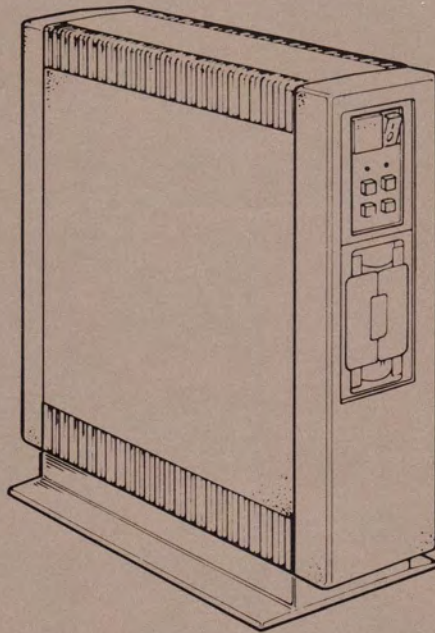


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# MicroVAX II

## 630QY, 630QZ

### Owner's Manual

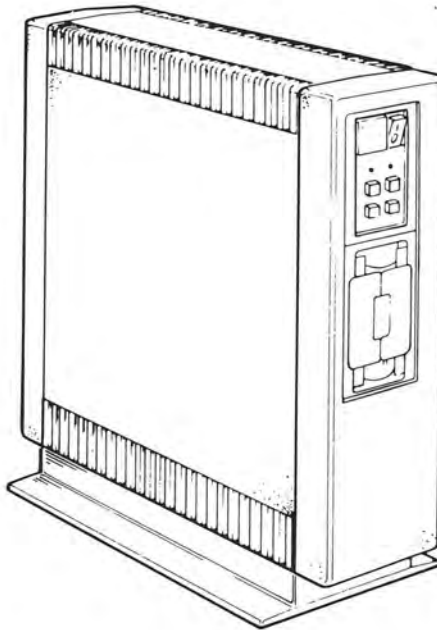


Owner's Manual

**digital**™

# MicroVAX II 630QY, 630QZ

## Owner's Manual



Prepared by SSG/ML Publications  
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## Contents

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Introduction .....	v
Installation	
PROCEDURE .....	1-2
TESTING .....	1-15
Testing with RX50 Diskettes .....	1-16
Testing with the TK50 Tape Drive .....	1-18
INSTALLING OPERATING SYSTEM SOFTWARE .....	1-40
Operation	
CONTROL PANEL .....	2-2
TURNING THE SYSTEM ON .....	2-6
TURNING THE SYSTEM OFF .....	2-10
MAKING BACKUP COPIES .....	2-11
RD52 OR RD53 FIXED-DISK DRIVE .....	2-12
RX50 DISKETTE DRIVE .....	2-13
RX50 Diskettes .....	2-14
Diskette Handling and Storage Guidelines .....	2-16
Write-Protecting a Diskette .....	2-17
Inserting a Diskette .....	2-18
TK50 TAPE DRIVE .....	2-19
Labeling a Tape Cartridge .....	2-24
Write-Protecting a Tape Cartridge .....	2-25
Tape Cartridge Handling and Storage Guidelines .....	2-26
Inserting a Tape Cartridge .....	2-27
Removing a Tape Cartridge .....	2-30



## Contents

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### Troubleshooting

CORRECTIVE ACTIONS . . . . .	3-2
POWER-ON MESSAGES . . . . .	3-13
MICROVAX MAINTENANCE SYSTEM . . . . .	3-15
Main Menu . . . . .	3-15
Main Menu Options . . . . .	3-17

Upgrade . . . . .	4-1
-------------------	-----

### Appendix A — Related Documentation

### Appendix B — MicroVAX II Specifications

PREPARING FOR YOUR MICROVAX II SYSTEM . . . . .	B-1
Electrical Requirements . . . . .	B-3
Environmental Requirements . . . . .	B-4
Acoustic Noise Emission Information . . . . .	B-5
System Unit Physical Specifications . . . . .	B-6
RX50 DUAL-DISKETTE DRIVE . . . . .	B-7
TK50 MAGNETIC TAPE . . . . .	B-8
RD52 FIXED WINCHESTER DISK DRIVE . . . . .	B-9
RD53 FIXED WINCHESTER DISK DRIVE . . . . .	B-10

### Appendix C — Table-Top Conversion Procedures

### Appendix D — MicroVAX II Options

TERMINAL AND PRINTER OPTIONS . . . . .	D-1
MEMORY OPTIONS . . . . .	D-2
COMMUNICATION OPTIONS . . . . .	D-2

### Glossary

## Introduction

---

This manual describes how to install and operate the MicroVAX II system and what to do if you have a problem with the system. Coverage is provided for the 630QY (floor or table-top mounted) and the 630QZ (rack mounted) versions. DIGITAL recommends that you carefully read the Installation and Operation sections of this manual before you attempt to install and operate the MicroVAX II system.

This manual is for a MicroVAX II system user; little or no previous computer experience is assumed. To help non-technical users, the glossary explains common computer terms.

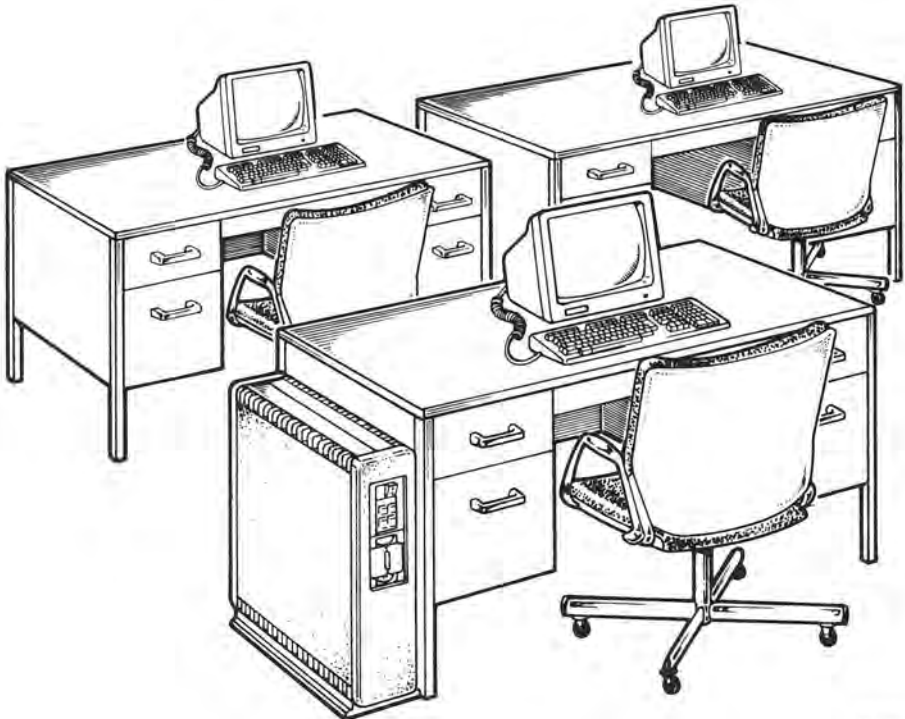
Detailed technical information is available in the *MicroVAX II System Technical Manual* and in other related documents. Related documents and their order numbers are listed in Appendix A.



# Installation 1

Before installing your system, make sure the site conforms to the environmental and safety requirements summarized in Appendix B in this manual. If you prefer not to install the system yourself, DIGITAL provides an installation service.

To install the system, perform the following steps in order. If you have trouble, refer to the Troubleshooting section that begins on page 3-1.





**PROCEDURE**

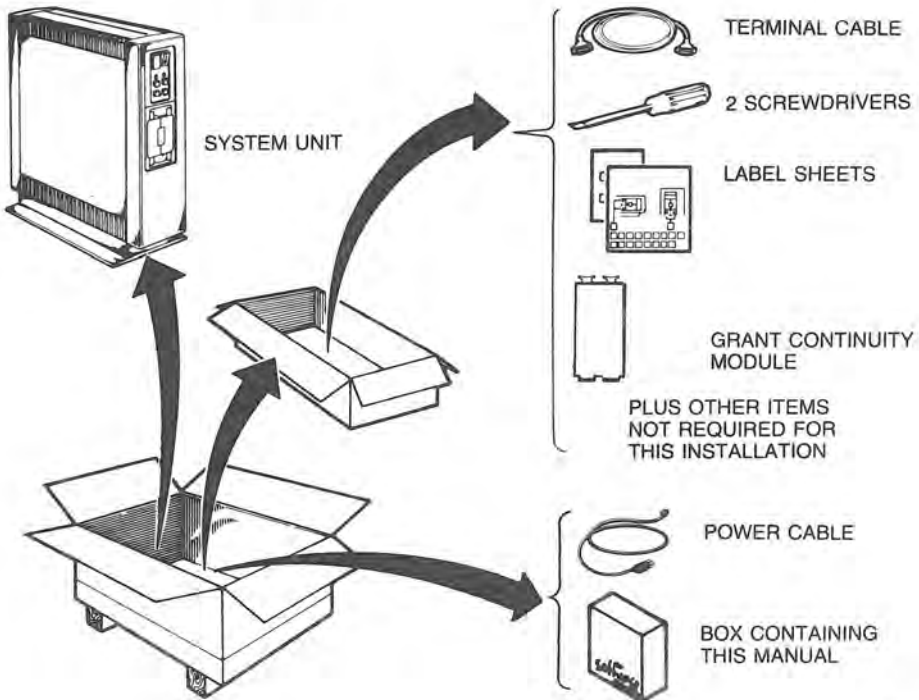
**1 UNPACK THE MICROVAX II SYSTEM.**

If any item is missing or damaged:

- Contact your sales representative or store.
- Contact your delivery agent.

**CAUTION**

**Do not pick up the MicroVAX II system unit by its front and rear covers when moving it.**



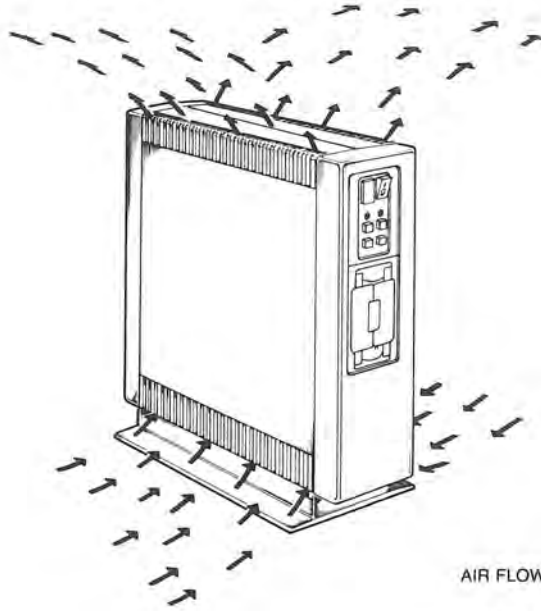
MLO-661-85

## **2 PUT THE SYSTEM UNIT WHERE IT WILL BE USED.**

- Allow space around the unit for air circulation and servicing.
- Keep food and liquid away from unit.
- Place the unit away from heaters, photocopiers, and direct sunlight.
- Minimize static by placing the unit away from busy office corridors.
- Keep the area free from dust and other abrasive materials.
- Install your system in an operating environment that meets the requirements listed in Appendix B.

### **NOTE**

**If you prefer to convert the 630QY MicroVAX II from floor to table-top mounting, refer to the conversion procedures described in Appendix C.**



AIR FLOW

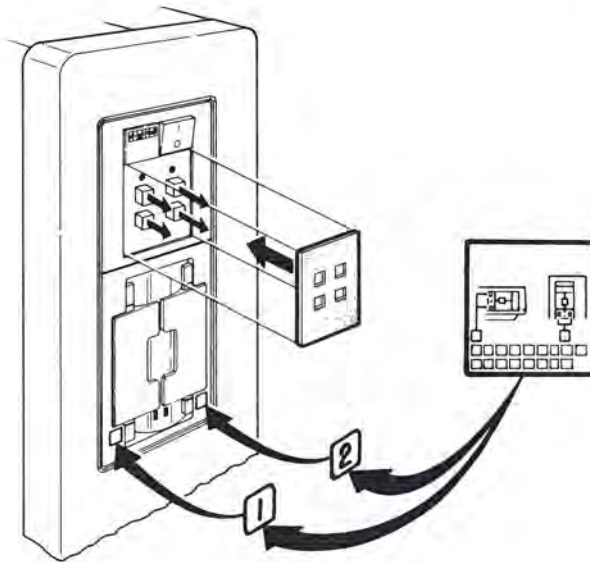
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### 3 LABEL THE CONTROL PANEL AND DISKETTE DRIVE UNITS.

- Select labels for your language.

Two sets of labels are provided for each language. Use one set for a unit that is installed on the floor (as shown below). Use the second set if you convert your unit to a table-top mounting as described in Appendix C.

- If your unit contains diskette drives, label them 1 and 2.
- Make sure that *all* buttons on the control panel are out.



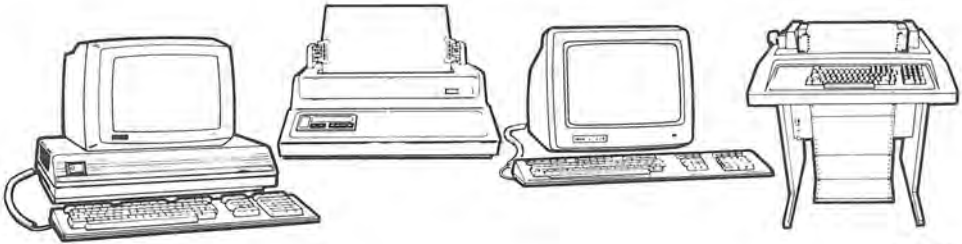
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## Installation

---

### 4 UNPACK THE INSTALLATION AND USER GUIDES FOR THE FIRST TERMINAL TO BE CONNECTED TO YOUR SYSTEM.

This will be the “console” terminal.



