

EK-VAXST-UP.001

Educational Services



VAXstation 3100 Family
to VAXstation 4000 Model 60
Upgrade Guide

Digital Equipment Corporation

November 1991

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About This Guide

Purpose of this Guide

This guide describes how to upgrade the VAXstation 3100 series to a VAXstation 4000 Model 60 system. The VAXstation 3100 series consists of five models: Model 30, 38, 40, 48 and 76.

The upgrade is accomplished by removing components from the VS 3100 system units and installing them in the VS 4000 Model 60 system. The guide also includes information on how to remove and install RZ2x disk drives, Ethernet ROMs, memory modules, and how to execute some console commands.

This guide describes how to repackage the VAXstation 3100 system for shipment back to Digital after the upgrade is completed.

Who Should Use this Guide

Only Digital Services or qualified self maintenance personnel should perform this upgrade. You must have a working knowledge of, and experience working on the internal hardware devices of a VAXstation 3100 system. If you are not qualified to perform this upgrade, call Digital Services to schedule an upgrade.

Note

It is the customer's responsibility to perform software backups of the system and user disks. The backups should be performed before the Digital Services representative arrives at the site. Backups are mandatory to ensure that data is not lost during the upgrade.

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About This Guide, Continued

Structure of this Guide

The guide is comprised of three chapters and one appendix. Chapter 1 provides the upgrade procedures for the VS 3100 Models 30 and 38. Chapter 2 provides the upgrade procedures for Models 40 and 48. Chapter 3 provides the upgrade procedures for the VS 3100 Model 76.

Each system has a model code number stamped on the rear of the system unit. Look at the label and refer to the table below to determine which chapter in the Guide to use for the upgrade procedures:

Model Code Number	System Model	Upgrade Information
VS42A-xx*	VS 3100 Model 30	Chapter 1
WS42A-xx*	VS 3100 Model 38	Chapter 1
VS42S-xx*	VS 3100 Model 40	Chapter 2
WS42B-xx*	VS 3100 Model 48	Chapter 2
WS43A-xx*	VS 3100 Model 76	Chapter 3

*The -xx means that there are various extensions for the model code number.

Continued on next page

About This Guide, Continued

Product Description

The VAXstation 4000 Model 60 is a mid-range, single user graphics workstation based on the Mariah (20ns) chip set. The system is fully compatible with the VMS operating system and its windowing and graphics software. The VAXstation 4000 Model 60 can also function as an independent node in a DECnet environment as well as being a member of a Local Area VAXcluster (LAVc) environment using ThinWire/Thickwire Ethernet hardware as an interconnect.

About This Guide, Continued

Conventions Used in this Guide

The following conventions are used in this guide:

Convention	Meaning
<code>Return</code>	A name enclosed in a box in interactive examples indicates a key you need to press on the keyboard.
RZ2x	RZ2x refers to any of the RZ-series hard disk drives.
WARNING	Warnings contain information to prevent personal injury. Read warnings carefully.
CAUTION	Cautions provide information to prevent damage to equipment or software. Read cautions carefully.
NOTE	Notes provide general information about the current topic.

Chapter 1

Upgrade of VS 3100 Model 30 or 38 Workstation to a VS 4000 Model 60 Workstation

Overview

Continued on next page

Overview, Continued

Introduction

By upgrading the VS 3100 Model 30 or 38 workstation to a VS 4000 Model 60 workstation, the customer is able to leverage their initial investment in existing Digital VMS hardware to a faster and more powerful computer system.

Purpose

The purpose of this chapter is to provide upgrade information so that Digital Services Engineers or knowledgeable Digital customers can upgrade an existing VS 3100 Model 30 or 38 workstation to a VS 4000 Model 60 workstation.

Caution

Only Digital Services or qualified self maintenance personnel should perform this upgrade. You must have a working knowledge of and experience working on the internal hardware devices of a VAXstation 3100 system. If you are not qualified to perform this upgrade, call Digital Services to schedule an upgrade.

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Overview, Continued

Chapter Content

This chapter describes how to upgrade a VAXstation 3100 Model 30 or Model 38 workstation. These two systems are very similar in structure. When there are differences between the upgrade instructions, it will be called out with a **NOTE** specifying the differences between the two models. This chapter contains the following information:

- ❶ Preparing the VS 3100 workstation Model 30 or 38 for upgrade
 - ❷ Shutting down the system peripherals and disconnecting cables
 - ❸ Protecting against static
 - ❹ Removing top covers on system units
 - ❺ Removing internal components on the VS 3100 system unit
 - ❻ Removing internal components on the VS 4000 Model 60 system unit
 - ❼ Swapping Ethernet ROMs between system units
 - ❽ Restoring the VS 4000 Model 60 workstation
 - ❾ Powering up the VS 4000 Model 60 workstation after upgrade
 - ❿ Running the Show Config command
 - ⓫ Restoring the VS 3100 Model 30 or 38 for shipment back to Digital
-

Preparing the VS 3100 Model 30 or 38 for Upgrade

Run Show Device Command

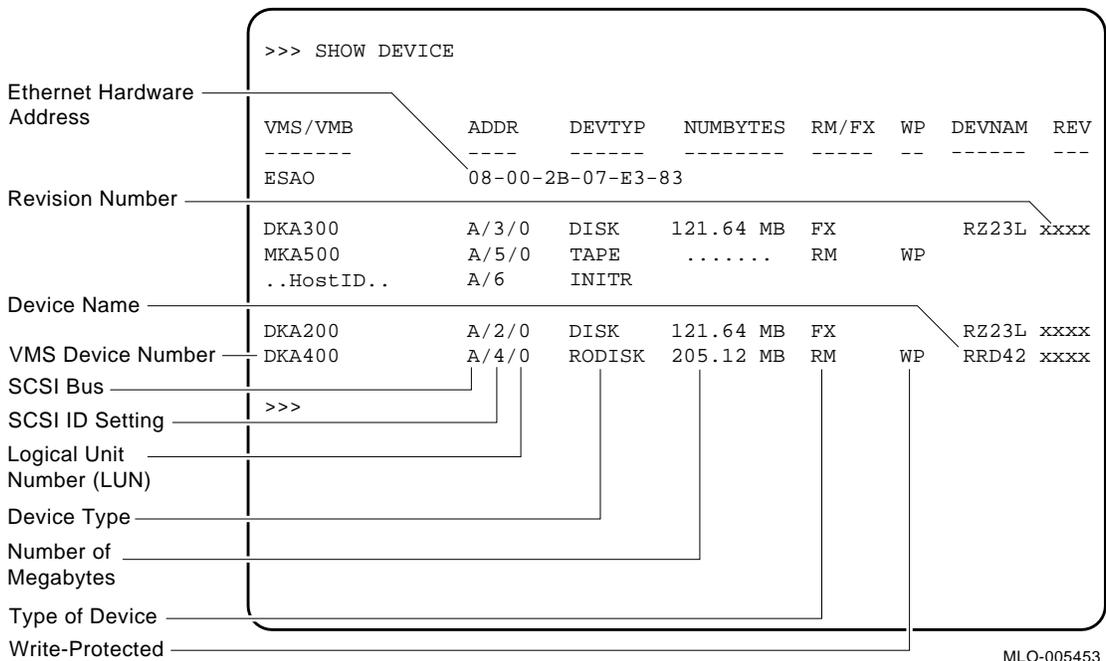
To run the show device command, do the following and refer to Figure 1-1:

Step	Action
1.	Press the Halt button in the rear of the system unit. <u>Results:</u> The system displays the console prompt (>>>) on the screen.
2.	Type Show Device at the console prompt and press <u>Return</u> . Record the Ethernet hardware address. This address will be verified on the completion of the upgrade.
3.	Verify that no two devices have the same SCSI ID number.

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Preparing the VS 3100 Model 30 or 38 for Upgrade, Continued

Figure 1-1 Typical Screen Display of a Show Device Command



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Preparing the VS 3100 Model 30 or 38 for Upgrade, Continued

Console Commands and Software Upgrades

Before proceeding with the upgrade, you must record the existing console command settings, to be verified later in the upgrade. You must back up the system and user disks, and verify VMS software versions.

Procedure	Refer to...
Run the console commands and record the settings of the dynamic memory	<i>VAXstation 3100 Model 30 or 38 Owner's Guide</i> EK-VSM30-OM
Back up the system and user disks	<i>VMS Backup Utility Manual</i> AA-LA35A-TE
Verify VMS operating system software is at Version 5.5 or higher	<i>VMS Installation and Operations Manual</i> AA-NY74B-TE

Note

All system backups and VMS software version upgrades are the responsibility of the Digital customer.

Shutting Down Peripherals and Disconnecting Cables

Note

Refer to the operating system software documentation for the proper operating system shutdown procedure.

VMS Installation and Operations Manual
AA-NY74B-TE

Shut Down the System

After shutting down the operating system, turn the system peripherals off in the following order:

1. Expansion boxes
 2. Printer, modem, and other equipment
 3. Monitor
 4. System unit
-

Disconnect Cables

Disconnect the following cables from the back of the system and refer to Figure 1-2:

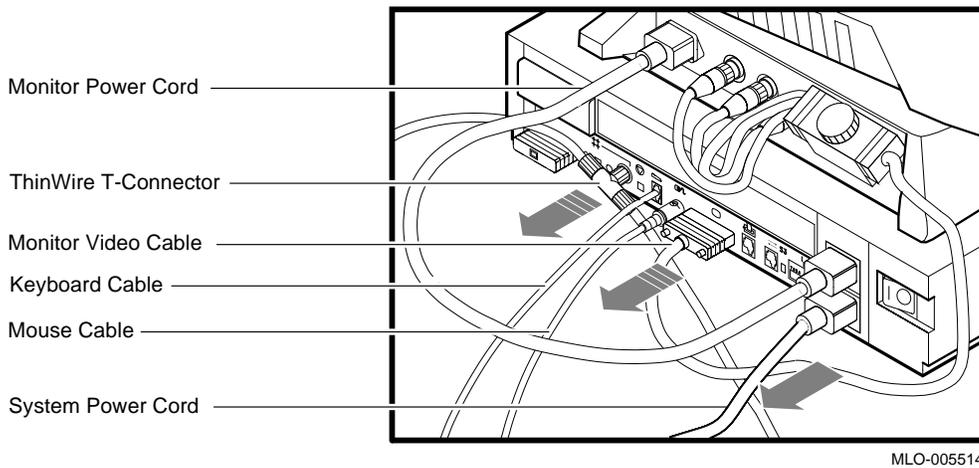
1. System power cord first from the wall and then from the system unit
 2. Monitor power cord
 3. Keyboard cable
 4. Mouse cable
 5. ThinWire Ethernet or standard Ethernet connector
 6. SCSI terminator or external SCSI cable
 7. Monitor video cable
 8. Printer and communications cables
-

Continued on next page

Shutting Down Peripherals and Disconnecting Cables, Continued

9. Remove the monitor from the top of the system unit and set it aside

Figure 1–2 Disconnecting the System Unit and Monitor Cables



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Shutting Down Peripherals and Disconnecting Cables, Continued

Identify the System

After the cables have been disconnected and before beginning the upgrade, you need to identify the system to be upgraded.

To identify the model 30 or 38 system, do the following:

Step	Action
1.	View the system unit from the rear.
2.	Locate the sticker label with either model code number VS42A-xx for a Model 30 or WS42A-xx for a Model 38 system.
3.	Does the system unit have the proper model code number? <ul style="list-style-type: none">• If <u>yes</u>, continue with this chapter.• If <u>no</u>, go to another chapter in this guide for that particular model code number. Refer to About This Guide in this document to determine which chapter you need to go to.

Protecting Against Static

Caution

To eliminate any static charge that you may have built up, touch your index finger to the top of the power supply in one of the system units. This will discharge any static electricity.

Use the Antistatic Wrist Strap

The following rules **must** be adhered to while handling system components:

1. Wear a properly grounded antistatic wrist strap.
 2. Any device removed from a system unit that can not be reinstalled in the other system unit must be placed on an antistatic mat.
-

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Protecting Against Static, Continued

Use the Antistatic Wrist Strap (continued)

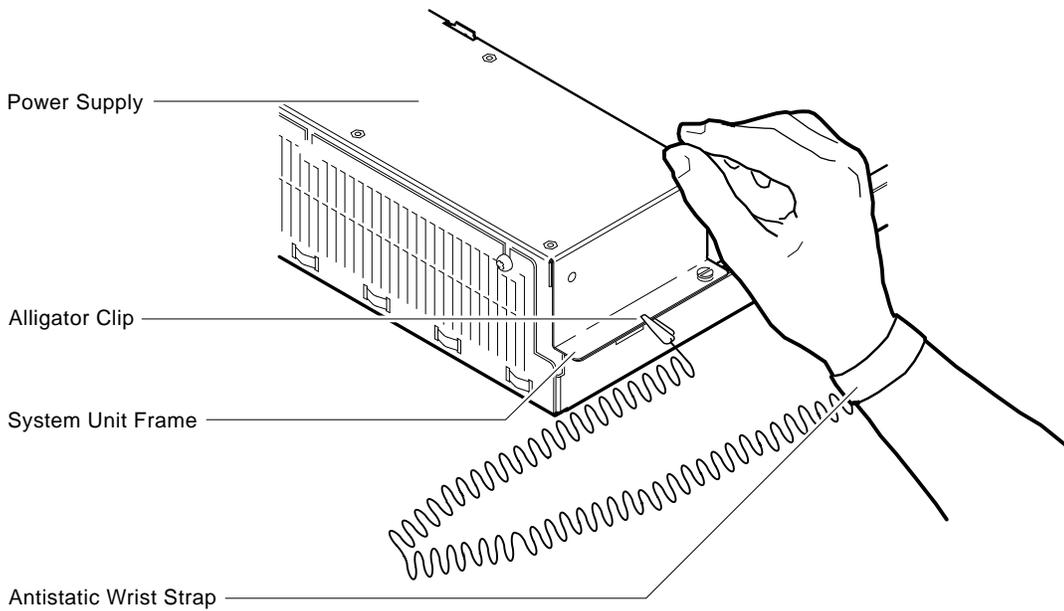
To handle the system components, do the following and refer to Figure 1-3:

Step	Action
1.	Place the Model 30 or Model 38 system unit and the Model 60 system unit side by side on an antistatic mat.
2.	Plug the Model 30 or Model 38 monitor power cord into the monitor power port on the back of the Model 30 or Model 38 system unit.
3.	Plug the other end of the monitor power cord into the system power port on the back of the VS 4000 Model 60 system unit. The two system units now have a common ground between them (daisy chained).
4.	Attach the alligator clip of the antistatic wrist strap to the power supply of <i>any</i> system unit when installing or removing components.

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Protecting Against Static, Continued

Figure 1-3 Attaching the Antistatic Wrist Strap to the System Unit



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Protecting Against Static, Continued

Alternate Static Protection Method

An alternate method of using the antistatic wrist strap is:

Step	Action
1.	Place the antistatic strap on your wrist.
2.	Connect the alligator clip to the chassis frame in front of the VS 3100 power supply.

NOTE This method is the least desirable because the alligator clip has to be moved from system unit to system unit when exchanging components.

Removing Top Covers of the System Units

VS 4000 Model 60 System Unit

Place the VS 4000 Model 60 system and the VS 3100 Model 30 or 38 system unit side by side on a flat clean surface on an antistatic mat.

Caution

When removing the cover, you will need to pull forcefully to release the retention devices on the front and rear edges of the cover. Pulling forcefully will not break the cover as long as the latches on the right side are released.

Remove the Top Cover of the VS 4000

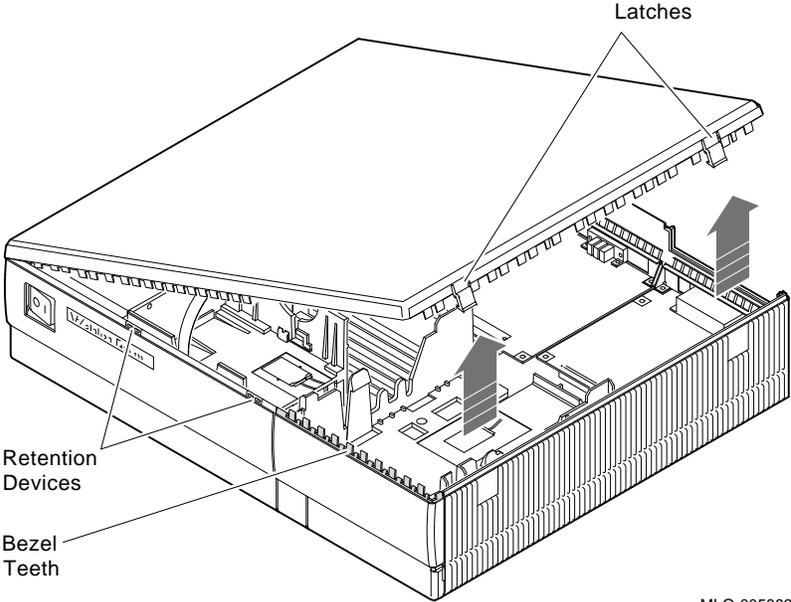
To remove the top cover of the VS 4000 Model 60, do the following and refer to Figure 1-4:

Step	Action
1.	Carefully release the latches on the right side of the system unit.
2.	Pull the cover up and away from the system.
3.	Place the cover aside. It will be used later during repackaging.

Continued on next page

Removing Top Covers of the System Units, Continued

Figure 1-4 Removing Top Cover on the VS 4000 Model 60



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Removing Top Covers of the System Units, Continued

Remove the Top Cover of the VS 3100

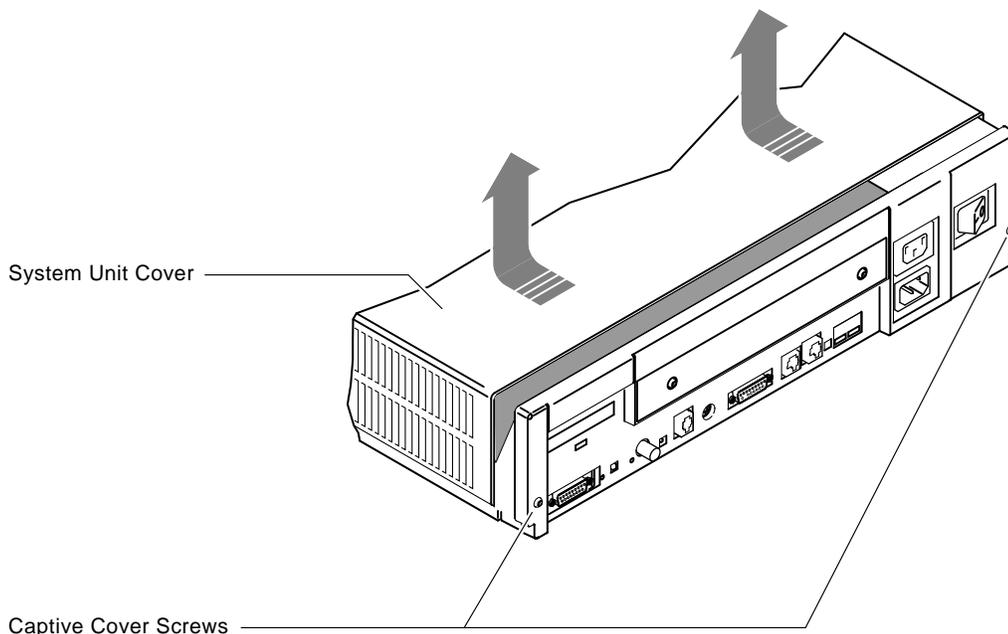
To remove the system unit cover on the VS 3100 workstation, do the following and refer to Figure 1-5:

Step	Action
1.	Using a Phillips-head screwdriver, unscrew the two captive screws at the back of the unit on the outside edges. Unscrew these screws until they are loose, do not remove them.
2.	Slide the cover towards the front of the system and lift it up and away from the system unit.

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Removing Top Covers of the System Units, Continued

Figure 1–5 Removing the System Unit Cover On the VS 3100 Model 30 or 38



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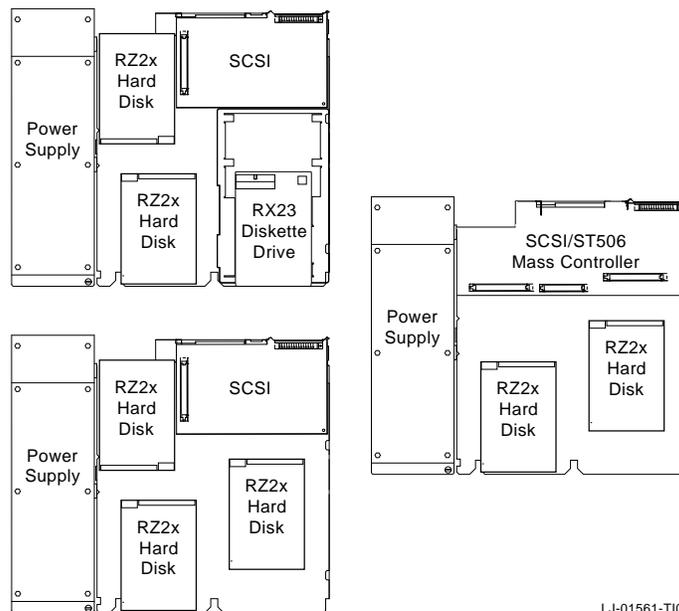
Step	Action
3.	Place the cover aside. It will be used later during repackaging.

Removing Components from VS 3100 Model 30 or 38

Typical Drive Plate Layout

There are numerous possible drive plate configurations for the VS 3100 Model 30 or 38, including two different types of drive plates. There are also different kinds of SCSI mass storage controllers depending on the model being upgraded. Figure 1-6 shows a common configuration of a Model 30 or 38 drive plate.

Figure 1-6 Common Configuration for a Model 30 or 38 Drive Plate



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Removing Components from VS 3100 Model 30 or 38, Continued

Remove RZ2x Disk Drives

Remove all the RZ2x disk drives from the drive plate. Two of these drives may be installed into the VS 4000 Model 60 system unit.

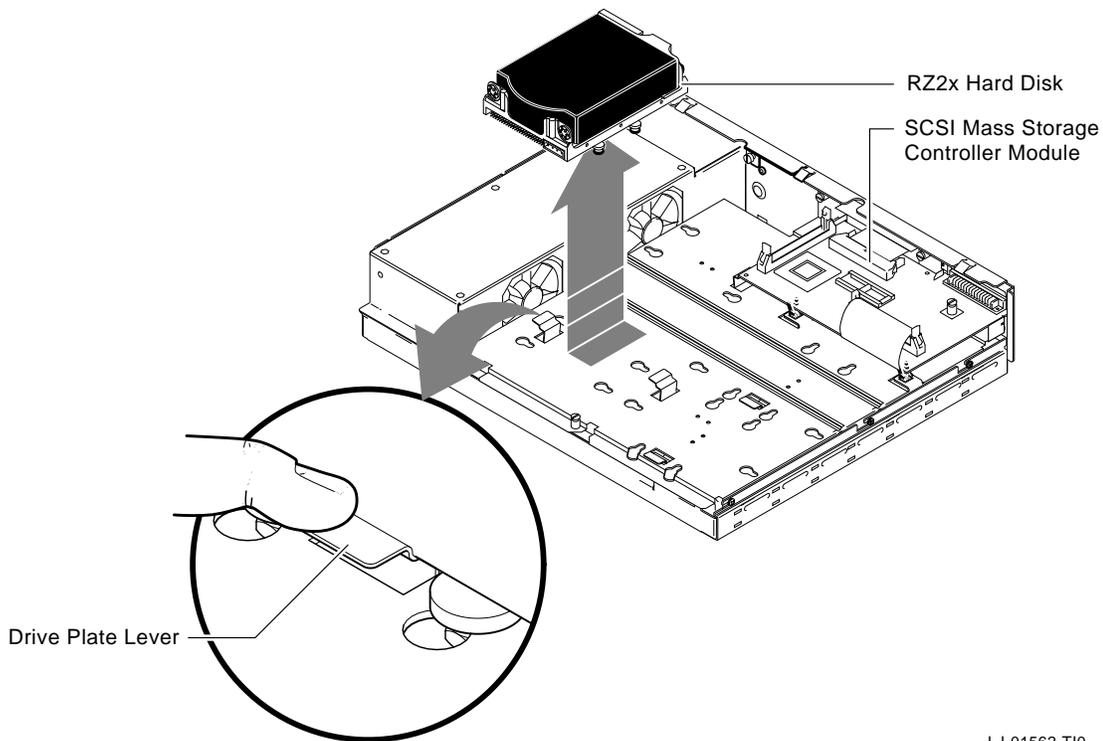
To remove the RZ2x disk drives from the model 30 or 38, do the following and refer to Figure 1-7:

Step	Action
1.	Disconnect the SCSI signal and power cable from the disk drives.
2.	Push down the drive plate lever and slide the RZ2x disk drive over the lever until the hard disk comes up and out of the keyholes on the plate. NOTE On some of the VS 3100 Model 30 units, it might be necessary to turn the drive plate over after removal from the system unit and unscrew the four screws holding the RZ2x drives to the plate.
3.	Discard the screw mounting hardware from the drives after their removal from the drive plate. The RZ2x drives will have a special mounting plate when installed in the H-bracket in the VS 4000 system unit.

