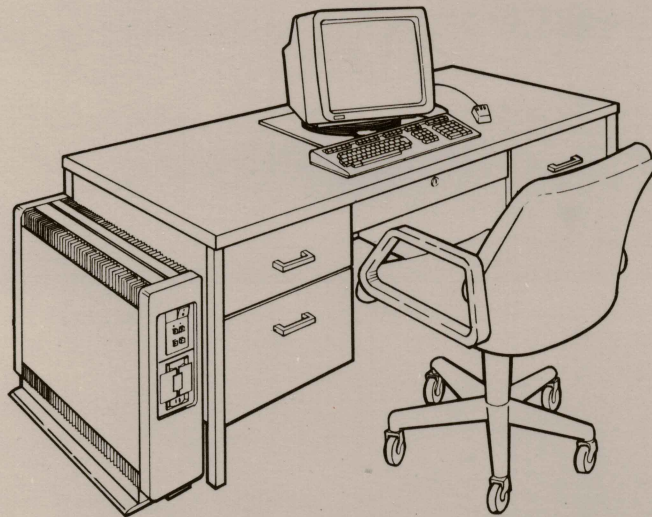
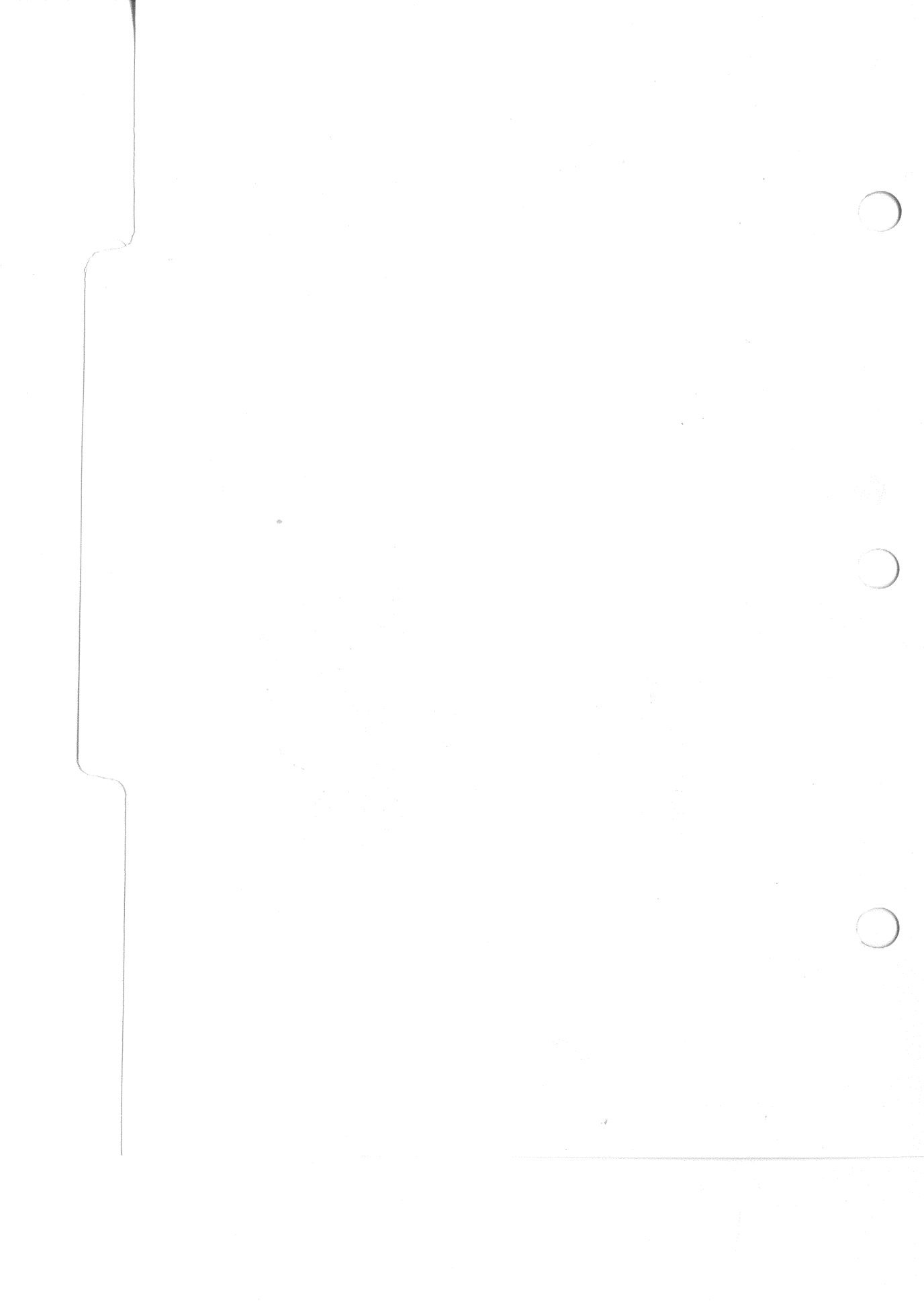


# VAXstation II

Owner's Manual,  
BA23 Enclosure

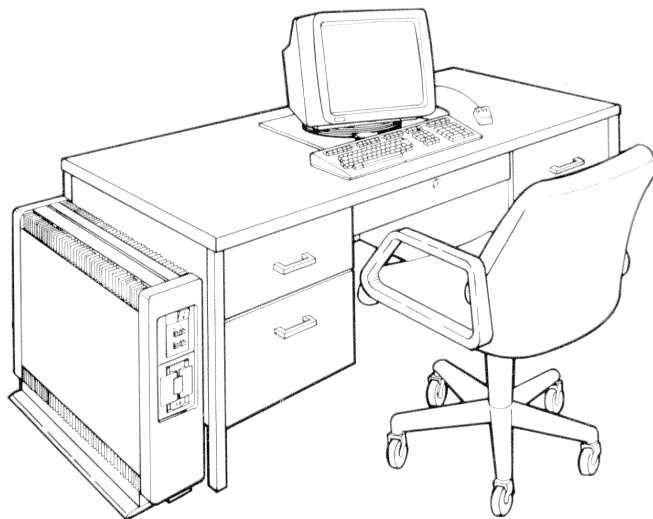


**digital**™



# VAXstation II

Owner's Manual,  
BA23 Enclosure



Prepared by SSG/ML Publications  
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MASSBUS	Rainbow	VMS
MicroVAX	RSTS	VT
	RSX	Work Processor

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This manual describes how to install, operate, and troubleshoot the VAXstation II, BA23 Enclosure. DIGITAL recommends that you read this manual before you install your system.

If you experience system problems, use this manual to isolate the error before seeking other help from service personnel. If you then require further assistance, call 1-800-DEC-8000, and a DIGITAL representative will help you.

### **What the VAXstation II Is**

The VAXstation II is a single-user, stand-alone, 32-bit microcomputer workstation. A standard system includes 2 megabytes of memory, a 19-inch (diagonal) black-and-white display monitor on a tilt-swivel base, a video controller, a mouse, a keyboard, a fixed disk drive, either a diskette or tape drive, and an Ethernet communication link. Bundled software includes the MicroVMS Full Kit operating system, MicroVMS Workstation software with graphics programming, and the Graphics Kernel System (GKS).

The VAXstation II system unit can be placed beside or under a desk, and peripherals on top of the desk.

Hardware options include printers, a tablet, memory modules, a free-standing disk drive, a tape drive subsystem, an asynchronous multiplexer, and a synchronous line controller. Software options are DECnet, FORTRAN, C, and other products layered on the MicroVMS operating system.

The VAXstation II expands the utility and convenience of the MicroVMS operating system by providing the user unlimited terminals (simulated in "windows" on the VAXstation screen). Each simulated terminal runs

processes independently of processes running in other terminals, and the terminal permits VAXstation keyboard association at any time.

You can create, move, and discard simulated VT100 and/or Tektronix\* 4014 terminals and other menus and processes in windows on the screen, using the mouse to move a pointer. The result allows you to view or manage a variety of activities at once. For example, you can do the following:

- Examine a compilation listing while editing the source file
- Read notices without exiting from a program
- Start one task and follow its progress while interacting with another task
- Send mail without exiting an editing session
- Print a list of files on your printer while creating other files (requires the printer option)

The VAXstation monitor and graphics module allow medium-resolution bit-map graphics applications. Using the MicroVMS graphics programming interface or GKS, you can create applications that produce 2-dimensional pictures.

### **Manual Conventions**

VAXstation II system controls and indicators are highlighted in bold lettering. The names of diagnostic tests are highlighted in bold as well. Titles of diagnostic media appear in italics.

### **Manual Organization**

The manual is divided in six parts:

#### **Part I: Base System Installation**

This part describes how to unpack, install, and test the system. Read the following information before installing the system:

- **Chapter 1** describes preinstallation procedures, including checking the shipment components and ensuring adequate site preparation.
- **Chapter 2** describes how to set up the system unit, monitor, keyboard, and mouse and how to connect and test the system.

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\* Tektronix is a registered trademark of Tektronix, Inc.

## **Part II: Operation**

This part describes the operation of the VAXstation II:

- **Chapter 3** describes the system controls and indicators.

## **Part III: Option Installation**

This part describes the options for the VAXstation II and gives installation information where applicable.

- **Chapter 4** describes the hardware options for the VAXstation II. They include the LA50, LA210, and LN03-AA printers, a tablet, memory modules, a free-standing disk drive, an asynchronous multiplexer and a synchronous line controller. The chapter gives installation information for the printers and the tablet.

## **Part IV: Troubleshooting**

This part describes how to isolate a problem and decide what to do next. The following information is provided:

- **Chapter 5** outlines basic troubleshooting procedures, explains power-up messages, and describes the maintenance system for the VAXstation II. The chapter contains a section on troubleshooting procedures for the monitor.
- **Chapter 6** describes the services DIGITAL provides.

## **Part V: Appendix**

The Appendix provides VAXstation II system specifications.

## **Part VI: Glossary**

This part explains computer terms mentioned in the manual.

## **Related Documents**

- *Read Me First* (Order No. AA-GS96A-TE) outlines the steps involved to install the hardware and MicroVMS software of a VAXstation system. The VAXstation manuals contain instructions needed to complete each step. The reverse side of the card suggests the order in which to read this documentation.

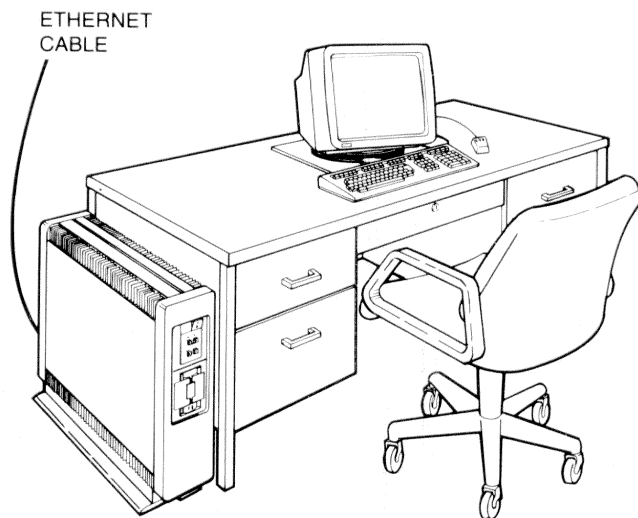
- *MicroVMS Workstation Release Notes* (Order No. AA-GR46A-TE) provides supplemental information about the Version 2.0 MicroVMS Workstation Software and VAXstation Hardware. The notes contain instructions for VAXstation setup and software installation, descriptions of differences between Version 1.1 and 2.0, explanations of problems and restrictions to the hardware and software, and notes to the published documentation.
- *VAXstation II Technical Manual, BA23 enclosure* (Order No. AZ-GLFAB-MN) contains detailed information about the VAXstation II hardware, in particular the VCB01 module. The manual is packaged in the same binder as this book.
- *VR260 Installation/Owner's Guide* (Order No. EK-VR260-IN-001) describes how to install the monitor, gives operating information, provides troubleshooting instructions, and lists specifications.
- *Tablet Installation Sheet* (Order No. EK-VSXXB-IN) explains how to set-up the device.
- *MicroVMS Release Notes* (Latest Version) contains last-minute information about MicroVMS.
- *MicroVMS User's Primer* (Order No. AA-Z210B-TE) introduces the MicroVMS operating system to novice users.
- *MicroVMS User's Manual* (Order No. AA-Z209B-TE) describes the operation of the MicroVMS operating system.
- *MicroVMS User's Pocket Reference* (Order No. AA-Z211B-TE) summarizes the DIGITAL Command Language (DCL), EDT editor, DIGITAL Standard Runoff (DSR), and MAIL commands.
- *MicroVMS FORTRAN Programmer's Primer* (Order No. AA-Z213A-TE) contains basic concepts of program development using FORTRAN in the MicroVMS environment.
- *MicroVMS FORTRAN Programmer's Manual* (Order No. AA-Z212A-TE) contains guidelines for using VAX FORTRAN with MicroVMS tools, such as run-time library routines, system services, the debugger, and relevant utilities. The manual presents a task-oriented approach to programming with FORTRAN on a MicroVMS system. Specifications for VAX FORTRAN statements are included in an appendix.

- *MicroVMS Programming Support Manual* (Order No. AA-DC87B-TE) contains the specifications for the following MicroVMS programming support tools: the run-time library routines, system services, terminal and mailbox I/O function codes, debugger, linker, file definition language, message utility, command definition utility, and condition codes.
- *MicroVMS Programming Pocket Reference* (Order No. AA-Z214A-TE) contains syntax specifications for the following programming tools: run-time library routines, system services, debugger commands, and relevant DCL commands. The pocket reference also includes a summary for dot notation.
- *MicroVMS Workstation User's Guide* (Order No. AV-EZ24C-TN) explains how to install the MicroVMS workstation software.
- *MicroVMS Workstation Graphics Programming Guide* (Order No. AA-G110A-TN) provides tutorial and reference information on the MicroVMS workstation graphics programming interface.
- *Installing VAX GKS/0b* (Order No. AA-W156B-TE) describes the installation of GKS.
- *VAX GKS/0b Software Reference Guide* (Order No. AA-BH53B-TE) contains reference information about GKS.
- *VAX GKS/0b Pocket Guide* (Order No. AV-BH52B-TE) summarizes GKS functions and lists GKS FORTRAN binding functions and constant names.
- *MicroVMS Workstation Video Device Driver Manual* (Order No. AV-DY65C-TE) contains information about the VCB01 (QVSS) device driver for programmers.
- *KA630-A CPU Module User's Guide* (Order No. EK-KA630-UG) details the internal operation of the MicroVAX KA630-A CPU.
- *MicroVAX II Maintenance Information Kit* (Order No. ZNA3X-CW) is for users who want to service their own systems.



## Preparing for Installation **1**

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**Figure 1-1: A Typical VAXstation II, BA23 Enclosure**

## CHECK YOUR SHIPMENT

Unpack the VAXstation II system and check your shipment against the packing list on the outside of one of your boxes. Your basic shipment consists of three cartons.

1. The VAXstation II system unit carton contains the following materials:
  - VAXstation II system unit, BA23
  - Accessories Kit, containing:
    - Installation and testing accessories, including a flat screw driver, Phillips screw driver, a DEQNA loop connector, label sheets, and a grant card (for use by your support personnel)
  - System unit power cord and any loopback connectors
  - BC18P video cable assembly
2. The hardware support kit (Z4AAA) contains the following books and diagnostic media:
  - VAXstation II Hardware Information binder, housing:
    - VAXstation II Owner's Manual, BA23 Enclosure*
    - VAXstation II Technical Manual, BA23 Enclosure*
  - Appropriate media for testing and troubleshooting
3. The VAXstation II consolidation carton contains the following components:
  - VR260 graphics monitor
  - Monitor power cord
  - Tilt-swivel base assembly
  - LK201 keyboard with cable to connect to the monitor, feet for the keyboard, and an extra power cord
  - VS10X mouse with cable to connect to the system unit

If you ordered media and documentation, you also receive a software carton, which contains the appropriate keyboard legend strips.



Check for optional items that you may have ordered, such as additional software or a printer.

If your shipment appears damaged, or if any item is missing, inform the delivery agent and contact your sales representative or the store where you purchased your system.

### **SITE-PREPARATION REVIEW**

Before installing your system, review the following site-preparation requirements. You must provide:

- Adequate space for the system unit and peripherals
- Electrical power
- A suitable operating environment
- Accommodations for an Ethernet connection, if you plan to connect the VAXstation II to a network

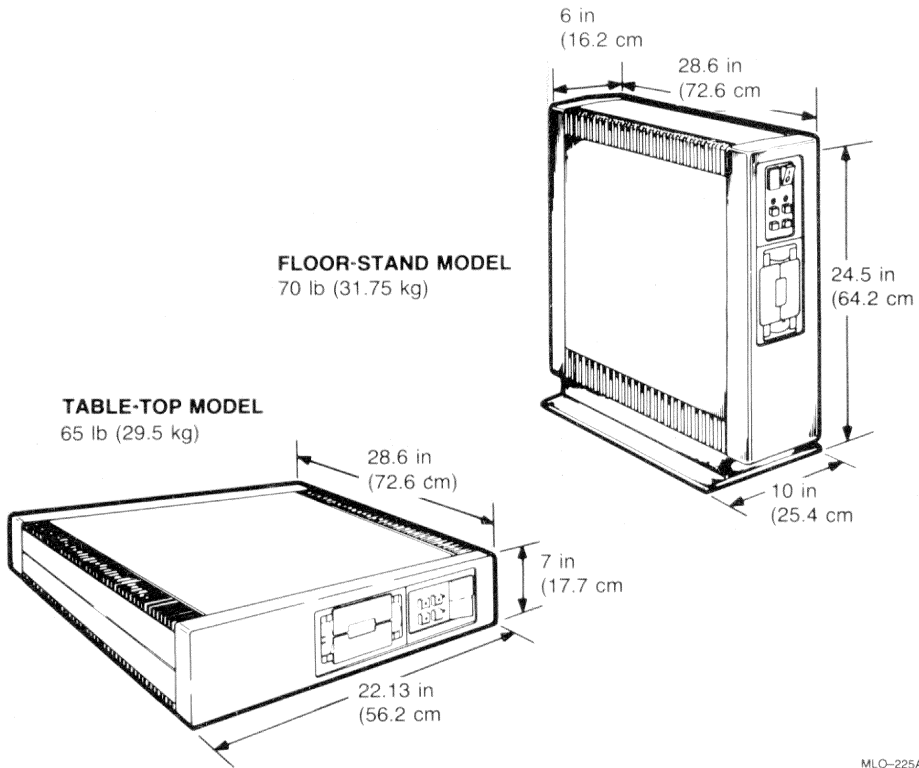
Review the Appendix, which provides VAXstation II system specifications, before you proceed with this chapter.

### **Space Planning**

Leave sufficient space around the system unit and monitor to access the units and to allow air circulation through the units.

**The System Unit** — The vents on the system unit allow proper air flow. **Do not** cover the vents with items, such as books or paper.

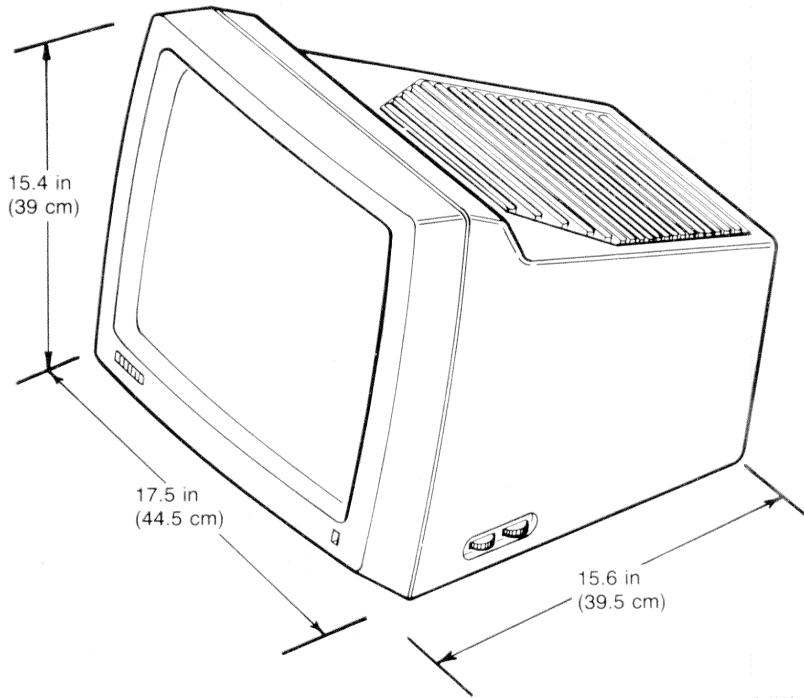
The unit weighs approximately 70 pounds (31.75 kilograms).



**Figure 1-2: Dimensions of the System Unit**

**The Monitor** — The vent on the top of the monitor allows proper air flow. **Do not** cover the vent with items, such as books or paper.

The monitor weighs approximately 40 pounds (18 kilograms).

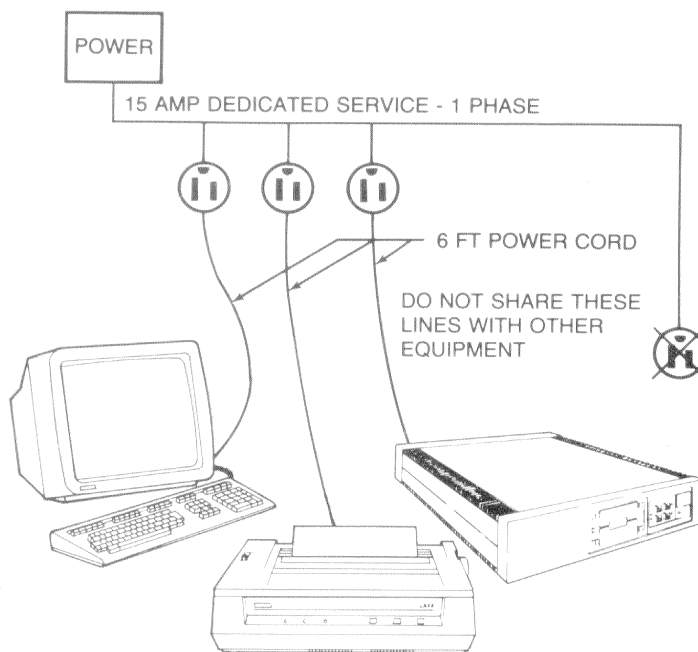


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### Electrical Requirements

A 15-ampere branch circuit from the power distribution panel is recommended for each system. This circuit must meet national and local standards, provide a good system ground, be stable, and be free from electrical noise. If power disturbances cannot be prevented, you may need more power-conditioning equipment.

The ac power source should supply power to the original system and allow for system expansion. **Do not** connect other equipment (such as air conditioners, office copiers, or coffee pots) to the same circuit as that of the system unit or the monitor.



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## Environment

**Temperature and Humidity** — The location of the VAXstation II should have an environmental control system to maintain the recommended temperature and humidity. This system should filter and evenly distribute air to prevent hot spots.

The VAXstation II should not be located near heaters, photocopiers, or direct sunlight.

**Static Electricity** — Static electricity can cause a system to fail, data to be lost, and other problems to occur. The most common source of static electricity is the movement of people in contact with carpets and clothing. Low humidity results in the greatest buildup of static electricity. The following precautions reduce static buildup:

- Maintain greater than 40 percent relative humidity.
- Locate the system away from busy areas, such as office corridors.
- If a carpet is already fitted at the selected location, place antistatic pads under the system.

**Clean Area** — Dust particles can clog air passages inside the equipment, thus reducing the cooling air flow and diskette life, especially if the particles are abrasive. Keeping the system area clean and free from dust helps reduce those effects.

Do not place food or liquid on the system.

**Supplies Storage** — Store supplies, such as diskettes, at the same temperature and humidity levels as the system's.

## Accommodations for an Ethernet Connection

The VAXstation II can connect to an existing Ethernet network in two ways:

- through a DELNI
- through an H4000 transceiver

You require a BNE3X cable to connect a VAXstation II to a DELNI or to an H4000 transceiver. You can order this cable from DIGITAL. The BNE3X series of transceiver cables comes in four types:

- BNE3A – PVC, straight connector
- BNE3B – PVC, right-angle connector
- BNE3C – Teflon, straight connector
- BNE3D – Teflon, right-angle connector

For site-preparation information on Ethernet networks, see the following documents:

- *Ethernet Installation Guide* (Order No. EK-ETHER-IN-001).
- *DELNI Installation and Owner's Manual* (Order No. EK-DELNI-IN).

## Setting Up the Hardware **2**

---

This chapter describes how to assemble, connect, and test the VAXstation II.

