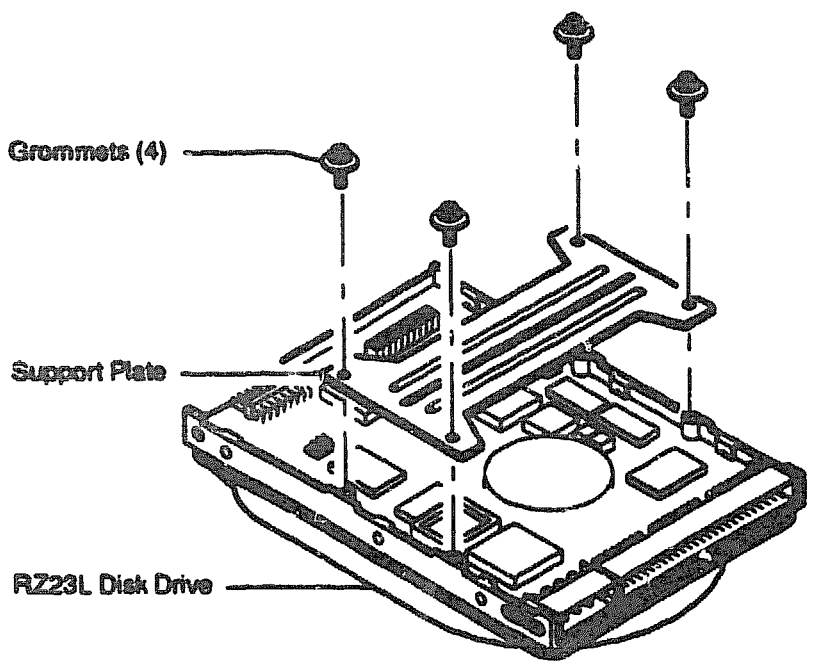
3.3.1 Separating the Support Plate from an RZ23L or an RZ24 Disk Drive

When you are replacing an RZ23L or an RZ24 disk drive, you must remove the support plate (17-41364-01) and the rubber grommets (12-31734-01), which are attached to the faulty disk drive (RZ23L-E or RZ24-E), and install these items on the replacement drive. The following procedure describes how to remove the support plate and rubber grommets from an RZ23L disk drive. The procedure for removing the support plate and rubber grommets from an RZ24 disk drive is the same. To remove the support plate and rubber grommets from an RZ23L disk drive, follow these steps:

1. Position the disk drive so that the bottom of the disk drive faces up.

2. Remove the four screws and the attached grommets (see Figure 3–6). These screws secure the support plate to the disk drive.

Figure 3–6 Separating the Support Plate from the Disk Drive



3. Remove the support plate from the disk drive.
4. Keep the four screws with the attached grommets and the support plate in a safe place. You must install them on the replacement disk drive.

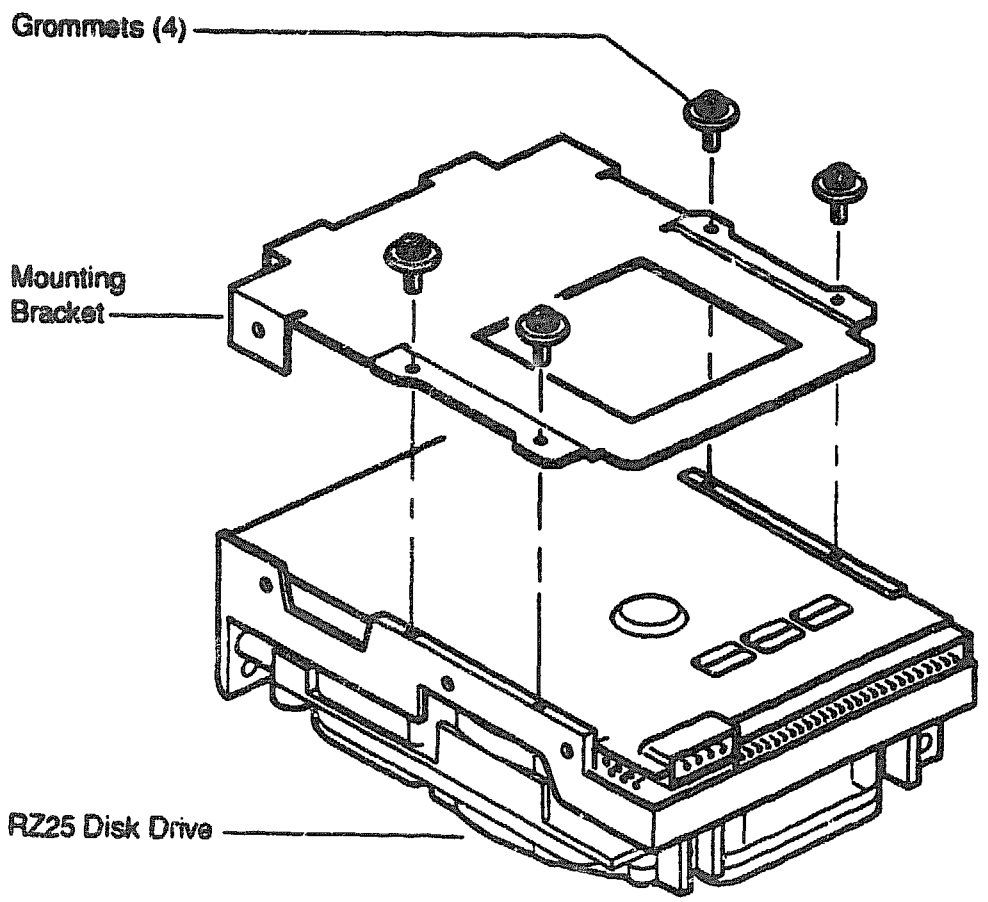
3.3.2 Separating the Mounting Bracket from an RZ25 Disk Drive

When you are replacing an RZ25 disk drive, you must remove the mounting bracket (74-44226-01) and the rubber grommets (12-31734-01), which are attached to the faulty disk drive (RZ25-E), and install these items on the replacement drive. To remove the mounting bracket and rubber grommets from an RZ25 disk drive, follow these steps:

1. Position the disk drive so that the bottom of the disk drive faces up.

2. Remove the four screws and the attached grommets (see Figure 3–7). These screws secure the mounting bracket to the disk drive.

Figure 3–7 Separating the Mounting Bracket from the RZ25 Disk Drive



3. Remove the mounting bracket from the disk drive.
4. Keep the four screws with the attached grommets and the mounting bracket in a safe place. You must install them on the replacement disk drive.

3.3.3 Setting the SCSI ID on the Replacement Disk Drive

To set the SCSI ID on a replacement disk drive, follow these steps:

1. Note the SCSI ID switch settings on the disk drive you removed. The locations of the SCSI ID jumper wires on the various types of disk drive are shown in the following figures:
   - RZ23L—see Figure 3–8
   - RZ24—see Figure 3–9
   - RZ25—see Figure 3–10
2. Set the SCSI ID switches on the replacement disk drive to the same settings as the SCSI ID switches of the disk drive you removed.

Figure 3–8 RZ23L Disk Drive SCSI ID Jumper Wire Locations

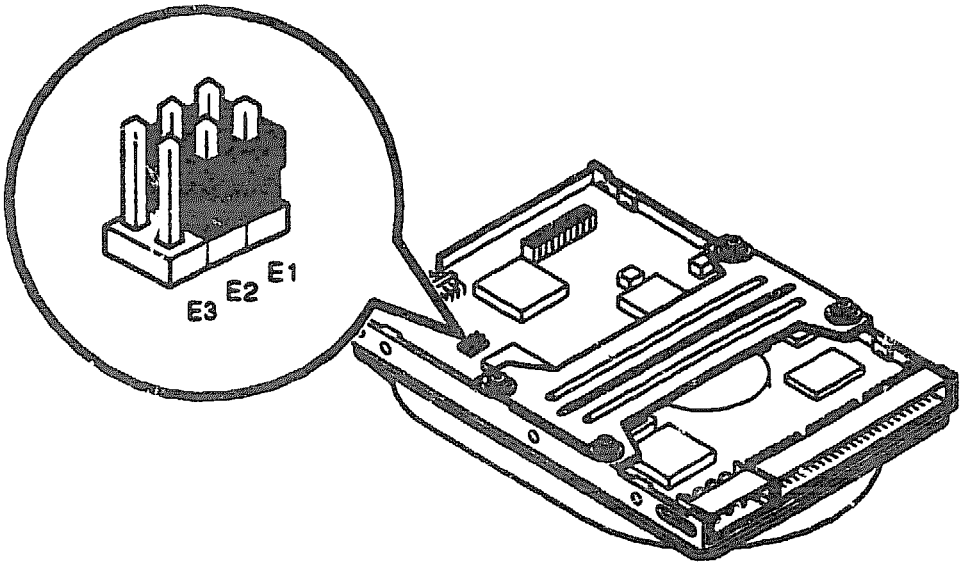


Figure 3–9 RZ24 Disk Drive SCSI ID Jumper Wire Locations

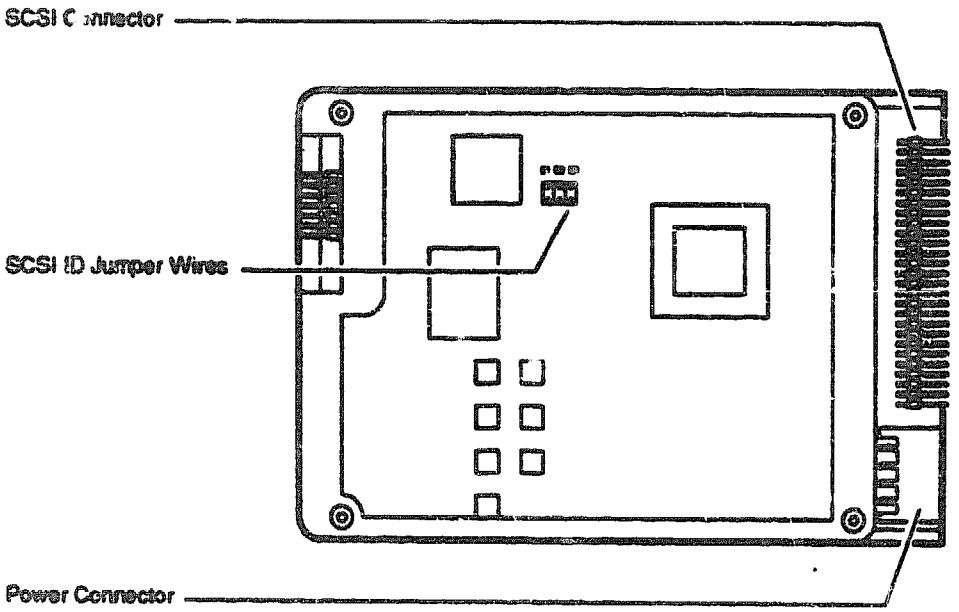
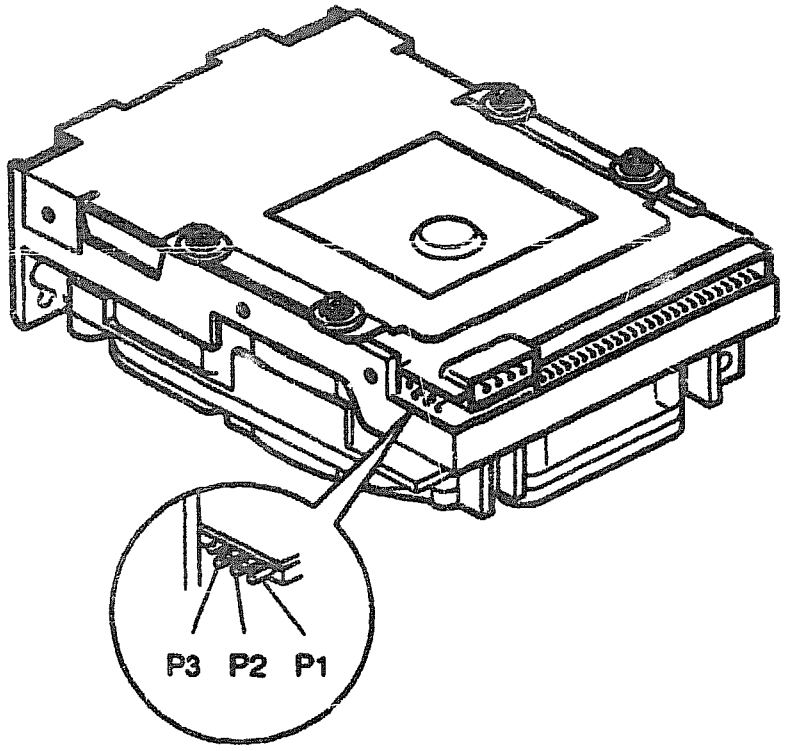


Figure 3–10 RZ25 Disk Drive SCSI ID Jumper Wire Locations



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See the *Options* manual for more information about setting the SCSI ID of the RZ23L, RZ24, and RZ25 disk drives.