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Removing Components from VS 3100 Model 30 or 38, Continued

Figure 1-7 Removing RZ2x Hard Disks from the Drive Plate



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Removing Components from VS 3100 Model 30 or 38, Continued

Note

If there are three RZ2x disk drives on the drive plate, it is necessary to remove the mass storage controller module from the drive plate in order to remove the third RZ2x drive. Otherwise, just disconnect the cables going to the mass storage controller to remove the drive plate from the system unit.

Remove the Mass Storage Controller Module

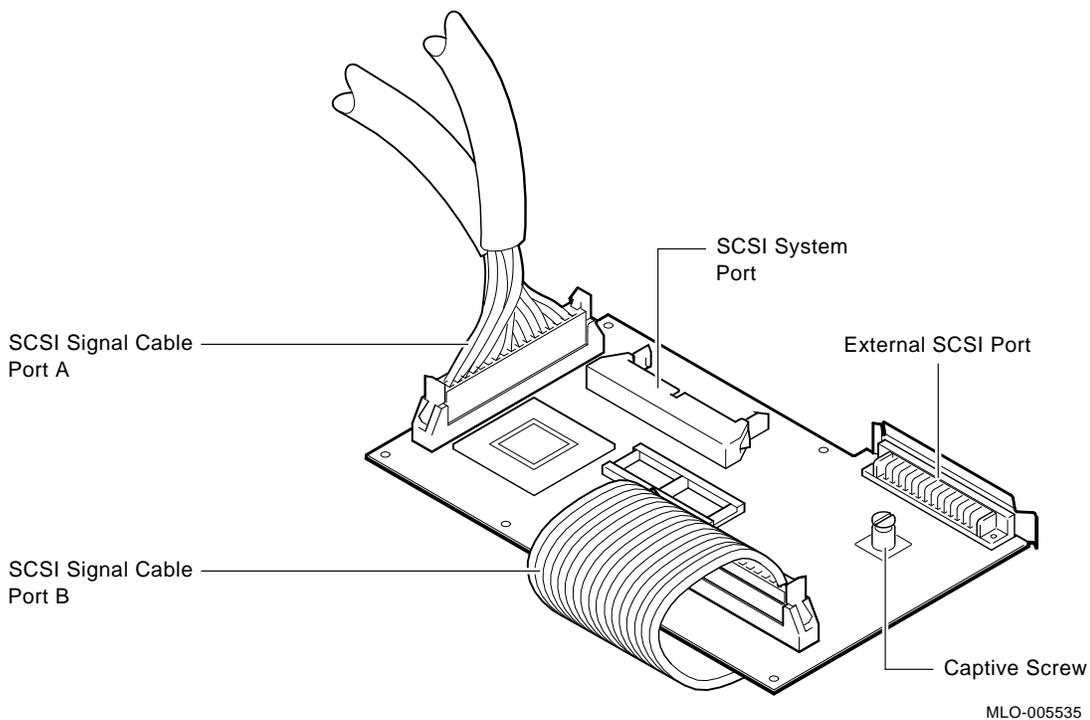
To remove the mass storage controller module from the model 30 or 38, do the following and refer to Figure 1–8 and Figure 1–9:

Step	Action
1.	Unscrew the captive screw on the SCSI mass storage controller module.
2.	Pull the post-lock latches under the front edge of the SCSI controller module outward and lift the front of the module up until it is free.
3.	Disconnect the SCSI system cable on the SCSI mass storage controller module.
4.	Disconnect the SCSI signal cable from Port A and Port B on the controller module by pulling the latches on the SCSI connector outward and then remove the SCSI signal cables.

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Removing Components from VS 3100 Model 30 or 38, Continued

Figure 1-8 SCSI Mass Storage Controller Module Cables

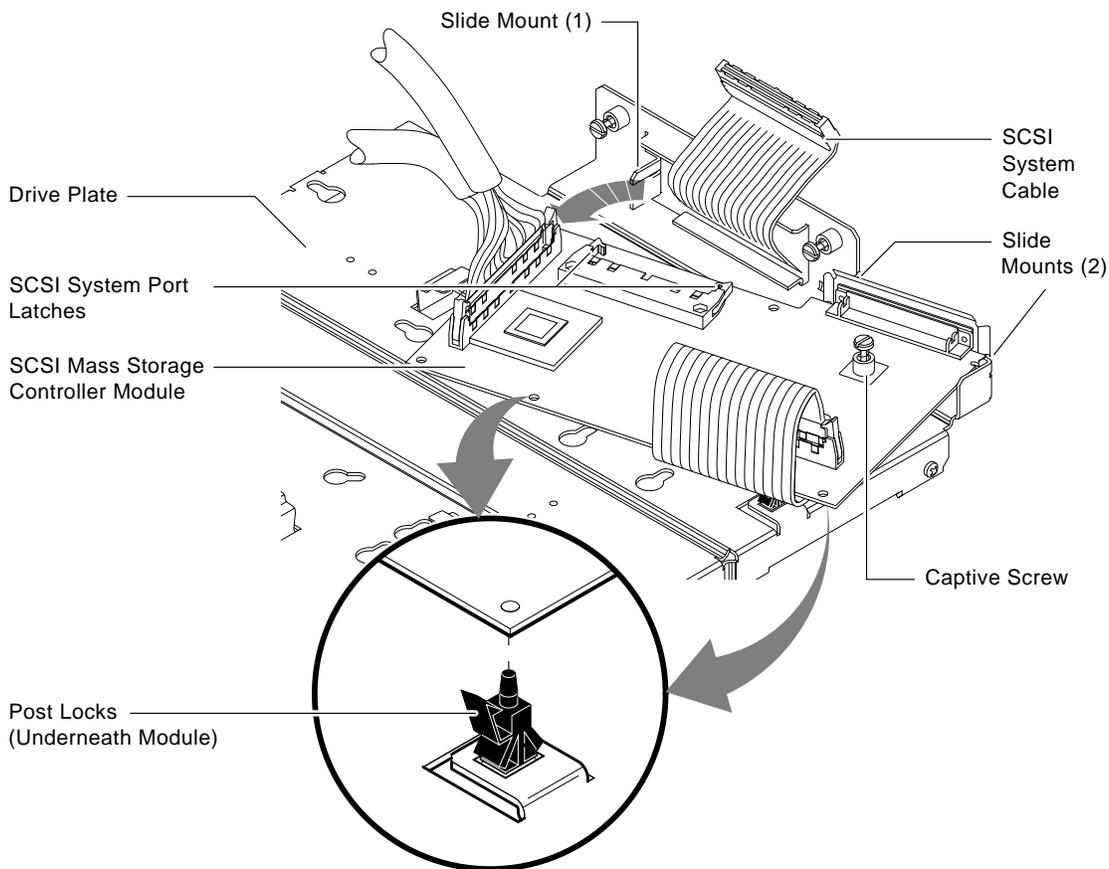


Step	Action
5.	Remove the SCSI mass storage controller module from the drive plate by rotating it to the right as shown in Figure 1-9. Slide the SCSI mass storage controller module forward, away from the back of the drive plate.

Continued on next page

Removing Components from VS 3100 Model 30 or 38, Continued

Figure 1-9 Removing the SCSI Mass Storage Controller Module



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Removing Components from VS 3100 Model 30 or 38, Continued

Caution

When removing the drive plate from the system unit, do not make contact with the circuit boards underneath. This action could cause the circuit boards irreparable damage.

Remove the Drive Plate

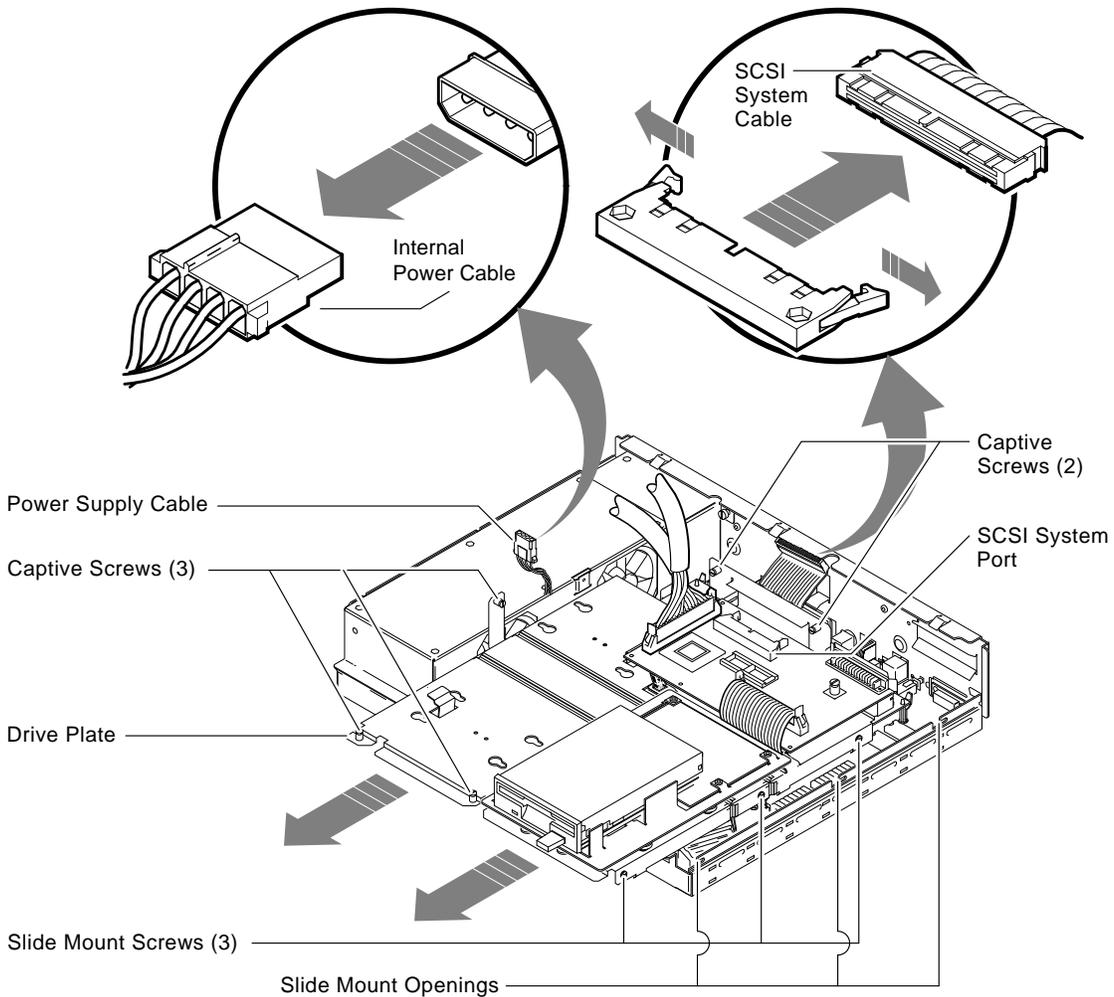
To remove the drive plate, do the following and refer to Figure 1-10:

Step	Action
1.	Disconnect the internal power cable from the internal power supply.
2.	Disconnect the SCSI system cable from the SCSI system port (if it has not already been done).
3.	Loosen the five captive screws.
4.	Loosen the three Phillips-head slide mount screws on the side of the drive plate.
5.	Slide the drive plate towards the front of the system unit and lift it up and out.

Continued on next page

Removing Components from VS 3100 Model 30 or 38, Continued

Figure 1-10 Removing the Drive Plate from a Model 30 or 38 System Unit



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Removing Components from VS 3100 Model 30 or 38, Continued

Note

Depending on the system configuration, the VS 3100 Model 30 or 38 system can have two types of coprocessor modules: the graphics coprocessor module or the scanline coprocessor module. These two modules are similar except for a couple features. To remove the scanline coprocessor, you must remove three screws from the mounting brackets, then release the tabs from the post locks. The graphics coprocessor has only four post locks with tabs holding it to the system board.

Remove the Scanline Coprocessor

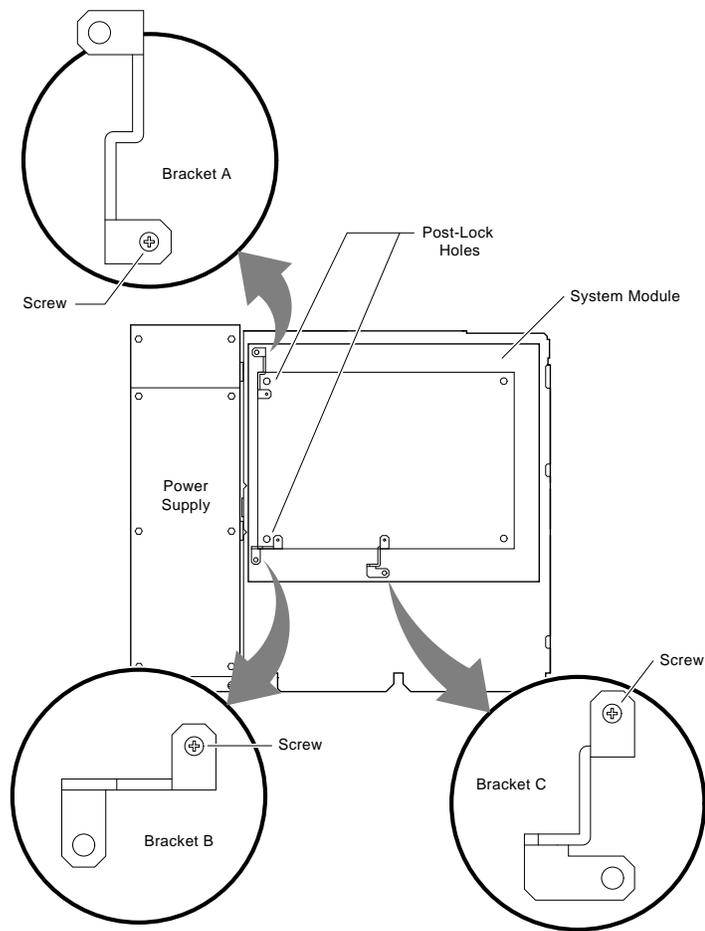
To remove the scanline coprocessor module, do the following and refer to Figure 1-11 and Figure 1-12:

Step	Action
1.	Unscrew and remove the three screws on the mounting brackets that attach the coprocessor to the system board. The mounting brackets will remain attached to the system board.

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Removing Components from VS 3100 Model 30 or 38, Continued

Figure 1-11 Scanline Coprocessor Mounting Brackets



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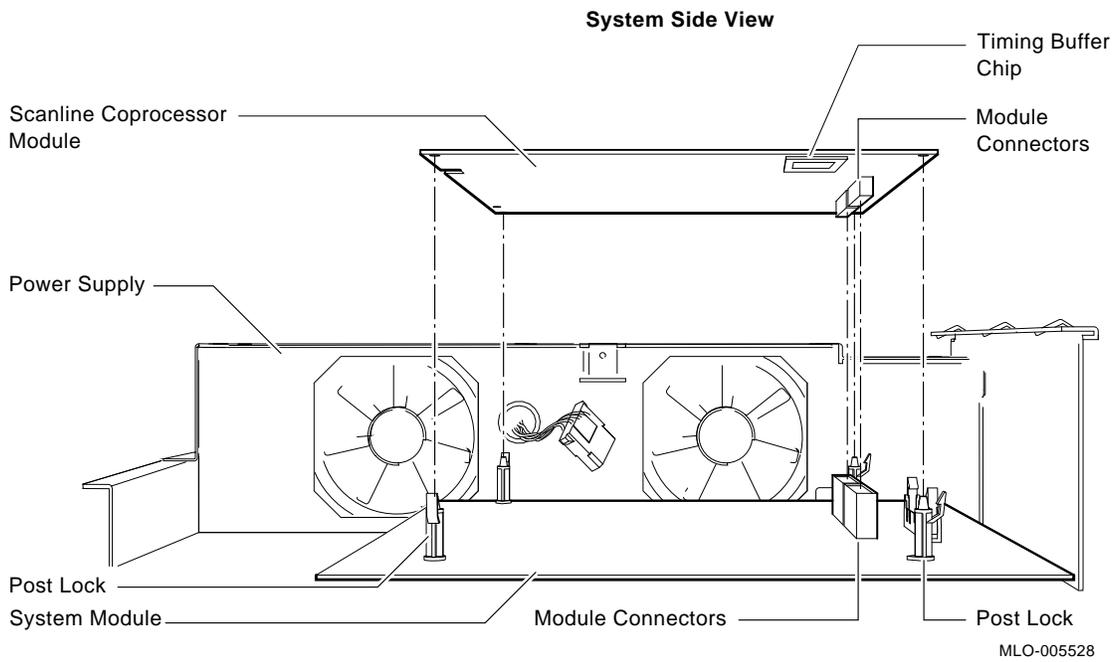
Removing Components from VS 3100 Model 30 or 38, Continued

Step	Action
2.	<p>Remove the scanline coprocessor from the four post locks by pulling back the post lock tabs.</p> <p>CAUTION Do not grasp the scanline coprocessor module by the corners when you are lifting it up to remove it from the system board. The timing buffer chip located underneath the scanline coprocessor module can become easily damaged by any pressure exerted on it.</p>
3.	<p>Grasp the center of the scanline coprocessor module next to the two connectors, and lift it up and off the system board.</p>
4.	<p>Set the scanline coprocessor on an antistatic mat. This module will be reinstalled after the Ethernet ROMs are exchanged.</p>

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Removing Components from VS 3100 Model 30 or 38, Continued

Figure 1-12 Removing the Scanline Coprocessor from the System Board



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Removing Components from VS 3100 Model 30 or 38, Continued

Caution

At this time, all the internal components except for the Ethernet ROM have been removed from a VS 3100 Model 30 or Model 38.

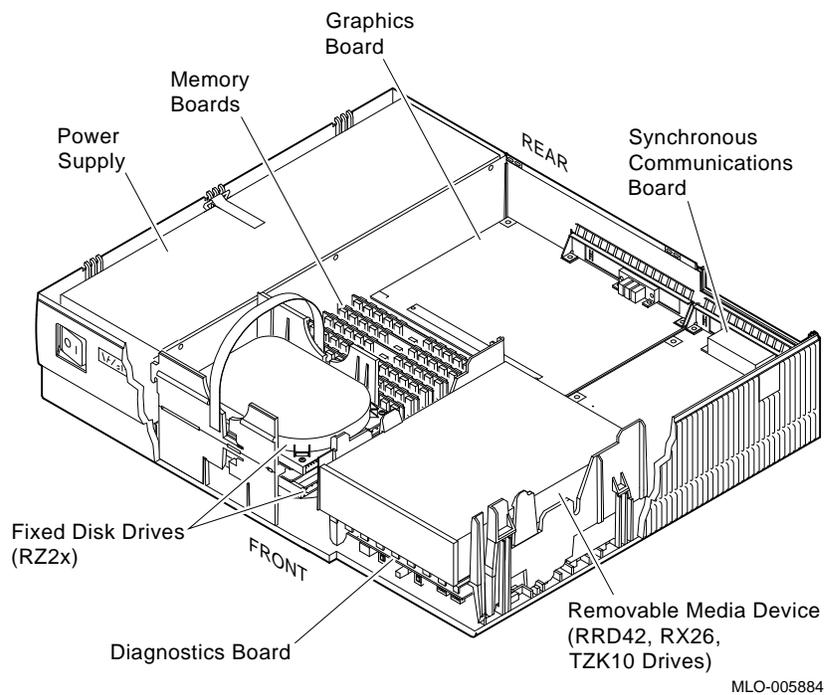
Do not remove the Ethernet ROM from the VS 3100 Model 30 or 38 until you are ready to remove it from the VS 4000 Model 60, thus eliminating any chance of damage occurring to the ROM. You will be instructed when to perform this procedure.

Removing Components on the VS 4000 Model 60

Internal Layout of the VS 4000 Model 60 Workstation

With the top cover removed, Figure 1-13 shows the location of the internal components of the VS 4000 Model 60 workstation.

Figure 1-13 VS 4000 Model 60 Internal Component Locations



Continued on next page

Removing Components on the VS 4000 Model 60, Continued

Remove the Graphics Board

To remove the Ethernet ROM from the VS 4000 Model 60, it is necessary to remove the graphics board.

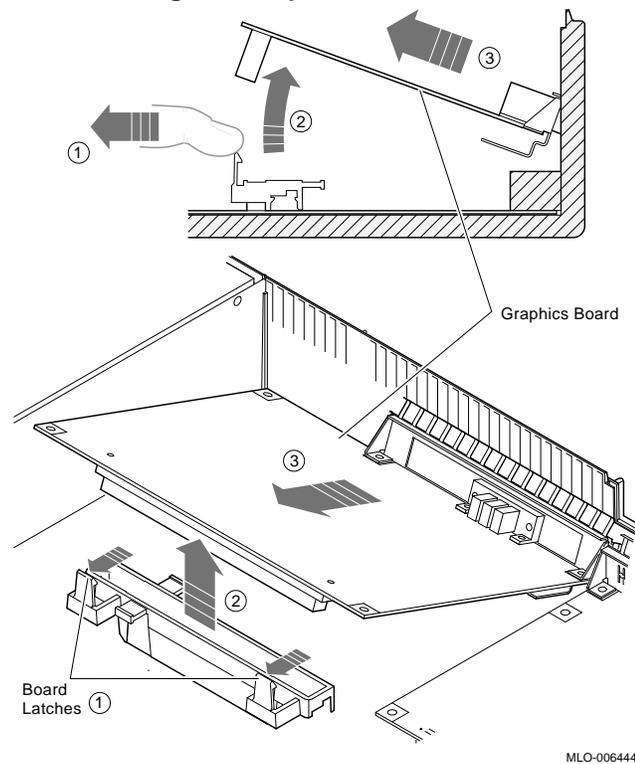
To remove the graphics board, do the following and refer to Figure 1-14:

Step	Action
1.	Remove any external cable that is attached to the graphics port on the rear of the system unit.
2.	Remove the board by releasing the two latches at the end of the board.
3.	Lift the board up and out from the rear of the system unit.

Continued on next page

Removing Components on the VS 4000 Model 60, Continued

Figure 1-14 Removing the Graphics Board



Note

At this time in the upgrade procedure, you are now ready to exchange the two ROMs between workstations.

Exchanging ROMs between the Two Workstations

Cautions

1. When removing the ROMs from the system boards, antistatic precaution must be adhered to.
 2. Before you remove or install the Ethernet ROMs, be sure you note the orientation of the IC chip keyway in relation to the chip IC socket. If you put the Ethernet ROM in backwards, the system will not function.
-

Exchange Ethernet ROMs

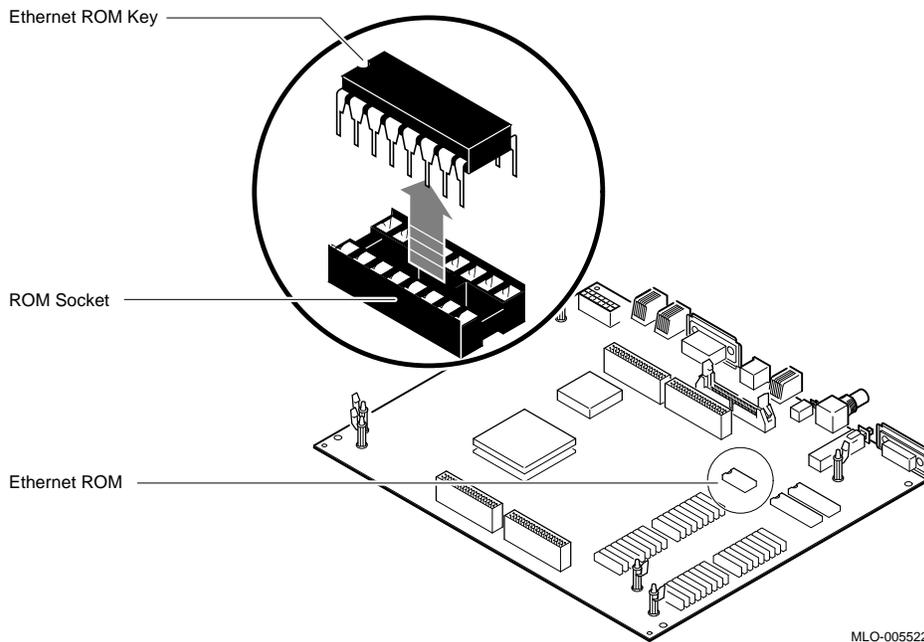
To swap the Ethernet ROMs, do the following and refer to Figure 1–15:

Step	Action
1.	Locate the Ethernet ROM on the VS 4000 Model 60 system board and remove it from the socket using a chip puller. Place the Ethernet ROM on the antistatic mat. NOTE The Ethernet ROM is the only socketed 16-pin chip on the system board. The Ethernet ROM has distinct manufacturer's markings on the top; written on it is the ENET ADRS (abbreviation for "Ethernet Address").