MLO-664-85

### 5 USE THE INSTALLATION GUIDE TO UNPACK AND INSTALL THE CONSOLE TERMINAL.

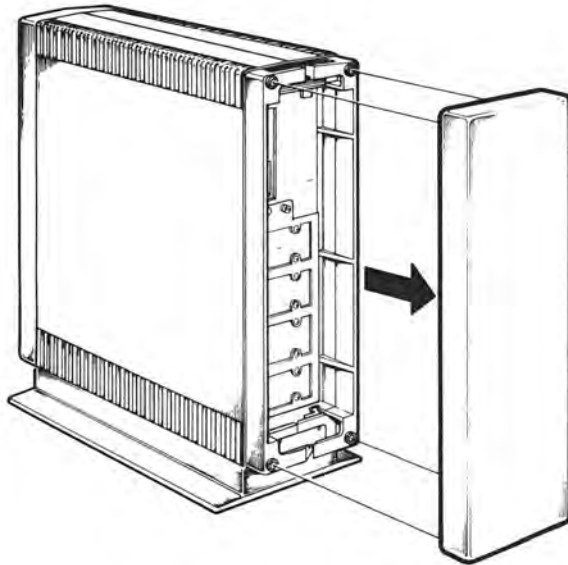


MLO-665-85



**6 PULL OFF THE REAR COVER OF YOUR UNIT.**

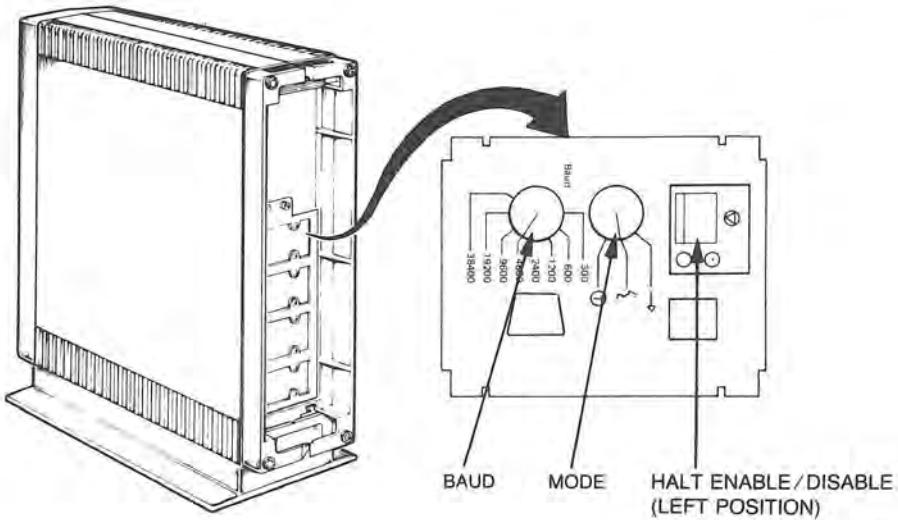
The cover is held in place by pop fasteners.



MLO-666-85

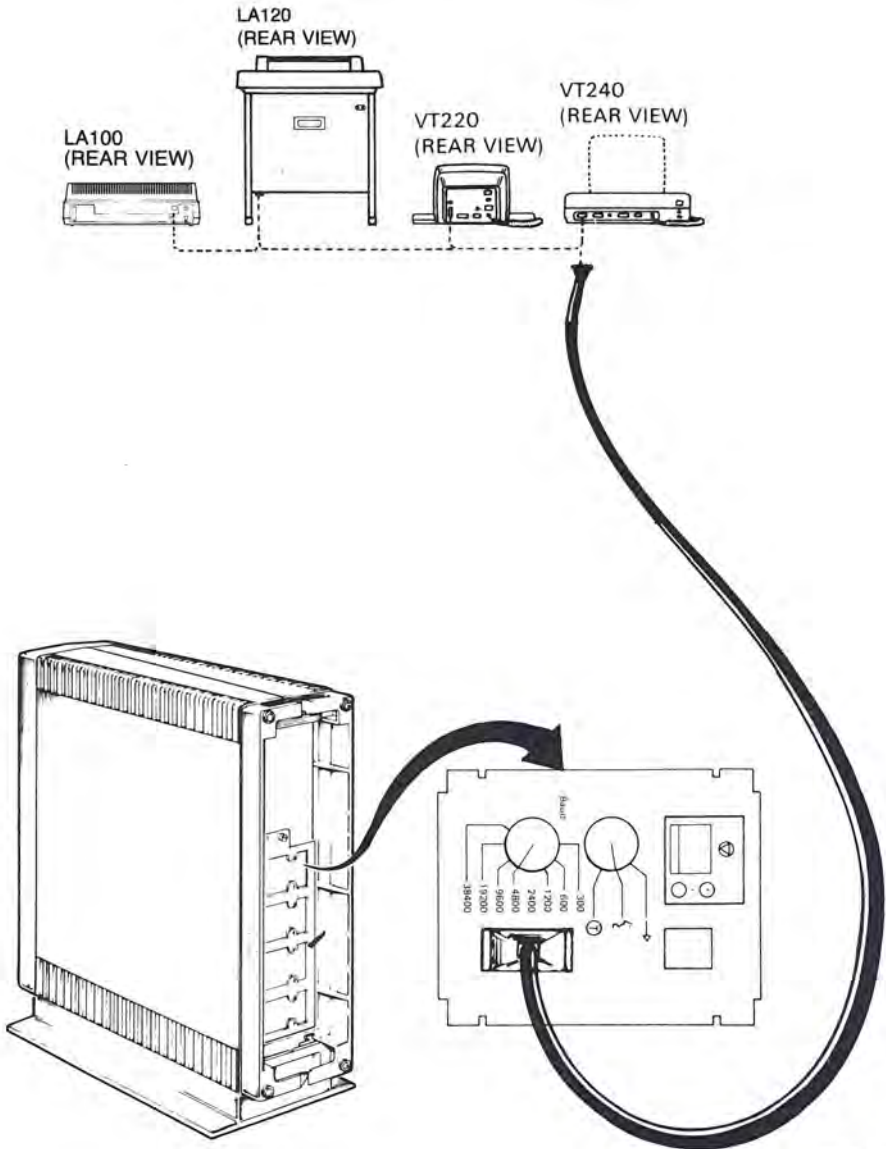
**7 SET THE CONTROLS ON THE CPU PANEL ON THE REAR OF THE UNIT TO THE POSITIONS LISTED BELOW.**

- Set the Halt Enable/Disable switch to the disable (left) position.
- Rotate the Mode switch to the middle (language inquiry) position.
- Rotate the Baud control switch for the console terminal to 4800.



MLO-667-85

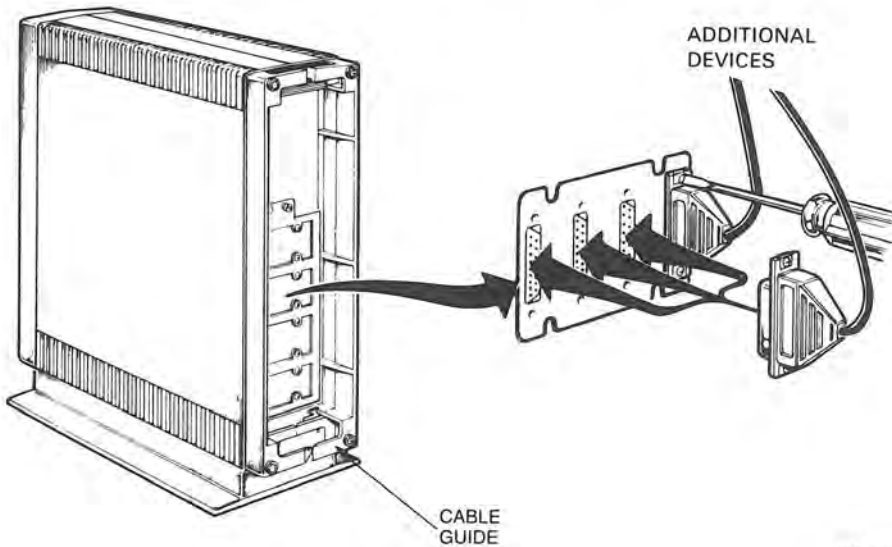
**8 CONNECT THE CONSOLE TERMINAL CABLE TO THE CONSOLE TERMINAL AND THE UNIT AS SHOWN.**



MLD-668-85

**9 INSTALL AND CONNECT ANY ADDITIONAL DEVICES.**

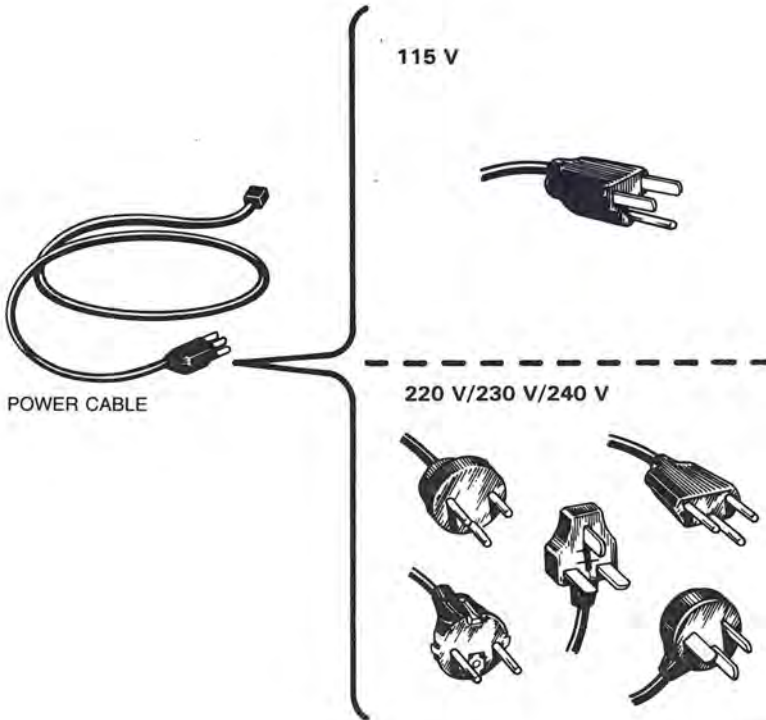
- Additional devices may include terminals, printers, modems, and external storage devices. The devices may be connected in any order.
- Thread all cables through the lower cable guide.
- Refer to the installation guide included with each device.



MLO-659-85

**10 IDENTIFY THE POWER CABLE.**

Make sure the power cable plug matches the wall outlet.



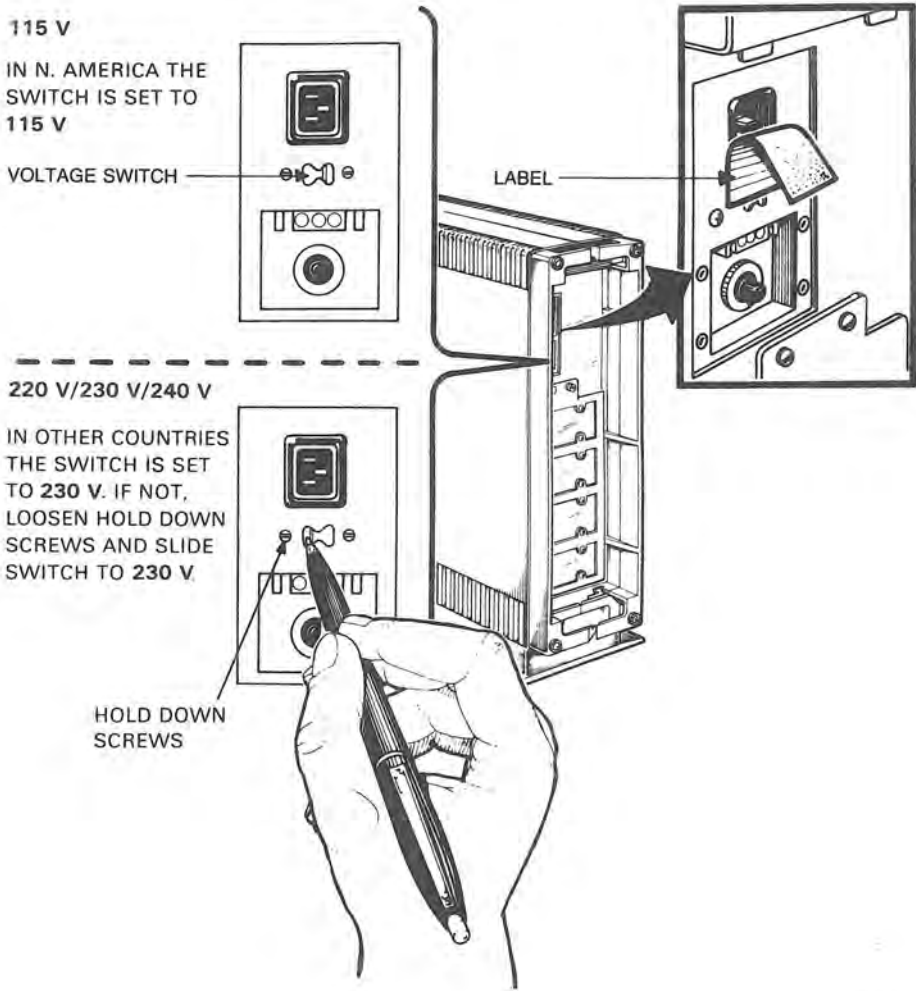
MLO-670-85



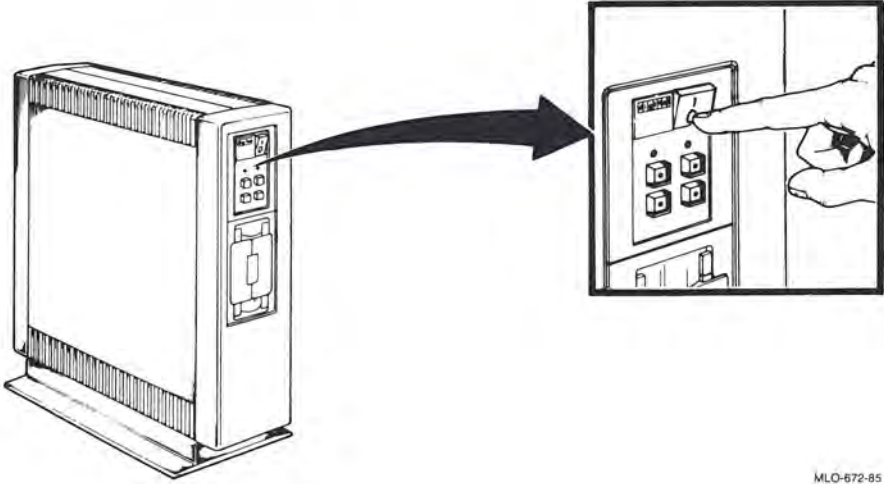
- 11 CHECK THE VOLTAGE SWITCH SETTING. PEEL BACK THE LABEL COVERING THE SWITCH TO SEE THE VOLTAGE SETTING. IF NECESSARY, CHANGE THE SWITCH SETTING TO MATCH THE VOLTAGE SOURCE YOU ARE USING.**

**CAUTION**

**An incorrect voltage switch setting will damage your system.**



**12 SET THE POWER SWITCH ON THE FRONT OF THE UNIT TO 0 (OFF).**

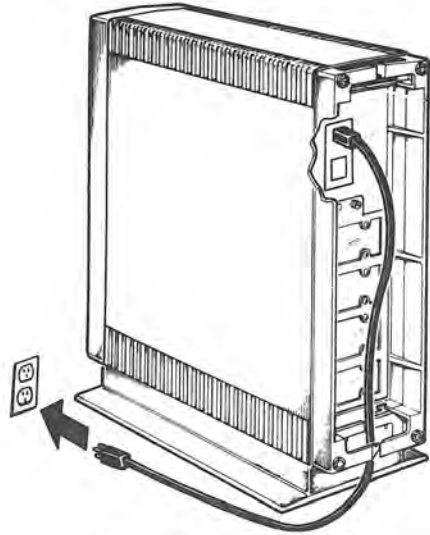


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**13 PLUG IN THE POWER CABLE.**

Do not replace the rear cover at this time.

