How to Use the HP 88500A Manual

THIS MANUAL CONTAINS:

- *DATA MANAGER* QUICK REFERENCE GUIDE
- QUICK SET-UP GUIDE
- MAP OF MANUAL CONTENTS
- STEP-BY-STEP INSTRUCTIONS ON INSTALLING THE HP 88500A INTERFACE CARD, CONNECTING YOUR HP DRIVE TO YOUR COMPUTER, FORMATTING YOUR FIXED OR FLEXIBLE DISCS, AND USING YOUR HP 9142A — 1/4 " streaming tape backup
- STEP-BY-STEP INSTRUCTIONS ON USING THE DATA MANAGER SOFTWARE INCLUDED IN THIS PACKAGE.

If you are an EXPERIENCED user, you should be able to perform most tasks using the quick reference and set-up guides. If you need detailed information, use the map provided after the guides to move to the appropriate chapter.

If you are an INEXPERIENCED user, follow the instructions in Chapters 1, 2, and 3, and then move to the chapter in the manual that describes the use of your HP drive.

AFTER SETTING UP YOUR DRIVE, you can begin using your Data Manager software. Follow the instructions in the Data Manager manual to create and delete subdirectories and copy, move, rename, delete, and find files. You'll be able to do these tasks without using difficult computer commands.

Printed in U.S.A. 9/85 **88500-90005**

To find out which products work with your HP 88500A Interface, contact your dealer or the nearest Hewlett-Packard Sales and Support Office.

If you have any problems with any part of your system, follow the troubleshooting instructions in *Appendix A, Diagnostics.*

HP Computer Museum
www.hpmuseum.net

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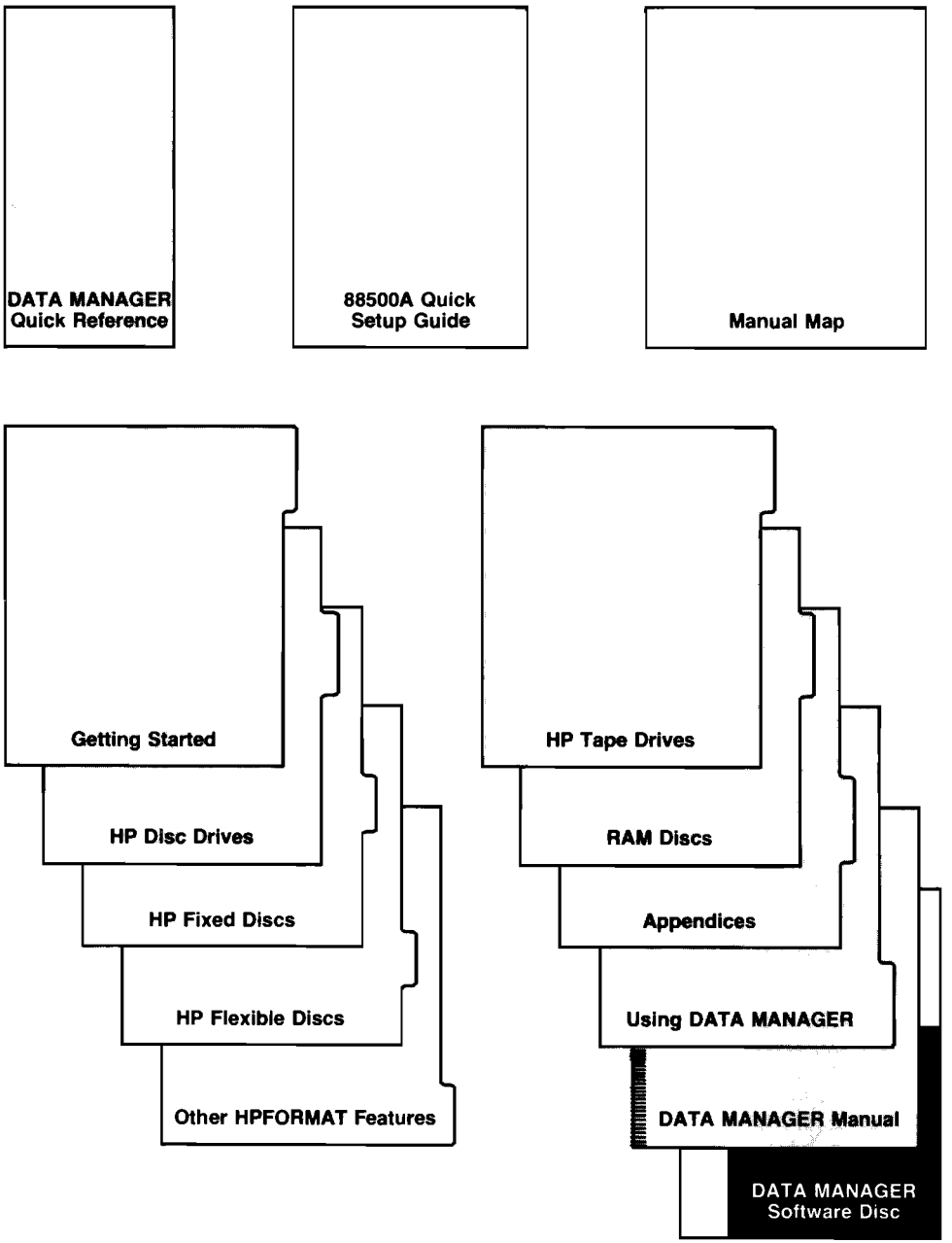
Manual Map


DATA MANAGER
Quick Reference
88500A Quick
Setup Guide
Manual Map
Getting Started
HP Disc Drives
HP Fixed Discs
HP Flexible Discs
Other HPFORMAT Features
HP Tape Drives
RAM Discs
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DATA MANAGER Manual
DATA MANAGER
Software Disc

Quick Set-Up Guide for the HP 88500A Interface and HP Drives

Installation and Setup (Chapters 2 & 3)

Follow these steps to install the interface card and connect your HP drive to your computer.

1. Turn off and unplug the computer and all peripheral devices.
2. Remove the cover(s) from the computer.
3. Look inside the computer. Select the card slot you wish to use. (On an IBM PC XT, do not select the slot labeled J8--the slot closest to the power supply.) Remove the cover plate from the selected card slot by removing the mounting screw and lifting out the cover plate.
4. Holding the interface card by the top corners, insert the plug-in connector of the interface card into the selected slot and press the card down firmly. Replace the screw that holds the interface card in place.
5. Replace the cover(s) on the computer.
6. Connect the HP drive to the computer. Attach one end of the interface cable to the interface connector on the back of your drive. Screw in until the connection is secure. Attach the other end of the cable to the connector on the interface card you just installed.
7. Connect the power cable to the drive and plug it into a wall outlet. Plug in any other power cables you unplugged in step 1.
8. Find the address wheel or switch on the rear panel of the drive.

If you are connecting an HP disc drive to your computer, you should leave the address wheel at the factory setting of 0 if you want to use the HP disc drive as a boot device. If you are connecting your drive to a computer with a built-in fixed disc or to a computer already connected to an HP disc drive, you should set your new drive at address 1 to 7.

If you are connecting an HP tape drive to your computer, you should leave the address switch at 3. You can use this factory setting as long as you have no other drive on the interface card set at that address.

If you connect more than one HP device to your computer using the interface card, each one must have a unique address setting.

9. Press the power button on the front panel to turn on the HP drive. Wait for successful completion of the selftest. Insert a *DOS* disc in flexible disc drive A.

10 and 20 Mbyte Disc Drives (Chapter 4)

Formatting the HP Fixed Disc with Procedure #1 or #2

You must format the fixed disc before you can use your disc drive.

The chart below will help you decide which Format Procedure to use. Consider the following points as you read the chart.

If you are going to use the HP fixed disc drive as a boot device, you must set the address at 0 and use Format Procedure #1.

If you are NOT going to use the HP fixed disc as a boot device, you must set the address at 1 to 7 and use Format Procedure #2.

The procedure you select also depends on the computer and version of *DOS* you are using:

- **Compaq Portable users** with *MS-DOS 2.02* must use Procedure #2.
- **IBM PC AT users** with *PC-DOS 3.1* must use Procedure #2.

	10 or 20 Mbyte to be used as a Boot Device	10 or 20 Mbyte NOT to be used as a Boot Device*	
Used Format Procedure	#1	#1	#2
Set Address Wheel at	0	0	1 to 7
Set Partition Switch to	0	0	0

*If you are booting from a built-in fixed disc, you can use address 0 and Procedure #1 *OR* address 1 to 7 and Procedure #2. Read the advantages and disadvantages below to decide which procedure suits your needs.

Format Procedure #1

Advantages

1. Does not reserve internal computer memory (RAM)
2. Can boot from an HP fixed disc formatted with this procedure

Disadvantages

1. Longer format procedure
2. Cannot software partition the HP fixed disc

Format Procedure #2

Advantages

1. Can software partition the HP fixed disc
2. Shorter format procedure

Disadvantages

1. Reserves 4K bytes of the internal computer memory (RAM)
2. Cannot boot from an HP fixed disc formatted with this procedure

Format Procedure #1 Instructions

To use Procedure #1, the drive must be set to address 0. If you have reset the address, turn the computer off and then on, so that your computer knows the new address.

1. Turn on your computer to load *DOS*.

2. After the *DOS* prompt appears, insert the **HP Disc/ Tape Software** disc in drive A.
3. Type **HPFORMAT** and press the **return** key.
4. On the Main HPFORMAT screen, press **Format Options (F1)**.
5. The Format Options screen appears. The table below shows the optimum interleave factor for supported computers and HP disc drives. Make sure the desired interleave factor is displayed. If it is not, press **Lower Intrleav (F5)** or **Higher Intrleav (F6)** to change the factor.

	COMPUTER				
	IBM PC	IBM PC XT	IBM AT	COMPAQ	HP VECTRA
10 Mbyte Drive	2	2	3	2	Not supported
20 Mbyte Drive	4	4	6	4	5

6. Press **Start Format (F1)**.
7. Press **Continue (F1)**. Press **Cancel (F8)** if you wish to stop the formatting process.
8. When formatting is complete, a message appears on the top line of the screen, *The disc has been certified successfully*. Press **Continue (F8)**. Then press **Exit**.
9. Insert the *DOS* flexible disc in flexible disc drive A, and run the *DOS* FDISK Program by typing in the following:

If you DO NOT have another fixed disc	If you DO have another fixed disc
FDISK and the return key	FDISK and the return key
1 and the return key	5 and the return key
Y and the return key	1 and the return key
	Y and the return key

Press any key to continue.

The computer reboots.

10. **If you have a computer with NO built-in fixed disc,** type a *DOS* format command, as follows:

    FORMAT C:/S/V and press the **return** key. Press any key to begin formatting.

    If you have a computer WITH a built-in fixed disc, type a *DOS* format command, as follows:

    FORMAT D:/V and press the **return** key. Press any key to begin formatting. When formatting is complete, you are asked for a volume name.

11. If you used the *DOS* format command **D:/V**, go to step 12. If you used the *DOS* command **C:/S/V**, you need to complete an additional step: after the A> on your screen, type **COPY *.* C:** to copy files from your *DOS* disc to your fixed disc.

12. Remove the *DOS* disc from drive A and reboot your computer by pressing the **Alt**, **Ctrl**, and **Del** keys simultaneously.

13. Insert the **HP Disc/Tape Software** disc into flexible disc drive A.

14. Change the *DOS* prompt to A>. Type **A:** and press the **return** key. Now type **HPSETUP FROM A: TO C:** and press the **return** key. This loads the Hewlett-Packard Installation Program which copies files from the **HP Disc/Tape Software** disc to your fixed disc.

HINT For Advanced Users

If you would like to put the software into a sub-directory, specify the sub-directory as follows:

C: \ *sub-directory name*

Do not put another " \ " after the sub-directory name. Refer to your *DOS* user manual for more sub-directory information.

---

15. Follow the directions on your screen for the Installation Program. When you have finished all of the steps in the program, you will be instructed to remove the **HP Disc/Tape Software** and then press **Exit**. Your HP fixed disc drive is now ready to use.

Format Procedure #2 Instructions

To use Procedure #2, the drive must be set to address 1 to 7. If you reset the address, turn the computer off and then on, so that your computer knows the new address.

1. Turn on your computer to load *DOS*.
2. Insert the **HP Disc/Tape Software** disc into flexible disc drive A after the A> appears.
3. Type **HPSETUP FROM A: to C:** and press the **return** key. This loads the Hewlett-Packard Installation Program which copies files from the **HP Disc/Tape Software** disc to drive C.

HINT For Advanced Users

If you would like to put the software into a sub-directory, specify the sub-directory as follows:

C: \ *sub-directory name*

Do not put another "\" after the sub-directory name. Refer to your *DOS* user manual for more sub-directory information.

---

4. Follow the directions on your screen for the Installation Program. When you have finished all steps in the program, you will be instructed to remove the **HP Disc/Tape Software** disc and then press **Exit (F8)**.

5. Your computer reboots. When you have a *DOS* prompt on your screen again, type **HPFORMAT** and press the **return** key.
6. The Main HPFORMAT screen appears. Make sure *HP fixed disc* is highlighted, then press **Format Options (F1)**.
7. The Assign Volumes screen appears. **If you DO want want to divide your HP Fixed Disc into more than one volume, press Assign Done (F1). If you do want to divide your HP Fixed Disc into more than one volume**, please consult *Using Format Procedure #2* in this manual.
8. The Format Options screen appears. The table below shows the optimum interleave factor for supported computers and HP disc drives. Make sure the desired interleave factor is displayed. If it is not, press **Lower Intrleav (F5)** or **Higher Intrleav (F6)** to change the factor.

	COMPUTER				
	IBM PC	IBM PC XT	IBM AT	COMPAQ	HP VECTRA
10 Mbyte Drive	2	2	3	2	Not supported
20 Mbyte Drive	4	4	6	4	5

9. Press **Start Format (F1)**.
10. Press **Continue (F1)**. Press **Cancel (F8)** if you wish to stop the formatting process.
11. When formatting is complete, a message appears on the top line of the screen, *The disc has been formatted successfully*. Press **Continue (F8)**. Then press **Exit**.
12. Reboot the computer. Your HP fixed disc drive is now ready to use.

HP 9142A (Chapter 5)

Follow these steps to copy the **HP Disc/Tape Software** to your fixed disc.

1. Turn on the computer and load *DOS* from your fixed disc. Change the prompt to an A> by typing **A:** and then pressing the **return** key.
2. Insert the **HP Disc/Tape Software** disc in drive A.
3. Type **HPSETUP FROM A: to C:** and press the **return** key. This loads the Hewlett-Packard Installation Program. This program copies files from the **HP Disc/Tape Software** disc to your fixed disc.

HINT For Advanced Users

If you would like to put the software into a sub-directory, specify the sub-directory as follows:

C: \ *sub-directory name*

Do not put another " \ " after the sub-directory name. Refer to your *DOS* user manual for more sub-directory information.

---

4. Follow the directions on your screen for the Installation Program. When you have finished all steps in the program, you will be instructed to remove the **HP Disc/Tape Software** disc and then press **Exit**.
5. Your computer reboots. You should see the following message appear on your screen briefly:

   HP Installable Tape Driver __.____
   @ Copyright Hewlett-Packard Co. 1985

6. You are now ready to begin using your tape drive.

HP 9122D/S and the HP VECTRA (Chapter 4)

Use the following steps to copy your **HP Disc/Tape Software** to your boot disc.

1. Turn on ALL of the external disc and tape drives connected to the HP Vectra.
2. Turn on the HP Vectra. You should now see the PAM menu. Consult your HP Vectra manual if you have questions or problems.
3. Insert the **HP Disc/Tape Software** disc into flexible disc drive A.

NOTE

The drive letters used in the commands below are only examples. The letters YOU type in your commands depend on the letters assigned to your drives by *DOS*.

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4. From the A> prompt on the screen, type **HPSETUP FROM A: TO B:**. (If the prompt is not A>, type **A:** and press the **return** key.) This loads the Hewlett-Packard Installation Program which copies files from the **HP Disc/Tape Software** disc in drive A to the disc that has the operating system. In this example, B is this start (boot) disc.

   If you are booting your system from a flexible disc, make sure that the disc is in the appropriate drive.
5. When you have finished all steps in the program, remove the **HP Disc/Tape Software** disc and move the operating system disc to drive A. Press **Exit**.
6. To format your flexible discs, move to Chapter 4 of this manual.

Using Your Hewlett-Packard Disc Drive and Tape Drive

September 2, 1985

Manual Part No.
88500-90005

Limited Warranty

One-year Limited Hardware Warranty
Hewlett-Packard warrants this peripheral/accessory against defects in materials and workmanship for a period of one year from receipt by the end user, except when used as part of an HP system. If HP receives notice of such defects during the warranty period, HP will either, at its option, repair or replace products which prove to be defective.

Should HP be unable to repair or replace the product within a reasonable amount of time, Customer's alternate exclusive remedy shall be a refund of the purchase price upon return of the product.

If this product was purchased as part of an HP system in a coordinated shipment, it is warranted against defects in material and workmanship during the same period as the HP system.

Exclusions
The above warranty shall not apply to defects resulting from improper or inadequate maintenance by Customer; customer-supplied software or interfacing; unauthorized modification or misuse; operation outside of the environmental specifications for the product; or improper site preparation and maintenance.

The selection and use of media, supplies, and consumables is the customer's responsibility. Hewlett-Packard reserves the right to exclude from the warranty or service agreement any repairs for damage to HP products which HP reasonably determines or believes were caused by use of non-HP media or cleaning supplies. Hewlett-Packard will, upon request, repair such damage on a time and material basis.

Obtaining Warranty Service
To obtain warranty service, products must be returned to a service facility designated by HP. HP may repair on-site at the option of the customer. Customer is responsible for travel charges when on-site repair is requested.

Warranty service for products purchased as part of a system will be subject to service in accordance with the system support services.

Customer shall prepay shipping charges for products returned to HP for warranty service and HP shall pay for return of the products to customer. However, Customer shall pay all shipping charges, duties, and taxes for products returned to HP from another country.

Warranty Limitations
HP makes no other warranty, either expressed or implied, with respect to this product. HP specifically disclaims the implied warranties of merchantability and fitness

for a particular purpose. Some states or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion may not apply to you. However, any implied warranty of merchantability or fitness is limited to the one-year duration of this written warranty.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state, or province to province.

Exclusive Remedies
The remedies provided herein are customer's sole and exclusive remedies. In no event shall HP be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

HP offers complete service and maintenance worldwide. Maintenance agreements are available for HP peripheral products. Advantages of these agreements to the customer include a fixed annual cost, individualized cost-effective contracts, and a choice of response time. Current rates can be determined by contacting your local HP Sales Office.

FCC ID: D3B60H-27209

Hewlett-Packard

Federal Communications Commission Radio Frequency Interference Statement
USA Only

"This equipment generates radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct

1 Introduction

The 88500A Interface Package is the Hewlett-Packard answer to your data storage needs.

This manual contains installation and operation instructions for Hewlett-Packard's 10 and 20 megabyte fixed disc drives, flexible disc drives, and backup tape drive. This manual contains most of the information you will need to operate HP disc and tape drives. Read the manual packaged with your HP disc or tape drive for technical information. For Data Manager software instructions, see the Data Manager manual (part number 88500-90010) that comes with this package.

To determine which products work with the HP 88500A Interface, contact your dealer or the Hewlett-Packard Sales and Support Office nearest you.

Checking the Contents of the Interface Package

Hewlett-Packard supplies the following items with the 88500A Interface Package:

- An interface card (88500A).
- A one-metre interface cable (8120-4554).
- The manual, *Using Your Hewlett-Packard Disc Drive and Tape Drive* (88500-90000), which includes:

  Data Manager quick reference guide (88500-90011)

  Installation, set-up and formatting instructions, including quick set-up guide (88500-90005)

  Data Manager manual (88500-90010)

One 5 1/4-Inch Disc/Tape Software Disc (88500-10100), which includes:

- disc and tape installation software
- disc format software
- tape format and backup software
- Data Manager
- diagnostics

Installing the Card

Introduction

This section explains how to install the interface card into your computer. The following items are covered:

Handling the Card
Configuring the Card
Installing the Card

Handling the Card

- **HANDLE THE CARD GENTLY.** Do not drop or handle roughly. Take care when unpacking and handling.
- **HOLD THE CARD BY ITS EDGES.** DO NOT TOUCH the electrical components.
- **PROTECT THE CARD FROM STATIC ELECTRICITY.** The card is static-sensitive. If possible, use anti-static equipment such as a grounding mat and wrist-strap during installation. For protection, the card is packed in an anti-static bag.
  - > Leave the card in its anti-static bag until you are ready to install it.
  - > Save the bag in case you ever remove the card from the computer.

WARNING **TURN OFF AND UNPLUG THE COMPUTER AND ALL ATTACHED DEVICES BEFORE INSTALLING THE CARD.**

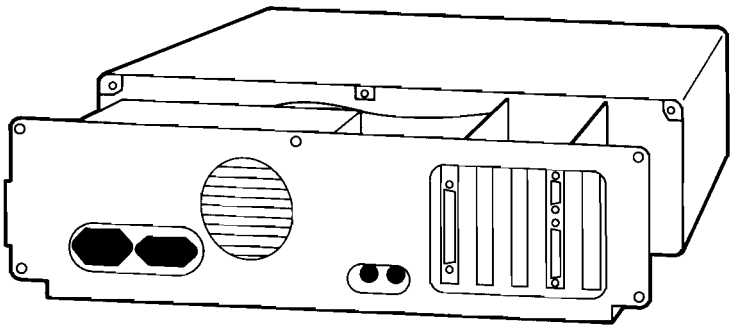
Configuring the Card

The interface card has configuration switches. These switches are set at the factory and do not normally require any changes. Refer to *Appendix C, Card Configuration,* if you are using other accessory cards.

Installing the Card

Because the interface card can be installed in several different computers, most of the instructions below are general. Consult your computer manual or dealer if you need help removing the cover of your computer and installing the card.

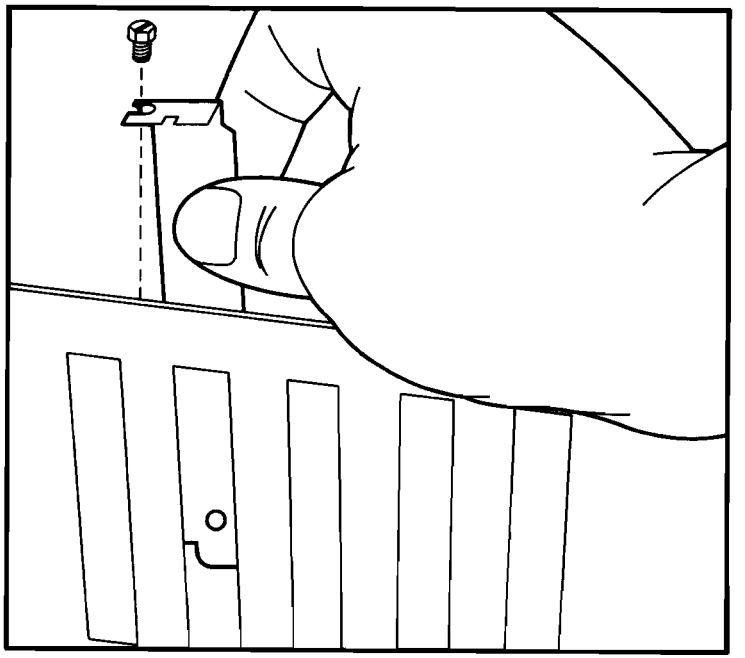
1. The only tool you will need is a small Phillips screwdriver or a small flatblade screwdriver, depending on the personal computer you have.
2. Turn off and unplug your computer.
3. Remove the cover(s). (Refer to your computer user's manual).



Removing the Cover

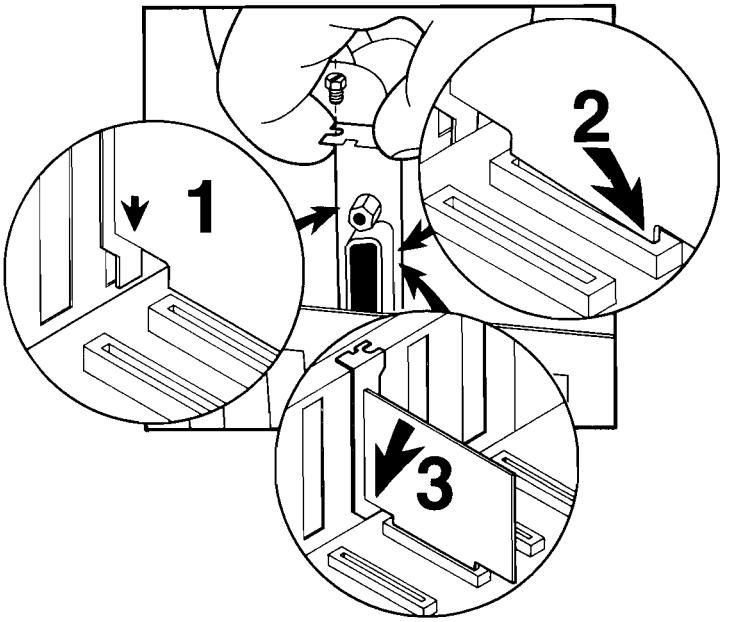
4. On most computers, you can select any empty card slot. (If you have an IBM PC XT, however, do NOT select the J8 slot--the slot closest to the power supply. This slot is not electrically equivalent to the other slots.)