### **WARNING**

**When connecting any component of the VAXstation II system, set all power switches to the 0 (off) position.**

### **SETTING UP THE SYSTEM UNIT**

Make sure your system unit's location follows the site-preparation suggestions in Chapter 1. To install the VAXstation II system, follow the steps in order or as directed. If you have trouble:

- Refer to Chapter 5.
- Call the nearest DIGITAL Help Line. If you do not know this number, call 1-800-DEC-8000, and a DIGITAL representative will help you.

You can use the system unit in its floor-stand (as shipped by DIGITAL) or convert the system unit to the table-top version.

If you are not converting the floor-stand version, go to the **SETTING UP THE MONITOR** section in this chapter.

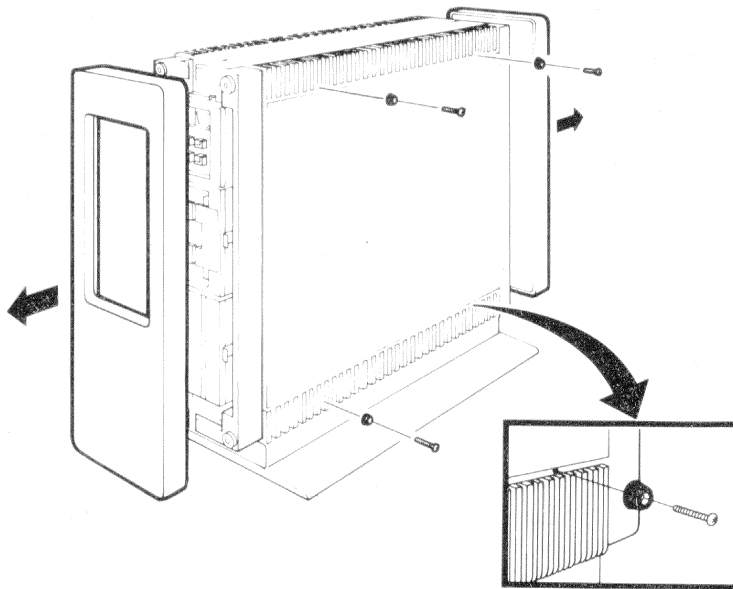
### Optional Table-Top Conversion

To perform the table-top conversion, follow these instructions:

**WARNING**

**You need two people to carry out these procedures. The system unit with floor-stand weighs 70 pounds (31.75 kilograms).**

1. Remove the back and front covers by carefully pulling them by the top and bottom edges. The cover is held in place by pop fasteners. To facilitate removal, disengage the top edge first.
2. Locate and screw the four rubber feet into the side of the system unit as shown. The rubber feet, screws, and screwdriver are part of the installation accessories package of the system unit carton.



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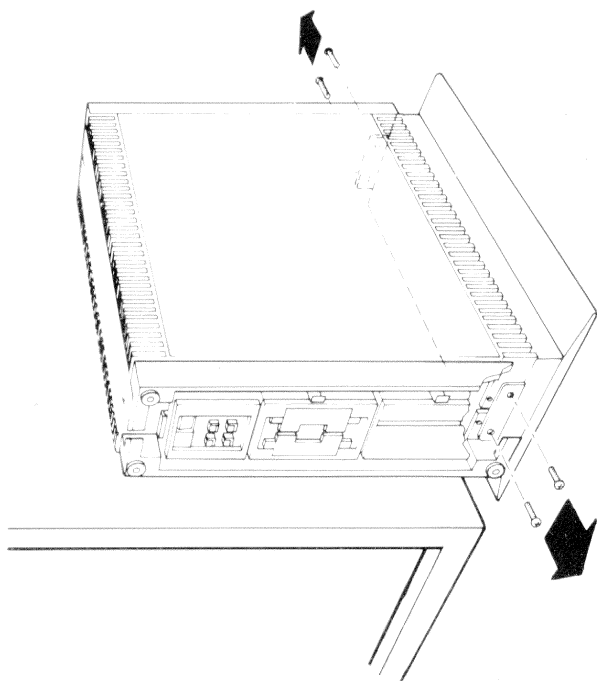
3. Place the system unit on a table or desk. Let the floor-mount pedestal hang off the edge of the table or desk.

USE HANDLES/CABLE  
GUIDES WHEN MOVING  
SYSTEM UNIT



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4. Use the screwdriver to remove the inner set of front and back screws that hold the unit to the pedestal.



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5. Replace the two front and two back screws into the covers without the pedestal in case you decide to convert the system back to the floor-stand version.

## **SETTING UP THE MONITOR**

This section explains how to set up the VR260 monitor on the tilt-swivel base. The 15-inch x 15-inch tilt-swivel base allows you to turn the monitor 360 degrees. A pedal at the front of the base lets you slightly tilt the monitor up or down.

This section also explains how to attach the cable assembly. The cable assembly connects the monitor, keyboard, and pointing device to the system unit.

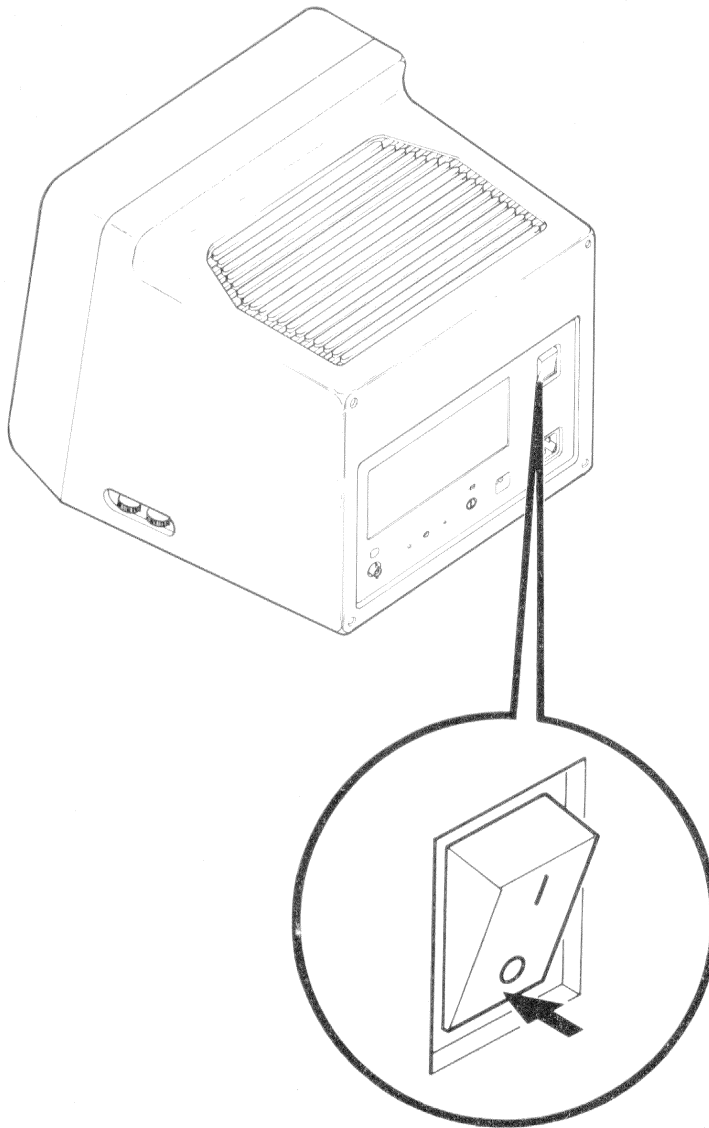
### **WARNING**

**Do not plug in the monitor power cord or turn on the monitor power until directed.**

## Setting Up the Hardware

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1. Make sure the monitor power switch is set to 0 (off).

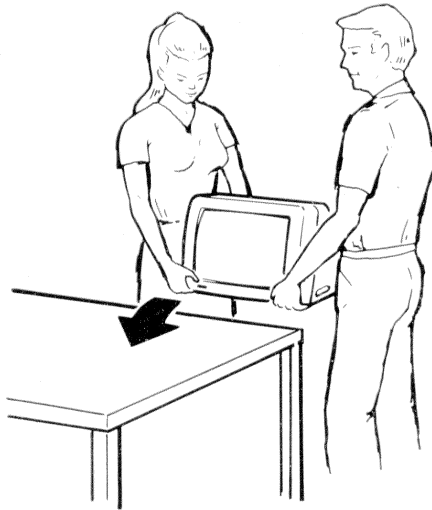


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**WARNING**

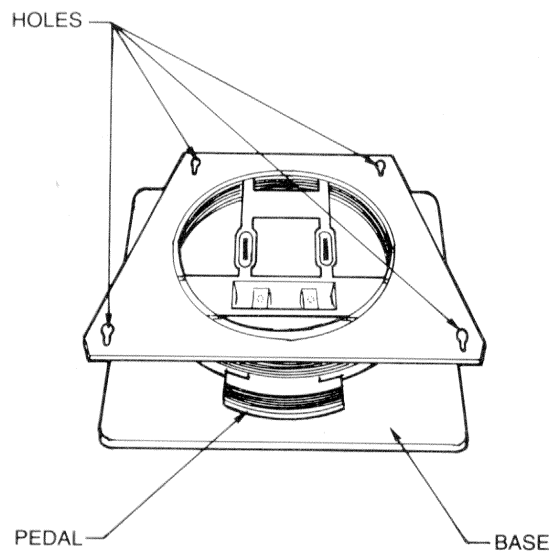
**You will need two people to carry out these procedures. The monitor weighs 44.1 pounds (20 kilograms).**

2. Place the monitor on a level surface. Position the monitor for ease of use.



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3. Locate the tilt-swivel base (Figure 2-1).

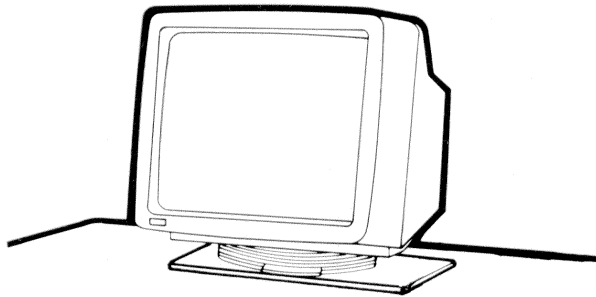


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**Figure 2-1: Tilt-Swivel Base Parts**

4. To install your monitor on the tilt-swivel base:
  - Position the base, with the pedal facing forward, next to the monitor.
  - Loosen the monitor feet.
  - Lift and position the monitor over the base.
  - Lower the four monitor legs into the corresponding holes on the base.
  - Push the monitor forward until it slides and locks into place.
  - Tighten the monitor feet.

Figure 2-2 shows an installed tilt-swivel base.



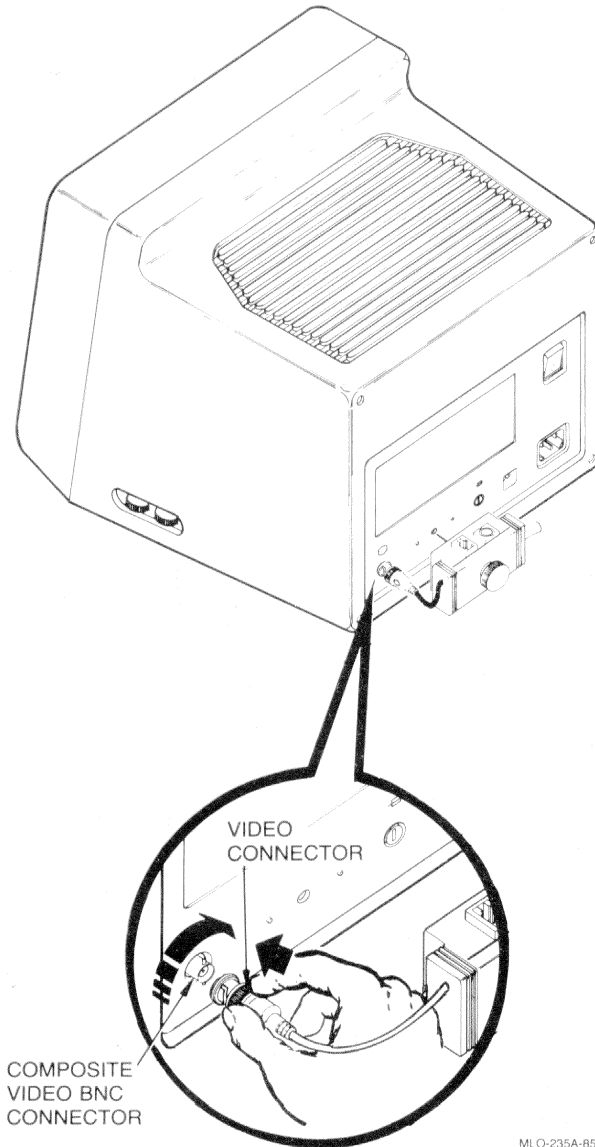
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**Figure 2-2: Installed Tilt-Swivel Base**

## Setting Up the Hardware

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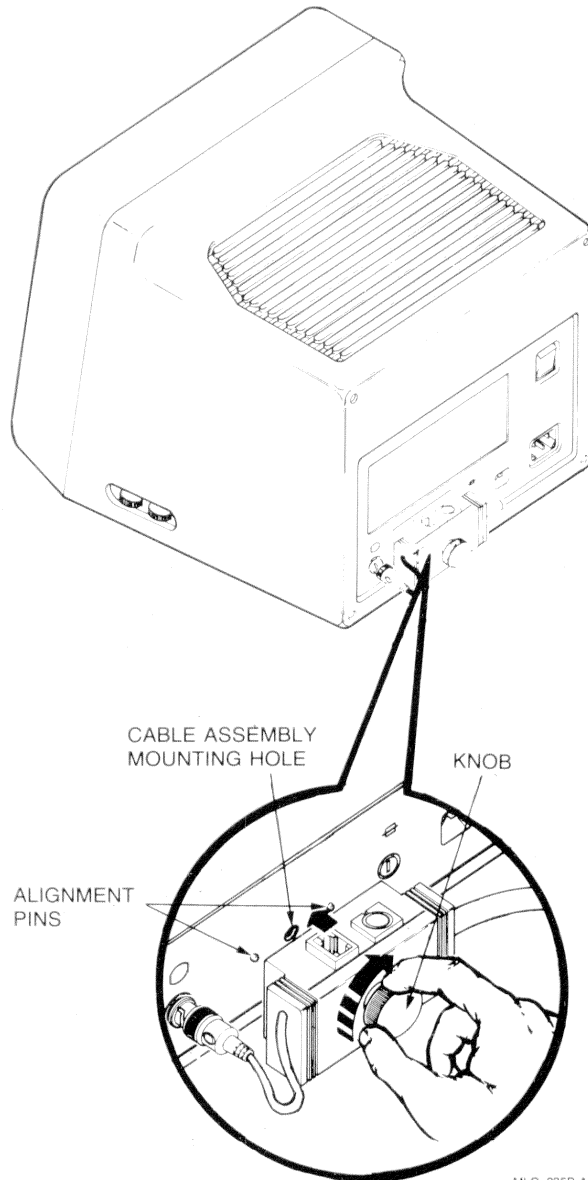
5. Locate the BC18P video cable assembly (from the system unit carton). Plug the connector into the socket at the far left of the back of the monitor. Turn the connector clockwise to fasten.



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6. Align the stubs and the centering pin of the cable assembly and turn the knob clockwise to screw the device in.



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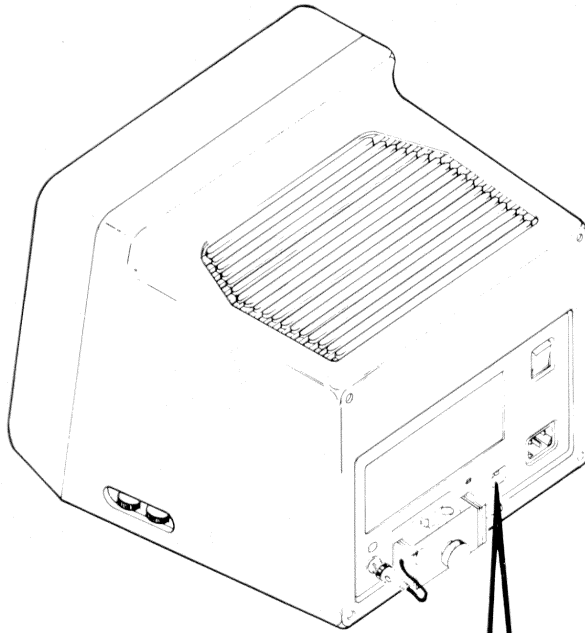
7. Check the **voltage select switch** setting on the monitor to make sure the setting matches the source voltage.

**NOTE**

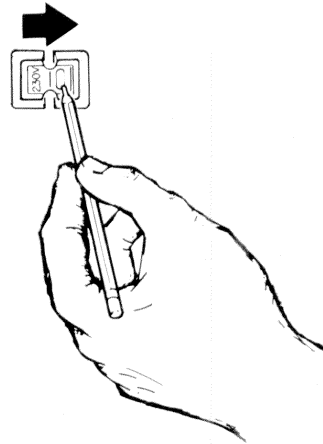
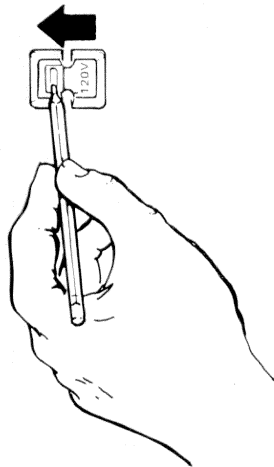
**DIGITAL** sets the **voltage select switch** on a monitor for the country where the monitor will be installed. If the switch setting does not match the voltage you use, change the setting.

**CAUTION**

The monitor can be damaged if you do not set the **voltage select switch** correctly.



VOLTAGE SELECT SWITCH  
115 V (110 V, 115 V, 120 V)      230 V (200 V, 220 V, 230 V)

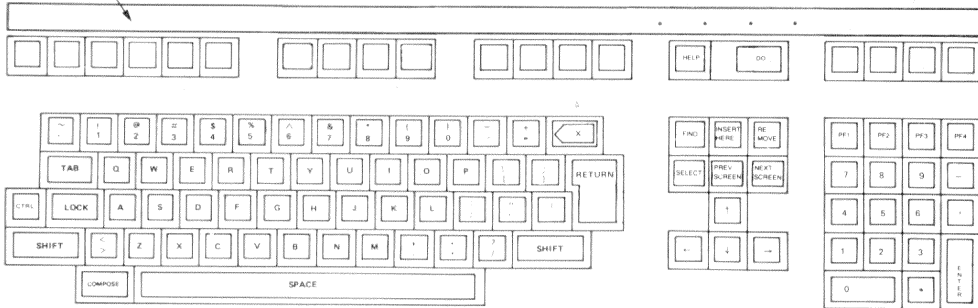


MLO-236A-85

## SETTING UP THE KEYBOARD AND POINTING DEVICE

1. Insert the legend strip (from the software carton) into the slot at the top of the keyboard.

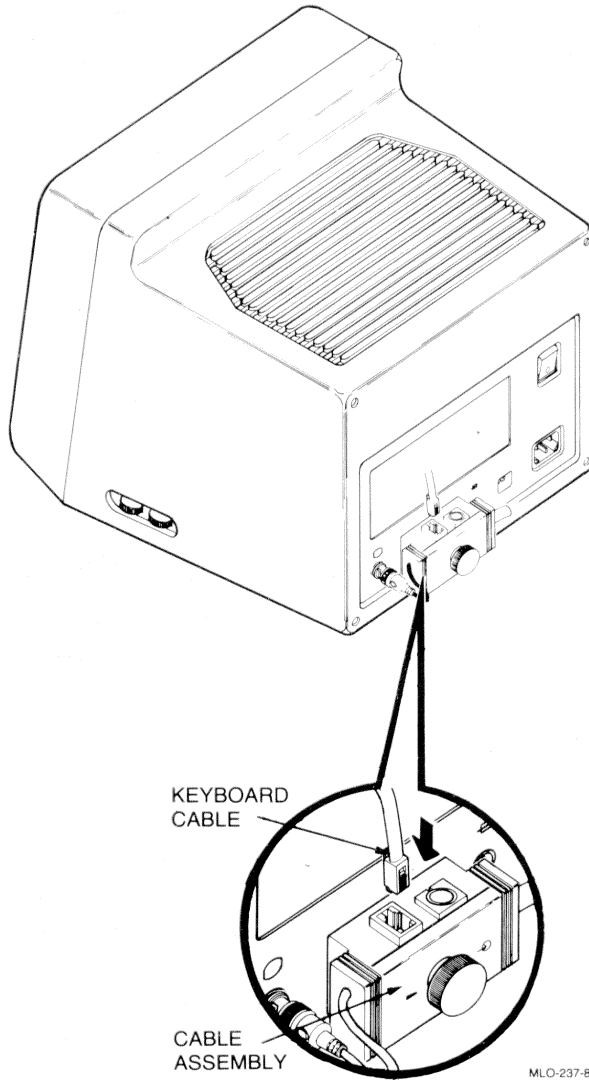
KEYSTRIP  
LEGEND SLOT



MLO-272-85

2. Install the keyboard feet.

3. Connect the keyboard cable to the top left receptacle of the cable assembly.



MLO-237-85

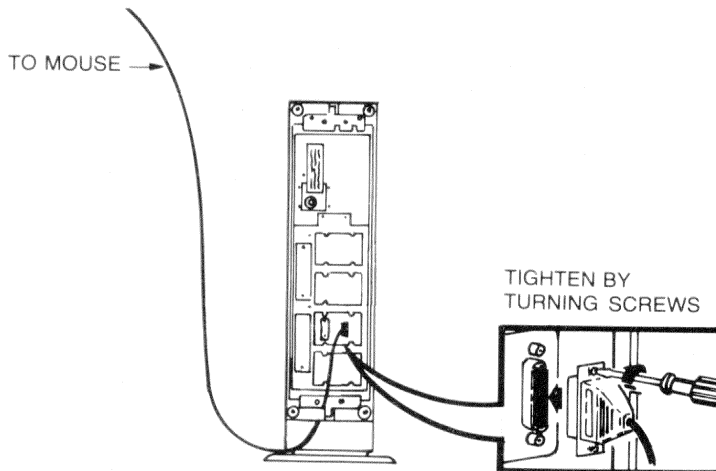
## Setting Up the Hardware

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4. Locate the pointing device you wish to use. The pointing device may be either a mouse (standard) or a tablet (optional). You cannot use both devices at the same time.

If you wish to use the mouse as your pointing device, proceed to step 5. If you prefer to use the tablet, proceed to step 6 (skip step 5).

5. Attach the mouse cable to the connector on the back of the system unit as illustrated. Tighten the screws. Proceed to the next section.

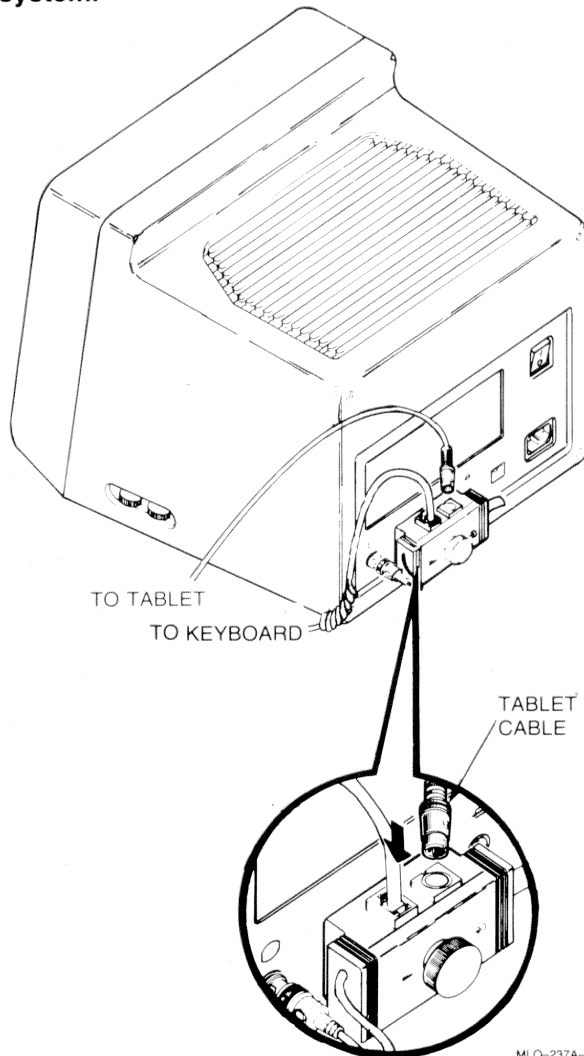


MLO-242A-1-85

6. Plug the tablet cable into the round receptacle of the cable assembly.

**NOTE**

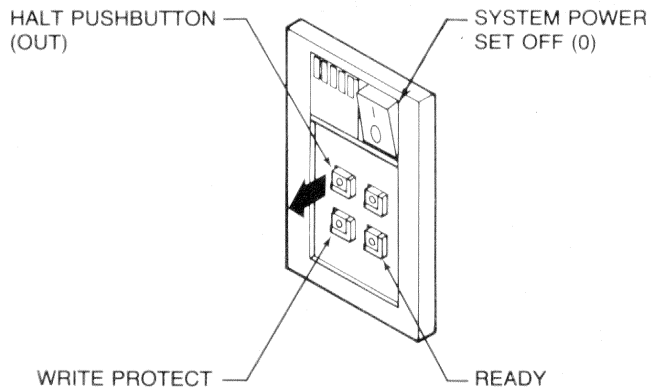
For proper operation, attach the puck or stylus before you connect the graphics tablet to the VAXstation II. The instruction sheet that comes with the tablet explains how to connect the various components. If you wish to change the puck or stylus, you must first disconnect the tablet from the VAXstation II. Then, swap the puck or stylus, and reconnect the tablet to the system.