Now you are ready to test your system (see the next page).

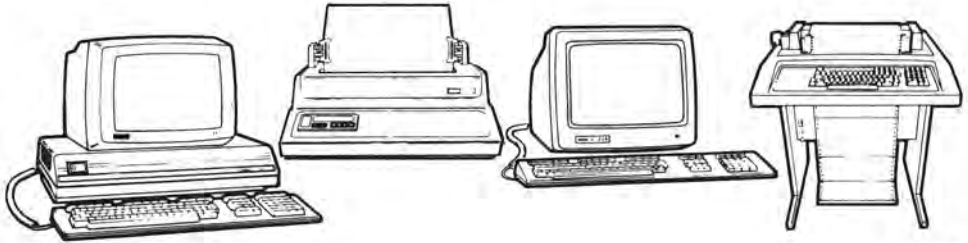


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## TESTING

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

### 14 TURN ON YOUR CONSOLE TERMINAL.



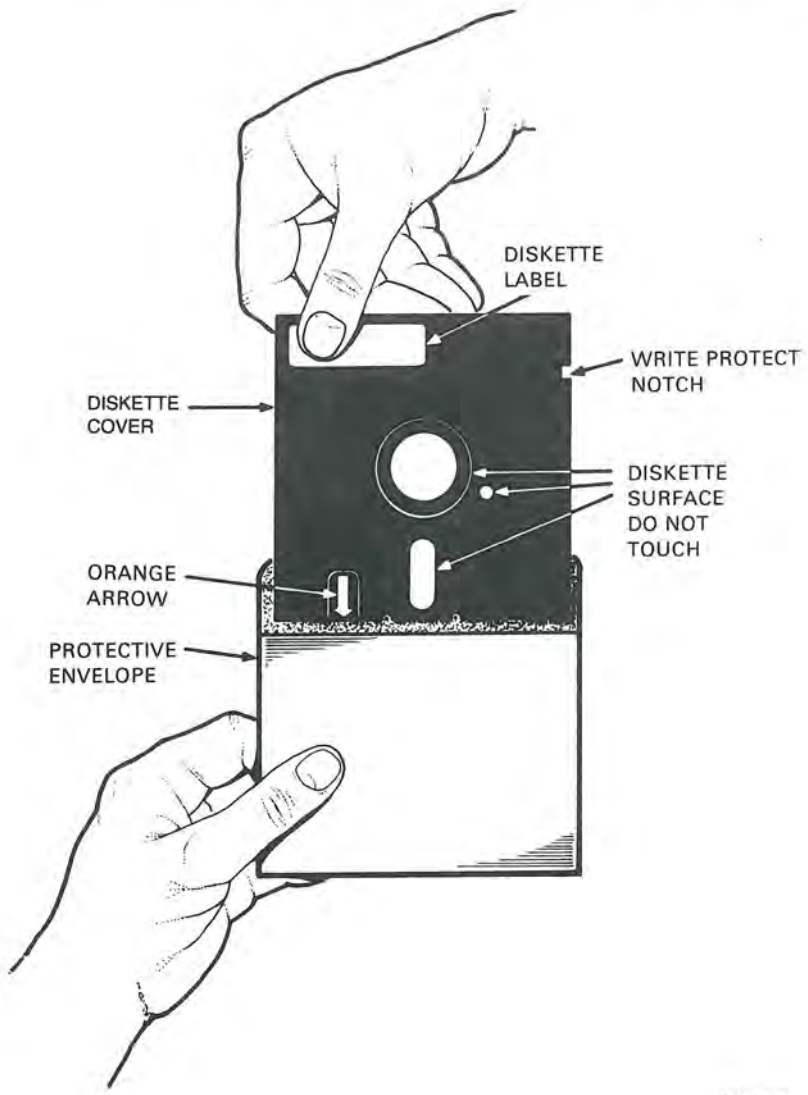
MLO-674-85

- If you received RX50 diskettes with this manual, proceed with step 15.
- If you received a TK50 tape cartridge with this manual, go to step 17 (skip steps 15 and 16).

**Testing with RX50 Diskettes**

**15 FIND THE DISKETTES LABELED *MVII DIAG. CUST. RX50* IN THE DISKETTES HOLDER AT THE FRONT OF THIS MANUAL.**

The diskettes are numbered sequentially to show the order of their use.

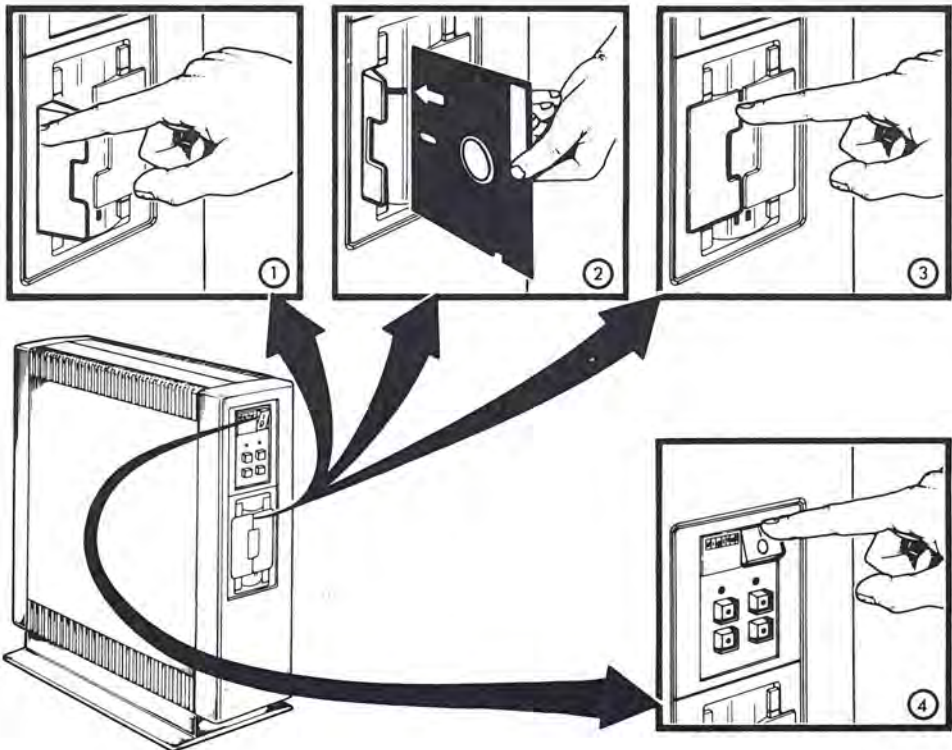


MLO-675-85



**16 INSERT DISKETTE #1 IN ONE OF THE DRIVES AS FOLLOWS:**

- Open a diskette door by pressing on its outer edge.
- While aligning the orange arrow on the diskette with the orange stripe on the drive, insert the diskette.
- Close the diskette drive door.
- Set the power switch to 1 (on) and proceed immediately to step 20 (skip steps 17, 18, and 19).

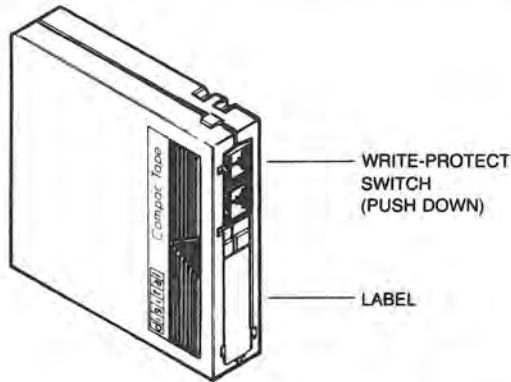


MLO-676-85

**Testing with the TK50 Tape Drive**

**17 FIND THE TAPE CARTRIDGE LABELED *MVII DIAG. CUST. TK50* IN THE CARTRIDGE HOLDER AT THE FRONT OF THIS MANUAL.**

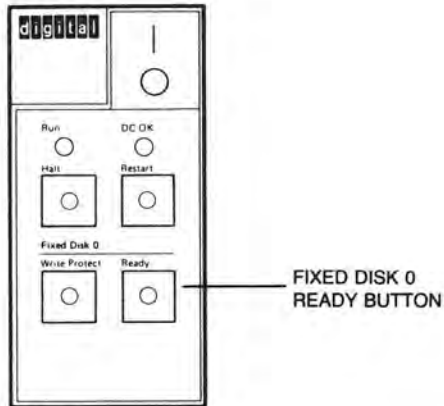
Slide the write-protect switch to the down (write-protected) position.



MLO-677-85

**18 PUSH THE FIXED DISK 0 READY BUTTON ON THE CONTROL PANEL TO THE IN POSITION.**

This places the fixed (nonremovable) disk off line.



MLO-678-85

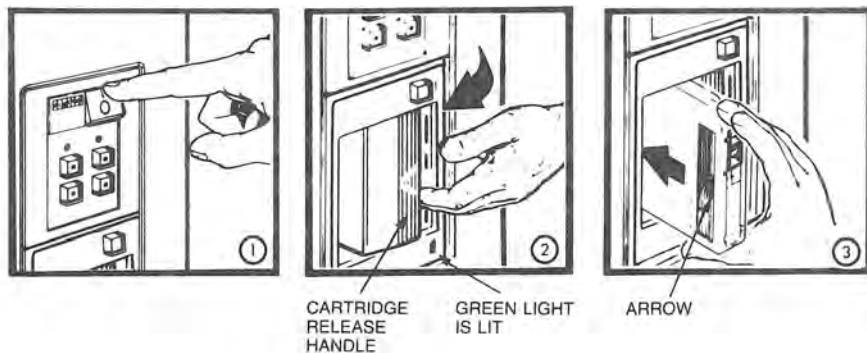
**19 INSERT THE TAPE CARTRIDGE INTO THE TAPE DRIVE AS FOLLOWS:**

1. Set the power switch to 1 (on).
2. After the green light has lit, push the cartridge release handle to the left.

**CAUTION**

**Never move the cartridge release handle unless the red light is off and the green light is on. Never move the cartridge release handle while a light is flashing.**

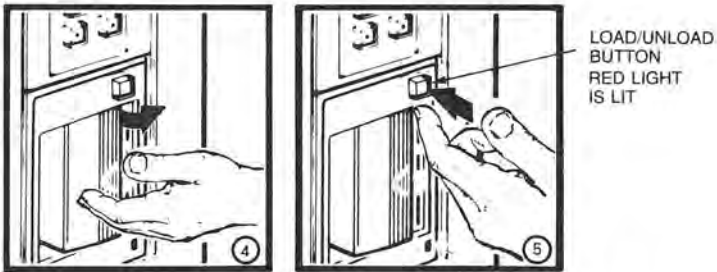
- 3 With the arrow on the tape cartridge facing left, insert the tape cartridge into the tape drive.



4. Push the cartridge release handle to the right.
5. Push the red Load/Unload button to the in (load) position. The red light goes on. When the green light goes on, the tape is ready to use.

**CAUTION**

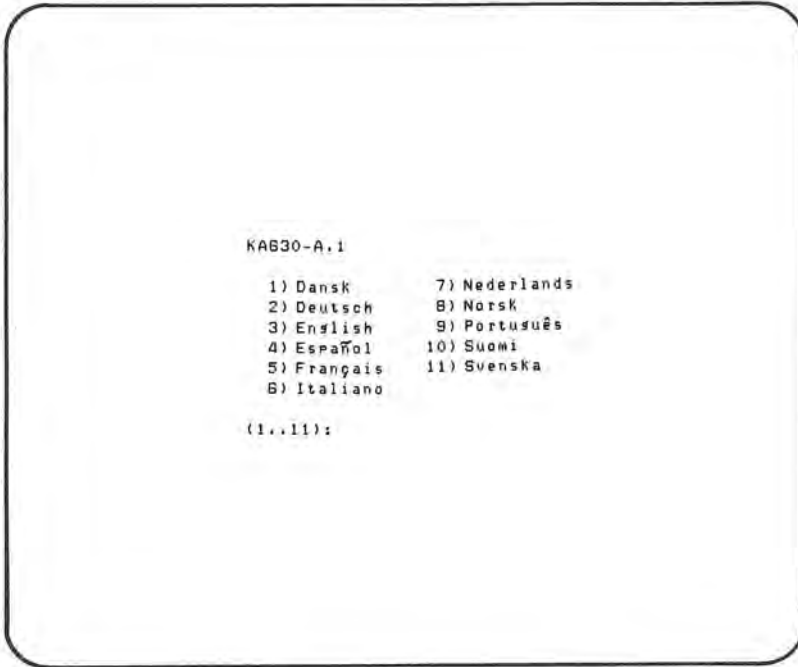
**Never put any object other than a TK50 tape cartridge into the tape drive. Handling the mechanisms inside the tape drive will damage the drive.**



MLO-579-85

**20 A FEW MOMENTS AFTER SETTING THE POWER SWITCH TO 1 (ON), YOU SHOULD SEE THE LANGUAGE SELECTION MENU ON THE CONSOLE TERMINAL.**

Select the language you wish to use by pressing the corresponding number key and then pressing the RETURN key on the console terminal keyboard.