Continued on next page

Exchanging ROMs between the Two Workstations, Continued

Figure 1–15 Removing the Ethernet ROM from the VS 3100 System Board



Step	Action
2.	Examine the pins on the Ethernet ROM. Make sure the pins are straight after removal.
3.	Remove the Ethernet ROM from the VS 3100 system and install it into the system board on the VS 4000 Model 60 system unit.

Continued on next page

Exchanging ROMs between the Two Workstations, Continued

Step	Action
------	--------

- | | |
|----|---|
| 4. | Install the ROM that you removed from the VS 4000 Model 60 workstation into the VS 3100 system board. |
|----|---|
-

Note

Now that the Ethernet ROMs have been exchanged between the two systems, you can now reinstall components into the systems.

Restoring the VS 4000 Model 60 Workstation

Note

When installing components into the VS 4000 workstation, perform the procedures that were previously discussed in the component removal sections of this chapter. Perform all the procedures in reverse order.

Summary of Restoration of VS 4000

Follow these steps in the sequence listed below to restore the VS 4000 Model 60 workstation. Detail instructions for **some** of these steps will follow.

Step	Action
1.	Install the graphics board.
2.	Install two of the RZ2x disk drives that were removed from the VS 3100 system into the H-bracket in the system unit. Connect the power and SCSI signal to these devices. NOTE If there are more than two RZ2x drives to be installed, they must be installed into a storage expansion box. Manually check all RZ2x disk drive ID jumpers to make certain no devices have duplicate SCSI ID numbers before installing them into the system unit.
3.	Check that all the remaining system unit SCSI cables are firmly connected to each device (RRD42, TZK10, and RX26).

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Step	Action
4.	Install the system unit top cover.
5.	Install all the following external system unit cables and the terminator that was removed from the VS 3100 workstation: <ul style="list-style-type: none">• System power cord• Monitor power cord• SCSI terminator or cable• Loopback connector and T-connector or communication cables• Mouse cable• Keyboard cable• Monitor video cable

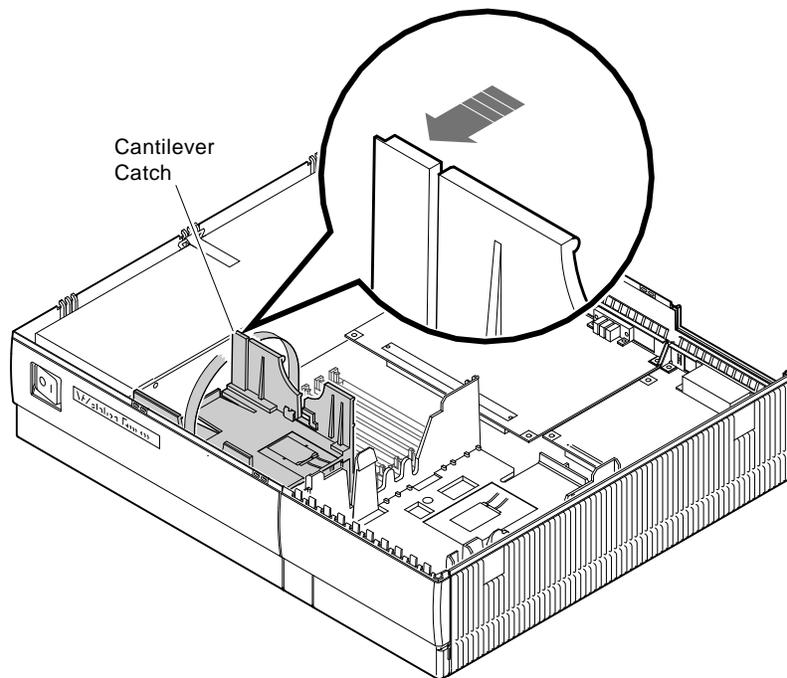
Remove the H-Bracket from the System Unit

It is necessary to remove the H-bracket from the system unit in order to install the RZ2x disk drives. Push in on the cantilever catch on the H-bracket and lift the bracket straight up and out of the system unit. See Figure 1-16.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Figure 1-16 Removing the H-Bracket from the System Unit



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Note

There are special H-bracket mounting plates that must be installed on the RZ2x disk drives before the drives can be installed in the H-bracket. These mounting plates will be a part of the VS 4000 Model 60 upgrade kit.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Install the Disk Drives on an H-Bracket

To install the RZ2x drives into the H-bracket, do the following and refer to Figure 1-17 and Figure 1-18:

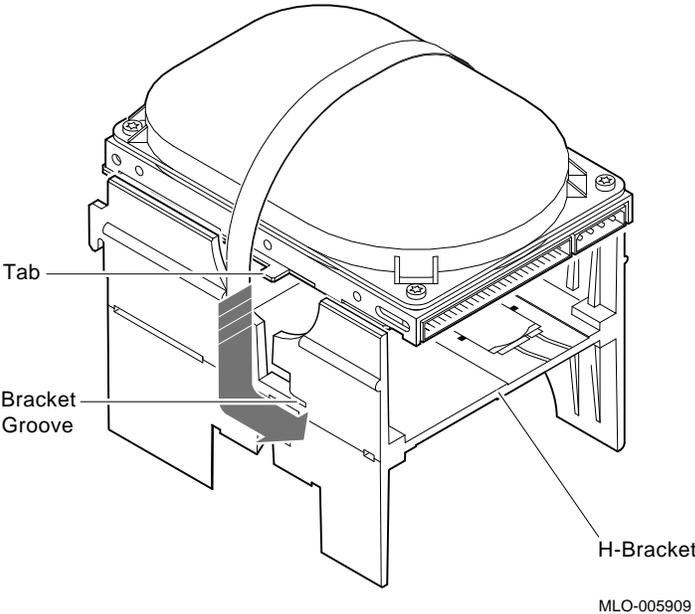
- | Step | Action |
|------|---|
| 1. | Place the first RZ2x drive in the H-bracket by orientating both the mounting bracket tab and the H-bracket groove. |
| 2. | Lower the drive into the H-bracket and press down firmly , sliding the drive until it locks in place on the H-bracket. |
| 3. | If two RZ2x drives are to be installed in the H-bracket, turn the H-bracket over and repeat step 2. |
| 4. | Connect the SCSI signal and power cables to the disk drives and replace the H-bracket into the system unit. |

WARNING When replacing the H-bracket in the system unit, beware of the sharp plastic teeth on the top edge of the bezel. Also, be careful not to pinch your fingers under the bottom edge of the H-bracket.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

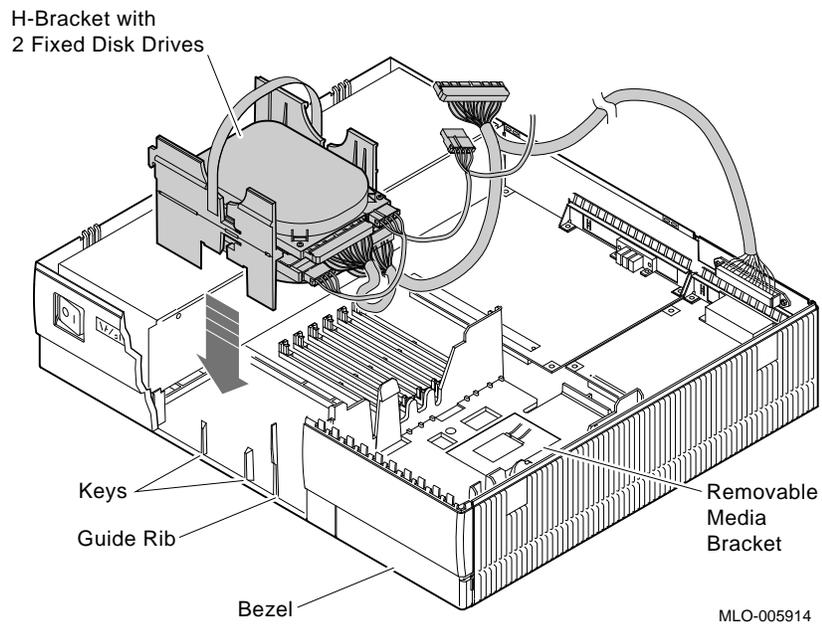
Figure 1-17 Installing the first RZ2x Drive into an H-Bracket



Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Figure 1-18 Replacing the H-bracket into the System Unit



Powering Up the VS 4000 Model 60 After Upgrade

Power up Sequence

With all the cables connected, turn the workstation peripherals **On** in the following sequence:

Step	Power On...
1.	Storage expansion box, if you have one
2.	Printer and modem, if you have them
3.	Monitor
4.	System unit

Automatic Test Display

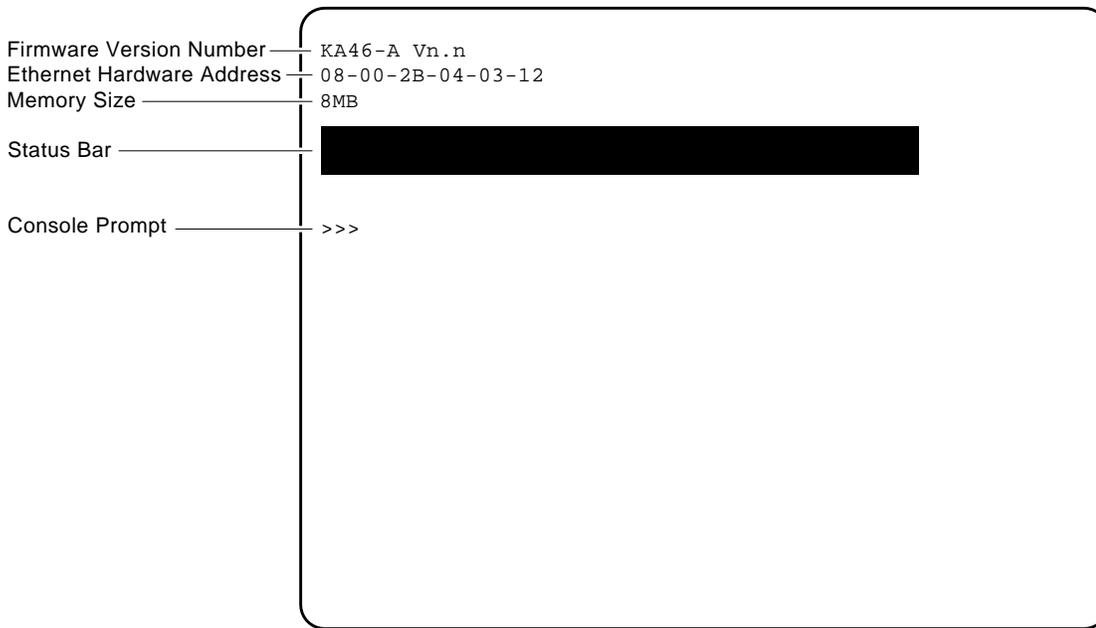
When you first turn on the system unit, the following will happen automatically:

1. The system will beep to let you know that the system is running self tests.
2. As each test completes, the status bar will start to fill. When all tests have been completed without error, the status bar will be filled completely. See Figure 1-19.

Continued on next page

Powering Up the VS 4000 Model 60 After Upgrade, Continued

Figure 1-19 Automatic Test Display



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Running the Show Config Command

Show Config Command

To display the **Show Config** command on the screen, do the following and refer to Figure 1-20:

Step	Action
1.	Open the door on the front of the system unit.
2.	Press the Halt button. The system will display the console command prompt (>>>).
3.	At the prompt, type show config and hit Return .

Continued on next page

Running the Show Config Command, Continued

Figure 1-20 Show Config Command Display

```
>>> SHOW CONFIG
KA46-A Vn.n
08-00-2B-0A-7D-CB
8MB

DEVNBR  DEVNAM  INFO
-----  -
  1      NVR     OK
  2      LCG     OK
                LR-MONO FB-1.0
  3      DZ      OK
  4      CACHE   OK
  5      MEM     OK
                8MB = SY=8MB, S0/1=0MB, S2/3=0MB, S4/5=0MB
  6      FPU     OK
  7      IT      OK
  8      SYS     OK
  9      NI      OK
 10     SCSI     OK
                0-RZ23L  5-RZ24  6-INTR
11     AUD     OK
12     COMM    OK
>>>
```

SCSI Line ————— 0-RZ23L 5-RZ24 6-INTR

SCSI ID Number —————

Component Mnemonic —————

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Continued on next page

Running the Show Config Command, Continued

Examine the Screen Display

Compare the data on the screen with the data you received when you did a **Show Device** on the VS 3100 Model 30 or 38 workstation before powering down.

Verify that:

- The Ethernet address is the same as it was on the VS 3100.
 - The SCSI ID numbers are not duplicated.
 - All the system devices (1 through 11) have an **OK** beside them under the **INFO** column.
-

Note

If the screen does not show any error codes, you have successfully completed the upgrade and you are ready to *boot* the system.

If the system shows any error messages or error codes, refer to the *VAXstation 4000 Model 60 Service Information Kit*, EK-V466B-SV-001 for system testing and troubleshooting procedures.

Restoring the VS 3100 Model 30 or 38 for Shipment to Digital

Note

When installing components into the VS 3100 workstation, perform the procedures that were previously discussed in the component removal sections of this chapter. Perform all the procedures in reverse order.

Install System Unit Components

Before the VS 3100 system can be returned, the following components must be installed:

1. Ethernet ROM from the VS 4000 Model 60 system
 2. Either the graphics or scanline coprocessor module
 3. Mass storage controller module
 4. Disk drive plate
 5. System unit cover
-

Return Forms

The following Return Forms must be filled out:

- Digital Services Upgrade Worksheet
 - Digital Services and Customer Installation Receipt
 - Returns Material Checklist
-

Note

The Digital Services representative will work with the customer to ensure that the hardware is packaged properly and the proper forms are filled out.

See Appendix A for a copy of the Return Forms.

Chapter 2

Upgrade of VS 3100 Model 40 or 48 Workstation to a VS 4000 Model 60 Workstation

Overview

Introduction

By upgrading the VS 3100 Model 40 or 48 workstation to a VS 4000 Model 60 workstation, the customer is able to leverage their initial investment in existing Digital VMS hardware to a faster and more powerful computer system.

Purpose

The purpose of this chapter is to provide upgrade information so that Digital Services Engineers or knowledgeable Digital customers can upgrade an existing VS 3100 Model 40 or 48 workstation to a VS 4000 Model 60 workstation.

Caution

Only Digital Services or qualified self maintenance personnel should perform this upgrade. You must have a working knowledge of and experience working on the internal hardware devices of a VAXstation 3100 system. If you are not qualified to perform this upgrade, call Digital Services to schedule an upgrade.

Continued on next page

Overview, Continued

Chapter Content

This chapter describes how to upgrade a VAXstation 3100 Model 40 or Model 48 workstation. These two systems are very similar in structure. When there are differences between the upgrade instructions, it will be called out with a **Note** specifying the differences between the two models. This chapter contains the following information:

- ❶ Preparing the VS 3100 Model 40 or 48 workstation for upgrade
 - ❷ Shutting down the system peripherals and disconnecting cables
 - ❸ Protecting against static
 - ❹ Removing top covers on system units
 - ❺ Removing internal components on the VS 3100 system unit
 - ❻ Removing internal components from the VS 4000 model 60 system unit
 - ❼ Swapping Ethernet ROMs between system units
 - ❽ Restoring the VS 4000 Model 60 workstation
 - ❾ Powering up the VS 4000 Model 60 workstation after upgrade
 - ❿ Running the Show Config command
 - ⓫ Restoring the VS 3100 model 40 or 48 for shipment back to Digital
-

Preparing the VS 3100 Model 40 or 48 for Upgrade

Run Show Device Command

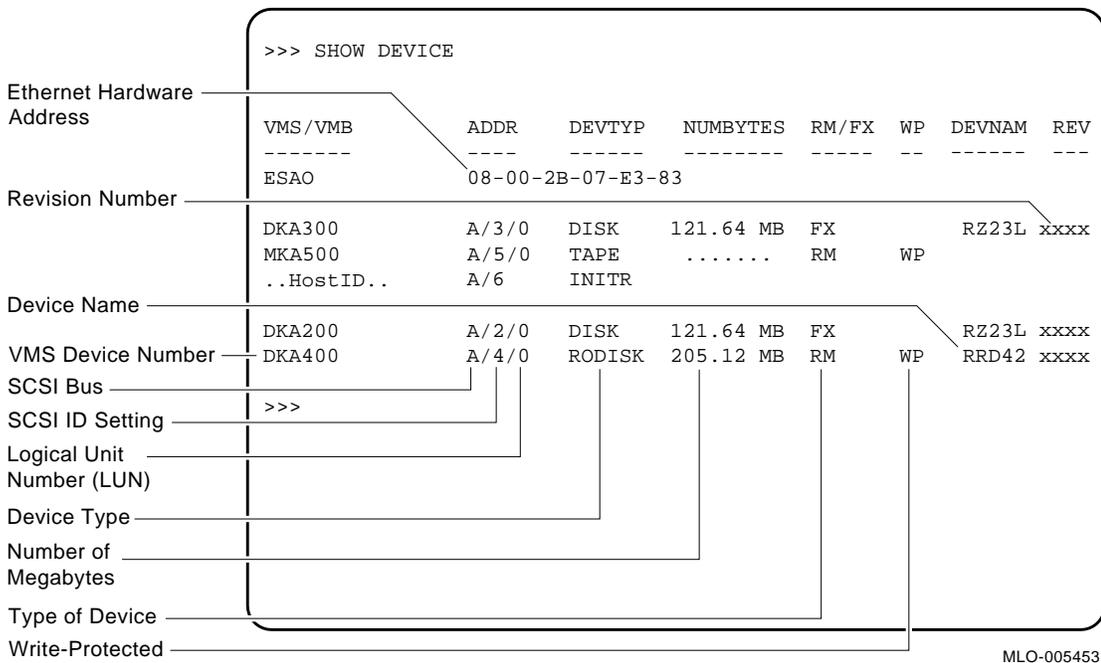
To run the **Show Device** command, do the following and refer to Figure 2-1:

Step	Action
1.	Press the Halt button in the rear of the system unit. <u>Results:</u> The system displays the console prompt (>>>) on the screen.
2.	Type Show Device at the console prompt and press Return . Record the Ethernet hardware address. This address will be verified on the completion of the upgrade.
3.	Verify that no two devices have the same SCSI ID numbers.

Continued on next page

Preparing the VS 3100 Model 40 or 48 for Upgrade, Continued

Figure 2-1 Typical Screen Display of a Show Device Command



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Preparing the VS 3100 Model 40 or 48 for Upgrade, Continued

Console Commands and Software Upgrades

Before proceeding with the upgrade, you must record the existing console command settings, to be verified later in the upgrade. You must back up the system and user disks, and verify VMS software versions.

Procedure	Refer to...
Run the console commands and record the settings of the dynamic memory	<i>VAXstation 3100 Model 40 or 48 Owner's Guide</i> EK-VSM40-OM
Back up the system and user disks	<i>VMS Backup Utility Manual</i> AA-LA35A-TE
Verify VMS operating system software is at Version 5.5 or higher	<i>VMS Installation and Operations Manual</i> AA-NY74B-TE

Note

All system backups and VMS software version upgrades are the responsibility of the Digital customer.

Shutting Down Peripherals and Disconnect Cables

Note

Refer to the operating system software documentation for the proper operating system shutdown procedure.

VMS Installation and Operations Manual
AA-NY74B-TE

Shut Down the System

After shutting down the operating system, turn the system peripherals off in the following order:

1. Expansion boxes
 2. Printer, modem, and other equipment
 3. Monitor
 4. System unit box
-

Disconnect Cables

Disconnect the following cables from the back of the system and refer to Figure 2-2:

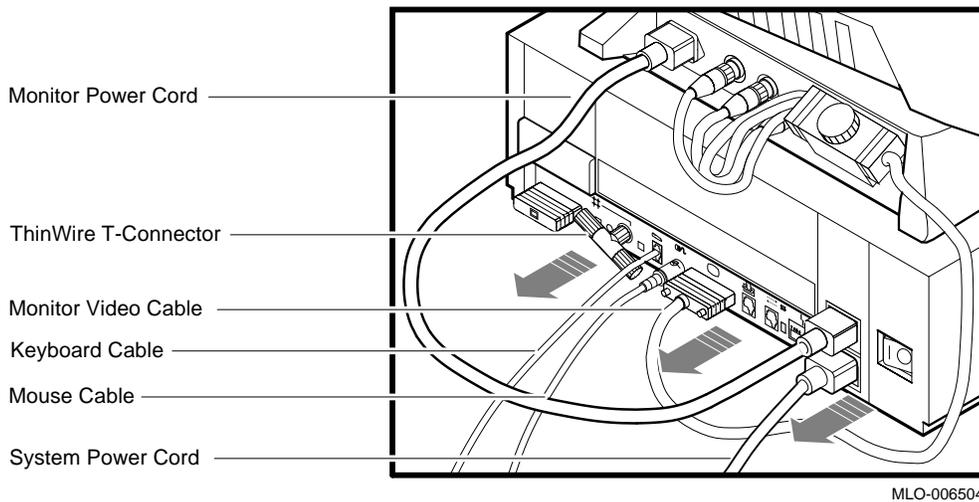
1. System power cord first from the wall and then from the system unit
 2. Monitor power cord
 3. Keyboard cable
 4. Mouse cable
 5. ThinWire Ethernet or standard Ethernet connector
 6. SCSI terminator or external SCSI cable
 7. Monitor video cable
 8. Printer and communications cables
-

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Shutting Down Peripherals and Disconnect Cables, Continued

9. Remove the monitor from the top of the system unit and set it aside

Figure 2-2 Disconnecting the System Unit and Monitor Cables



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Shutting Down Peripherals and Disconnect Cables, Continued

Identify the System

After the cables have been disconnected and before beginning the upgrade, you need to identify the system to be upgraded.

To identify the Model 40 or 48 system, do the following:

Step	Action
1.	View the system unit from the rear.
2.	Locate the sticker label with either model code number VS42S-xx for a Model 40 system or WS42S-xx for a Model 48 system.
3.	Does the system unit have the proper model code number? <ul style="list-style-type: none">• If <u>yes</u>, continue with this chapter.• If <u>no</u>, go to another chapter in this guide for that particular model code number. Refer to About This Guide in this document to determine which chapter you need to go to.

Protecting Against Static

Caution

To eliminate any static charge that you may have built up, touch your index finger to the top of the power supply in one of the system units. This will discharge any static electricity.

Use the Antistatic Wrist Strap

The following rules **must** be adhered to while handling system components:

1. Wear a properly grounded antistatic wrist strap.
2. Any device removed from a system unit that can not be reinstalled in the other system unit must be placed on an antistatic mat.

To handle the system components, do the following and refer to Figure 2-3:

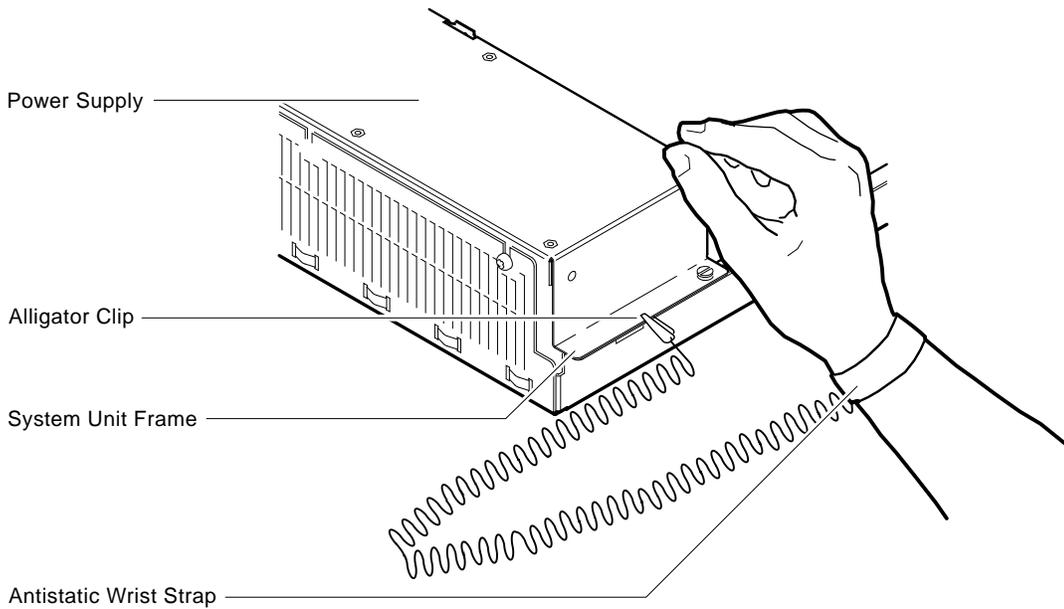
Step	Action
1.	Place the Model 40 or Model 48 system unit and the Model 60 system unit side by side on an antistatic mat.
2.	Plug the Model 40 or Model 48 monitor power cord into the monitor power port on the back of the Model 40 or Model 48 system unit.
3.	Plug the other end of the monitor power cord into the system power port on the back of the VS 4000 Model 60 system unit. The two system units now have a common ground between them (daisy chained).