## CONNECTING THE VAXSTATION II

This section covers the final steps to install your VAXstation II.

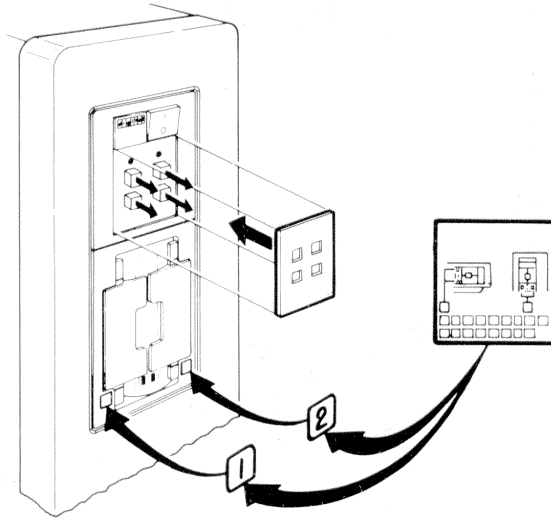
1. Locate the labels sheet in the installation accessories package.
2. Make sure that **all** buttons on the control panel of the system unit are out.



MLO 238-85



3. Put the appropriate label on the control panel.
4. If your unit contains diskette drives, label them 1 and 2, respectively.



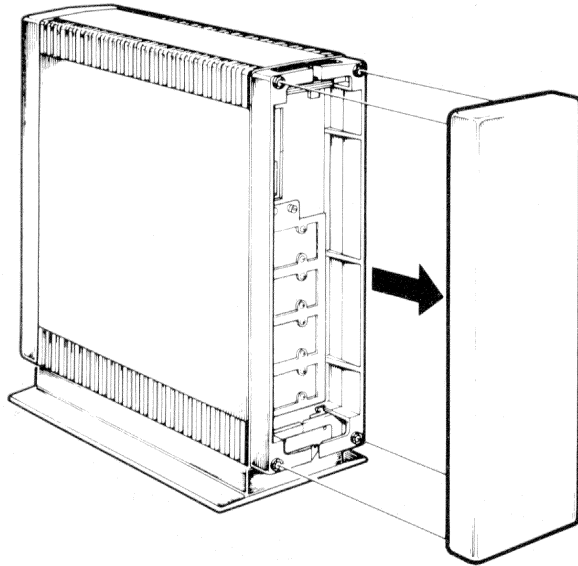
MLO-239-85

**Figure 2-3: VAXstation II System Unit Labels**

## Setting Up the Hardware

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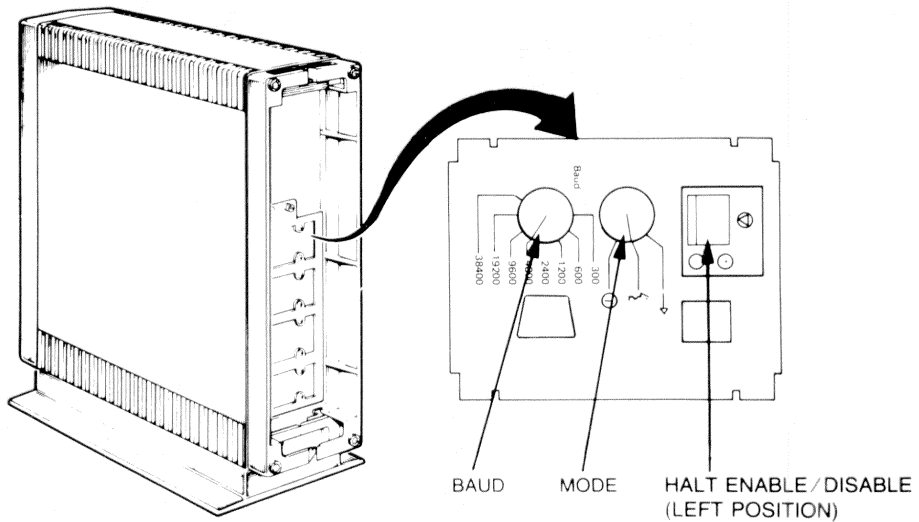
5. Open the door at the back of your system unit. A pop fastener holds the door in place.



MLO-240-85

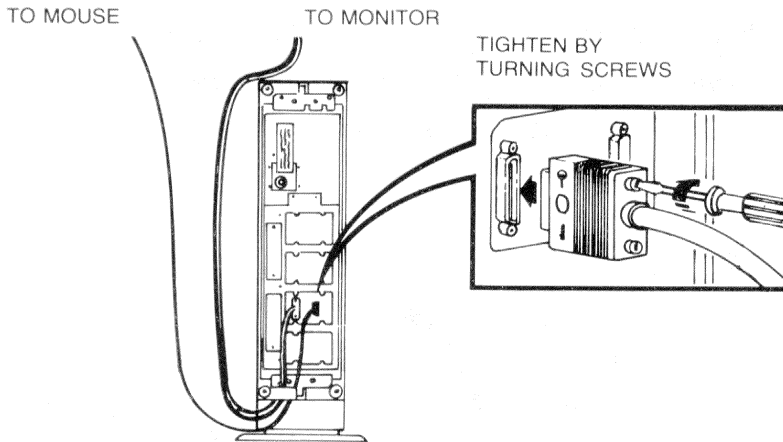
6. Set the controls located on the CPU distribution panel insert on the back of the system unit to the following positions:

- **Halt Enable/Disable** switch to the disable position (down)
- **Mode** switch to the middle (language inquiry) position
- **System unit baud rate** at 4800 baud



MLO-241-85

7. Connect the free end of the video cable to the back of the system unit.



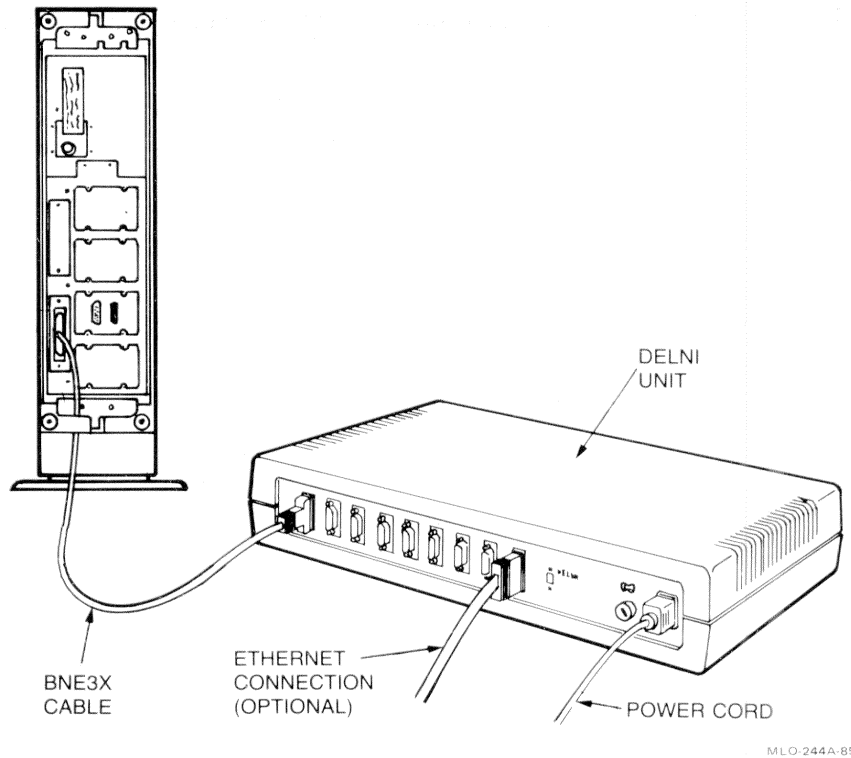
MLO-242A-2-85

8. Connect the system to an Ethernet network (optional). The VAXstation II does not have to be connected to an Ethernet network to function, and if you do not wish to do so at this time, proceed to the next step.

You may connect the system to a DELNI yourself. However, you must call your service representative to connect the system to an H4000 transceiver.

To connect the VAXstation II to the DELNI:

- A. Plug the male end of the BNE3X cable into the back of the VAXstation II system unit.
- B. Plug the female end of the BNE3X cable into a free slot of the DELNI.



MLO-244A-85

**Figure 2-4: VAXstation II Connection to a DELNI**

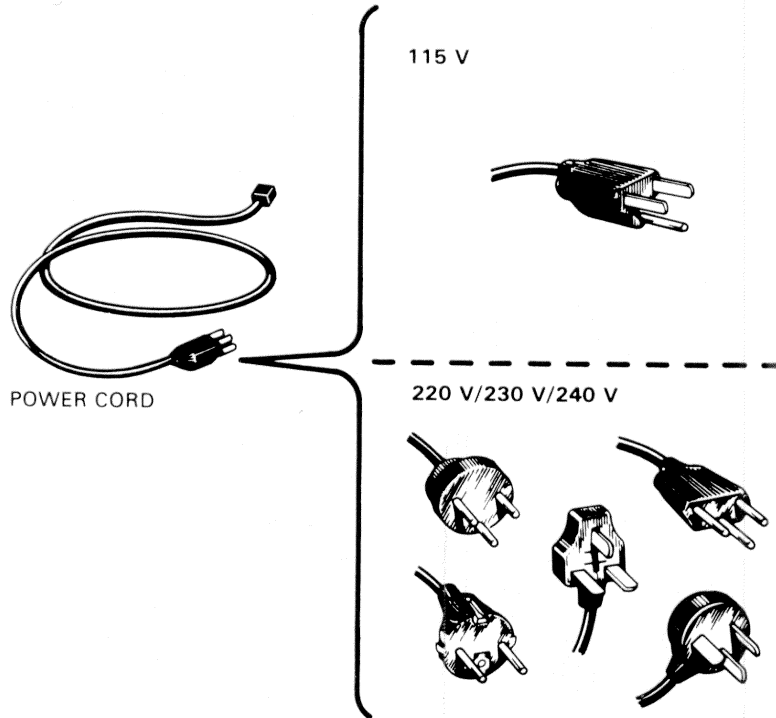
For more information on the DELNI, see:

- *DELNI Installation Guide and Owner's Manual* (Order No. EK-DELNI-IN).

### 9. Install and connect any options.

- Additional devices may include printers, external storage devices, and other options. The devices may be connected in any order.
- Read Chapter 4 for descriptions of the options and for VAXstation II installation information.
- Refer to the installation guide included with each optional device.

10. Identify the monitor and system unit power cords. Ensure that the plugs fit the wall outlet.



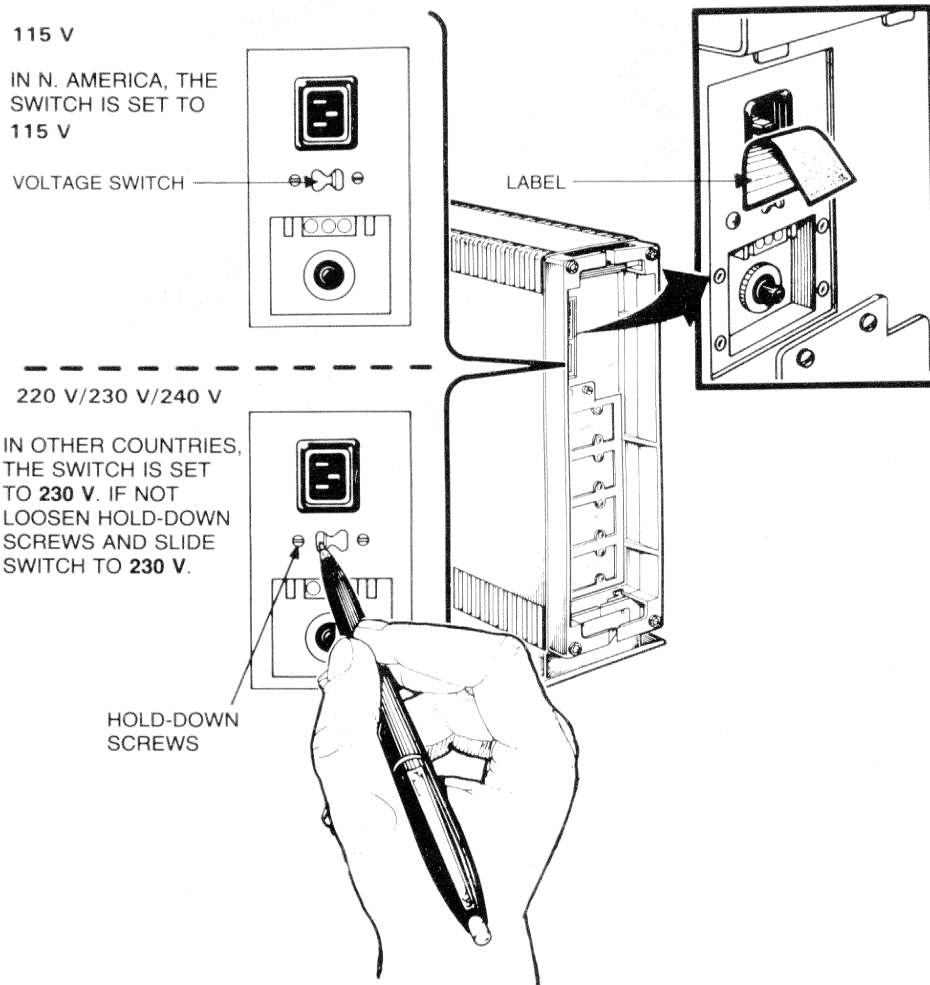
MLO-245-85

11. Read and remove the label covering the power connector of the system unit.

Check the voltage switch setting. If necessary, change the setting to match the voltage source.

**CAUTION**

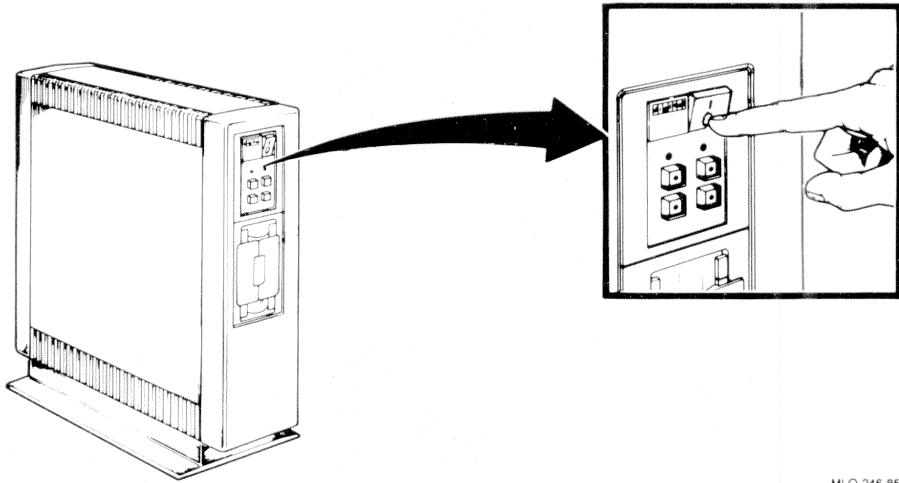
**An incorrect voltage switch setting will damage the VAXstation II system.**



MLO-243-85



12. Before you connect the VAXstation II to a power source, make sure that the monitor power switch is set to 0 (off), the pushbuttons on the system unit front control panel are "out," and the power switch on the system unit front control panel is set to 0 (off). The power switch is located on the front of the VAXstation II system unit as illustrated below.

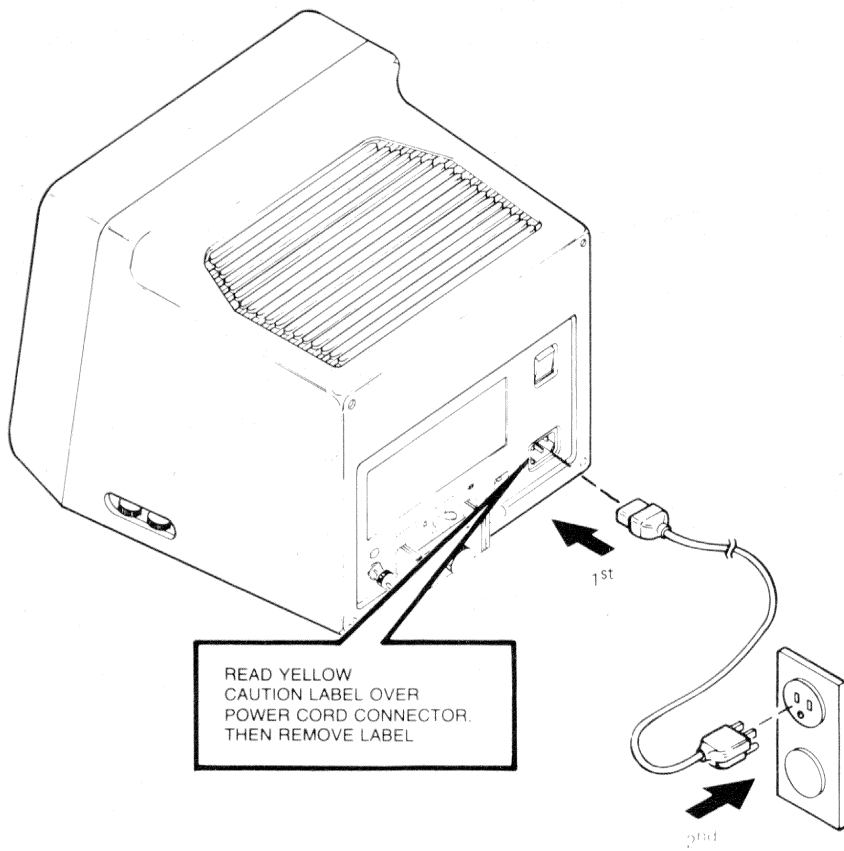


MLO-246-85

## Setting Up the Hardware

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13. Connect the monitor power cord to the monitor first and then to an outlet.



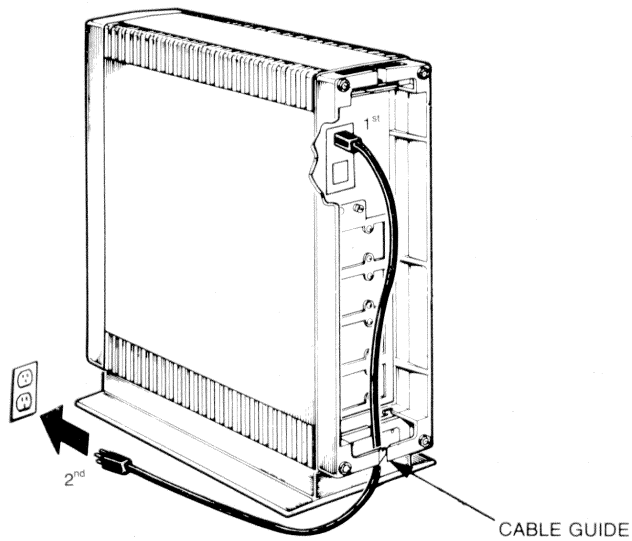
MLO 247-B5

14. Plug in the ends of the system power cable.

- Plug one end firmly into the system unit power connector.
- Insert the other end of the system power cable into the wall receptacle.

Thread the cables through the lower cable guide. Run the power and system interconnecting cables in areas where no one will trip over them. Avoid straining or bending the cables sharply.

Do not close the back door of the system unit.



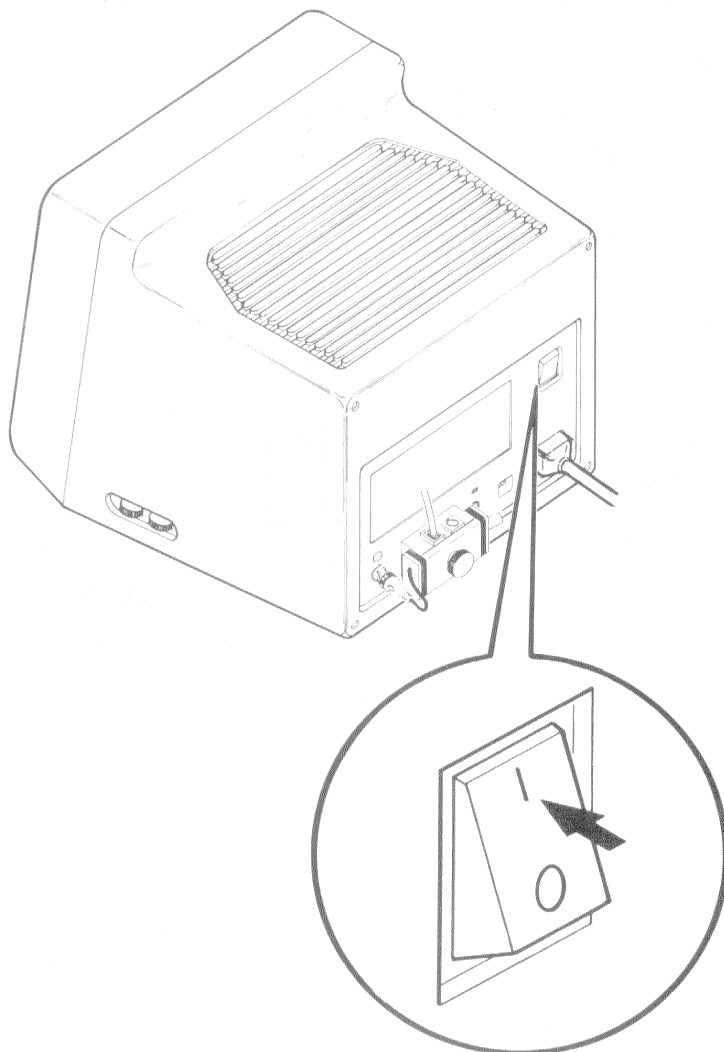
MLO-248-B5

## TESTING THE VAXSTATION II

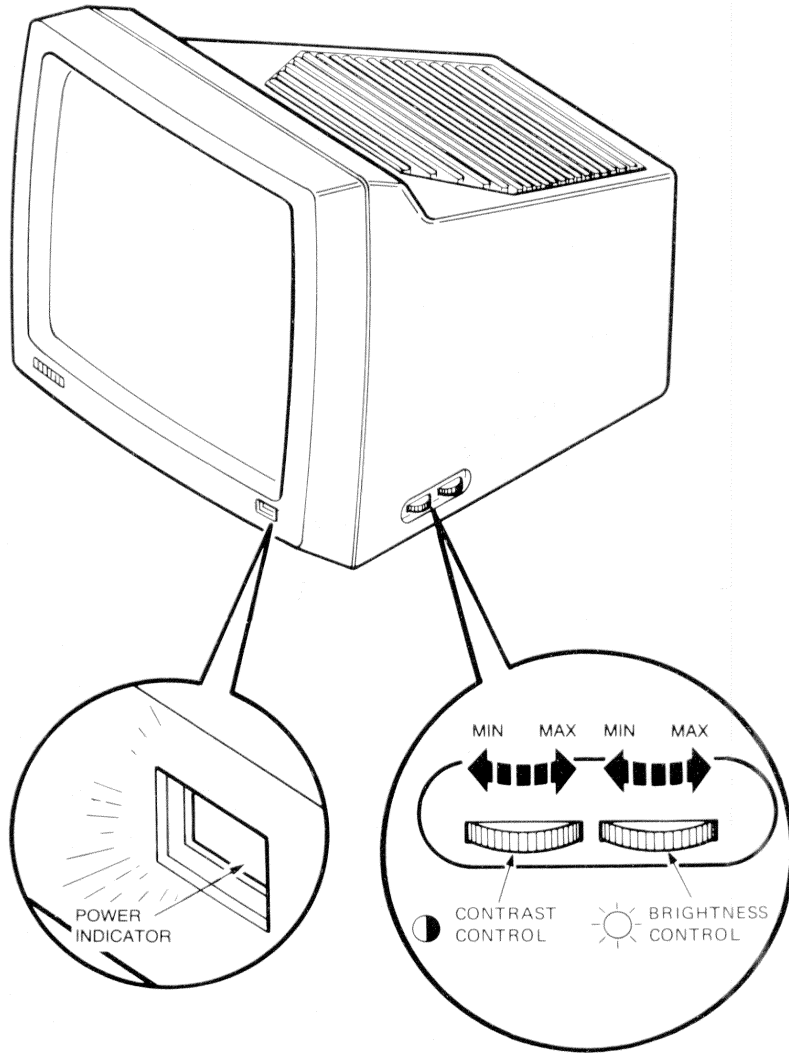
The first time you power-up your system, follow the steps in this section to check the various components of your system.