MLO-680-85

- Some console terminals, such as the VT100 or LA100, do not provide the international language capability. If you use one of these console terminals, the language selection menu does not appear. All messages are in English.
- If your console terminal provides international language capability, and you do not see this display, go to the Troubleshooting section of this manual.

## Installation

---

A few moments after selecting the language, you should see this power-on display on the console terminal.

- The terminal 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.



MLO-681-65



**NOTE**

If you see the message, “?54 RETRY”, on your console terminal, and you are testing with diskettes, make sure you completed step 16. If you are testing with a tape cartridge, make sure you completed step 17. Restart the system by pressing the Restart/Run button on the control panel. If the message appears again, refer to the Troubleshooting section of this manual.

## Installation

---

Then you should see the introductory display of the MicroVAX Maintenance System.

```
MicroVAX Maintenance System - MDM Version V1.0B

                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

The current date and time is: 14-AUG-1985 08:39:37.00

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

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

MLO-682-85

- If you are testing with a tape cartridge, approximately 4 minutes elapse before this display appears.

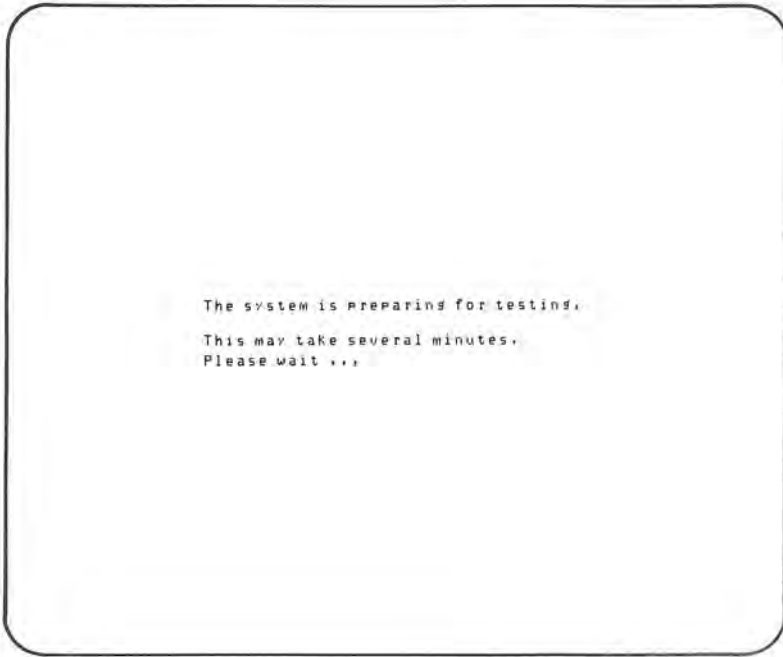
- 21 PUSH THE FIXED DISK 0 READY BUTTON ON THE CONTROL PANEL TO THE OUT POSITION.**

This places the fixed disk back on line.

- 22 MAKE SURE THE CURRENT DATE AND TIME IN THE INTRODUCTORY DISPLAY ARE ACCURATE. IF THE CURRENT DATE AND TIME ARE ACCURATE, PRESS THE RETURN KEY TO CONTINUE.**

If the current date and time are inaccurate, type the correct date and time following the format shown. An example is: 16-DEC-1985 13:30. Press the RETURN key to continue.

**23 YOU SHOULD IMMEDIATELY SEE THE TEST PREPARATION DISPLAY.**



MLO-683-85

If you are testing with a diskette, proceed to step 24. If you are testing with a tape cartridge, skip steps 24 and 25, and proceed to step 26.

**24 A FEW MOMENTS LATER YOU SHOULD SEE THE DISKETTE REMOVAL DISPLAY.**



MLO-684-85

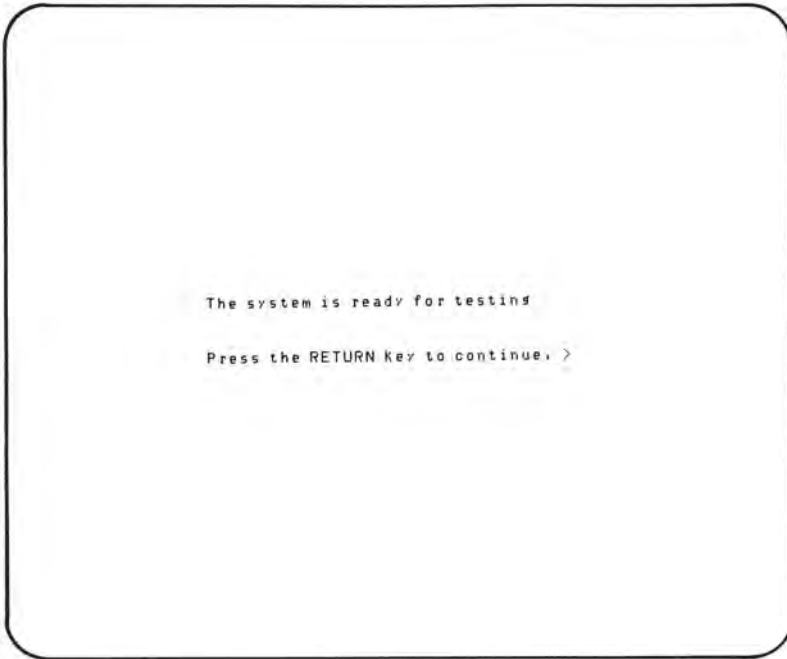
Remove diskette #1. Insert diskette #2 in the same drive. Press the RETURN key to continue.

- 25 EACH TIME THE DISKETTE REMOVAL DISPLAY REAPPEARS, REMOVE THE USED DISKETTE AND INSERT THE NEXT DISKETTE IN THE SAME DRIVE. PRESS THE RETURN KEY TO CONTINUE.**

**NOTE**

**If your MicroVAX II does not request all the diskettes that came with it, your system configuration does not need the additional diskettes for testing.**

- 26 YOU SHOULD SEE THE READY FOR TESTING DISPLAY ON YOUR CONSOLE TERMINAL. PRESS THE RETURN KEY TO CONTINUE.



MLO-685-85

A few moments later you should see the Maintenance System MAIN MENU display.

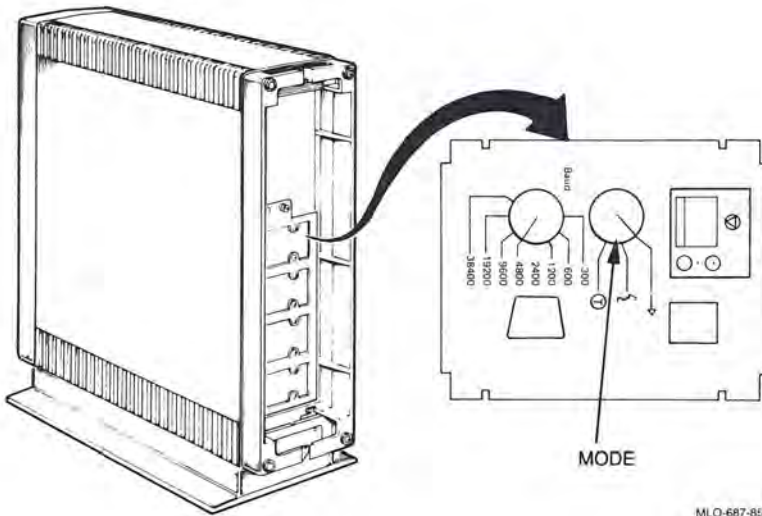
```
MAIN MENU
  1 - Test the system
  2 - Display System Configuration and Devices
  3 - Display the Utilities Menu
  4 - Display the Service Menu
  5 - Exit MicroVax Maintenance System
Type the number; then press the RETURN key. >
```

MLO-686-85



**27 BEFORE TESTING YOUR SYSTEM, SAVE THE LANGUAGE YOU SELECTED IN STEP 20.**

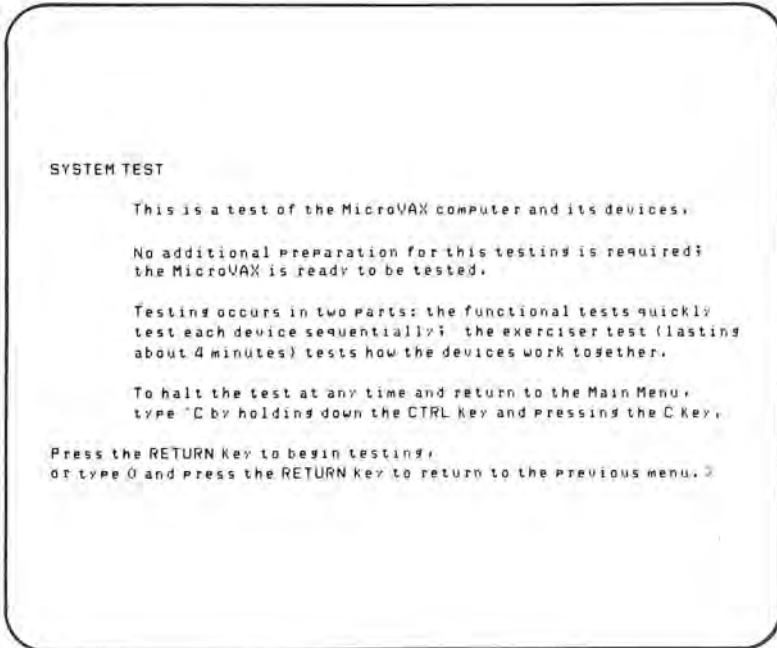
- Rotate the Mode switch to the upper right (→) position.
- Replace the rear cover.



MLO-687-85

**28 SELECT THE SYSTEM TEST BY TYPING 1 AND THEN PRESSING THE RETURN KEY.**

A few moments later, you should see this SYSTEM TEST display.



MLO-688-85

**29 PRESS THE RETURN KEY TO BEGIN TESTING.**

- You should see the first part of the BEGIN DEVICE TESTS display shown below.
- A number of device “passed” messages should be displayed on the console terminal to inform you of the progress of the system tests.

**BEGIN DEVICE TESTS**

This is a test of all system devices identified by the diagnostic. If any of your system devices are not listed below, consult your troubleshooting documentation for the action to take.

Device	Result
CPUA .....	Passed
MEMA .....	Passed
RQDXA .....	Passed

MLO-689 85

If any of your system devices are not listed in the messages, refer to the Diagnostics chapter of the *MicroVAX II 630QY, 630QZ Technical Manual* or call your service representative.

After about 4 minutes, the following message should appear on your console terminal.

SYSTEM TEST PASSED

All devices passed functional tests and the system passed the exerciser test.

At this point you may exit from the maintenance system or perform more specialized testing. If you would like additional information, consult the Maintenance Section of your System Technical Manual.

Press the RETURN key to return to the previous menu. >

MLO-690-95

You have successfully installed and tested your MicroVAX II system.

**NOTE**

**If you see any error messages, refer to the Diagnostics chapter of the *MicroVAX II 630QY, 630QB Technical Manual* or call your service representative**

**30 RETURN TO THE MAIN MENU BY PRESSING THE RETURN KEY.**


The MAIN MENU will be displayed.

```
MAIN  MENU
      1 - Test the system
      2 - Display System Configuration and Devices
      3 - Display the Utilities Menu
      4 - Display the Service Menu
      5 - Exit MicroVax Maintenance System
Type the number; then press the RETURN key. >
```

MLO-691-85

**31 EXIT THE MICROVAX MAINTENANCE SYSTEM BY TYPING 5 AND PRESSING THE RETURN KEY.**

The following message should be displayed on the console terminal.