5. Remove the cover plate of the selected slot by removing the mounting screw and lifting the plate from its location, as illustrated below.



Cover Plate

6. Remove the interface card from the anti-static bag, holding it only by its edges.



Installing the Interface Card.

7. Position the interface card as shown above. Insert the plug-in connector into the slot and press the card down firmly. Make sure the plug-in connector is fully seated and secure in the slot.
8. Replace the mounting screw so that it holds the interface card in place.
9. Replace the cover and screws on your computer.
10. You are now finished with the installation of the interface card.

Chapter 3 explains how to connect your HP disc or tape drive to your computer.

Setting Up Your HP Disc or Tape Drive

Introduction

This section explains how to connect your disc or tape drive to your computer system. The following steps are covered:

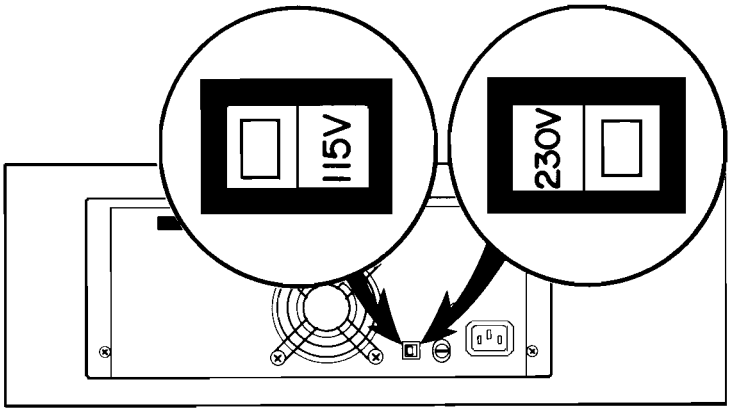
Checking the Voltage Switch
Connecting the Power Cord
Connecting the Interface Cable
Addressing
Partitioning

Position your HP disc or tape drive next to your computer. Placing your HP disc or tape drive underneath your screen may cause screen distortion.

Checking the Voltage Switch

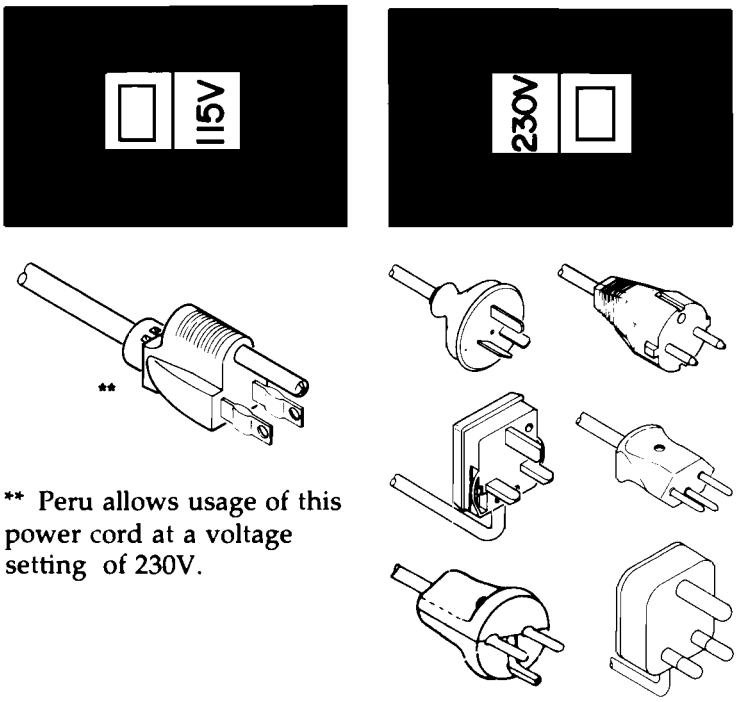
- Find the voltage switch on the rear panel of your drive. See the following figure.
- Make sure the voltage switch is set correctly for your local power. The proper setting for the U.S. and Canada is 115V.

CAUTION Always turn off the drive before changing the voltage setting to avoid damaging the disc or tape drive.



Voltage Switch Settings

- If necessary, use your fingernail or a screwdriver to slide the voltage switch sideways until the switch displays the proper setting.
- The following figure illustrates the voltage switch settings and the power cords that may be used with each voltage setting.



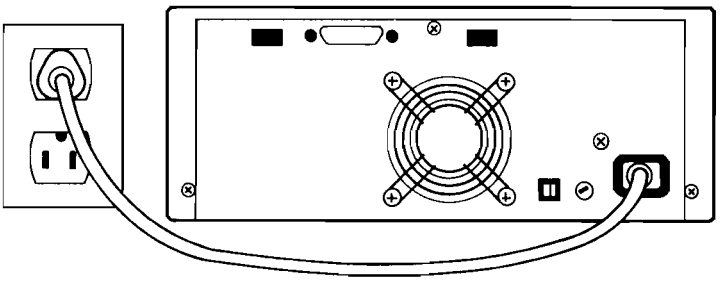
** Peru allows usage of this power cord at a voltage setting of 230V.

Voltage Setting and Power Cords

Connecting the Power Cord

1. Make sure your drive and computer are off.
2. Connect the power cord to the socket labeled "AC line" on the rear panel of your drive.
3. Plug in the power cord into the wall socket.

WARNING HP disc and tape drives are equipped with power cords and plugs designed for your safety. Plug the power cord into a properly grounded receptacle to avoid possible electrical shock.

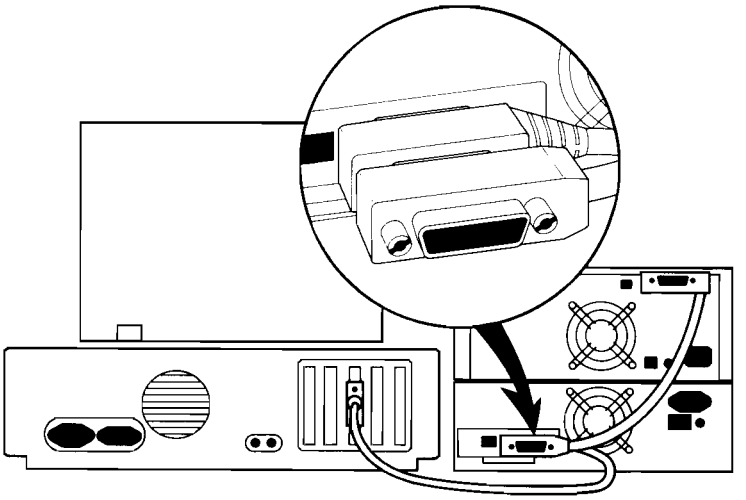


Power Cord Connection

Connecting the Interface Cable

1. Make sure your drive and computer are off.
2. Attach either end of the interface cable onto the interface connector on the back of your disc or tape drive. Screw in the two connector screws until the connection is secure. The inset in the following figure shows the end of the interface cable. This kind of end allows you to connect, or "piggyback," other cables as shown here. Tighten the screws on the cable with your fingers.
3. Attach the other end of the interface cable to the connector on the interface card in your computer. Tighten the screws on the cable with your fingers. The interface cable should extend straight out from the back of the computer.

HINT As you attach both ends of the cable, tighten the screws as securely as possible.



The Interface Cable

4. The interface card comes with one interface cable. If you are connecting more than one disc and/or tape drive on the same interface card, you will need a second interface cable. Standard cables are available by ordering the following numbers.

Cable Number	Cable Length
92220R	.3 metre cable
10833D	.5 metre cable
10833A	1.0 metre cable

Addressing

Each Hewlett-Packard peripheral device connected to your personal computer must have a unique address, just as each house on a block must have a unique address. To help ensure that HP peripheral devices have unique addresses, Hewlett-Packard sets addresses at the factory as follows:

Hewlett-Packard Peripheral Device	Factory Address Setting
Flexible and Fixed Disc Drives	0
Tape Drives	3

Because of these factory settings, most users do not have to reset the address on Hewlett-Packard disc and tape drives.

When To Reset the Address

Some users may have to reset the address. How do you know if you are one of these special users?

You need to reset the address on your Hewlett-Packard *disc* drive if

1) you connect more than one Hewlett-Packard disc drive to your computer;
2) you connect your disc drive to a Compaq Portable using *MS-DOS 2.02*;
3) you connect your disc drive to an IBM PC AT using *PC-DOS 3.1*; or
4) you wish to "software" partition your fixed disc into multiple volumes.

You need to reset the address on your Hewlett-Packard *tape* drive only if you already have a disc drive set at address 3, the factory setting for tape drives.

Setting the Address

If you are one of the special users described above, we recommend changing your address as follows:

- If you are connecting your fixed disc drive to a Compaq Portable using *MS-DOS 2.02* or to an IBM PC AT using *PC-DOS 3.1*, we recommend setting the address of your disc drive at 2.
- If you are connecting more than one disc drive to your computer, we recommend setting the address of the second disc drive to 2. If you add a third disc drive, select an address setting of 4, 5, 6, or 7.
- If you need to change the address setting on your tape drive, select an address that has not been used by the disc drives connected to your computer. We recommend 4, 5, 6, or 7.

CAUTION Do not set the address wheel on your disc drive to 8 or 9. These settings have no meaning to your computer.

Use the following steps if you need to change the address setting. You MUST complete these steps if your computer is to recognize address changes.

1. Turn off your drive and computer.
2. Set the address switch on the back of your drive as described in your disc or tape drive manual.
3. Turn on your drive and wait for successful completion of the selftest. (Indicator lights, flashing during the selftest, will go out when the drive has completed the test successfully.)
4. Turn on your computer.

HINT If you want to verify the address, run the HPTEST diagnostic program provided with the **Disc/Tape Software**. A list of the system configuration appears at the beginning of the program. Refer to *Appendix A, Diagnostics* for HPTEST information.

Partitioning

Partitioning is dividing a disc or tape into easily managed sections (volumes). The Hewlett-Packard software included in your Interface Package allows you to partition your HP fixed disc into sections using Format Procedure #2 (described in *Chapter 4, Using Your HP Disc Drive.*) This procedure is called "software" partitioning.

To "hardware" partition your disc, you must set the partition switch. Hewlett-Packard does not support hardware partitioning with the HP 10 or 20 megabyte disc drive.

- **If you are using a Hewlett-Packard 10 or 20 megabyte disc drive**, you should NOT reset the partition switch. Make sure the switch is set to 0.
- **If you are using a Hewlett-Packard tape drive or an HP 9122D/S**, you do not have a partition switch.

Using Your HP Disc Drive

Introduction

This chapter describes the use of Hewlett-Packard fixed and flexible disc drives. If you are connecting an HP 9122D/S to an HP Vectra, please skip to the HP 9122D/S section of this chapter. If you are connecting an HP fixed disc drive to your computer, please read the section below.

Using Your HP Fixed Disc Drive

Before you turn on your fixed disc drive, make certain the address is set correctly. Please refer to *Setting Up Your HP Disc or Tape Drive,* for addressing information.

Turning On Your System

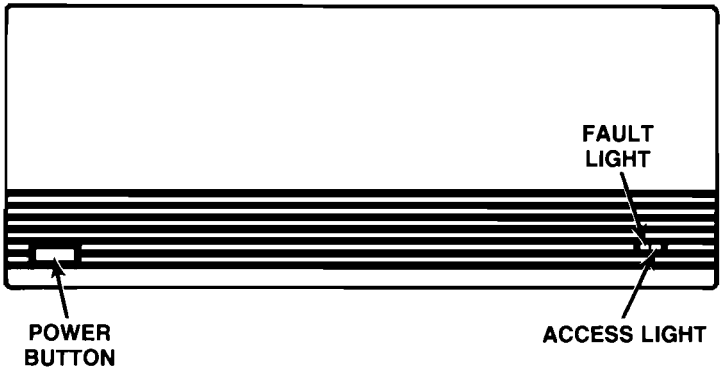
You are now ready to turn on your disc drive, using the following steps:

1. Make sure the drive power cord is plugged in.
2. Locate the power button on the front panel of your disc drive. The disc drive is *on* when the button is in and *off* when the button is out. Turn on your disc drive.
3. When you turn on your disc drive, you may hear a whirring noise from the drive and fan. Two lights on the front of your disc drive should be lit.

HINT

If you do not hear the whirring noise and you do not see the lights, your disc drive may not have powered on. Check that the disc drive's power button is pushed in and the power cord is connected.

If your disc drive still does not power up, you may need to change the fuse. Please see your disc drive manual for information on changing the fuse.



Power Button and Fault Light

4. When you turn on your disc drive, a 20 to 40 second selftest is performed. During the selftest, a fault light on the front of the disc drive is on.

HINT Always allow the disc drive to complete the selftest before turning on your computer.

---

5. After 20 to 40 seconds, the fault light should go out, indicating that your disc drive has passed the selftest.
6. Turn on your computer. You are ready to begin using your HP fixed disc drive.
7. If the fault light remains on, turn off the disc drive. Turn the disc drive on again to repeat the selftest. If the fault light is still lit after this repetition of the selftest, contact your dealer or the nearest Hewlett-Packard Sales and Support Office.

Choosing a Format Procedure

Before you use your HP fixed disc, you must format the disc. Formatting is the process of preparing a blank disc to receive information. Formatting takes 10 to 30 minutes, depending on the capacity of the disc drive. Formatting also ensures that your fixed disc will record information reliably.

CAUTION If you format a disc which already has information on it (programs, applications, files, etc.), **the information will be destroyed during the formatting process**.

You now need to decide whether you want to use Format Procedure #1 (using your disc as a boot disc, address 0), or Format Procedure #2 (using your disc as a non-boot disc, address 1-7).

A boot disc contains the programs necessary to start up your computer.

Use the following chart to decide which formatting procedure to use. Consider the points below as you read the chart:

1. The procedure you need to use depends on the setting of your address wheel. If your address wheel is set at 0, you must use Format Procedure #1. If your address wheel is set at 1 to 7, you must use Format Procedure #2. (For help setting your address wheel, see *Chapter 3*.)
2. The procedure you select also depends on the computer and version of *DOS* operating system you are using.
   * Compaq Portable users with *MS-DOS 2.02* must format their fixed disc with Procedure #2.

* IBM PC AT users with *PC-DOS 3.1* must format their fixed disc with Procedure #2.

Other users need not worry about the computer and the DOS version they are using.

	10 or 20 Mbyte to be used as a Boot Device	10 or 20 Mbyte NOT to be used as a Boot Device*	
Used Format Procedure	#1	#1	#2
Set Address Wheel at	0	0	1 to 7
Set Partition Switch to	0	0	0

*If you are booting from a built-in fixed disc, you can use address 0 and Procedure #1 *OR* address 1 to 7 and Procedure #2. Read the advantages and disadvantages below to decide which procedure suits your needs.

Format Procedure #1

Advantages

1. Does not reserve internal computer memory (RAM)
2. Can boot from an HP fixed disc formatted with this procedure

Disadvantages

1. Longer format procedure
2. Cannot software partition the HP fixed disc

Format Procedure #2

Advantages

1. Can software partition the HP fixed disc
2. Shorter format procedure

Disadvantages

1. Reserves 4K bytes of the internal computer memory (RAM)
2. Cannot boot from an HP fixed disc formatted with this procedure

---

HINT Format Procedure #2 includes special software that allows you to partition your fixed disc into multiple sections. If you want to take advantage of this feature, you must set the address wheel on your disc drive at an address between 1 and 7. For help resetting your address wheel, see *Chapter 3*.

You are now ready to format your HP fixed disc using either Format Procedure #1 or #2.

Format Procedure #1

Use Format Procedure #1 if the address wheel of your Hewlett-Packard disc drive is set at 0. If it is set at an address other than 0, you must use Format Procedure #2. Read the previous section, *Choosing a Format Procedure*, if you have questions about which procedure to use.

In Format Procedure #1, you will complete four steps to get your HP fixed disc ready to use:

Step #1: Use the HPFORMAT Program to certify your HP fixed disc. (Certifying checks your discs for defects and prepares your disc for *DOS* formatting.)

Step #2: Run the *DOS* FDISK program.

Step #3: Use the *DOS* Format command.

Step #4: Run the HPSETUP Program.

HINT You can load your operating system (boot) from a fixed disc as long as its address is set at 0, it is formatted using Format Procedure #1, and your disc drive is connected to a computer with NO built-in fixed disc. Your computer automatically boots from the internal fixed disc. If you have an internal fixed disc, you can *operate*, but not boot, from a Hewlett-Packard drive at address 0.

Before You Begin

By now you should have completed the following tasks:

1. Turned off your HP disc drive(s) and your computer.
2. Connected your disc drive to your computer using the interface cable.
3. Pluged the disc drive power cord into a wall outlet.
4. Made sure the address wheel on your disc drive is set at 0. (If your address wheel is set at 1 to 7, you must use Format Procedure #2.)

5. Made sure your disc drive is turned on and passed the selftest.
6. Turned on your computer (loaded *DOS*). If your computer did not load *DOS*, consult your computer manual or *Appendix A, Diagnostics,* in this manual.

Step #1: Use the HPFORMAT Program

The HPFORMAT Program certifies your HP fixed disc. Certifying checks your disc for defects and prepares your disc for *DOS* formatting. Use the following steps to run the HPFORMAT Program:

NOTE The drive letters used in the commands below are only examples. The letters YOU type in your commands depend on the letters assigned to your drive by *DOS*. Refer to *Appendix A, When to Use HPTEST,* to find the *DOS* letter assignments.

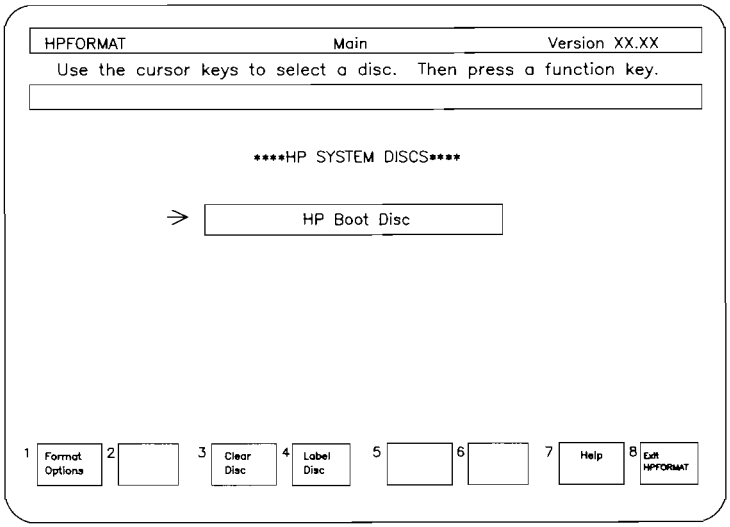
---

1. After entering the date and time, you should see a *DOS* prompt on your screen. If you have a computer with NO built-in fixed disc (such as an IBM PC), you probably see an A> on your screen. If you have a computer that has a built-in fixed disc (such as an IBM PC XT), you probably load *DOS* from that disc. As a result, you should see a C> prompt on your screen.
2. When you have the *DOS* prompt on your screen, remove the *DOS* disc from drive A. Take the disc labeled **Disc/Tape Software** from the back of this binder. Insert this disc into flexible disc drive A.

HINT

The **Disc/Tape Software** disc is a double-sided disc. If you have a single-sided disc drive, contact your dealer or HP sales office for help. Or, you may order a single-sided kit using HP part number 88500-67902. This kit may be ordered from Hewlett-Packard Direct Marketing Division, 1320 Kifer Road, Sunnyvale, California 94086. Telephone 800-538-8787 toll free in the United States or 406-738-4133 in California.

3. You now want a *DOS* prompt on your screen that matches the drive letter of the flexible disc drive into which you inserted the **Disc/Tape Software** disc. (For example, if you inserted the disc into drive A, you need an A> on your screen. If you do not have an A> on your screen, type **A:** after the prompt on your screen and press the **return** key. An A> appears.)
4. Type **HPFORMAT** after the *DOS* prompt and press the **return** key.
5. The following screen appears:



6. Note the following things about this screen:

a. A list of the Hewlett-Packard disc drives connected to your system appears on the screen.

If you set the address wheel on your disc drive at 0, your disc drive is described as an *HP Boot Disc*. You can load your operating system from this disc as long as your computer does NOT have a built-in fixed disc.

If you set the address wheel on your disc drive at a setting of 1 to 7, your disc drive is described as an *HP Fixed Disc*. Discs described as *HP Fixed Discs* must be formatted using Format Procedure #2.

b. On the left side of your keyboard are ten function keys labeled **F1** to **F10**. Function keys **F1** to **F8** correspond to eight function boxes along the bottom of your **HPFORMAT** screen. (**F9** and **F10** are not used in this program.)

The **F1** key always has the same meaning as the label in the first box on the left side of the screen.

The **F2** key has the same meaning as the label in the second box from the left, and so on.

HINT Note the **Clear Disc (F3)** and **Label Disc (F4)** keys. These function keys do NOT work with HP Boot Discs.

---

c. Note the arrow on your screen. This arrow indicates your position on the screen.

d. Move this arrow using the cursor keys, the **down arrow** (↑) and **up arrow** (↓), on the numeric pad of your keyboard.

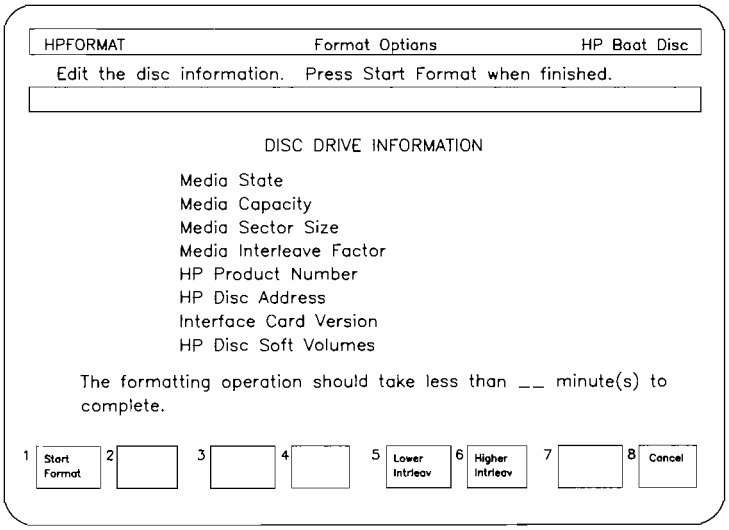
e. Error messages are displayed on the first line of the screen.

f. The second line of the screen is reserved for messages from the HPFORMAT Program to you. For example, the above screen displays this message: *Use the cursor keys to select a disc. Then press a function key.*

g. The **F8** function key is usually an **Exit** or **Cancel** key.

7. Make sure the arrow is pointing to the *HP Boot Disc* and that *HP Boot Disc* is highlighted. (If you do not see an *HP Boot Disc* on your screen, you should be using Format Procedure #2. If you need to use Format Procedure #2, press **Exit HPFORMAT** and go to the directions for Format Procedure #2.)

8. Press **Format Options (F1)**. A new screen appears:



9. Note the following things about this screen:

a. In the upper right corner of the screen, the HP FORMAT Program displays the name of the disc you are formatting. For example, the above screen displays *HP Boot Disc*.

b. Your disc drive is described in the middle of the screen. The most important things to note about this description are:

1. *Media State:* Your disc drive may be described as *Uncertified*, *Certified*, or *Certified, DOS*.

If this is the first time you have used your HP Boot Disc, do not worry about how your disc is described. You want to continue with the HPFORMAT program.

If you have been using your HP Boot Disc for a while, your disc will probably be described as *Certified* or *Certified, DOS*. You now need to make a decision. If you do NOT wish to recertify the disc, press **Cancel (F8)**. If you want to certify the disc again (to check it), continue

with the formatting process. Remember, all data already on your fixed disc will be destroyed during formatting.

2. *Media Interleave Factor:* The current interleave factor is displayed. Step 10 below explains when and how to change this interleave factor. (If you do not know what an interleave factor is, see the *Glossary*.)

c. The HPFORMAT Program displays a message telling you how long this portion of the formatting process will take to complete.

d. The function keys have been redefined as follows:

1. **Start Format** starts the certifying process.
2. **Lower Intrleav (F5)** and **Higher Intrleav (F6)** allow you to change the *Media Interleave Factor* displayed on your screen.
3. **Cancel (F8)** allows you to exit the Format Options screen and return to the Main HPFORMAT screen.

10. The following table shows the appropriate interleave factor for your computer and disc drive. Find your computer and disc drive on the chart and note the corresponding interleave factor. Make sure this same interleave factor is displayed on your screen. If the interleave factor on your screen is incorrect, use the **Lower Intrleav (F5)** and **Higher Intrleav (F6)** keys to change the interleave factor on your screen.