Continued on next page

Protecting Against Static, Continued

Step	Action
4.	Attach the alligator clip of the antistatic wrist strap to the power supply of <i>any</i> system unit when installing or removing components.

Figure 2–3 Attaching the Antistatic Wrist Strap to the System Unit



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Continued on next page

Protecting Against Static, Continued

Alternate Static Protection Method

An alternate method of using the antistatic wrist strap is:

Step	Action
1.	Place the antistatic strap on your wrist.
2.	Connect the alligator clip to the chassis frame in front of the VS 3100 power supply.

NOTE This method is the least desirable because the alligator clip has to be moved from system unit to system unit when exchanging components.

Removing Top Covers of the System Units

VS 4000 Model 60 System Unit

Place the VS 4000 Model 60 system and the VS 3100 Model 40 or 48 system unit side by side on a flat clean surface on an antistatic mat.

Caution

When removing the cover, you will need to pull forcefully to release the retention devices on the middle of the front and rear edges of the cover. Pulling forcefully will not break the cover as long as the latches on the right side are released.

Remove the Top Cover of the VS 4000

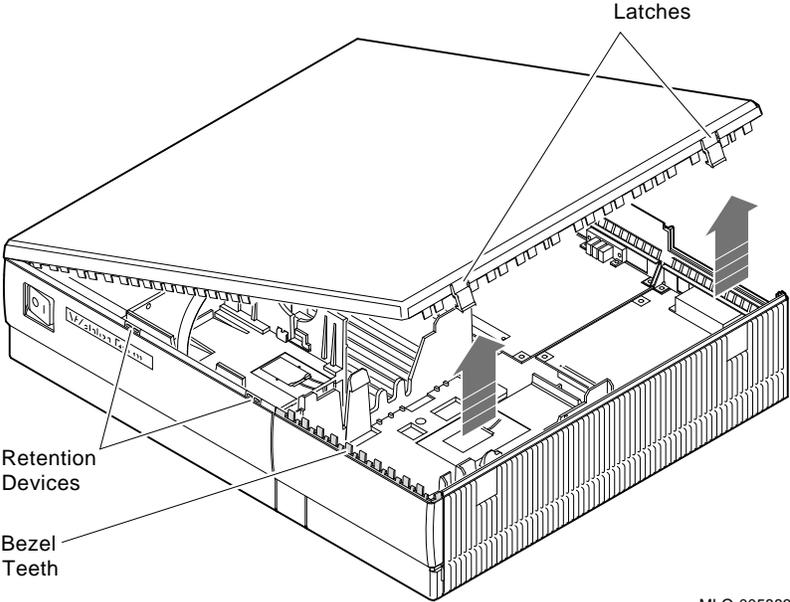
To remove the top cover of the VS 4000 Model 60, do the following and refer to Figure 2-4:

Step	Action
1.	Carefully release the latches on the right side of the system unit.
2.	Pull the cover up and away from the system.
3.	Place the cover aside. It will be used later during repackaging.

Continued on next page

Removing Top Covers of the System Units, Continued

Figure 2-4 Removing Top Cover on the VS 4000 Model 60



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Removing Top Covers of the System Units, Continued

Remove the Top Cover of the VS 3100

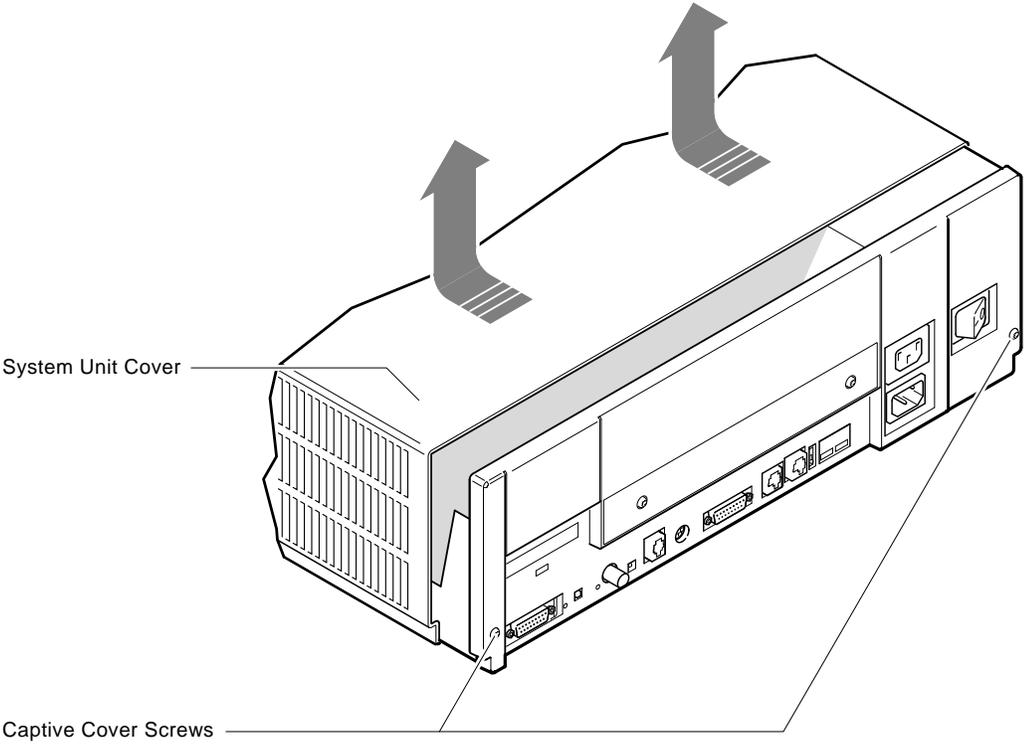
To remove the system unit cover on the VS 3100 workstation, do the following and refer to Figure 2-5:

Step	Action
1.	Using a Phillips-head screwdriver, unscrew the two captive screws at the back of the unit on the outside edges. Unscrew these screws until they are loose, do not remove them.
2.	Slide the cover towards the front of the system and lift it up and away from the system unit.
3.	Place the cover aside. It will be used later during repackaging.

Continued on next page

Removing Top Covers of the System Units, Continued

Figure 2-5 Removing the System Unit Cover on the VS 3100 Model 40 or 48



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Removing Components from VS 3100 Model 40 and 48

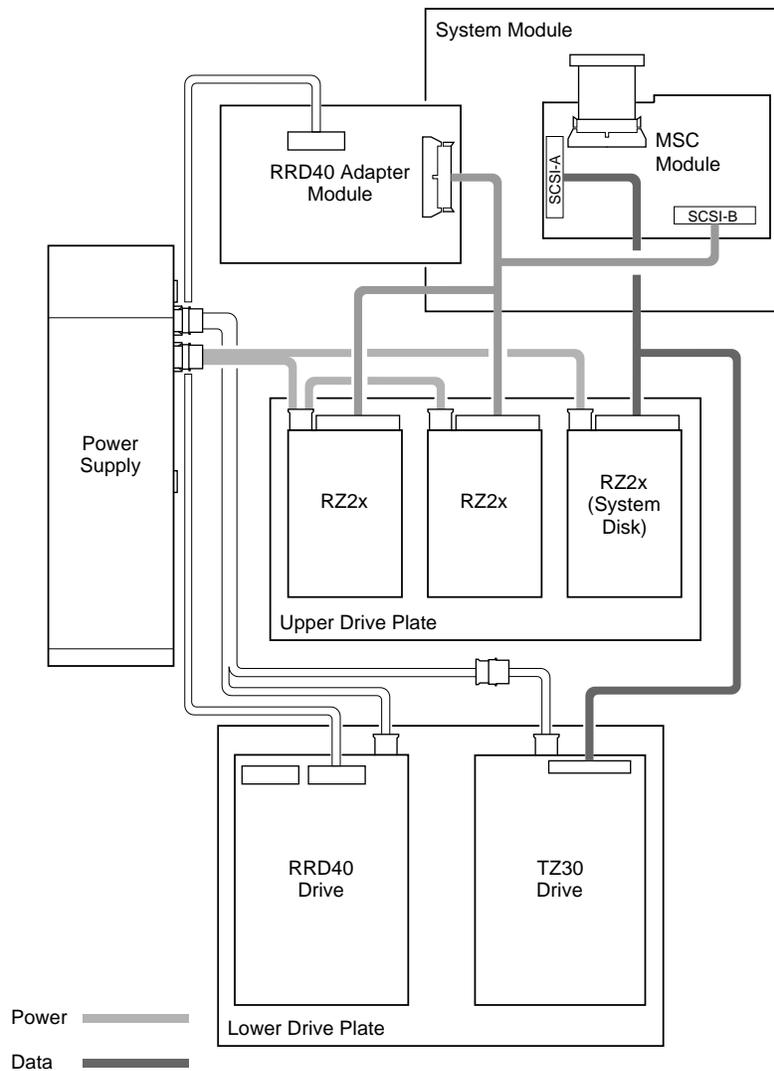
Typical Drive Plate Layout

There are numerous possible drive plate configurations for the VS 3100 Model 40 or 48, including two different types of drive plates. There are also different kinds of SCSI mass storage controllers depending on the model being upgraded. Figure 2–6 shows a common configuration of a Model 40 or 48 drive plate.

Continued on next page

Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2-6 Common Configuration for a Model 40 or 48 Drive Plate



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Removing Components from VS 3100 Model 40 and 48, Continued

Remove the Upper Drive Plate

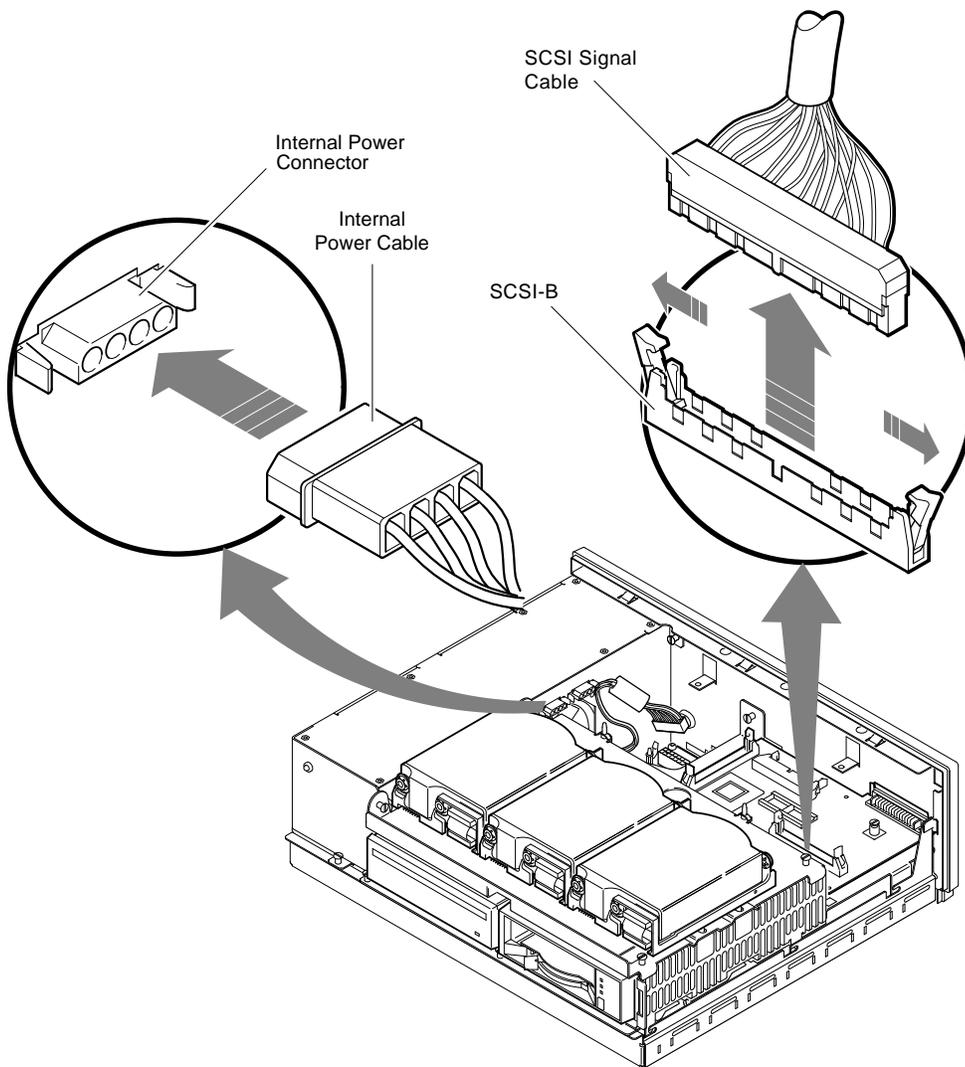
To remove the upper drive plate, do the following and refer to Figure 2-7 and Figure 2-8:

Step	Action
1.	Connect the alligator clip from the wrist strap to the system unit.
2.	Disconnect the SCSI signal cables from all the RZ2x disk drives.
3.	Disconnect the internal power cables from all the RZ2x disk drives.
4.	Disconnect the internal power cable from the power supply.
5.	Disconnect the SCSI signal cable from the SCSI/ST506 mass storage module.
6.	Lift the RRD40 adapter module from the four plastic standoffs. Let the module extend over the back of the system unit.
7.	Loosen the five captive screws shown in Figure 2-8.
8.	Slide the drive plate with attached disk drives forward and lift it off the unit.

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Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2-7 Disconnecting the SCSI Signal and Power Cables

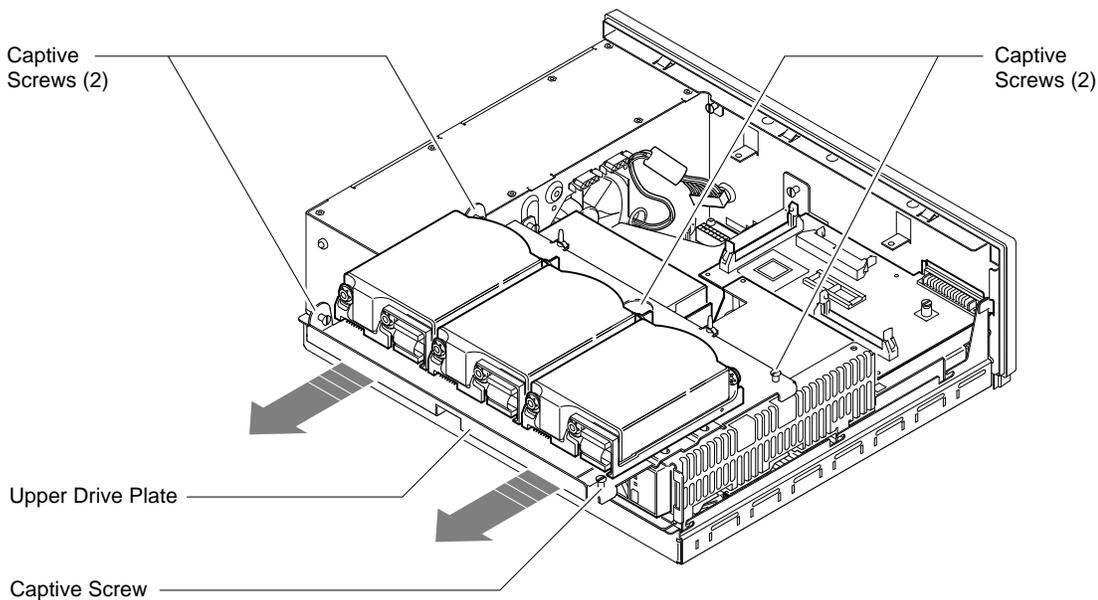


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Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2–8 Removing the Upper Drive Plate from the System Unit



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Remove RZ2x Disk Drives

Remove the RZ2x disk drives from the upper drive plate. Two of these drives may be installed into the VS 4000 Model 60 system unit.

To remove the RZ2x disk drives from the upper drive plate, do the following and refer to Figure 2–9:

Continued on next page

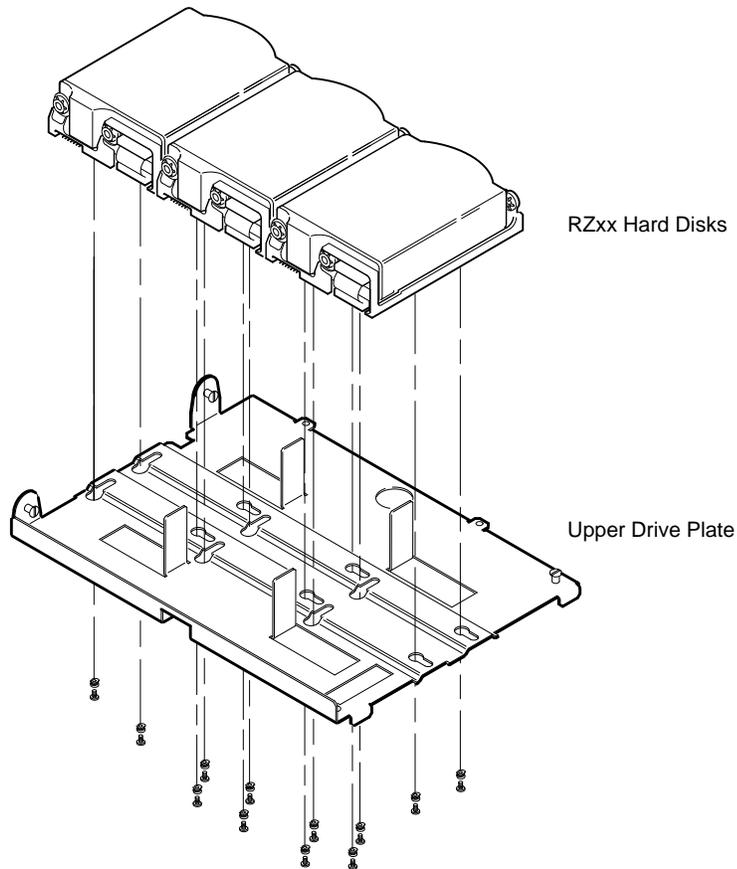
Removing Components from VS 3100 Model 40 and 48, Continued

Step	Action
1.	Turn the Model 40 or 48 upper drive plate over so the RZ2x drives are face down.
2.	Using a Phillips-head screwdriver, unscrew the four screws that hold each drive to the drive plate. Support each drive with one hand when removing the last screw.
3.	Set the drives aside, they will be installed in the VS 4000 Model 60 later.

Continued on next page

Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2-9 Removing RZ2x Hard Disks from the Drive Plate



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Removing Components from VS 3100 Model 40 and 48, Continued

Note

The screws and grommets removed from the drive plate will not be used again. The VS 4000 Model 60 upgrade kit includes special mounting plates for the RZ2x disk drives that will be installed in the system unit H-bracket.

Caution

When you are removing the lower drive plate from the system unit, do not make contact with the circuit boards underneath, such as the system board and the memory boards. Contact between the drive plate and the circuit boards could cause the circuit boards irreparable damage.

Continued on next page

Removing Components from VS 3100 Model 40 and 48, Continued

Remove the Lower Drive Plate

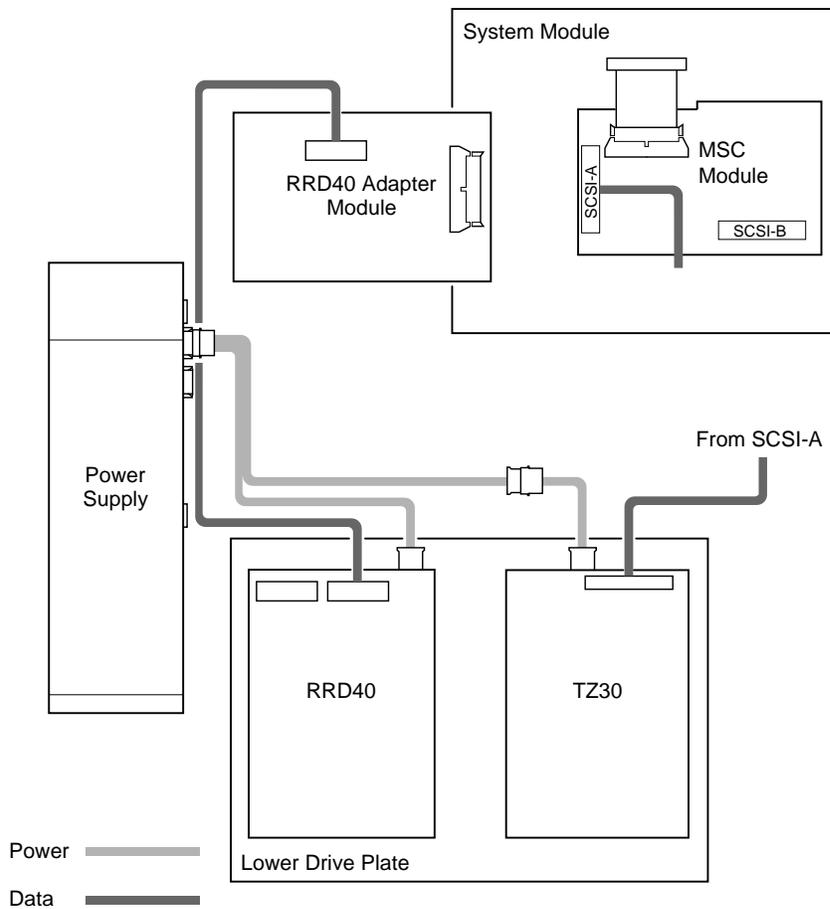
To remove the lower drive plate from the system unit, do the following and refer to Figure 2–10 and Figure 2–11:

Step	Action
1.	Remove the RRD40 adapter module by disconnecting the cable from the SCSI bus and the RRD40 compact disk drive.
2.	Disconnect the internal power cable from the TZ30 tape drive (if installed).
3.	Disconnect the SCSI signal cable on the TZ30 to the mass storage controller (if installed).
4.	Disconnect the internal power cable from the RRD40 compact disk.
5.	Loosen the four captive screws and the three slide mount screws shown in Figure 2–11. Do not remove the screws.
6.	Slide the lower drive plate forward, then lift the plate from the system unit.