```
Exiting MicroVAX Maintenance System.
```

```
Exit complete. You may now load your system software.
```

MLO-692-85

**32 IF YOU ARE TESTING WITH A DISKETTE, REMOVE THE DISKETTE AND RETURN IT TO ITS HOLDER. GO TO STEP 33.**

**IF YOU ARE TESTING WITH A TAPE, REWIND AND UNLOAD A TAPE BEFORE YOU REMOVE THE TAPE CARTRIDGE FROM THE TAPE DRIVE. USE THE FOLLOWING PROCEDURE.**

1. Press the Load/Unload button to the out (unload) position to signal the drive to rewind and unload the tape. Both the red and green lights flash as the tape is being rewound.
2. When the red light goes off and the green light goes on, push the cartridge handle to the left and remove the tape cartridge.
3. Return the cartridge to its holder.

**CAUTION**

**Always remove the tape cartridge from the tape drive when the cartridge is not in use or before you turn off the system. Failure to remove the cartridge may result in damage to the tape cartridge.**

**NOTE**

**For a more detailed discussion of the TK50 tape drive controls and procedures, refer to the Operation section of this manual.**

## INSTALLING OPERATING SYSTEM SOFTWARE

**33 THE MICROVAX II IS NOW READY FOR YOU TO INSTALL OPERATING SYSTEM SOFTWARE. FOLLOW THE SOFTWARE INSTALLATION INSTRUCTIONS PROVIDED WITH YOUR SOFTWARE.**

Read the Operation section of this manual to become familiar with MicroVAX II controls and indicators that may be used during software installation.



MLD-693-85



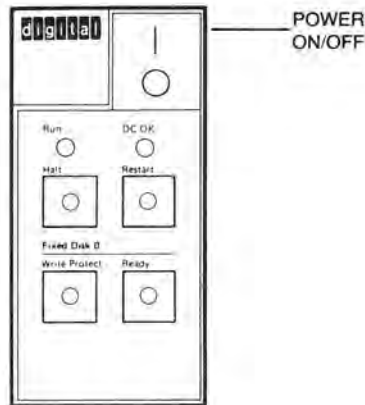
This section describes:

- The control panel controls and indicators
- How to turn on the system
- How to turn off the system
- The use of RD52 or RD53 fixed disks, RX50 diskettes, and TK50 tapes

### CONTROL PANEL

The control panel contains a 1/0 (on/off) switch, several system buttons, and several indicator lights (LEDs). See Table 2-1.

Additional controls and indicators are located on the CPU panel on the rear of the unit. Those controls and indicators are not used for normal system operation. They are described in the *MicroVAX II 630QY, 630QZ Technical Manual*.



MLO-694-85

**Table 2-1: Controls and Indicator Lights**

<b>Control</b>	<b>Position</b>	<b>Function</b>
1/0 (On/Off)	1	Turns the system on
	0	Turns the system off
Halt*	Out (not lit)	Normal position for software operation.
	In (glows red)	Stops normal software operation and puts the CPU in the console mode. (See the <i>MicroVAX II 630QY, 630QZ Manual</i> .)

\* When the Halt Enable/Disable switch on the rear of the unit is in the left (normal) position, the Halt button has no effect on system operation.

(Continued on next page)

**Table 2-1: Controls and Indicator Lights (Cont.)**

---

<b>Control</b>	<b>Position</b>	<b>Function</b>
Restart*		Restarts the system as when turning on the power 1/0 switch. Work in progress is lost.
<i>Fixed Disk 0:</i>		
Write-Protect	Out (not lit)	Normal position for software operation. System software is free to read or write information on the fixed disk if the Ready button is also in the out position.
	In (glows orange)	Prevents system software from writing on the fixed disk. You can write-protect the disk so that information is not erased accidentally from the disk if a wrong diagnostic program is chosen.

---

\* The Restart switch can be disabled by a switch located behind the front cover of the system unit. See the *MicroVAX II 630QY, 630QZ Technical Manual*.

(Continued on next page)

**Table 2-1: Controls and Indicator Lights (Cont.)**

<b>Control</b>	<b>Position</b>	<b>Function</b>
Ready	Out (glows green)	Normal position for software operation. System software is free to read information on the fixed disk. If the Write-Protect button is in the out position, system software can also write on the fixed disk.
	In (not lit)	Turns off the fixed disk.
<b>Indicator</b>		<b>Function</b>
Run		Glows green when the CPU is operating.
DC OK		Glows green when the power supply is generating the correct voltages.

## **TURNING THE SYSTEM ON**

The following procedure assumes a system has been installed as described in the Installation section of this manual, and system software has been installed. If system software has not been installed, install the software as directed in the manual supplied with the software before using the procedure.

### **Initial Control Panel and Console Terminal Switch Settings**

1. Turn on the console terminal.
2. Set all buttons on the front control panel to the out position.
3. Set the power 1/0 (on/off) switch to the 1 (on) position.

When you turn the power on, the control panel indicators should appear as listed in Table 2-2.

**Table 2-2: Normal Power-On Indications**

---

<b>Control/Indicator</b>	<b>Normal Indication</b>
1/0	1 (on)
Run	Glow green
DC OK	Glow green
<i>Fixed Disk:</i>	
Ready	Glow green within 30 seconds
<i>Tape Drive:</i>	
Load/Unload	Glow red for two seconds and then goes out
Green Light	Lights after red light goes out

---

If you *do not* observe the indications listed above, refer to the Troubleshooting section in this manual.