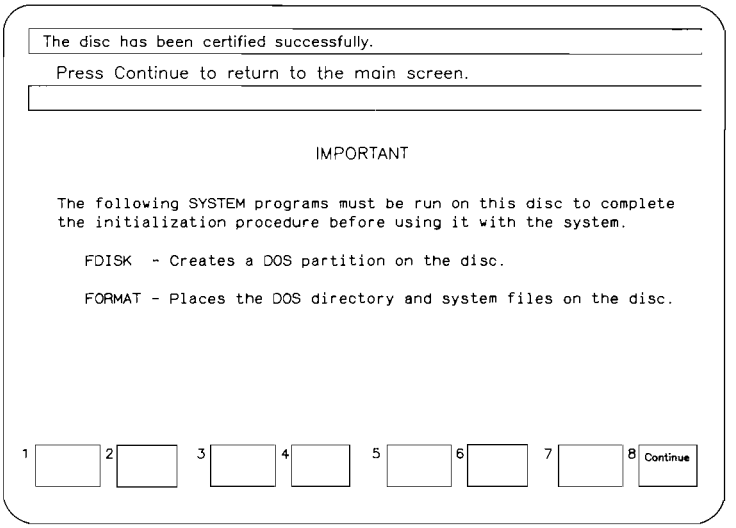
	COMPUTER			
	HP VECTRA	IBM PC	IBM PC XT	IBM AT
HP 10 Mb. Disc Drive	Not Supported	2	2	3
HP 20 Mb. Disc Drive	5	4	4	6

Optimum Interleave Factors

CAUTION If you format a disc which already has information on it (programs, applications, files, etc.), **the information will be destroyed during the formatting process.** (A disc drive described as *Certified, DOS* on the Format Options screen probably already has information on it.) Make sure you want to format the disc before you press **Start Format.**

11. Press **Start Format (F1)**.
12. A *Caution* message now appears on your screen. If you do NOT want to format your disc, press **Cancel (F8)**. If you are sure you want to format your disc, press **Continue (F1)**.
13. A message appears on your screen: *Certifying Disc*. The certifying process has started. The disc access light on the front of your disc drive should be lit during certifying. Certifying takes approximately 1.5 minutes/megabyte of storage. During this time, there is extensive checking of your fixed disc to ensure high data reliability. The fault light comes on during this process. If you are using multitasking or windowing software that allows you to run several programs at once, please note that you will NOT be able to perform other tasks during this certifying process.

    If you want to stop the certifying process, press the **Cancel (F8)** key.
14. When the certifying process is complete, a new screen appears:



15. Press **Continue (F8)**.
16. Press **Exit HPFORMAT (F8)**. When the main screen appears, go to Step #2.

Step #2: Run the FDISK Program

You now need to run the FDISK program that comes with your computer. The following directions assume that *DOS* is the only operating system that you intend to use with your fixed disc. This means that all of the fixed disc space on your Hewlett-Packard fixed disc will be used by *DOS*. Use the following instructions only if you are going to use ONE operating system.

1. Remove the **Disc/Tape Software** disc from drive A. Make sure the *DOS* disc is in your flexible disc drive A. (If you have a built-in fixed disc to which you have copied the *DOS* disc, you do not have to put the *DOS* disc in drive A.)
2. Make sure that you have a *DOS* prompt on your screen that matches the letter of the drive from which you loaded *DOS*. (For example, if you have a

computer that has NO built-in fixed disc, you probably load *DOS* from a *DOS* disc inserted in flexible disc drive A. Therefore, you want an A> on your screen.)

NOTE You should run your computer with the same operating system version as the version you used to format your disc.

---

3. After the *DOS* prompt on your screen, type **FDISK** and press the **return** key.
4. The following screen appears:

```
IBM Personal Computer
Fixed Disk Setup Program Version X.XX
(C) Copyright IBM Corp. 1983

FDISK Options

Current Fixed Disk Drive:  1

Choose one of the following:

      1.  Create DOS Partition
      2.  Change Active Partition
      3.  Delete DOS Partition
      4.  Display Partition Data
      5.  Select Next Fixed Disk Drive

Enter choice: [1]



Press ESC to return to DOS
```

5. Your screen may not exactly match the above screen. The line, *Current Fixed Disk Drive: 1*, and the line, *5. Select Next Fixed Disk Drive*, only appear if you have more than one fixed disc.

If you do not see these lines, skip the rest of this step and go to 6.

HINT **If there is more than one fixed disc and these lines are not displayed on the screen:**

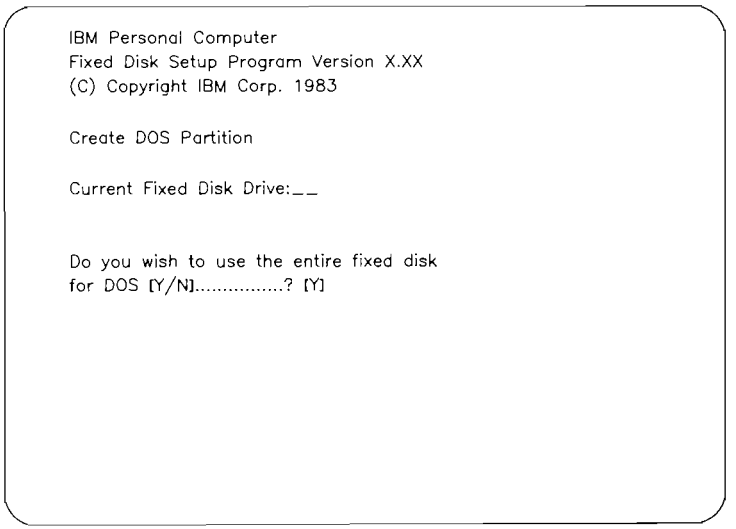
If *DOS* does not recognize one of your fixed discs, make sure that no two Hewlett-Packard drives are set to 0. Then reboot your system and repeat Step #2. If you still do not see these lines, press **ESC** to return to *DOS*. Then refer to *Appendix A, System Problems.*

If you see these two lines, the action you need to take depends on your disc drive. If you have a 10 or 20 megabyte disc drive, type **5** and press the **return** key. The current fixed disk drive line on your screen should now read, *Current Fixed Disk Drive: 2.* You are now done with this step. Go to 6.

CAUTION Make sure you have changed the line so that it reads, *Current Fixed Disc Drive: 2.* If you have a computer that has a built-in fixed disc, the built-in fixed disc is *Current Fixed Disc Drive: 1.* Unless you change the line so that a 2 is displayed after Current Fixed Disc Drive, you may accidentally format your built-in fixed disc. Remember, formatting destroys any information stored on the disc.

---

6. Type **1** after *Enter Choice* and press the **return** key.
7. The following screen appears:



8. Since you want to use the entire fixed disc for *DOS*, press **enter** for yes.
9. The FDISK program assigns the entire fixed disc to *DOS* and displays the following message, ***Insert DOS diskette in drive A:. Press any key when ready . . .***
10. If your computer has NO built-in fixed disc, make sure your *DOS* disc is inserted in drive A and press any key. If your computer HAS a built-in fixed disc, simply press any key.

    This reloads *DOS* so that it will recognize your Hewlett-Packard fixed disc and assign a drive letter to it. Reloading *DOS* takes about a minute.

When *DOS* reloads and you are asked to enter the date and time, you are done running the FDISK program. The HP Vectra computer displays PAM rather than a date and time request. Go to Step #3.

Step #3: Use the *DOS* Format Command

The *DOS* Format command prepares your HP Boot Disc to receive information. Use the *DOS* Format command as follows:

1. Make sure the *DOS* prompt (A> or C>) is on your screen.
2. You are now ready to type the *DOS* format command. The command you type depends on your computer.
   a. **If you have a computer with NO built-in fixed disc,** you want the Format program to put some necessary *DOS* system files onto your HP Boot Disc, drive C. Therefore, type the following *DOS* format command:

      FORMAT C:/S/V (The **V** is optional as explained below.)

      and press the **return** key.

      This command tells your computer that you want to format drive C. The **S** tells your computer to copy the *DOS* files to drive C, and the **V** tells your computer to prompt you for a volume label after formatting is complete.

NOTE **For HP Vectra Users**

When formating a boot disc (address 0) with an HP Vectra computer, type the *DOS* format command as follows:

FORMAT C:/S/V/P
(adding a /P at the end)

The /P copies the PAM files to the boot disc. The /V is optional.

NOTE **For Advanced HP Vectra Users**

If you choose not to type /P (you don't want to use PAM), you MUST do one of the following steps:

1. Edit the *Config.sys* file; eliminate the line that says SHELL = PAMCOD.Com Root

   or

2. Delete the *Config.sys* file and run HPSETUP again (to create a *Config.sys* file without PAM).

---

b. If you have a computer with a built-in fixed disc, you do NOT want to copy the *DOS* files to your HP Boot Disc. Therefore, type the following *DOS* command:

FORMAT D:/V (The **V** is optional as explained below.)

and press the **return** key.

This command tells your computer that you want to format drive D (your built-in fixed disc is drive C). The **V** tells your computer to prompt you for a volume label after formatting is complete.

3. A message appears on your screen: *Press any key to begin formatting drive* ____.
4. Press any key.
5. The message *Formatting . . .* appears on your screen. This portion of the formatting process takes about five minutes.
6. When your system completes formatting, you see the message *Format complete.* Also, if you told your system that you wanted to copy *DOS* to the fixed disc, you also see the message *System transferred.*

7. Finally, the message *Volume label (11 characters, ENTER for none)?* appears. If you wish, you may now label the fixed disc. The label you give the fixed disc is the label that appears when you use the **DIR** or **CHKDSK** commands.

   If you want to label the fixed disc, type the label (11 characters or less) and press the **return** key. If you do not want to label the fixed disc, simply press the **return** key.

8. *DOS* now displays a capacity message on your screen. This message is followed by a *DOS* prompt.

9. Your fixed disc is now ready to use. However, if you used the *DOS* Format command, **FORMAT C:/S/V**, to copy *DOS* to your HP Boot Disc, you must complete two more steps:

   a. Make sure your *DOS* disc is in drive A. After the A> on your screen, type:

      COPY *.* C:

      and press the **return** key.

      This copies all the programs from the *DOS* disc to your HP Boot Disc. You will see a series of filenames displayed on your screen as these files are copied.

   b. Remove the *DOS* disc from drive A and put it away in a safe place. Hold down the **Ctrl** and **Alt** keys and press the **Del** key. *DOS* now starts from your HP Boot Disc and you are asked to enter the date and time. The Vectra computer displays the PAM screen rather than a date and time request.

You should now see a C> on your screen. Go to Step #4.

Step #4: Run the HPSETUP Program

You now want to copy the programs from the **Disc/Tape Software** disc to the same fixed disc to which you copied *DOS*. For example, if your computer does NOT have a built-in fixed disc, you want to copy *DOS* and the **Disc/Tape Software** disc to your HP Boot Disc. If your computer HAS a built-in fixed disc, you want to copy *DOS* and the **Disc/Tape Software** disc to your built-in fixed disc.

NOTE Drivers are the programs which allow the computer to talk to your peripherals. When your system loads the operating system, HPSETUP places the HPDISC, HPTAPE, and HPRAMDSC drivers at the beginning of the *Config.Sys* configuration file. Any system configuration statements will be placed after the drivers. The *Config.Sys* file *can be modified,* however, to suit your special applications. If you're booting from a flexible disc, for example, you can modify Config.Sys without running HPSETUP.

Use the following steps to copy the **Disc/Tape Software** disc to the appropriate fixed disc (drive C):

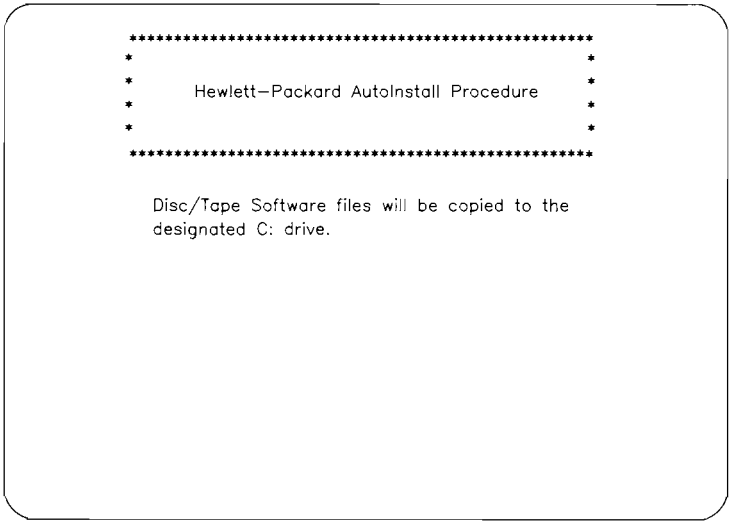
1. Make sure your Hewlett-Packard disc drive is turned on.
2. Make sure your computer is turned on and that *DOS* is loaded.
3. Insert the **Disc/Tape Software** disc into flexible disc drive A.
4. Make sure you have an A> on your screen. If you have any other *DOS* prompt (C>, for example), type **A:** after the prompt and press the **return** key. An A> will appear on your screen.
5. After the A>, type **HPSETUP FROM A: TO C:** and press the **return** key. A new screen appears:

NOTE **For Advanced Users**

If you would like to put the software into a sub-directory, add the sub-directory as follows:

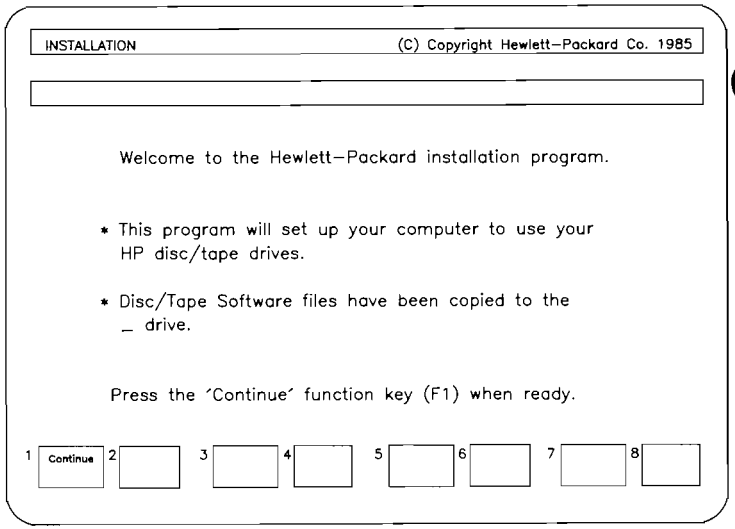
C: / *sub-directory name*

Do not put another " / " after the sub-directory name. Refer to your *DOS* user manual for more sub-directory information.

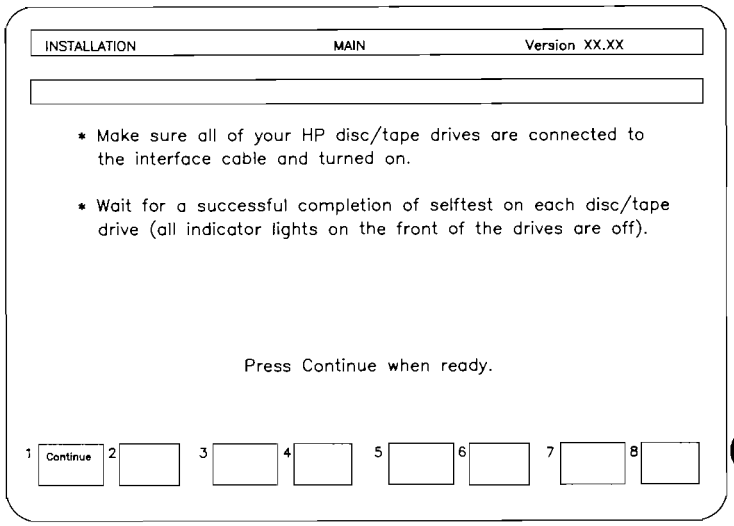


Over the next few minutes, a series of filenames appears on your screen. These files are being copied from the flexible disc in drive A to your fixed disc (drive C).

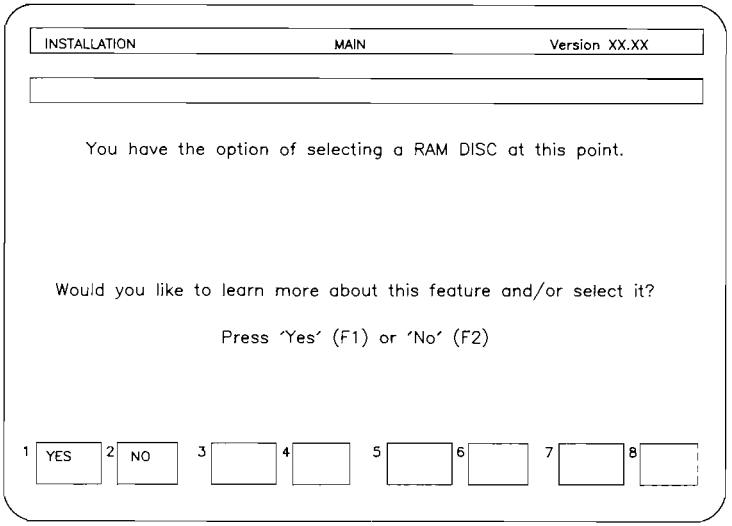
6. When copying is complete, the following screen appears:



7. Press **Continue (F1)**. The following screen appears:



8. Make sure all your Hewlett-Packard disc and tape drives are connected to your computer. Turn on all disc and tape drives and wait for successful completion of selftest. Press **Continue (F1)**.
9. A message appears on your screen: *Identifying drives. . . Please wait.* Then a new screen appears:



10. You now have the option of selecting the RAM disc.
11. To select the RAM disc, press **YES (F1)**. A RAM disc explanation screen appears. Hereafter, each time you boot up your computer, you will have the option of specifying the amount of memory reserved for the RAM disc.

NOTE If you would like to know more about the RAM disc, please read the RAM disc chapter. The information there will clarify and enhance your use of the RAM disc.

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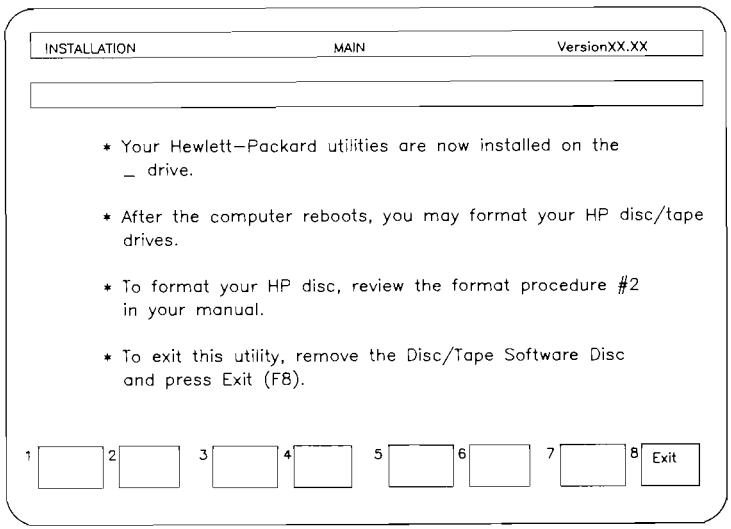
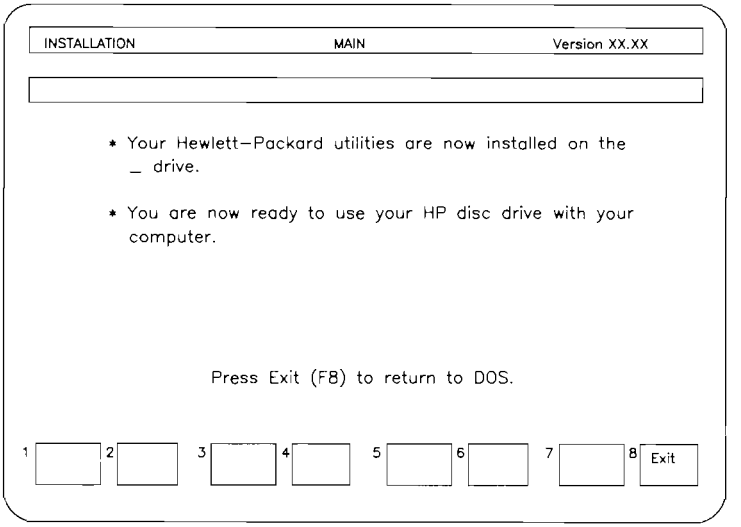
12. If you do not want the RAM disc, press **NO (F2)**. No memory will be allocated for RAM disc. Hereafter, you will not be given the option for RAM Disc when you power up your computer. If you want RAM disc some time in the future, you must modify the *Config.Sys* file. Refer to the RAM disc chapter for more information.
13. A message appears on your screen: *WORKING . . . Please wait.*
14. The screen that you see next depends on your system.

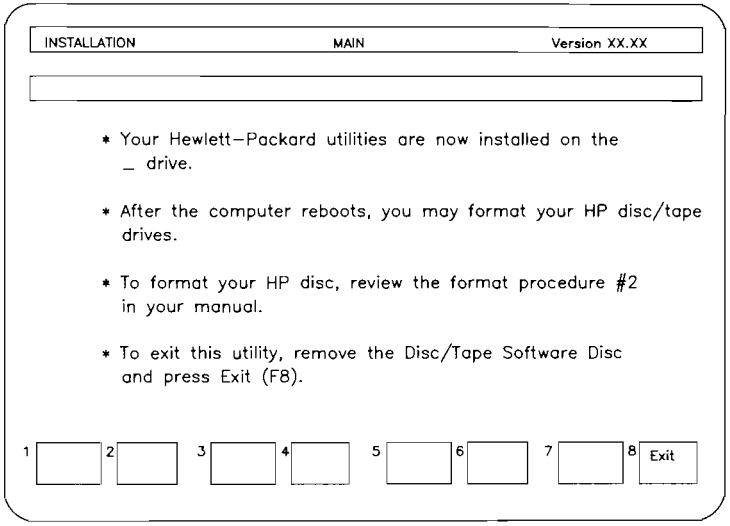


a. If you have only ONE Hewlett-Packard disc drive at address 0 and NO Hewlett-Packard tape drive connected to your system, the following screen appears:

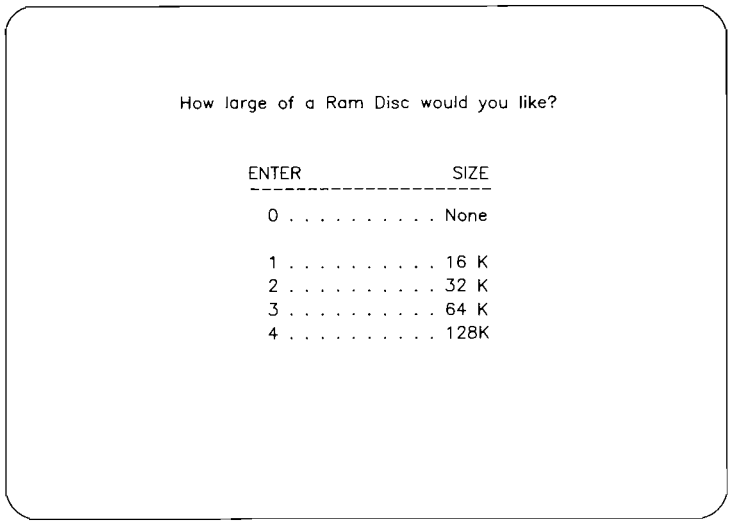


If you see this screen, remove the **Disc/Tape Software** disc and press **Exit** to return to *DOS*.

b. If you have MORE THAN one Hewlett-Packard disc drive and/or a Hewlett-Packard tape drive connected to your system, a screen similiar to the following screen appears:



15. If you selected the RAM disc, you see the following screen when your system reboots:



Your screen may not exactly match the above screen. The choices displayed on your screen depend on the amount of memory your computer has.

Type in the number that corresponds to the amount of memory you wish to reserve for your RAM disc.

16. You are now ready to use your Hewlett-Packard disc drive. We recommend that you use Hewlett-Packard Data Manager program to copy any commonly used files to your HP Boot Disc. Use the Data Manager manual in this binder to get started.

NOTE Drivers are the programs which allow the computer to talk to your peripherals. When your system loads the operating system, HPSETUP places the HPDISC, HPTAPE, and HPRAMDSC drivers at the beginning of the *Config.Sys* configuration file. Any system configuration statements will be placed after the drivers. The *Config.Sys* file ***can be modified***, however, to suit your special applications. If you're booting from a flexible disc, for example, you can modify Config.Sys without running HPSETUP.

Format Procedure #2

Use Format Procedure #2 if the address wheel of your Hewlett-Packard disc drive is set at an address of 1 to 7. Remember, you cannot load your operating system from a fixed disc formatted with Format Procedure #2. Read the section *Choosing a Format Procedure* in this chapter if you have questions about which procedure to use.

In Format Procedure #2, you must complete two steps to get your Hewlett-Packard fixed disc drive ready to use:

Step #1: Run the HPSETUP program.

Step #2: Use the HPFORMAT Program to certify and format your HP fixed disc(s).

Before You Begin

By now you should have completed the following tasks:

1. Turned off your HP disc drive(s) and your computer.
2. Connected your disc drive to your computer using the interface cable.
3. Plugged the disc drive power cord into a wall outlet.
4. Made sure the address wheel on your disc drive is set at an address between 1 and 7. (If you kept your address wheel at the factory setting of 0, you must use Format Procedure #1.)
5. Made sure your disc drive is turned on and passed the selftest.
6. Turned on your computer (loaded *DOS*). If your computer did not load *DOS*, consult your computer manual or *Appendix A, System Problems,* in this manual.

Step #1: Run the HPSETUP Program

Use the following steps to copy your **Disc/Tape Software** disc (stored in the back of the binder) to the fixed disc from which you load your operating system (drive C):

NOTE The drive letters used in the commands below are only examples. The drive letters YOU type in your commands depend on the letters assigned to your drive by *DOS*. Refer to *Appendix A, When to Use HPTEST,* to find drive letter assignments.