3.4 Removing the RX26 Diskette Drive Assembly

The RX26 diskette drive assembly (when installed) is on the right side of the drive-mounting shelf when viewed from the front. The RX26 diskette drive assembly contains three FRUs as follows:

- RX26-AA diskette drive
- RX26 FDI/SCSI board (54-20764-02)
- RX26 ribbon cable (17-00285-00)

To remove the RX26 diskette drive assembly from the BA42-A enclosure, follow these steps:

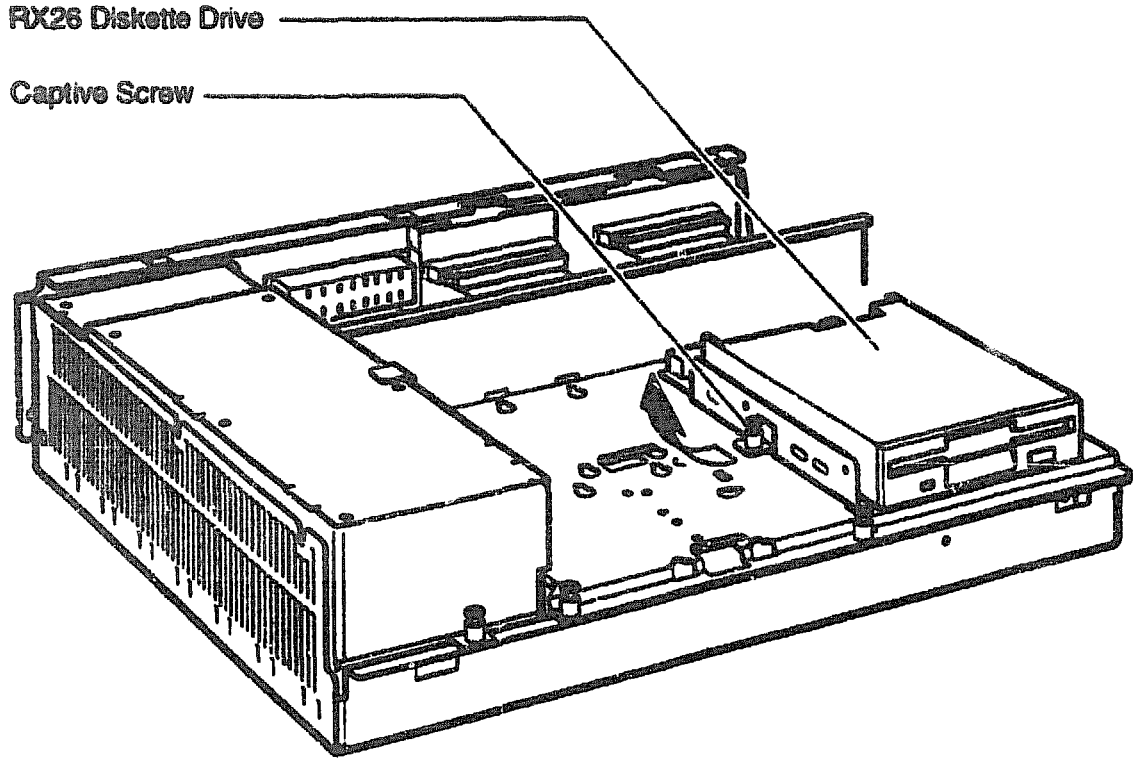
1. Remove the enclosure cover (see Section 3.1).

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.

2. Disconnect the power cable from the back of the RX26 diskette drive. Figure 1–3 shows the power cables in the BA42-A enclosure.
3. Disconnect the power cable from the floppy diskette interface/small computer system interface (FDI/SCSI) board.
4. Disconnect the SCSI cable from the back of the FDI/SCSI board by pulling the pull-tab. Figure 1–4 shows the signal cables in the BA42-A enclosure.
5. Loosen the captive screw that secures the mounting bracket to the drive-mounting shelf (see Figure 3–11).

Figure 3–11 Removing an RX26 Diskette Drive



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6. Lift the left side of the RX26 diskette drive assembly and pull the diskette drive assembly to the left until the tabs on the right side of the mounting bracket are clear of the cutouts in the drive-mounting shelf.
7. Lift the RX26 diskette drive assembly out of the BA42-A enclosure.

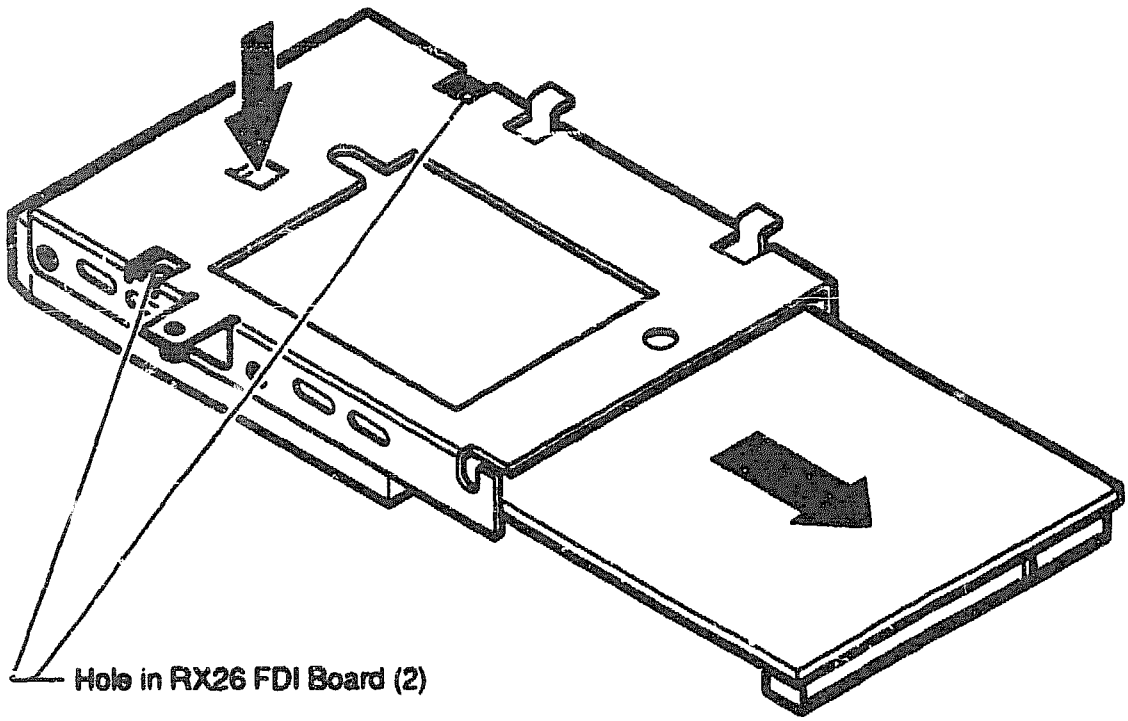
3.4.1 Removing the RX26 FDI/SCSI Board

To remove the FDI/SCSI board from the RX26 mounting bracket, follow these steps:

1. Disconnect the ribbon cable that connects the RX26 diskette drive to the RX26 FDI/SCSI board.
2. Turn the RX26 diskette drive assembly over so that the base of the mounting bracket faces up.

3. Press firmly on the front edge of the FDI/SCSI board with your finger. When the two holes on the front edge of the FDI/SCSI board are clear of the tabs in the RX26 mounting bracket, slide the RX26 FDI/SCSI board out of the RX26 mounting bracket (see Figure 3–12).

Figure 3–12 Removing the RX26 FDI/SCSI Board

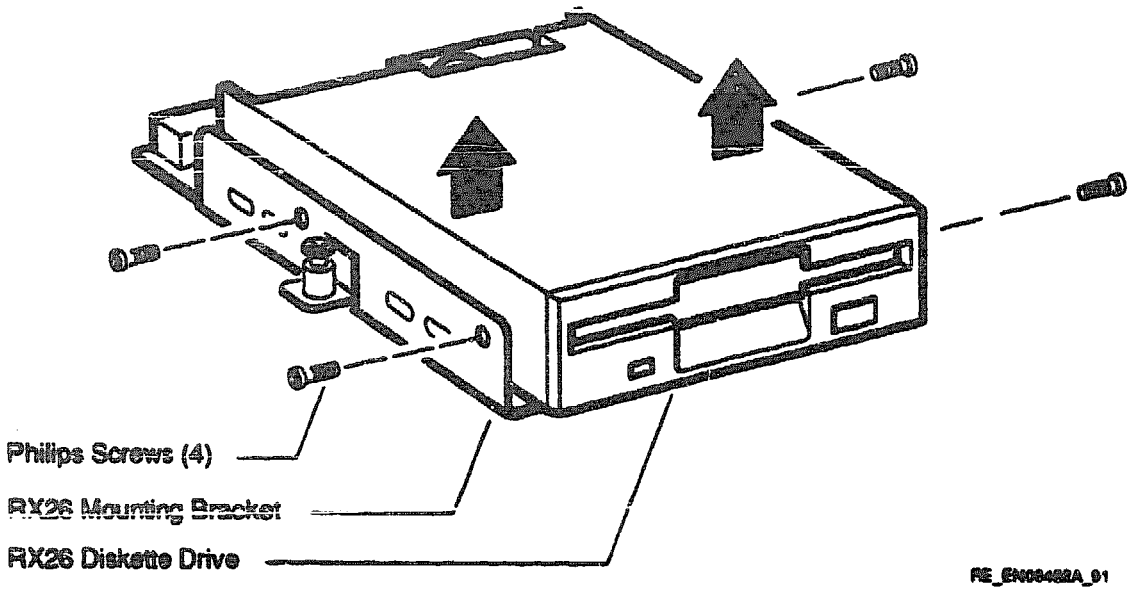


3.4.2 Separating the RX26 Diskette Drive from the Mounting Bracket

When you are installing a replacement RX26 diskette drive, you must use the mounting bracket (70-29669-01) that is attached to the faulty RX26 diskette drive (RX26-AA). To separate the RX26 diskette drive from its mounting bracket, follow these steps:

1. Remove the four screws (90-10961-03) that secure the RX26 mounting bracket to the RX26 diskette drive.
2. Separate the mounting bracket from the RX26 diskette drive (see Figure 3–13).

Figure 3–13 Separating the Mounting Bracket from the RX26 Diskette Drive

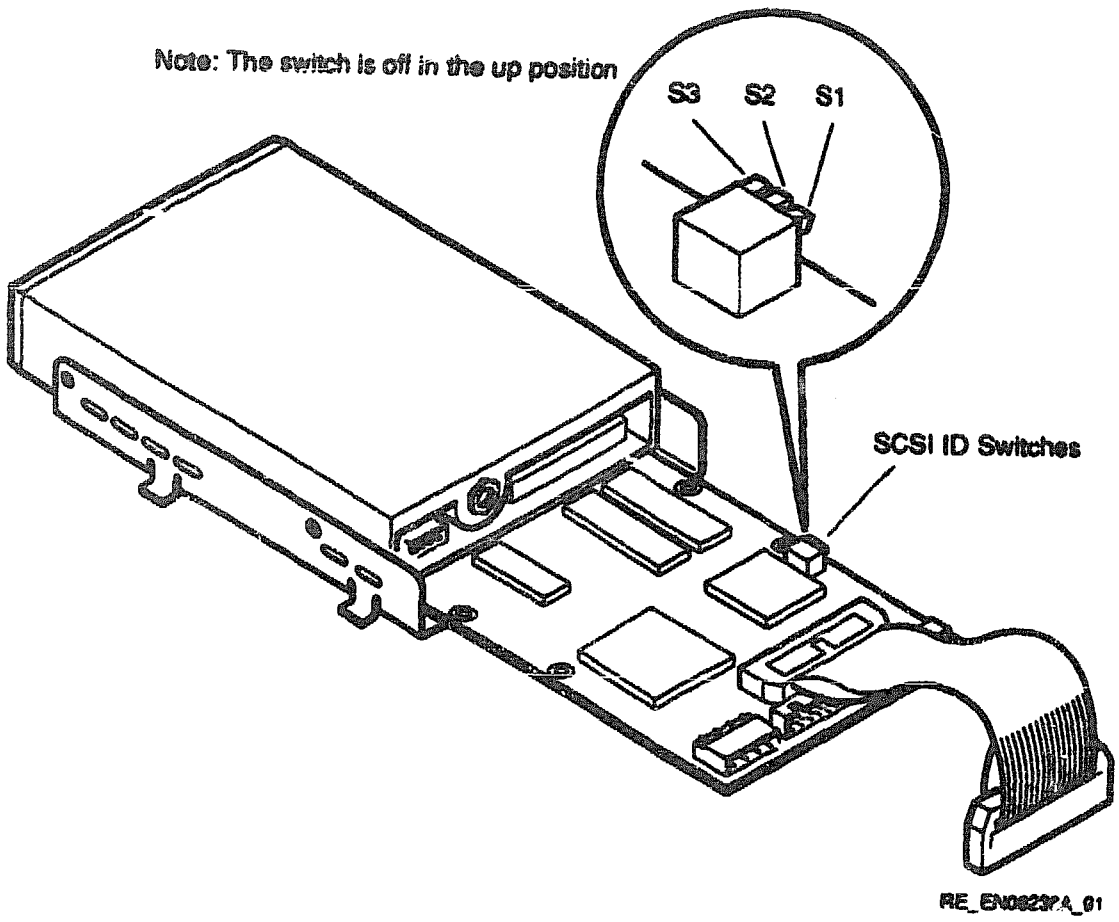


3.4.3 Setting the SCSI ID on the Replacement RX26 FDI/SCSI Board

When replacing the FDI/SCSI board, you must set the SCSI ID of the replacement board to the SCSI ID of the board you removed. To set the SCSI ID on a replacement RX26 FDI/SCSI board, follow these steps:

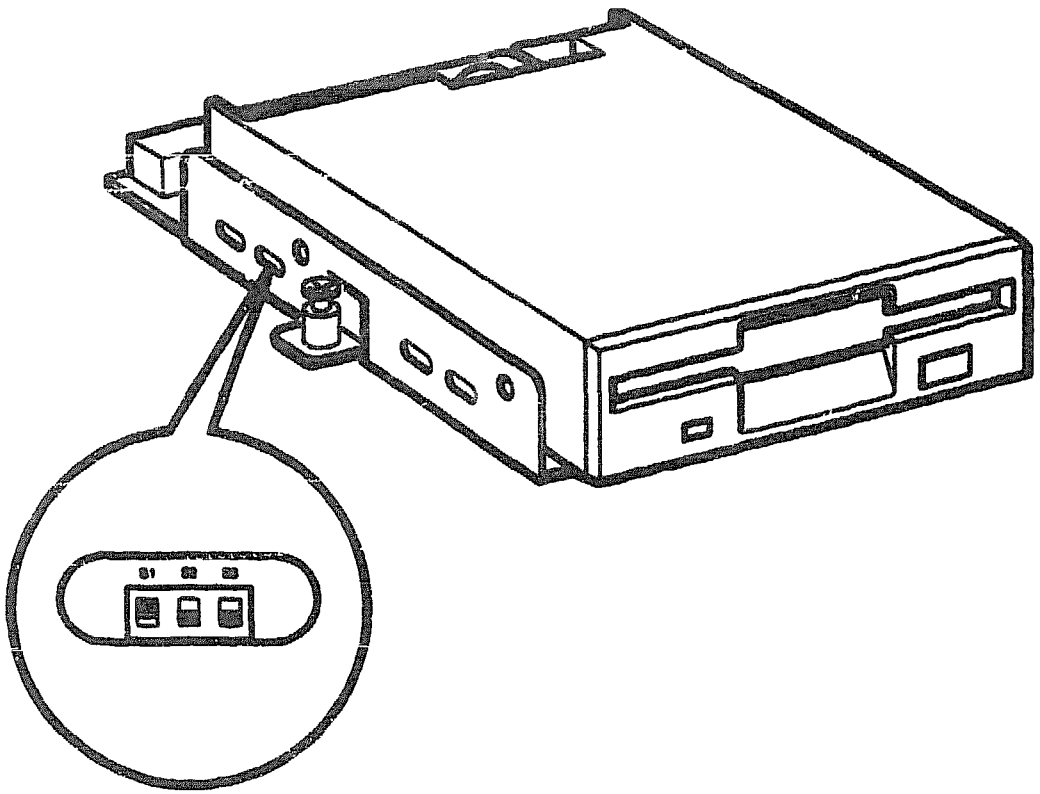
1. Note the SCSI ID switch settings on the RX26 FDI/SCSI board you removed. Figure 3–14 shows the location of the SCSI ID switches on the FDI/SCSI board.
2. Set the SCSI ID switches on the replacement RX26 FDI/SCSI board to the same settings as the SCSI ID switches of the RX26 FDI/SCSI board you removed.