### Checking the Monitor

1. Power-up the system unit by setting the power switch to 1 (on).
2. Power-up the monitor by setting the power switch to 1 (on). Turning on the monitor before the system unit can result in the monitor displaying a collapsed raster.

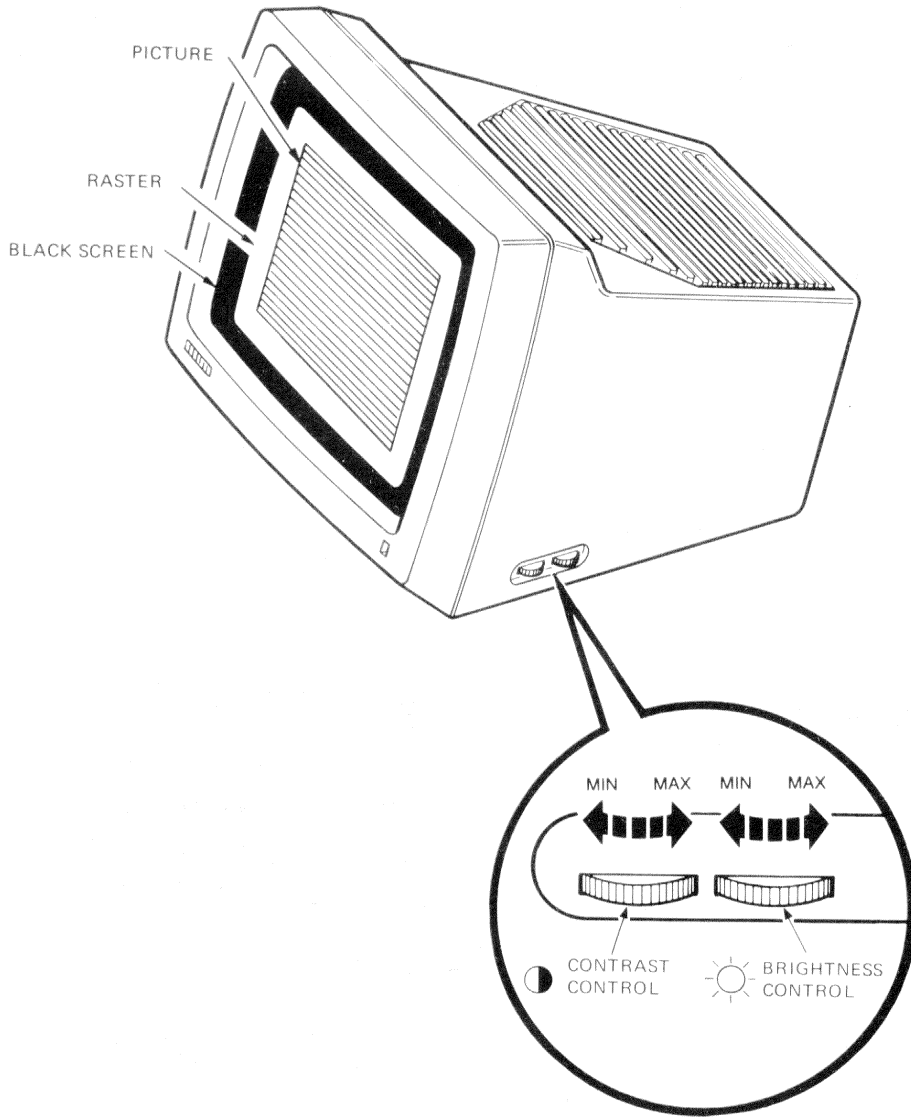


3. Check that the **power indicator** is lit green. If not, refer to Chapter 5.
4. Turn the **contrast** and **brightness controls** to maximum.
5. Wait about 30 seconds for a video display. If a video display does not appear, refer to Chapter 5.



MLO-250-85

- Adjust the **brightness control** to minimum. Slowly turn up the **brightness control** to your viewing preference. If horizontal lines (raster) appear on the screen, you have gone too far and should start this step again. Adjust the **contrast control** to a level you like.

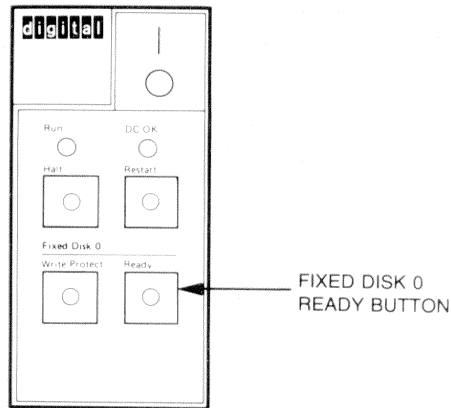


MLO-251-85

### Checking the System

Testing your system consists of turning on the system, selecting a language mode, and executing *MicroVAX Maintenance System* software.

1. Push the **Fixed Disk Ready** pushbutton on the control panel to put the fixed disk off line.



MLO-255-85

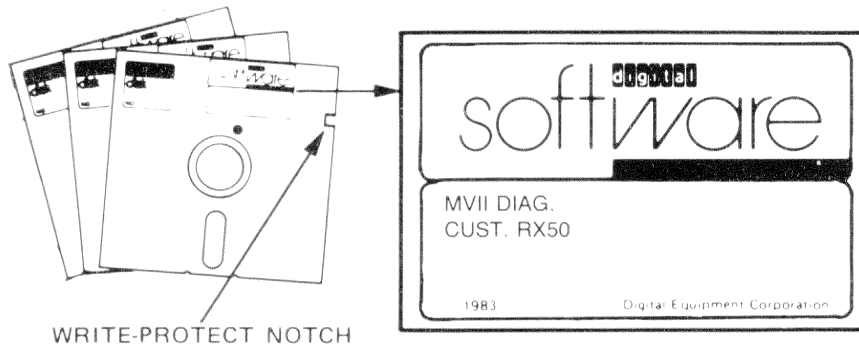
Your system contains either an RX50 diskette drive or a TK50 tape drive.

If your system has a diskette drive, proceed with step 2. If your system has a tape drive, proceed to step 4 (skip steps 2 and 3).

## Setting Up the Hardware

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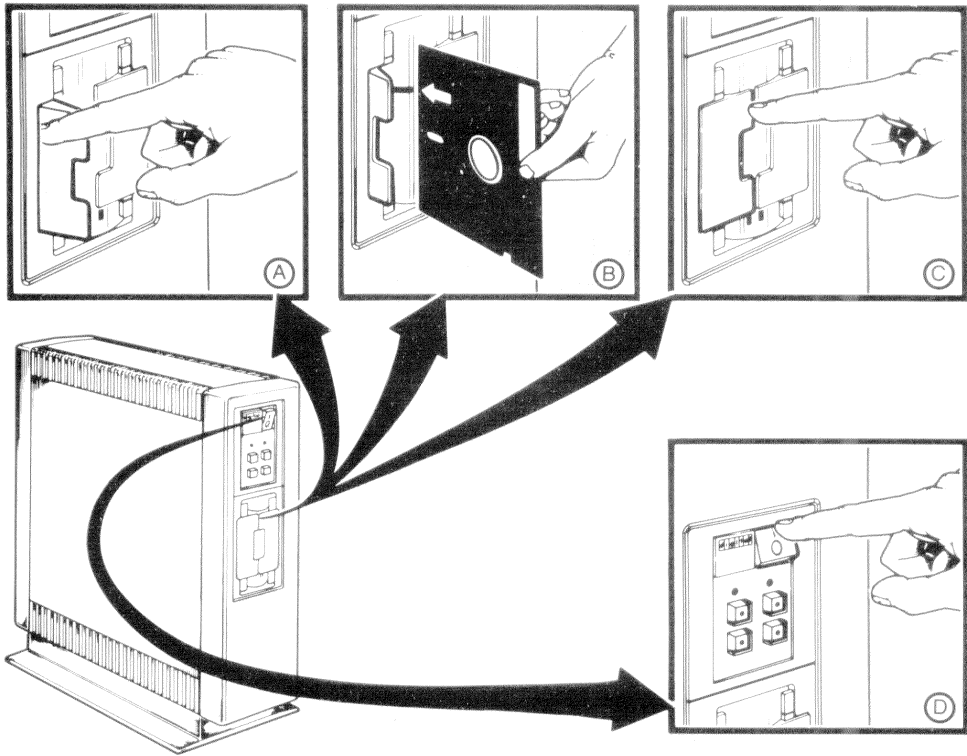
2. Find the diskettes labeled *MVII Diag. Cust. RX50* in the diskette holder at the front of this binder.



MLO-252A-85



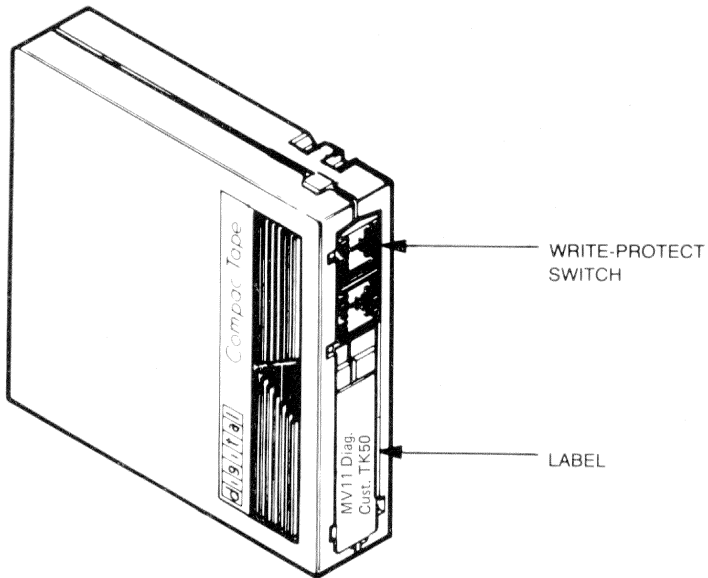
3. Insert the diagnostic diskette labeled #1 in drive 1.
  - A. Open drive 1.
  - B. Aligning the orange arrow on the diskette with the orange stripe on the drive, insert the diskette.
  - C. Close drive 1.
  - D. Set the power switch to 1 (on) and proceed immediately to step 6 (skip steps 4 and 5).



MLO-253-85

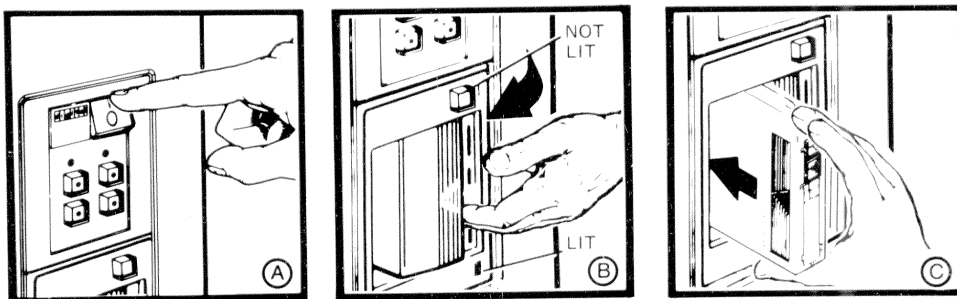
**NOTE**  
Each diskette drive contains a cardboard shipping card.  
Remove this card prior to diskette insertion.

4. Find the tape cartridge labeled *MVII Diag. Cust. TK50* in the cartridge holder at the front of this binder.

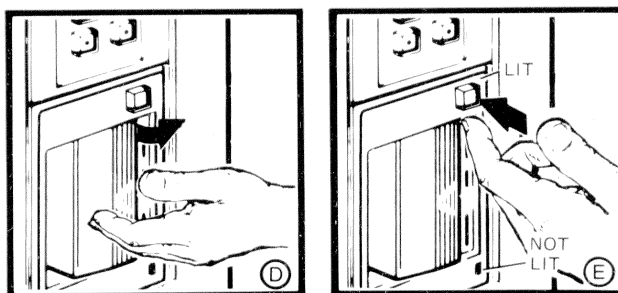


MLO-254A-85

5. Insert the tape cartridge into the tape drive.
  - A. Set the power switch to 1 (on). You will not be able to move the **cartridge release handle** if the power switch is set to 0 (off).
  - B. After the indicator illuminates green, open the tape drive by lifting up the **cartridge release handle**.
  - C. With the arrow on the tape cartridge facing up, insert the tape cartridge into the tape drive.

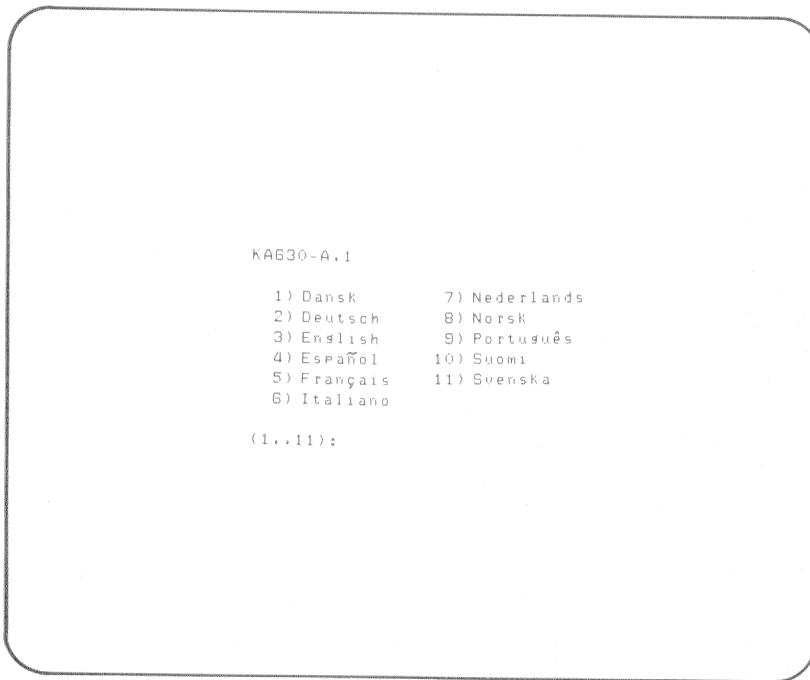


- D. Push the the **cartridge release handle** down.
- E. Push the **Load/Unload** button to the in position. The button illuminates red. When the indicator illuminates green, the tape is ready for use.



MLO-256A-85

6. Check that the language selection menu appears on the monitor. If you do not see this display, go to Chapter 5.



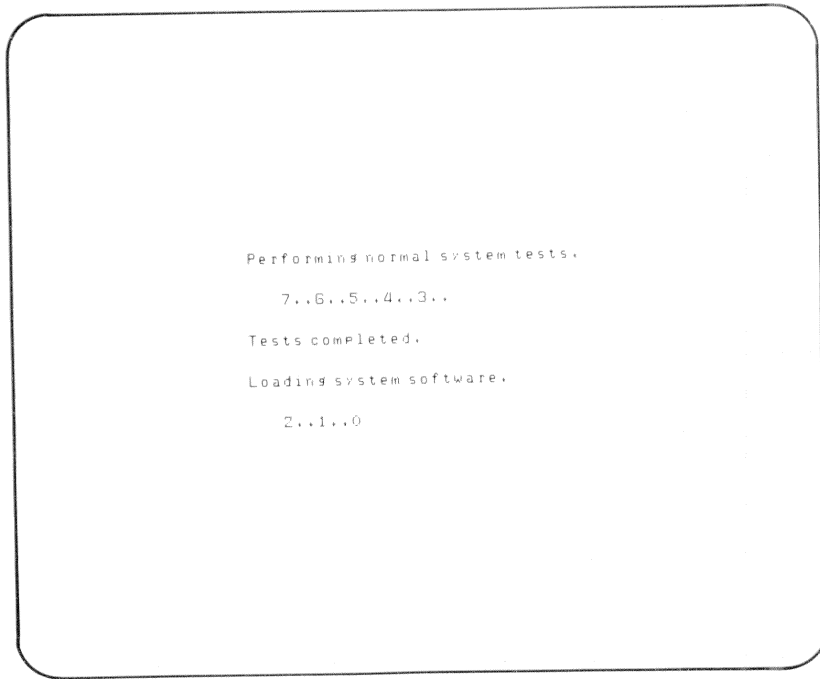
MLO-257-85

7. Select the language to match your keyboard by pressing the corresponding number key and then pressing the RETURN key.

If you select English, French, or German, a second menu appears. Select which variant of the language you prefer to use. Example: for English, you have a choice of:

- United Kingdom
- United States/Canada

A few moments after selecting the language, you see the following power-on display:



MLO-258-85

The monitor slowly displays the numbers 7 through 3, indicating completion of steps in the power-on test.

The last part of the display contains the numbers 2 through 0, indicating that the system is loading *MicroVAX Maintenance System* software.

A few moments later, the introductory display of the *MicroVAX Maintenance System* appears.

```
MicroVAX Maintenance System - Version 2.0

CONFIDENTIAL DIAGNOSTIC SOFTWARE
PROPERTY OF
DIGITAL EQUIPMENT CORPORATION

Use Authorized Only Pursuant to a Valid Right-to-Use License

Copyright (c) 1985
Digital Equipment Corporation

Current date and time is: 15-Oct-1985 13:30:10

Press the RETURN key to continue
OR enter new date and time, then Press the RETURN key.

[DD-MMM-YYYY HH:MM]: >
```

MLO-259-85

8. Make sure the date and time in the introductory display are accurate. If the date and time are accurate, press RETURN to continue.

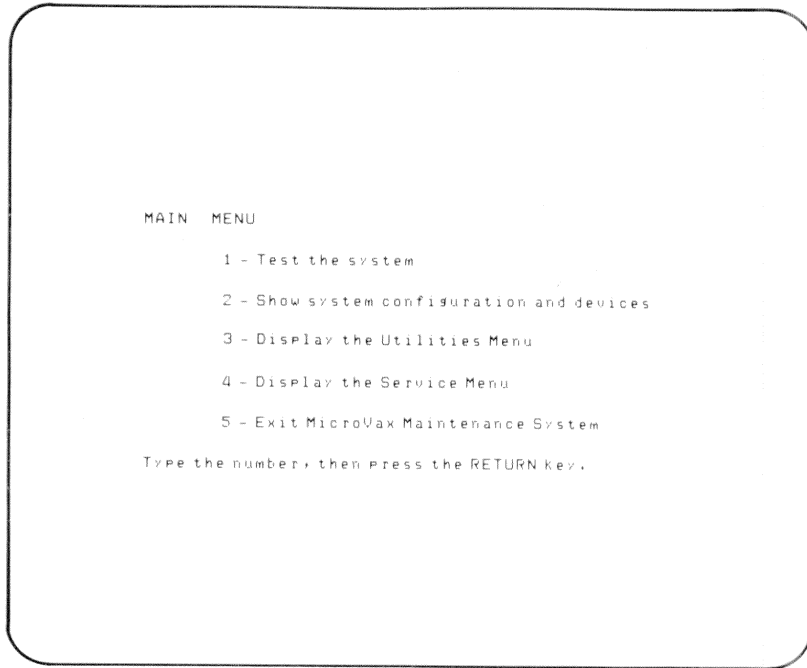
If the date and time are inaccurate or "not known," type the correct date and time, following the format as shown. An example is 15-SEP-1985 13:30:10. Press RETURN to continue.

The test preparation display appears and tells you the unit is preparing for testing. This process takes a few minutes.

If you have an RX50 diskette drive, text instructs you to remove the diskette and insert the diskette labeled #2. The system informs you if additional diskettes are required to complete testing.

9. When the diagnostics are loaded, text tells you to remove the diskette or tape cartridge you are using and to press RETURN.

The monitor displays the *Maintenance System Main Menu* display. Chapter 5 contains a description of this menu.

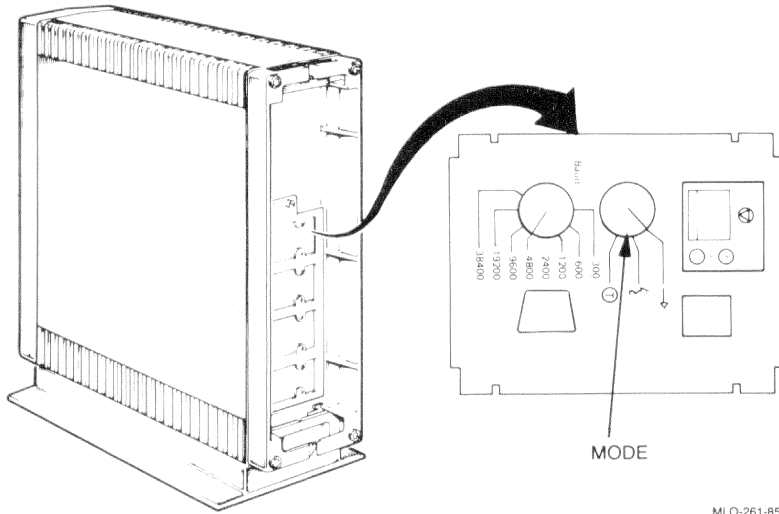


MLO-260-85

**Figure 2-5: Maintenance System Main Menu**

10. Save the language you selected in step 7.

- Rotate the Mode switch counterclockwise to the next position.
- Close the back door of the system unit.



MLO-261-85



11. Select the **Test the System** diagnostic by typing 1 and then pressing RETURN.

A few moments later, the monitor displays the *System Test* screen.

SYSTEM TEST

This is a test of the MicroVAX computer and its devices.  
No preparation for this testing is required; the MicroVAX  
is ready to be tested.

Testing occurs in two parts: the functional tests quickly  
test each device sequentially; the exerciser test (lasting  
about 4 minutes) tests how the devices work together.

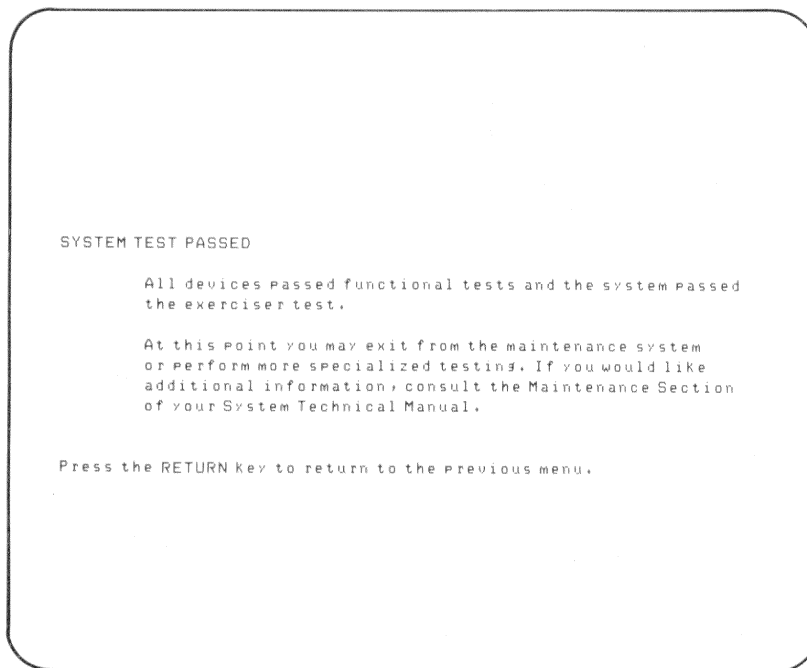
To halt the test at any time and return to the Main Menu,  
type ^C by holding down the CTRL Key and pressing the C Key.

Press the RETURN Key to begin testing,  
OR type 0 and Press the RETURN Key to return to the previous menu.

MLO-262-85

12. Press RETURN to begin testing.

The monitor displays several messages to inform you of the progress of the system tests. After about 4 minutes, a message telling you the system has passed the testing appears on your screen.



MLO-262A-85

You have successfully installed and tested your VAXstation II system.