Drivers are the programs which allow the computer to talk to your peripherals. When your system loads the operating system, HPSETUP places the HPDISC, HPTAPE, and HPRAMDSC drivers at the beginning of the *Config.Sys* configuration file. Any system configuration statements will be placed after the drivers. The *Config.Sys* file *can be modified,* however, to suit your special applications. If you're booting from a flexible disc, for example, you can modify Config.Sys without running HPSETUP.

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1. Remove the disc labeled **Disc/Tape Software** from the back of this binder and insert this disc in your flexible disc drive A.

HINT The **Disc/Tape Software** disc is a double-sided disc. If you have a single-sided disc drive, contact your dealer or HP sales office for help. Or, you may order a single-sided kit using HP part number 88500-67902. This kit may be ordered from Hewlett-Packard Direct Marketing Division, 1320 Kifer Road, Sunnyvale, California 94086. Telephone 800-538-8787 toll free in the United States or 406-738-4133 in California.

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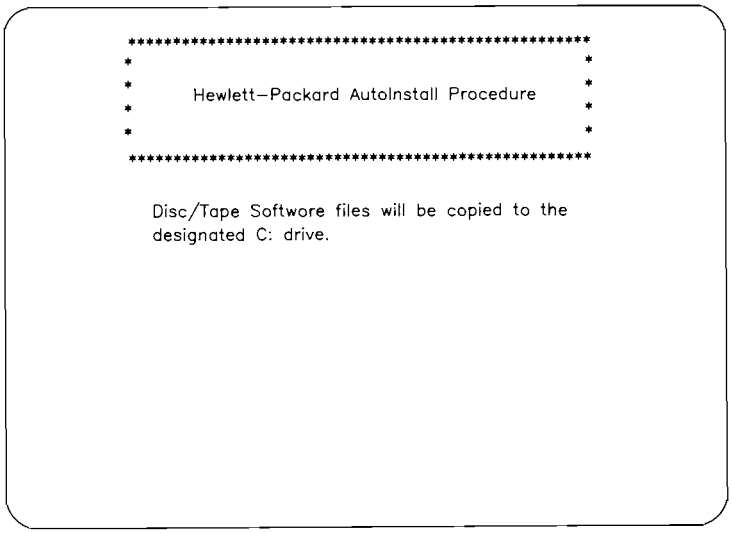
2. Enter the requested date and time and, make sure you have an A> on your screen. If you have any other *DOS* prompt (for example C>), type **A:** after the prompt and press the **return** key. An A> will appear on your screen.
3. After the A>, type **HPSETUP FROM A: TO C:** and press the **return** key. (Here, drive A is the boot disc, and C is the disc to which you are loading the operating system. The drive letters you type in this and following commands will vary with your system set-up.) The following screen appears:

NOTE **For Advanced Users**

If you would like to put the software into a sub-directory, add the sub-directory as follows:

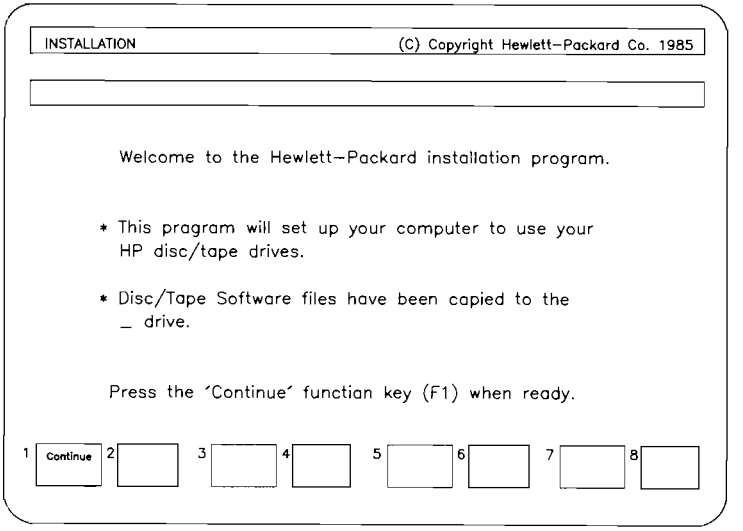
C: / *sub-directory name*

Do not put another " / " after the sub-directory name. Refer to your *DOS* user manual for more sub-directory information.

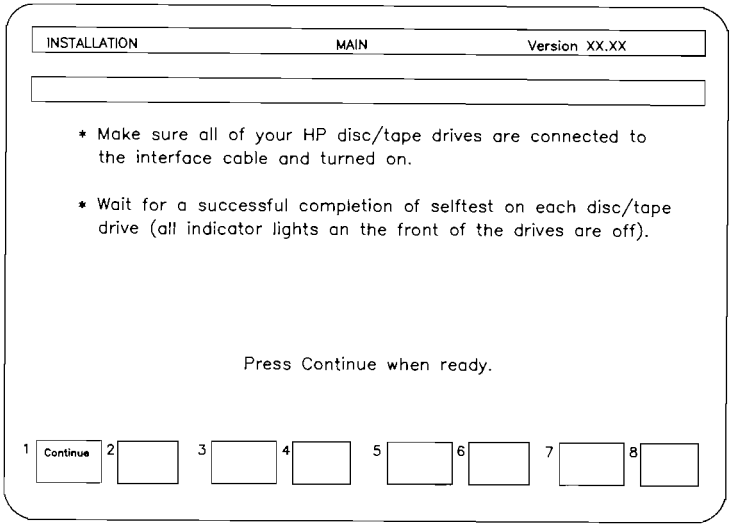


Over the next few minutes, a series of filenames appears on your screen. These files are being copied from the flexible disc in drive A to your fixed disc (drive C).

4. When copying is complete, the following screen appears:

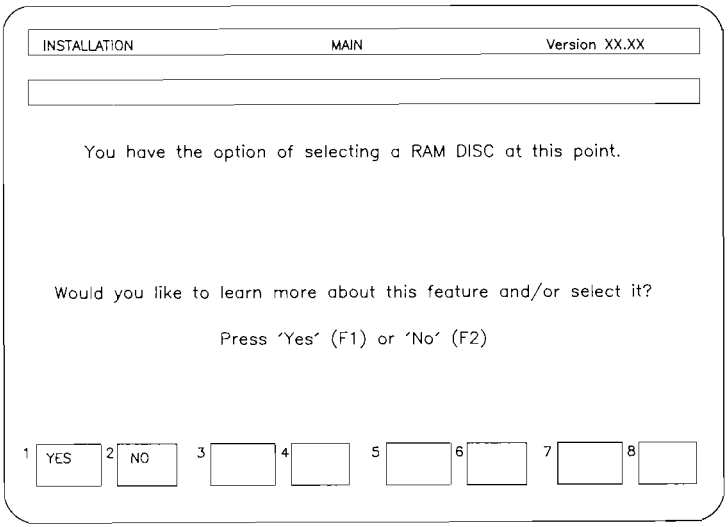


5. Press **Continue**. The following screen appears:



6. Make sure all your Hewlett-Packard disc and tape drives are connected to your computer. Make sure you have turned on all disc and tape drives and that they have passed selftest. Press **Continue**.

7. A message appears on your screen, *Identifying drives. . . Please wait.* Then a new screen appears:



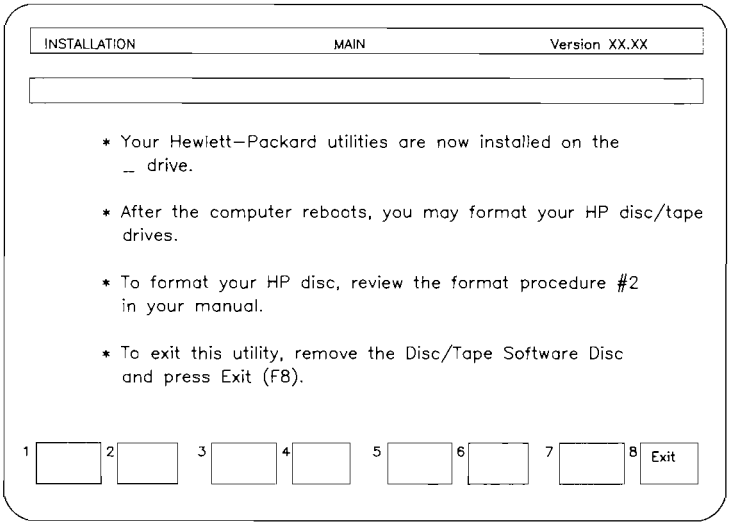
8. You now have the option of selecting the RAM disc.
9. To select a RAM disc, press **YES (F1)**. A RAM disc explanation screen appears. Hereafter, each time you power up your computer, you have the option of specifying the amount of memory reserved for the RAM disc.

NOTE If you would like to know more about the RAM disc, please read the RAM disc chapter. The information there will clarify and enhance your use of the RAM disc.

---

10. If you do not want the RAM disc, press **NO (F2)**. No memory will be allocated for the RAM disc. Hereafter, you will not be given the option for the RAM disc when you power up your computer. If you want the RAM disc at some other time, you will have to modify the *CONFIG.SYS* file. Refer to the RAM disc chapter for more information.

11. A message appears on your screen: *WORKING. . . Please wait.* After a few seconds, the following screen appears:

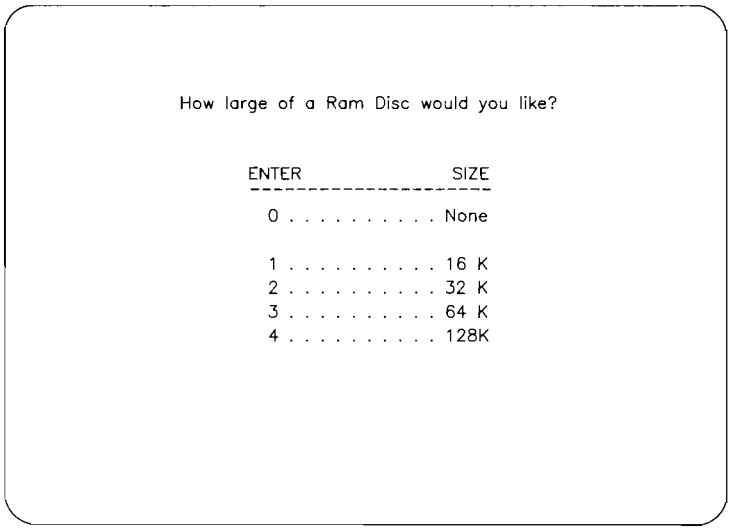


NOTE Drivers are the programs which allow the computer to talk to your peripherals. When your system loads the operating system, HPSETUP places the HPDISC, HPTAPE, and HPRAMDSC drivers at the beginning of the *Config.Sys* configuration file. Any system configuration statements will be placed after the drivers. The *Config.Sys* file ***can be modified,*** however, to suit your special applications. If you're booting from a flexible disc, for example, you can modify Config.Sys without running HPSETUP.

12. You are now ready to go to **Step #2, Use the HPFORMAT Program**. Remove the **Disc/Tape Software** disc and press **Exit**. Your computer reboots.

    If you are booting from a flexible *DOS* disc, remove the **Disc/Tape Software** disc and replace it with the *DOS* disc. Press **Exit**. Your computer reboots.

13. If you selected the RAM disc, you see the following screen when your system reboots:



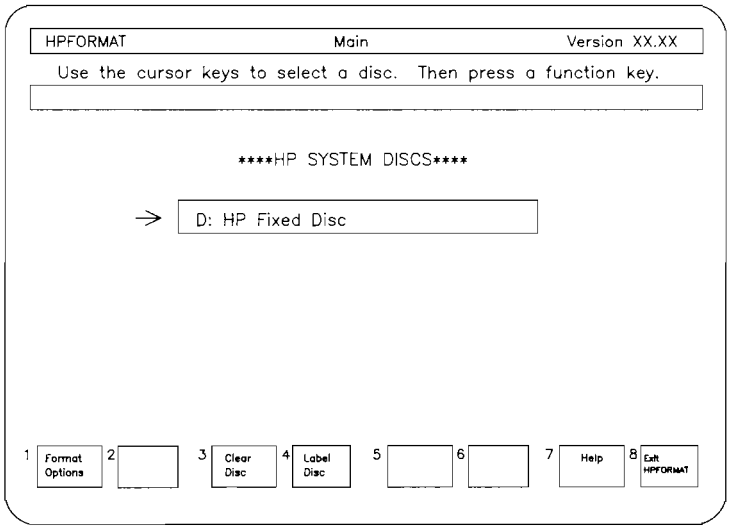
Your screen may not exactly match the above screen. The choices displayed on your screen depend on the amount of memory your computer has.

Type in the number that corresponds to the amount of memory you wish to reserve for the RAM disc. Move to Step #2.

Step #2: Use the HPFORMAT Program

The HPFORMAT Program certifies your HP fixed disc. Certifying checks your disc for defects and prepares your disc for *DOS* formatting. Use the following steps to run the HPFORMAT Program:

1. After the *DOS* prompt on your screen, type **HPFORMAT** and press the **return** key.
2. The following screen appears:



3. Note the following things about this screen:

   a. A list of Hewlett-Packard disc drives connected to your system appears on the screen.

   If you set the address wheel on your disc drive at a setting of 1 to 7, your disc drive is described as an *HP Fixed Disc*. You want to format any disc that is described as an *HP Fixed Disc* using this format procedure.

   If you set the address wheel on your disc drive at 0, your disc drive is described as an *HP Boot Disc*. Use Format Procedure **#1** to format HP Boot Discs.

   b. As you have discovered, function keys **F1** to **F8** correspond to eight function boxes along the bottom of your HPFORMAT screen. (**F9** and **F10** are not used in this program.)

   c. Note the arrow on your screen. This arrow indicates your position on the screen.

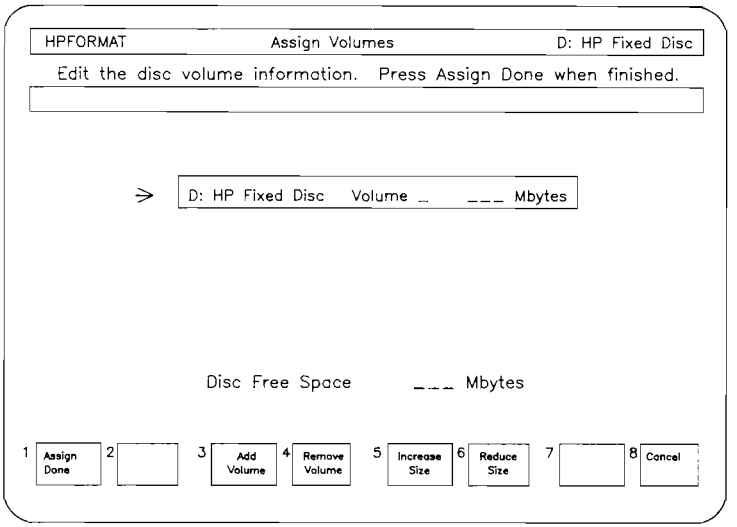
d. Move this arrow using the cursor keys, **down arrow** (↓) and **up arrow** (↑), on the numeric pad of your keyboard.

e. Error messages are displayed on the first line of the screen.

f. The second line of the screen is reserved for messages from the HPFORMAT Program to you. For example, the above screen displays this message: *Use the cursor keys to select a disc. Then press a function key.*

g. The **F8** function key is usually an **Exit** or **Cancel** key.

4. Since you want to format your HP Fixed Disc, press **Format Options (F1)**. A new screen appears:



This **Assign Volumes** screen allows you to partition your fixed disc into easily managed volumes.

5. **If you do NOT want to divide your HP Fixed Disc into more than one volume, press Assign Done (F1)** and go to 6.

   If you DO want to divide your HP Fixed Disc into more than one volume, use the following steps:

   a. You now have a decision to make. You must decide how many megabytes of storage you wish to assign to each of your HP Fixed Disc volumes. For example, assume that you have a 20 megabyte disc drive that you have partitioned into two volumes, drive D and drive E. You may now decide that you want to assign 10 megabytes to drive D and 10 megabytes to drive E.

   b. With the arrow positioned next to drive D, decrease the storage capacity of drive D by pressing **Reduce Size (F6)** until you have the desired number of megabytes displayed next to *D: HP Fixed Disc*. Note that as you decrease the size of drive D, the number of megabytes in the *Disc Free Space* increases.

   c. Press **Add Volume (F3)** to create Volume E.

   d. Move the arrow to the next volume, drive E.

   e. Increase the size of the storage capacity of drive E by pressing **Increase size (F5)** until you have the desired number of megabytes displayed next to *E: HP Fixed Disc*.

   f. Repeat the above procedure until all volumes have the desired number of megabytes displayed.

HINT Make sure you reassign all the megabytes that are in Disc Free Space. You cannot access the megabytes of storage that are in Disc Free Space until you assign these megabytes to a drive.

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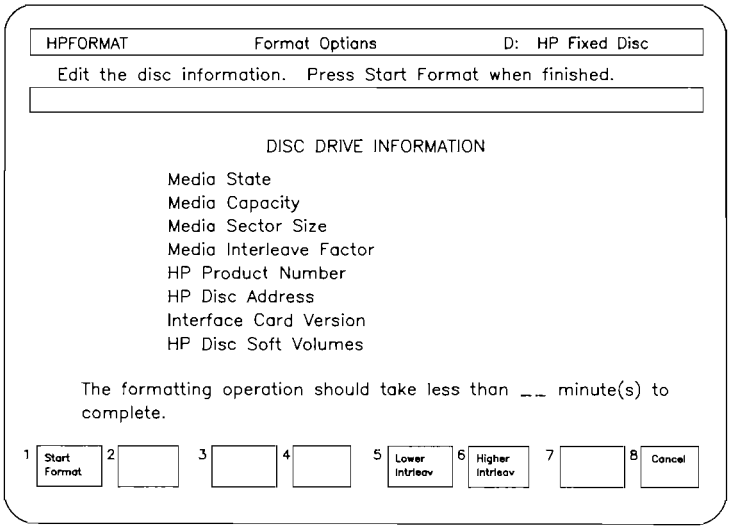
g. When you have finished partitioning your disc and all volumes have the desired number of megabytes displayed, press **Assign Done (F1)**.

6. The following screen appears:



Note the following things about this screen:

a. In the upper right corner of the screen, the HP Format Program displays the name of the disc you are formatting. For example, the above screen displays *HP Fixed Disc*.

b. Your disc drive is described in the middle of the screen. The most important things to note about the description are:

1. *Media State:* Your disc drive may be described as *Uncertified*, *Certified*, or *Certified, DOS*.

2. *Media InterleaveFactor:* The current interleave factor is displayed. The instructions and table below explains when and how to change this

interleave factor. (If you do not know what an interleave factor is, see the *Glossary*.)

The following table describes the optimal interleave factor for your computer and disc drive. Find your computer and disc drive on the chart and note the corresponding interleave factor. Make sure this same interleave factor is displayed on your screen. If the interleave factor on your screen is incorrect, use the **Lower Interleav (F5)** and **Higher Interleav (F6)** keys to change the interleave factor.

	COMPUTER				
	HP VECTRA	**IBM PC**	**IBM PC XT**	**IBM AT**	**COMPAQ**
HP 10 Mb. Disc Drive	Not Supported	2	2	3	2
HP 20 Mb. Disc Drive	5	4	4	6	4

Optimum Interleave Factors

c. The HP Format Program displays a message telling you how long this portion of the formatting process will take to complete.

d. The function keys have been redefined as follows:

1. **Start Format** starts the certifying and formatting process.
2. **Lower Intrleav (F5)** and **Higher Intrleav (F6)** allow you to change the *Media Interleave Factor* displayed on your screen.
3. **Cancel (F8)** allows you to exit the Format Options screen and return to the Main HPFORMAT screen.

CAUTION If you format a disc which already has information on it (programs, applications, files, etc.), **the information will be destroyed during the formatting process**. (A disc drive described as *Certified, DOS* on the Format Options screen probably already has information on it.)

Make sure you want to format the disc before you press **Start Format**.

7. A CAUTION message now appears on your screen. If you do NOT want to format your disc, press **Cancel (F8)**. If you are sure you want to format your disc, press **Continue (F1)**; HPFORMAT formats your entire disc.
8. A message appears on your screen: *Certifying Disc*. The certifying and formatting process has started. A disc access light on the front of your disc drive should be lit during this process. Certifying takes approximately 1.5 minutes/megabyte of storage. During this time, there is extensive checking of your fixed disc to ensure high data reliability. If you are using multitasking or windowing software that allows you to run several programs at once, please note that you will NOT be able to perform other tasks during this certifying process.

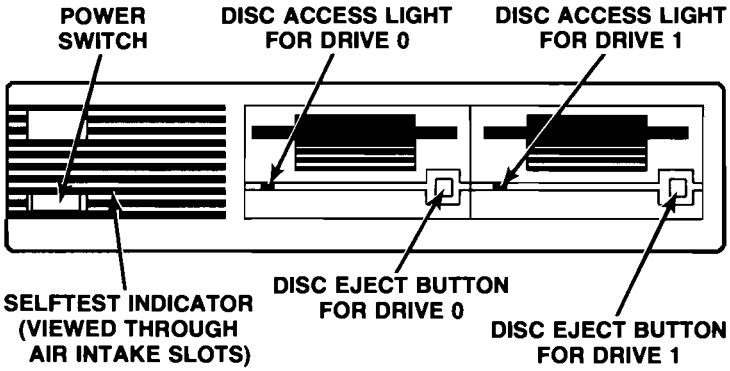
   If you want to stop the formatting process, press the **Cancel (F8)** key.
9. When the formatting process is complete, a message appears on the top line of your screen, *The disc has been formatted successfully*.
10. Reboot your system now by pressing **Alt**, **Ctrl** and **Del** simultaneously.

    You are now ready to use the HP Fixed Disc that you just formatted. You do not need to run FDISK or type the *DOS* Format command.

If you have another Hewlett-Packard fixed disc drive that you need to format, repeat the HPFORMAT program after your system reboots.

Using Your HP 9122D/S Flexible Disc Drive with HP Vectra

Before you turn on your flexible disc drive, make certain the address is set correctly. Please refer to *Chapter 3, Setting up Your HP Disc or Tape Drive*, for addressing information.



Front Panel of HP 9122D

Turning on Your System

Use the following steps to turn on your flexible disc drive:

1. Remove the protective plastic drive discs by pressing the gray eject button under each slot.
2. Locate the power button on the front panel. The disc drive is *on* when the button is in and *off* when the button is out.
3. Turn on your disc drive. You may hear a whirring noise from the drive and fan and see the selftest light through the front panel slots.

HINT If you do not hear the whirring noise and you do not see the light, your disc drive may not have powered on. Check that the power button is pushed in and the power cord is connected.

If your disc drive still does not power up, you may need to change the fuse. Please see your drive manual for information on changing the fuse.

4. If the light remains on, turn off the disc drive. Turn the disc drive on again to repeat the selftest. If the selftest light is still lit after this repetition of the selftest, contact your dealer or the nearest Hewlett-Packard Sales and Support Office.
5. When the selftest light goes out, you can begin using your disc drive.

Running the HPSETUP Program

After turning on your drive, use the following steps to copy your **Disc/Tape software** disc (stored in the back of this binder) to your boot disc. (A boot disc contains the programs necessary to start up your computer).

1. Turn on ALL of the external disc and tape drives connected to the HP Vectra.
2. Turn on the HP Vectra. You should now see the PAM menu. Consult your HP Vectra manual if you have questions or problems.
3. Insert the **Disc/Tape Software** disc into flexible disc drive A.

NOTE The drive letters used in the commands below are only examples. The letters YOU type in your commands depend on the letters assigned to your drive by *DOS*. Refer to *Appendix A, When to Use HPTEST,* to determine your drive letters.

4. Enter the date and time. From the A> prompt on the screen, type **HPSETUP FROM A: TO B:**. (If the prompt is not A>, type **A:** and press the **return** key.) This command copies files from the **Disc/Tape Software** disc in drive **A** to the disc that has the operating system. In this example, **B** is this start (boot) disc.

   If you are booting your system from a flexible disc, make sure that the disc is in the appropriate drive.

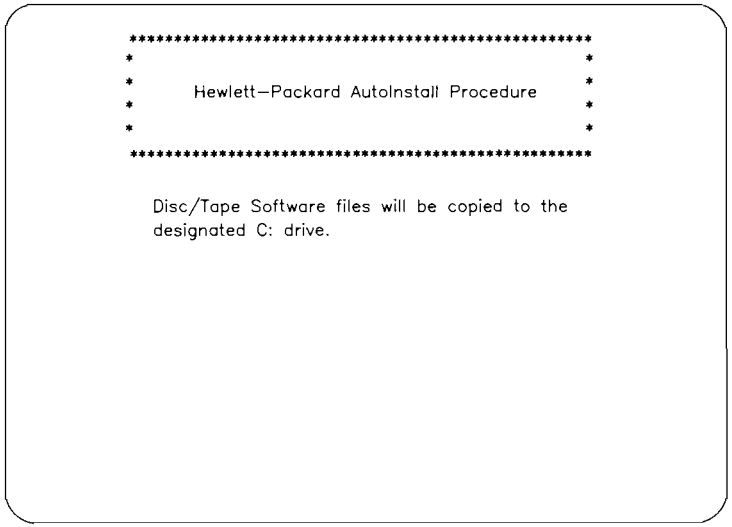
NOTE **For Advanced Users**

If you would like to put the software into a sub-directory, add the sub-directory as follows:

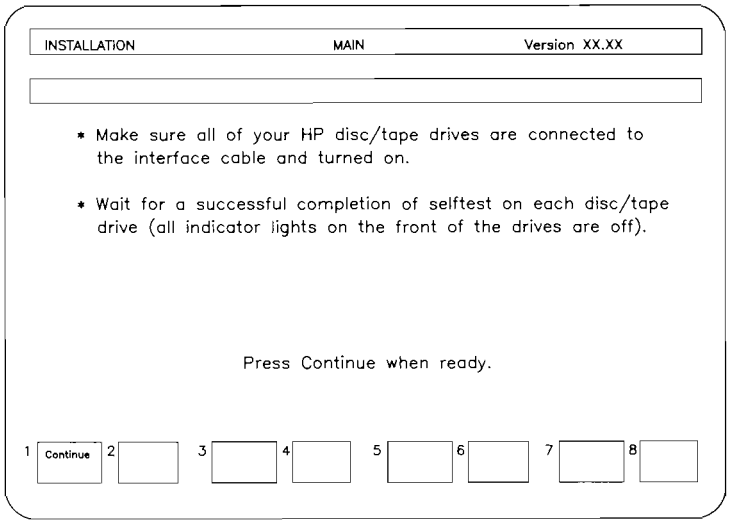
C: / *sub-directory name*

Do not put another " / " after the sub-directory name. Refer to your *DOS* user manual for more sub-directory information.