Figure 3–14 Location of the SCSI ID Switches on the RX26 FDI/SCSI Board



After you install the FDI/SCSI board and connect the RX26 ribbon cable, you can reach the SCSI ID switches through a ventilation slot in the mounting bracket (see Figure 3–15).

Figure 3–15 How to Reach the SCSI ID Switches on the RX26 FDI/SCSI Board



Note: The SCSI ID shown is 4 (S1 is on, S2 is off, and S3 is off).

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3.5 Removing a TZ30 Tape Drive

The TZ30 tape drive (when installed) is on the right side of the drive-mounting shelf, when viewed from the front. To remove a TZ30 tape drive from the BA42-A enclosure, follow these steps:

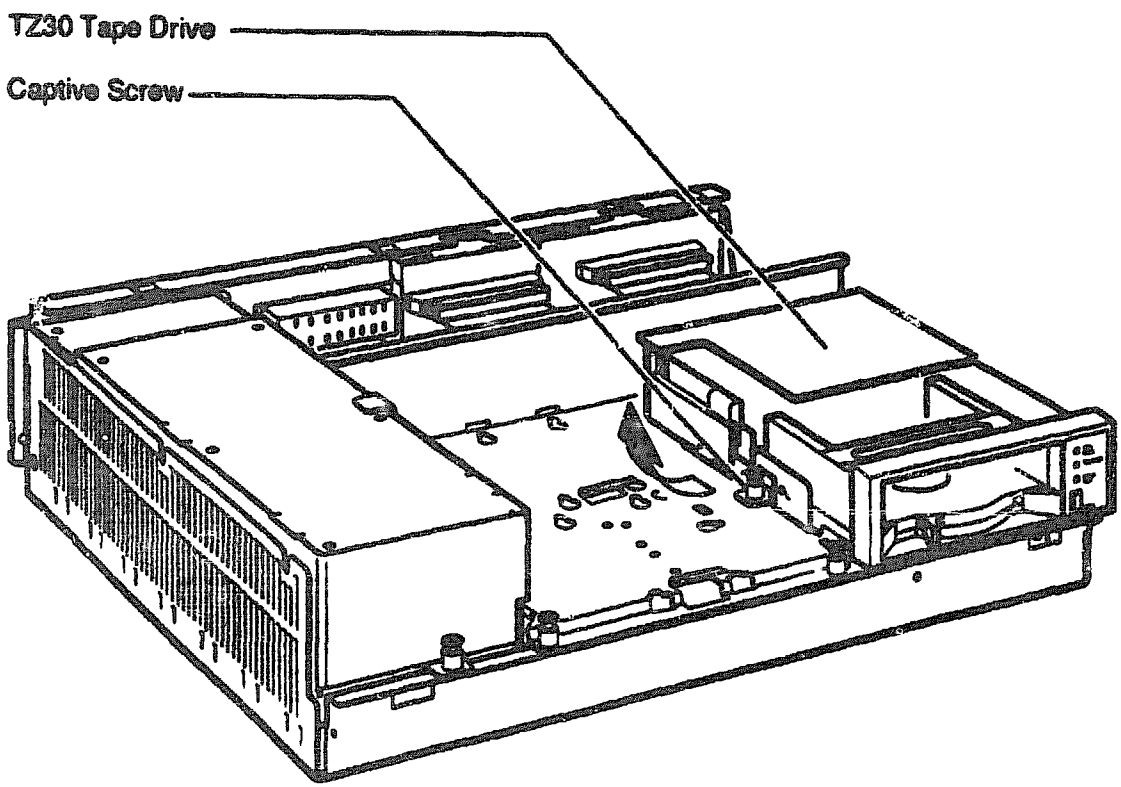
1. Remove the enclosure cover (see Section 3.1).

Note

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

2. Loosen the captive screw that secures the mounting bracket to the drive-mounting shelf (see Figure 3–16).

Figure 3–16 Removing a TZ30 Tape Drive



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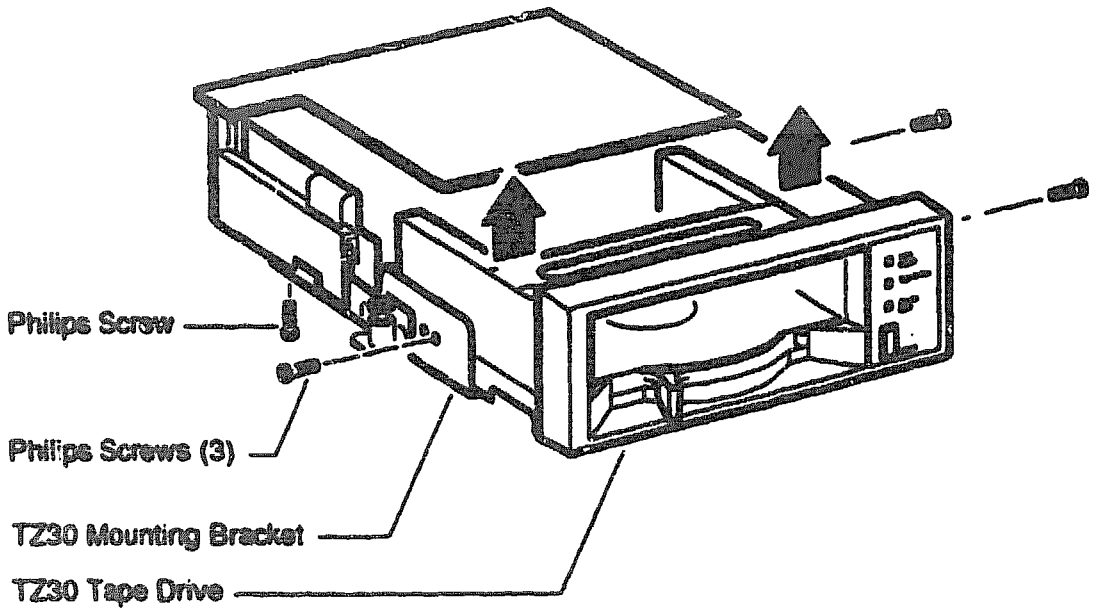
3. Lift the left side of the TZ30 tape drive. Slide the TZ30 tape drive to the left until the tabs on the right side of the mounting bracket are clear of the cutouts in the drive-mounting shelf.
4. Disconnect the power cable from the flying lead connector of the TZ30 tape drive. Figure 1–3 shows the power cables in the BA42-A enclosure.
5. Disconnect the SCSI cable from the TZ30 tape drive by pulling the pull-tab. Figure 1–4 shows the signal cables in the BA42-A enclosure.
6. Lift the TZ30 tape drive, which has its mounting bracket attached, out of the system unit.

3.5.1 Separating the TZ30 Tape Drive from the Mounting Bracket

When you are installing a replacement TZ30 tape drive, you must use the mounting bracket (74-42115-01) that is attached to the faulty TZ30 tape drive (TZ30-AA). To separate the mounting bracket from the faulty TZ30 tape drive, follow these steps:

1. Remove the two screws (90-09984-07) from the right side of the mounting bracket (see Figure 3–17).
2. Remove one screw (90-09984-07) from the left side of the mounting bracket (see Figure 3–17).
3. Remove one screw (90-10961-03) from the bottom of the drive-mounting bracket (see Figure 3–17).
4. Separate the mounting bracket from the TZ30 tape drive.

Figure 3–17 Separating the Mounting Bracket from the TZ30 Tape Drive



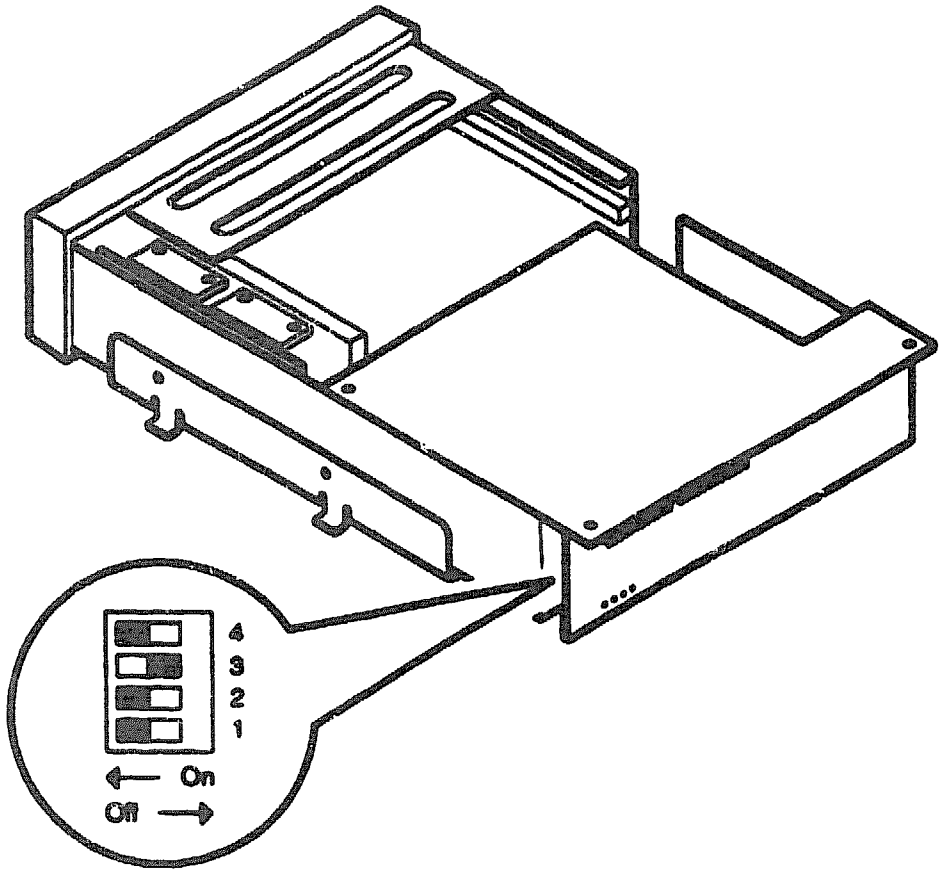
5. Keep the mounting bracket and the four screws in a safe place because you must use them to install the replacement TZ30 tape drive.

3.5.2 Setting the SCSI ID on the Replacement TZ30 Tape Drive

To set the SCSI ID on the replacement TZ30 tape drive, follow these steps:

1. Note the SCSI ID switch settings on the TZ30 tape drive you removed. Figure 3–18 shows the location of the SCSI ID switches and the recommended SCSI ID for tape drives.
2. Set the SCSI ID switches on the replacement TZ30 tape drive to the same settings as the SCSI ID switches on the TZ30 tape drive you removed.

Figure 3–18 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).

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See the *Options* manual for more information about setting the SCSI ID of the TZ30 tape drive.

3.6 Removing a TZK10 Tape Drive

The TZK10 tape drive (when installed) is on the right side of the drive-mounting shelf, when viewed from the front. To remove a TZK10 tape drive from the BA42-A enclosure, follow these steps:

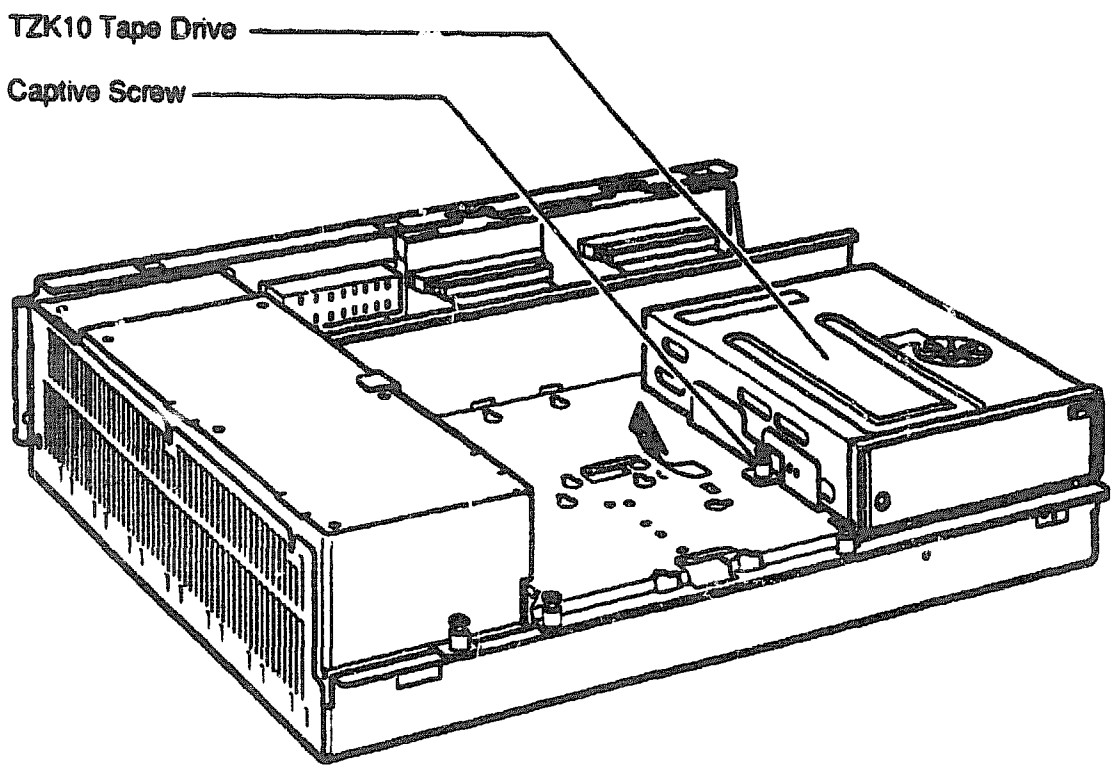
1. Remove the enclosure cover (see Section 3.1).

Note

- You can disconnect the cables from the drive more easily after you remove the drive from the drive-mounting shelf.
- When you disconnect the cables, note which cables connect to which drives. On the SCSI cable, note the number on the connector pull-tab.