```
Performing normal system tests.  
  7..6..5..4..3..  
Tests completed.  
Loading system software.  
  2..1..0..
```

MLO-695-85

The terminal should slowly display the numbers 7 through 3 indicating completion of steps in the power-on system tests. The MicroVAX II performs power-on system tests each time you turn the system on.



The last part of the power-on display shows the numbers 2 through 0 to indicate that the system is loading the system software. The first display for the system software appears on the console terminal after a few seconds. The display is described in the manual supplied with the system software.

If you do not see this sequence of events, refer to the Troubleshooting section in this manual.

You are now ready to use the system. Refer to the system software manual for further instructions on using the system.

## **TURNING THE SYSTEM OFF**

1. Follow the system shut-down procedure described in your system software manual. That procedure will insure an orderly system shut-down that will prevent accidental loss of data.
2. Turn the system off by setting the power I/O switch to the 0 (off) position.

**MAKING BACKUP COPIES**

A backup copy is a copy of files stored on the fixed disk, diskette, or tape. You should make backup copies of files to insure against accidental loss of information. As a general rule:

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

Make backup copies of files you use with the system software as directed in the manual supplied with the system software.

### **RD52 OR RD53 FIXED-DISK DRIVE**

The RD52 or RD53 fixed-disk drive is located inside the cabinet. Information is stored on fixed (nonremovable) disks.

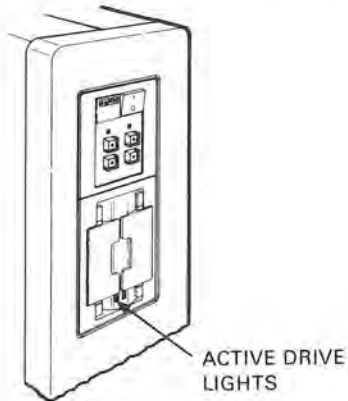
The RD52 fixed disk stores up to 31M bytes of data. The RD53 fixed disk stores up to 71M bytes of data.

The fixed disk is referred to as drive 0.

## RX50 DISKETTE DRIVE

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

An indicator light on each drive lights when the drive is in use.



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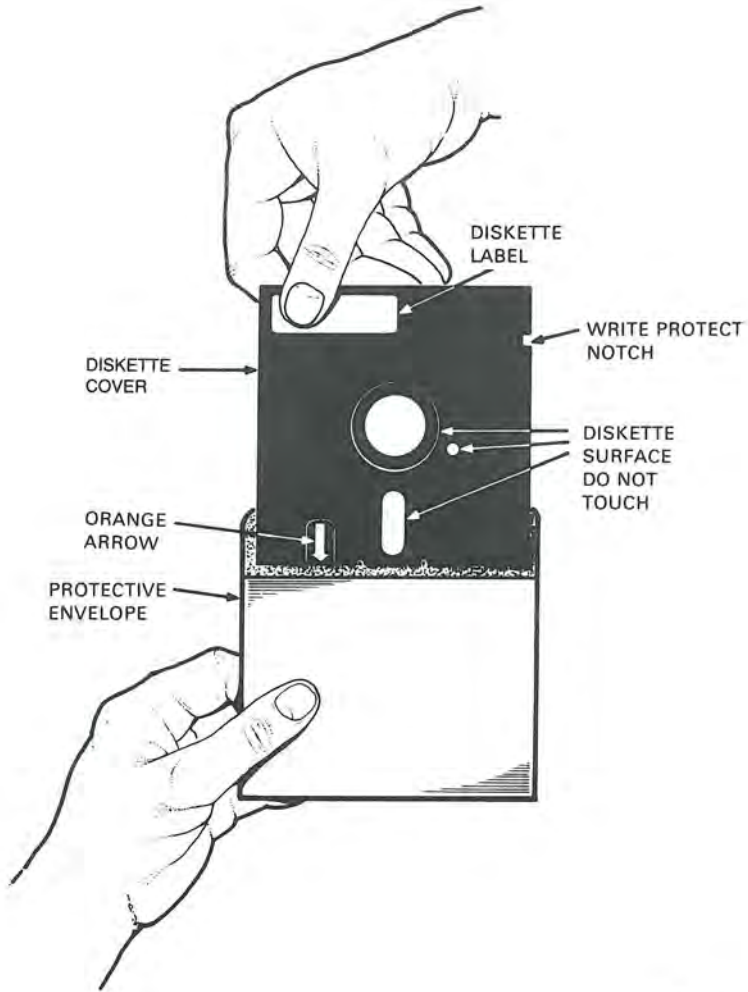
### **RX50 Diskettes**

- Information is stored magnetically.
- Information is stored on only one side of an RX50 diskette.
- Information stored previously can be erased and new information stored in its place.

The diskette rotates inside its cover. The diskette is cleaned continuously by the soft fabric lining of the cover.

#### **CAUTION**

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



MLO-697-85

### **Diskette Handling and Storage Guidelines**

- *Do not* touch the exposed surfaces of the diskette.
- Always return a diskette to its protective envelope to keep out dust and dirt.
- *Do not* bend or fold a diskette.
- Always store diskettes vertically and loosely to prevent the covers from becoming warped.
- Write on the diskette label before applying it to the diskette. Writing on the diskette might damage the diskette.
- Keep diskettes away from direct sunlight, heaters, and other sources of heat.
- Keep diskettes away from magnets and equipment that generate magnetic fields, such as motors, transformers, and terminals.
- 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 drive indicator lights are on. Information could be lost.
- Make and keep backup copies of all working diskettes. Refer to your system software manual for instructions.



### Write-Protecting a Diskette

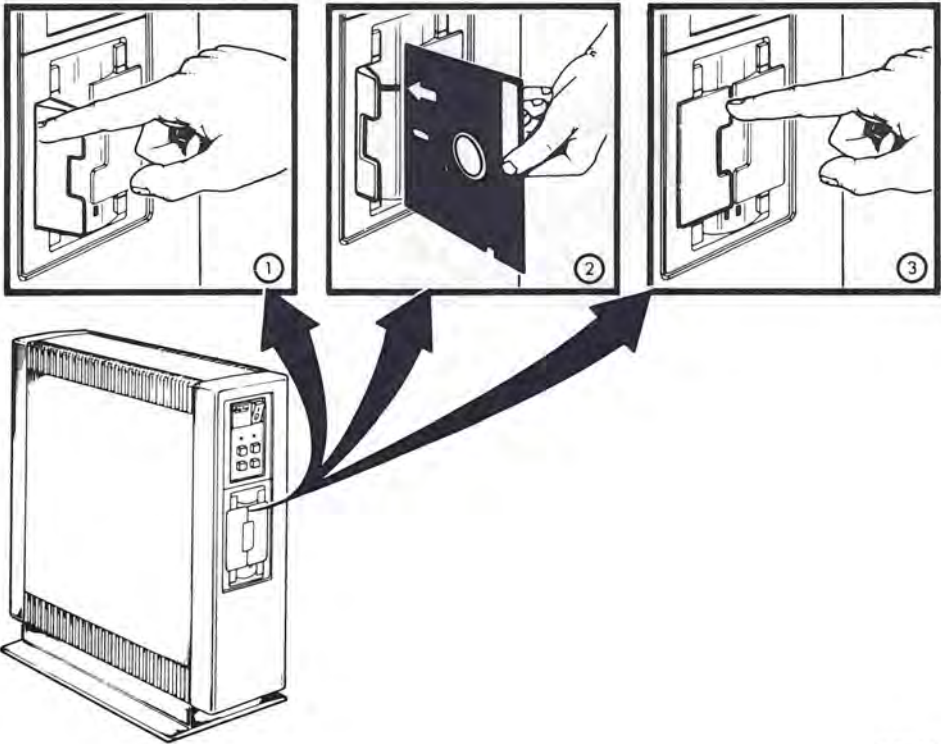
To prevent the system from accidentally adding, changing, or deleting information on a diskette, cover the write-protect notch with one of the self-adhesive foil tabs supplied with your diskettes. This procedure is known as write-protecting the diskette. You can later add or change information on the diskette by removing the write-protect tab. The tab is illustrated below.



MLO-698-95

### Inserting a Diskette

1. Open the diskette door by pressing on its outer edge.
2. Align the orange arrow on the diskette with the orange stripe on the drive and insert the diskette.
3. After inserting the diskette, press the drive door to close it.



MLO-699-85

**TK50 TAPE DRIVE**

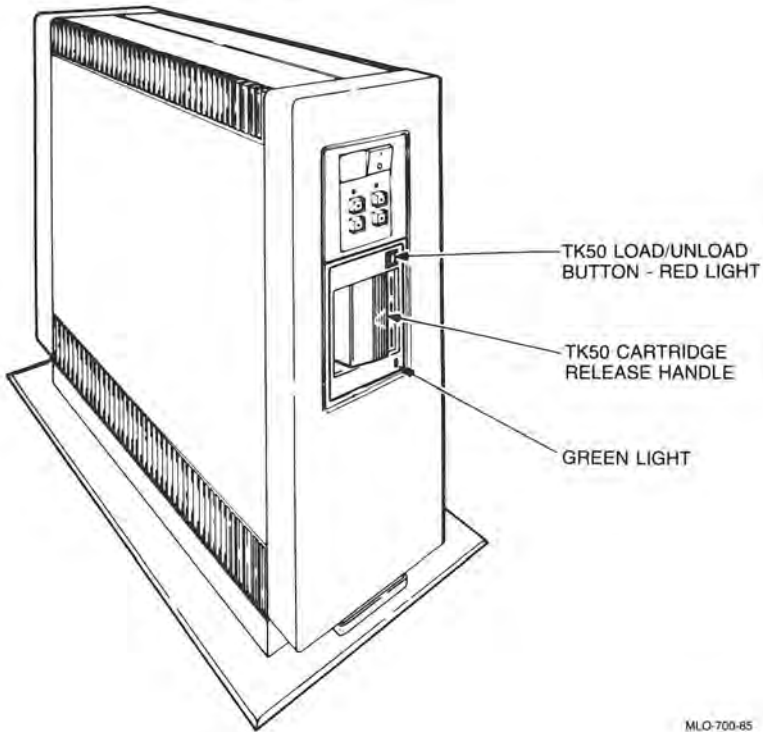
The TK50 tape drive (referred to as drive 1) holds one removable TK50 magnetic tape cartridge. Each tape cartridge holds 94.5 megabytes (94.5M bytes) of information.

- Information is stored magnetically.
- Information is stored on only one side of the tape. The tape cartridge must be inserted correctly in the TK50 tape drive.
- Information stored previously can be erased and new information stored in its place.

## Operation

---

Table 2-3 summarizes the operation of the TK50 tape drive Load/Unload button and indicator lights and the tape cartridge release handle.



MLO-700-85

**Table 2-3: TK50 Tape Drive Controls and Indicator Lights**

<b>Control</b>	<b>Position</b>	<b>Function</b>
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 two minutes.
	Out	Rewinds and unloads the tape.
<b>Green Light</b>	<b>Red Light</b>	<b>Condition</b>
Off	Off	No power to the tape drive.
On	Off	Safe to move cartridge release handle. Power is present.

(Continued on next page)

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

<b>Green Light</b>	<b>Red Light</b>	<b>Condition</b>
Off	On	Do not move the cartridge release handle. One of the following is in effect: <ul style="list-style-type: none"><li>— Power-on self test is occurring</li><li>— Cartridge is inserted but handle is still left</li><li>— Tape is loading or unloading</li><li>— Tape is stopped</li></ul>
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	Tape is rewinding.

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

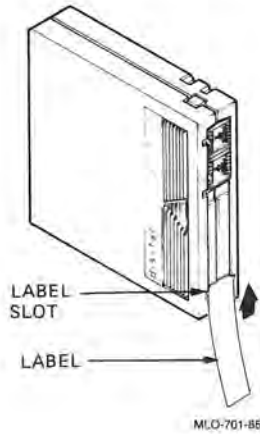
(Continued on next page)

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

<b>Green Light</b>	<b>Red Light</b>	<b>Condition</b>
Flashing	Flashing rapidly	There is a fault. Press and release the Load/Unload 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>
Cartridge release handle	Left	Lets you insert or remove a tape after rewind and unload operations are completed.
	Right	Locks tape in operating position.

### Labeling a Tape Cartridge

- Write the desired identification on the label.
- Insert the label in the slot on the front of the cartridge.
- *Do not* apply stick-on labels to the top, bottom, or sides of the cartridge.
- *Do not* write on the tape cartridge with a pen or pencil.

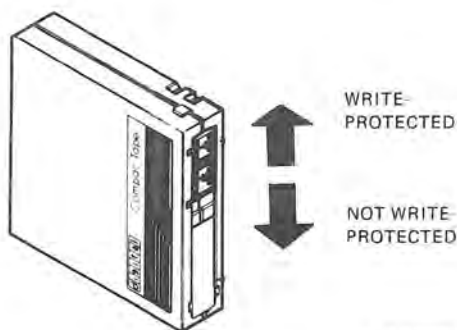




### Write-Protecting a Tape Cartridge

Write-protecting a tape cartridge prevents accidental erasure of information stored on the tape.

Slide the write-protect switch to the down (write-protected) position.



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### **Tape Cartridge Handling and Storage Guidelines**

- *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 any 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 tape 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 50 and 104 degrees F (10 to 40 degrees C). Store tape cartridges where the relative humidity is between 20 and 80 percent.
- Keep tape cartridges away from magnets and equipment that generate magnetic fields, such as motors, transformers, and terminals.
- Keep tapes away from x-ray equipment.

### Inserting a Tape Cartridge

Make sure the system power 1/0 switch is set to 1 (on) and the Load/Unload button is out.

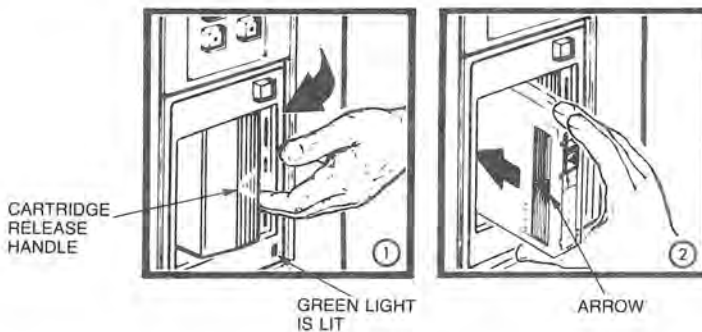
The Load/Unload button glows red for approximately two seconds during the tape drive power-on self test.

The red light goes off and the green light goes on indicating that it is safe to move the cartridge release handle.

1. Push the cartridge release handle to the left.
2. With the arrow on the cartridge facing left and pointing toward the drive, insert the cartridge in the TK50 drive.

The red light is on.

The green light goes off.



## Operation

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3. Push the release handle to the right.

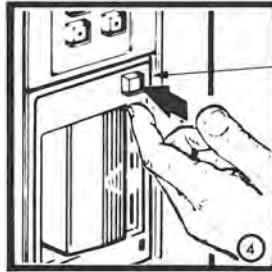
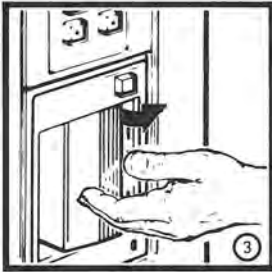
The red light goes off.

The green light goes on.

4. Push the Load/Unload button to the in (load) position.

The red light is on.

The green light goes off.



LOAD/UNLOAD  
BUTTON  
RED LIGHT  
IS LIT

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5. The tape loads in 10 to 15 seconds. A mechanism inside the tape picks up the tape and places it on a take-up reel inside the tape drive.

The red light goes on.

When the green light goes on, the tape is ready to use.

**NOTE**

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

**CAUTION**

**Never move the cartridge release handle unless the red indicator light is off and the green indicator light is on. Never lift the cartridge release handle while an indicator light is flashing.**

**If the red light flashes rapidly at any time, press the Load/Unload button four times. If the problem persists, do not attempt to use the tape drive or to remove the tape cartridge. Call your nearest service representative.**

### Removing a Tape Cartridge

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

1. Press the Load/Unload button to the out (unload) position to rewind and unload the tape.

The red and green lights flash slowly, but not in unison, as the tape rewinds to the beginning of the tape.

The red light remains on and the green light goes off, as the tape unloads into the cartridge.

When the tape is completely rewound in the cartridge, the red light goes off and the green light goes on.

2. Push the cartridge release handle to the left.

#### **NOTE**

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

3. Remove the tape cartridge and store it in a safe place.
4. Push the cartridge release handle to the right.

The green light remains on showing that there is power to the drive.

#### **CAUTION**

**Always remove the tape cartridge from the tape drive when the cartridge is not in use or before you turn off the system. Failure to remove the cartridge may result in damage to the tape cartridge.**

Troubleshooting is the process of isolating and repairing minor problems.

This section contains three parts:

- **Corrective actions** — A simple checklist of potential problems and what to do.
- **Power-on messages** — A list of indications that appear when the system is turned on and what they mean.
- **The MicroVAX Maintenance System** — This portion is divided into two parts. The first describes the maintenance tests and maintenance utilities and tells when to use them. The second discusses the main menu and describes maintenance system options.

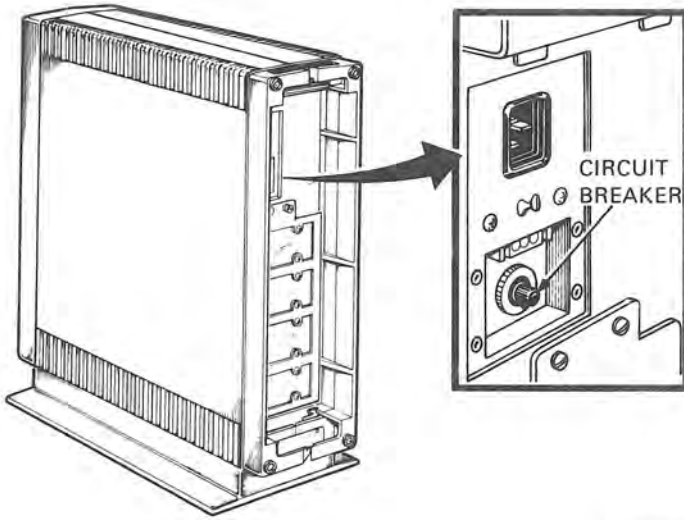
### CORRECTIVE ACTIONS

The corrective actions listed are for minor problems. More serious problems require the use of the maintenance procedures described in the *MicroVAX II 630QY, 630QZ Technical Manual*. Those procedures should only be performed by qualified service personnel.

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
No response when the power switch is turned on (switch is not lit).	System is not plugged in.	Set the power switch to 0. Plug in the system. Set the power switch to 1.
	No power at the wall outlet.	Use a different wall outlet.
	System circuit breaker is in the out position.	Set the power switch to 0. Reset the circuit breaker by pushing it in. (The circuit breaker is shown on the next page.) Set the power switch to 1. If the circuit breaker is in the out position again, refer the problem to service personnel.

(Continued)





MLO-704-85

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Power is on (I/O switch is lit), but there is no display on the console terminal.	Power cable is incorrectly installed.	Set the power switch to 0. Check that the cable is fully seated in the socket in the rear of the system. Set the power switch to 1.
	Console terminal is off.	Turn the terminal on.
	Console terminal is off-line.	Put the terminal on-line. Refer to the manual that came with the terminal.
	Console terminal cable is not installed correctly.	Make sure that the cable is installed properly at both ends.

(Continued on next page)

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Power is on (1/0 switch is lit), but there is no display on the console terminal.	Baud rate setting of the system and the terminal do not match.	Make sure the baud rate settings are the same. Refer to the Installation section of this book.
	Mode switch on the CPU panel is set to T.	Refer to step 7 and step 27 in the Installation chapter for the correct switch setting.
The message, “?54 RETRY”, appears on the console terminal twice.	No startable (bootable) media was found.	Install your diskette or tape cartridge. If the message reappears two or more times, refer to the <i>MicroVAX II 630QY, 630QZ Technical Manual</i> .

(Continued on next page)

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Instead of automatically starting, system power on results in >>> being displayed on the console terminal.	Halt Enable/Disable switch is set to the enable position.	The system is in console mode. To exit console mode, set the Halt Enable/Disable switch to the disable (left) position and then restart the system.
System does not start from the fixed-disk drive.	Ready button is in.	Press and release the ready button.
	No system software 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)

Problem	Possible Cause	Corrective Action
System does not start from the diskette drive. (The wrong software appears on the console terminal.)	No diskette in diskette drive.	Insert a diskette containing startable system software in the diskette 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 diskete matches the stripe on the drive.
	Diskette is not startable (does not contain a bootstrap program).	Use a diskette containing a bootstrap program to start system software.
	Diskette is worn or damaged.	Try another diskette.

(Continued on next page)

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Fixed-disk read error message is displayed.	Ready button is in.	Press and release Ready button.
Fixed-disk write error message is displayed.	Ready button is in.	Press and release the Ready button.
	The disk is write-protected.	Press and release Write-Protect button.
Diskette read error message is displayed.	No diskette 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.

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(Continued on next page)

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Diskette write error message is displayed.	No diskette 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 is write-protected.	Remove the write-protect tab.

(Continued on next page)

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
System does not start from the TK50 tape drive. (The wrong software appears on the console terminal.)	Fixed-disk drive is on line (Ready button is lit).	Push the Ready button.
	Tape is not startable (does not contain a bootstrap program).	Use a tape containing a bootstrap program to start system software.
	Tape is worn or damaged.	Try another tape cartridge.
System halts unexpectedly during the normal operation.	Break key on the console terminal was pressed inadvertently.	Power on system again. Set Halt Enable/Disable switch to the disable (left) position to prevent reoccurrences.
	Halt button was pressed inadvertently.	Power on system again. Set Halt Enable/Disable switch to disable (left) position to prevent reoccurrences.

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(Continued on next page)



<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
TK50 passes power-on test but does not work.	No tape in the drive or it is not loaded.	Insert the tape and press the Load/Unload button.
TK50 red light flashes rapidly.	A problem in the tape drive.	Press the Load/Unload 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 cartridge release handle does not move.	Power-on test is still in process.	Wait for the red light to go out and try again. If the problem persists, call your service representative.

(Continued on next page)

## Troubleshooting

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<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Tape cartridge release handle does not lock.	Tape is not inserted properly.	Reinsert the tape cartridge. If the problem persists, call your service representative.
Tape does not unload.	Load/Unload switch is in the Load (in) position.	Make sure the Load/Unload switch is in the unload (out) position. Wait for the red light to go out before trying to remove the tape.

## POWER-ON MESSAGES

During the power-on sequence, the MicroVAX II executes built-in diagnostic and start-up routines that can give you useful maintenance information. The information is displayed in the form of single letters and numbers on the console terminal and on the LED display located on the CPU panel on the rear of the unit. Normally, the display will progress from F to 0, as listed in Table 3-1.

If the display stops in the range of F to 3, there may be a hardware error in the system. Refer to the *MicroVAX II 630QY, 630QZ Technical Manual*.

If the display stops on 2, check the “system does not start from . . .” problem indications listed in the previous part of this section (Corrective Actions).

If the display stops on 1, the most likely problem is that the start-up device does not contain startable system software. Complete the system software installation as directed in the manual supplied with your system software.

**Table 3-1: ROM Start-Up/Diagnostic Test Output Codes**

---

F	Waiting for DCOK assertion
E	Waiting for POK assertion
D	Running checksum test on ROM
C	Searching for RAM memory required to run ROM programs
B	Reading IPCR register (accesses Q22-Bus)
A	Testing QxSS video console display (if present)
9	Identifying console terminal
8	Language inquiry or CPU halted
7	Running data tests on RAM memory
6	Running address tests on RAM memory
5	Running tests that use Q22-Bus map to access RAM memory
4	Running CPU instruction and register tests
3	Running interrupt tests
2	Searching for a start-up device
1	Loading secondary start
0	Testing completed

---

## **MICROVAX MAINTENANCE SYSTEM**

The maintenance system software provides user tests that are designed to isolate and identify faults in the system. You can run the system test in response to an error message or to test your system periodically.

Before calling a service representative to report a problem, run the system test and record the results.

The maintenance system software is stored on RX50 diskettes or on a TK50 magnetic tape cartridge. You run the maintenance system programs using the console terminal for command inputs and system displays.

### **Main Menu**

The main menu lists three customer options available to all users who run the maintenance system and two service options available only to those users who have purchased a MicroVAX Maintenance Kit. You can obtain the main menu display as directed in the Installation section of this manual, steps 14 through 26.

MAIN MENU

- 1 - Test the system
- 2 - Display System Configuration and Devices
- 3 - Display the Utilities Menu
- 4 - Display the Service Menu
- 5 - Exit MicroVax Maintenance System

Type the number; then press the RETURN key. >

MLO-705-85

## Main Menu Options

You can:

1. Run a test of all devices supplied by DIGITAL in the system. You can run these tests as described in the Installation section of this manual, steps 14 through 30.
2. Display a list of all devices supplied by DIGITAL in the MicroVAX II system. A sample display follows.

```
SYSTEM CONFIGURATION AND DEVICES
SYSTEM CONFIGURATION
  CPUA ... MicroVAX CPU
        KAG30-AA 1MB, FPU MC=00 HW=00
  MEMA ... MicroVAX memory system
        5 megabytes, 10240 Pages,
        KAG30 ... CPU module, 1MB on-board memory,
        MSB30-BB ... Quad height memory module, 4MB.
  RDX2A ... MSCP Winchester/floppy disk controller,
        SFT=10 MRD=6
        RDS3...Nonremovable
        RX50...Removable
        RX50...Removable
  DEQNA ... Ethernet controller,
  - - AA-00-03-01-2E-3F
  DZQ11A ... Asynchronous line controller.