5. Press the **return** key. A new screen briefly appears:

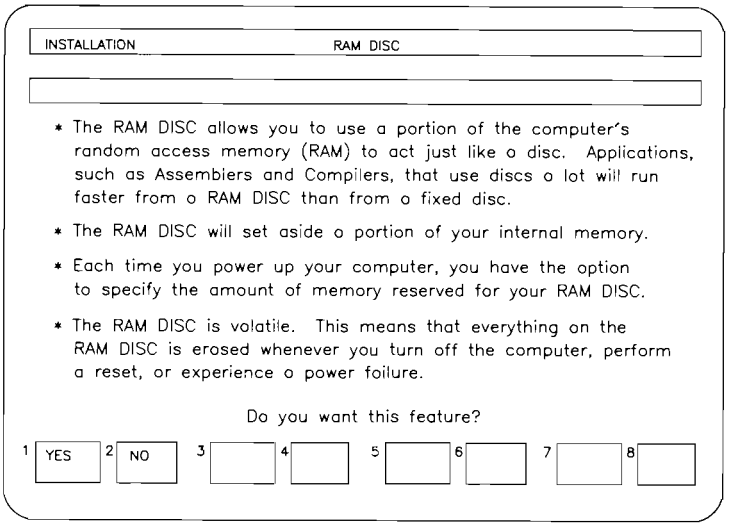


6. This screen appears after the files are copied:



7. Press **Continue**. A messge appears on your screen: *Identifying drives... please wait.* The next screen gives you the option of selecting the RAM disc.
8. If you do not want the RAM disc, press **NO (F2)**. No memory will be allocated for RAM disc. Hereafter, you will not be given the option for RAM disc when you power up your computer. If you want RAM disc some time in the future, you must modify the *Config.Sys* file.

   The following screen appears describing the RAM disc:



NOTE If you would like to know more about the RAM disc, please read the RAM disc chapter. The information there will clarify and enhance your use of the RAM disc.

---

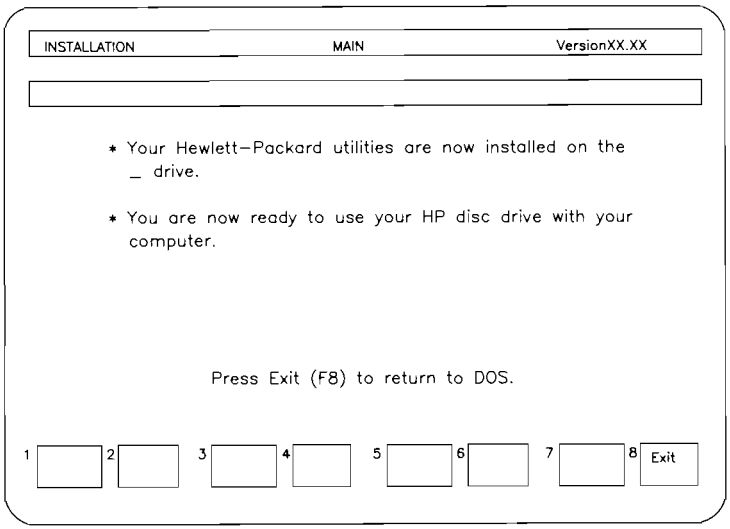
9. To select the RAM disc, press **YES (F1)**. Hereafter, each time you power up your computer, you have the option of specifying the amount of memory reserved for the RAM disc.

   If you do not want the RAM disc, press **NO (F2)**. No space will be allocated for the RAM disc.

10. A message appears on your screen: *WORKING. . . Please wait.*

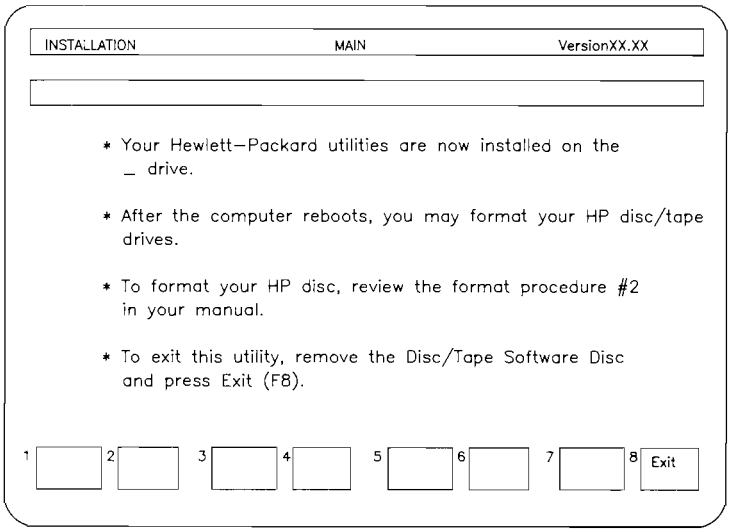
11. The screen that you see next depends on your system.

    a. **If you have only ONE Hewlett-Packard disc drive set at address 0 and NO Hewlett-Packard tape drive connected to your system**, the following screen appears:



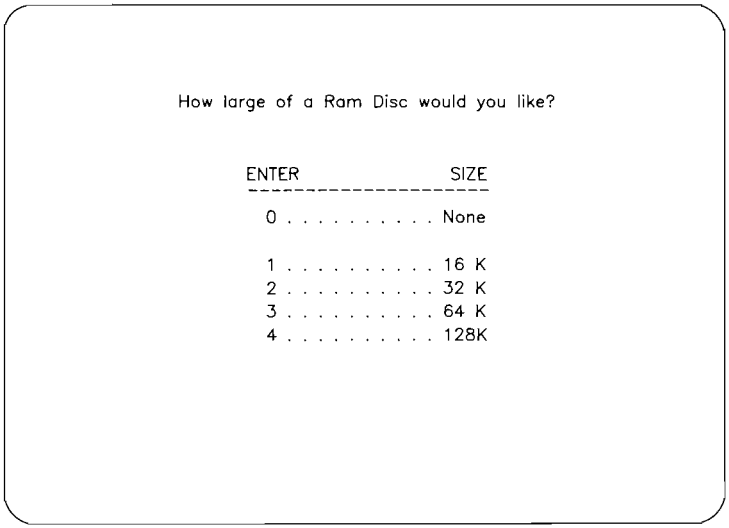
   If you see this screen, press **EXIT** to return to *DOS*.

b. If you have MORE THAN one Hewlett-Packard disc drive and/or a Hewlett-Packard tape drive connected to your system, a screen similar to the following screen appears:



If you see this screen, remove the **Disc/Tape Software** disc. If you are booting from a flexible disc, move the operating system disc to drive A.

12. Press **Exit (F8)**. If you selected the RAM disc, you see the following screen when your system boots:



Your screen may not exactly match the above screen. The choices displayed on your screen depend on the amount of memory your computer has.

13. Type in the number that corresponds to the amount of memory you wish to reserve for the RAM disc.

HINT Whenever you need to determine your current configuration, run HPTEST as described in *Appendix A, Diagnostics*.

---

14. You are now ready to use your HP 9122D/S. To prepare your flexible discs for use in your disc drive, go to the next section.

Formatting Flexible Discs in the HP 9122D/S

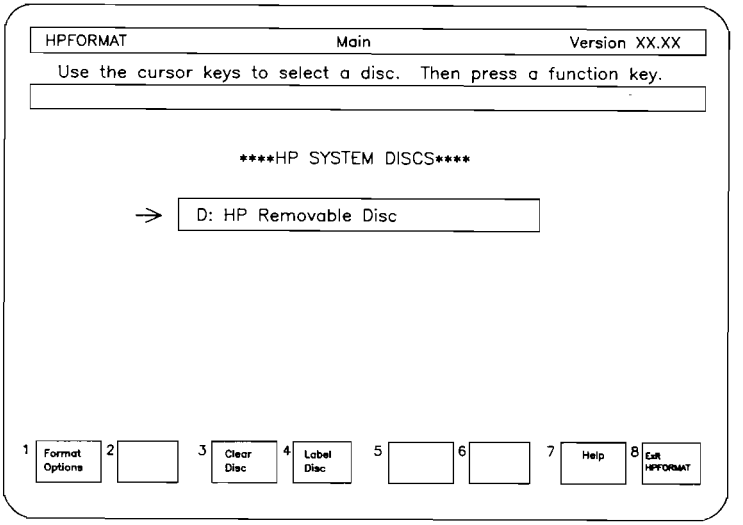
To format discs in a HP 9122D/S connected to an HP Vectra, you must use the **HPFORMAT** Program provided on the **Disc/Tape Software** disc that came with the interface card. You cannot use the *DOS* format command to format discs.

NOTE

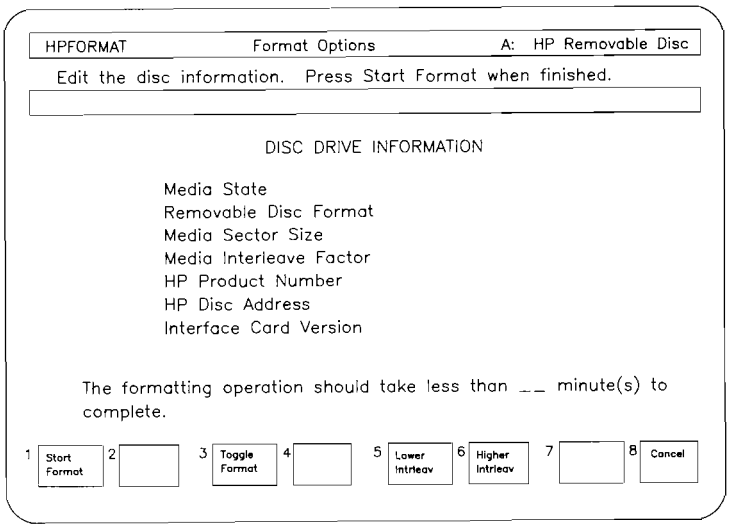
Once a disc is formatted you can use it in any Hewlett-Packard double-sided 3-1/2" drive used with the HP 150, the HP 110, and the HP Vectra.

Use the following steps to format your discs in the HP 9122D/S:

1. After running the HPSETUP Program, type **HPFORMAT** at the B> prompt. (The letter in the prompt will be the drive in which you placed the software.)
2. The following screen appears:



3. Look at this screen and note the following:
   a. A list of Hewlett-Packard disc drives connected to your system appears in the middle of the screen.
   b. The first box is highlighted and has an arrow beside it.
4. Use the cursor (arrow) keys on the cursor pad of the keyboard to move the highlight and arrow to the appropriate flexible (called "removable" on the screen) disc drive. In the screen above, drive A represents the first flexible disc drive.
5. Insert a new, 3-1/2", blank disc in the HP 9122D/S.
6. Press **FORMAT OPTIONS (F1)**. The following screen appears:



7. This screen offers you the following options:
   a. **Toggle Format (F3)** allows you to choose single-sided or doule-sided format. Pressing this key changes the ***media capacity*** entry in the middle of

the screen. You will probably want double-sided capacity.

b. **Interleave (F5** or **F6)**. 2 is the optimum interleave; if the *media Interleave Factor* is not 2, press **Lower Interleave (F5)** or **Higher Interleave (F6)** until the factor is 2.

CAUTION If you format a disc that already has information on it (programs, applications, files, etc.), **the information will be destroyed during the formatting process**. A disc drive described as *Certified, DOS* on the Format Options screen probably already has information on it.

Make sure you want to format the disc before you press **Start Format**.

---

8. When you have chosen from among the options in Step 7, you may press **Start Format (F1)**. If you decide not to format this disc, press **Cancel (F8)**.

9. When formatting is complete, the screen will change and ask you if you want to format another flexible disc.

10. If you do want to format another disc, remove the disc from the HP 9122D/S and place another new, 3-1/2", blank disc in the drive.

11. Press **Restart Format (F1)**.

12. When you have finished formatting all of the flexible discs you care to, press **HPFORMAT MAIN (F8)**. You will return to the HPFORMAT screen titled Main.

13. You can now begin using your HP 9122D/S with your HP Vectra. To learn about handling flexible discs and about Media Monitor, read your HP 9122D/S manual.

Using Other Features of the HPFORMAT Program

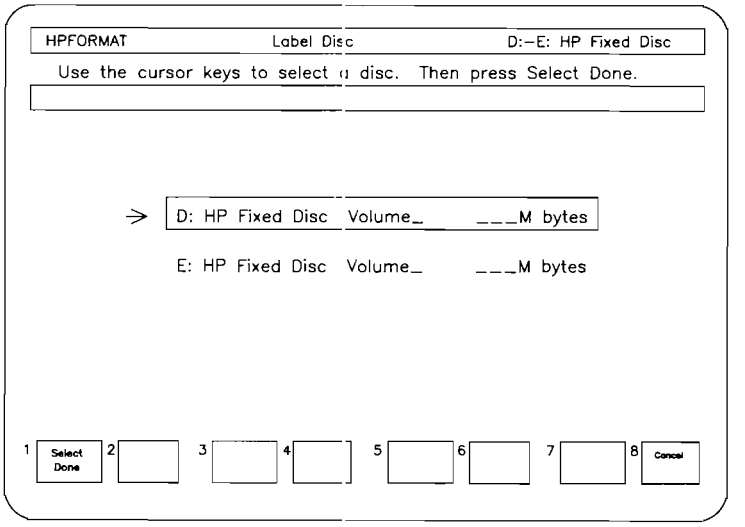
Labelling Discs

On your HPFORMAT Main screen, you have two other function labels, **Label Disc (F4)** and **Clear Disc (F3)**. These function labels work only with Hewlett-Packard discs formatted with Format Procedure #2 (HP Fixed Discs).

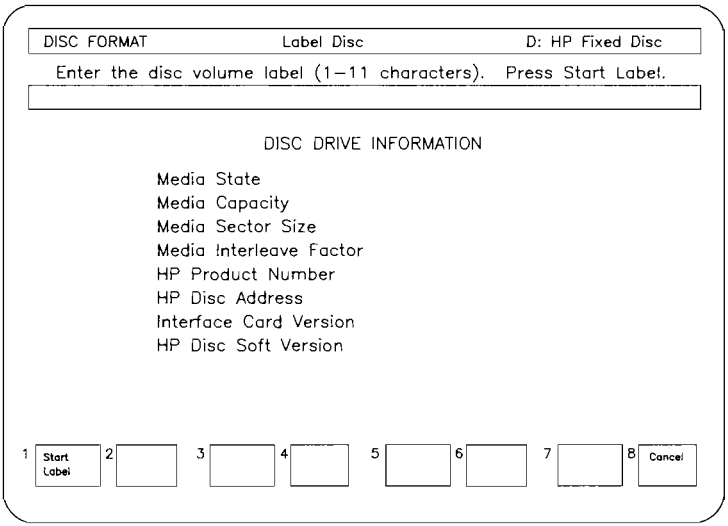
On the HPFORMAT Main screen, you have a **Label Disc (F4)** key. The label you give an HP Disc is the label that appears when you use the **DIR** or **CHKDSK** commands. Follow these steps to label an HP Disc:

The screens in the following examples are for HP Fixed Discs. If you are labelling flexible discs, your screens will be slightly different.

1. Press **Label Disc (F4)**. The following screen appears:



2. Move the arrow to the *HP Fixed Disc* that you wish to label. This *HP Fixed Disc* should be highlighted.
3. Press **Select Done (F1)**. The following screen appears:



4. On this screen, type the label you wish to give the fixed disc and press **Start Label (F1)**.
5. A message appears, *The disc drive ____ has been named successfully*. When you see this message, press **Continue (F8)** to return to the HPFORMAT main screen.

HINT If you have partitioned your fixed disc into multiple volumes, remember to label each volume.

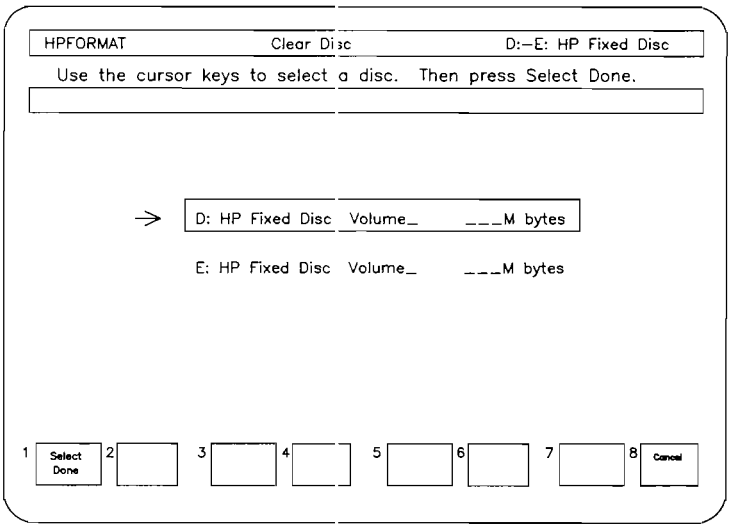
Clearing Discs

On the HPFORMAT Main screen, you have a **Clear Disc (F3)** key. Clearing a disc removes all the files and directories from the disc, but leaves the disc formatted. Clearing a disc is much faster than formatting it.

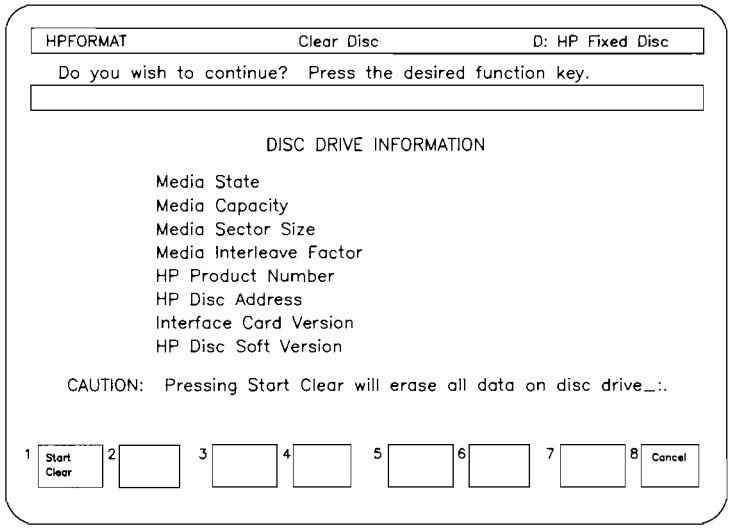
HINT You can only use **Clear Disc (F3)** on a disc that you have formatted using Format Procedure #2 or an HP 9122D/S flexible disc. You cannot use the **Clear Disc (F3)** key with an HP Boot Disc or with a built-in fixed disc in your computer.

Use the following steps to clear an HP Fixed Disc:

1. Make sure you are on the HPFORMAT Main screen.
2. Press **Clear Disc (F3)**. The following screen appears:



3. Move the arrow to the *HP Fixed Disc* you wish to clear. This *HP Fixed Disc* should be highlighted.
4. Press **Select Done (F1)**. The following screen appears:



CAUTION **Start Clear** erases all files and directories from your disc. Make sure you want to erase all files and directories before you press **Start Clear**.

5. If you are sure you wish to erase all files and directories from your disc, press **Start Clear (F1)**.
6. A message appears: *The disc drive has been cleared successfully*. When you see this message, press **Continue (F8)** to return to the HPFORMAT Main screen.

5 Using Your HP Tape Drive

Introduction

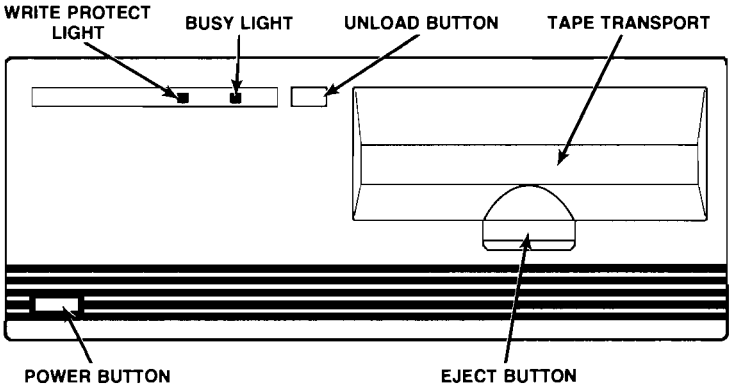
A tape drive is a device that allows a computer to read data that is stored on a tape cartridge or write data to a tape cartridge. A tape cartridge is similar to a cassette tape, but it stores programs and data instead of music.

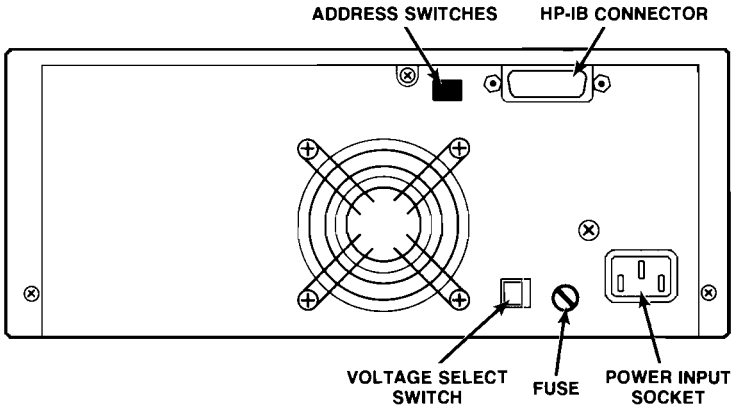
Tape drives make excellent backup devices. The media is removable and easy to store. Copying the files from your fixed disc to your tape drive provides security against loss of files and possible fixed disc failure. The process of making this copy is called "backing up your disc" or "making a backup."

The HP 9142A Tape Drive is a streaming data storage device using a 1/4-inch tape cartridge. The tape drive is a backup device for discs of storage capacities of up to 10 to 60 megabytes. Two lengths of data cartridges are available, the 150-ft., 15 megabyte (92242S), and the 600-ft., 60 megabyte (92242L).

This chapter describes how to turn on your system and how to load and unload the tape cartridge. It also details how to load Hewlett- Packard Utilities on your fixed disc.

Before you turn on your tape drive, make certain the address is set correctly. Please refer to *Chapter 3, Setting up Your HP Disc or Tape Drive,* for addressing information.

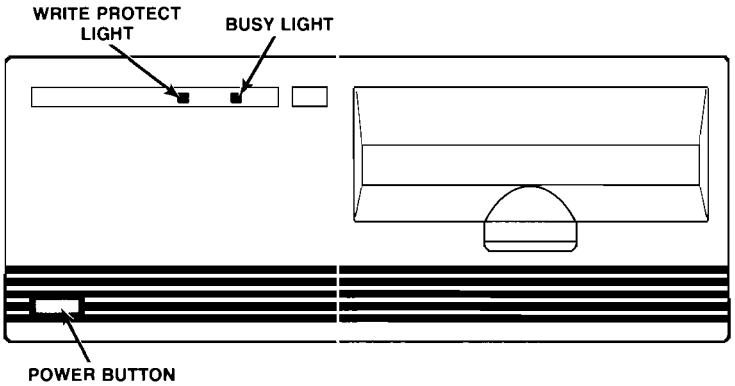




The HP 9142A Tape Drive

Turning On Your System

You are now ready to turn on your HP tape drive. Remember, always turn on the tape drive and make sure it passes selftest before turning on your computer.



Power Button, BUSY and PROTECT Lights.

1. Locate the power button on the front panel of your HP tape drive. The tape drive is *on* when the button is in and *off* when the button is out. Turn on the tape drive.

   The tape drive performs a selftest when you turn it on. The selftest takes between 5 and 10 seconds; during this time, both the BUSY and PROTECT lights are lit.

HINT If you do not see the lights, your tape may not have powered on. Check that the drive's power button is pushed in and the power cord is connected.

If your drive still does not power up, you may need to change the fuse. Please read your tape drive manual for information on changing fuses.

---

2. Wait 10 seconds. After 10 seconds, both the BUSY and PROTECT lights should go out, indicating that your tape drive has passed the selftest. The selftest takes a few seconds longer when a tape is in the drive.

   When both the BUSY and PROTECT lights go out, you are ready to use your tape drive.