2. Loosen the captive screw that secures the mounting bracket to the drive-mounting shelf (see Figure 3–19).

Figure 3–19 Removing a TZK10 Tape Drive



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3. Lift the left side of the TZK10 tape drive. Slide the TZK10 tape drive to the left until the tabs on the right side of the mounting bracket are clear of the cutouts in the drive-mounting shelf.

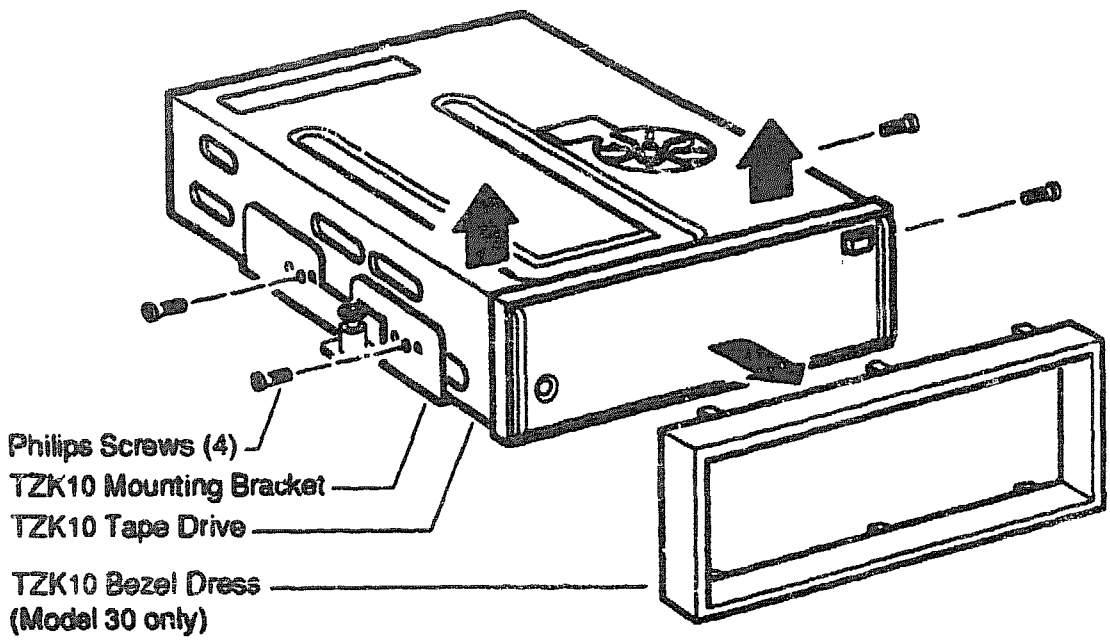
4. Disconnect the power cable from the back of the TZK10 tape drive. Figure 1–3 shows the power cables in the BA42-A enclosure.
5. Disconnect the SCSI cable from the back of the TZK10 tape drive by pulling the pull-tab. Figure 1–4 shows the signal cables in the BA42-A enclosure.
6. Lift the TZK10 tape drive, with its bracket attached, out of the system unit.

3.6.1 Separating the TZK10 Tape Drive from the Mounting Bracket and Bezel Dress

When you install a replacement TZK10 tape drive, you must use the mounting bracket (74-42449-01) and bezel dress (74-42531-01) that are attached to the faulty TZK10 tape drive (TZK10-AA). To separate the mounting bracket and bezel dress from the faulty TZK10 tape drive, follow these steps:

1. Remove the four screws (90-10961-03) that secure the mounting bracket to the TZK10 tape drive (see Figure 3–20).
2. Separate the mounting bracket from the TZK10 tape drive.

Figure 3–20 Separating the Mounting Bracket from the TZK10 Tape Drive



3. Unclip the bezel dress (74-42531-01) from the TZK10 tape drive (see Figure 3–20).
4. Keep the mounting bracket, the bezel dress, and the four screws in a safe place because you must use them to install the replacement TZK10 tape drive.

Note

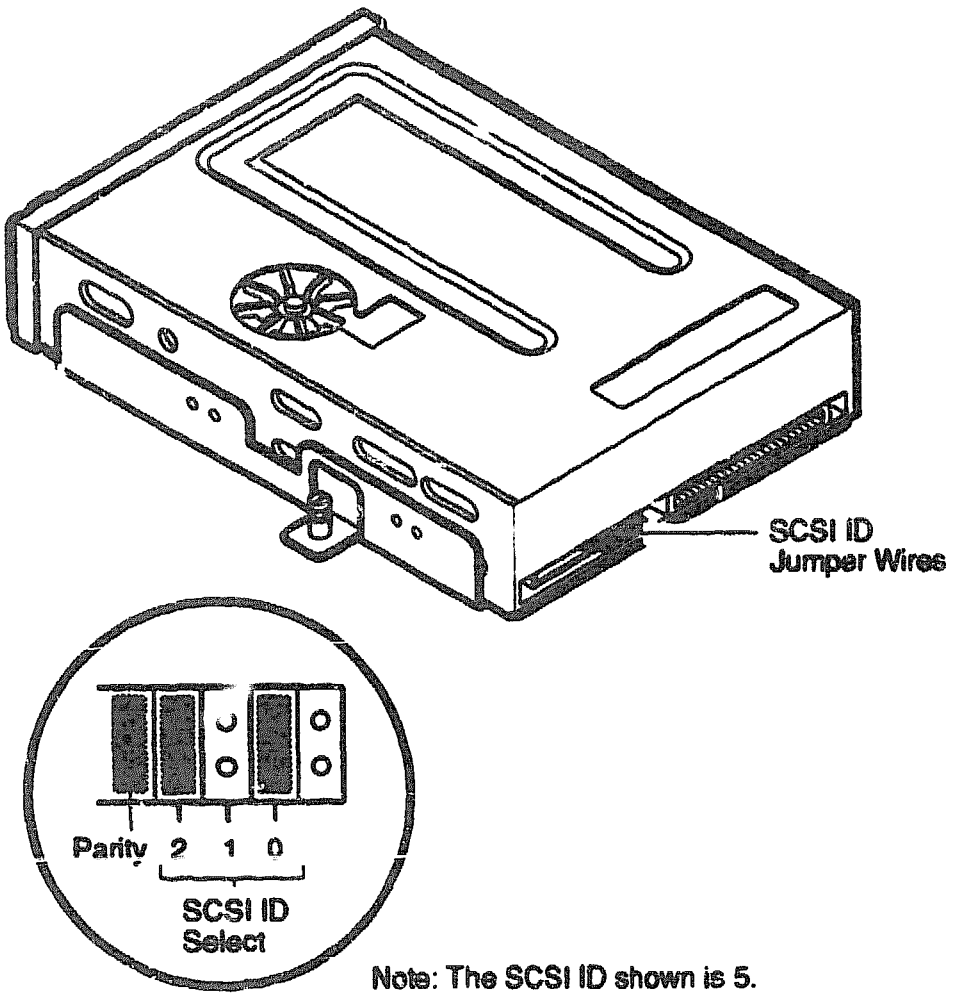
When you attach the mounting bracket to the replacement TZK10 tape drive, align the holes on the mounting bracket that are marked by a *Q* with the screw holes on the sides of the TZK10 tape drive.

3.6.2 Setting the SCSI ID of the Replacement TZK10 Tape Drive

To set the SCSI ID of the replacement TZK10 tape drive, follow these steps:

1. Note the positions of the SCSI ID jumper wires on the back of the TZK10 tape drive you removed. Figure 3–21 shows the location of the SCSI ID jumper wires and the recommended SCSI ID for tape drives.
2. Set the SCSI ID jumper wires on the replacement TZK10 tape drive to the same positions as the SCSI ID jumper wires on the TZK10 tape drive you removed.

Figure 3–21 Location of the SCSI ID Jumper Wires on the TZK10 Tape Drive



Note: The SCSI ID shown is 5.

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See the *Options* manual for more information about setting the SCSI ID of the TZK10 tape drives.

3.7 Removing the Drive-Mounting Shelf

The drive-mounting shelf provides the means of mounting the various internal mass storage devices in the BA42-A enclosure. You must remove the drive-mounting shelf to reach some FRUs.

To remove the drive-mounting shelf, follow these steps:

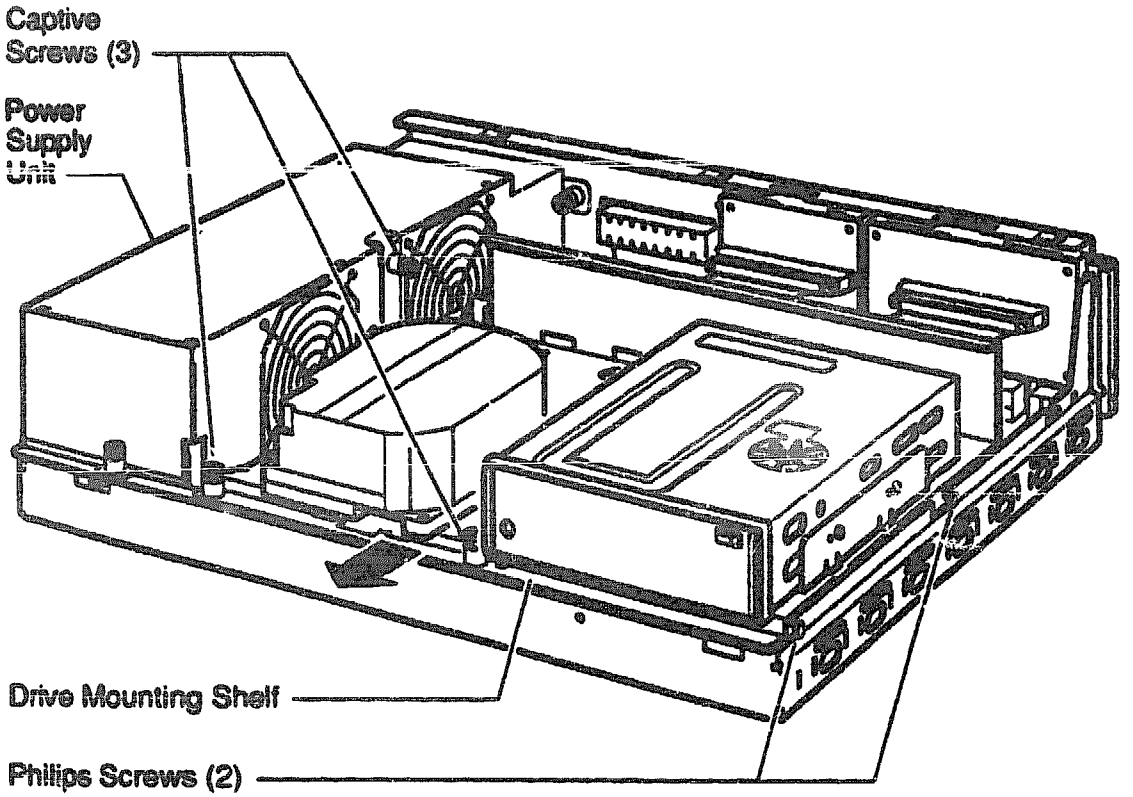
1 Remove the enclosure cover (see Section 3.1).

Note

You can remove the drive-mounting shelf with all the mass storage devices attached, and without disconnecting the power cable and SCSI cable from the mass storage devices.

2. Disconnect the power cable from the flying lead connector of the power supply unit. Figure 1–3 shows the power cables in the BA42-A enclosure.
3. Loosen the three captive screws (see Figure 3–22).

Figure 3–22 Removing the Drive-Mounting Shelf



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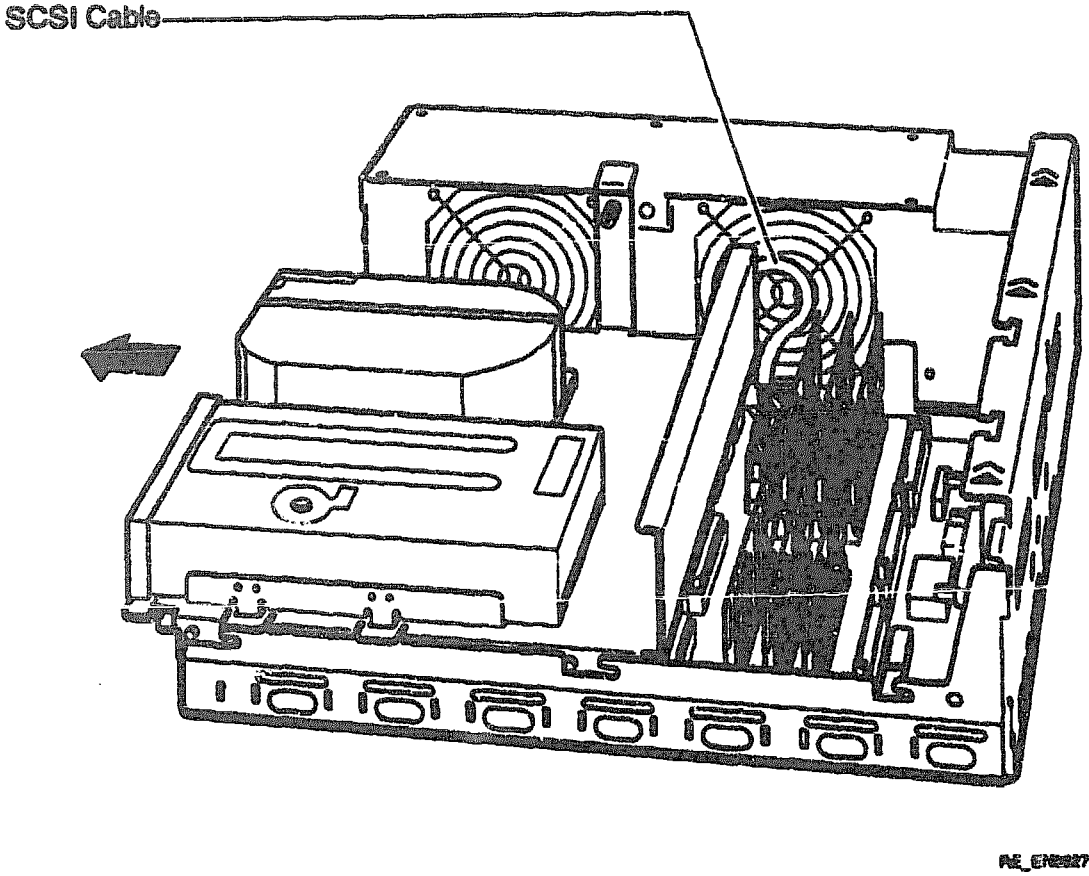
4. Loosen the two screws (90-09284-07) on the right of the enclosure (see Figure 3–22).
5. Slide the shelf forward as far as it goes (see Figure 3–23).