**NOTE**

**If you see error messages, refer to the *VAXstation II System Technical Manual*.**

13. Press RETURN to return to the *Main Menu*. The *Main Menu* (Figure 2-5) is displayed. The other diagnostic tests shown on this screen are explained in Chapter 5.
14. Type 5 and press RETURN to exit from the *Main Menu*. The monitor displays this screen:

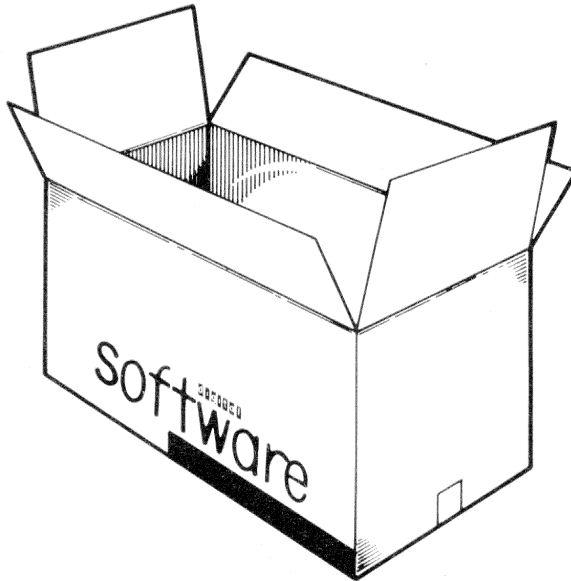


MLO-263A-85

15. Push the **Fixed disk ready** pushbutton on the control panel to put the fixed disk back on line.

**WHERE TO GO FROM HERE**

You may now install software on your VAXstation II. The software installation instructions are in the VAXstation II software carton.



MLO-263-85

After you have installed the software, proceed to Chapter 3 of this manual, which covers system operation.

## VAXstation II Hardware **3**

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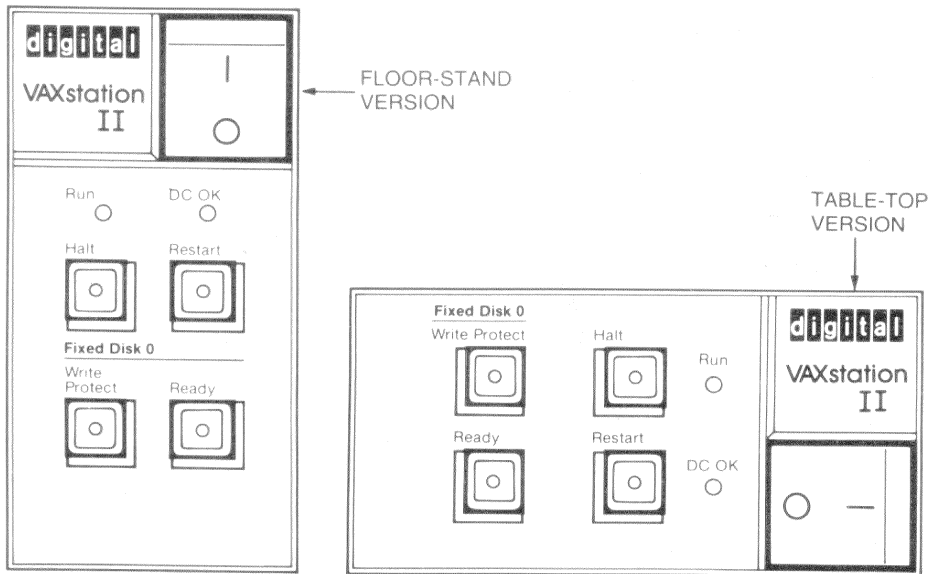
This chapter contains information on the following topics:

- VAXstation II controls and indicators
- Turning on the VAXstation II
- Turning off the VAXstation II
- VR260 monitor controls and indicators
- RD52 or RD53 fixed disk
- DEQNA communications module
- RX50 dual diskette drive and diskettes
- TK50 tape drive and tapes
- Making back-up copies

### VAXSTATION II CONTROLS AND INDICATORS

The front control panel (Figure 3-1) contains the following status controls and indicators:

- System power switch
- Run indicator
- DC OK indicator
- Halt pushbutton
- Restart pushbutton
- Fixed disk write-protect pushbutton
- Fixed disk ready pushbutton

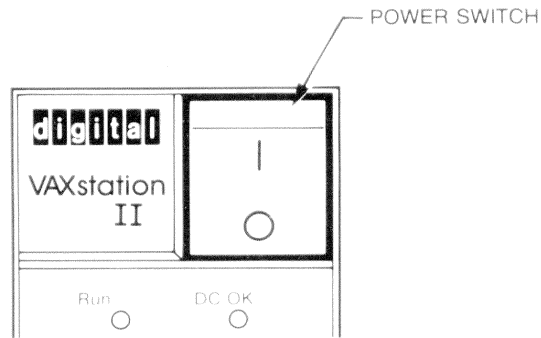


MLO-264A-85

**Figure 3-1: Controls and Indicators**

Additional controls and indicators, not used for normal system operation, are located on the CPU distribution panel on the back of the VAXstation II cabinet. Those controls are described in the *VAXstation II System Technical Manual*.

### The System Power Switch and Indicators



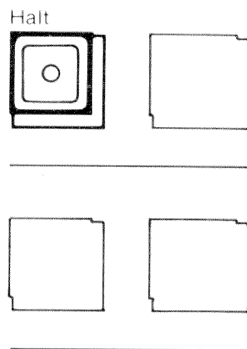
MI O-265A-R5

The system **power switch** turns on and off the ac power. Setting the switch to 1 turns on the power. When the system is on, the switch glows orange.

The **Run** indicator glows green when the CPU is operating. The **DC OK** indicator glows green when the power supply is generating the correct voltages.

Setting the **power switch** to 0 turns off the power. When power is switched off, the **Run** and the **DC OK** indicators extinguish.

### The Halt Pushbutton



MLO-266-85

The **Halt** pushbutton stops the program currently running without shutting down the VAXstation II.

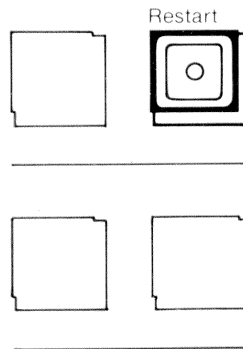
When the **Halt** pushbutton is pressed, it latches in and glows orange. You must press the pushbutton again to release it, putting the VAXstation II into the console mode. For a description of the console commands see the *VAXstation II System Technical Manual*.

The pushbutton should be set in the out position and not lit to allow for software operation.

The **Halt Enable/Disable** switch (on the back of the VAXstation II cabinet) is usually set to the down (disable) position. This position prevents the system from going into console mode when you execute a halt in a program. It also stops devices (such as a printer) connected to the auxiliary port from halting the processor.



### The Restart Pushbutton

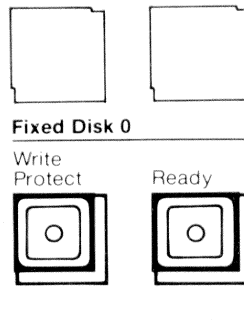


MLO-267-85

The **Restart** pushbutton is a momentary control to reboot computer operation. When pressed, the pushbutton restarts the system. Work in progress is lost. This pushbutton is usually disabled.

See the *VAXstation II Technical Manual* for more information.

### The Fixed Disk Pushbuttons



MLO-268-85

The **Fixed Disk Write-Protect** pushbutton is set in the out position and not lit for normal software operation. System software can read or write information on the disk. To write-protect the disk, preventing system software from erasing or writing on the disk, push in the **Fixed Disk Write-Protect** pushbutton. The pushbutton illuminates orange.

The **Fixed Disk Ready** pushbutton illuminates green when it is set to the out position and indicates the fixed disk is ready to store information. When pushed in, the pushbutton is not lit and the fixed disk is disabled. In effect, the fixed disk is turned off.

## TURNING ON THE SYSTEM

The procedure for turning on the VAXstation II assumes that it has been installed according to the Installation section of this manual and that the system software has been installed. If the system software has not been installed, install it as directed in the documentation supplied with the software.

### Initial Control Panel Switch Settings

1. Set the **Fixed Disk Ready** pushbutton to the out (ready) position.
2. Set the monitor power switch to 1 (on).
3. Set the system unit **power switch** to 1 (on).

When you turn on the power, the VAXstation II control panel indicators appear as described in Table 3-1.

**Table 3-1: Normal Power-On Indications**

<b>Control/ Indicator</b>	<b>Normal indication</b>
Power switch	Glows red.
Run	Glows green.
DC OK	Glows green.
Fixed Disk Ready:	Glows green within 30 seconds.
Tape Drive Load/Unload:	Glows red for 2 seconds and then goes out.

If you do not observe the normal indications listed in Table 3-1, refer to Chapter 5 for troubleshooting information.

The monitor begins to display the power-up screen.

First, the monitor slowly displays the numbers 7 through 3, indicating completion of steps in the power-up system test. The VAXstation II performs power-on system tests each time you turn on the system.

Then, the monitor displays the numbers 2 through 0 to indicate that the VAXstation II system is loading the system software. The first screen for the system software appears on the monitor after a few seconds.

The VAXstation II system is now ready for use. Refer to the system software documentation for further instructions on using the VAXstation II system.

### **TURNING OFF THE SYSTEM**

To prevent loss of data, follow the system shut-down procedure described in your system software documentation. That procedure insures an orderly system shut-down.

Turn off the VAXstation II system by setting the **power switch** to 0 (off).

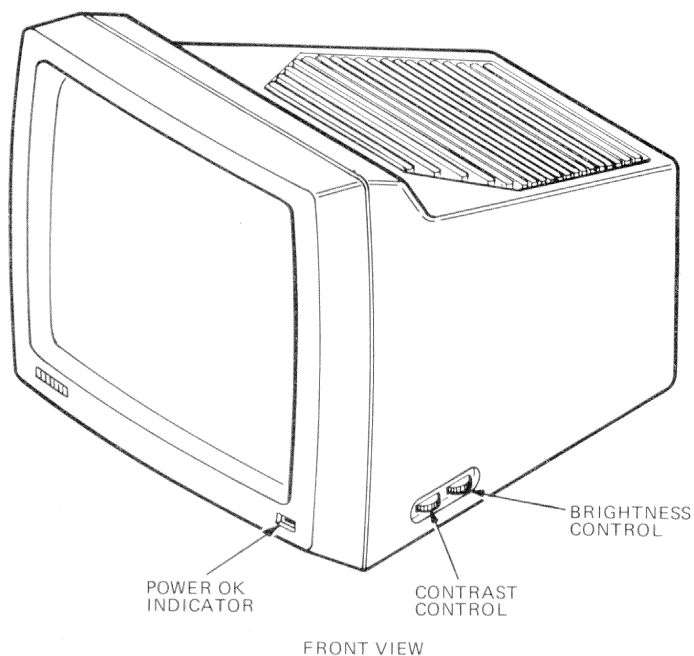
### VR260 MONITOR CONTROLS AND INDICATORS

The front and side of the monitor have three controls and indicators:

The **Power Indicator** illuminates to indicate power is applied to the monitor in the correct amount.

The **Contrast Control** allows you to adjust the contrast of the monitor screen.

The **Brightness Control** allows you to lighten or darken the monitor screen.



MLO-269-85

**Figure 3-2: Front and Side Controls**

The back of the monitor has five following connectors and controls:

The video cable plugs into the **Composite Video BNC Connector** and the video cable assembly.

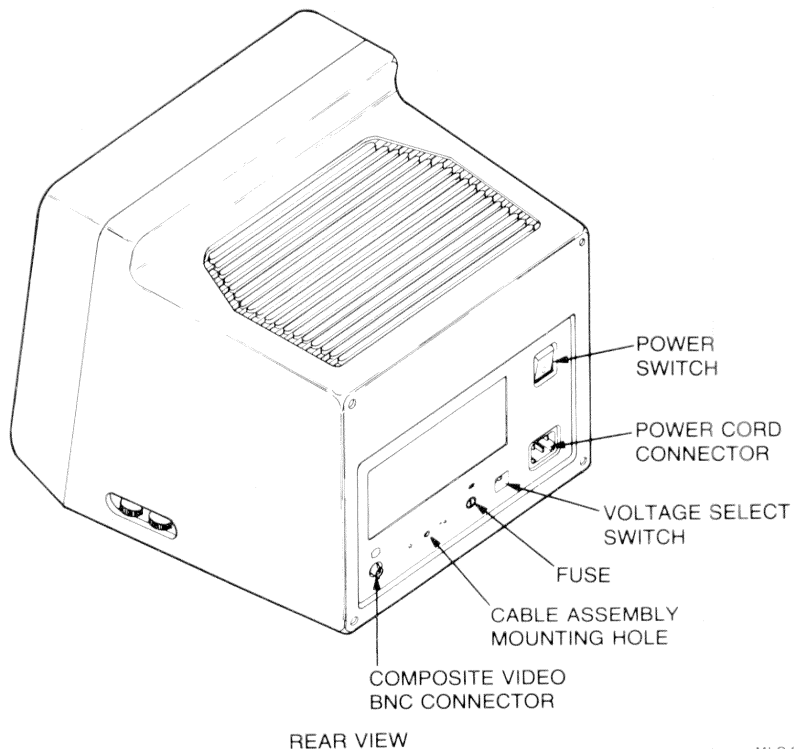
The monitor, keyboard, and pointing device are joined to the system unit through the video cable assembly, which screws into the **Cable Assembly Mounting Hole**.

The **Fuse** protects the monitor from electrical damage.

The **Voltage Select Switch** lets you match the monitor voltage to the wall outlet voltage.

The monitor power cord plugs into the **AC Power Input Connector**.

The **Power Switch** enables you to turn on or off the monitor. Press 1 to turn on the power. Press 0 to turn off the power.



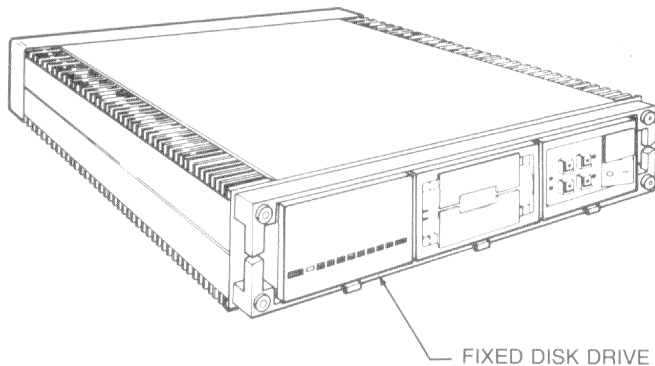
**Figure 3-3: Rear Controls and Connectors**

### THE RD52 OR RD53 FIXED DISK DRIVE

The fixed disk drive, located inside the cabinet, stores information on a nonremovable disk.

The RD52 fixed disk stores up to 31 megabytes of formatted information. The RD52 is usually configured with the RX50 diskette drive.

The RD53 fixed disk stores up to 71 megabytes of formatted data. The RD53 is usually configured with the TK50 tape drive.



MLO-271-85

### THE DEQNA COMMUNICATIONS MODULE

A Q22 bus-compatible DEQNA communications module interfaces between an Ethernet local area network (LAN) and a VAXstation.

With a DEQNA interface, the VAXstation II system becomes a node on a DECnet network and can communicate with other computers that are also nodes on the network. The DEQNA option also enables a VAXstation II to be down-line loaded with a system image from a host computer on the network.

For more information about the DEQNA, see the following documents:

- *DEQNA User's Guide* (Order No. EK-DEQNA-UG)
- *MicroVAX Handbook* (Order No. EB-25156-47)

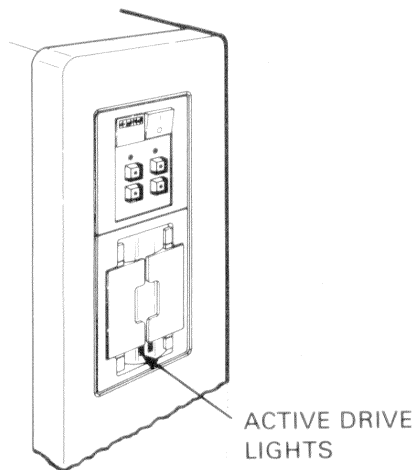
### RX50 DUAL DISKETTE DRIVE

The RX50 dual diskette drive holds two 5.25-inch diskettes. Each diskette stores 400 kilobytes of information, which is roughly 150 typewritten pages.

An **active drive indicator light** illuminates when the drive is in use.

The following points should be observed:

- Always close the drive door when using a diskette. The drive does not work with the door open.
- *Do not* open the drive doors when the **active drive indicator lights** are lit red. Opening the doors could result in lost information.



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### **RX50 Diskettes**

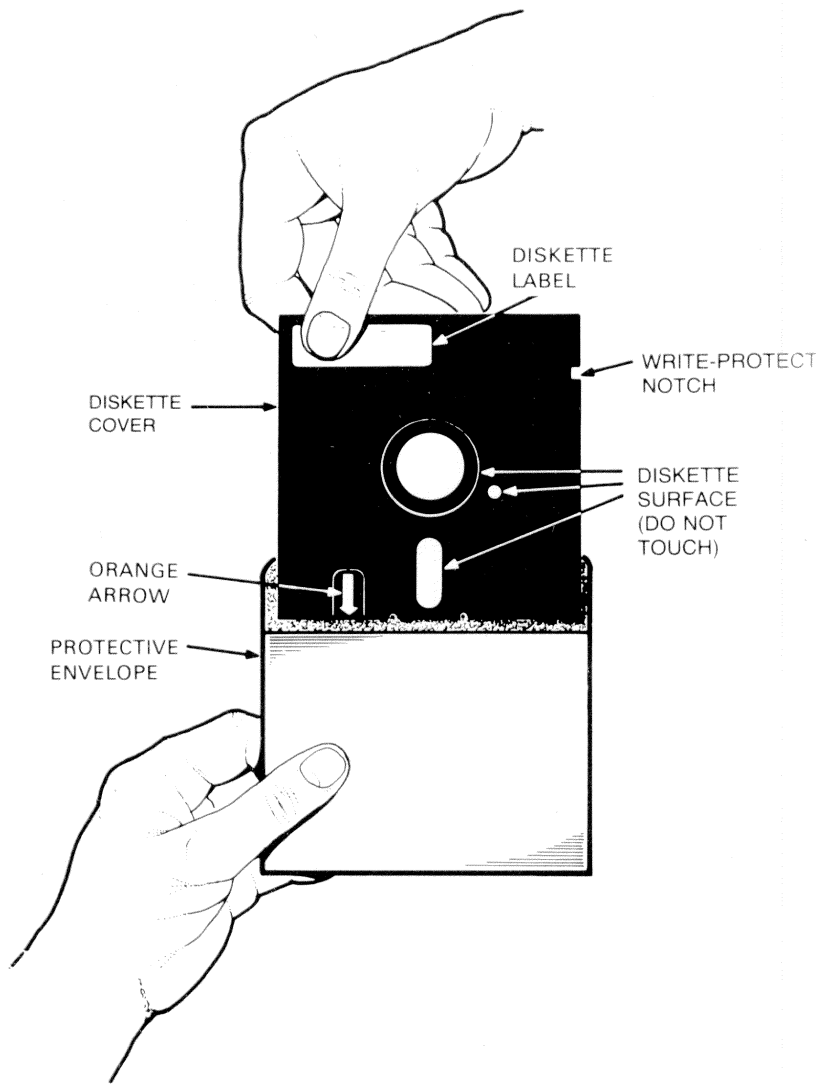
The information on RX50 diskettes is magnetically stored on one side of the diskette. The diskette must be correctly inserted in the disk drive. Stored information can be erased, and new information stored in its place.

The diskette, permanently enclosed in a cover, rotates inside the cover. The soft fabric lining of the cover continuously cleans the diskette.

#### **NOTE**

**Use only formatted RX50 diskettes, available from DIGITAL or DIGITAL's licensed distributors.**





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**Figure 3-4: RX50 Diskette**

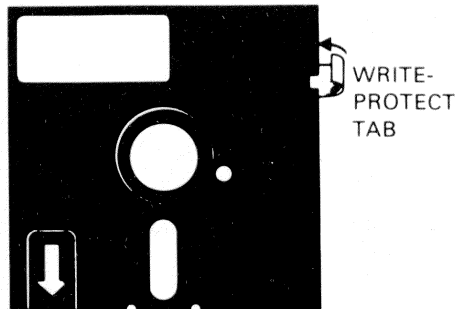
### Handling and Storing Diskettes

Incorrect handling and storing of diskettes can damage them (and/or the RX50 recording head) and cause loss of data. The following points should be observed:

- To keep out dust and dirt, put the diskette in its envelope when the diskette is not in use.
- *Do not* fold or bend the diskette cover.
- *Do not* touch the recording surface of the diskette. When out of its envelope, handle only the top (label area) of the diskette.
- Store the diskette vertically (with the label at the top) and loosely to prevent the cover from becoming warped.
- Write on a label before applying it to the diskette cover to avoid creasing the cover. If you need to change the label, use a felt-tipped pen.
- Store the diskette away from direct sunlight or near heaters.
- Store the diskette away from strong magnetic fields and steel objects. Magnetic fields (produced by motors, transformers, and terminals) can erase data.

### Protecting Diskettes from Accidental Overwriting

The RX50 has a write-protect feature to prevent loss of data from accidental overwriting. To protect the data, cover the write-protect notch on the side of the protective cover with a self-adhesive foil tab supplied with your diskettes. Remove the tab when you want to add, change, or delete information on the diskette.

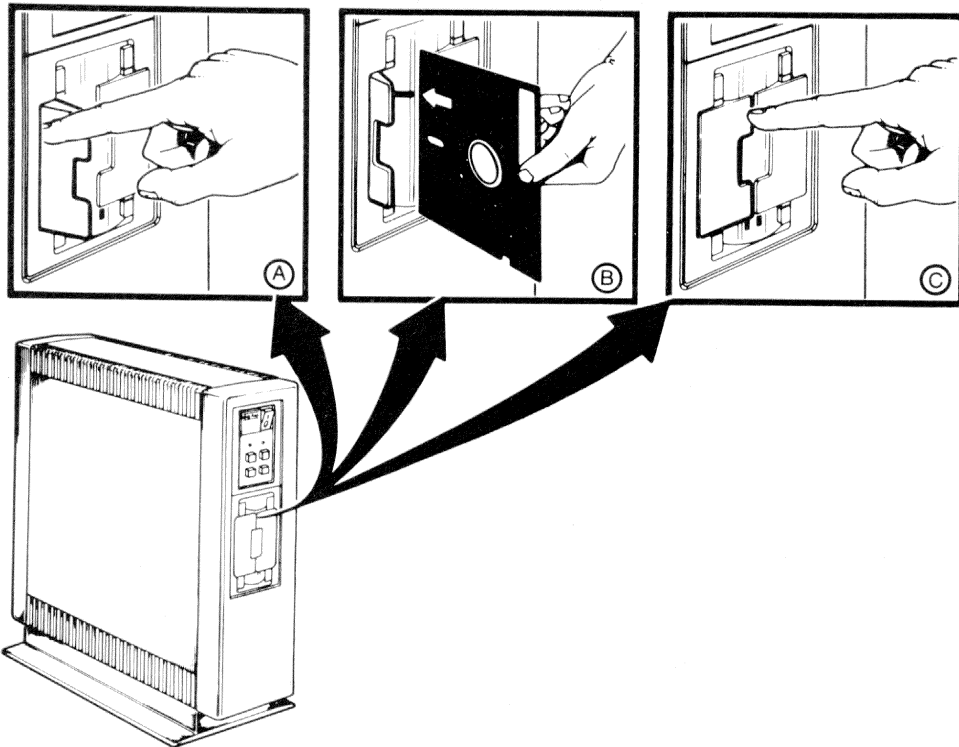


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### Inserting a Diskette

Keep the diskette drive door closed while the active drive indicator light is illuminated. Opening the door might damage the drive heads. Wait for the light to go off, which indicates activity has finished, or perform the procedures described in your software documentation to shut down the drive.

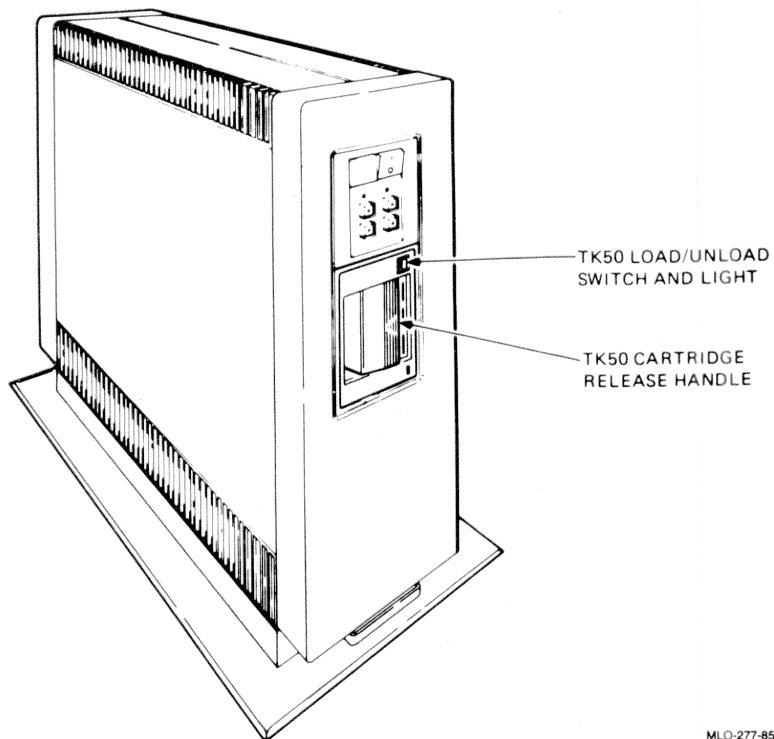
- A. Open the drive door by pressing on the door's outer edge.
- B. Align the orange arrow on the diskette cover with the orange stripe on the drive and insert the diskette. The write-protect notch is down in drive 1 and up in drive 2.
- C. After inserting the diskette, press the drive door closed. *Do not* use excessive force; the door should close easily.