3. The tape drive has failed selftest if both the BUSY and PROTECT lights begin flashing. Turn off the tape drive. Turn the tape drive on again to repeat the selftest.

   If your tape drive fails after this repetition of the selftest, contact your dealer or the nearest Hewlett-Packard Sales and Support Office.

4. Turn on your computer and load the operating system (*DOS*).

HINT You can verify the drive's address by running the HPTEST diagnostic program provided with the **Disc/Tape Software**. A list of your connected drives and their addresses is displayed at the beginning of the program. Refer to *Appendix A, Diagnostics* for HPTEST information.

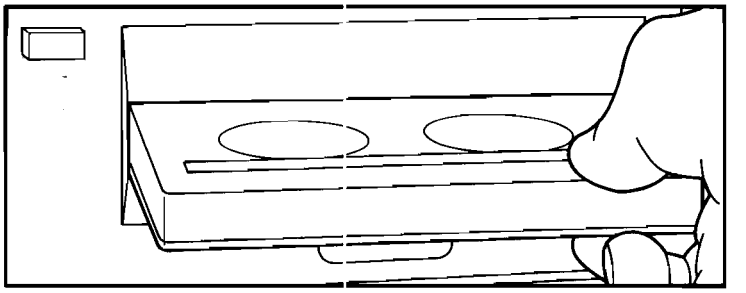
Loading or Inserting the Tape Cartridge

Use the following steps when inserting a tape cartridge into your tape drive:

1. Remove both the cellophane wrap and the plastic case from the tape cartridge.

   Store the tape cartridge in its plastic case when you are not using it.

2. Insert the tape cartridge into the tape transport opening of the tape drive. Make sure the cartridge clicks securely in place.



Loading or Inserting the Tape Cartridge

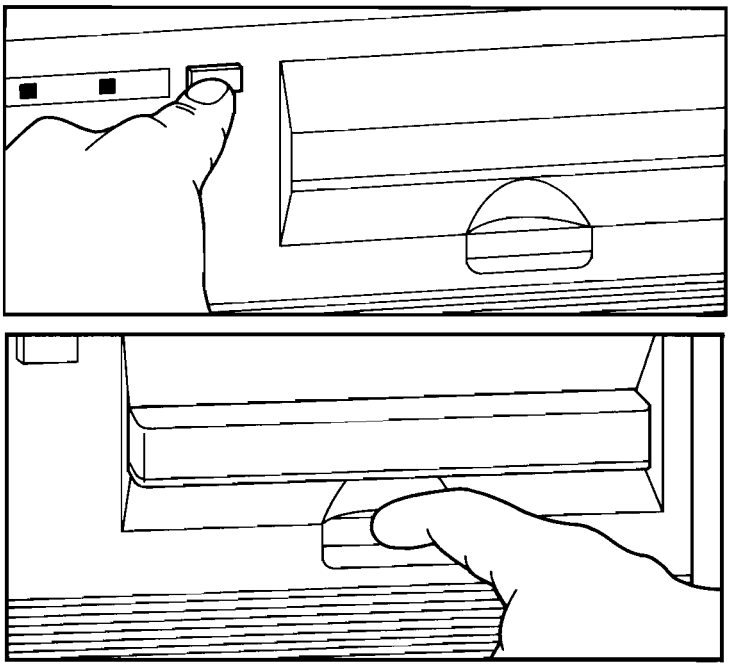
HINT Loading the tape cartridge into a drive that is turned on initiates several automatic routines that prepare the tape cartridge for read and write operations. These routines take approximately two minutes for the 150-ft. cartridge and three minutes for the 600-ft. cartridge. Once these routines begin, the tape cartridge is LOCKED in the drive until you unload it.

If the drive is not on when you insert the tape cartridge, the above routines follow the selftest when the tape drive is turned on.

You must format the tape cartridge before you can use it. Formatting takes approximately 20 minutes for the 150-ft. cartridge and 65 to 75 minutes for the 600-ft. cartridge. Formatting is described in *Chapter 6, Using the HPTAPE Utility Program.*

Unloading or Removing the Tape Cartridge

Use the following steps to unload or remove a tape cartridge from your tape drive.



Unloading or Removing the Tape Cartridge

1. Press the **Unload** button to begin unloading. The BUSY light flashes several times.

HINT THE TAPE DRIVE FINISHES ANY READ OR WRITE OPERATION THAT IS IN PROGRESS BEFORE UNLOADING.

Unloading takes about 30 seconds for the 150-ft. cartridge and about two minutes for the 600-ft. cartridge.

---

2. Wait for the BUSY light to go out.
3. Press the **Eject** button to eject the tape cartridge.

CAUTION If the PROTECT light begins to flash after the BUSY light goes out during unloading, the tape cartridge has exceeded its useful life. Read the *Meaia Monitor* section in the drive manual.

Loading HP Utilities on Your Fixed Disc

If your computer has a built-in fixed disc, you may want to copy *DOS* and the **Disc/Tape Software** disc (found in the back of this binder) to your built-in fixed disc.

HINT If you change or add any peripheral devices, turn off and on your system. Your computer checks all peripheral devices as part of its power-on procedure. The computer then expects these same devices to be ready when needed.

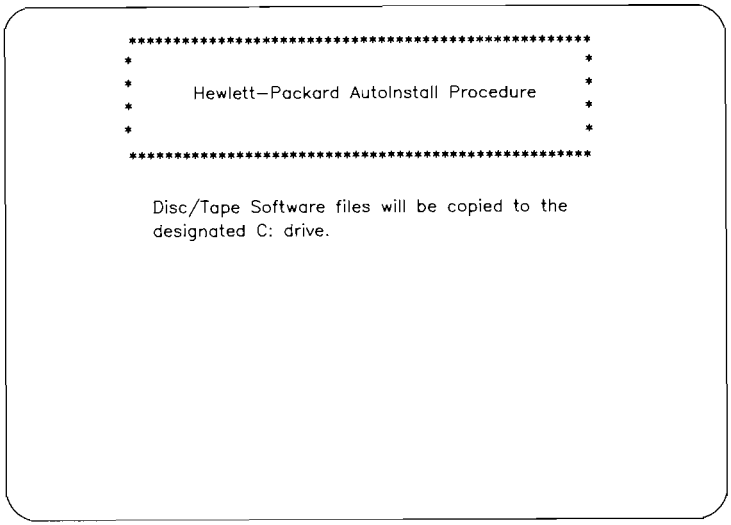
After adding any new HP disc or tape drive to your computer system, you must repeat the HPSETUP procedure that follows.

Use the following steps to copy your **Disc/Tape Software** disc to the fixed disc from which you load your operating system (drive C):

1. Insert the **Disc/Tape Software** disc in your flexible disc drive A.

HINT The **Disc/Tape Software** disc is a double-sided disc. If you have a single-sided disc drive, contact your dealer or HP sales office for help. Or, you may order a single-sided kit using HP part number 88500-67902. This kit may be ordered from the Hewlett-Packard Direct Marketing Division, 1320 Kifer Road, Sunnyvale, California 94086. Telephone 800-538-8787 toll free in the United States or 406-738-4133 in California.

2. Enter the requested date and time. Make sure you have an A> on your screen. If you have any other *DOS* prompt (for example, C>), type **A:** after the prompt and press the **return** key. An A> will appear on your screen.
3. After the A>, type **HPSETUP FROM A: TO C:** and press the **return** key. A new screen appears:

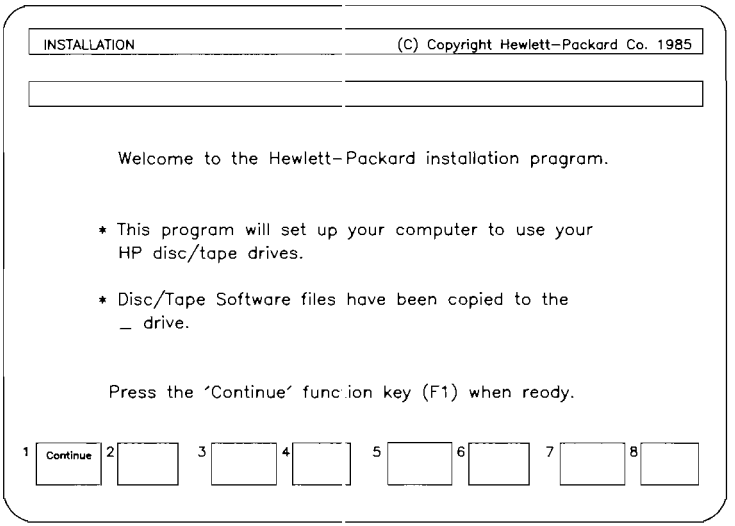


NOTE If you would like to put the software into a sub-directory, specify the sub-directory as follows:

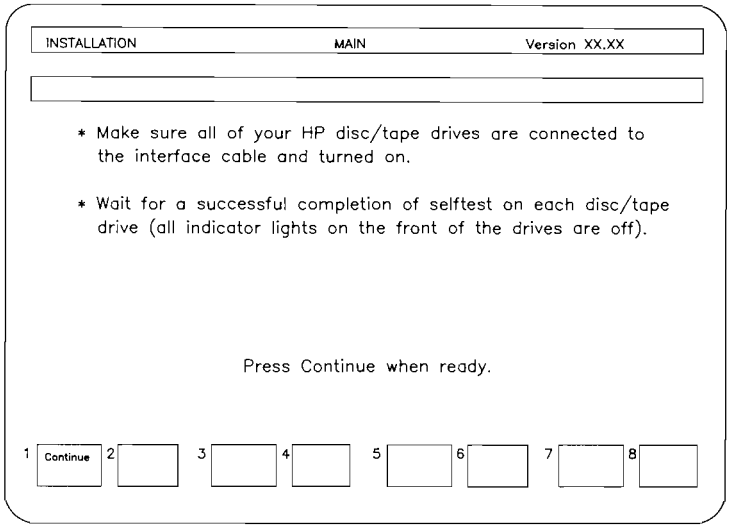
C: / ***sub-directory name***

Do not put another " / " after the sub-directory name. Refer to your *DOS* user manual for more sub-directory information.

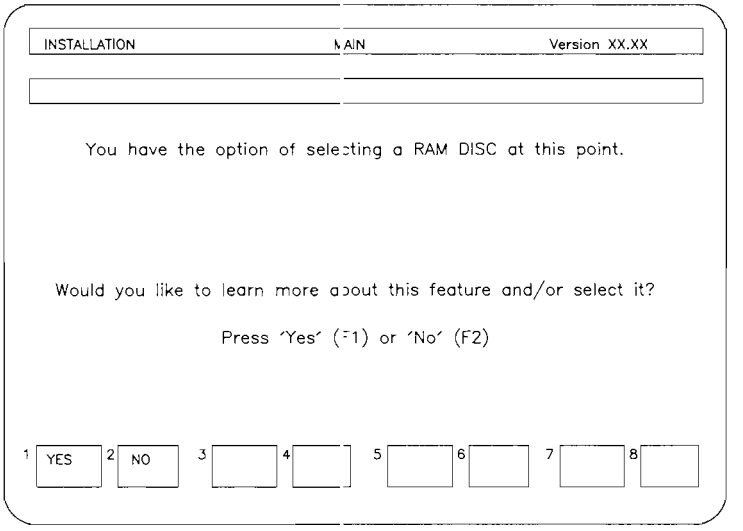
4. Over the next few minutes, filenames appear on your screen. These files are being copied from the flexible disc in drive A to your fixed disc (drive C).
5. When copying is complete, the following screen appears:



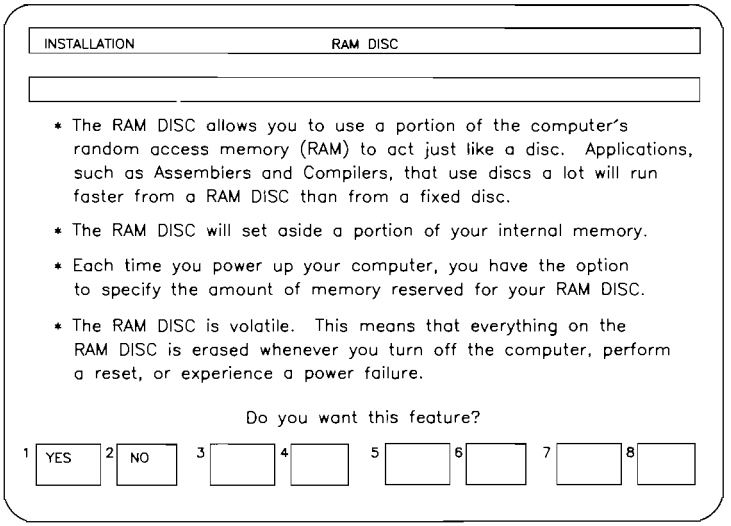
6. Press **Continue**. The following screen appears:



7. Make sure all your Hewlett-Packard disc and tape drives are connected to your computer, that you have turned them on, and that they have passed selftests. Press **Continue**.
8. A message appears on your screen, *Identifying drives. . Please wait*. Then a new screen appears:



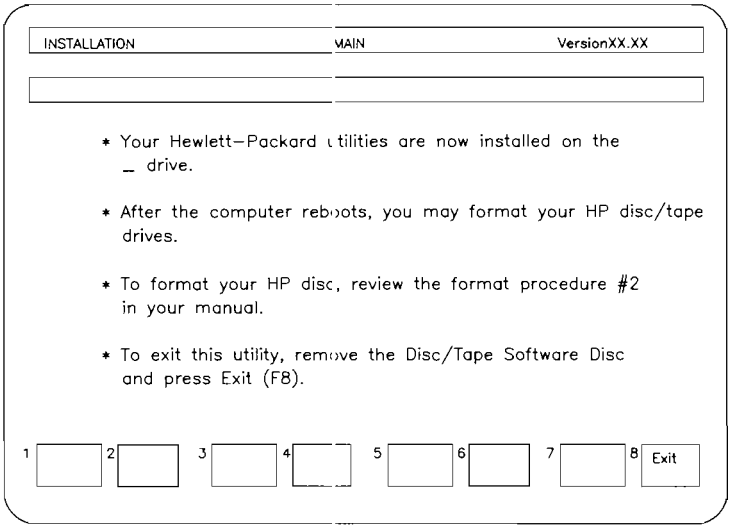
9. You now have the option of selecting the RAM disc.
10. To select the RAM disc, press **YES (F1)**. Hereafter, each time you power up your computer, you will have the option of specifying the amount of memory reserved for the RAM disc.
11. If you do not want the RAM disc, press **NO (F2)**. No memory will be allocated for the RAM disc. Hereafter, you will not be given the option for the RAM disc when you power up your computer. If you want the RAM disc at some other time, you will have to modify the *CONFIG.SYS* file.



NOTE

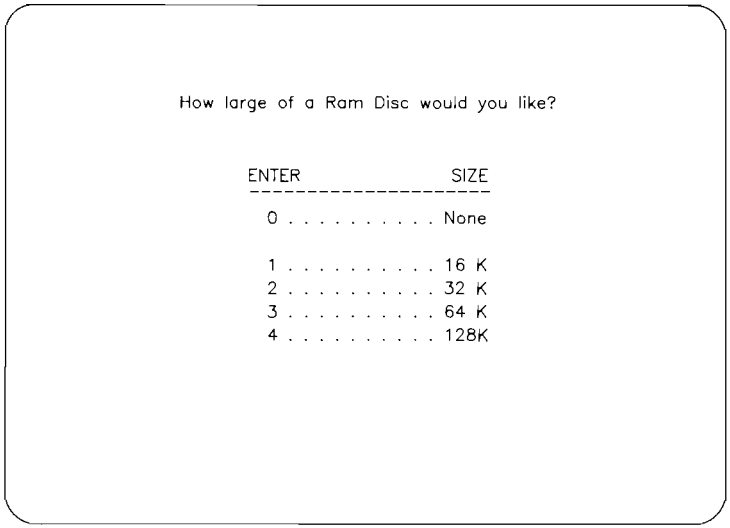
If you would like to know more about the RAM disc, please read the RAM disc chapter in this manual. The information there will clarify and enhance your use of the RAM disc.

12. A message appears on your screen, *WORKING . . . Please wait.* After a few seconds, the following screen appears:



13. If you see this screen, remove the **Disc/Tape Software** and press **Exit**. Your system reboots.

If you selected the RAM disc, you now see the following screen when the system reboots:



Your screen may not exactly match the above screen. The choices displayed on your screen depend on the amount of memory your computer has.

Type in the number that corresponds to the amount of memory you wish to reserve for your RAM disc. The drive letter of your RAM disc is usually the next drive letter after your boot disc.

Every time you load your operating system, it tells you that the tape driver has been installed onto the system disc. The following lines appear on the display.

HP Installable Driver ____.____ Copyright Hewlett-Packard Co. 1985

If these lines do not appear, you cannot use the tape drive.

Using Your Tape Drive in Place of a Disc Drive

The HP 9142A Tape Drive, with the HP 88500A Interface and software, can be used as if it were a disc drive. This feature is especially useful when your disc is being serviced. Though the tape drive is slower than the disc drive, it can perform all of the same storage operations. To use a tape drive as a replacement disc drive, use the standard copy and restore commands using the tape drive *DOS* letters rather than the disc drive *DOS* letters.

6 Using the HPTAPE Utility Program

Running the HPTAPE Program

This section describes the use of the HPTAPE software program (HPTAPE) that is on the **Disc/Tape Software** disc.

In this chapter, we take you through the steps needed to do the following:

Backup your data (run HPTAPE)
Format a tape cartridge
Partition a tape cartridge
Name Volumes
Clear volumes
Rename volumes
Reread tapes
Do an Image copy
Restore your data

To run HPTAPE, follow these steps:

1. Make sure the tape drive is turned on.
2. Turn on your computer and load *DOS*.

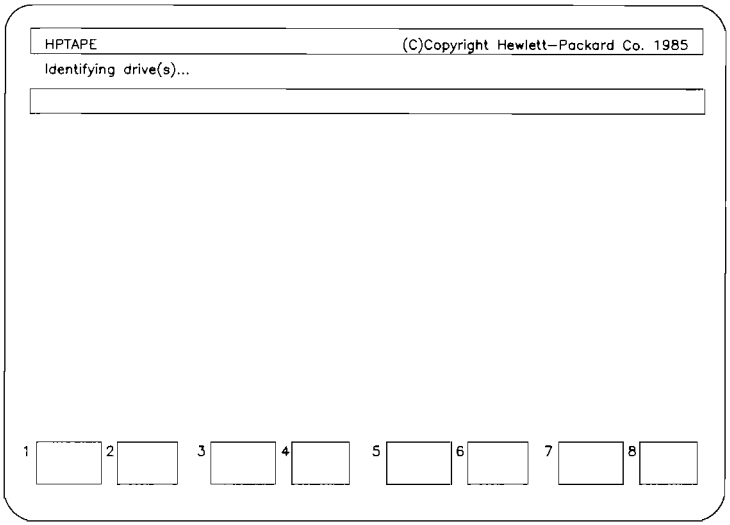
   You now want a *DOS* prompt on your screen that matches the drive letter of the drive from which you loaded *DOS*. For example, if you loaded *DOS* from a fixed disc (drive C) you see a C> prompt on the screen.

   If you do not get the *DOS* prompt when you turn on your computer, see *Appendix A, Diagnostics.*

HINT If you have installed the **Disc/Tape Software** onto a fixed disc (drive C), you see a C> prompt. If the **Disc/Tape Software** disc is in your flexible disc drive, you should see an A> prompt on your screen.

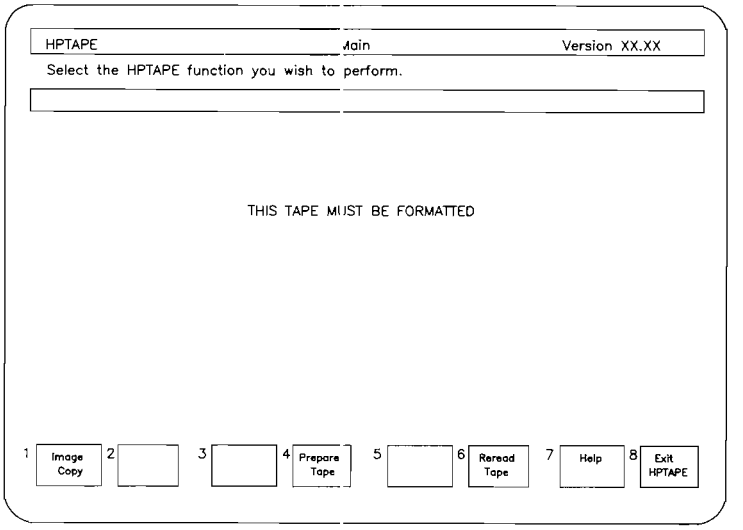
If you do not have the right prompt, type the appropriate drive letter and a colon (:) and press the **return** key. If, for example, you see an A> on your screen and you need a C>, type **C:** after the A> prompt and press the **return** key. C> appears on the screen.

3. Load the HPTAPE program contained in your **Disc/ Tape software** by typing **HPTAPE** after the *DOS* prompt and pressing the **return** key.
4. Your computer loads and runs the HPTAPE utility. The following HPTAPE screen appears:



Learning About HPTAPE Screens

Before you continue using HPTAPE, you should learn more about the screens you will see. As an example, look at the following screen. This screen appears after the system has identified all drives and is the **Main** screen for **HPTAPE**.



1. The first line of all the screens contains the title of the program followed by the title of the individual screen.
2. The second line of the screen is reserved for messages from HPTAPE to you.
3. Data or instructions about the present screen appear in the center of the screen. For example, the above screen displays *This tape must be formatted.* Before you can use the tape cartridge that is currently in the drive for storing data, it must be formatted.
4. On the bottom of the screen are eight function boxes (1 through 8). These boxes correspond to the function keys on the left side of your keyboard (**F1** to **F8**).

F1 selects the first box on the left side of the screen. **F2** selects the second box from the left, and so on. As you continue through this chapter, you will press these keys to perform backup functions.

5. On most screens, **F7** is a **Help** key.
6. **F8** is always either an **Exit** or **Cancel** key. You will now exit the HPTAPE program, and will return to it when you format the tape cartridge.

Exiting the HPTAPE Program

Use the following steps to get out of HPTAPE and back to the C> *DOS* prompt. C> is used throughout the rest of this chapter and refers to the fixed disc that contains the permanent copy of the HPTAPE software.

1. If you are not on the Main HPTAPE screen (top center of the screen displays *Main*), press **F8** until the Main HPTAPE screen appears.
2. On the Main HPTAPE screen, press **F8**. The C> *DOS* prompt should appear, indicating that you are out of the program.

Formatting a Tape Cartridge

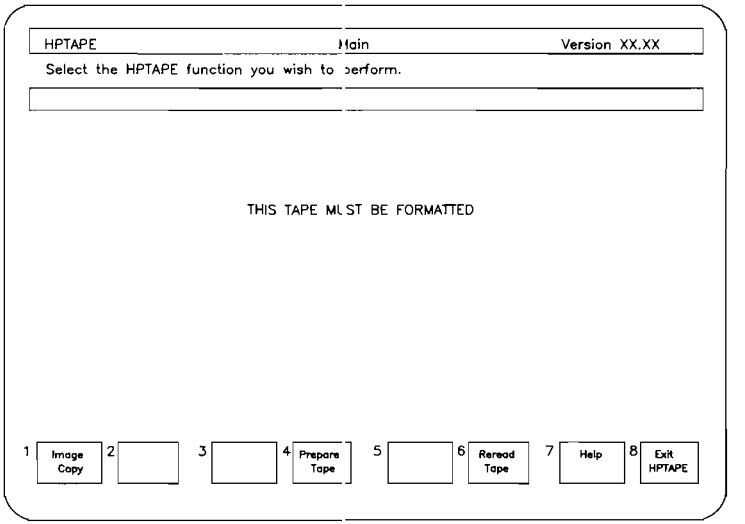
Before you use a tape cartridge for the first time, you must format it. Formatting is a process that prepares a blank tape cartridge to receive information. Formatting takes about 20 minutes for the 150-ft. cartridge and 65 to 75 minutes for the 600-ft. cartridge.

NOTE You can use your computer for other tasks while a tape cartridge is formatting. Formatting a tape cartridge without tying up the use of your computer is called "offline formatting."

Use the following steps to format a tape cartridge:

1. Turn on the tape drive. Wait for the successful completion of the selftest. Load a new tape cartridge and wait for the BUSY light to go out.
2. Turn on your computer (load *DOS*).
3. At the *DOS* prompt, type **HPTAPE** and press the **return** key. This loads and runs the Tape Utility.

   The first screen, *Identifying drive(s)*, is displayed while the computer checks the HP tape drive and any other drives connected to the system. When the checking is done, a second screen appears:



4. Look at the message displayed on the screen. Depending on the condition of the tape cartridge in the tape drive, you see one of the following messages displayed on your screen:

   a. *This tape must be formatted.*

b. *The previous format failed on this tape.*

c. *Volume(s) must be assigned to this tape.*

d. *This tape has an unknown format.*

e. *The tape drive is busy.*

f. *Error accessing the tape drive, reread the tape.*

g. *No tape is loaded in the drive.*

h. *A list of tape volumes if the tape is already formatted (it may contain data).*

If you see one of the first four messages, go to step 5.

If you see the message *The tape drive is busy*, wait for the busy light to go out, reread the tape, and then go to step 5.

If you see the message *Error accessing the tape drive, reread the tape*, press **Reread Tape (F6)**. If the error message reappears, see *Appendix A, Diagnostics*. If you see the message *No tape is loaded in the drive*, do the following:

1) Insert a tape cartridge if no cartridge is in the tape drive.