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Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2-10 Lower Drive Plate Configuration

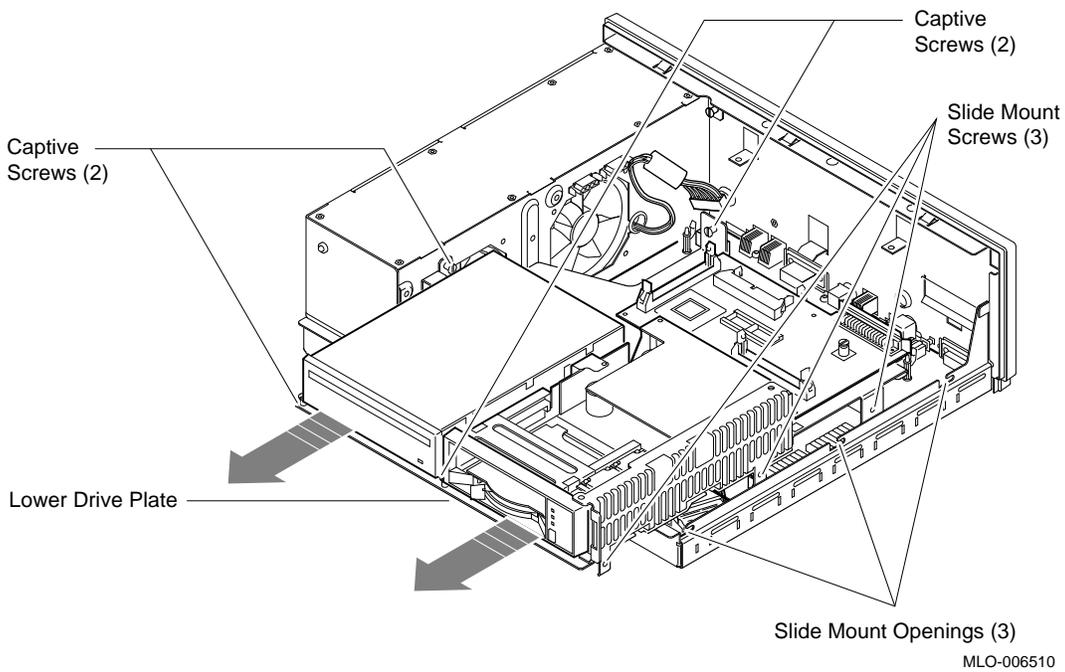


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Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2-11 Removing the Lower Drive Plate



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Removing Components from VS 3100 Model 40 and 48, Continued

Remove the TZ30 and RRD40 from the Drive Plate

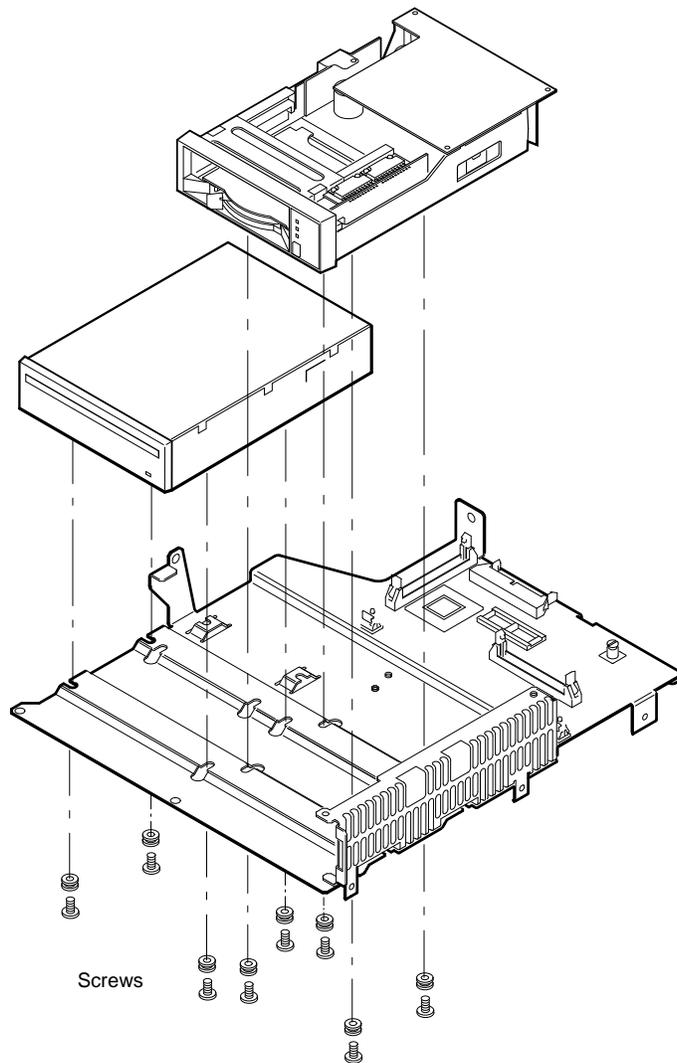
To remove the TZ30 and RRD40 from the drive plate, do the following and refer to Figure 2-12:

Step	Action
1.	Turn the Model 40 or 48 lower drive plate over so the TZ30 and the RRD40 are face down.
2.	Using a Phillips-head screwdriver, unscrew the four screws holding each module to the lower drive plate. Support each drive with one hand when removing the last screw.
3.	Place the drives aside, they may be installed in the VS 4000 Model 60 system unit or an expansion box.

Continued on next page

Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2-12 Removing the TZ30 and the RRD40 from the Lower Drive Plate



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Removing Components from VS 3100 Model 40 and 48, Continued

Note

Depending on the system configuration, the VS 3100 Model 40 or 48 system can have two types of coprocessor modules: the graphics coprocessor module or the scanline coprocessor module. These two modules are similar except for a couple features. To remove the scanline coprocessor, you must remove three screws from the mounting brackets, then release the tabs from the post locks. The graphics coprocessor module has only four post locks with tabs holding it to the system board.

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Removing Components from VS 3100 Model 40 and 48, Continued

Remove the Scanline Coprocessor

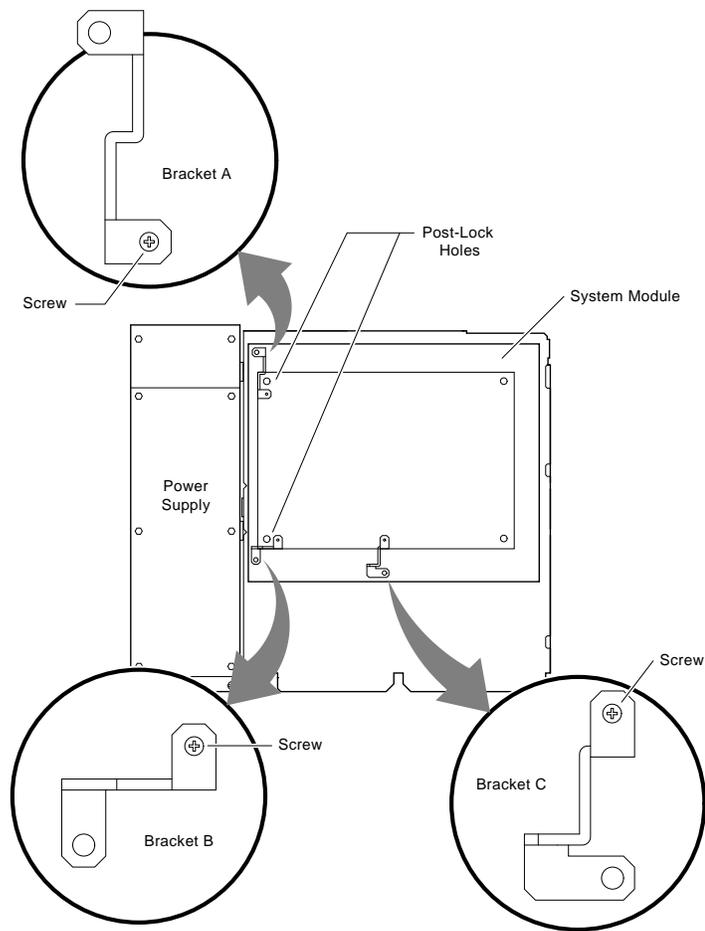
To remove the scanline coprocessor module, do the following and refer to Figure 2–13 and Figure 2–14:

Step	Action
1.	Unscrew and remove the three screws on the mounting brackets that attach the coprocessor to the system board. The mounting brackets will remain attached to the system board.
2.	Remove the scanline coprocessor from the four post locks by pulling back the post lock tabs. CAUTION Do not grasp the scanline coprocessor module by the corners when you are lifting it up to remove it from the system board. The timing buffer chip located underneath the scanline coprocessor module can become easily damaged by any pressure exerted on it.
3.	Grasp the center of the scanline coprocessor module next to the two connectors, and lift it up and off the system board.
4.	Set the scanline coprocessor on an antistatic mat. This module will be reinstalled after the Ethernet ROMs are exchanged.

Continued on next page

Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2-13 Scanline Coprocessor Mounting Brackets

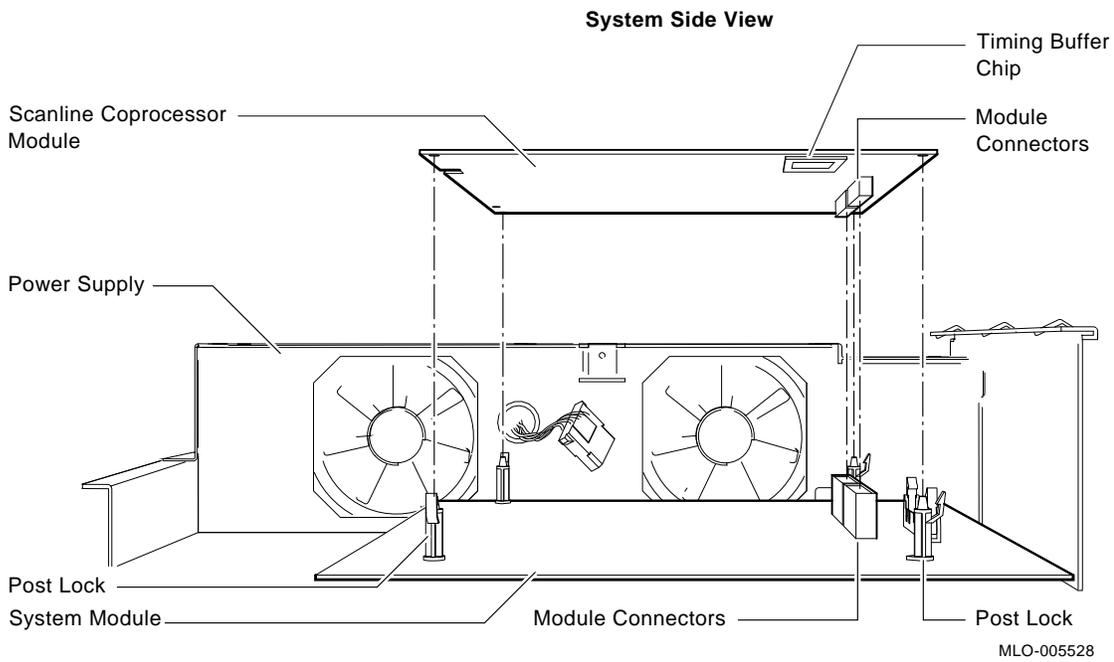


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Removing Components from VS 3100 Model 40 and 48, Continued

Figure 2-14 Removing the Scanline Coprocessor from the System Board



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Removing Components from VS 3100 Model 40 and 48, Continued

Caution

At this time, all the internal components except for the Ethernet ROM have been removed from a VS 3100 Model 40 or Model 48.

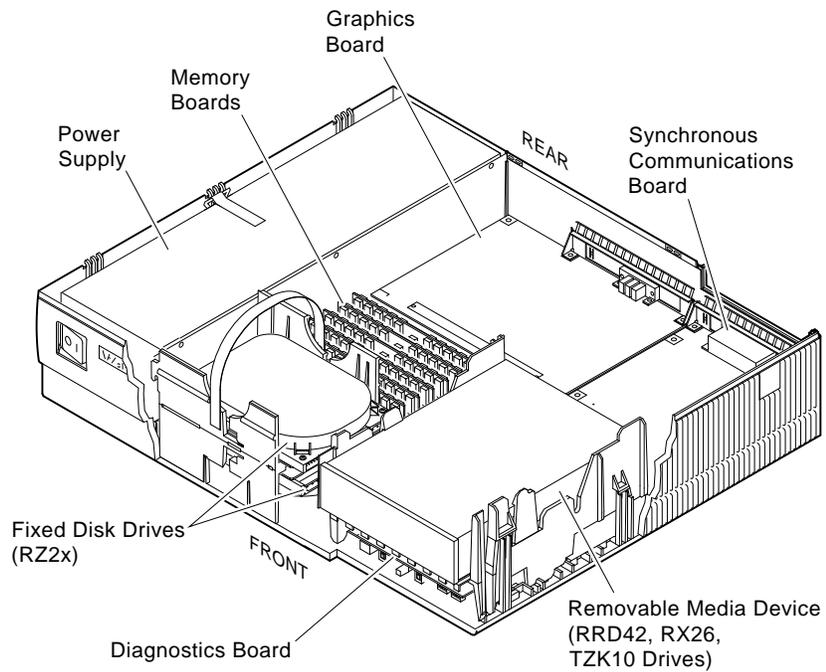
Do not remove the Ethernet ROMs from the VS 3100 Model 40 or 48 until you are ready to remove it from the VS 4000 Model 60, thus eliminating any chance of damage occurring to the ROMs. You will be instructed when to perform this procedure.

Removing Components from the VS 4000 Model 60

Internal Component Locations

With the top cover removed, Figure 2-15 shows the location of the internal components of the VS 4000 Model 60 workstation.

Figure 2-15 VS 4000 Model 60 Component Locations



Continued on next page

Removing Components from the VS 4000 Model 60, Continued

Remove the Graphics Board

To remove the Ethernet ROM from the VS 4000 Model 60, it is necessary to remove the graphics board.

To remove the graphics board, do the following and refer to Figure 2-16:

Step	Action
1.	Remove any external cable that is attached to the graphics port on the rear of the system unit.
2.	Remove the board by releasing the two latches at the end of the board.
3.	Lift the board up and out from the rear of the system unit.

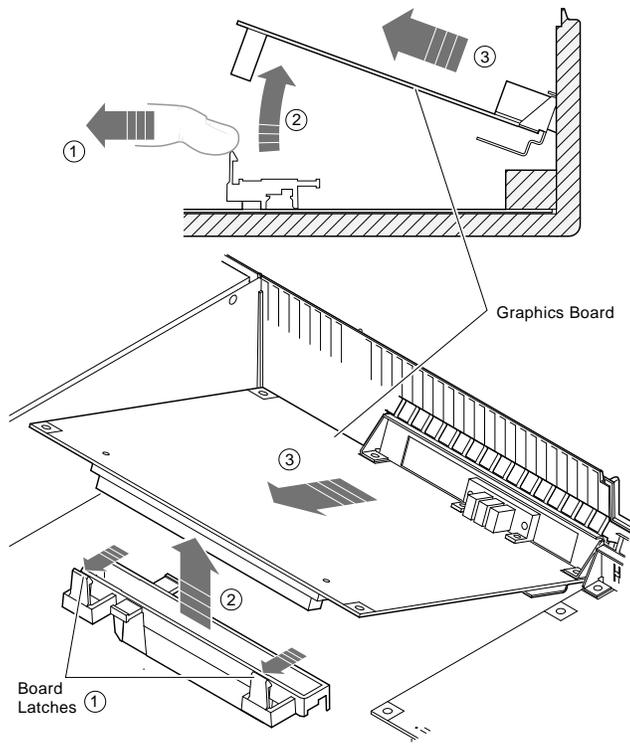
Note

At this time in the upgrade procedure, you are now ready to exchange the two ROMs between workstations.

Continued on next page

Removing Components from the VS 4000 Model 60, Continued

Figure 2-16 Removing the Graphics Board from the Model 60 System



Exchanging ROMs between the two Workstations

Cautions

1. When removing the ROMs from the system boards, antistatic precaution must be adhered to.
 2. Before removing or installing any Ethernet ROMs, be sure you note the orientation of the IC chip keyway in relation to the chip IC socket. If you put the Ethernet ROM in backwards, the system will not function.
-

Exchange Ethernet ROMs

To remove and install the ROMs, do the following and refer to Figure 2-17:

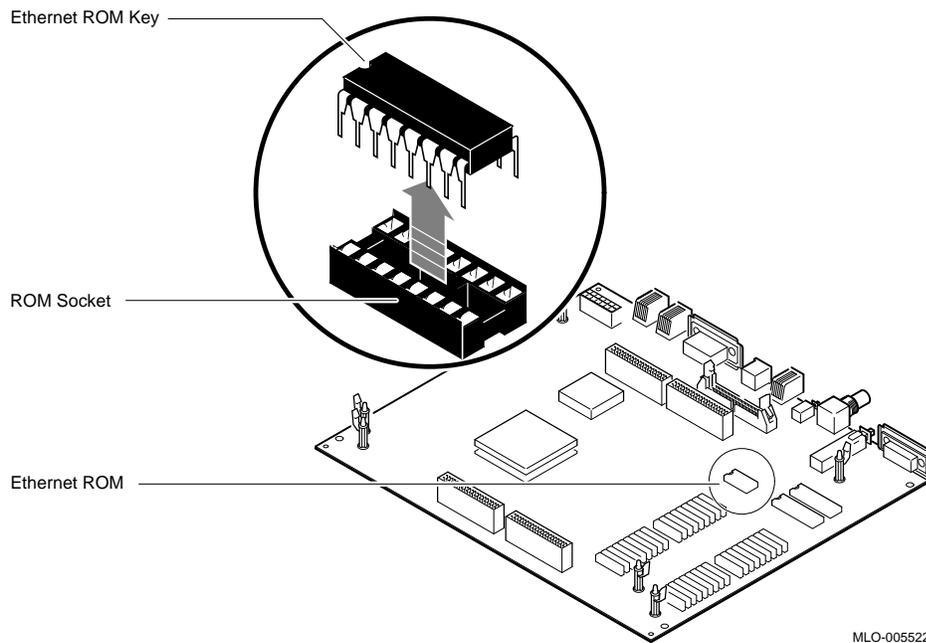
Step	Action
1.	Locate the Ethernet ROM on the VS 4000 Model 60 system board and remove it from the socket using a chip puller. Place the Ethernet ROM on the antistatic mat. NOTE The Ethernet ROM is the only socketed 16-pin chip on the system board. The Ethernet ROM has distinct manufacturer's markings on the top; written on it is the ENET ADRS (abbreviation for "Ethernet Address").
2.	Examine the pins on the Ethernet ROM. Make sure the pins are straight after removal.
3.	Remove the Ethernet ROM from the VS 3100 system and install it into the system board on the VS 4000 Model 60 system unit.

Continued on next page

Exchanging ROMs between the two Workstations, Continued

Step	Action
4.	Install the ROM that you removed from the VS 4000 Model 60 workstation into the VS 3100 Model 40 or 48 system board.

Figure 2-17 Removing the Ethernet ROM from the VS 3100 System Board



Continued on next page

Exchanging ROMs between the two Workstations, Continued

Note

Now that the Ethernet ROMs have been exchanged between the two systems, you can now reinstall components into the systems.

Continued on next page

Restoring the VS 4000 Model 60 Workstation

Note

When installing components into the VS 4000 workstation, perform the procedures that were previously discussed in the component removal sections of this chapter. Perform all the procedures in reverse order.

Summary of Restoration of VS 4000

Follow these steps in the sequence listed below to restore the VS 4000 Model 60 workstation. Detail instructions for *some* of these steps will follow.

Step	Action
1.	Install the graphics board.
2.	Install two of the RZ2x disk drives that were removed from the VS 3100 system into the H-bracket in the system unit. Connect the power and SCSI signal to these devices. NOTE If there are more than two RZ2x drives to be installed, they must be installed into a storage expansion box. Manually check all RZ2x disk drive ID jumpers to make certain no drives have duplicate SCSI ID numbers before installing them into the system unit.
3.	Check that all the system unit SCSI cables are firmly connected to each device (RRD42, TZK10, and RX26).

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Step	Action
4.	Install the system unit top cover.
5.	Install all the following external system unit cables and the terminator that was removed from the VS 3100 workstation: <ul style="list-style-type: none">• System power cord• Monitor power cord• SCSI terminator or cable• Loopback connector and T-connector or communication cables• Mouse cable• Keyboard cable• Monitor video cable

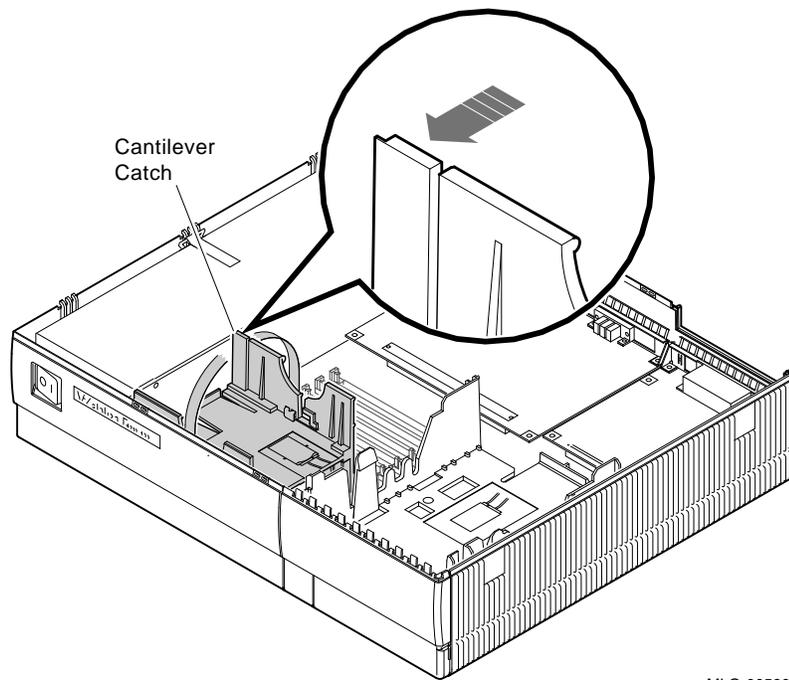
Remove the H-Bracket from the System Unit

It is necessary to remove the H-bracket from the Model 60 system unit in order to install the RZ2x disk drives. Push in on the cantilever catch on the bracket and lift the bracket straight up and out of the system unit. See Figure 2-18.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Figure 2-18 Removing the H-Bracket from the System Unit



Note

There are special H-bracket mounting plates that must be installed on the RZ2x disk drives before the drives can be installed in the H-bracket. These mounting plates will be a part of the VS 4000 Model 60 upgrade kit.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Install Disk Drives on an H-Bracket

To install the RZ2x drives into the H-bracket, do the following and refer to Figure 2–19 and Figure 2–20.

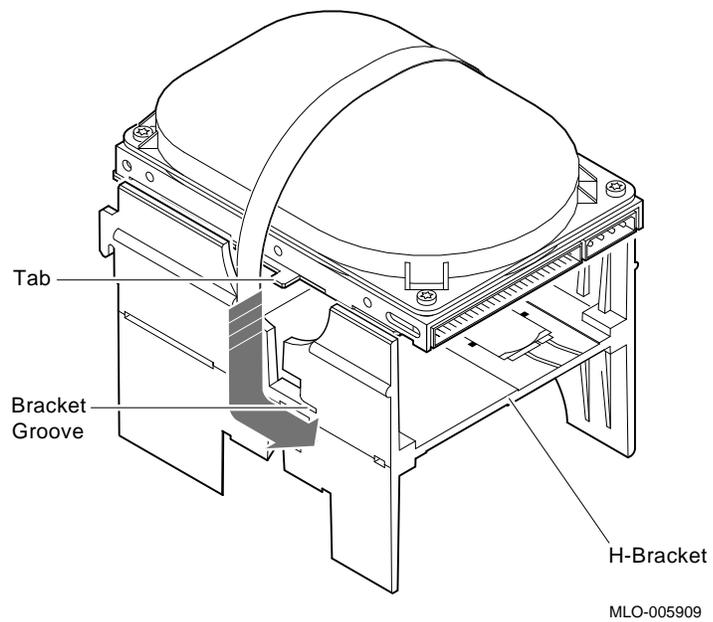
- | Step | Action |
|------|---|
| 1. | Place the first RZ2x drive in the H-bracket by orientating both the mounting bracket tab and the H-bracket groove. |
| 2. | Lower the drive into the H-bracket and press down firmly , sliding the drive until it locks in place on the H-bracket. |
| 3. | If two RZ2x drives are to be installed in the H-bracket, turn the H-bracket over and repeat step 2. |
| 4. | Connect the SCSI signal and power cables to the disk drives and replace the H-bracket into the system unit. |

WARNING When replacing the H-bracket in the system unit, beware of the sharp plastic teeth on the top edge of the bezel. Also, be careful not to pinch your fingers under the bottom edge of the H-bracket.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

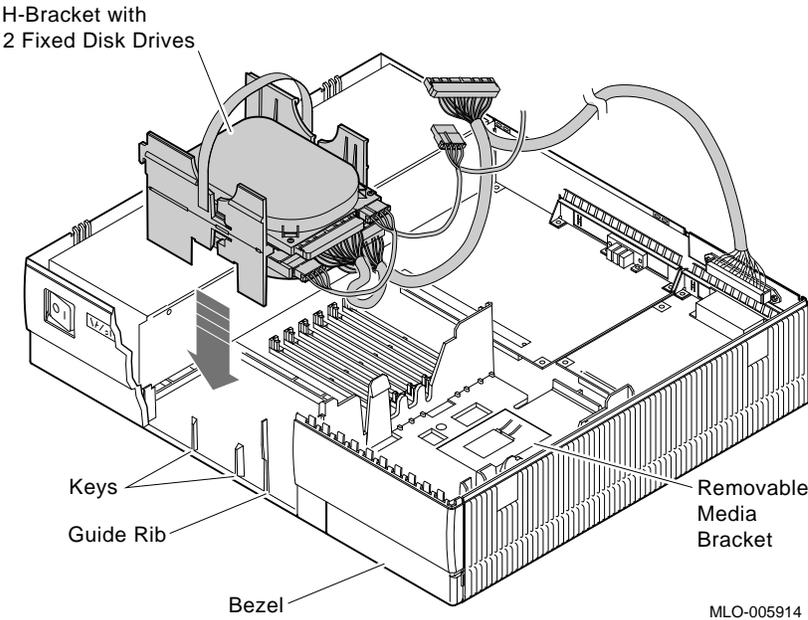
Figure 2-19 Installing the first RZ2x Drive into an H-Bracket



Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Figure 2-20 Replacing the H-bracket into the System Unit



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Powering Up the VS 4000 Model 60 After Upgrade

Power up Sequence

With all the cables connected, turn the workstation peripherals **On** in the following sequence:

Step	Power On....
1.	Storage expansion box, if you have one
2.	Printer and modem, if you have them
3.	Monitor
4.	System unit

Automatic test Display

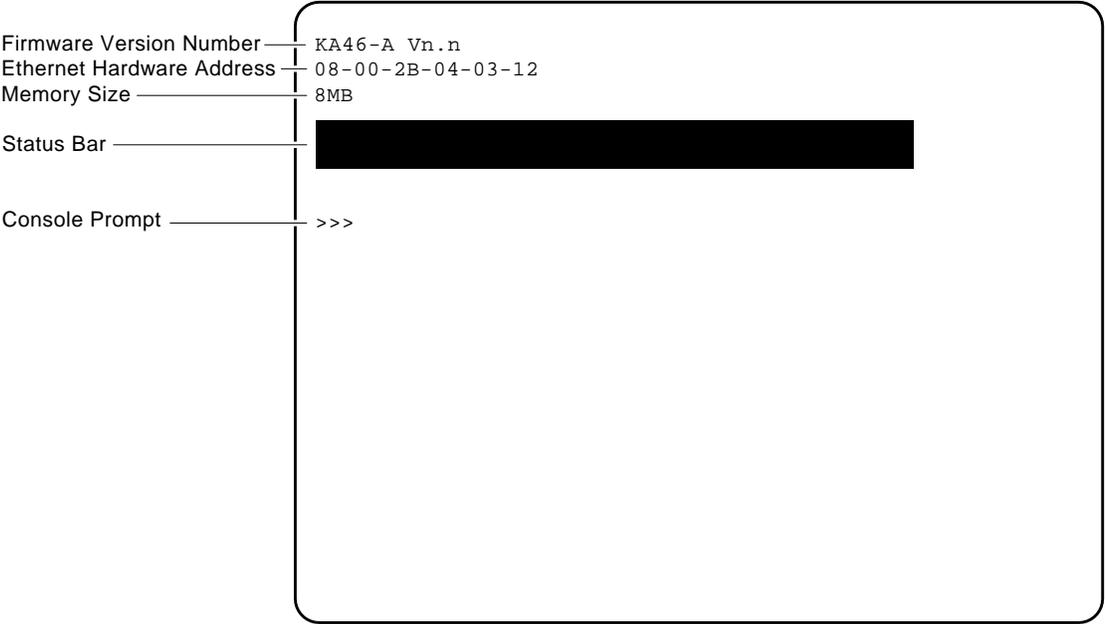
When you first turn on the system unit, the following will happen automatically:

- The system will beep to let you know that the system is running self tests.
- As each test completes, the status bar will start to fill. When all tests have been completed without error, the status bar will be filled completely. See Figure 2-21.