### TK50 TAPE DRIVE

The TK50 tape drive holds one removable TK50 magnetic tape cartridge. Each tape cartridge holds 94.5 megabytes of information.

The information is magnetically stored on one side of a TK50 tape cartridge. Old information can be erased, and new information stored in its place.



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**Figure 3-5: TK50 Tape Drive**

### Cartridge Release Handle

Pull the **cartridge release handle** to the left on a floor-stand version and up on a table-top version to insert a tape or to remove a tape after rewind and unload operations are completed. Moving the **cartridge release handle** to the right or down locks a tape in the operating position.

### The Load/Unload Button

When the **Load/Unload** button is pressed in, a tape is loaded. When the **Load/Unload** button is pressed out, a tape is rewound. If a cartridge is inserted before power is turned on, loading takes up to 2 minutes. If a cartridge is loaded after the power is turned on, loading takes 10–15 seconds.

The **Load/Unload** button lights and slowly blinks during tape loading or rewinding. The button also lights for 2 seconds during the power-up self test. The light turns off when the tape cartridge is ready for removal.

If the **Load/Unload** button flashes rapidly, refer to Chapter 5 for troubleshooting information.

Table 3–2 describes the TK50 tape drive controls and indicators.

**Table 3–2: TK50 Tape Drive Controls and Indicators**

Control	Position	Function
Load/ Unload	In	Loads the tape (10–15 seconds).  If a tape is already in place when the power is turned on, rewinding and loading may take up to 2 minutes.
	Out	Rewinds and unloads the tape.

(Continued on next page)

**Table 3-2: TK50 Tape Drive Controls and Indicators (Cont.)**

<b>Green Light</b>	<b>Red Light</b>	<b>Condition</b>
Off	Off	No power to the tape drive.
On	Off	Safe to lift <b>cartridge release handle</b> . Power is present.
Off	On	Do not lift the <b>cartridge release handle</b> . - Power-on self test is occurring - Cartridge is inserted but handle is still up - Tape is loading or unloading - Tape is stopped
On	On	Tape loaded successfully.
Flashing	On	Tape is in motion (except rewind). Read/write commands are being processed. Irregular fast flashing means tape calibration is occurring.*
Flashing	Flashing rapidly	A fault is occurring. Press and release the <b>Load/Unload</b> button four times. If the problem persists, do not attempt to use the tape drive or to remove the tape cartridge. Call your service representative.

<b>Handle</b>	<b>Position</b>	<b>Function</b>
<b>Cartridge Release Handle</b>	Up	To insert a tape or to remove a tape after rewind and unload operations are completed.
	Down	Locks tape in operating position.

\* If a tape is new, the system performs a calibration sequence that takes approximately 2 minutes.

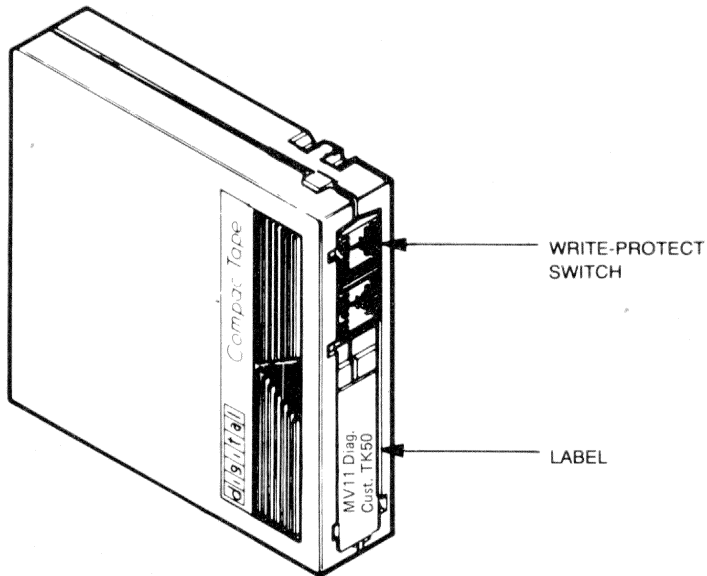
### Labeling a TK50 Tape Cartridge

To label a cartridge:

1. Write the identification on a label.
2. Insert the label in the slot on the front of a cartridge.

**NOTE**

**Do not write on a tape cartridge with a pen or pencil.**



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**Handling and Storing Tape Cartridges**

Follow these guidelines when handling and storing TK50 tape cartridges:

- *Do not* touch the exposed surface of the tape.
- *Do not* drop the tape cartridge. The impact from a fall can damage the tape cartridge.
- Allow new prerecorded tapes to stabilize at room temperature for 24 hours before using them.
- Write on the identification label before putting the label on the tape cartridge. Place the label only in the label slot on the front of the cartridge.
- Store tape cartridges in a dust-free environment.
- Keep tape cartridges away from direct sunlight, heaters, and other sources of heat. Store tape cartridges in an even temperature between 10 and 52 degrees C.
- Keep tape cartridges away from magnets and equipment that generates magnetic fields (produced by motors, transformers, and terminals).
- Keep tapes away from x-ray equipment.

**Protecting Tape Cartridges from Accidental Overwriting**

The TK50 tape cartridge has a write-protect feature to prevent loss of data by accidental overwriting. To prevent accidental overwriting on a tape cartridge, slide down the write-protect switch.

### Inserting a TK50 Tape Cartridge

Make sure the power switch is set to 1 (on) and the **Load/Unload** button is out. The **Load/Unload** button illuminates red for approximately 2 seconds during the tape drive power-on self test.

The light extinguishes and the indicator light illuminates green, indicating that you can lift the **cartridge release handle**.

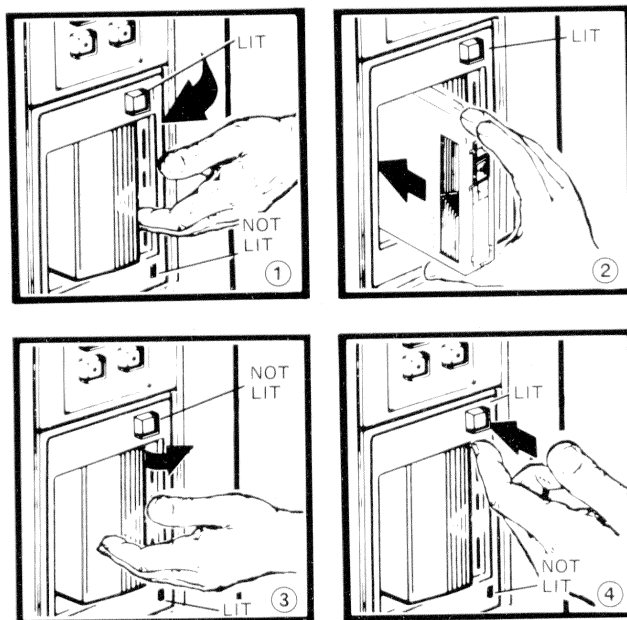
1. Lift the **cartridge release handle** up on a floor-stand version or to the left on a table-top version.
2. With the arrow on the tape cartridge facing up or to the left, insert the tape cartridge into the drive.
  - The **Load/Unload** button illuminates red.
  - The indicator extinguishes.
3. Push the **cartridge release handle** down or to the right.
  - The **Load/Unload** button extinguishes.
  - The indicator illuminates green.
4. Push in the **Load/Unload** button.
  - The **Load/Unload** button illuminates red.
  - The indicator is not lit.

The tape loads in 10–15 seconds. Loading the tape means that a mechanism inside the tape picks up the tape and places it on a take-up reel inside the tape drive.

- The **Load/Unload** button illuminates red.
- When the indicator illuminates green, the tape is ready to use.

**NOTE**

If a tape is new, the system performs a calibration sequence that takes approximately 2 minutes. The indicator flashes green rapidly and irregularly during calibration.



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**Figure 3-6: Inserting a Tape Cartridge**

### Rewinding and Unloading a Tape Cartridge

You must rewind and unload a tape before you can remove the tape cartridge from the tape drive.

1. Press the **Load/Unload** button to the out position to rewind and unload the tape. Rewinding a tape can also be done under software control. Refer to your software documentation for information.
  - The red and green lights flash slowly, but not in unison, as the tape rewinds to the beginning of the tape.
  - The **Load/Unload** button remains red, and the green indicator extinguishes as the tape unloads into the cartridge.
  - When the tape is completely rewound in the cartridge, the **Load/Unload** button extinguishes, and the green indicator illuminates.
2. Lift the **cartridge release handle** up in a floor-stand version or to the left in a table-top version.
3. Remove the tape cartridge and store it in a safe place.
4. Push the **cartridge release handle** down or to the right. The indicator remains green, showing that power is being sent to the drive.

#### **NOTE**

**Rewinding a tape can also be done under software control. Refer to your software documentation for information.**

**MAKING BACK-UP COPIES**

A back-up copy is a copy of files stored on the VAXstation II fixed disk, diskette, or tape. Making back-up copies of files ensures a copy for you in case information is accidentally lost. As a general rule:

- Make back-up copies of diskettes or magnetic tape.
- Make a daily back-up copy of all information you create or change that day.
- Make a weekly back-up copy of all information stored on your fixed disk drive.
- Store back-up copies in a safe place.

Make back-up copies of system software files as described in the system software documentation. A procedure for making a back-up copy of the *MicroVAX Maintenance System* software is contained in the *VAXstation II System Technical Manual*.



This chapter describes the following hardware options for the VAXstation II:

- Printers (LA50, LA210, and LN03-AA)
- Tablet (VSXXX-AB)
- Memory modules (M7607-AA, M7608-AA, and M7608-BA)
- Free-standing disk drive subsystem (RD52-D and RD53-D)
- Asynchronous Multiplexer (DZQ11)
- Synchronous Line Controller (DMV11-AA/AB/AC)

This chapter describes each option and directs you to installation instructions. You may install a printer and the tablet yourself. Call your service representative to install a memory module, the free-standing disk drive subsystem, an asynchronous multiplexer, or a synchronous line controller.

### **CAUTION**

**If you attempt to install a memory module, the free-standing disk drive subsystem, the asynchronous multiplexer, or the synchronous line controller yourself, you may damage the system.**

To order an option after initial installation, contact your sales representative.

For more information on these options, refer to the documents listed at the end of each section.

## THE PRINTERS

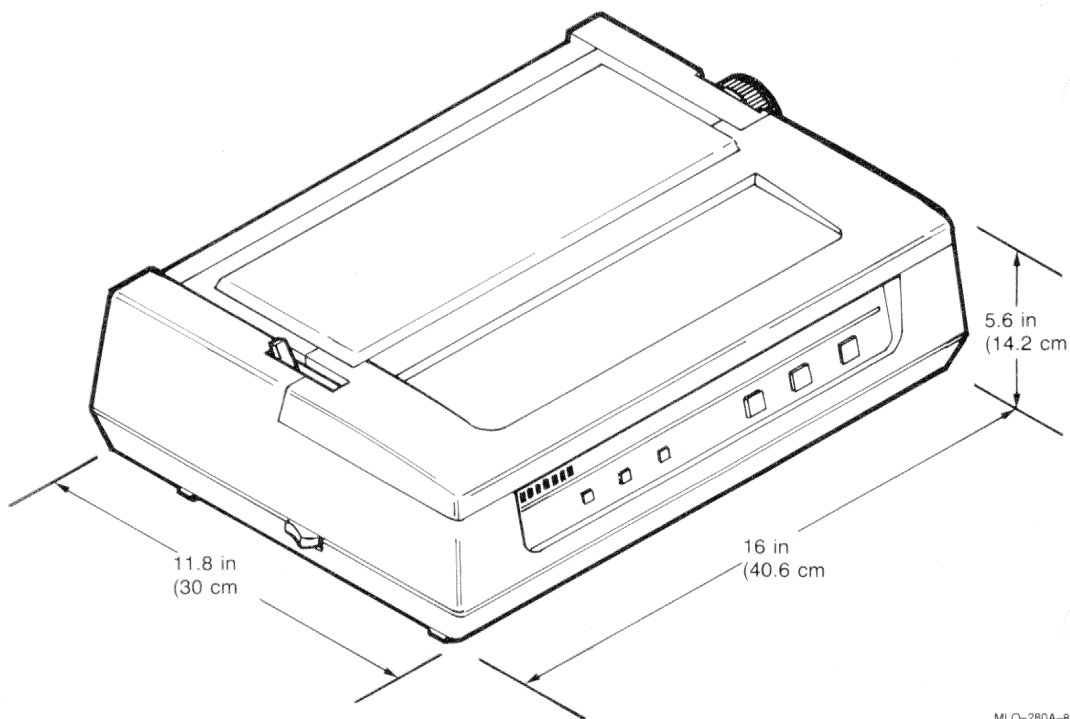
The printers that can be used with the VAXstation II are the LA50, the LA210, and the LN03-AA. Each of the following sections describes one of the printers. The final section explains how to connect a printer to a VAXstation II.

### The LA50

The LA50 is a desktop dot-matrix unit. You can display bit-map or character cell graphics with the unit.

The LA50 prints in draft speed (100 characters/second) and memo speed (50 characters/second). The printer offers one font and six character widths. Ten national character sets are available. You can use office stationery or fanfold paper.

The LA50 weighs 18.7 pounds (8.5 kilograms).





For more information about the LA50 printer, see the following documents:

- *Installing and Using the LA50 Printer* (Order No. EK-0LA50-UG)
- *LA50 Printer Programmer Reference Manual* (Order No. EK-0LA50-RM-001)

### The LA210

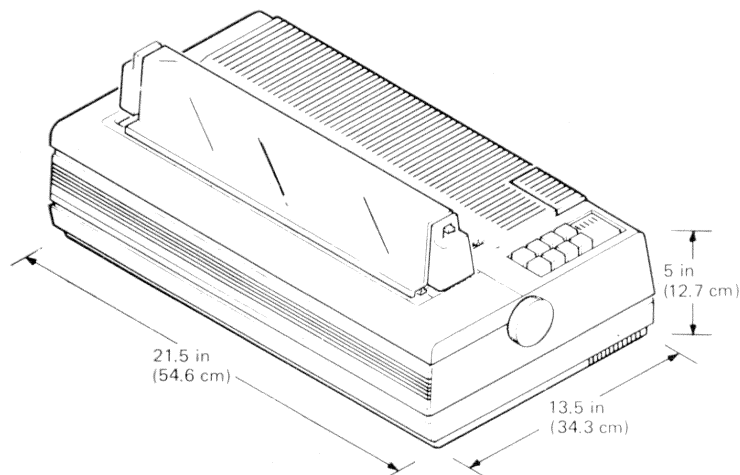
The LA210 is a dot-matrix desktop printer.

The device allows different print speeds. You can produce high-speed drafts (240 characters/second) or near letter-quality correspondence (40 characters/second). An option allows you to print at memo speed (80 characters/second). The LA210 also prints bit-map graphics.

The printer can print in USASCII, 10 national languages in Courier 10, and VT100 line-drawing characters. Other features include three optional typefaces: Gothic, Orator, and Italic. Over 30 optional character sets, including symbols and technical characters, can be added by convenient plug-in font cartridges. You may select up to eight character widths.

The LA210 prints on single-sheet and fanfold paper and handles forms with up to four parts. The printer's carriage accommodates paper ranging in width from 3.5 inches (8.9 centimeters) to 14.9 inches (37.8 centimeters).

The printer weighs 25 pounds (11.3 kilograms).



For more information about the LA210 printer, see the following documents:

- *Installing the LA210 Letterprinter*, EK-LA210-IN-001
- *LA210 Letterprinter User Guide*, EK-LA210-UG-001
- *LA210 Letterprinter Programmer Reference Manual*, EK-LA210-RM-001
- *LA210 Letterprinter Operator and Programmer Reference Guide*, EK-LA210-RC-001
- *LA210 Letterprinter Emulation Modes Reference Guide*, EK-LA210-RG-001

### **The LN03-AA**

The LN03 laser printer provides speed, quality, and flexibility in a desktop printer. Because the laser printing process is nonimpact, the LN03 is quieter than impact printers.

The LN03 produces letter-quality text at eight pages/minute (333 characters/second for a 2500-character page). The printer can also display graphics.

The LN03 offers 16 fonts, including Courier, Elite, and the VT100 Line Drawing Set. ASCII multinational technical character sets are also offered. Twelve national language character sets may be used.

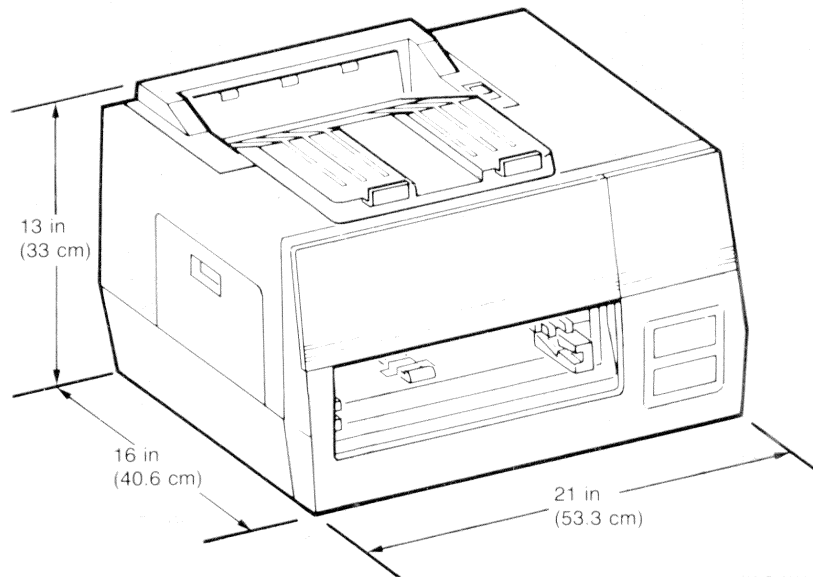
The printer comes with three character sets. If you want to mix type styles and point sizes, the LN03 can print up to 24 fonts/page. To expand memory or add additional fonts, you can purchase more programmable RAM or precoded ROM cartridges from DIGITAL.

The LN03 uses only cut sheet paper. A paper cassette holds 250 sheets of paper. The printer automatically collates output for you. The LN03 can also handle preprinted single-part forms, transparencies, and labels. The LN03 can print in either landscape (horizontal) or portrait (vertical) mode.

**CAUTION**

When the **Halt Enable/Diasable** switch is in the up (enable) position, powering on and off the LN03 when connected to an operating VAXstation II can halt the system and cause the irretrievable loss of data.

The LN03 weighs 66 pounds (28 kilograms).



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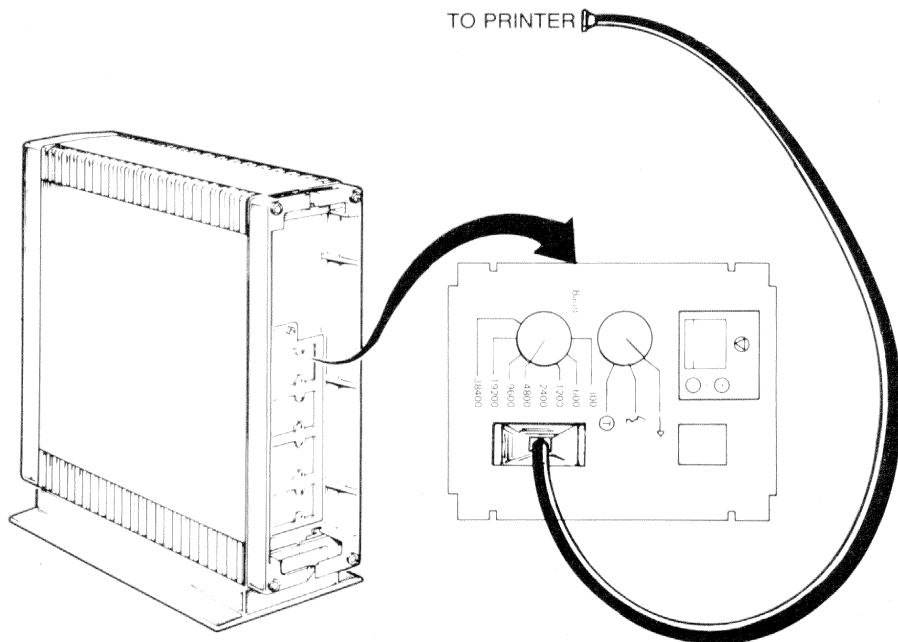
For more information about the LN03 printer, see the following documents:

- *Installing and Using the LN03*, EK-0LN03-UG-001
- *LN03 Programmer Reference Manual*, EK-0LN03-RM-001
- *LN03 Maintenance Kit Guide*, EK-LN03U-MG-001
- *LN03 Toner Kit Guide*, EK-0LN03-MG-001

### Printer Connection to the VAXstation II

The BCC08 cable is required to connect a printer to the VAXstation II. You must order this cable in addition to the printer. To connect a printer to a VAXstation II:

1. Make sure that the power switches for the printer and the VAXstation II are off.
2. Check that the printer and the system unit are set to the same baud rate (4800).
3. Attach the smaller end of the communication cable to the back of the printer.
4. Open the back door of the system unit.
5. Attach the free end of the communication cable to the CPU distribution panel of your VAXstation II (see Figure 4-1).



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**Figure 4-1: Printer Connection to the VAXstation II**

6. Close the back door of the system unit.

**NOTE**

If you are connecting the LA210 printer to the VAXstation II, make sure that XOFF and wrap are enabled. This may require toggling switches on the printer as explained in the LA210 documentation.

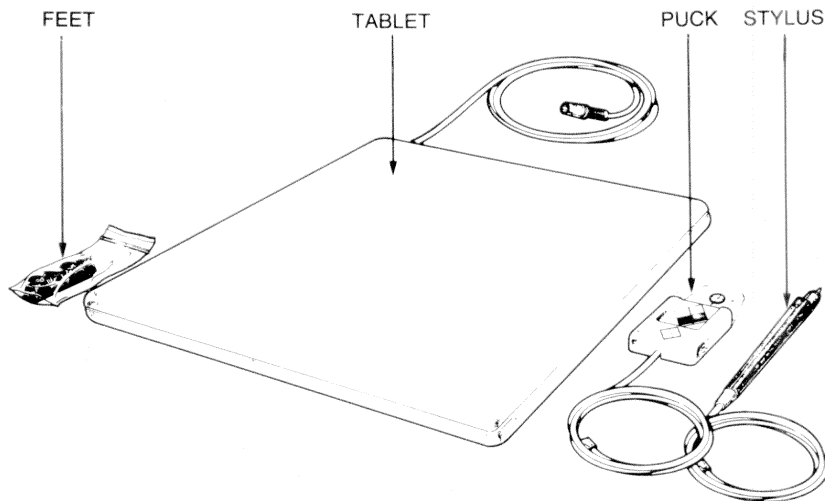
**THE TABLET**

The tablet system consists of a digitizing tablet, a 4-button puck, a 2-button stylus, and a 5-foot power/signal cable. The tablet may be used as a pointing device instead of the mouse for menu selection, graphics entry, and cursor control. Chapter 2 explains how to connect the tablet to the VAXstation II.

The digitizing tablet is an input device that sends X-Y coordinates to the VAXstation II to accurately indicate the position of a stylus or puck on the tablet's surface. The tablet has a resolution of 0.005 inches (200 counts/inch).

The tablet communicates with the VAXstation II through an asynchronous, full-duplex serial interface at 4800 baud (+/- 2%).

The active area of the tablet is 11 inches x 11 inches (279 x 279 millimeters). The tablet weighs 7 pounds (3.2 kilograms).



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## THE MEMORY MODULES

The following MS630 memory expansion modules are available with 1, 2, or 4 megabytes of memory:

<b>Option</b>	<b>Description</b>
M7607-AA	1 Mb Memory Expansion Module, dual-height module with 256K RAMs.
M7608-AA	2 Mb Memory Expansion Module, quad-height module with 256K RAMs (half populated M7608-BA).
M7608-BA	4 Mb Memory Expansion Module, quad-height module with 256K RAMs.