2) **Make sure the tape cartridge is loaded**. Press the **Eject** button. If the cartridge is loaded, the **Eject** button is locked and will not push in. If the cartridge is unloaded, pressing the **Eject** button will eject the tape cartridge. Unformatted tape cartridges that are write protected are unloaded by the tape drive. Read the tape drive user manual for information on correcting the SAFE (write protect) setting.

If a tape cartridge is bad (failed load tests), it is unloaded by the tape drive. Eject the cartridge and try another cartridge.

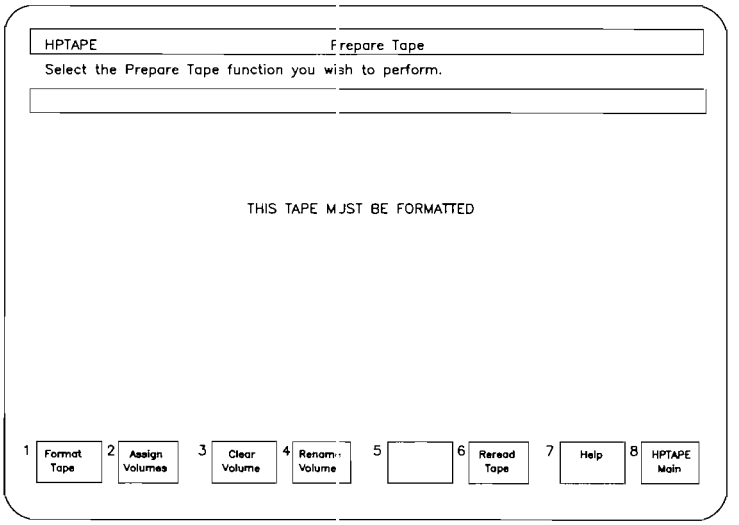
3) Press **Reread Tape (F6)** once the tape cartridge is loaded. The screen should display one of the first four messages listed above. If you see *No tape is*

loaded in the drive again, repeat the last three steps with another tape cartridge.

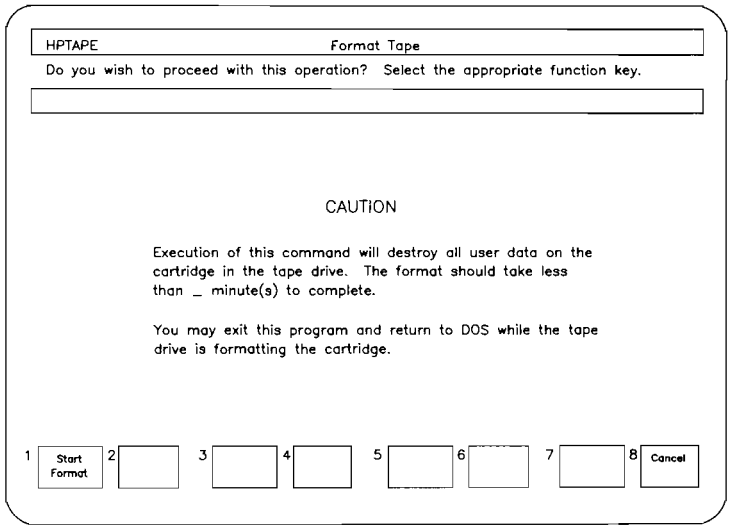
NOTE Four volumes (drive letters) are reserved for each tape drive. Whenever you need to determine your current system configuration (the drive letter assignments), run HPTEST as described in *Appendix A, Diagnostics.*

---

5. Press **Prepare Tape (F4)**. The following screen appears:



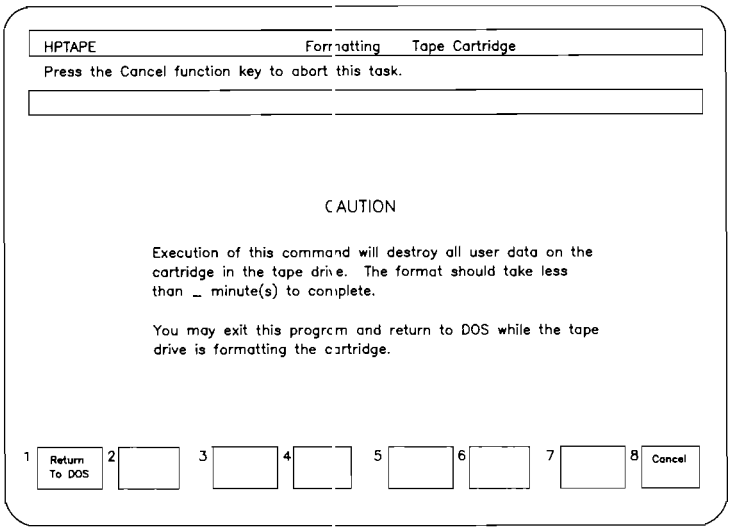
6. Press **Format Tape (F1)**. This screen appears:



Note the CAUTION on the above screen. Formatting destroys all previously written data on the tape cartridge.

If you have valuable data on the tape cartridge in the tape drive, press **Cancel (F8)**. This stops the formatting process. You can stop formatting at any time, but must format a cartridge to use it.

7. Press **Start Format (F1)**. This starts formatting the tape cartridge and displays the following screen:



Your tape cartridge is now formatting and will continue to format, even if you return to *DOS*.

a. You have the option of leaving the computer alone during formatting or pressing **Return To *DOS* (F1)**.

b. Pressing **F1** gets you back to the C>*DOS* prompt. You can now use the computer for other tasks that do not involve the tape drive.

c. The BUSY light on the front of the tape drive is on, indicating that the tape drive is formatting the tape cartridge.

d. Once formatting is finished, the BUSY light on the front panel of the tape drive will go out. The following step prepares the tape cartridge and sets up partitions and volume names.

8. When formatting is complete, a message appears on the top line of your screen: ***The tape has been formatted successfully***. When you see this message, press **Continue (F8)**. Then press **HPTAPE Main (F8)** to return to the Main HPTAPE screen.

HINT If you pressed **Return To DOS**, you must type **HPTAPE** from the C> *DOS* prompt to get back into the Tape Utility.

Partitioning a Tape Cartridge and Naming Volumes

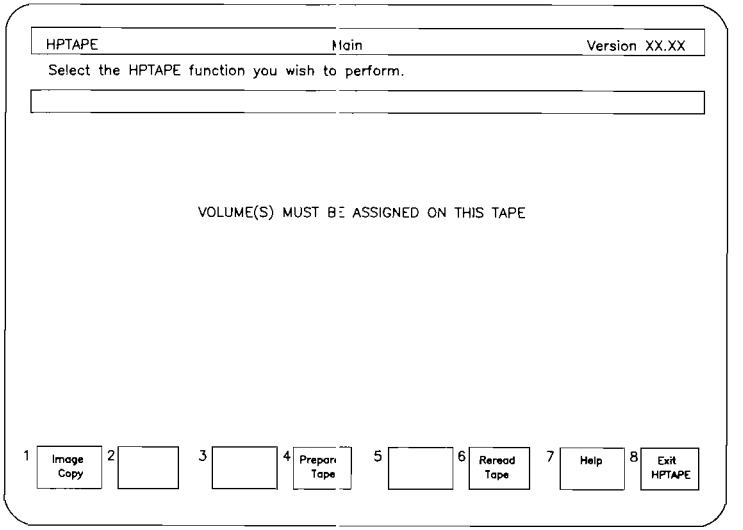
Partitions divide your tape cartridge into easy-to handle, equal-sized sections that more closely match the capacity of your fixed disc. Each section or partition is called a volume. Four volumes (*DOS* letters) are reserved for each tape drive.

If you have a 150-ft. cartridge, you can store approximately 15 megabytes of data on it. If you are backing up a 5 megabyte fixed disc, you can divide the tape into two volumes and get two separate backups on one tape. Similiarly, if you have a 600-ft. cartridge which can store up to 60 megabytes of data, you probably should divide it into the number of volumes that best matches the capacity of your fixed disc.

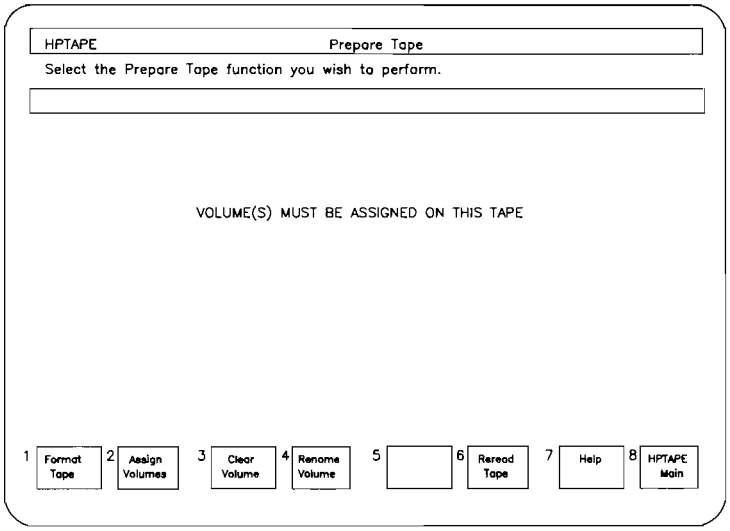
HINT The volume names assigned to the tape cartridge do not correspond to *DOS* volume names. If you do a **DIR** on the newly named tape volume, it will have no *DOS* volume name. When you back up a disc, the disc's *DOS* volume name becomes the tape's *DOS* volume name. The volume names you assign here are HPTAPE names and are only used with HPTAPE.

Use the following steps to partition your tape cartridge and assign volumes.

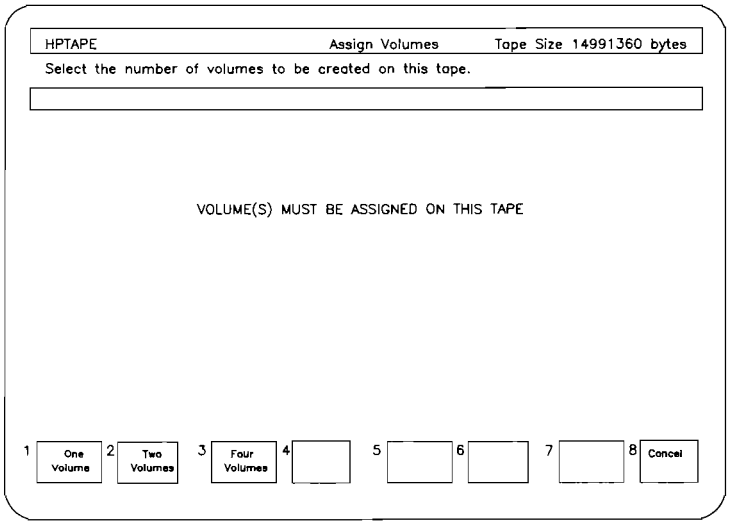
1. Make sure the HPTAPE Main screen is displayed:



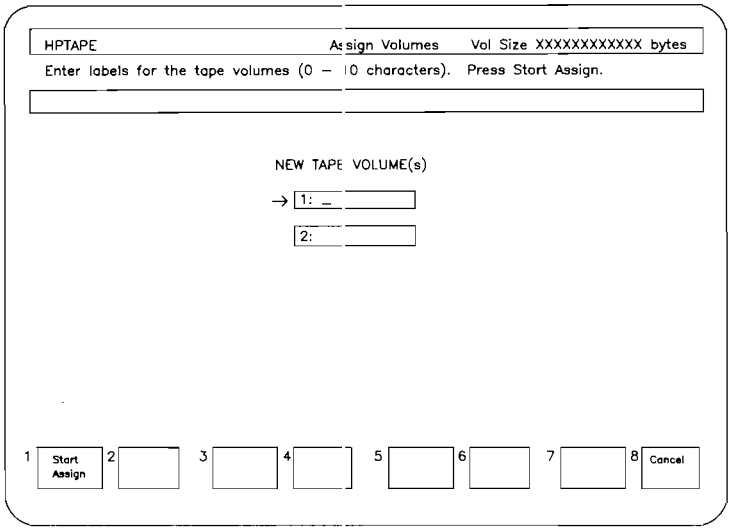
2. Press **Prepare Tape (F4)**.



3. Press **Assign Volumes (F2)**.



4. Press **F1**, **F2** or **F3**. This specifies the number of equal-sized volumes the tape cartridge is to be divided into. When you press **F1**, **F2**, or **F3**, the following screen appears:



Note the number in the upper right corner of the screen. This number is the number of bytes (characters) you can store in each of the volumes. One, two, or four volumes can be assigned to a tape.

CAUTION Changing the number of volumes on a used tape destroys previously written data.

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5. Type in any name you wish for a volume name or label. Your name must be 10 characters or less (characters and/or numbers, no spaces). This name can be changed later if desired (see *Rename Volume* in this chapter).

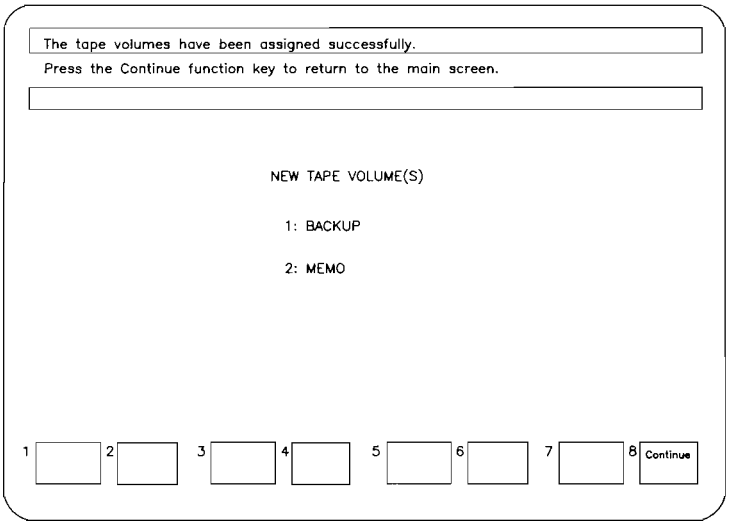
If you selected one volume, go to step 6 after you type in the name.

If you selected more than one volume, type a name for the first volume and press the **return** key. Pressing the **return** key moves you to the following volume so you can name that volume. Repeat this process until you have named all volumes.

Naming volumes is not mandatory, but naming makes volumes easier to handle and separate.

6. Press **Start Assign**. Your computer now partitions the tape cartridge into volumes and names the volumes.

   The volume names used in the following screen example are *BACKUP* and *MEMO*.



When the volumes have been assigned, the top line on the screen reads ***The tape volumes have been assigned successfully.***

7. Pressing **Continue (F8)** takes you back to the Prepare Tape screen. You can now exit this screen by pressing **HPTAPE Main (F8)**. You are now ready to use this tape cartridge to store programs and data.

HINT For storing individual files see *Copying Files* in the manual, *Using Data Manager* (HP part number 88500-90010). If you prefer, you may also use the *DOS* copy command.

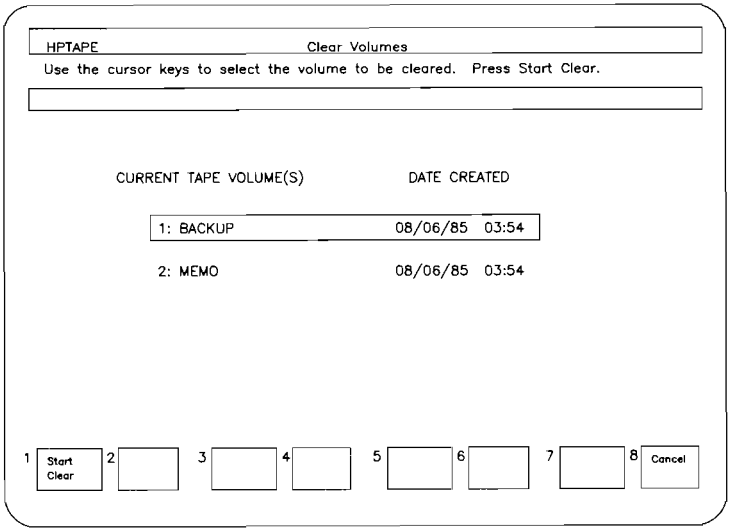
To make a backup copy of your fixed disc, see *Making an Image Copy* in this chapter.

Clearing Volumes

Clear Volume allows you to erase or delete all the files contained in the volume you specify. **All the data and programs in the selected volume are lost.** Only the volume name remains.

Use the following steps to clear volumes:

1. Press **Prepare Tape (F4)** from the HPTAPE Main screen.
2. Press **Clear Volume (F3)** to display the following screen.



3. Note the highlighted block on your screen. This **highlighter** indicates your position on the screen.

   Move the highlighter on the screen using **Home**, **End**, **up arrow** (↑), and **down arrow** (↓) on the keyboard of your computer.
4. Move the highlighter to the volume name that you want to clear. You can only clear one volume at a time.
5. Press **Start Clear (F1)**. After the volume is cleared, press **Continue (F8)** to exit.

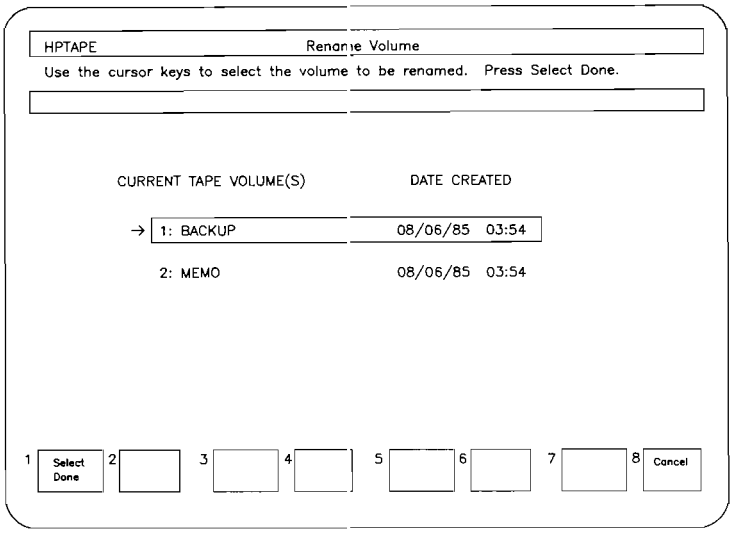
Renaming Volumes

Rename Volume allows you to change a volume name. After using your tape cartridge for a while, you may think of more descriptive names for your volumes.

Use the following steps to rename volumes:

1. Press **Prepare Tape (F4)** from the HPTAPE Main screen.

2. Press **Rename Volume (F4)** to display the following screen:

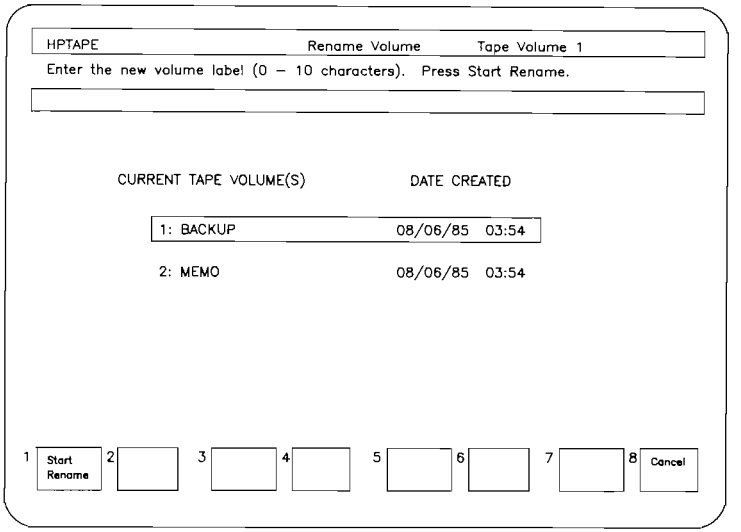


3. Note the highlighted block on your screen. This **highlighter** indicates your position on the screen.

   Move the highlighter on the screen using **Home**, **End**, **up arrow** (↑), and **down arrow** (↓) on the keyboard of your computer.

4. Move the highlighter to the volume name that you want to change. You can only change one volume name at a time. If you have only one volume on your tape, you do not have to complete step 5. Go to 6.

5. Press **Select Done (F1)**. This displays the next screen.



6. Type in the new name. The name can be 10 characters or less. Use the **Del** key to shorten a name, if necessary.

HINT The volume names assigned to the tape cartridge do not correspond to *DOS* volume names. If you do a **DIR** on the newly named tape volume, it will have no *DOS* volume name. When you back up a disc, the disc's *DOS* volume name becomes the tape's *DOS* volume name. The volume names you assign here are HPTAPE names and are ony used with HPTAPE.

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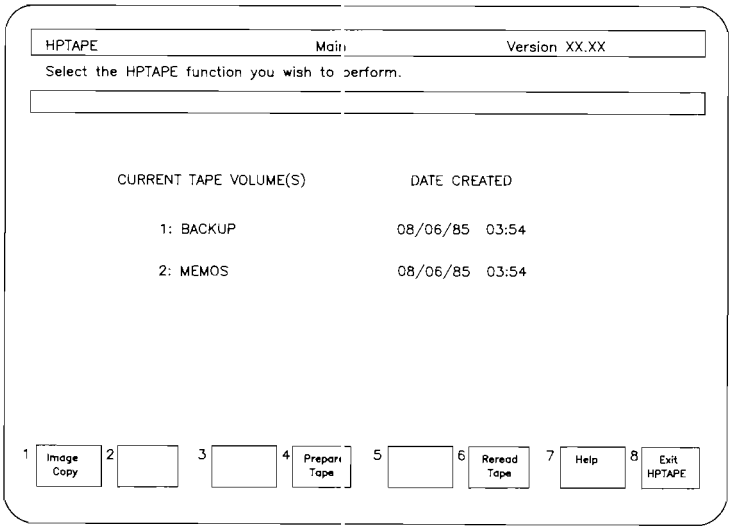
7. Press **Start Rename (F1)**.
8. Press **Continue (F8)** to get back to the Prepare Tape screen.
9. Press **HPTAPE Main (F8)** to return to the Main HPTAPE screen.

Rereading Tapes

The **Reread Tape (F6)** key allows you to change tape cartridges without exiting and reentering the HPTAPE Utility.

DOS remembers the files and volumes that make up the tape cartridge directory. When you change tape cartridges, you must REREAD. For information on directories, read the Data Manager manual.

The **Reread Tape (F6)** key appears on the HPTAPE Main screen and on the Prepare Tape screen. Press **Reread Tape (F6)** to update the *DOS* memory if you change your tape cartridge.

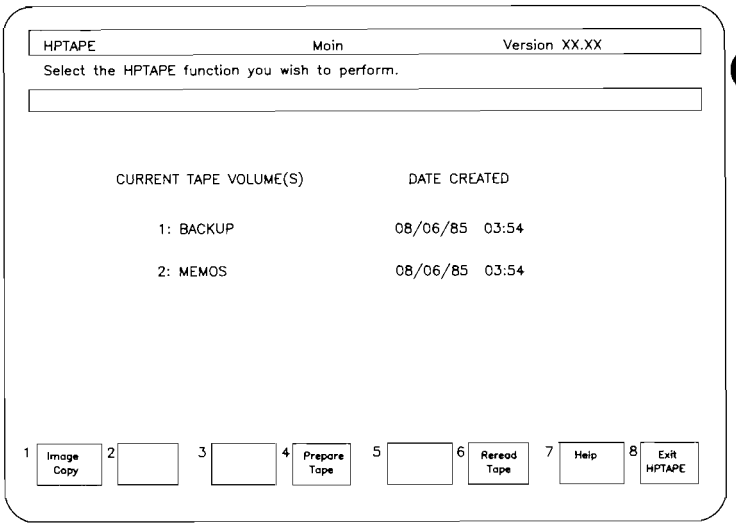


Making an Image Copy

Image Copy makes an exact copy of your fixed disc.

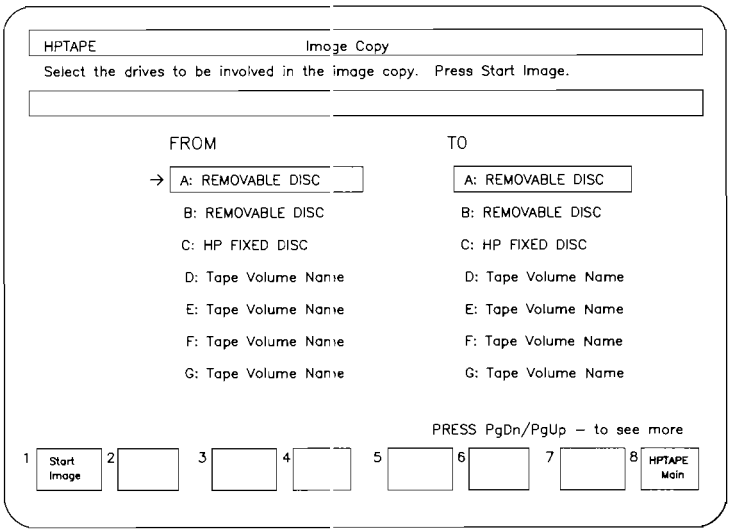
HINT You cannot use Image Copy until you have formatted the tape cartridge and assigned volumes. For help, see *Formatting a Tape Cartridge* in this chapter.