Continued on next page

Powering Up the VS 4000 Model 60 After Upgrade, Continued

Figure 2-21 Automatic Test Display



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Running the Show Config Command

Show Config Command

To display the **Show Config** command on the screen, do the following and refer to Figure 2-22.

Step	Action
1.	Open the front door of the system unit.
2.	Press the Halt button. The system will display the console command prompt (>>>).
3.	At the prompt, type show config and hit Return .

Continued on next page

Running the Show Config Command, Continued

Figure 2-22 Show Config Command Display

```
>>> SHOW CONFIG
KA46-A Vn.n
08-00-2B-0A-7D-CB
8MB

DEVNBR  DEVNAM  INFO
-----  -
  1      NVR     OK
  2      LCG     OK
                LR-MONO FB-1.0
  3      DZ      OK
  4      CACHE  OK
  5      MEM     OK
                8MB = SY=8MB, S0/1=0MB, S2/3=0MB, S4/5=0MB
  6      FPU     OK
  7      IT      OK
  8      SYS     OK
  9      NI      OK
 10     SCSI     OK
                0-RZ23L  5-RZ24  6-INTR
SCSI Line -----|
SCSI ID Number ---| 11     AUD     OK
Component Mnemonic ---| 12     COMM  OK
>>>
```

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Examine the Screen Display

Compare the data on the screen with the data you received when you did a **Show Device** on the VS 3100 Model 40 or 48 workstation before powering down.

Verify that:

- The Ethernet address is the same as it was on the VS 3100.
- The SCSI ID numbers are not duplicated.

Continued on next page

Running the Show Config Command, Continued

- All the system devices (1 through 11) have an **OK** beside them under the **INFO** column.
-

Note

If the screen does not show any error codes, you have successfully completed the upgrade and you are ready to *boot* the system.

If the system shows any error messages or codes, refer to the *VAXstation 4000 Model 60 Service Information Kit, EK-V466B-SV-001* for system testing and troubleshooting procedures.

Restoring the VS 3100 Model 40 or 48 for Shipment to Digital

Note

When installing components into the VS 3100 workstation, perform the procedures that were previously discussed in the component removal sections of this chapter. Perform all the procedures in reverse order.

Install System Unit Components

Before the VS 3100 system can be returned, the following components must be installed:

1. Ethernet ROM from the VS 4000 Model 60 system
 2. Either the graphics or scanline coprocessor module
 3. Mass storage controller module
 4. Disk drive plate
 5. System unit cover
-

Return Forms

The following Return Forms must be filled out:

- Digital Services Upgrade Worksheet
 - Digital Services and Customer Installation Receipts
 - Returns Material Checklist
-

Note

The Digital Services representative will work with the customer to ensure that the hardware is packaged properly and the proper forms are filled out.

See Appendix A for a copy of the Return Forms.

Chapter 3

Upgrade of VS 3100 Model 76 Workstation to a VS 4000 Model 60 Workstation

Overview

Introduction

By upgrading the VS 3100 Model 76 workstation to a VS 4000 Model 60 workstation, the customer is able to leverage their initial investment in existing Digital VMS hardware to a faster and more powerful computer system.

Purpose

The purpose of this chapter is to provide upgrade information so that Digital Services Engineers or knowledgeable Digital customers can upgrade an existing VS 3100 Model 76 workstation to a VS 4000 Model 60 workstation.

Caution

Only Digital Services or qualified self maintenance personnel should perform this upgrade. You must have a working knowledge of, and experience working on the internal hardware devices of a VAXstation 3100 system. If you are not qualified to perform this upgrade, call Digital Services to schedule an upgrade.

Continued on next page

Overview, Continued

Chapter Content

This chapter describes how to upgrade a VAXstation 3100 Model 76 workstation to a VS 4000 Model 60 workstation.

This chapter contains the following procedures:

- ❶ Preparing the VS 3100 Model 76 workstation for upgrade
 - ❷ Shutting down the system peripherals and disconnecting system cables
 - ❸ Protecting against static
 - ❹ Removing top covers on the system units
 - ❺ Removing internal components on the VS 3100 Model 76 system unit
 - ❻ Removing internal components on the VS 4000 Model 60 system unit
 - ❼ Swapping Ethernet ROMs between system units
 - ❽ Installing memory modules into the VS 4000 Model 60 system unit
 - ❾ Restoring the VS 4000 Model 60 workstation
 - ❿ Powering up the VS 4000 Model 60 workstation after upgrade
 - ⓫ Running the Show Config command
 - ⓬ Restoring the VS 3100 Model 76 for shipment back to Digital
-

Preparing the VS 3100 Model 76 for Upgrade

Run Show Device Command

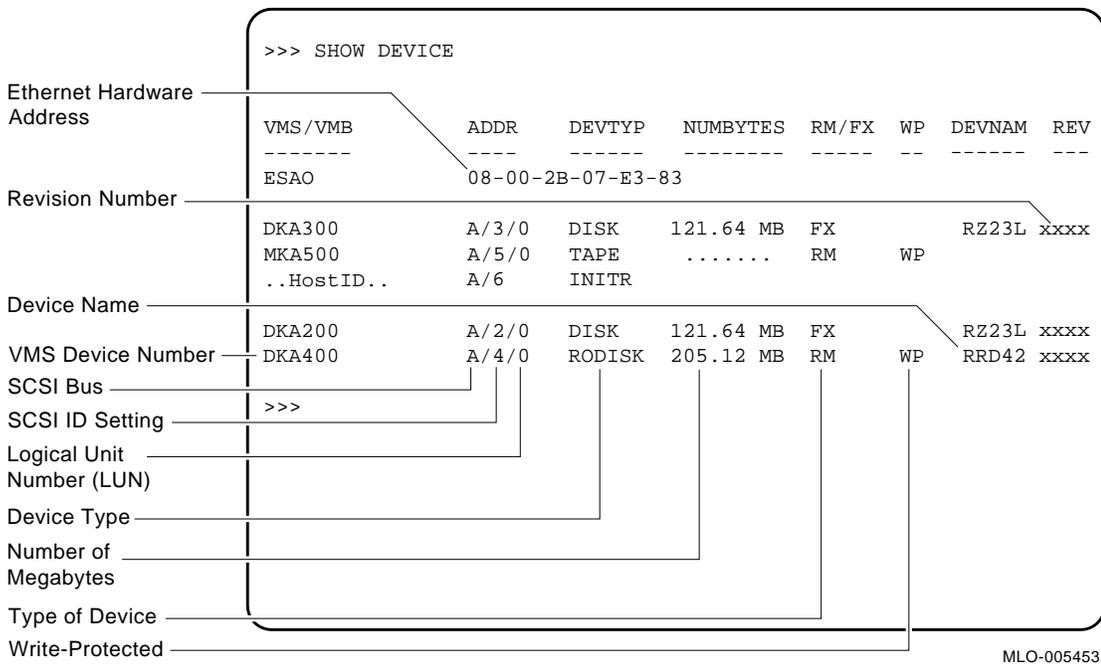
To run the Show Device command, do the following and refer to Figure 3-1:

Step	Action
1.	Press the Halt button in the rear of the system unit. <u>Results:</u> The system displays the console prompt (>>>) on the screen.
2.	Type Show Device at the console prompt and press Return . Record the Ethernet hardware address. This address will be verified on the completion of the upgrade.
3.	Verify that no two devices have the same SCSI ID numbers.

Continued on next page

Preparing the VS 3100 Model 76 for Upgrade, Continued

Figure 3-1 Typical Screen Display of a Show Device Command



Continued on next page

Preparing the VS 3100 Model 76 for Upgrade, Continued

Console Commands and Software Upgrades

Before proceeding with the upgrade, you must record the existing console command settings, these settings will be verified later in the upgrade. You must back up the system and user disks, and verify VMS software versions.

Procedure	Refer to...
Run the console commands and record the settings of the dynamic memory	<i>VAXstation 3100 Model 76 Owner's Guide</i> EK-VX31M-UG
Back up the system and user disks	<i>VMS Backup Utility Manual</i> AA-LA35A-TE
Verify VMS operating system software is at Version 5.5 or higher	<i>VMS Installation and Operations Manual</i> AA-NY74B-TE

Note

All system backups and VMS software version upgrades are the responsibility of the Digital customer.

Shutting Down Peripherals and Disconnect Cables

Note

Refer to the operating system software documentation for the proper operating system shutdown procedure.

VMS Installation and Operations Manual
AA-NY74B-TE

Shut Down the System

After shutting down the operating system, turn the system peripherals off in the following order:

1. Expansion boxes
 2. Printer, modem, and other equipment
 3. Monitor
 4. System Unit Box
-

Disconnect Cables

Disconnect the following cables from the back of the system and refer to Figure 3-2:

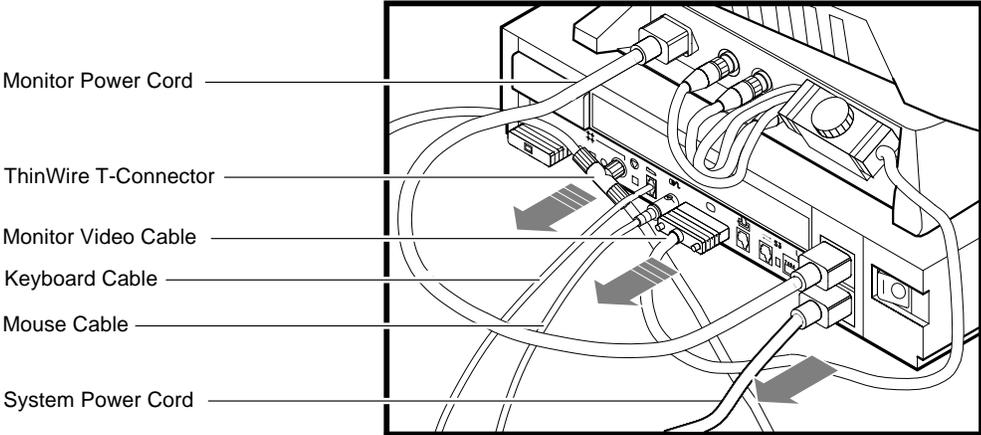
1. System power cord first from the wall and then from the system unit
 2. Monitor power cord
 3. Keyboard cable
 4. Mouse cable
 5. ThinWire Ethernet or standard Ethernet connector
 6. SCSI terminator or external SCSI cable
 7. Monitor video cable
 8. Printer and communications cables
-

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Shutting Down Peripherals and Disconnect Cables, Continued

- 9. Remove the monitor from the top of the system unit and set it aside

Figure 3-2 Disconnecting the System Unit and Monitor Cables



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Shutting Down Peripherals and Disconnect Cables, Continued

Identify the VS 3100 Model 76 System

After the cables have been disconnected and before beginning the upgrade, you need to identify the system to be upgraded.

To identify the VS 3100 Model 76 system, do the following:

Step	Action
1.	View the system unit from the rear.
2.	Locate the sticker label with the model code number WS43A-xx for a Model 76 system.
3.	Does the system unit have the proper model code number? <ul style="list-style-type: none">• If <u>yes</u>, continue with this chapter.• If <u>no</u>, go to another chapter in this guide for that particular model code number. Refer to About This Guide in this document to determine which chapter you need to go to.

Protecting Against Static

Caution

To eliminate any static charge that you may have built up, touch your index finger to the top of the power supply in one of the system units. This will discharge any static electricity.

Use the Antistatic Wrist Strap

The following rules **must** be adhered to while handling system components:

1. Wear a properly grounded antistatic wrist strap.
 2. Any device removed from a system unit that can not be reinstalled in the other system unit must be placed on an antistatic mat.
-

Protect Against Static

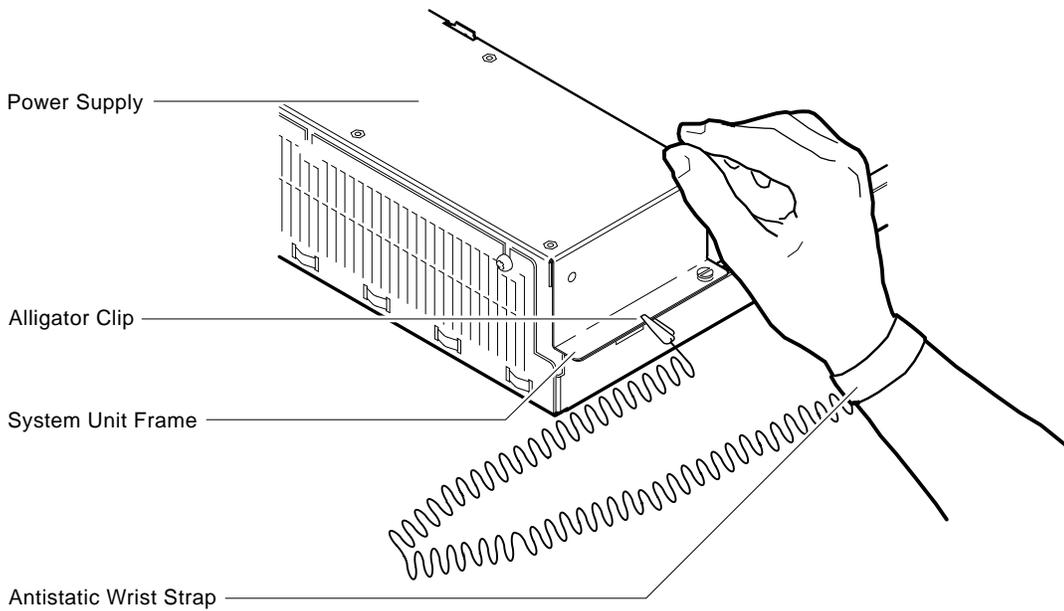
To handle the system components, do the following and refer to Figure 3-3:

1. Place the Model 76 and the Model 60 system unit side by side on an antistatic mat.
 2. Plug the Model 76 monitor power cord into the monitor power port on the back of the Model 60 system unit.
 3. Plug the other end of the monitor power cord into the system power port on the back of the VS 4000 Model 60 system unit. The two system units now have a common ground between them (daisy chained).
 4. Attach the alligator clip of the antistatic wrist strap to **any** system unit when installing or removing components.
-

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Protecting Against Static, Continued

Figure 3-3 Attaching the Antistatic Wrist Strap to the System Unit



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Protecting Against Static, Continued

Alternate Static Protection Method

An alternate method of using the antistatic wrist strap is:

Step	Action
1.	Place the antistatic strap on your wrist.
2.	Connect the alligator clip to the chassis frame in front of the VS 3100 power supply.

NOTE This method is the least desirable because the alligator clip has to be moved from system unit to system unit when exchanging components.

Removing Top Covers of the System Units

Caution

When removing the cover, you will need to pull forcefully to release the retention devices on the middle of the front and rear edges of the cover. Pulling forcefully will not break the cover as long as the latches on the right side are released.

Remove the Top Cover of VS 4000

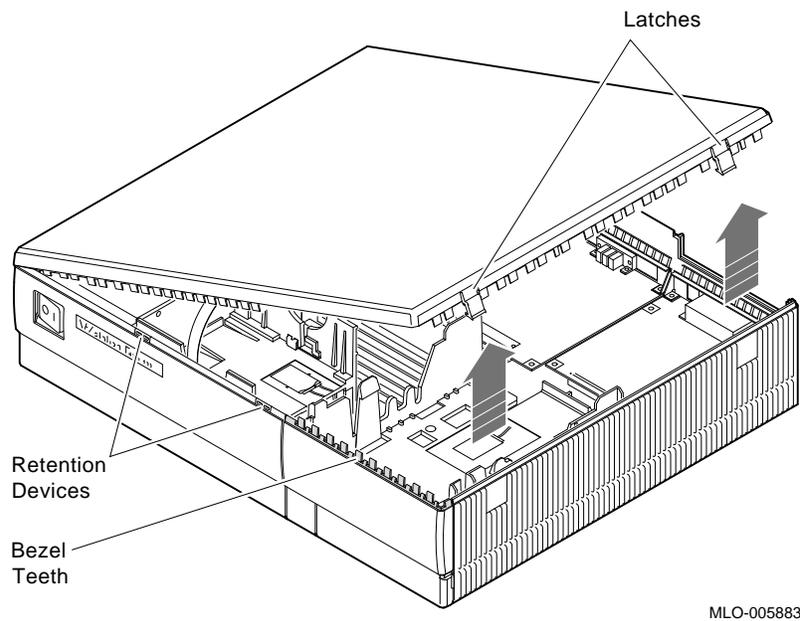
To remove the top cover on the VS 4000 Model 60 workstation, do the following and refer to Figure 3-4:

Step	Action
1.	Carefully release the latches on the right side of the system unit.
2.	Pull the cover up and away from the system.
3.	Place the cover aside. It will be used later during repackaging.

Continued on next page

Removing Top Covers of the System Units, Continued

Figure 3-4 Removing the Top Cover on the VS 4000 Model 60



Remove the Top Cover of the Model 76 Unit

To remove the system unit cover on the VS 3100 system, do the following and refer to Figure 3-5:

Continued on next page

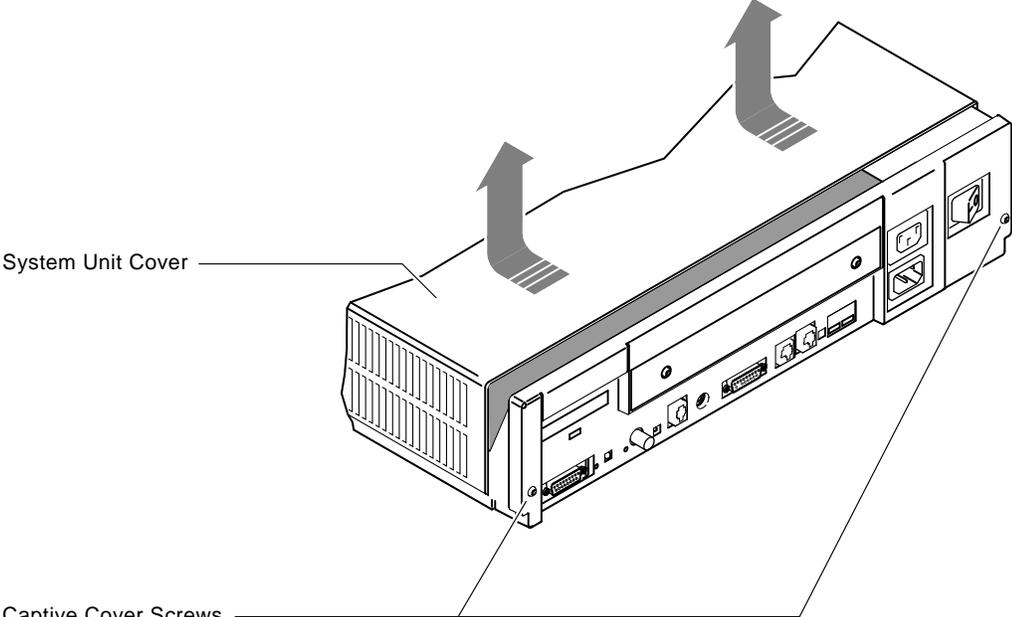
Removing Top Covers of the System Units, Continued

Step	Action
1.	Using a Phillips-head screwdriver, unscrew the two captive screws at the back of the unit on the outside edges. Unscrew these screws until they are loose, do not remove them.
2.	Slide the cover towards the front of the system and lift it up and away from the system unit.
3.	Place the cover aside. It will be used later during repackaging.

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Removing Top Covers of the System Units, Continued

Figure 3-5 Removing the System Unit Cover on the VS 3100 Model 76 System Unit



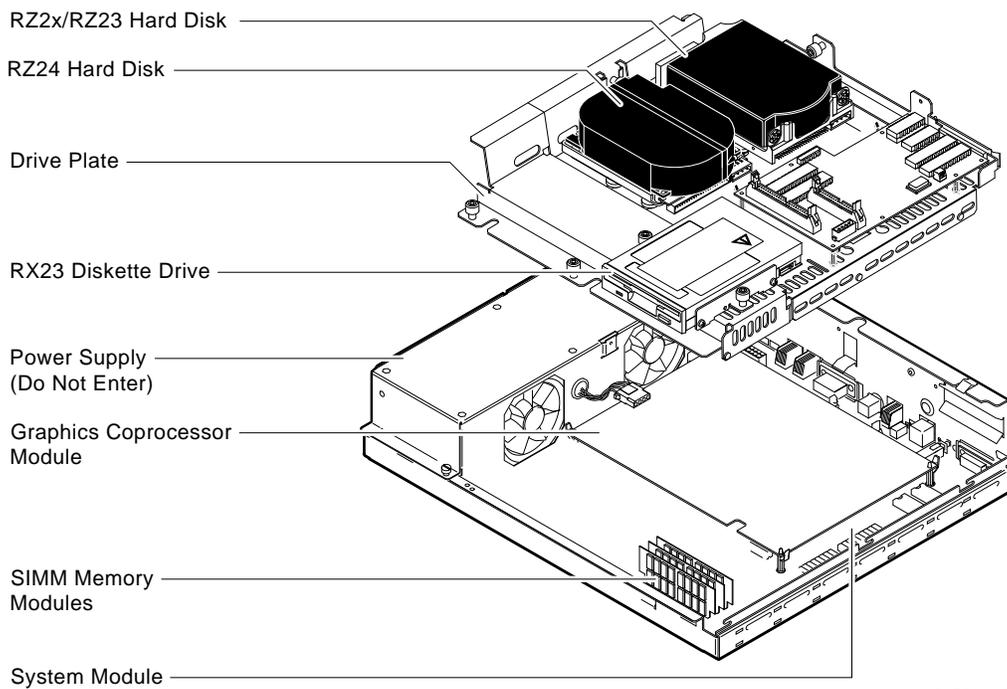
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Removing Components from VS 3100 Model 76

Typical Device and Module Location

There are numerous configurations for the VS 3100 Model 76 system unit. Figure 3-6 shows a common configuration for system devices and modules on a Model 76 system.