Figure 3–23 Disconnecting the SCSI Cable



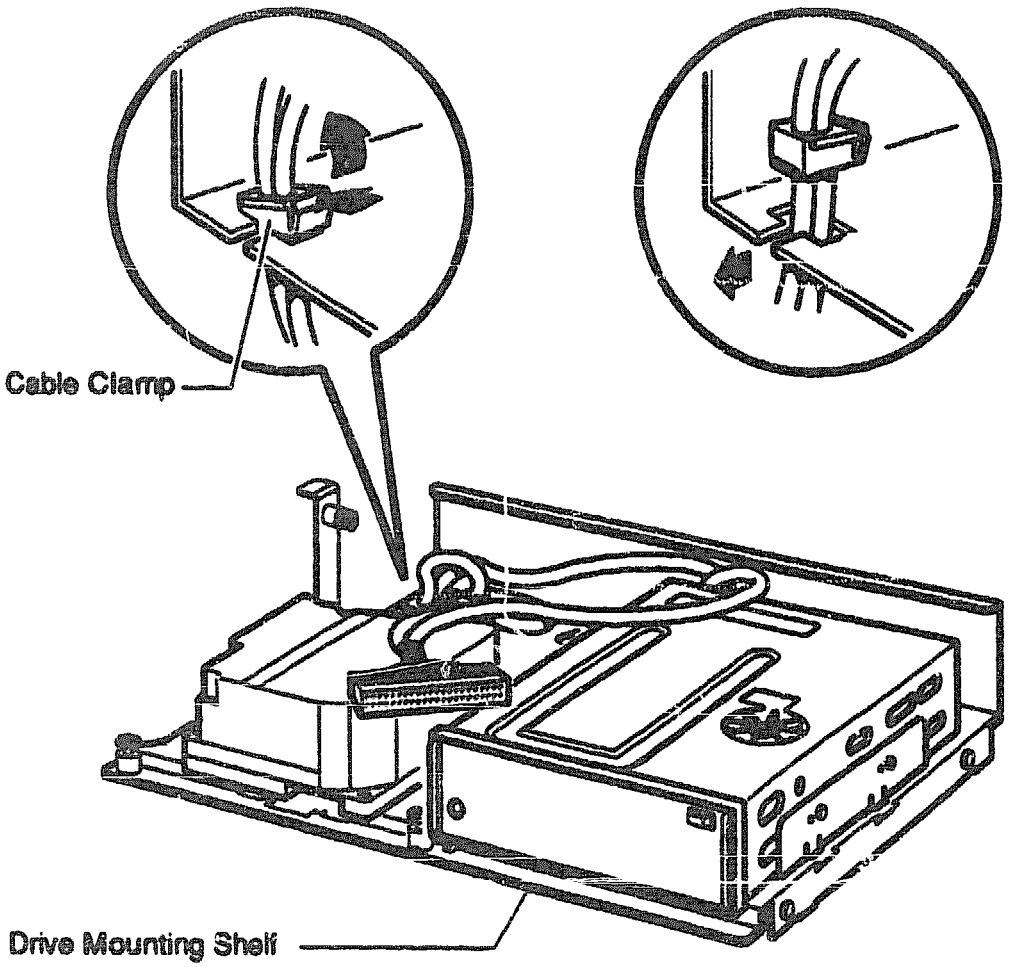
6. Disconnect the SCSI cable from the CPU module (see Figure 3–23).
7. Lift the drive-mounting shelf up from the enclosure and set it aside.

3.8 Removing the SCSI Cable

To remove the SCSI cable from the BA42-B enclosure, follow these steps:

1. Remove the drive mounting shelf (see Section 3.7).
2. Disconnect the SCSI cable from the mass storage devices on the drive-mounting shelf.
3. Push the tab on the cable clamp (90-11237-01) (see Figure 3–24), and tilt the cable clamp towards the back of the lower drive-mounting shelf.

Figure 3–24 Releasing the SCSI Cable Clamp



4. Release the cable clamp from its cutout in the drive-mounting shelf.
5. Turn the cable and the cable clamp through 90° and slide the cable out through the slot in the drive-mounting shelf (see Figure 3–24).

3.9 Removing the DSW41 Synchronous Communications Option

The DSW41 synchronous communications option contains three components that you must remove from the system enclosure as follows:

- A logic board (54-20640-01)
- An input/output cable (17-02942-01)
- An input/output module (70-28540-01)

To remove the DSW41 synchronous communications option from the BA42-A enclosure, follow these steps:

1. Remove the enclosure cover (see Section 3.1).
2. Remove the drive-mounting shelf (see Section 3.7).
3. Remove the logic board, the input/output cable, and the input/output module according to the procedures in the following subsections.

3.9.1 Removing the DSW41 Logic Board

Caution

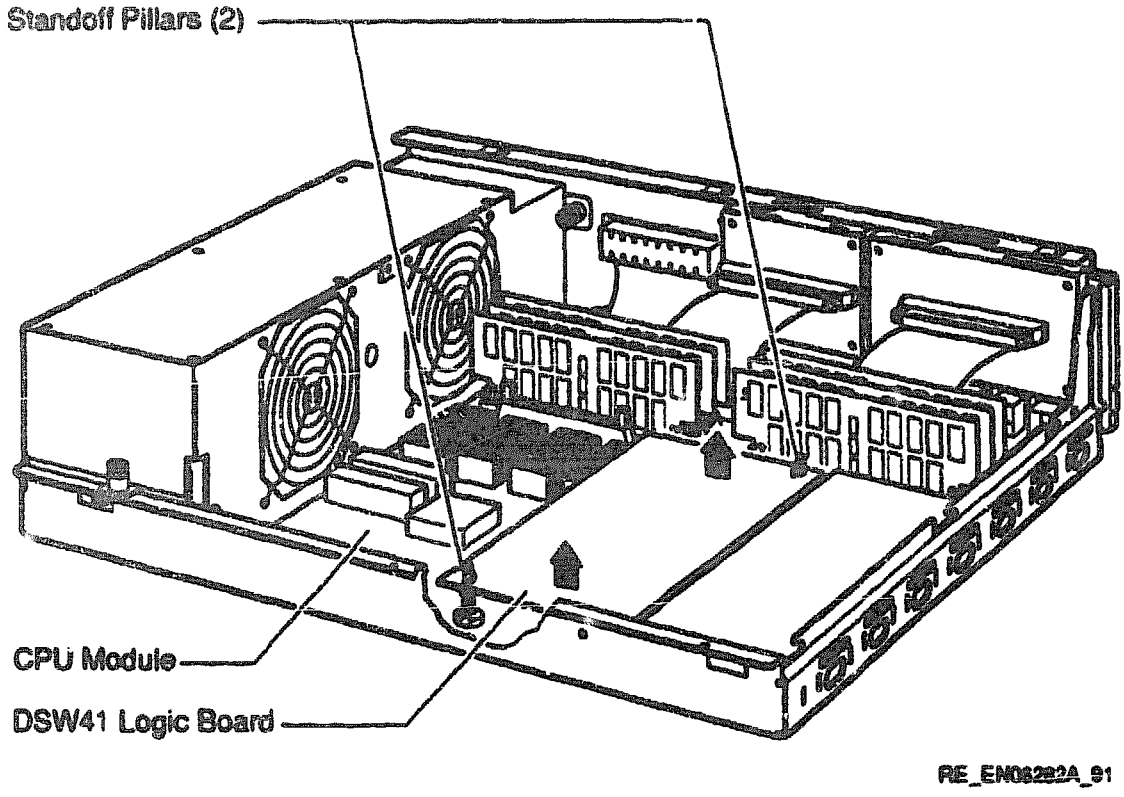
Static electricity can damage integrated circuits. Wear a wrist strap and place an antistatic mat under the system unit when working with the internal parts of the system unit.

1. Press the latch on one of the standoff pillars (see Figure 3–25) and push up the corner of the DSW41 logic board until the DSW41 logic board is released.

Note

The standoff pillars contain two components: a push-button rivet (12-35477-02) and a standoff (12-35477-03).

Figure 3–25 Removing the DSW41 Logic Board



2. Press the latch on the other standoff pillar and push up the corner of the DSW41 logic board until the DSW41 logic board is released.
3. Push up the DSW41 logic board until the connectors on the DSW41 logic board disengage from the connectors on the CPU module (see Figure 3–25).
4. Remove the DSW41 logic board from the enclosure.

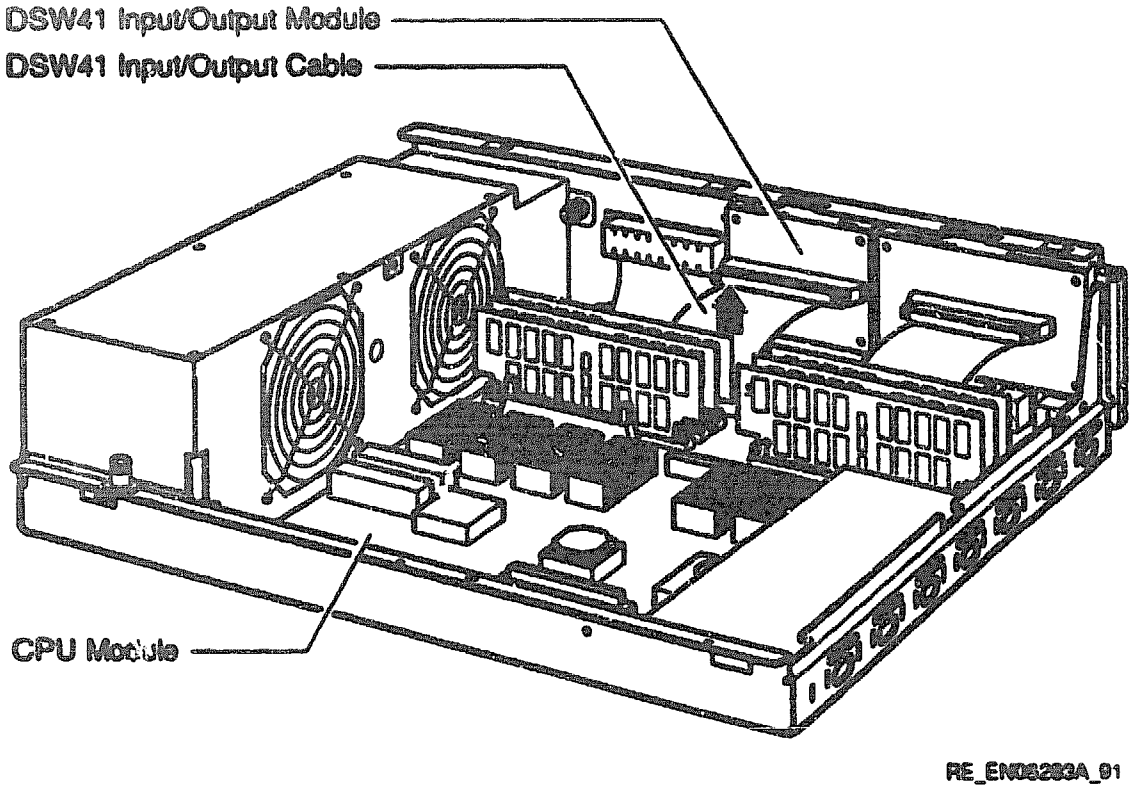
3.9.2 Removing the DSW41 Input/Output Cable

To remove the DSW41 input/output cable, follow these steps:

1. Disconnect the DSW41 input/output cable from the CPU module (see Figure 3–26).
2. Disconnect the DSW41 input/output cable from the DSW41 input/output module on the back of the enclosure (see Figure 3–26).

3. Remove the DSW41 input/output cable from the enclosure.

Figure 3–26 Removing the DSW41 Input/Output Cable



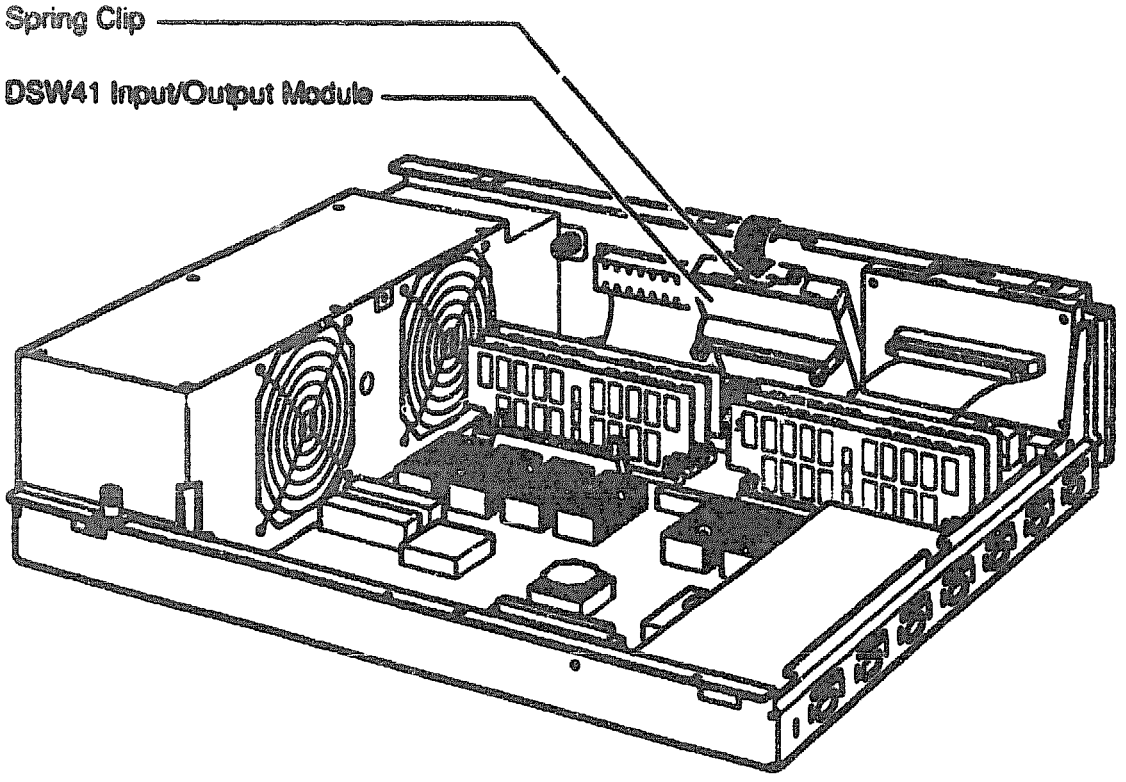
3.9.3 Removing the DSW41 Input/Output Module

To remove the DSW41 input/output module, follow these steps:

1. Disconnect the external cable that is connected to synchronous port 0 on the back of the system unit (if not already disconnected).
2. Disconnect the DSW41 input/output cable from the DSW41 input/output module (if not already disconnected).
3. Press the spring clip on the DSW41 input/output module. Pull the DSW41 input/output module towards the front of the enclosure until it is released from the back of the enclosure (see Figure 3–27).