Press the RETURN key to return to the previous menu. )
```

MLO-706-85

3. Display a menu of the MicroVAX Maintenance System utility programs. This option is reserved for future use by DIGITAL.
4. Display the service menu if you have purchased the MicroVAX maintenance kit. The service option is for qualified service personnel only (see the *MicroVAX System Maintenance Guide*).
5. Exit the MicroVAX Maintenance System.



## Upgrade **4**

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As you upgrade your system, insert your documentation here for future use.

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## Appendix A Related Documentation

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Document	Order Number
MicroVAX II 630QY, 630QZ Technical Manual	AZ-GL0AA-MN
MicroVAX II Upgrade Installation Guide	EK-630QA-IN
MicroVAX System Maintenance Guide	AZ-GM3AA-MN
630QY System Illustrated Parts Breakdown	EK-630QY-IP-001
630QZ System Illustrated Parts Breakdown	EK-630QZ-IP-001
630QY, 630QZ Field Maintenance Print Set	MP-02028-01
MicroVAX 630 CPU Module User's Guide	EK-KA630-UG
<i>Microcomputer Handbook Series</i>	
VAX Architecture Handbook	EB-19580-20
VAX Software Handbook	EB-21812-20
Microcomputer Interfaces Handbook	EB-20175-20
Microcomputers and Memories Handbook	EB-18451-20
<i>Software Documentation</i>	
MicroVMS User's Manual V4.0	AA-Z209B-TE
ULTRIX-32m Installation Guide	AA-CN29A-TE
VAXELN User's Guide	AA-EU38A-TE

These documents can be ordered by writing to:

Digital Equipment Corporation  
Accessories and Supplies Group  
P.O. Box CS2008  
Nashua, NH 03061

Attention: Documentation Products



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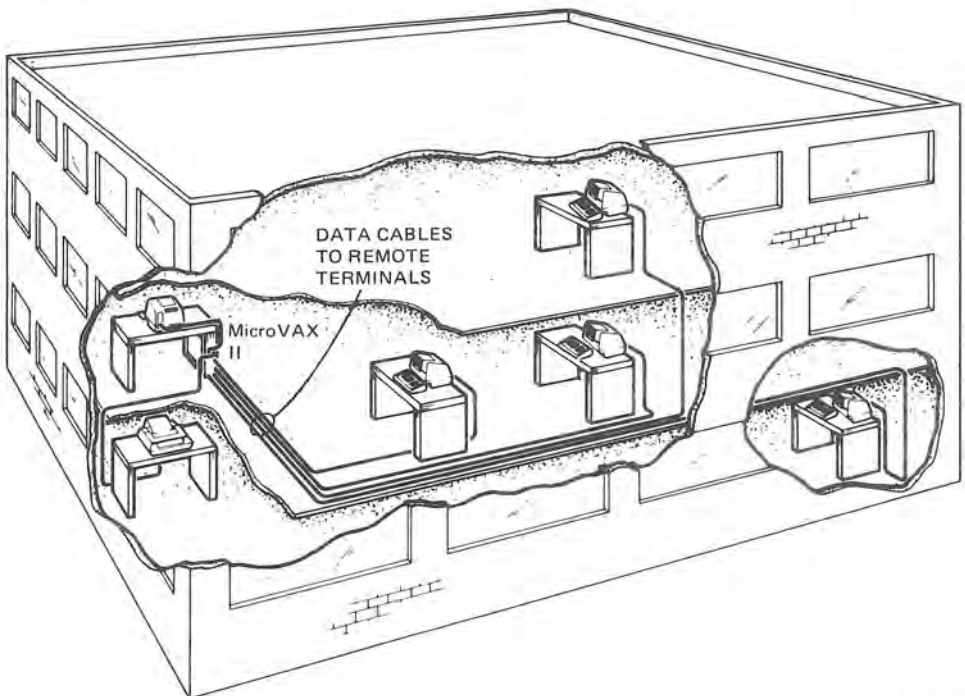
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## Appendix B MicroVAX II Specifications

### PREPARING FOR YOUR MICROVAX II SYSTEM

The versatile configuration of MicroVAX II systems allows for multiple terminals that can be installed on more than one floor of a building or in more than one building. DIGITAL Customer Service personnel are available to help you plan your installation. Your sales representative can provide more information.



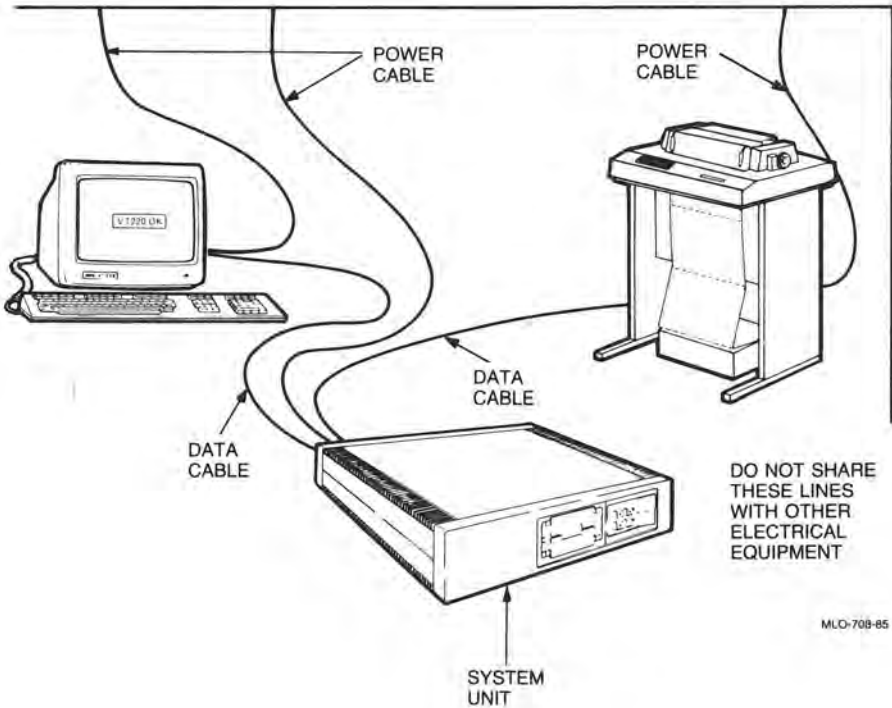
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To get the best possible performance from your system, you must provide the operating environment listed in this appendix.

Use one 15-amp dedicated circuit for the MicroVAX system unit. Use another 15-amp dedicated circuit for the console terminal and additional devices.

**NOTE**

**Your terminal and printer might be different from those shown.**



**Electrical Requirements**

These depend on the line voltage setting that you select.

<b>Input</b>	<b>Specifications</b>	
Line voltage	120 Vac	220 Vac
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)	4.4 A	2.2 A
Running current (maximum)	6.0 A	3.0 A
Power consumption (maximum) (switchable for input voltage)	345 W	345 W

**Environmental Requirements**

---

	<b>Operating</b>	<b>Nonoperating</b>
Maximum altitude	2.4 km 8000 ft	4.9 km 16000 ft
Temperature range*	10–40° C 50–104° F	–40–66° C –40–151° F
Temperature change rate	11° C/hour 20° F/hour	—
Relative humidity	20%–80%	10%–95%

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\* Reduce the maximum temperature specification by 1.8° C for each 1000-meter (1° F for each 1000-foot) increase in altitude.

**NOTE**

**Your service contract may require specific limits for temperature and humidity.**



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**Acoustic Noise Emission Information**

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<b>Operating Mode</b>	<b>LNPE*</b>	<b>LPA†</b>
Disk Operating	6.0 bels	45 dB
Disk Idle	5.9 bels	44 dB

---

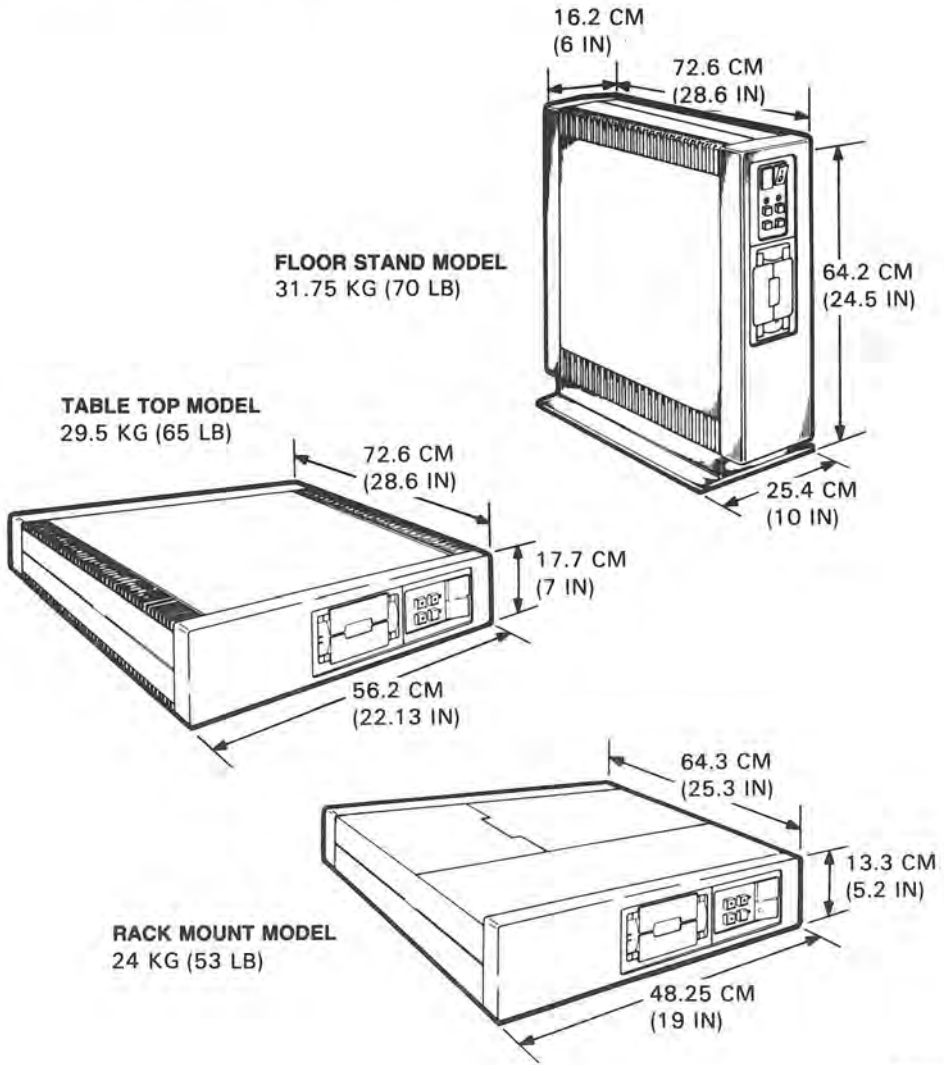
\* LNPE = Noise power emission level measured in bels (1 bel = 10 dB).

† LPA = Sound pressure level measured in dB at the front bystander position:  
1.0 meter from the front edge of the unit and 1.5 meters above the floor.

**NOTE**

**Acoustic noise information is for both 50 and 60 Hz.**

System Unit Physical Specifications



MLO-709-85

**RX50 Dual-Diskette Drive***Functional Specifications*

Diskettes per RX50 drive: 2

Number of recording surfaces per diskette: 1

*Storage Capacity*

Per diskette (80 tracks) 409,600 bytes

Per track (10 sectors) 5120 bytes

Per sector (1 logical block) 512 bytes

*Performance*

Average seek time 164 msec

Average rotational latency 100 msec

Average access time 264 msec

Transfer rate 12.8K bytes/sec\*

*Physical Specifications*

Height 8.25 cm (3.25 in)

Width 14.60 cm (5.75 in)

Depth 21.60 cm (8.50 in)

Weight 2.80 kg (4.18 lb)

---

\* When operating with RQDX2 controller.

## TK50 MAGNETIC TAPE

### *Functional Specifications*

Recording medium	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

### *Storage Capacity*

Unformatted	132.0M bytes
Formatted	94.5M bytes

### *Performance*

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

### *Physical Specifications*

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

**RD52 FIXED WINCHESTER DISK DRIVE***Storage Capacity*

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

*Performance*

Average seek time	49.00 msec
Average rotational latency	8.33 msec
Average access time	57.33 msec
Transfer rate	184.32K bytes/sec*

*Physical Specifications*

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

---

\* When operating with RQDX2 controller.

**RD53 FIXED WINCHESTER DISK DRIVE**

*Storage Capacity*

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

*Performance*

Average seek time	30.00 msec
Average rotational latency	8.33 msec
Average access time	38.33 msec
Transfer rate	184.32K bytes/sec*

*Physical Specifications*

Height	8.25 cm (3.25 in)
Width	14.60 cm (5.75 in)
Depth	20.32 cm (8.00 in)
Weight	3.18 kg (7 lb)

---

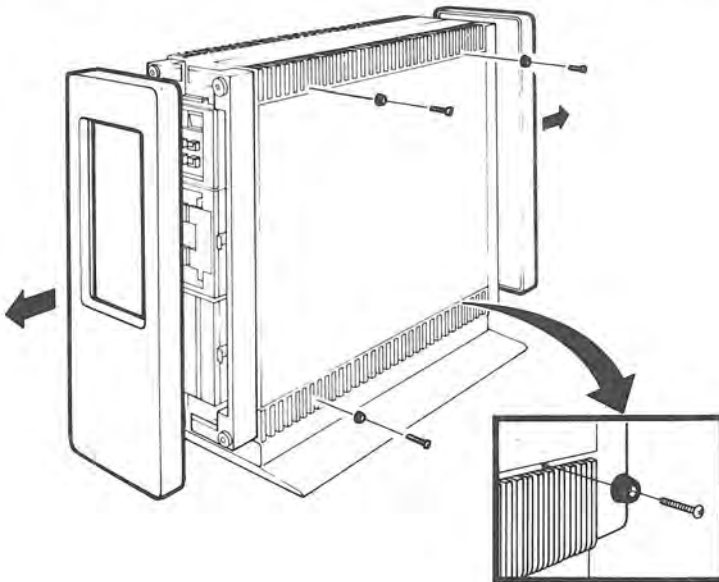
\* When operating with RQDX2 controller.

## Appendix C Table-Top Conversion Procedures

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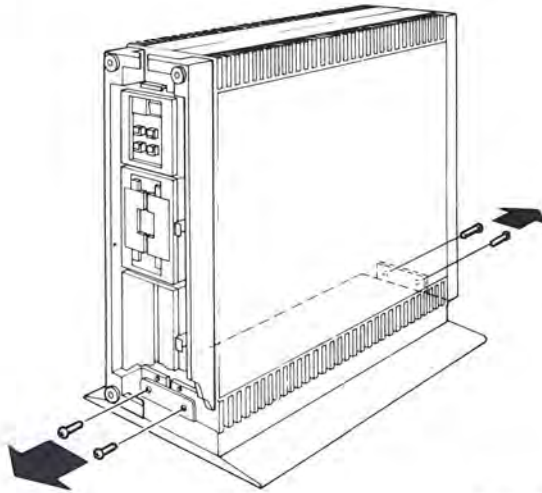
This appendix tells you how to convert the MicroVAX II system unit from the floor stand version (as shipped by DIGITAL) to a table-top version.

- 1 REMOVE THE FRONT AND REAR COVERS.**
- 2 INSTALL FOUR RUBBER FEET ON THE RIGHT SIDE OF THE UNIT.**



MLO-710-85

**3 REMOVE THE FOUR SCREWS AT THE BASE OF THE UNIT.**



MLO-711-B5



- 4 REMOVE THE FOOT STAND FROM THE UNIT AND PLACE THE UNIT ON A TABLE.

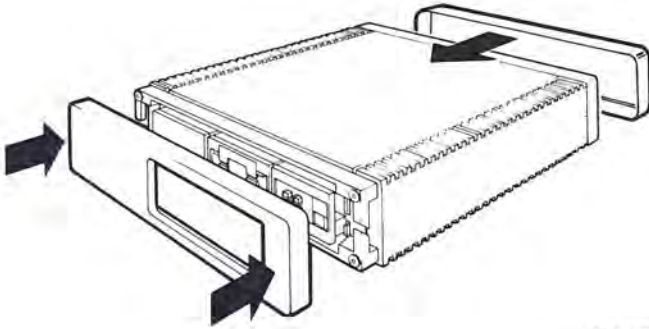
**WARNING**

Use two people. The unit weighs 60 kg (65 lb).



**5 REPLACE THE FRONT AND REAR COVERS.**

Now go to step 3 of the installation procedure (page 1-5).



MLQ-713-B5

## Appendix D MicroVAX II Options

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Additional hardware options are available for your MicroVAX II system. Some of these options are customer-installable; others require a trained specialist.

For more information on options refer to Chapters 3 and 4 of the *MicroVAX II 630QY, 630QZ Technical Manual*.

### TERMINAL AND PRINTER OPTIONS

You can use any DIGITAL video or hard-copy terminal and any LA series printer with MicroVAX II systems. The MicroVAX II system supports terminals and printers that meet EIA standard RS-232C.

The number of terminals or printers that can be connected to your system depends on the model you have.

Some systems are equipped with communication options that allow connection of additional terminals and/or printers. Refer to the *MicroVAX II 630QY, 630QZ Technical Manual* for details.

### MEMORY OPTIONS

Any two of the following options can be added to the MicroVAX II system.

<b>Module Number</b>	<b>Capacity</b>
MS630-AA	1M byte
MS630-BA	2M bytes
MS630-BB	4M bytes

### COMMUNICATION OPTIONS

The following communication options are available for MicroVAX II systems.

<b>Model</b>	<b>Maximum Speed</b>	<b>Transmission Mode</b>	<b>Lines</b>	<b>DMA</b>
DEQNA	10M bits/sec	Ethernet	1	Yes (block mode)
DHV11	38,400 bits/sec	Asynchronous	8	Yes
DZQ11	9,600 bits/sec	Asynchronous	4	No

This is only a partial list of options that are available for MicroVAX II systems. For a complete and up-to-date list, contact your DIGITAL sales representative.