Figure 3-6 Typical Configuration of the Model 76 System



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Continued on next page

Removing Components from VS 3100 Model 76, Continued

Note

Figure 3-6 shows a Model 76 drive plate with an RX23 diskette drive installed. There may or may not be an RX2x diskette drive installed in your system.

Remove the Drive Plate

To remove a VS 3100 Model 76 drive plate, do the following and refer to Figure 3-7:

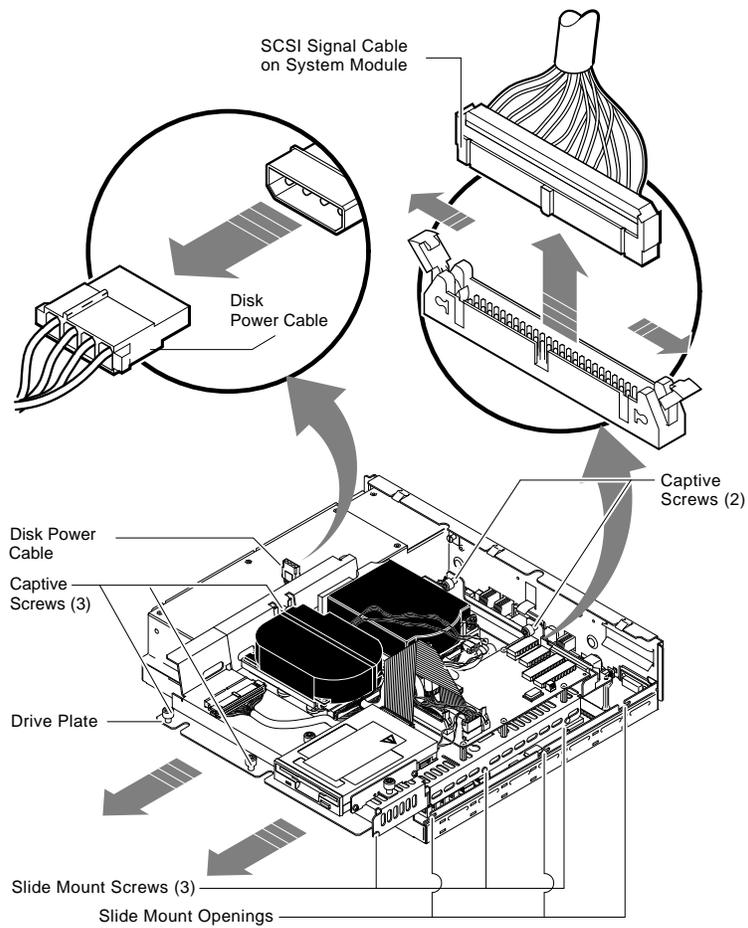
Step	Action
1.	Connect the alligator clip from the wrist strap to the system unit.
2.	Disconnect the internal SCSI power and signal cables from the RZ2x disk drives and RX2x floppy drive, if present.

Step	Action
3.	Disconnect the internal SCSI power cable from the power supply.

Continued on next page

Removing Components from VS 3100 Model 76, Continued

Figure 3-7 Disconnecting the SCSI Signal and Power Cables



Continued on next page

Removing Components from VS 3100 Model 76, Continued

Step	Action
4.	Loosen the five captive screws and the three Phillips-head slide mount screws on the drive plate. Do not remove the screws. CAUTION When you are removing the drive plate from the system unit, do not make contact with the circuit boards underneath, such as the system board and the memory boards. Contact between the drive plate and the circuit boards could cause the circuit boards irreparable damage
5.	Remove the SCSI terminator access door and the SCSI terminator from the back of the Model 76 system unit (if present).
6.	Slide the drive plate towards the front of the system and lift it out of the system unit.

Continued on next page

Removing Components from VS 3100 Model 76, Continued

Remove RZ2x Disk Drives

Remove the RZ2x disk drives from the drive plate. Two of these drives may be installed into the VS 4000 Model 60 system unit.

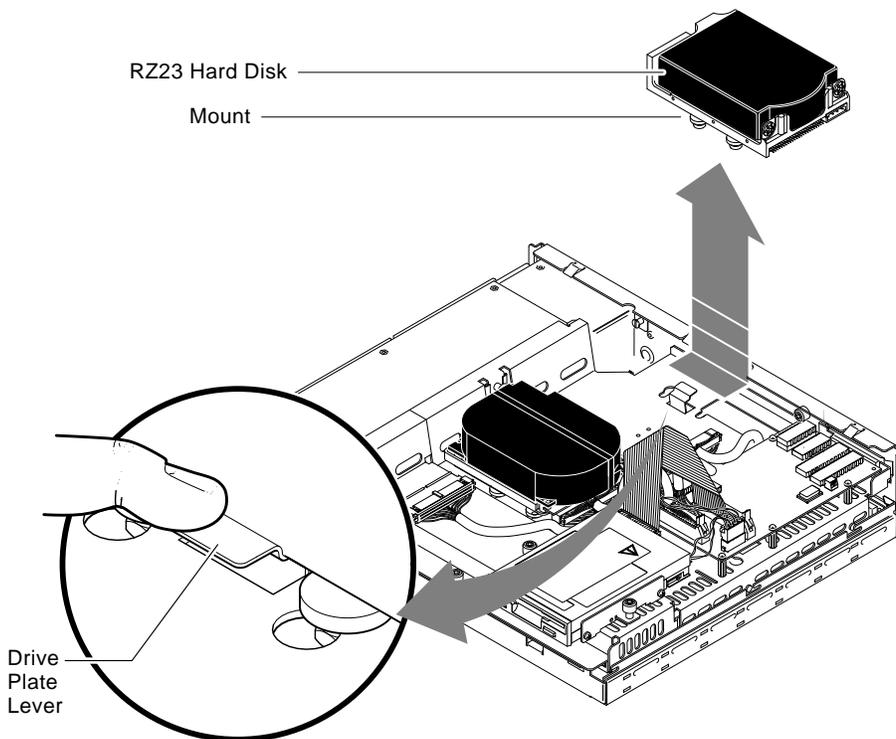
To remove the RZ2x disk drives from the drive plate, do the following and refer to Figure 3-8:

Step	Action
1.	Push down on the drive plate lever.
2.	Push down on the RZ2x disk drive and slide it over the drive plate lever.
3.	Lift the disk drive up and off the drive plate. Place the disk drives aside.

Continued on next page

Removing Components from VS 3100 Model 76, Continued

Figure 3-8 Removing RZ2x Hard Disks from the Drive Plate



MA-1320-90.DG

Remove the Memory Boards

The memory boards must be removed from the VS 3100 Model 76 system board and installed into the VS 4000 Model 60 system.

Continued on next page

Removing Components from VS 3100 Model 76, Continued

Memory Configurations

Memory board allocation on the system board is divided into three banks. The first two sockets (closest to the front of the system) represent bank number one. The next two sockets represent bank number two, and the last two sockets represent bank three.

Caution

Antistatic precautions must be adhered to when handling memory boards.

Remove Boards from Model 76 System

When removing modules, remove the rear-most board first (bank number three) and work towards the front of the memory stack.

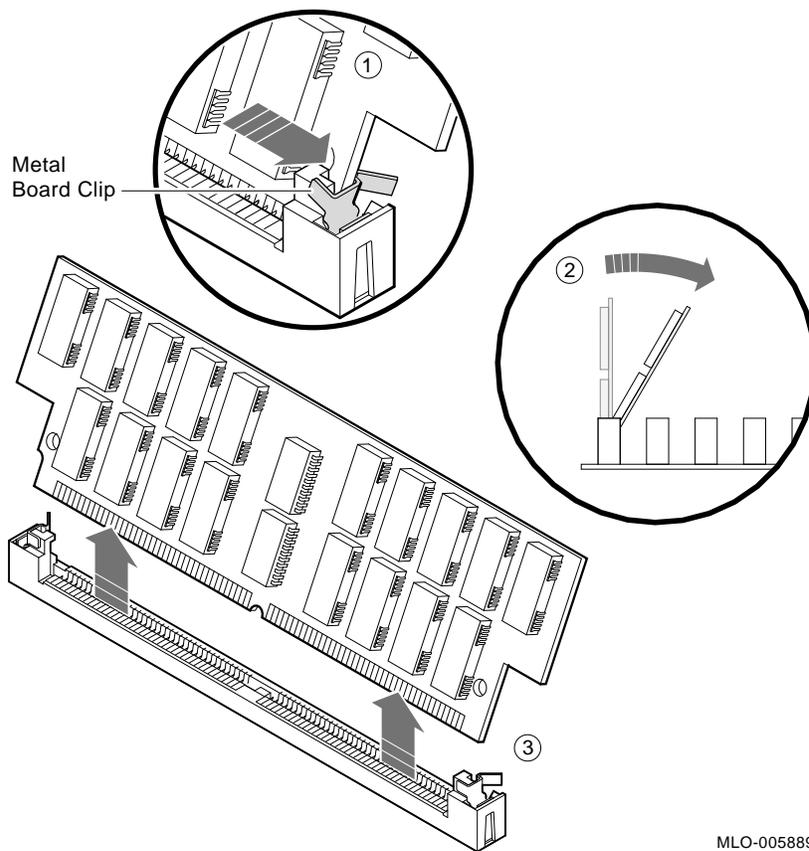
To remove the memory boards from the Model 76 system, do the following and refer to Figure 3-9:

Step	Action
1.	Release the metal clips at each end of the memory board and tilt the board back at an angle.
2.	Grasp the memory board by the edges and remove it from the module socket. Place the memory modules on an antistatic mat.

Continued on next page

Removing Components from VS 3100 Model 76, Continued

Figure 3-9 Removing Memory Boards from the Model 76 System Unit



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Removing Components from VS 3100 Model 76, Continued

Note

Depending on the system configuration, the VS 3100 Model 76 system can have two types of coprocessor modules: the graphics coprocessor module and the scanline coprocessor module. These two modules are similar except for a couple features. To remove the scanline coprocessor, you must remove three screws from the mounting brackets, then release the tabs from the post locks. The graphics coprocessor module has only four post locks with tabs holding it to the system board.

Remove the Scanline Coprocessor

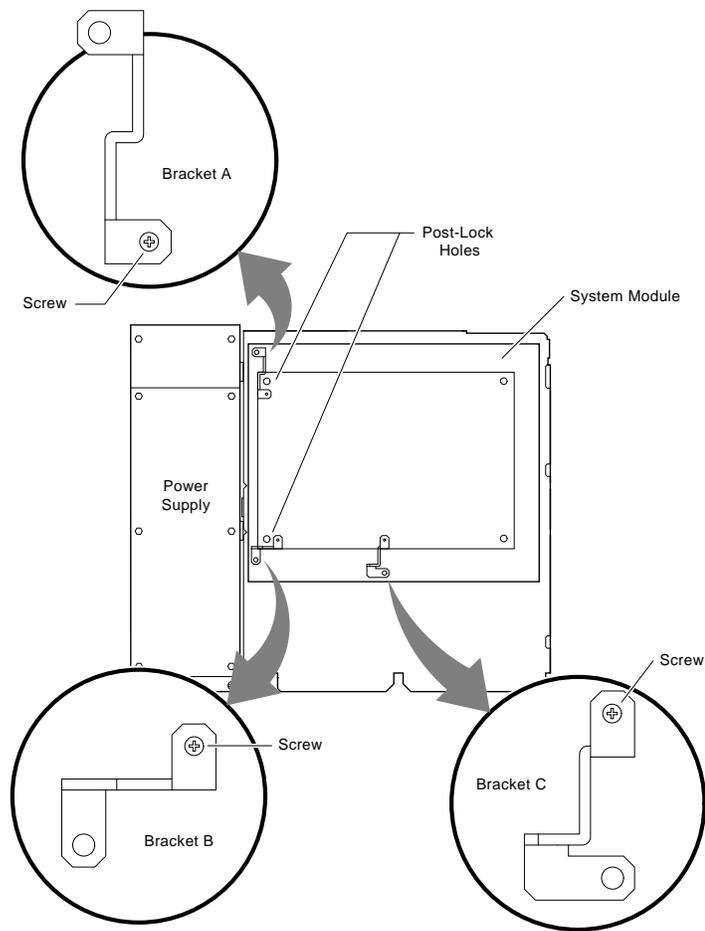
To remove the scanline coprocessor module from the system board, do the following and refer to Figure 3-10 and Figure 3-11:

Step	Action
1.	Unscrew and remove the three screws on the mounting brackets that attach the coprocessor to the system board. The mounting brackets will remain attached to the system board.

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Removing Components from VS 3100 Model 76, Continued

Figure 3-10 Scanline Coprocessor Mounting Brackets



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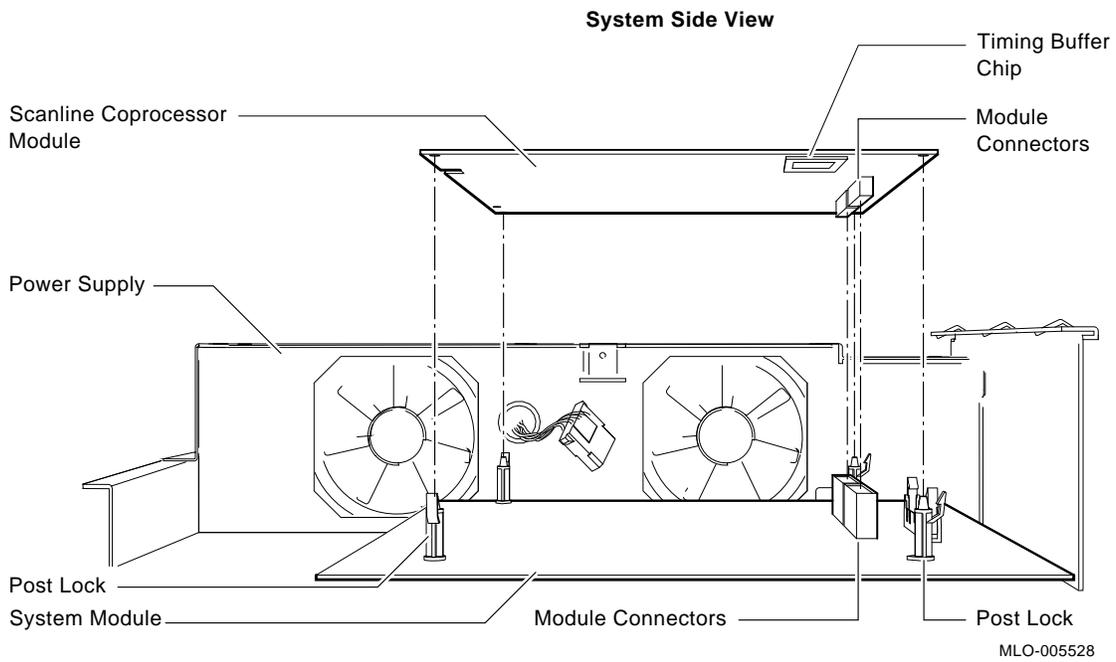
Removing Components from VS 3100 Model 76, Continued

Step	Action
2.	<p>Remove the scanline coprocessor from the four post locks by pulling back the post lock tabs.</p> <p>CAUTION Do not grasp the scanline coprocessor module by the corners when you are lifting it up to remove it from the system board. The timing buffer chip located underneath the scanline coprocessor module can become easily damaged by any pressure exerted on it.</p>
3.	<p>Grasp the center of the scanline coprocessor module next to the two connectors, and lift it up and off the system board.</p>
4.	<p>Set the scanline coprocessor on an antistatic mat. This module will be reinstalled after the Ethernet ROMs are exchanged.</p>

Continued on next page

Removing Components from VS 3100 Model 76, Continued

Figure 3-11 Removing the Scanline Coprocessor from the System Board



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Removing Components from VS 3100 Model 76, Continued

Caution

At this time, all the internal components except for the Ethernet ROM have been removed from a VS 3100 Model 76.

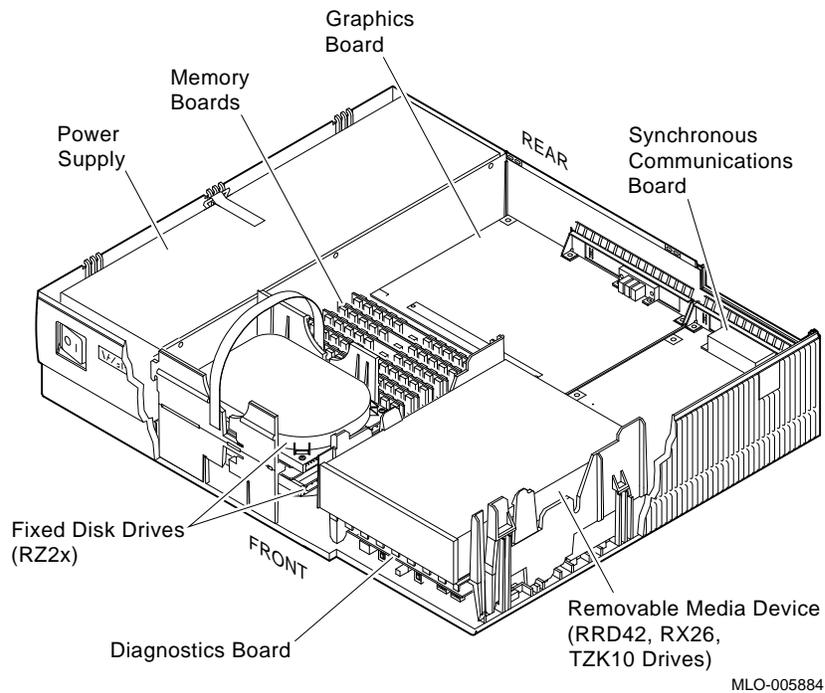
Do not remove the Ethernet ROM from the VS 3100 Model 76 until you are ready to remove it from the VS 4000 Model 60, thus eliminating any chance of damage occurring to the ROM. You will be instructed when to perform this procedure.

Removing Components on VS 4000 Model 60

Internal Component Locations

With the top cover removed, Figure 3-12 shows the location of the internal components of the VS 4000 Model 60 workstation.

Figure 3-12 VS 4000 Model 60 Internal Component Locations



Continued on next page

Removing Components on VS 4000 Model 60, Continued

Remove the Graphics Board

To remove the Ethernet ROM from the VS 4000 Model 60, it is necessary to remove the graphics board.

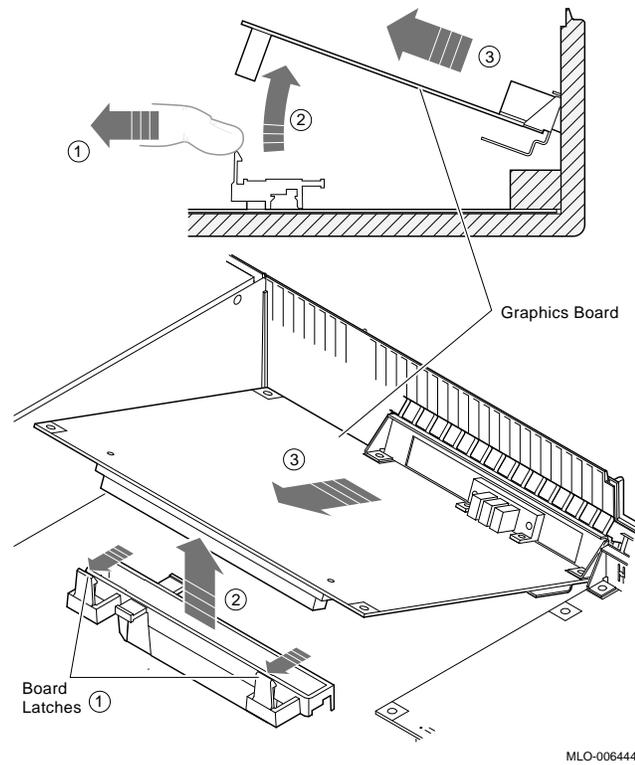
To remove the graphics board, do the following and refer to Figure 3-13:

Step	Action
1.	Remove any external cable that is attached to the graphics port on the rear of the system unit.
2.	Remove the board by releasing the two latches at the end of the board.
3.	Lift the board up and out from the rear of the unit.

Continued on next page

Removing Components on VS 4000 Model 60, Continued

Figure 3-13 Removing the Graphics Board from the Model 60 System



Note

At this time in the upgrade, you are now ready to interchange the two ROMs between systems and install the memory boards from the VS 3100 Model 76 system into the Model 60 system.

Exchanging Ethernet ROMs between System Units

Cautions

1. When removing the ROMs from the system boards, antistatic precaution must be adhered to.
 2. Before removing or installing any Ethernet ROMs, be sure you note the orientation of the IC chip keyway in relation to the chip IC socket. If you put the Ethernet ROM in backwards, the system will not function.
-

Exchange Ethernet ROMs

To remove and install the ROMs between system units, do the following and refer to Figure 3-14:

Step	Action
1.	Locate the Ethernet ROM on the VS 4000 Model 60 system board and remove it from the socket using a chip puller. Place the Ethernet ROM on the antistatic mat. NOTE The Ethernet ROM is the only socketed 16-pin chip on the system board. The Ethernet ROM has distinct manufacturer's markings on the top; written on it is the ENET ADRS (abbreviation for "Ethernet Address").

Step	Action
2.	Examine the pins on the Ethernet ROM. Make sure the pins are straight after removal.

Continued on next page

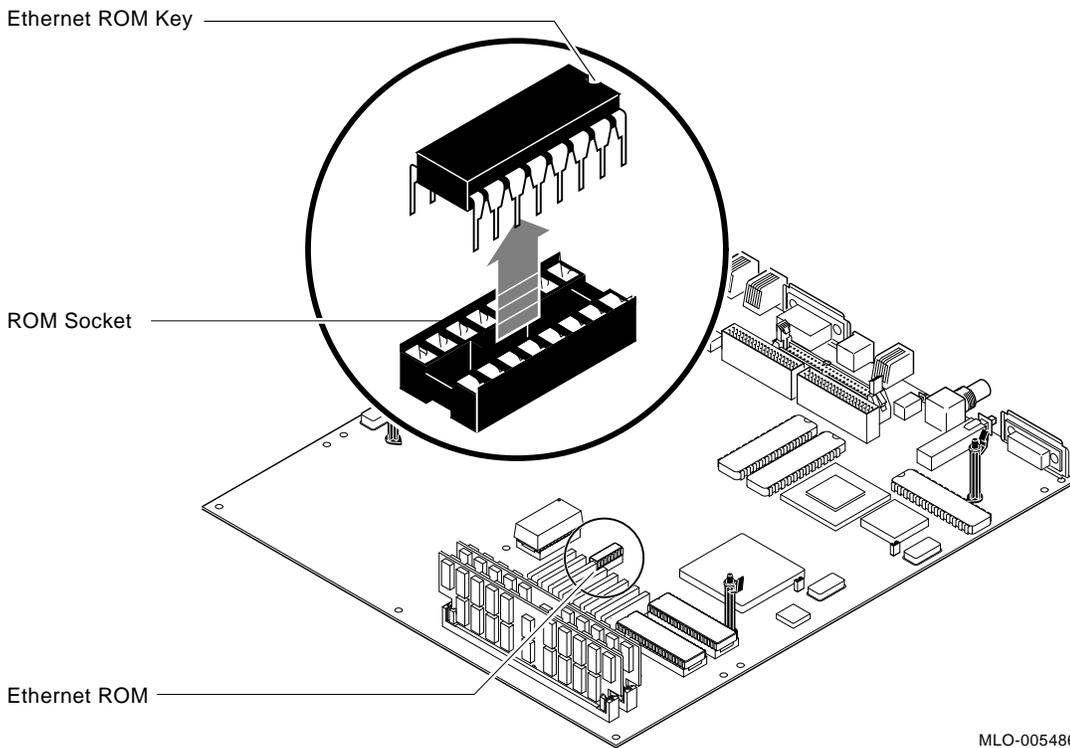
Exchanging Ethernet ROMs between System Units, Continued

Step	Action
3.	Remove the Ethernet ROM from the VS 3100 Model 76 system and install it into the system board on the VS 4000 Model 60 system unit.
4.	Install the ROM that you removed from the VS 4000 Model 60 system into the VS 3100 Model 76 system board.