4. Lift up and remove the DSW41 input/output module from the enclosure.

Figure 3–27 Removing the DSW41 Input/Output Module



3.10 Removing the DHW41 Asynchronous Communications Option

The DHW41 asynchronous communications option contains three components that you must remove from the system enclosure as follows:

- 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 (70-28540-02)
  - 4 modem control line input/output module (70-28541-01)

To remove the DHW41 asynchronous communications option from the BA42-A enclosure, follow these steps:

1. Remove the enclosure cover (see Section 3.1).
2. Remove the drive-mounting shelf (see Section 3.7).
3. Remove the logic board, the input/output cable, and the input/output module according to the procedures in the following subsections.

3.10.1 Removing the DHW41 Logic Board

Caution

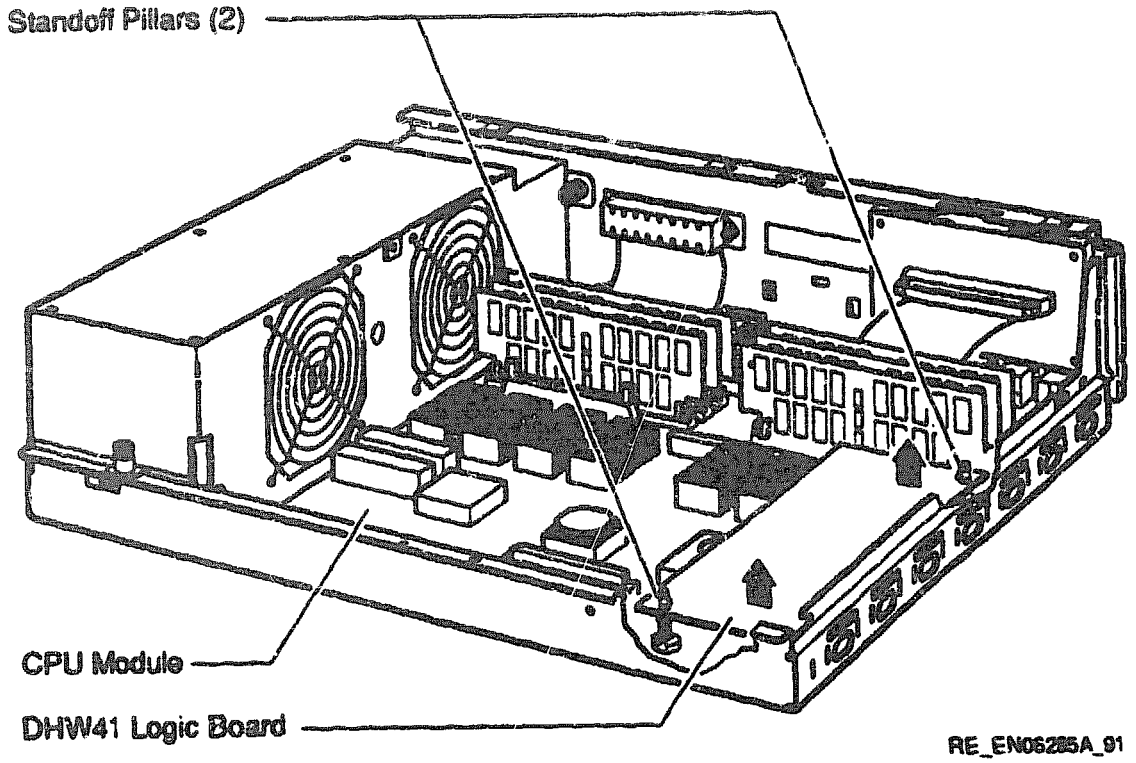
Static electricity can damage integrated circuits. Wear a wrist strap and place an antistatic mat under the system unit when working with the internal parts of the system unit.

1. Press the latch on one of the standoff pillars (see Figure 3–28) and push up the corner of the DHW41 logic board until the DHW41 logic board is released.

Note

The standoff pillars contain two components: a push-button rivet (12-35477-02) and a standoff (12-35477-03).

Figure 3–28 Removing the DHW41 Logic Board



2. Press the latch on the other standoff pillar and push up the corner of the DHW41 logic board until the DHW41 logic board is released.
3. Push up the DHW41 logic board until the connectors on the DHW41 logic board disengage from the connectors on the CPU module (see Figure 3–28).
4. Remove the DHW41 logic board from the enclosure.

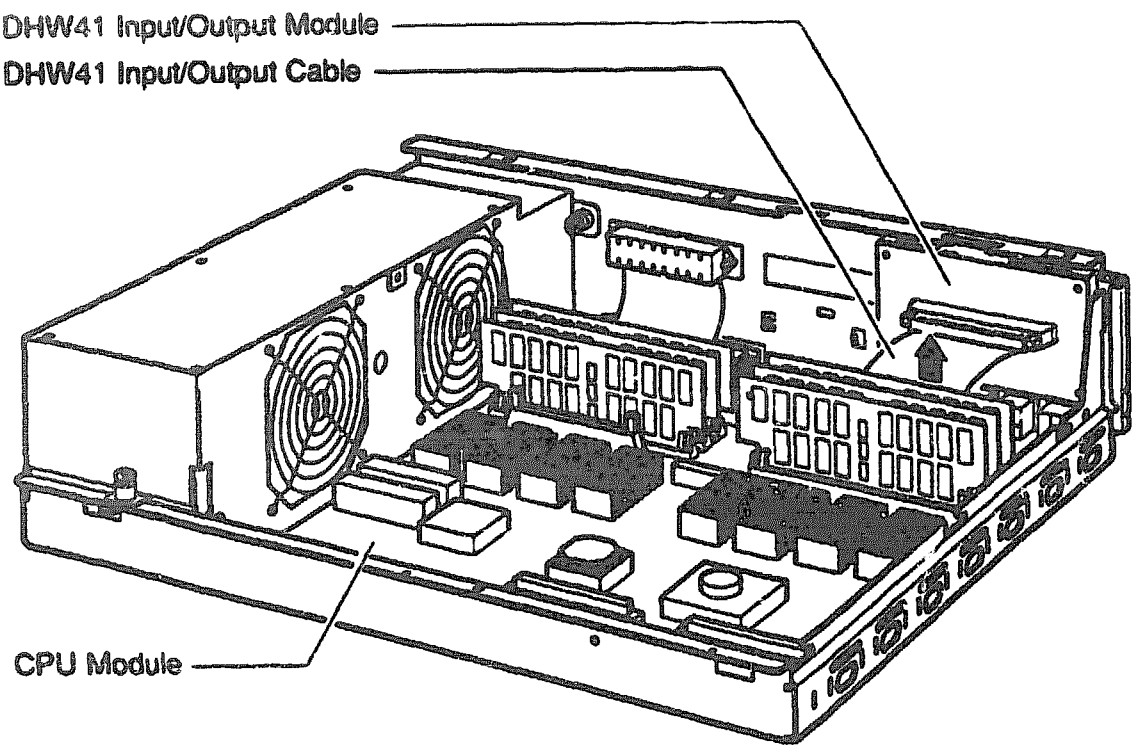
3.10.2 Removing the DHW41 Input/Output Cable

To remove the DHW41 input/output cable, follow these steps:

1. Disconnect the DHW41 input/output cable from the CPU module (see Figure 3–29).
2. Disconnect the DHW41 input/output cable from the DHW41 input/output module on the back of the enclosure (see Figure 3–29).

3. Remove the DHW41 input/output cable from the enclosure.

Figure 3–29 Removing the DHW41 Input/Output Cable



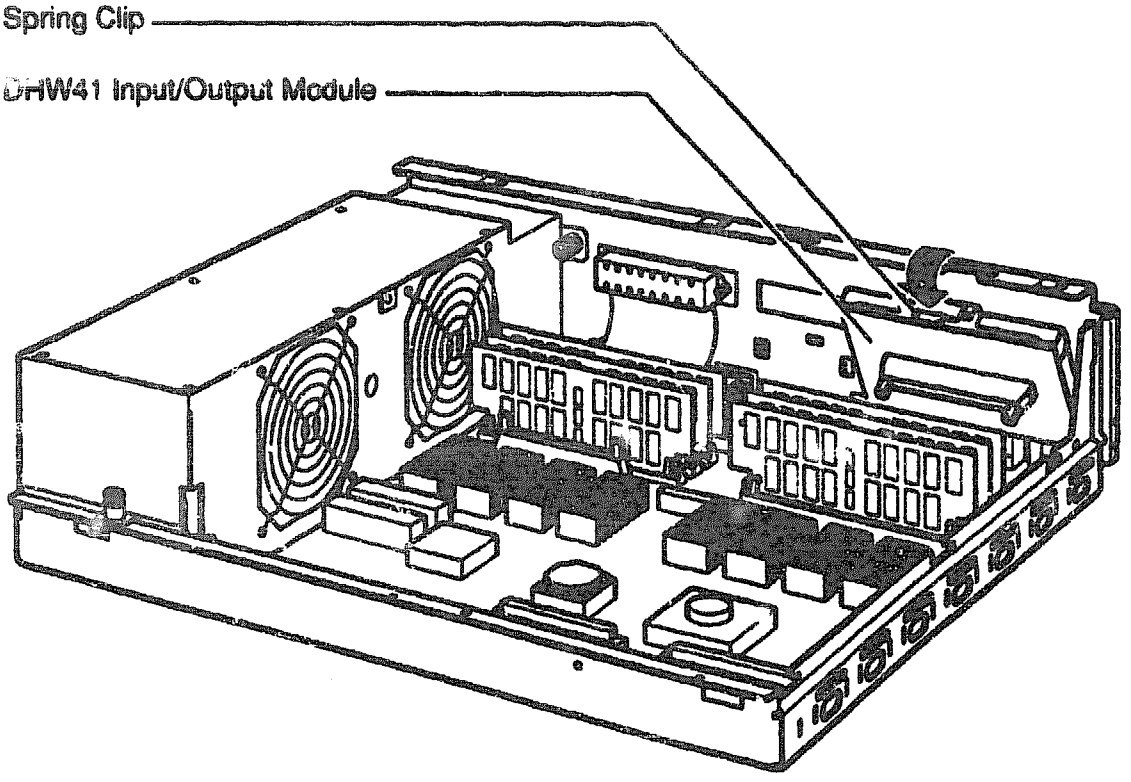
3.10.3 Removing the DHW41 Input/Output Module

To remove the DHW41 input/output module, follow these steps:

1. Disconnect the external cable that is connected to asynchronous port A on the back of the system unit (if not already disconnected).
2. Disconnect the DHW41 input/output cable from the DHW41 input/output module (if not already disconnected).
3. Press the spring clip on the DHW41 input/output module. Pull the DHW41 input/output module towards the front of the enclosure until it is released from the back of the enclosure (see Figure 3–30).

4. Lift up and remove the DHW41 input/output module from the enclosure.

Figure 3–30 Removing the DHW41 Input/Output Module



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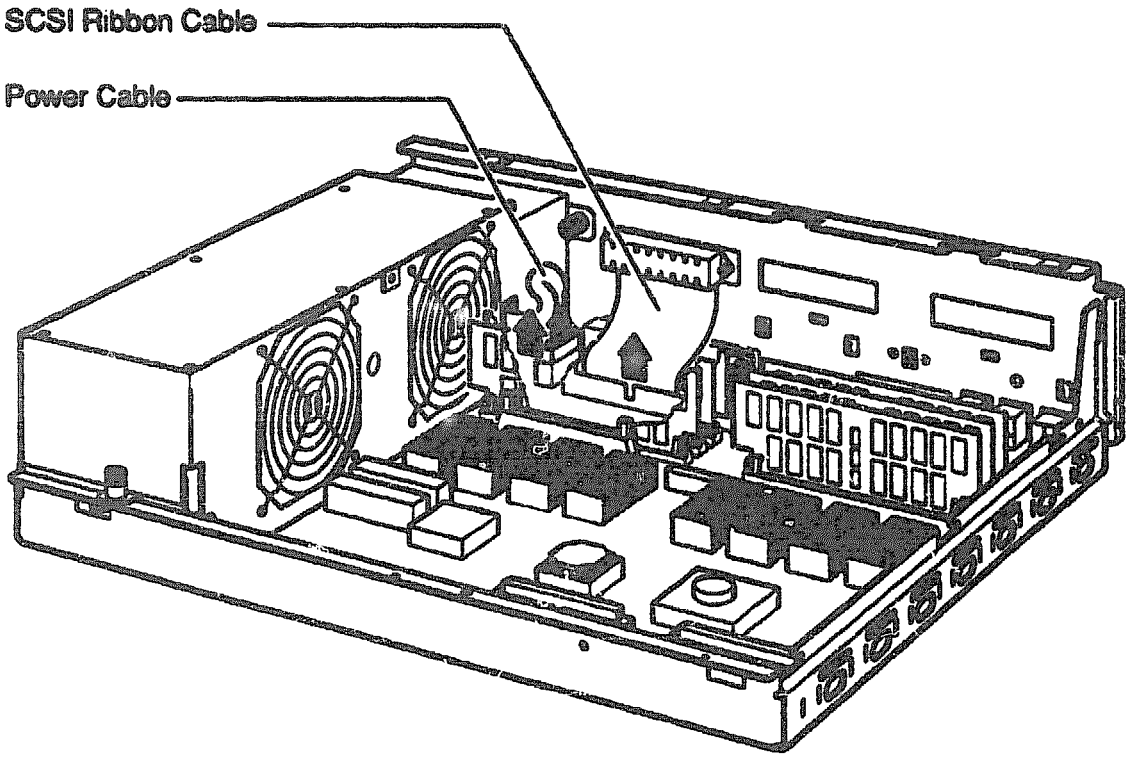
3.11 Removing the CPU Module

To remove the CPU module from the BA42-A enclosure, follow these steps:

1. Disconnect the external cables, loopback connectors, and terminators from the back of the system unit.
2. Remove the enclosure cover (see Section 3.1).
3. Remove the drive-mounting shelf (see Section 3.7).
4. If installed, remove the DSW41 logic board (see Section 3.9.1) and disconnect the DSW41 input/output cable from the CPU module (see Section 3.9.2).