To add a memory module to your VAXstation II after the initial system installation, contact your sales representative. If you experience problems with the memory module, call your service representative.

For additional information about the memory modules, see:

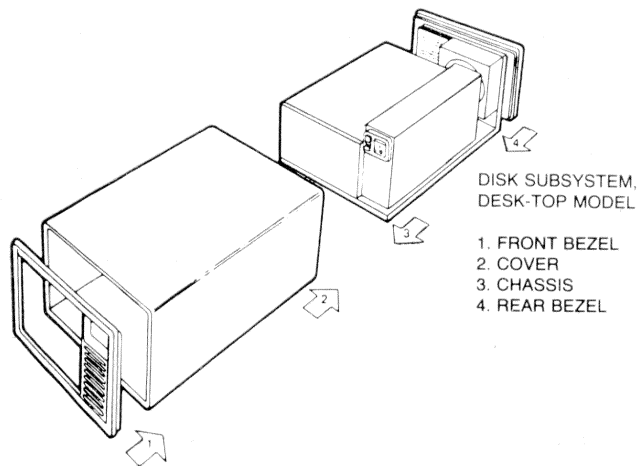
- *KA630-A CPU Module User's Guide (EJ-KA630-UG)*

## THE FREE-STANDING DISK SUBSYSTEM

The free-standing disk subsystem is similar to the fixed disk mounted inside the VAXstation II system unit. The free-standing disk subsystem provides external add-on storage for the VAXstation II. The RD52-D has an unformatted capacity of 42 megabytes. The RD53-D has an unformatted capacity of 85 megabytes.

Each subsystem has a chassis that holds the fixed disk drive assembly, a power supply assembly, a dc cooling fan assembly, a printed circuit board for external cable signal distribution, a front bezel, and a rear bezel.

The subsystem is mounted in a desktop configuration and used at either 120 volts ac or 240 volts ac. The chassis comes with a cover and front and rear bezels.



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To add a disk subsystem to your VAXstation II after the initial system installation, contact your sales representative.

After ordering the disk subsystem, you receive two boxes. One box contains the subsystem, and the other contains a RQDX2 module and a cable. Your service representative requires them to install the disk subsystem.

If you experience problems with your disk subsystem, call your service representative.

### **THE DZQ11 ASYNCHRONOUS MULTIPLEXER**

The DZQ11 is an asynchronous multiplexer that connects the Q22-bus with up to four asynchronous serial data communications channels.

The DZQ11 is a dual-height module that is used to connect hard-copy and video terminals, with or without modems, to a system. With a VAXstation II, the DZQ11 can also be used as an asynchronous DECnet link. The DZQ11 allows dial-up (auto-answer) operations with modems capable of full-duplex operation, such as DIGITAL's models DF01, DF02, and DF03.

The DZQ11 provides flexible control of parameters, such as baud rate (50 to 9600), character length, number of stop bits for each line, odd or even parity for each line, and transmitter-receiver interrupts. Additional features include limited data set control, break generation and detection, and silo buffering of received data.

To add a DZQ11 to your VAXstation II after the initial system installation, contact your sales representative.

For more information about the DZQ11, see:

- *DZQ11 Asynchronous Multiplexer User's Guide* (Order No. EK-DZQ11-UG-001)

### **THE DMV11 SYNCHRONOUS LINE CONTROLLER**

The DMV11 Intelligent Communications Synchronous Line Controller is a device that provides efficient high-speed synchronous communications for distributed networks.



Point-to-point configurations are practical when terminals have a high message rate. However, the message rate of the terminals is usually very low even though the bit rate may be quite high. In those cases, sharing a transmission line can significantly reduce the cost and improve the efficiency of a communications network.

The DMV11 is a high-performance line controller that operates at speeds up to 56 kilobytes/second.

The three types of the DMV11 synchronous line controller are:

1. DMV11-AA

- M8053-MA microcontroller/line unit (a quad-height module with multi-point microcode)
- H3254 (V.35 or integral modem) module test connector
- H3255 (RS-423-A/232-C) module test connector
- BC55H cable
- H325 and H3251 cable turnaround test connector

2. DMV11-AB

- M8053-MA microcontroller/line unit (a quad-height module with multi-point microcode)
- H3254 (V.35 or integral modem) module test connector
- H3255 (RS-423-A/232-C) module test connector
- BC05Z-25 cable
- H3250 cable turnaround test connector

3. DMV11-AC

- M8064-MA microcontroller/line unit (a quad-height module with multi-point microcode)
- H3254 (V.35 or integral modem) module test connector

## Installing Options

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- H3255 (RS-423-A/232-C) module test connector
- BC55F cable
- H3247 and H3245 terminators

For more information on the DMV11 synchronous controller, see:

- *DMV11 Synchronous Controller User's Guide* (Order No. EK-DMV11-UG).

## Troubleshooting Procedure **5**

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This chapter provides troubleshooting information that enables you to repair minor problems. This section contains four parts:

1. Basic troubleshooting – This section provides a checklist of potential problems and solutions.
2. Power-up message – This section explains the indications that appear when the system is turned on.
3. Maintenance system – This section describes the maintenance tests, VAXstation II system utilities, and when to use those utilities. The part discusses the **Main Menu** and describes maintenance options.
4. Monitor troubleshooting – This section lists solutions to potential problems.

### **BASIC TROUBLESHOOTING**

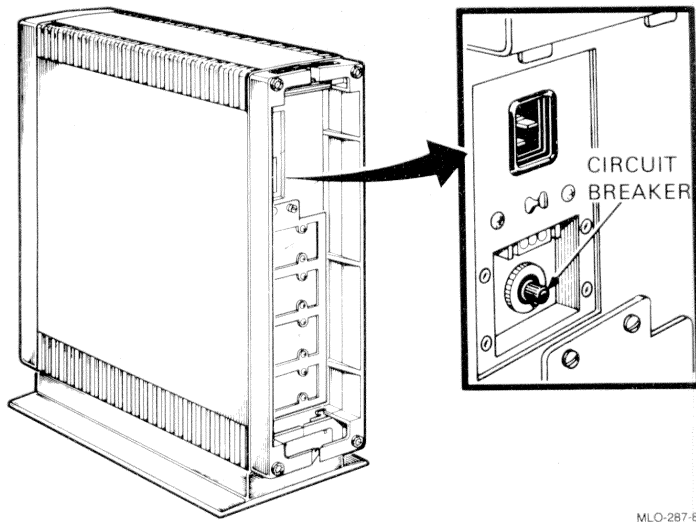
The corrective actions listed in Table 5-1 are for minor problems. More serious problems require maintenance procedures described in the *VAXstation II System Technical Manual*. Those procedures should be performed by service personnel.

Once you have isolated the problem, contact your support person for help. If that person is unable to correct the problem, call the DIGITAL Help line.

**Table 5-1: Basic Troubleshooting Procedures**

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
No response when the <b>power switch</b> is turned on (switch is not lit).	System is not plugged in.	Plug in the system.
	There is no power at the wall outlet.	Use a different wall outlet.
	System circuit breaker is tripped.	Set the <b>power switch</b> to off. Reset the circuit breaker by pushing in the button (see Figure 5-1). Set the <b>power switch</b> to on. If the circuit breaker trips again, refer the problem to service personnel.
	Power cable is incorrectly installed.	Set the <b>power switch</b> to off. Check that the cable is fully seated into the socket in the back of the system.

(Continued on next page)



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**Figure 5-1: System Circuit Breaker**

**Table 5-1: Basic Troubleshooting Procedures (Cont.)**

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Power is on (I/O switch is lit), but the display on the monitor does not appear.	Monitor is off.	Turn on the monitor.
	Monitor cable is not installed correctly.	Make sure that the cable is installed properly at both ends.
Instead of automatically booting, system power on results in >>> being displayed on the monitor.	The <b>Halt Enable/Disable</b> switch is set to the Enable position.	The system is in console mode. To exit console mode, set the <b>Halt Enable/Disable</b> switch to the Disable (down) position and then restart the system.
System does not boot from the fixed disk drive.	<b>Ready</b> button is in.	Press and release the <b>Ready</b> button.
	System software is not on the disk.	Load (install) the system software on the fixed disk, using the system software installation instructions supplied with the software.

(Continued on next page)

**Table 5-1: Basic Troubleshooting Procedures (Cont.)**

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
System does not boot from the diskette drive.	Diskette is not in the diskette drive.	Insert a diskette containing bootable system software in diskette drive 1.
	Diskette drive door is not closed.	Close the diskette drive door.
	Diskette is in the drive upside down.	Check that the orange stripe on the diskette matches the stripe on the drive.
	Diskette is not bootable.	Use a diskette containing bootable system software.
	Diskette is worn or damaged.	Try another diskette.
	Diskette may be write-protected.	Remove foil tab covering write-protect notch.
Fixed disk read error message is displayed.	<b>Ready</b> button is in.	Press and release the <b>Ready</b> button.
Fixed disk write error message is displayed.	Disk is write-protected.	Press and release the <b>Write-Protect</b> button.

(Continued on next page)

**Table 5-1: Basic Troubleshooting Procedures (Cont.)**

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Diskette read error message is displayed.	Diskette is not in the the diskette drive.	Insert a diskette in the diskette drive.
	Diskette drive door is not closed.	Close the diskette drive door.
	Diskette is upside down in the diskette drive.	Check that the orange stripe on the diskette matches the stripe on the drive.
	Diskette is not formatted.	Use a preformatted RX50 diskette.
	Diskette is worn or damaged.	Try another diskette.
Diskette write error message is displayed.	Diskette is not in the diskette drive.	Insert a diskette in the drive.
	Diskette drive door is not closed.	Close the diskette drive door.
	Diskette is in the drive upside down.	Check that the orange stripe on the diskette matches the stripe on the drive.
	Diskette is not formatted.	Use a preformatted RX50 diskette.
	Diskette is worn or damaged.	Try another diskette.
	Diskette may be write-protected.	Remove foil tab covering write-protect notch.

(Continued on next page)



**Table 5-1: Basic Troubleshooting Procedures (Cont.)**

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
System does not boot from the TK50 tape drive.	Fixed Drive is on line. ( <b>Ready</b> button is lit.)	Push the <b>Ready</b> button.
	<b>Load/Unload</b> button is out.	Push the <b>Load/Unload</b> button.
System halts unexpectedly during normal operation.	The <b>Halt</b> button was pressed.	Power on system again. Set <b>Halt Enable/Disable</b> switch to disable position to prevent reoccurrences.
TK50 passes power-on test but does not work.	Tape is not in the drive or it is not loaded.	Insert the tape and press the <b>Load/Unload</b> button.
TK50 red indicator light flashes rapidly.	There is a possible problem with the tape drive.	Press the <b>Load/Unload</b> button four times. If the problem persists, do not attempt to use the tape drive or to remove the tape cartridge. Call your service representative.
Tape <b>cartridge release handle</b> does not lift.	The power-on test is still in process.	Wait for the red light to go out and try again. If the problem persists, it may be mechanical. Call your service representative.
Tape <b>cartridge release handle</b> does not lock.	Tape is not inserted properly.	Reinsert the tape cartridge. If the problem persists, call your service representative.

(Continued on next page)

**Table 5-1: Basic Troubleshooting Procedures (Cont.)**

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Tape does not unload.	<b>Load/Unload</b> switch is in load position.	Make sure the <b>Load/Unload</b> switch is in the unload position. Wait for the light to go out before trying to remove the tape.
Monitor displays "?54 RETRY" when system diagnostics are running.	You have failed to respond to a system prompt.	Begin the testing procedure again.

**POWER-UP MESSAGES**

During the power-up sequence, the VAXstation II executes built-in diagnostic and bootstrap routines that provide useful maintenance information. The information is displayed in single letters and numbers on both the LED display, located on the CPU distribution panel on the back of the VAXstation II system unit, and on the monitor. Normally, the display progresses from F to 0.

If the display stops in the range of F to 3, a hardware error may exist in the VAXstation II system; refer to the *VAXstation II System Technical Manual*.

If the display stops on 2, check the "system does not boot from ..." problem indications listed in Table 5-1.

If the display stops on 1, the bootstrap device might not contain bootable system software. Complete the system software installation as directed in the documentation supplied with your system software.

## MAINTENANCE SYSTEM

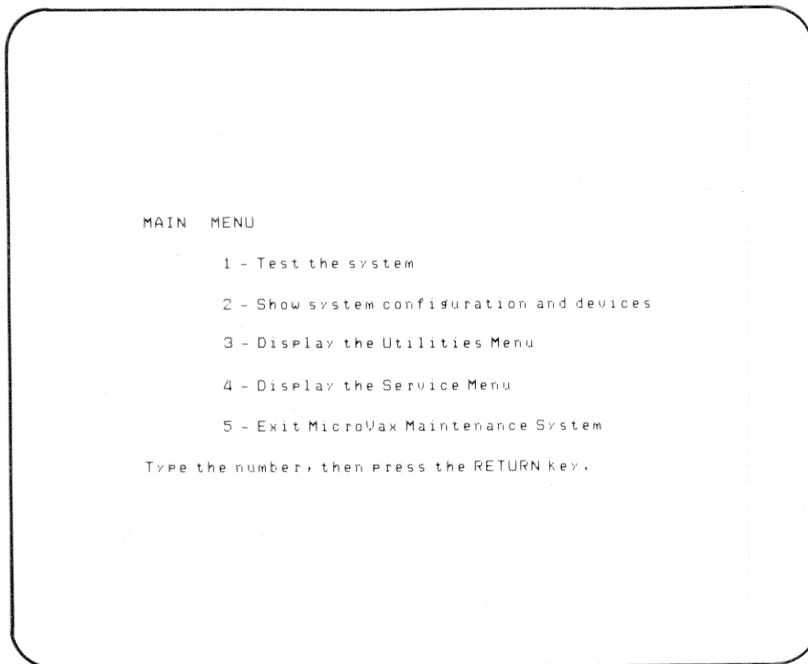
The **MicroVAX Maintenance System** software provides user tests that isolate and identify faults in the system. You can test the system in response to an error message or test your system periodically. Always test the system (and record the results) before calling DIGITAL to report a problem.

In addition, the maintenance software displays provide a list of system utilities and system devices.

The maintenance software is stored on RX50 diskettes or on a TK50 cartridge. To run the maintenance programs, use the monitor and keyboard for command inputs and to call VAXstation II system displays.

### The Maintenance System Main Menu

The **Maintenance System Main Menu** lists the testing options. Figure 5-2 shows the **Main Menu**. You can obtain the **Main Menu** display as directed in Chapter 2.



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**Figure 5-2: Maintenance System Main Menu**

The **Maintenance System** option displays are described as numbered in the Main Menu in Figure 5-2.

1. This option tests the devices supplied by DIGITAL for a VAXstation II system. You can test these devices as described in Chapter 2.
2. This option displays a list of the devices supplied by DIGITAL for a VAXstation II system. Since you may not have the configuration illustrated in Figure 5-3, your screen may look different from the example.

```
SYSTEM CONFIGURATION AND DEVICES

SYSTEM CONFIGURATION

CPU type ..... KAG30-AA, 1MB FPU
Memory size ..... 5 MB
ROM revision level ..... V2.4 18-Apr-84
Diagnostic revision level . V1.2 20-Apr-84

DEVICES

RQDX1 ..... RD/RX Disk Subsystem
RX50 ..... Dual Removable Disk Drive
RD52 ..... Fixed Disk Drive
DZQ11 . Four Line Asynchronous Multiplexer
DEQNA ..... Ethernet Network Adapter

Type 0 and press the RETURN key to return
to the PREVIOUS menu.
```

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**Figure 5-3: An Example of a System Configuration and Devices Screen**

3. This option displays the system utilities. Only service personnel should use this menu. (See the *VAXstation II System Technical Manual* for additional information.)
4. This option displays the Field Service diagnostics. Only service personnel should use them. (See the *VAXstation II System Technical Manual* for additional information.)
5. This option allows you to exit from the **Maintenance System**.

**MONITOR TROUBLESHOOTING**

If you have a problem with the VR260, check Table 5-3 before calling for service. You may be able to correct some problems. If you still need help, call your service representative.

**NOTE**

**If you return the monitor to DIGITAL, pack the monitor in its original carton.**

**Table 5-2: Monitor Troubleshooting Procedures**

<b>Problem</b>	<b>Possible Solution</b>
The monitor does not power-up when you turn on the power switch.	<p>Check that the monitor is connected correctly to an active power source.</p> <p>Check that the <b>voltage select switch</b> is set correctly. See Chapter 2.</p> <p>Check the monitor fuse. See Chapter 2 and the following section.</p>
The green <b>power indicator</b> is on but the screen is dark.	<p>Check the monitor <b>contrast</b> and <b>brightness</b> adjustments.</p> <p>Check the host system.</p>

(Continued on next page)

**Table 5-2: Monitor Troubleshooting Procedures (Cont.)**

<b>Problem</b>	<b>Possible Solution</b>
The monitor displays a raster but does not produce a test pattern from the host system.	Check that the video cable connection between the monitor and the host system is secure.  Check that the host system is powered on.
The screen display is out of shape or is unstable.	Check that the video cable connection between the monitor and the host system is secure.

### **Replacing the Fuse**

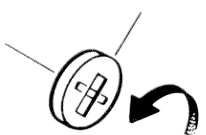
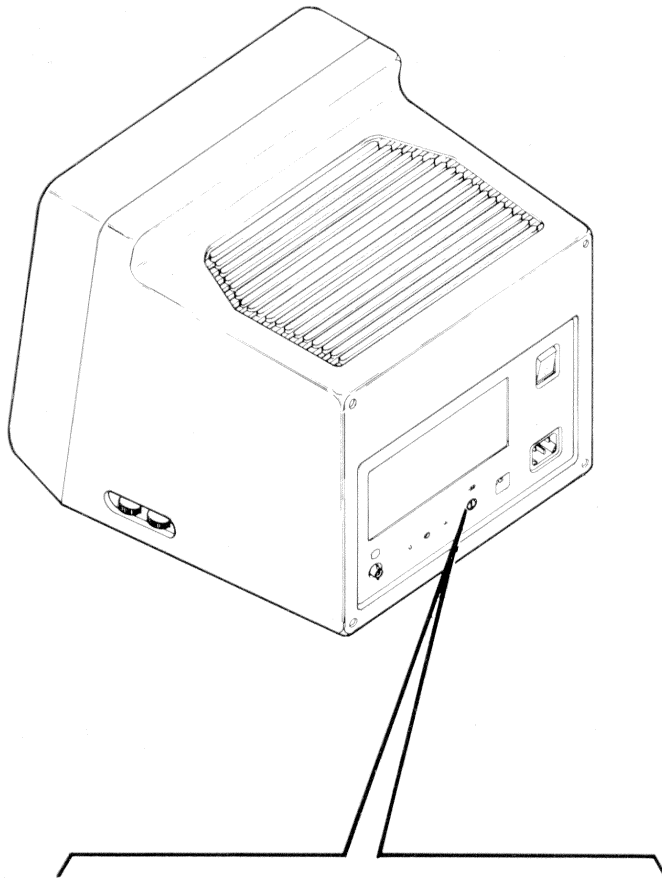
You might have to replace the monitor fuse.

For 120-volt operation, the monitor uses a 1 Ampere, 250-volt Slow Blow fuse (part number: 90-07212-003).

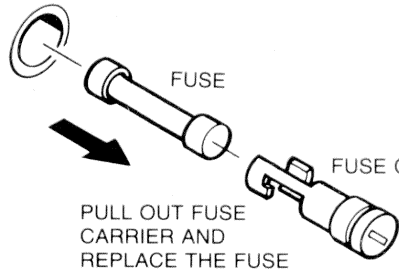
For 240-volt operation, the monitor uses a .5 Ampere, 250-volt Slow Blow fuse (part number: 12-19283-19).

Replace the fuse as follows:

1. Turn off the power and disconnect the power cord.
2. Remove the video cable assembly.
3. Push and turn the fuse carrier, using a small coin or screwdriver.
4. Pull out the fuse carrier and replace the fuse.
5. Replace the video cable assembly.



PUSH AND TURN THE FUSE CARRIER, USING A SMALL COIN OR SCREWDRIVER



PULL OUT FUSE CARRIER AND REPLACE THE FUSE

FUSE

FUSE CARRIER

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If you are unable to correct a problem with your VAXstation II, contact your service representative. This chapter describes how to call DIGITAL for help and the services available.

### **HOW TO CALL FOR DIGITAL SERVICE**

Before calling your service representative:

1. Check the problem-solving suggestions listed in Chapter 5. Often you can solve a problem yourself.
2. Write down the serial and model numbers of your VAXstation II. These numbers are located on the rear panel of the system unit.
3. Summarize the problem. Make a note of what you were doing when the system failed. Note if any indicators turned on or off or if you heard any new sounds just before or after the system failed.

When you call:

- Stay near the VAXstation II.
- Have all your materials available. The service technician may ask you to recreate the problem.

Call 1-800-DEC-8000, and a DIGITAL representative will help you.

If you have to return the VAXstation II to DIGITAL for service, you must repack the system in the same containers it was shipped in.

### **AVAILABLE DIGITAL SERVICES**

Your DIGITAL hardware comes with a warranty that gives you access to DIGITAL's best resources, including technical expertise, spare parts inventories, and worldwide service.

After warranty, DIGITAL's support continues through on-site and off-site services for as long as you own your DIGITAL hardware. These services help you get the maximum performance from your system.

DIGITAL's on-site services provide fast response time and full support, including the cost of all parts and labor.

#### **DECservice**

DECservice is DIGITAL's most comprehensive on-site service. DECservice provides committed response times, including a 4-hour service response if your system is within 100 miles of a DIGITAL service location. DECservice also provides continuous repairs until the problem is solved, a program of preventive maintenance, installation of the latest engineering changes, and automatic service escalation for complex problems.

DECservice lets you choose when you need support, up to 24 hours a day, 7 days a week.

#### **Basic Service**

Basic service is available during standard business hours, 8 a.m. to 5 p.m., Monday through Friday.

#### **Per Call Service**

If your system does not require comprehensive support, you can use one of DIGITAL's per call service alternatives. Per call service is available on-site and off-site on a noncontractual basis. Service is available Monday through Friday during standard business hours, from 8:00 a.m. to 5:00 p.m.

For on-site per call service, you pay for the time and materials required for each service call. Off-site per call service is available through mail-in board replacements and carry-in system repairs.

### **Carry-In Service**

This is DIGITAL's low-cost alternative to on-site support. You can carry your VAXstation II into any of the 150 DIGITAL service centers throughout the United States and pick up the repaired equipment within two days. Or, if you perform your own maintenance, you can carry in your faulty module and DIGITAL will make an over-the-counter exchange.

Carry-in service is available through a 1-year, fixed-cost agreement or on a per call basis for which there is flat rate charges for labor, plus the cost of all parts used in the repair. All carry-in service and parts come with a 90-day warranty.

### **DECmailer Service**

DECmailer is a return-to-factory replacement service for DIGITAL's customers who maintain their equipment to the module or subassembly levels. DECmailer service provides a 5-day turnaround, free return shipping, a 90-day warranty, 24-hour emergency service, monthly billing, and quarterly activity reports.

### **Spare Parts**

DIGITAL's Customer Spares organization provides support in spare inventory, maintenance test equipment, documentation, and emergency spare parts.



## Appendix VAXstation II System Specifications

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**Table A-1: System Electrical Requirements**

Input	Specifications*	
	120 V ac	220 V ac
Voltage tolerance	88–128 V	176–256 V
Power source phasing	single	single
Frequency	60 Hz	50 Hz
Line frequency tolerance	47–63 Hz	47–63 Hz
Running current (typical)	8.8 A	4.4 A
Running current (maximum)	12.0 A	6.0 A
Power consumption (maximum) (switchable for input voltage)	690 W	690 W

\* These requirements depend on the line voltage setting that you select.

**Table A-2: System Environmental Requirements**

	<b>Operating</b>	<b>Nonoperating</b>
Maximum altitude	2400 m	12000 m
Temperature range*	15-32 deg. C	-40-60 deg. C
Temperature change rate	1 deg. C/hour	—
Relative humidity	20%-80%	10%-95%

\* Reduce the maximum temperature specification by 1.8 degrees Celsius for each 1000 meter increase in altitude.

**NOTE**

**Your service contract may require limits for temperature and humidity that override the limits listed above.**

**Table A-3: Monitor Specifications**

**Physical**

Height	15.36 in (390 mm)
Width	17.93 in (455 mm)
Depth	15.42 in (395 mm)
Weight	Approximately 40 lb (18 kg)

**Video Format**

Composite video  
 Black negative  
 70 MHz bandwidth

**Timing**

Vertical rate	60 Hz
Horizontal rate	54 KHz

**Power**

Power supply type	Transistor, switch type ac to dc converter
AC input	Switch selected

(Continued on next page)

**Table A-3: Monitor Specifications (Cont.)**

115 V nominal (110/115/120)	Single-phase, 3-wire 8–132 V rms, 47–63 Hz line frequency
230 V nominal	Single-phase, 3-wire 185–264 V rms, 47–63 Hz line frequency
Power consumption	Approximately 65 watts
Fuse	
100–120 V ac	1.0 A DIGITAL part no. 90-07212-00
220–240 V ac	0.5 A DIGITAL part no. 12-19283-19
<b>Temperature</b>	
	10–40 deg. C (50–104 deg. F)
<b>Humidity</b>	
	10%–90% relative humidity with a maximum wet bulb of 28 deg. C. and a minimum dew point of 2 deg. C.