**Application program**

A program designed to meet specific user needs, such as a program that monitors a manufacturing process.

**Backplane**

The connector block that all the MicroVAX II printed circuit boards plug into.

A printed circuit board containing the bus.

**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 copies on RX50 diskettes or TK50 magnetic tape cartridges and then store them in a safe place.

**Backup copy**

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

**Baud rate**

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

### **Binary**

A number system that uses only two digits: 0 and 1. These digits are usually represented in MicroVAX II circuitry by two voltage levels. All MicroVAX 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.

### **Boot**

To use a bootstrap program.

### **Bootable medium**

A fixed disk, diskette, or magnetic tape containing software (such as an operating system) that the bootstrap program can load into the MicroVAX system memory.

### **Bootstrap**

A program that you start when you turn the MicroVAX II on. The bootstrap loads software contained on fixed disk, diskette, or magnetic tape cartridge into memory. The MicroVAX II then 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 MicroVAX II can start processing.

**Bug**

An error in the design or implementation of hardware or software system components.

**Bus**

A printed circuit board that is part of the backplane. The bus permits communication among the other MicroVAX II printed circuit boards.

**Byte**

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

**Central processing unit (CPU)**

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

**Command**

An order given by a user to a MicroVAX II, often through a terminal keyboard.

**Communication line**

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

**Computer system**

A combination of MicroVAX II hardware, software, and external devices that performs specific operations or tasks.

**Console terminal**

The terminal that you use when installing software and running diagnostic programs.

**Controller**

A MicroVAX 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 area on the front of the MicroVAX II cabinet that contains control switches and indicator lights.

**CPU**

Central processing unit.

**Data**

A representation of facts, concepts or instructions, suitable for communication, interpretation, or processing by humans or by machines.



**Data transmission**

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

**Debug**

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

**Device**

The general name for any entity connected to the MicroVAX 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 within a MicroVAX II system. You use the device name to refer to that device when communicating with the system.

**Diagnostic program**

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

**Disk**

A flat circular plate with a coating on which data is stored magnetically in concentric circles (tracks). MicroVAX 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.

### **Diskette drive**

The device that holds one or more RX50 diskettes. (See Disk drive.)

### **EIA**

Electronic Industries Association.

### **Error message**

A message displayed by the MicroVAX II to indicate that it has detected an error or malfunction.

### **File**

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

### **Formatted data**

Data laid out in a particular pattern to conform to a predetermined structure. The structure is dictated by the system software.

**Hard-copy terminal**

A terminal that displays information on paper, rather than on a screen. Compare video terminal.

**Hardware**

The physical components — mechanical and electrical — that make up a MicroVAX II system. Compare 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.

**Input device**

A piece of equipment used to transfer data into the MicroVAX II. A keyboard is an input device.

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

A piece of equipment that accepts data for transmission both to and from a MicroVAX II. A terminal is an input/output device.

**Interactive**

The method of communicating with a MicroVAX II system. You type a command at the keyboard, the system executes the command, and then responds with a message or prompt for another command.

### **Interface**

A device or piece of software that lets different components of a MicroVAX II communicate with one another.

### **I/O**

Abbreviation for input/output.

### **K**

When referring to storage capacity of a MicroVAX II, the symbol that means a binary thousand or 2 to the 10th power (1024 in decimal notation).

### **K byte**

Abbreviation for kilobyte.

### **Kilobyte**

1024 bytes.

### **LED**

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

**Load**

To move software, usually from a peripheral device into memory.

To place a disk in a disk drive, or tape in a tape drive.

**Longword**

A group of 32 bits, equal to two words or four bytes.

**M**

When referring to the storage capacity of a computer, the symbol that means a binary million or 2 to the 100th power (1,048,576 in decimal notation).

**Magnetic tape**

A long strip of plastic coated with magnetic oxide, used for storing data. Often called magtape. The tape contained in a TK50 magnetic tape cartridge.

**M byte**

Abbreviation for megabyte.

**Megabyte**

1,048,576 bytes.

**Memory**

The area where a MicroVAX II finds the instructions and data it will process.

**Menu**

A displayed list of options. The list usually contains commands you can enter.

**Off-line**

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

**On-line**

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

**Operating system**

A collection of programs that controls the overall operation of a MicroVAX II and performs such tasks as:

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

**Output device**

A device by means of which data can be extracted from a MicroVAX II system. For example, a printer.

**Peripheral device**

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

**Power-on sequence**

A series of ordered events that occurs when you supply power to a system by turning it on.

**Printer**

A peripheral device that provides paper copies of information stored in a MicroVAX II.

**Program**

The complete sequence of instructions necessary for a MicroVAX II to perform a task. See Software.

**Prompt**

A character or words that a MicroVAX II displays to indicate it is waiting for you to type a command.

**Read-only memory (ROM)**

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

**Reboot**

To restart a MicroVAX II system. Pressing the Restart button on the control panel reboots the MicroVAX II system.

**Record**

A set of related data that a program can treat as a unit. A file consists of a number of records.

**ROM**

Read-only memory.

**Run**

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

**Software**

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

**Software package**

A set of related programs that performs a specific task.

**Storage medium**

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

**Store**

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

**System**

A combination of MicroVAX II hardware and software and external devices that performs specific processing operations.



**System management**

Tasks performed by the operating system to control the overall operation of the MicroVAX II system.

**Terminal**

An input/output device generally used for communication between the user of a MicroVAX II system and the system itself. Terminals are divided into two basic categories: video and hard-copy.

**Video terminal**

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

**Word**

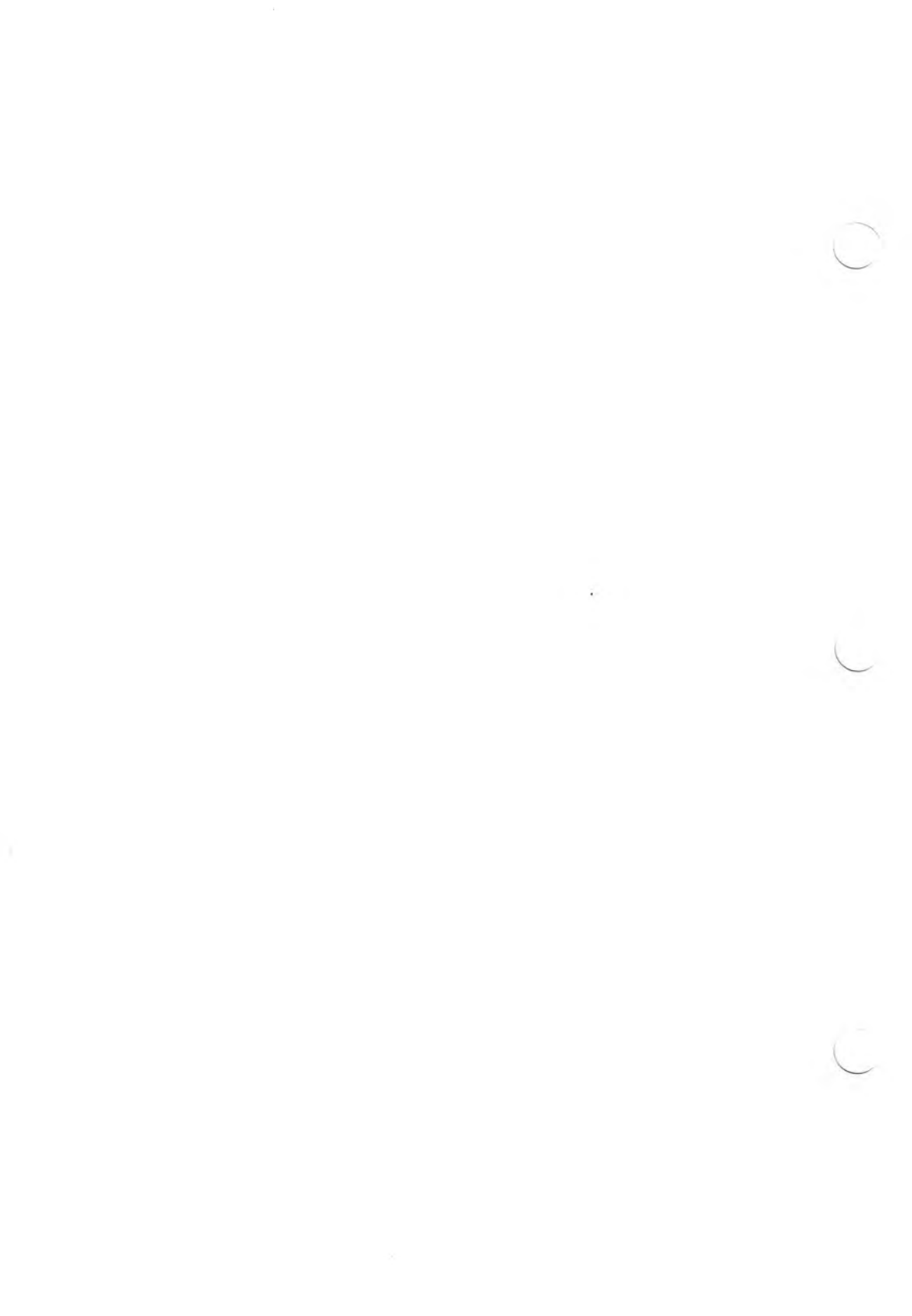
A word is 16 bits long.

**Write-protect**

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

**Write-protect notch**

The small notch in the side of an RX50 diskette. You can cover the notch with an adhesive-backed label or tab to write-protect the diskette.



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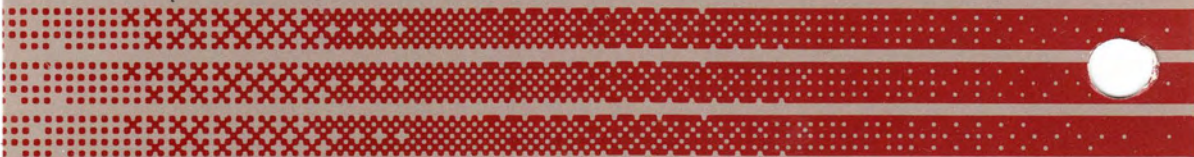
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