5. If installed, remove the DHW41 logic board (see Section 3.10.1) and disconnect the DHW41 input/output cable from the CPU module (see Section 3.10.2).
6. Disconnect the power cable from the CPU module (see Figure 3–31).

Figure 3–31 Disconnecting the Cables from the CPU Module



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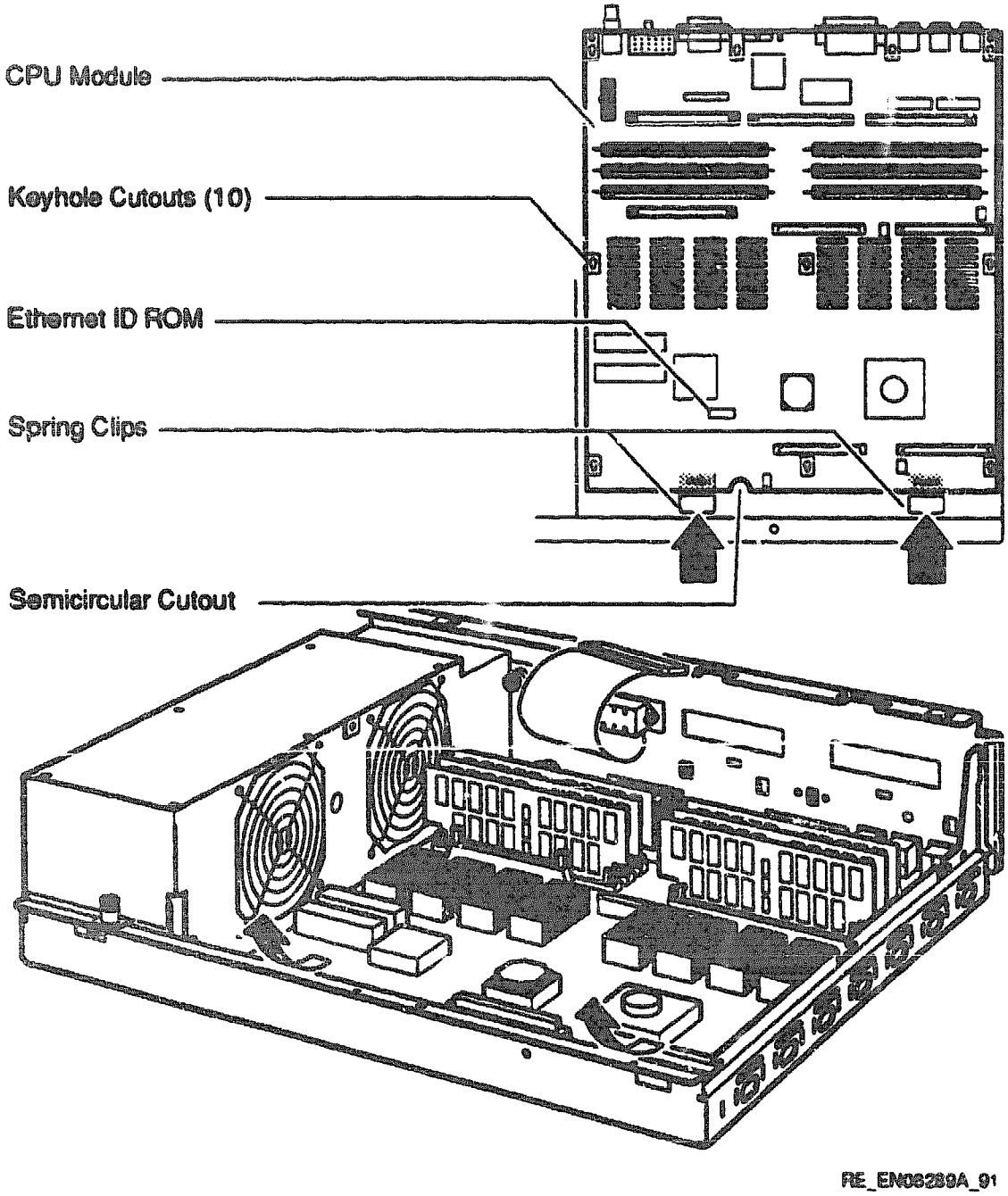
7. Disconnect the SCSI ribbon cable (17-02544-01) from the CPU module (see Figure 3–31).

Caution

Ensure that you do not damage any of the CPU module components by exerting too much force on the components.

8. Press the two spring clips (indicated by arrows in Figure 3–32) that secure the CPU module in position. The CPU module moves forward under the tension of the connector gaskets. If necessary, slide the CPU module back until it disengages from the ten keyhole cutouts (see Figure 3–32).

Figure 3–32 Removing the CPU Module



9. Use your finger, in the semicircular cutout on the front edge of the CPU module, to lift up the front edge of the CPU module (see Figure 3–32).

10. While supporting the front of the CPU module with one hand, guide the connectors on the back of the CPU module out of the corresponding cutouts on the back of the enclosure.
11. Remove the CPU module from the enclosure.
12. Carefully remove the Ethernet ID ROM from the CPU module. You must install this ROM in the replacement CPU module.

3.12 Replacing the CPU Module

To install a replacement CPU module in a BA42-A enclosure, follow these steps:

Caution

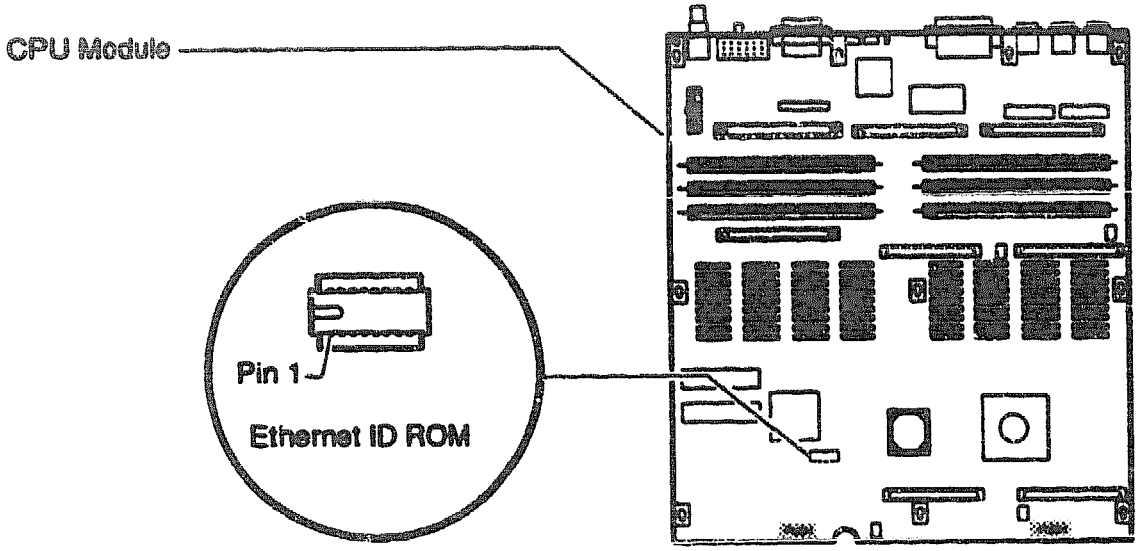
Static electricity can damage integrated circuits. Wear a wrist strap and place an antistatic mat under the system when working with the internal parts of the system unit.

Caution

You can damage the ROM or the CPU module by installing the ROM with an incorrect orientation.

1. Install the Ethernet ID ROM that you removed from the faulty CPU module on the replacement CPU module. Figure 3–33 shows the location and orientation of the Ethernet ID ROM.

Figure 3–33 Location and Orientation of the Ethernet ID ROM



2. Place the CPU module in the enclosure so that the connectors on the CPU module align with the corresponding cutouts in the back of the enclosure. Use the ThinWire Ethernet port as an anchor point to adjust the position of the CPU module correctly.
3. Align the keyhole cutouts in the CPU module with the corresponding standoff pillars on the base of the enclosure.

Caution

Ensure that you do not damage any of the CPU module components by exerting pressure on the components.

4. Press the CPU module at the two positions marked *push*. The spring clips push the standoff pillars into the keyhole cutouts that secure the CPU module in position.
5. Connect the SCSI ribbon cable (17-02944-01) to the CPU module (see Figure 3–31 for the location of the SCSI ribbon cable).
6. Connect the power cable to the CPU module (see Figure 3–31 for the location of the power cable).

7. Install the DSW41 logic board, and connect the DSW41 input/output cable if fitted. Follow the steps in Section 3.9.1 and Section 3.9.2 in reverse order to install the logic board and cable.
8. Install the DHW41 logic board, and connect the DHW41 input/output cable, if fitted. Follow the steps in Section 3.10.1 and Section 3.10.2 in reverse order to install the logic board and cable.
9. Install the drive-mounting panel. Follow the steps in Section 3.7 in reverse order.
10. Install the enclosure cover. Follow the steps in Section 3.1 in reverse order to install the cover.

3.13 Removing the Power Supply Unit

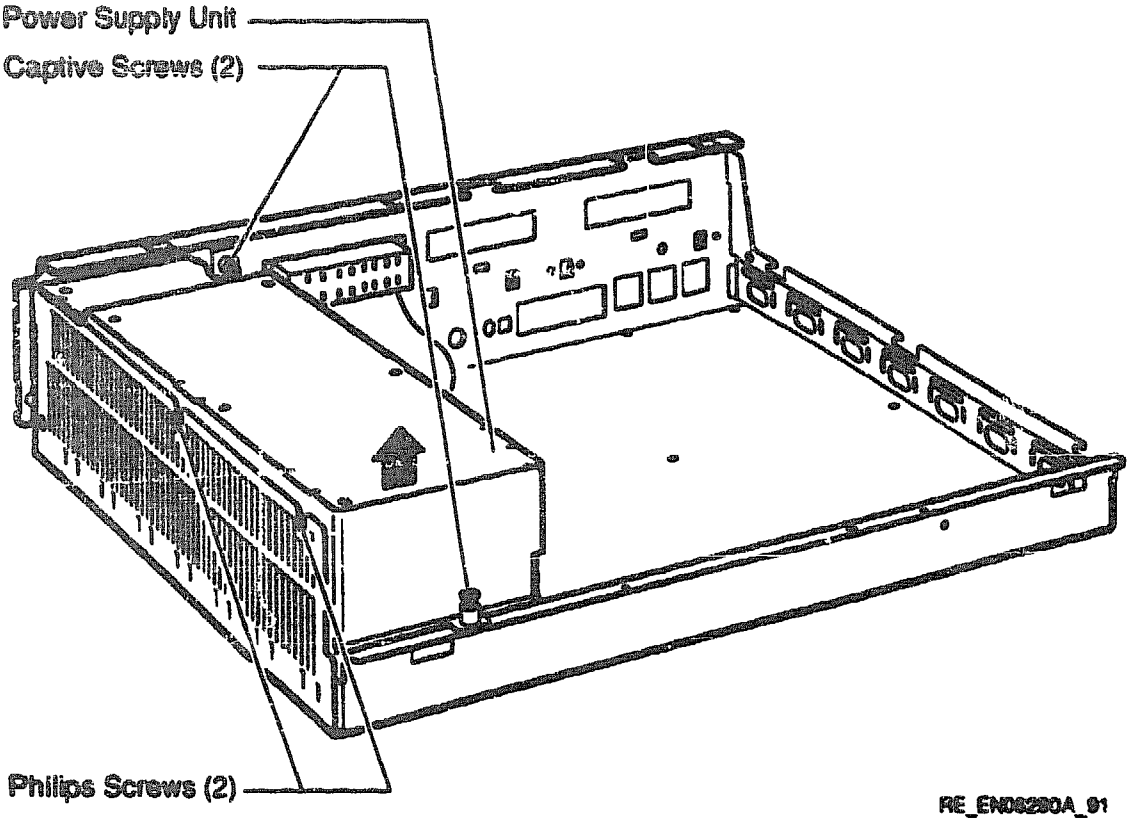
Note

In MicroVAX 3100 platform systems, the power supply unit (H7033-AA) is a single FRU. The power supply unit does not have any replaceable components.

To remove the power supply unit from the BA42-A enclosure, follow these steps:

1. Remove the enclosure cover (see Section 3.1).
2. Remove the drive-mounting shelf (see Section 3.7).
3. Disconnect the power cable from the CPU module (see Figure 3–31).
4. Loosen the two captive screws (see Figure 3–34).

Figure 3–34 Removing the Power Supply Unit



5. Loosen the two Philips screws (90-09984-07) that secure the power supply unit to the left side of the enclosure (see Figure 3–34).

Caution

Ensure that you do not damage any of the MS44 or MS44L memory modules when you lift the power supply unit out of the enclosure.

6. Lift the front of the power supply unit (see Figure 3–34).
7. Remove the power supply unit from the enclosure.


APPA

A

Pin Specifications for the Ports on the BA42-A System

Figure A–1 shows the pin specifications for the ports on the BA42-A system.