**Table A-4: Mouse Specifications**

<b>Physical</b>	
Construction	Molded plastic
Finish	Vapor hone texture
Color	Light grey
Cable	12 ft (3.66 m) in length ten conductors, shielded

(Continued on next page)

**Table A-4: Mouse Specifications (Cont.)**

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Connector	15 pin male "D" subminiature connector with 4-40 jack screws; connector with metal "D" shield
Switches	Three tactile feel-type switches
<b>Electrical</b>	
Power	+5 V dc +/- 10% at less than 110 mA
<b>Environmental</b>	
Temperature	
Operating	10-40 deg. C
Nonoperating	-40-+66 deg. C
Humidity	
Operating	10%-90% relative humidity with a maximum wet bulb temperature of 28 deg. C and a minimum dew point of 2 deg. C
Nonoperating	5%-95% relative humidity with a maximum wet bulb temperature of 46 deg. C
<b>Performance</b>	
Countable edges	Mouse will produce up to 200 countable edges/in +/- 3% at up to 10 in/sec in any direction
Resolution	200 counts/in
Accuracy	+/- 3% at up to 10 in/sec

---



**Table A-5: Tablet Specifications**

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**Physical**

Construction	Molded, high-impact plastic
Finish	Fine matte finish to minimize glare and fingerprints
Color	Light grey
Power/Signal Cable	5-foot cable wired to tablet, terminated in a 7-pin Micro-Din connector
Height	0.80 in (20 mm)
Width	16.2 in (412 mm)
Length	16.0 in (406 mm)
Weight	7 lb (3.2 kg)

**Performance**

Resolution	200 counts/in (20 counts/mm)
Active area	11 in x 11 in (279 mm x 279 mm)
Proximity (Nominal)	0.5 in (12.7 mm) puck 0.25 in (6.3 mm) stylus
Interfaces	Serial, asynchronous, full-duplex, with RS232C signal levels
Sampling Rate	55, 72, or 120 pairs/sec
Data Rate	4800 or 9600 baud (software selectable)
Coding	Binary 5-byte format. The first byte contains synchronization, button status and proximity information. Second and third byte have absolute X coordinate position. The fourth and fifth byte have absolute Y coordinate position. Each byte is found by one start bit, and one stop bit. The data byte contains 8 bits of data and 1 bit for parity (odd parity).

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(Continued on next page)

**Table A-5: Tablet Specifications (Cont.)**

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Coordinate origin	Lower left corner of active area
<b>Operating Modes</b>	
Remote request	X-Y coordinate update and prox report when polled by host
Incremental	Position reports are generated as long as cursor is in motion. Reports are also generated when the buttons are pressed or released.
Diagnostics	Built-in diagnostics that check electronics, communication, tablet, and transducers
<b>Interface</b>	
Description	EIA RS232C compatible signals
Power requirements	+ 12 V dc +/- 10% at 0.3 A
Output connector (Power and Data)	7-Pin Micro-Din (male)
Mating connector	7-Pin Micro-Din (female)
Pin assignments	7 Pin (RS232C) <i>Pin      Function</i> 1      signal and power signal 2      transmit data (from tablet) 3      receive data 4      not used 5      not used 6      +12 V 7      tablet present

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**Table A-6: RD52 Fixed Disk Drive Specifications**

---

**Storage**

Total capacity	33,554,432 bytes
User capacity	30,965,760 bytes
User capacity	60,480 blocks

**Performance**

Average seek time	49.00 msec*
Average rotational latency	8.33 msec*
Average access time	57.33 msec*

**Physical**

Height	3.25 in (8.25 cm)
Width	5.75 in (14.60 cm)
Depth	8.00 in (20.32 cm)
Weight	7.00 lb (3.18 kg)

---

\* When operating with RQDX2 or RQDX3 controller

**Table A-7: RD53 Fixed Disk Drive Specifications**

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**Storage**

Total capacity	71,303,168 bytes
User capacity	70,987,776 bytes
User capacity	138,648 blocks

**Performance**

Average seek time	30.00 msec*
Average rotational latency	8.33 msec*
Average access time	38.33 msec*

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(Continued on next page)

**Table A-7: RD53 Fixed Disk Drive Specifications (Cont.)**

---

**Physical**

Height	3.25 in (8.25 cm)
Width	5.75 in (14.6 cm)
Depth	8.00 in (20.32 cm)
Weight	7.00 lb (3.18 kg)

---

\* When operating with RQDX2 or RQDX3 controller

**Table A-8: RX50 Dual Diskette Drive Specifications**

---

**Specifications**

Diskettes/RX50 drive – 2

Number of recording surfaces/diskette – 1

**Storage capacity**

Per diskette (80 tracks)	409,600 bytes
Per track (10 sectors)	5,120 bytes
Per sector (1 logical block)	512 bytes

**Performance**

Average seek time	164 msec*
Average rotational latency	100 msec*
Average access time	264 msec*

**Physical Specifications**

Height	3.25 in (8.5 cm)
Width	5.75 in (14.6 cm)
Depth	8.50 in (21.6 cm)
Weight	4.18 lb (2.8 kg)

---

\* When operating with RQDX2 or RQDX3 controller

**Table A-9: TK50 Tape Drive Specifications****Specifications**

Recording media	Magnetic tape
Tape dimensions	0.5 in wide 600 ft long
Mode of operation	Streaming
Read/Write method	Serpentine
Recording density	6667 bits/in
Number of tracks	22

**Capacity**

Unformatted	131.0 mb
Formatted	94.5 mb

**Performance**

Tape start time	300 msec maximum*
Tape speed	75 in/sec*
Streaming data rate	500 kb/sec*
Access time (from insertion of a new tape)	1 min minimum* 35 min maximum*

**Physical Specifications**

Height	3.25 in (8.25 cm)
Width	5.75 in (14.60 cm)
Depth	8.44 in (21.44 cm)
Weight	5 lb (2.27 kg)

\* When operating with RQDX2 or RQDX3 controller



### **Application program**

A program designed to perform a task, such as a program that monitors a manufacturing process.

### **ASCII**

American Standard Code for Information Interchange. A set of 8-bit binary numbers representing the alphabet, punctuation, numerals, and other special symbols used in text representation and communications protocol.

### **Asynchronous multiplexer**

A device that controls and alternates the transmission of signals, so that more than one signal can be transmitted over a single communications line. The data being transmitted contains synchronizing information in the form of start and stop signals.

### **Backplane**

A connector block that connects modules through a bus and provides physical support of those modules.

### **Back up**

The process of making copies of the data stored in your disk drive(s) so that you can recover that data after an accidental loss. You make these "back-up" copies on RX50 diskettes or TK50 magnetic tape cartridges.

**Back-up copy**

A copy of data contained on your fixed disk. The duplicate is stored on either RX50 diskettes or TK50 magnetic tape cartridges.

**Baud rate**

The speed at which signals are serially transmitted along a communications line. One baud equals one bit/second.

**Bezel**

A cover used to hold and position the edges of a device, such as the free-standing disk subsystem of the VAXstation II.

**Binary**

A number system that uses 2 digits: 0 and 1. These digits are represented in VAXstation II circuitry by two voltage levels. VAXstation II programs are executed in binary form.

**Bit**

A binary digit; the smallest unit of information in a binary system of notation, designated as a 0 or a 1.

**Bit-map**

The type of graphics supported by the VAXstation II. With bit-map graphics, the workstation software can individually access each dot (pixel) on the video screen.

**Boot**

(See bootstrap.)

**Bootable medium**

A fixed disk, diskette, or magnetic tape cartridge containing software (such as an operating system), which a bootstrap program can load into the VAXstation system memory and begin program execution.



**Bootstrap**

1. A program that you start when you turn on the VAXstation II. The bootstrap loads software contained on fixed disk, diskette, or magnetic tape cartridge into memory; the VAXstation II stops executing the bootstrap and starts executing the software in memory. The software usually loads an operating system or other software into memory so that the VAXstation II can start processing.
2. To use a bootstrap program.

**Bus**

A printed circuit board that is part of the backplane. The bus permits the sharing of signals among the VAXstation II printed circuit boards.

**Byte**

A group of eight binary digits (bits). A byte is one-quarter of the size of a VAXstation II word.

**Central processing unit (CPU)**

The part of a VAXstation II system that controls the interpretation and execution of instructions. In the VAXstation II system, CPU functions are contained on one VAXstation II CPU chip.

**Command**

An order you can give to the VAXstation II, often through a terminal keyboard.

**Communications line**

A cable along which electrical signals are transmitted. Devices or VAXstation II systems that are connected by communications lines can share information and resources.

**Computer system**

A combination of VAXstation II hardware and software and external devices that perform specific operations or tasks.

**Controller**

- A VAXstation II component, usually a printed circuit board, that regulates the operation of one or more peripheral devices. Controllers are often called interface units.

**Control panel**

The panel on the front of the VAXstation II cabinet that contains control switches and indicator lights.

**CPU**

Central processing unit.

**Data**

A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means.

**Data transmission**

The movement of data in the form of electrical signals along a communications line.

**Debug**

To detect, locate, and correct errors (bugs) in system hardware or software.

**DECnet**

DIGITAL communication network.

**Device**

The general name for any unit connected to the VAXstation II that is capable of receiving, storing, or transmitting data. (See input device, output device, input/output device, and controller.)

**Device name**

The name by which a device or controller is identified in a VAXstation II system. The name you use to refer to that device when you are communicating with the system.

**Diagnostic program**

A program that detects and identifies abnormal VAXstation II hardware operation. The VAXstation Maintenance System software contains several diagnostic programs.

**Disk**

A flat circular plate with a coating on which data is magnetically stored in concentric circles (tracks). VAXstation II disks include the RD51, RD52, or RD53 fixed disk and the RX50 diskette.

**Disk drive**

A device that contains a fixed disk or one or more diskettes. The drive contains mechanical components that spin the disk or diskettes and move the read/write heads that store and read information on the surface of the disk or diskettes.

**Diskette**

A flexible disk contained in a square paper envelope. (See disk.)

**Diskette drive**

A device that holds RX50 diskettes. (See disk drive.)

**Dot matrix**

A method of generating characters for printing, using an array of dots from which combinations of dots produce readable characters.

**Down-line load**

To send a copy of a system image or other file over a line to the memory of a target node.

**Error message**

A message displayed by the VAXstation II to indicate a mistake or malfunction.

**File**

A collection of related information treated by the VAXstation II as a single item.

**Formatted data**

A pattern of data that conforms to a predetermined structure dictated by the system software.

**GKS**

Graphics Kernel System. GKS acts as the graphics interface for the VAXstation II.

**Hard-copy terminal**

A terminal that displays information on paper. Compare to video terminal.

**Hardware**

The physical components — mechanical and electrical — that make up a VAXstation II system. Compare to software.

**Head**

The part of a fixed disk drive, diskette drive, or tape drive that reads, records, and erases data. Also called read/write head.

**Host**

The primary or controlling computer in a multiple computer network.

**Input device**

A piece of equipment that is used to transfer data to the VAXstation II. For example, a keyboard is an input device.

**Input/output (I/O) device**

A piece of equipment that accepts data for transmission both to (input) and from (output) a VAXstation II. For example, a terminal.

**Interactive**

The method of communicating with a VAXstation II system. You type a command at the keyboard, the system executes the command and responds with a prompt character (usually) for another command.

**Interface**

A device or piece of software that allows the components of a VAXstation II to communicate.

**I/O**

Abbreviation for input/output.

**K**

The symbol that means 2 to the 10th power (or 1024 in decimal notation).

**Kilobyte**

1000 bytes.

**LED**

Light-emitting diode. LEDs are used as indicators on the control panel. A segmented LED display on the CPU distribution panel insert on the back of the VAXstation II cabinet displays the characters 0–9 and A–F during the power-on sequence to indicate CPU status and normal/-abnormal operation.

**Load**

1. To move software (usually from a peripheral device) to memory.
2. To physically place a disk on a disk drive or a tape on a tape drive.

**Local area network**

A data communications system designed for a small geographic area that offers high-speed communications channels optimized for connecting information processing equipment. For example, Ethernet.

**Magnetic tape**

A strip of plastic coated with magnetic oxide and used for storing data. Often called magtape.

**M**

The symbol for 1024 squared (1,048,576 in decimal notation).

**Megabyte**

1,000,000 bytes.

**Memory**

The area of a VAXstation II that holds the instructions and data that temporarily store information.

**Menu**

A displayed list of options that you can select to run.

**MicroVAX Workstation**

Any workstation based on the 32-bit MicroVAX CPU. The workstations include the MicroVAX and the VAXstation systems.

**MicroVMS Workstation Software**

Window management software for a MicroVAX-based system. The system must run MicroVMS as the operating system. The system allows you to control and view several programs on one screen. You specify the window with which to interact by using a pointer.

**Network**

A group of individual computer systems that are connected by communications lines to share information and resources.

**Node**

An individual information-processing unit, such as a computer, workstation, or peripheral device, which is directly connected to a network.

**Off-line**

Pertaining to equipment, devices, and events that are not under direct control of the VAXstation II.

**On-line**

Pertaining to equipment, devices, and events that are in direct communication with the VAXstation II system.

**Operating system**

A collection of VAXstation II programs that control the operation of a VAXstation II and perform such tasks as:

- Assigning places in memory to programs and data
- Processing requests and scheduling jobs
- Controlling the operation of input and output devices

**Output device**

A device that extracts data from a VAXstation II system. For example, a printer.

**Peripheral device**

Any device distinct from the central processing unit that provides the CPU with additional memory storage or communication capability. Examples are disk and diskette drives, video terminals, and printers.

**Power-up sequence**

A series of ordered events that occur when you supply power by turning on the system.

**Printer**

A peripheral device that provides paper copies of information stored on a VAXstation II.

**Program**

The sequence of instructions a VAXstation II needs to perform a task. (See software.)

**Prompt**

A word or words that a VAXstation II displays to indicate that the VAXstation II is waiting for you to type a command.

**Read-only memory (ROM)**

A memory that does not allow modification of its contents. The VAXstation II can use the data contained in a ROM but cannot change it.

**Reboot**

To restart a VAXstation II system. Pressing the Restart button on the control panel reboots the VAXstation II system (if the Halt Enable/Disable switch on the back of the VAXstation II cabinet is in the up – enable – position).

**ROM**

Read-only memory.

**Run**

1. A single continuous execution of a program.
2. To execute a program.

**Software**

Programs executed by a VAXstation II system to perform a chosen or required function. Compare to hardware.

**Storage medium**

Any device capable of recording information, for example, a diskette.

**Store**

To enter data in a storage device, such as a disk, or into memory.

**System**

A combination of VAXstation II hardware and software and external devices that perform specific processing operations.

**System image**

The image that is read into memory from disk when the system is started up.

**System management**

Tasks performed by the operating system that control the operation of the VAXstation II system.

**Tektronix 4014**

A storage-tube display terminal sold by Tektronix, Inc.

**Terminal**

An input/output device that allows you to communicate with the VAXstation II system. Terminals are divided into two basic categories: video and hard-copy.

**32-bit**

Length of internal data path of CPU. It provides more concentrated data, allows more data types, and enables more data to be transferred at one time than a 16-bit internal data path.



**Video terminal**

A terminal that displays information on the screen of a cathode ray tube (CRT). Compare to hard-copy terminal.

**VT100**

An ANSI-compatible terminal offered by DIGITAL.

**Winchester disk**

A hard disk permanently sealed in a drive unit to prevent contaminants from affecting the read/write head.

**Word**

The largest number of bits (32) that the VAXstation II can handle in an operation. VAXstation IIs can also handle longwords (that is, two words or 64 bits).

**Write-protect**

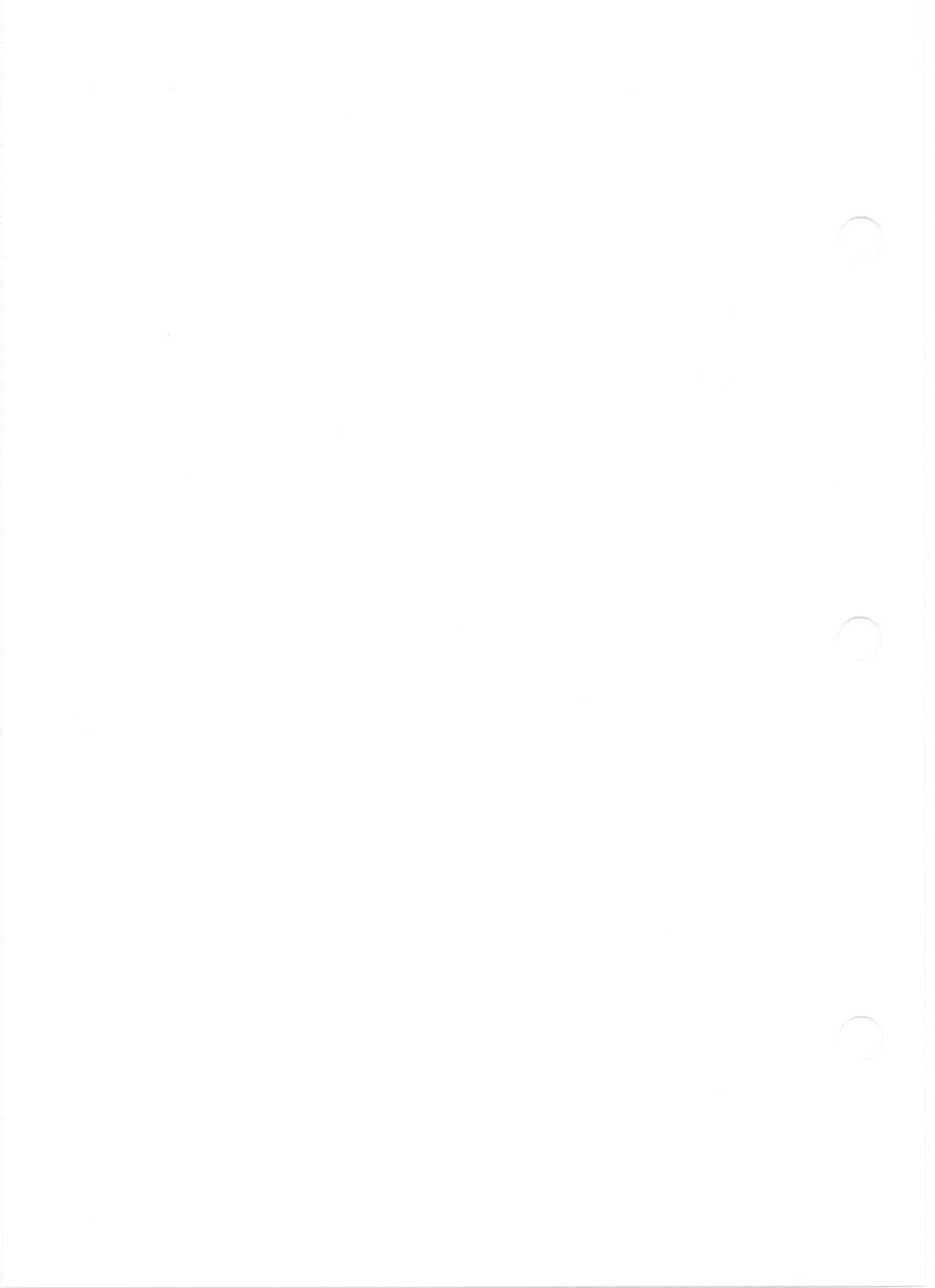
To protect a disk, diskette, or other storage medium from the addition, revision, or deletion of information.

**Write-protect notch**

The small notch on the side of an RX50 diskette that you cover with an adhesive-backed label or tab to prevent loss of data by accidental overwriting.

**Write-protect switch**

The switch that you slide down on a TK50 tape cartridge to prevent loss of data by accidental overwriting.



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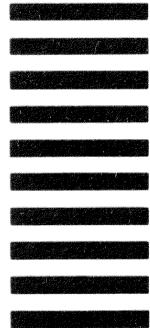
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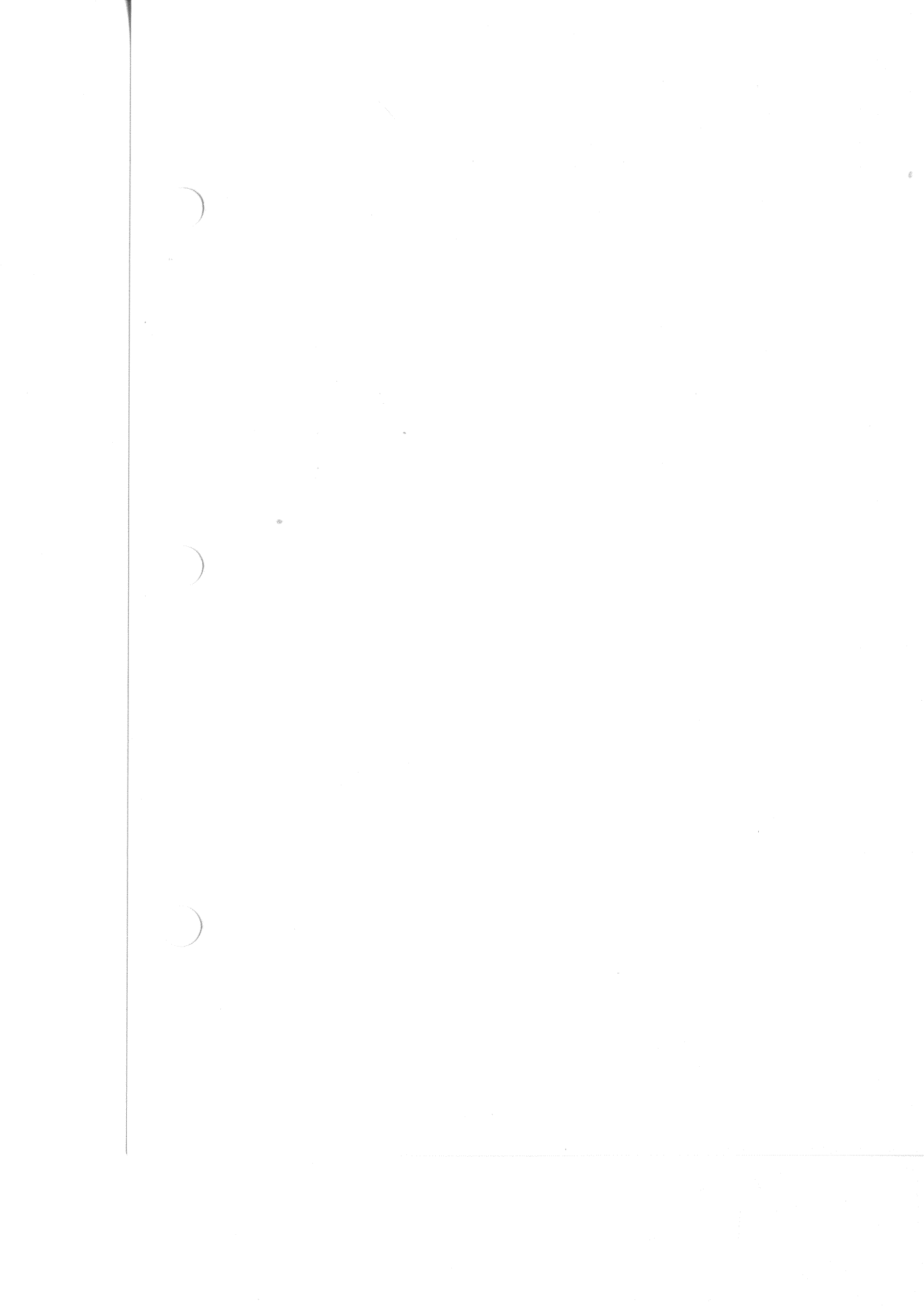
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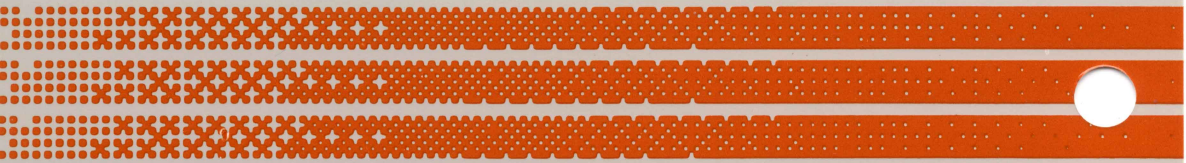
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