Continued on next page

Exchanging Ethernet ROMs between System Units, Continued

Figure 3–14 Removing the Ethernet ROM from the System Board

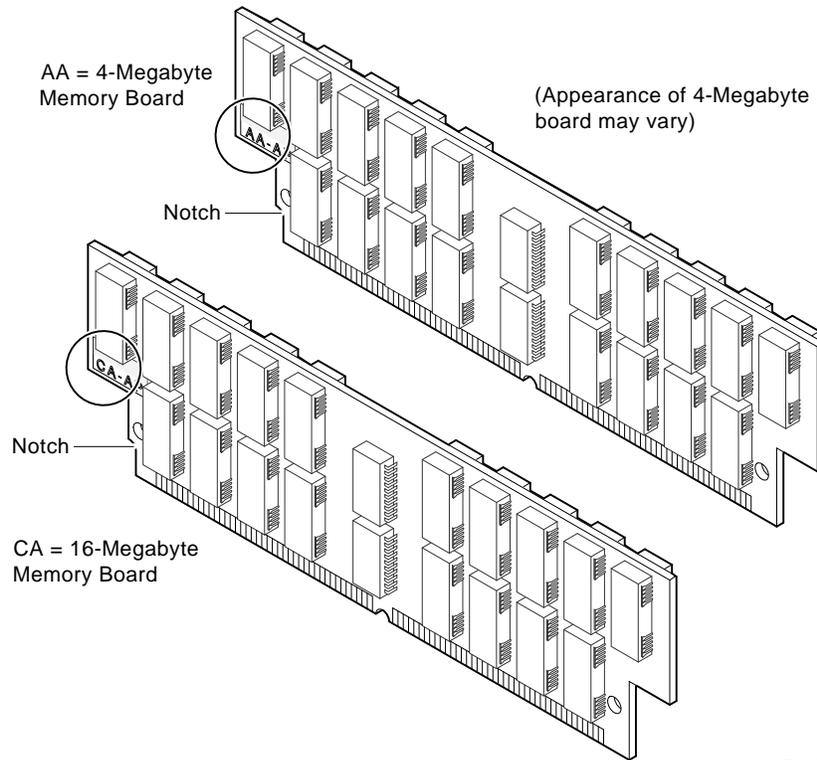


Installing Memory Modules into VS 4000 Model 60

Identify Memory Modules

Memory Modules come in two sizes, 4-megabyte boards are identified with the letters **AA** stamped on the board, 16-megabyte boards with the letters **CA**. See Figure 3-15.

Figure 3-15 4-Megabyte and 16-Megabyte Memory Boards



Continued on next page

Installing Memory Modules into VS 4000 Model 60, Continued

The following table illustrates the memory configurations for a VS 4000 Model 60 Workstation:

Table 3-1 Memory Configurations

Desired Memory	Boards To Be Added	Bank Number
8MB	No Boards	
16MB	Two 4MB boards	1
24MB	Four 4MB boards	1 and 2
32MB	Six 4MB boards	1, 2, 3
40MB	Two 16MB boards	1
48MB	Two 4MB and two 16MB boards	1 then 2
56MB	Four 4MB and two 16MB boards	1 and 2 then 3
80MB	Two 4MB and four 16MB boards	1 then 2 and 3
72MB	Four 16MB boards	1 and 2
104MB	Six 16MB boards	1, 2, 3

Continued on next page

Installing Memory Modules into VS 4000 Model 60, Continued

Note

The maximum amount of internal memory that can be added to a VS 400 Model 60 system from memory modules is 104MB. Memory boards are available in 4- and 16-megabyte sizes and must be added in pairs. When adding both 4- and 16-megabyte memory boards to the system board, add the 4-megabyte boards first and then a 16-megabyte board.

Add Memory Boards

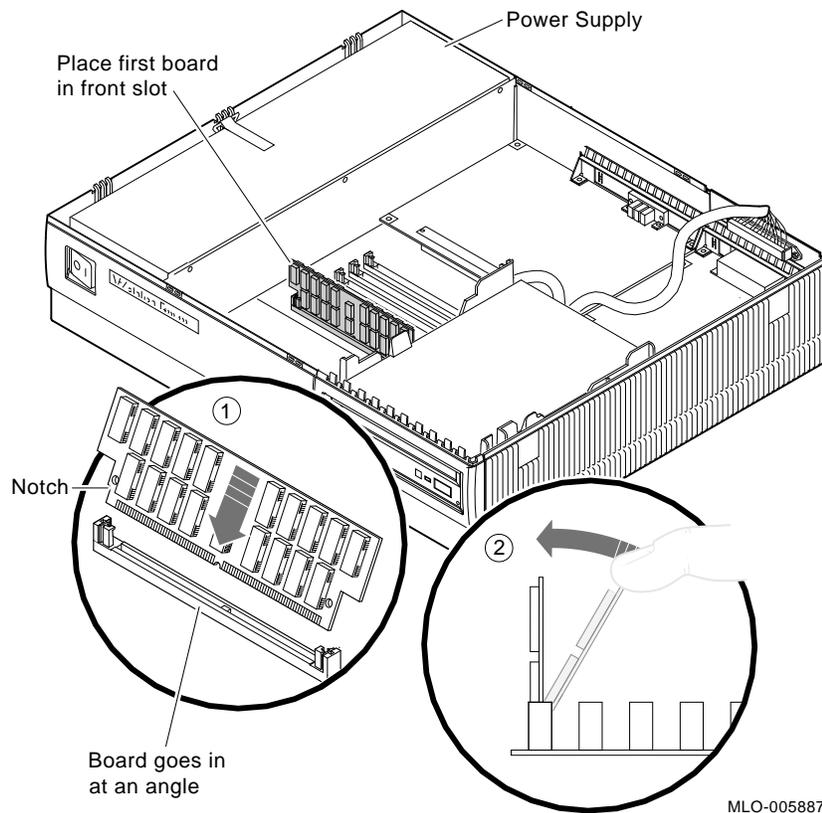
To install memory boards to the VS 4000 Model 60, do the following and refer to Figure 3-16:

Step	Action
1.	Place the first memory module into the first socket (bank number one) at an angle with the notched end towards the power supply.
2.	Make sure that the module is firmly seated in the socket. Push the board upright so it is vertical in the socket. You will hear a distinctive “click” on each side of the module.
3.	Install the remaining memory modules into the sockets. Remember that the 4-megabyte modules go in first, then the 16-megabyte modules.

Continued on next page

Installing Memory Modules into VS 4000 Model 60, Continued

Figure 3-16 Install the First Memory Board



Continued on next page

Installing Memory Modules into VS 4000 Model 60, Continued

Note

Now that the Ethernet ROMs have been exchanged and the memory boards installed, you can now reinstall components into the two system units.

Restoring the VS 4000 Model 60 Workstation

Note

When installing components into the VS 4000 workstation, perform the procedures that were previously discussed in the component removal sections of this chapter. Perform all the procedures in reverse order.

Summary of Restoration of VS 4000

Follow these steps in the sequence listed below to restore the VS 4000 Model 60 workstation. Detail instructions for **some** of these steps will follow.

Step	Action
1.	Install the graphics board.
2.	Install two of the RZ2x disk drives that were removed from the VS 3100 system into the H-bracket in the system unit. Connect the power and SCSI signal to these devices. NOTE If there are more than two RZ2x drives to be installed, they must be installed into a storage expansion box. Manually check all RZ2x disk drive ID jumpers to make certain no drives have duplicate SCSI ID numbers before installing them into the system unit.
3.	Check that all the system unit SCSI cables are firmly connected to each device (RRD42, TZK10, and RX26).

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Step	Action
4.	Install the system unit top cover.
5.	Install all the following external system unit cables and the terminator that was removed from the VS 3100 workstation: <ul style="list-style-type: none">• System power cord• Monitor power cord• SCSI terminator• Loopback connector and T-connector or communication cables• Mouse cable• Keyboard cable• Monitor video cable

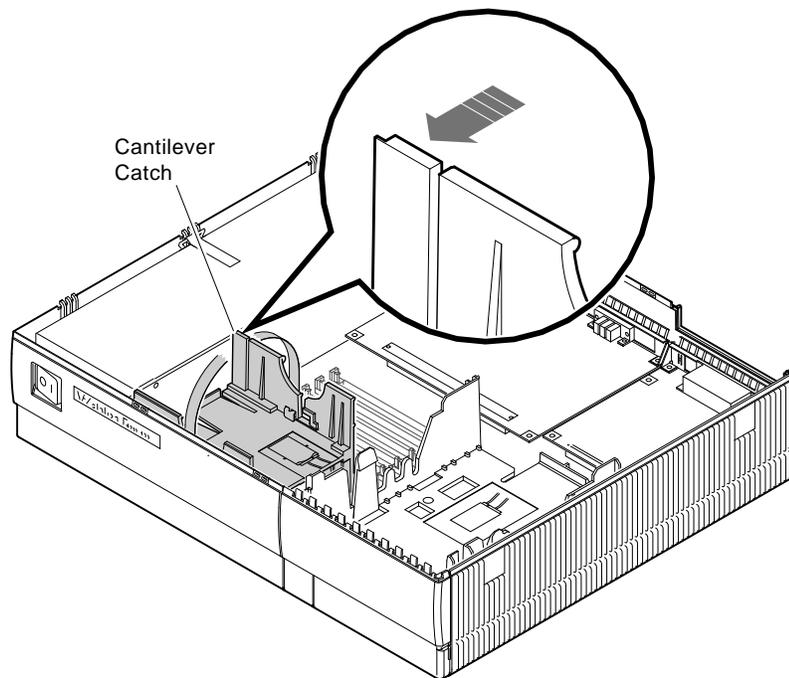
Remove the H-Bracket from the System Unit

It is necessary to remove the H-bracket from the Model 60 system unit in order to install the RZ2x disk drives. Push in on the cantilever catch on the bracket and lift the bracket straight up and out of the system unit. See Figure 3-17.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Figure 3-17 Removing the H-Bracket from the System Unit



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Note

There are special H-bracket mounting plates that must be installed on the RZ2x disk drives before the drives can be installed in the H-bracket. These mounting plates will be a part of the VS 4000 Model 60 upgrade kit.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Install Disk Drives on H-Bracket

To install the RZ2x drives into the H-bracket, do the following and refer to Figure 3–18 and Figure 3–19:

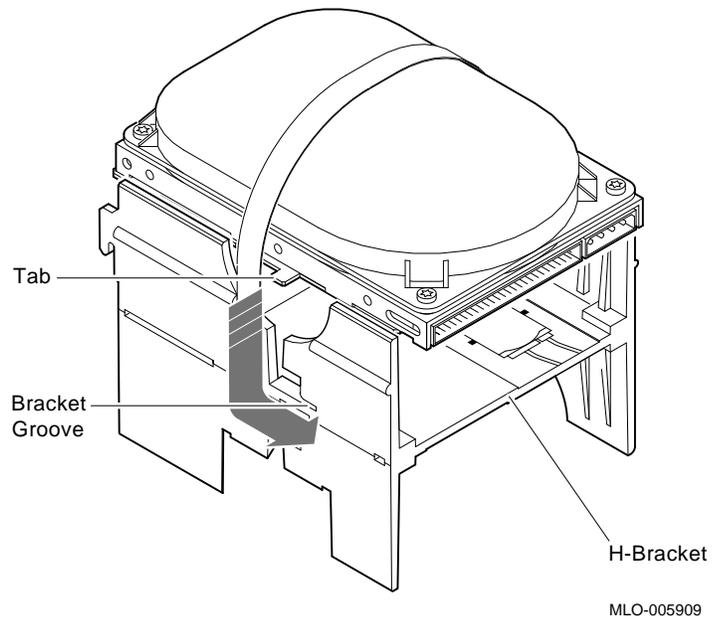
- | Step | Action |
|------|---|
| 1. | Place the first RZ2x drive in the H-bracket by orientating both the mounting bracket tab and the H-bracket groove. |
| 2. | Lower the drive into the H-bracket and press down firmly , sliding the drive until it locks in place on the H-bracket. |
| 3. | If two RZ2x drives are to be installed in the H-bracket, turn the H-bracket over and repeat step 2. |
| 4. | Connect the SCSI signal and power cables to the disk drives and replace the H-bracket into the system unit. |

WARNING When replacing the H-bracket in the system unit, beware of the sharp plastic teeth on the top edge of the bezel. Also, be careful not to pinch your fingers under the bottom edge of the H-bracket.

Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

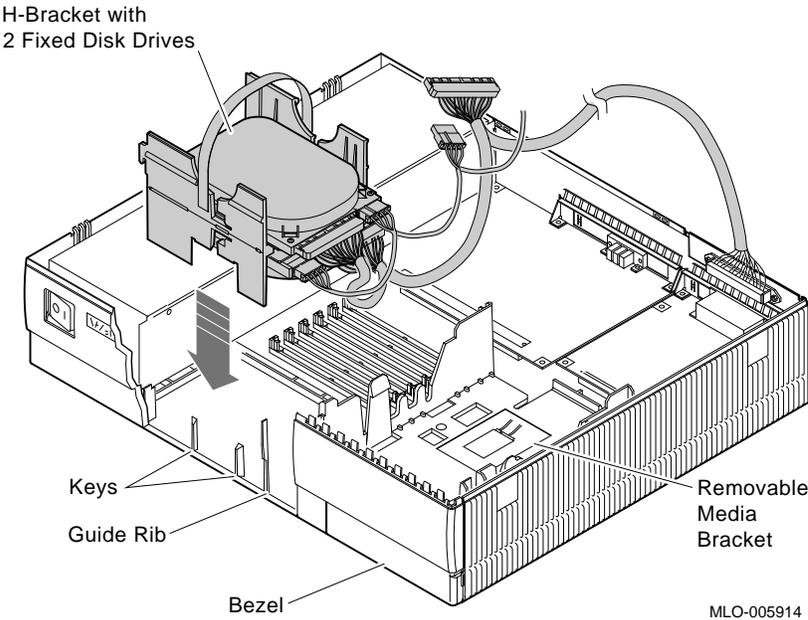
Figure 3-18 Installing the first RZ2x Drive into an H-Bracket



Continued on next page

Restoring the VS 4000 Model 60 Workstation, Continued

Figure 3-19 Replacing the H-bracket into the System Unit



Powering Up the VS 4000 Model 60 After Upgrade

Power up Sequence

With all the cables connected to the workstation, turn **On** the peripherals in the following sequence:

Step	Power On...
1.	Storage expansion box, if you have one
2.	Printer and modem, if you have them
3.	Monitor
4.	System unit

Automatic Test Display

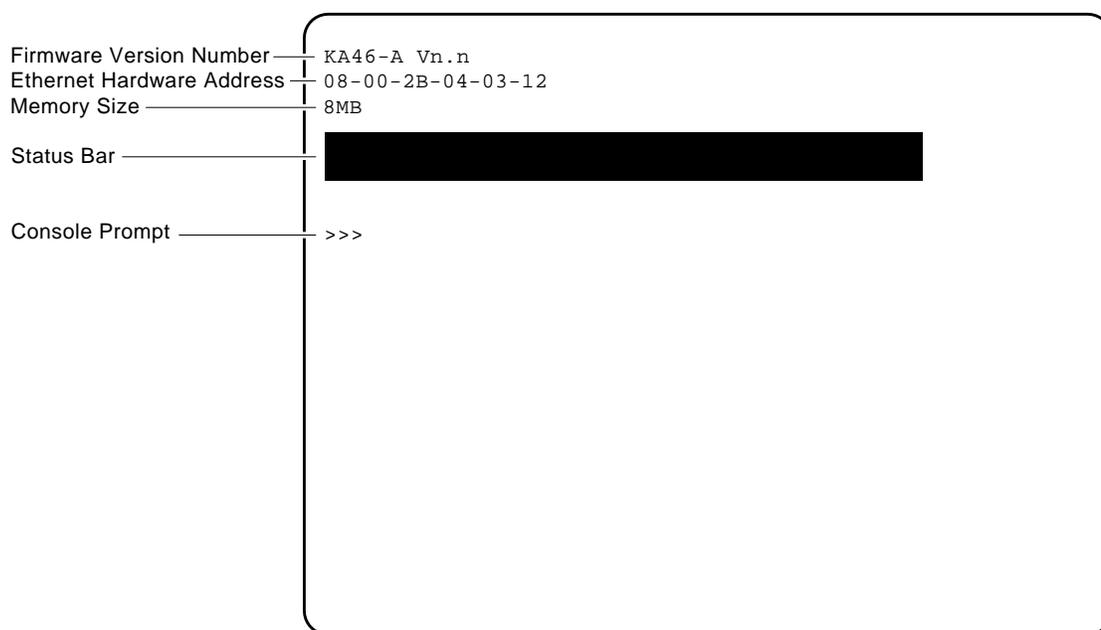
When you first turn on the system unit, the following will happen automatically:

- The system will beep to let you know that the system is running self tests.
- As each test completes, the status bar will start to fill. When all tests have been completed without error, the status bar will be filled completely. See Figure 3-20.

Continued on next page

Powering Up the VS 4000 Model 60 After Upgrade, Continued

Figure 3–20 Automatic Test Display



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Running the Show Config Command

Show Config Command

To display the **Show Config** command on the screen, do the following and refer to Figure 3-21:

Step	Action
1.	Open the front door of the system unit.
2.	Press the Halt button. The system will display the console command prompt (>>>).
3.	At the prompt, type show config and hit Return .

Continued on next page

Running the Show Config Command, Continued

Figure 3-21 Show Config Command Display

```
>>> SHOW CONFIG
KA46-A Vn.n
08-00-2B-0A-7D-CB
8MB

DEVNBR  DEVNAM  INFO
-----  -
  1      NVR     OK
  2      LCG     OK
                LR-MONO FB-1.0
  3      DZ      OK
  4      CACHE  OK
  5      MEM     OK
                8MB = SY=8MB, S0/1=0MB, S2/3=0MB, S4/5=0MB
  6      FPU     OK
  7      IT      OK
  8      SYS     OK
  9      NI      OK
 10     SCSI     OK
                0-RZ23L  5-RZ24  6-INTR
SCSI Line -----
SCSI ID Number -----
Component Mnemonic -----
>>>
```

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Continued on next page

Running the Show Config Command, Continued

Examine the Screen Display

Compare the data on the screen with the data you received when you did a **Show Device** on the VS 3100 Model 76 workstation before you powered down.

Verify that:

- The Ethernet address is the same as it was on the VS 3100 Model 76.
 - No SCSI ID numbers are duplicated.
 - All the system devices (1 through 11) have an **OK** beside them under the **INFO** column.
-

Note

If the screen does not show any error codes, you have successfully completed the upgrade and you are ready to boot the system.

If the system shows any error messages or error codes, refer to the *VAXstation 4000 Model 60 Service Information Kit*, EK-V466B-SV-001 for system testing and troubleshooting procedures.

Restoring the VS 3100 Model 76 for Shipment to Digital

Note

When installing components into the VS 3100 workstation, perform the procedures that were previously discussed in the component removal sections of this chapter. Perform all the procedures in reverse order.

Install System Unit Components

Before the VS 3100 Model 76 system can be returned, the following components must be installed:

- Ethernet ROM from the VS 4000 Model 60 system
 - Either the graphics or scanline coprocessor module
 - Disk drive plate
 - System unit cover
-

Return Forms

The following Return Forms must be filled out:

- Digital Services Upgrade Worksheet
 - Digital Services and Customer Installation Receipts
 - Returns Material Checklist
-

Note

The Digital Services representative will work with the customer to ensure that the hardware is packaged properly and the proper forms are filled out.

See Appendix A for a copy of the Return Forms.

Appendix A

Packing Instruction and Upgrade Return Forms

Packing Instructions

Overview

The Digital Services representative should work together with the customer to ensure that the hardware is packaged properly for return to Digital and that the proper return forms in this appendix are filled out.

Use the packing material from the VS 4000 Model 60 upgrade kit to pack the Model 30, Model 38, Model 40, Model 48 or Model 76 system unit for shipment back to Digital.

Return Forms

The Digital Services representative who performs the upgrade must complete the Digital Services Upgrade Worksheet and the Digital Services and Customer Installation Receipts. The Digital Services representative and the customer must work together to complete the Returns Material Checklist.

Digital Services Upgrade Worksheet

This form acts as a verification of the work performed on the system and as a check on the procedures used. Please fill out this form and return it to your Contract Administrator for updating the customer's contract.

Customer: _____

System Serial Number: _____

Old System Model Number: _____

Old CPU Module Serial Number: _____

New System Name: _____

New System Model Number: _____

New CPU Module Serial Number: _____

Continued on next page

Installation Receipt—Customer Copy

For VS 3100 Model 30 or 38, VS 3100 Model 40 or 48 and VS 3100 Model 76 systems upgraded to VS 4000 Model 60

This form acts as a customer receipt and as verification for Customer Services that the upgrade was completed.

Digital Services: Complete both copies of this form. Then, give a copy to the customer and a copy to the local CAS office for filing with customer documents.

Customer: Digital will contact you within the next several days to arrange for package pickup and return. Keep this copy as your record of installation by Digital.

NOTE

Contact the local CAS office to obtain the RA (return authorization) number. You should have the Digital order number available. Be sure to note the name of the person you speak with.

Name of CAS representative: _____

Branch Office: _____, will arrange for package pickup and return.

Return Authorization (RA) Number: _____

Digital Order Number: _____

Continued on next page

Installation Receipt—Customer Copy, Continued

Old CPU Module Serial Number:

Converted to:

New CPU Module Serial Number:

Installation was performed on this date:

Module Packed for Return:

Customer Name: _____

Phone Number: _____

Customer Signature:

Customer Services Representative
Signature: _____

Continued on next page

Installation Receipt—Digital Services Copy

For VS 3100 Model 30 or 38, VS 3100 Model 40 or 48 and VS 3100 Model 76 systems upgraded to VS 4000 Model 60.

This form acts as a customer receipt and as verification for Customer Services that the upgrade was completed.

Digital Services: Complete both copies of this form. Then, give a copy to the customer and a copy to the local CAS office for filing with customer documents.

Customer: Digital will contact you within the next several days to arrange for package pickup and return. Keep this copy as your record of installation by Digital.

NOTE

Contact the local CAS office to obtain the RA (return authorization) number. You should have the Digital order number available. Be sure to note the name of the person you speak with.

Name of CAS representative: _____

Branch Office: _____, will arrange for package pickup and return.

Return Authorization (RA) Number: _____

Digital Order Number: _____

Continued on next page

Installation Receipt—Digital Services Copy, Continued

Old CPU Module Serial Number:

Converted to:

New CPU Module Serial Number:

Installation was performed on this date:

Module Packed for Return:

Customer Name: _____

Phone Number: _____

Customer Signature:

Customer Services Representative
Signature: _____

Continued on next page

Return Material Checklist

**For VS 3100 Model 30 or 38, VS 3100 Model 40 or 48 and
VS 3100 Model 76 upgrade to a VS 4000 Model 60**

This form must be filled out and returned with the old modules
to ensure that the customer does not incur a penalty charge.

Date: _____

Return Authorization (RA) Number:

Digital Order
Number: _____

Customer
Name: _____

Customer
Address: _____

Customer
Contact: _____

Customer Telephone
Number: _____

Continued on next page

Return Material Checklist, Continued

HARDWARE BEING RETURNED:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

System Number from Rear of System

Serial Number _____

Include This Form With Your Module Return

Continued on next page

Customer Administrative Services District Offices

Name, Location	Phone Number
Allegheny District, Pittsburgh	(412) 244-7410
Carolinas District, Columbia	(803) 798-6477
Chicago District, Chicago	(312) 806-2478
Connecticut District, Meriden	(203) 634-5325
CSS District, Nashua	(603) 884-6549
DECdirect District, Nashua	(603) 884-9115
Florida District, Tampa	(813) 882-6822
Greater Boston District, Waltham	(617) 895-5455
Great Lakes District, Detroit	(313) 344-2285
Los Angeles District, Culver City	(213) 417-4232
Midsouth District, Memphis	(901) 761-6712
New England District, Bedford	(603) 472-6061
New Jersey Commercial District, Piscataway	(201) 562-4728
New Jersey Financial District, New York	(212) 714-2648

Continued on next page

Customer Administrative Services District Offices, Continued

Name, Location	Phone Number
New York Financial District, New York	(212) 714-2648
New York Suburban District, Tarrytown	(914) 524-5284
North Central District, Minneapolis	(612) 851-2225
North Texas/Oklahoma District, Dallas	(214) 404-6135
Northwest District, Bellevue	(206) 462-2540
Ohio Valley District, Cincinnati	(513) 984-7739
Philadelphia District, Blue Bell	(215) 834-4115
Rocky Mountain District, Englewood	(303) 649-3073
Santa Clara District, Santa Clara	(408) 496-4274
Southeast District, Atlanta	(404) 257-2282
Southern California District, Costa Mesa	(714) 850-7606
South Texas District, Houston	(713) 953-3918
Southwest District, Tempe	(602) 894-4747
Upstate New York District, Rochester	(716) 385-7152

Continued on next page

Customer Administrative Services District Offices, Continued

Name, Location	Phone Number
U.S. Distribution/Sales District, Marlboro	(508) 480-4259
Virginia District, Landover	(301) 306-2566
Washington DC District, Landover	(301) 459-2890
Washington DC District, FDA Landover	(301) 459-2292

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