Figure A–1 Pin Specifications for the Ports on the BA42-A System

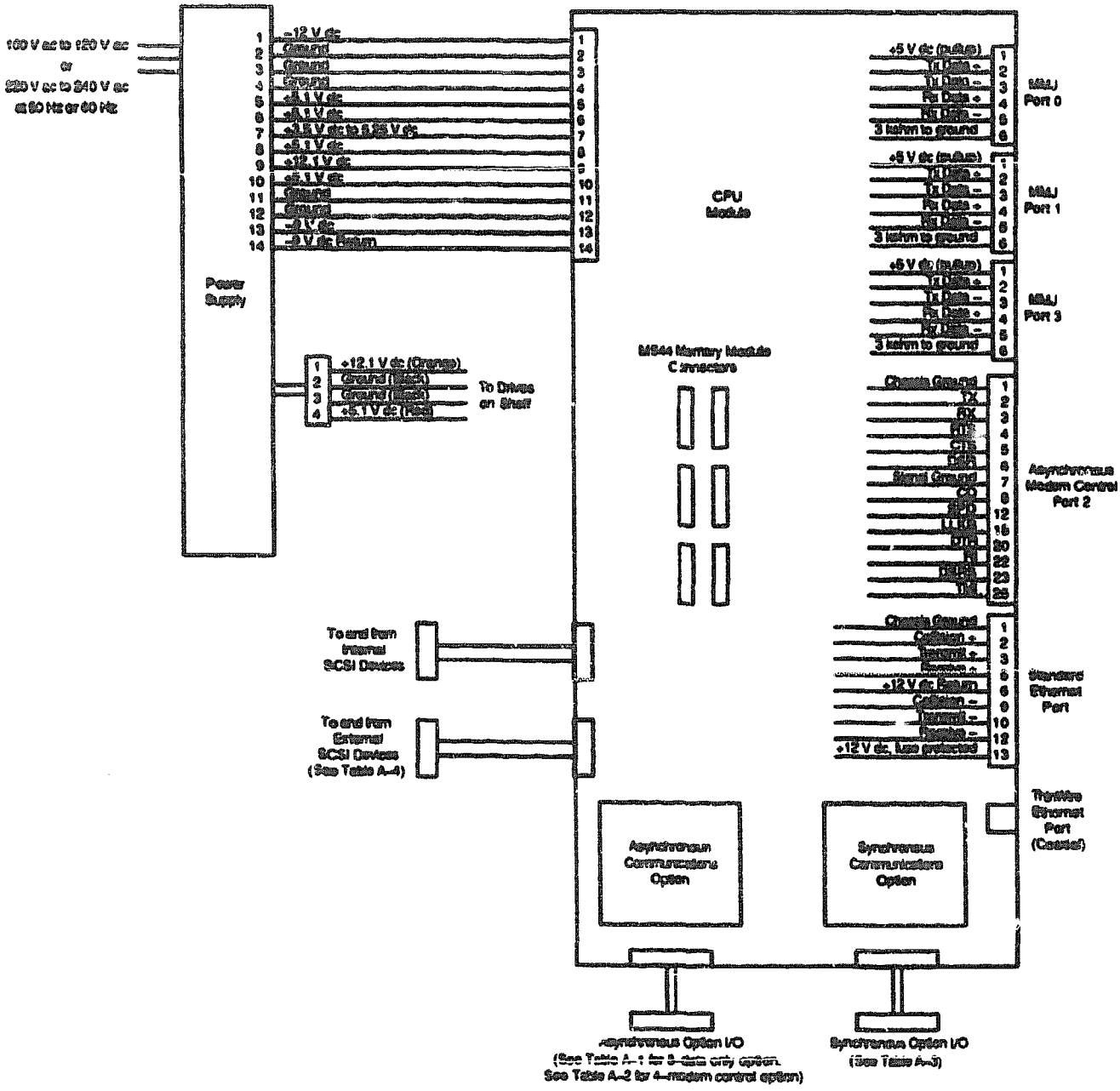


Table A–1 Asynchronous Port A Pin Specifications for the Eight-Data Line Option

Contact	Signal Name [1]	Contact	Signal Name [1]
1	LINE 0 TRANSMIT H	19	LINE 0 TRANSMIT L
2	LINE 0 RECEIVE H	20	LINE 0 RECEIVE L
3	LINE 1 TRANSMIT H	21	LINE 1 TRANSMIT L
4	LINE 1 RECEIVE H	22	LINE 1 RECEIVE L
5	LINE 2 TRANSMIT H	23	LINE 2 TRANSMIT L
6	LINE 2 RECEIVE H	24	LINE 2 RECEIVE L
7	LINE 3 TRANSMIT H	25	LINE 3 TRANSMIT L
8	LINE 3 RECEIVE H	26	LINE 3 RECEIVE L
9	LINE 4 TRANSMIT H	27	LINE 4 TRANSMIT L
10	LINE 4 RECEIVE H	28	LINE 4 RECEIVE L
11	LINE 5 TRANSMIT H	29	LINE 5 TRANSMIT L
12	LINE 5 RECEIVE H	30	LINE 5 RECEIVE L
13	LINE 6 TRANSMIT H	31	LINE 6 TRANSMIT L
14	LINE 6 RECEIVE H	32	LINE 6 RECEIVE L
15	LINE 7 TRANSMIT H	33	LINE 7 TRANSMIT L
16	LINE 7 RECEIVE H	34	LINE 7 RECEIVE L
17	150 OHMS TO GROUND	35	150 OHMS TO GROUND
18	150 OHMS TO GROUND	36	150 OHMS TO GROUND

[1]The signal names ending with L are active low; the signal names ending with H are active high.

Table A–2 Asynchronous Port A Pin Specifications for the Four-Modem Control Line Option

Contact	Signal Name [1]	Contact	Signal Name [1]
1	LINE 0 TX CONN L	26	LINE 2 RX CONN L
2	LINE 0 RX CONN L	27	LINE RTS CONN<2> H
3	LINE RTS CONN<0> H	28	LINE 2 CTS CONN H
4	LINE 0 CTS CONN H	29	LINE 2 DSR CONN H
5	LINE 0 DSR CONN H	30	LINE 2 SGND CONN L
6	LINE 0 SGND CONN L	31	LINE 2 CD CONN H
7	LINE 0 CD CONN H	32	LINE 2 SPDMI CONN H
8	LINE 0 SPDMI CONN H	33	LINE DTR CONN<2> H
9	LINE DTR CONN<0> H	34	LINE 2 RI CONN H
10	LINE 0 RI CONN H	35	
11		36	LINE DSRS CONN<2> H
12	LINE DSRS CONN<0> H	37	LINE 3 TX CONN L
13	LINE 1 TX CONN L	38	LINE 3 RX CONN L
14	LINE 1 RX CONN L	39	LINE RTS CONN<3> H
15	LINE RTS CONN<1> H	40	LINE 3 CTS CONN H
16	LINE 1 CTS CONN H	41	LINE 3 DSR CONN H
17	LINE 1 DSR CONN H	42	LINE 3 SGND CONN L
18	LINE 1 SGND CONN L	43	LINE 3 CD CONN H
19	LINE 1 CD CONN H	44	LINE 3 SPDMI CONN H
20	LINE 1 SPDMI CONN H	45	LINE DTR CONN<3> H
21	LINE DTR CONN<1> H	46	LINE 3 RI CONN H
22	LINE 1 RI CONN H	47	
23		48	LINE DSRS CONN<3> H
24	LINE DSRS CONN<1> H	49	
25	LINE 2 TX CONN L	50	

[1] The signal names ending with L are active low; the signal names ending with H are active high.

Table A–3 Pin Specifications for Synchronous Port 0

Contact	Signal Name [1]	Contact	Signal Name [1]
1	CODE GND 1 L	26	V35 CLK B 1 P H
2	CODE0 1 L	27	V35 RX A 1 P L
3	CODE1 1 L	28	V35 RX B 1 P H
4	CODE2 1 L	29	V35 TX A 1 P L
5	CODE3 1 L	30	V35 TX B 1 P H
6	TXDATA(B) 1 P L	31	V35 TX B 1 P H
7	TXDATA(A) 1 P H	32	V35 RXCLK B 1 P H
8	TXDATA 1 P L	33	DTR 1 P H
9	RTS/C A 1 P L	34	DSR A 1 P H
10	RTS/C B 1 P L	35	DSR B 1 P L
11	RX DATA A 1 P L	36	RTS 1 P H
12	RX DATA B 1 P L	37	DCD/I A 1 P H
13	LOCAL LOOP 1 P H	38	DCD/I B 1 P L
14	TEST 4 1 P L	39	CTS A 1 P H
15	TEST 11 1 P H	40	CTS B 1 P L
16	REM LOOP 1 P H	41	DCE GND 1 P L
17	RI 1 P H	42	TEST 1 1 P H
18	RXCLOCK A 1 P L	43	TEST 2 1 P L
19	RXCLOCK B 1 P H	44	DTE GND 1 P L
20	TXCLOCK A 1 P L	45	DTR A 1 P H
21	TXCLOCK B 1 P H	46	DTR B 1 P L
22	CLOCK 1 P L	47	CLOCK A 1 P L
23	V35 TXCLK A 1 P L	48	CLOCK B 1 P H
24	V35 TXCLK B 1 P H	49	TEST 3 1 P H
25	V35 CLK A 1 P L	50	SPEED SEL 1 P H

[1] The signal names ending with L are active low; the signal names ending with H are active high.

Table A–4 Pin Specifications for the External SCSI Connector

Contact	Signal Name [1]	Contact	Signal Name [1]
1	GROUND	26	TERMPWR
2	DB (0) L	27	RESERVED
3	GROUND	28	RESERVED
4	DB (1) L	29	GROUND
5	GROUND	30	GROUND
6	DB (2) L	31	GROUND
7	GROUND	32	ATN L
8	DB (3) L	33	GROUND
9	GROUND	34	GROUND
10	DB (4) L	35	GROUND
11	GROUND	36	BSY L
12	DB (5) L	37	GROUND
13	GROUND	38	ACK L
14	DB (6) L	39	GROUND
15	GROUND	40	RST L
16	DB (7) L	41	GROUND
17	GROUND	42	MSG L
18	DB (P) L	43	GROUND
19	GROUND	44	SEL L
20	GROUND	45	GROUND
21	GROUND	46	C/D L
22	GROUND	47	GROUND
23	RESERVED	48	REQ L
24	RESERVED	49	GROUND
25	OPEN	50	I/O L

[1]The signal names ending with L are active low; the signal names ending with H are active high.

APP B

B

Recommended Spare Parts List

Table B–1 gives a list of the recommended spare parts for the MicroVAX 3100 Model 30 system that uses the BA42-A enclosure.

Table B–1 Recommended Spare Parts

Description [1]	Part Number	Quantity
CPU module, KA45-AA (SOC)	54-20654-01	1
Cable assembly, SCSI A internal loop	17-03016-01	1
Cable assembly, SCSI A/B, CPU to I/O	17-02944-01	1
SCSI cable clamp	90-11237-01	1
Terminator, 50-way SCSI (H8574-A)	12-30552-01	1
Loopback connector, standard Ethernet	12-22196-01	1
T-connector, ThinWire Ethernet (H8223)	12-25869-01	1
Terminator, ThinWire Ethernet, 50-ohm (H8225)	12-26318-01	2
Loopback connector, modem port, 25-way	29-24795-00	1
Adapter, 25-way EIA-232 to 6-way MMJ	H8575-A	1
Memory module, MS44-AA (4M bytes)	54-19103-AA	1
Memory module, MS44L-AA (4M bytes)	MS44L-AA	1
Power supply unit	H7083-AA	1
Cable assembly, dc harness, lower shelf	17-03017-01	1
RX26 diskette drive	RX26-AA	1
Cable assembly, RX26 to SCSI/FDI board	17-00285-00	1
RX26 SCSI/FDI board	54-20764-02	1

[1] The major FRUs are the entries in this column that are not indented. This manual gives instructions on how to replace these FRUs.

(continued on next page)

Table B–1 (Cont.) Recommended Spare Parts

Description [1]	Part Number	Quantity
RZ23L disk drive	RZ23L-E	1
RZ24 disk drive	RZ24-E	1
RZ25 disk drive	RZ25-E	1
TZ30 tape drive	TZ30-AX	1
TZ30 take-up leader	74-34273-01	1
TZK10 tape drive	TZK10-AA	1
Asynchronous option, DHW41 logic board	54-20662-01	1
Asynchronous option, DHW41 input/output cable	17-02942-01	1
Asynchronous option, DHW41 input/output module (8-data only lines)	70-28540-02	1
Cable assembly, asynchronous, 36-way Champ to harmonica	17-01174-01	1
System loopback connector (8-data only lines)	H3101-00	1
Cable loopback connector (8-data only lines)	H3101-00	1
Harmonica, 8-line distribution	H3104-00	1
Loopback connector, MMJ (H3103)	12-25083-01	1
Asynchronous option, DHW41 input/output module (4-modem control lines)	70-28541-01	1
Cable assembly, asynchronous, 50-way uChamp to four 25-way D-sub (BC29J-06)	17-02941-01	1
System loopback connector (4-modem control lines, H4081-A)	12-34212-01	1
Synchronous option, DSW41 logic board	54-20640-01	1
Synchronous option, DSW41 input/output cable	17-02942-01	1
Synchronous option, input/output module (single line)	70-28540-01	1
System loopback connector (H3199-00)	12-25852-01	1
Cable assembly, EIA-232/V.24 (BC19D-02)	17-01110-01	1
Cable assembly, EIA-423/V.10 (BC19E-02)	17-01111-01	1
Cable assembly, EIA-422/V.11 (BC19B-02)	17-01108-01	1

[1]The major FRUs are the entries in this column that are not indented. This manual gives instructions on how to replace these FRUs.

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Table B–1 (Cont.) Recommended Spare Parts

Description [1]	Part Number	Quantity
EIA-232/V.24 cable loopback connector	H3248-00	1
EIA-423/V.10 cable loopback connector (H3198-00)	12-26259-01	1
EIA-422/V.11 cable loopback connector (H3198-00)	12-26259-01	1
System power cord (USA)	17-00606-02	1
Terminal cable (BC16E-25)	17-00811-03	1
Antistatic kit	29-26246-00	1

[1]The major FRUs are the entries in this column that are not indented. This manual gives instructions on how to replace these FRUs.


GLOSS

Glossary

The glossary defines some of the important terms used in this manual.

ac

alternating current.

CDROM

Compact disc read-only memory.

CPU

Central processing unit. The main unit of a computer containing the circuits that control the interpretation and execution of instructions. The CPU holds the main storage, arithmetic unit, and special registers.

dc

direct current.

ESD

Electrostatic discharge.

Ethernet

A type of local area network (LAN) based on carrier sense multiple access with collision detection (CSMA/DC).

FDI

Floppy diskette interface.

FRU

Field replaceable unit.

ground

A voltage reference in a system that has a zero voltage potential.

jumper wire

A short length of wire used to complete a circuit temporarily or to bypass a circuit.

LED

Light emitting diode.

MMJ

Modified modular jack.

module

A unit that contains electrical components and electrically conductive pathways between components.

port

A physical connector.

rms

root mean square. The root mean square value of an alternating voltage is the square root of the mean value of the square of the voltage values during a complete cycle.

ROM

Read-only memory.

SCSI

Small computer system interface. An interface designed for connecting disks and other peripheral devices to computer systems. SCSI is defined by an American National Standards Institute (ANSI) standard.

standard Ethernet

An IEEE 802.3 compliant Ethernet network composed of standard Ethernet cable as opposed to thin Ethernet cable.

system

A combination of system hardware, software, and peripheral devices that performs specific processing operations.

ThinWire

A trademark used to describe Digital's IEEE 802.3 compliant products used for local distribution of data communication.

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