The HPTAPE Main screen appears on the display after your computer has identified all peripheral devices. Note that the screen now displays the volumes and volume names assigned in the preceding section, *Partitioning Your Tape Cartridge and Naming the Volumes.*



Use the following steps to make an image copy.

1. Press **Image Copy (F1)**. This function key displays the following sample screen and options. Your screen may show different drive letters, depending on whether you have a second disc drive or the RAM disc.



2. You now must select the drives involved in the copy. In the **FROM** column press **up arrow** (↑) or **down** arrow (↓) to move the highlighter to the drive that contains the data to be backed up or restored. For example, if you want to make an image copy of the data on your HP fixed disc, move the arrow to drive *C: HP FIXED DISC*.
3. Press **right arrow** to move the arrow on your screen to the **TO** column.
4. In the **TO** column, press **up arrow** or **down arrow** to move the highlighter to the drive that is to receive the data. For example, if you want to copy the data to your tape drive, move the arrow to a *Tape Volume Name*.

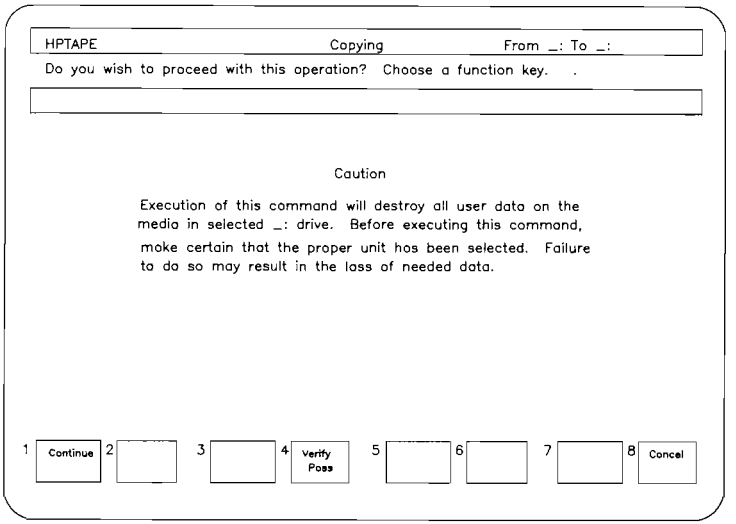
HINT When selecting the drives for the image copy, you must follow these guidelines:

a. One drive must be a tape drive.

b. Both drives cannot be tape drives.

c. Media capacities must allow the image copy. For example, you cannot **Image Copy** 15 megabytes of data onto a tape with less than 15 megabytes of space.

4. Press **Start Image (F1)** to display the next screen.



5. Note the upper right portion of the screen and make sure that the *From* and *To* designations are correct. Make sure the selected drives are not in reverse order.

   Also note the important *Caution*. All the data on the target drive will be replaced by new data.

6. The **Verify Pass (F4)** key is a toggle key. Pressing the key once causes an asterisk to appears in the box. Pressing the key again causes the asterisk to disappear. When the asterisk appears in the box, the tape drive completes a second pass on the data and makes sure that it is correct. Verifying doubles the time required for an image copy.

   Most errors found during verifying will be corrected. A message will appear indicating that an error has been corrected. Errors found in the reserved (system) area of the disc are usually uncorrectable.

   Press **F4** if you want the computer to verify the data.

7. Press **Continue (F1)** to begin the **Image Copy**.

HINT

Image Copy copies two megabytes per minute. Making an image copy with **Verify Pass** ON doubles backup (copy) time because a second pass of the data is made to ensure integrity.

During the image copy, you can stop the copy by pressing **Cancel (F8)**. This aborts the process, but none of the data in this volume is usable. It is recommended that you restart the image copy process from the beginning.

Once you have an image copy of your fixed disc on tape, the tape drive can be used to copy individual files back to your system or restore files back to your fixed disc. See *Copying Files* in the *Data Manager* manual.

NOTE for PC-Network Users

There are three situations that don't allow an **Image Copy**

1. **If the drive is a Remote Network device**. Back up the drive using the Server connected to the Remote device.

2. **If the computer is configured as a Server and the drive is a shared device**. To backup, reconfigure the drive as a non-shared device.
3. **If the computer is configured as a Server, and the drive is not running through an installable driver** (for example, an IBM XT internal drive or an HP drive set at address 0). To back up, reboot the computer as a non-Server, back up the device, then reboot, bringing up the network as a Server.

Refer to the PC-Network user manual for network information.

Backup Using *DOS* Commands

When accessing the HPTAPE program, the **TO** and **FROM** designators can be specified in the initial command. The following two commands load the HPTAPE program and begin an **Image Copy** from drive or volume C to I. These examples use C and I. You would want to specify your **TO** and **FROM** drive or volume where the C and I are used.

The /V in the second example enables the verify option of the tape drive. We recommend that you make all backup copies with the verify option enabled.

Example 1:

From the C> prompt, type:
HPTAPE C: I: and press the **return** key.

Example 2:

From the C> prompt, type:
HPTAPE C: I: /V and press the **return** key.

Backup Using Batch Files

A batch file is a file that contains one or more *DOS* commands. Since your computer system probably will not change, batch files can simplify your backup process.

The preceding *DOS* commands can be placed in a batch file. These commands are executed when the file is loaded. Example 3 show you how to create and run a batch file. This example backs up two fixed disc drives at drive letters C and D to two tape volumes at drive letters I and J. The batch file continues, unattended, until you have a tape backup of both fixed discs.

Example 3:

From the C> prompt, type:
COPY CON BACKUP.BAT and press the **return** key.

COPY CON means to copy from the keyboard. The batch file name in this example is *BACKUP.BAT*. All batch files must end with a *.BAT*.

Type in your backup command. This would be the same *DOS* backup command used in the preceding section.

HPTAPE C: I: /V and press the **return** key.

This command loads and runs HPTAPE and begins an **Image Copy** from drive or volume C to I. The /V is optional and enables the verify option.

For the second **Image Copy**, type:

HPTAPE D: J: /V and press the **return** key.

This begins an **Image Copy** from drive or volume D to J. The /V is optional and enables the verify option. This begins the second **Image Copy** immediately after the first **Image Copy** has completed.

Hold down the **CTRL** key and press **Z Z**; release the **CTRL** key and press the **return** key. This closes and stores the batch file.

To run this batch file from the C>, type:

BACKUP and press the **return** key.

This ties up your computer until the backup has completed. When the backup has completed, the C> prompt returns.

Restoring Your Data

There are two ways to restore the data on your tape: you can do a complete (image copy) restore, or you can select individual files to be copied using *DOS* commands.

Doing a Complete Restore

To restore all data on a tape to a fixed disc, complete the following:

1. We recommend that you re-format the fixed disc using the same operating system that was used to make the tape backup. Reformatting checks the disc thoroughly.
2. Run HPSETUP (as described in *Chapter 5*).
3. Run the **Tape Backup Program; Image Copy** from tape to disc (the tape drive is the *from* device; the disc drive is the *to* device). See *Making an Image Copy* in this chapter.
4. Exit HPTAPE.
5. Reboot the system.

Restoring Individual files

You can restore individual files from a backup tape using the standard *DOS* copy commands (for example: **Copy E:_File 1_C:**). *Data Manager* provides more information on copying files.

CAUTION: Unless a file is write-protected, it can be over-written by a restored backup file with the same file name.

7 Using the RAM Disc

Introduction

This chapter will clarify and enhance your use of the RAM disc.

The RAM disc is a powerful addition to your system. Efficient and easy to use, the RAM disc allows you to use a portion of your computer's random access memory (RAM) as you would a disc. Because the RAM disc is assigned its own device letter, you can store and retrieve files to and from it.

The advantage of the RAM disc is its speed: the computer can access the memory much faster than it can access a disc in a disc drive. RAM discs are particularly useful with assembler, compiler and database programs.

Although the RAM disc acts like a disc in many ways, it is not really a disc but a part of the computer's random access memory. **This means that everything on the RAM disc is erased whenever you turn off the computer, perform a reset, or experience a power failure.** If you create new files or alter old ones and put them on the RAM disc, you MUST SAVE OR COPY them to a flexible or fixed disc before you turn off your computer.

Using a RAM disc decreases the memory available for programs. Therefore, large programs might not run if a RAM disc is selected.

Determining *DOS* Device Letter Assignment

Selecting the optional RAM disc will change the configuration letters assigned to your disc drives and tape drive. Whenever you need to determine your current configuration, run HPTEST as described in Appendix A, *Diagnostics*.

Selecting RAM Disc Size

You are not limited to the choices the computer provides for you on your RAM disc screen.

Every time you boot (start) up your computer, you are asked to select a RAM disc size from a table of numbers. Your computer decides on the maximum size of your RAM disc using the following approximate figures:

Computer's Available Memory	Maximum RAM Size
128K to 255K	64K
256K to 511K	128K
512K to 1023K	256K

When it is time to specify a size, choose one to complete the system start-up. If you want a different size allocated for the RAM disc than the options available, you must edit the file called *CONFIG.SYS* as follows:

1. Edit the file *CONFIG.SYS* using your text editor program. Refer to your computer user manual or editor manual for text editing information.

HINT Before you specify the RAM disc size, consider both your computer's available memory and the approximate size of your applications. (To check your computer's total memory, execute **CHKDSK** as described in your *DOS* manual.) The number you select for the RAM disc must be greater than 10K and less than one half of your computer's available memory. If you choose a size that is too large, you will be sent back to the original RAM disc screen.

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2. Find the line *DEVICE = HPRAMDSC.SYS*. Using the example below as a guide, type in the amount of memory (K bytes) you wish to reserve for your RAM disc at the end of that line.

   DEVICE = HPRAMDSC.SYS **90**

   (This would reserve 90 K bytes.) Be sure to put at least one space between *DEVICE = HPRAMDSC.SYS* and the number you have chosen.

3. Save the new *CONFIG.SYS* file, replacing the old.
4. Reboot your computer. Rebooting activates the new *CONFIG.SYS* file, and the size of your RAM disc will appear on the boot-up screen.

Using *AUTOEXEC.BAT* with the RAM Disc

AUTOEXEC.BAT executes each time you boot up your computer and can be used to copy frequently-used applications to your RAM disc. You may, for example, instruct *AUTOEXEC.BAT* to copy your editor program from your fixed disc to your RAM disc. Assuming your editor is *ED.EXE* and the RAM disc is drive E, you would type the following line in *AUTOEXEC.BAT:* **COPY ED.EXE E:**.

CAUTION If you ever add or remove peripherals (change your system configuration), your drive letters may change, and you may have to change your *AUTOEXEC.BAT* file. Be certain that your commands in *AUTOEXEC.BAT* are consistent with the letters assigned to your devices.

Consult your *DOS* manual for more information about *AUTOEXEC.BAT*.

A Diagnostics

Introduction

HPTEST checks the system and supported Hewlett-Packard drives. When problems occur, HPTEST can usually determine whether the drive, cable, or computer is at fault.

HPTEST checks that the computer can talk to supported HP drives. If the computer cannot talk to *any* HP drive, HPTEST enters the *System Troubleshoot* mode. In this mode, the screen provides a list of items to check and actions to take to correct the problem. The inability of the computer to talk to a particular HP drive (while able to talk to others) indicates a fault with the HP drive. If the computer *can* talk to at least one drive, HPTEST enters the *System Status* mode. Additional tests can then be made.

A **Help** screen is available from all screens other than **System Check** and the **Help** screen itself. The **Help** screen provides information relating to the current HPTEST mode.

The Print function sends test results, configuration, and Help screens to your printer. A blank symptom form is printed with the **Drive Status** screen to provide information to the service person.

When to Use HPTEST

1. As a quick confidence test of the system.
2. To get a list of your connected drives and the *DOS* drive letters.
3. When you are experiencing system problems. If the HP drive is suspect, first run the built-in selftests. Refer to the drive user manual for selftest information.

If the selftests pass, follow the instructions on the HPTEST screens. Try to repeat the problem using the Confidence Test. Once a problem is found by HPTEST, possible solutions are displayed on the screen.

If a selftest failure occurs, take the failing drive to your dealer. A failing selftest indicates a problem in the drive.

Loading HPTEST

If any changes are made in the system while you are using HPTEST, you must exit HPTEST, reboot, and reload HPTEST to continue. Typical system changes include turning a drive off and on, reconnecting interface cables and re-setting drive addresses.

1. Check all system cable connections.
2. Turn on all connected drives and wait for the selftests to complete.
3. Turn on the computer. Boot the system (load *DOS*).
4. Insert the **HP Disc/Tape Software** 5 1/4-inch disc into drive A. (Refer to the computer user manual if you're not sure which drive is drive A).
5. Type **A:** and press the **return** key.
6. Type **HPTEST**, then press the **return** key. The computer will load HPTEST and displays the first screen: **System Check**.

Using HPTEST

The first screen that you see is the **System Check** screen. HPTEST is checking to see if the computer can talk to at least *one* HP drive. You will then see one of two **System Check** results:

1. **If HPTEST can talk to at least one HP drive, the System Status screen appears**. Check the status column for possible drive errors.

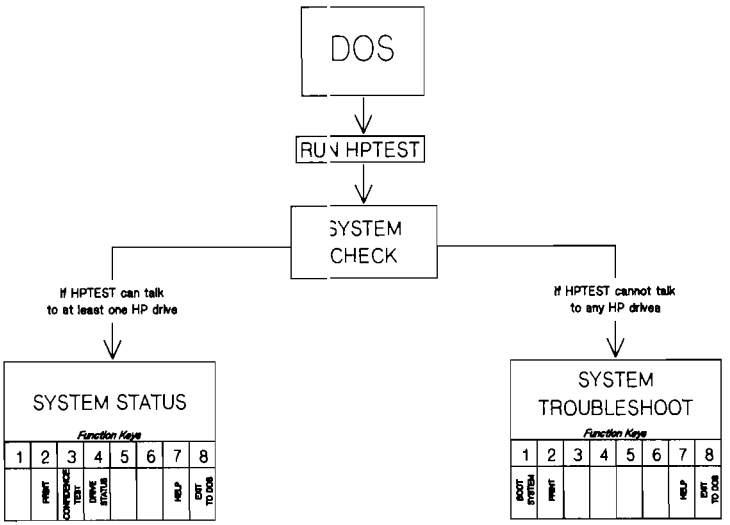
a. If there are *any* errors in the status column, move the highlighter bar to the suspect drive and select the *Drive Status* mode (press **F4**). Follow the directions on the screen.

b. If there are *no* errors in the status column, select the **Confidence Test** (press **F3**).

If the confidence test finds an error, select **Drive Status (F4)** and follow the directions on the screen. If the confidence test does *not* find any errors and you are still having problems with your drive, ask your dealer for help.

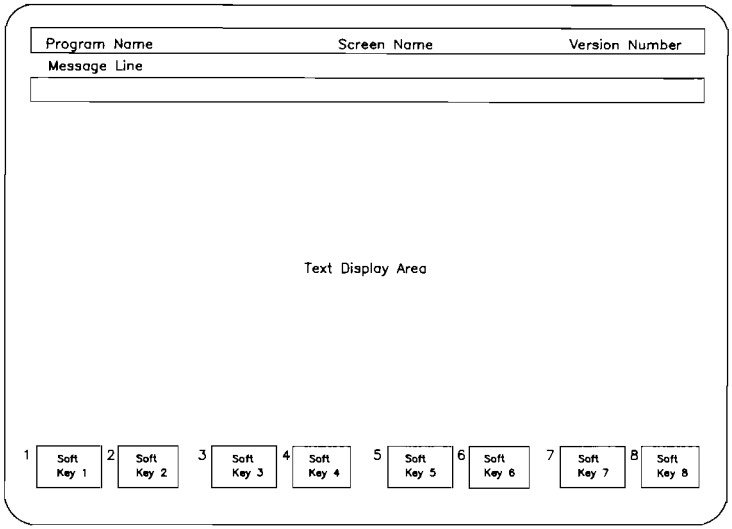
2. **If HPTEST cannot talk to at least one HP drive, the System Troubleshoot screen appears.** Follow the instructions on the screen. If you have more than one HP drive, see the *System Troubleshoot* section for further instructions.

If the System Check screen doesn't change within five minutes, try the steps listed in the *SYSTEM PROBLEMS* section in this appendix.



HPTEST Flowchart

The HPTEST Screen



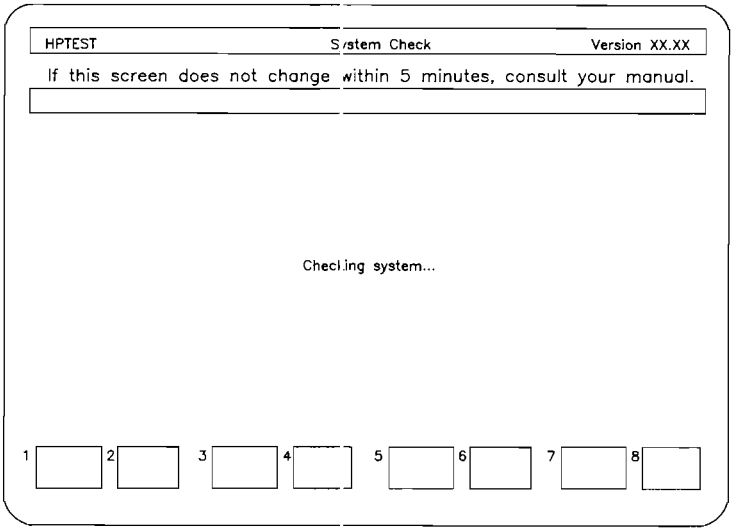
Banner Line. The Banner Line, located at the top of the screen, contains the program name, the current screen name, and the program version number.

Message Line. The Message Line displays interactive messages. Instructions, error messages, and program completion messages appear on this line.

Text Display. This is the main portion of the screen. Program text, tables, and help screens are displayed in this area. If the displayed data exceeds the size of the text display area, press the cursor keys to move the data up and down.

Soft Keys. The soft key menu windows at the bottom of the screen define the function keys **F1** through **F8** on the keyboard. HPTEST functions and screens are selected by these keys.

System Check



The *System Check* is performed immediately after starting HPTEST. No commands can be made while *System Check* is running. The computer must be able to communicate with at least one HP device in order to pass this initial test.

If the System Check fails, the program enters the **System Troubleshoot** mode. See *System Troubleshoot* for screen information.

If the System Check passes, the program enters the **System Status** mode. See *System Status* for screen information.

System Troubleshoot

HPTEST enters this mode when the computer is unable to communicate with *any* HP device during the initial System Check. One of the following three screens appears depending on the type of error found. Follow the directions on the screen.

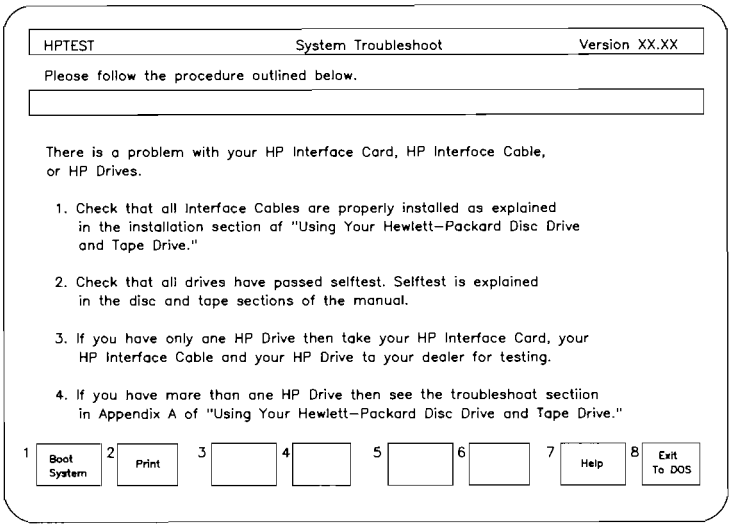
Available Functions

Boot System. Reboots *DOS*. HPTEST must be reloaded after system reboots.

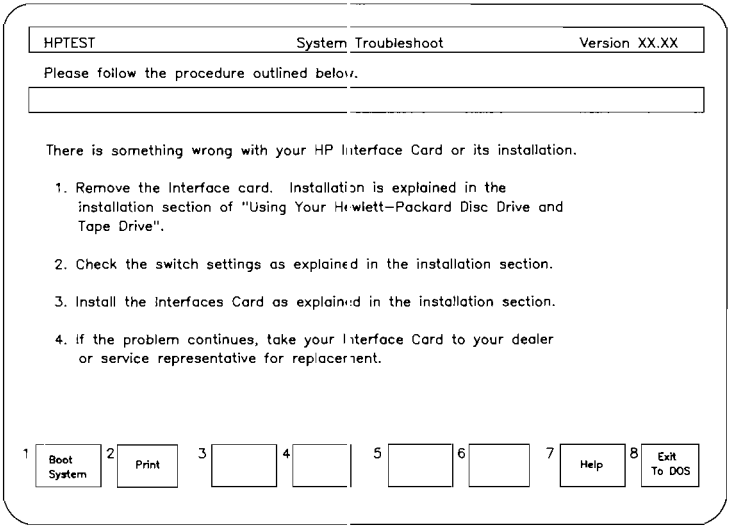
Print. Prints the current screen.

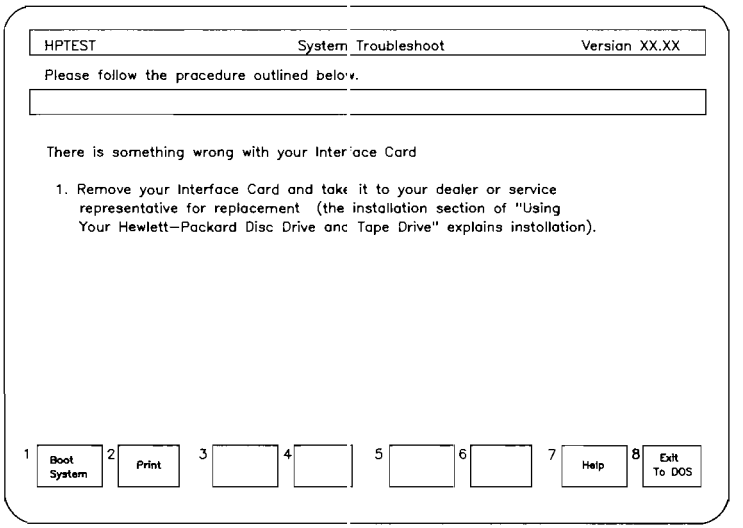
Help. Selects the **screen** mode. A Help screen with *System Troubleshoot* information will be displayed.

Exit to *DOS*. Returns control to *DOS*.

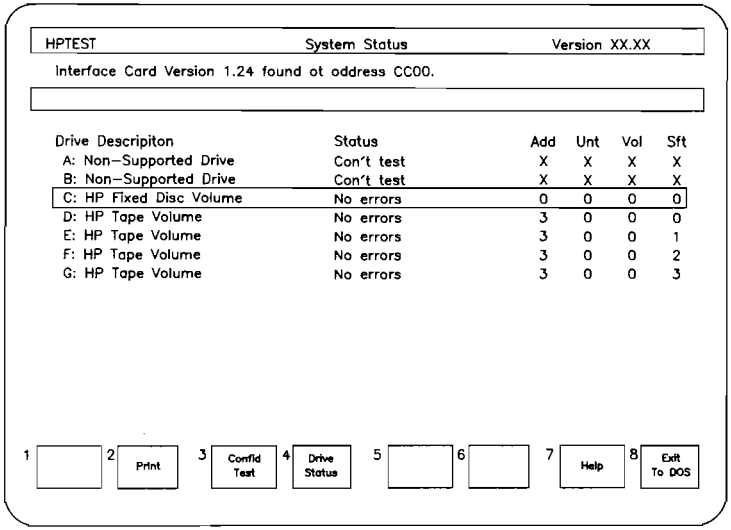


If you have more than one HP drive, disconnect all but *one* drive and test (exit to *DOS*, and run HPTEST again). Test each drive until you find the failing drive. If *all* the HP drives fail, take the HP 88500A Interface Card, the interface cable, and at least *one* drive to your dealer for service.


HPTEST System Troubleshoot Version XX.XX
Please follow the procedure outlined below.
There is something wrong with your HP Interface Card or its installation.
1. Remove the Interface card. Installation is explained in the installation section of "Using Your Hewlett-Packard Disc Drive and Tape Drive".
2. Check the switch settings as explained in the installation section.
3. Install the Interfaces Card as explained in the installation section.
4. If the problem continues, take your Interface Card to your dealer or service representative for replacement.
1 Boot System
2 Print
3
4
5
6
7 Help
8 Exit To DOS


HPTEST System Troubleshoot Version XX.XX
Please follow the procedure outlined below.
There is something wrong with your Interface Card
1. Remove your Interface Card and take it to your dealer or service representative for replacement (the installation section of "Using Your Hewlett-Packard Disc Drive and Tape Drive" explains installation).
1 Boot System
2 Print
3
4
5
6
7 Help
8 Exit To DOS

System Status



The *System Status* mode will be entered if the *System Check* passes. A pass means that the computer was able to talk to at least one HP drive. This indicates that the HP 88500A Interface Card, interface cable, and the connected HP drive are basically functioning.

The screen first displays the basic status on all current drives recognized by *DOS*. To run the confidence test or display the status of a drive, first select the drive using the highlighter bar, then select the desired function. Displayed information can be scrolled up and down with the cursor keys.

System Status Display Description

Drive. Indicates the current *DOS* drive specifier. This is the letter by which *DOS* recognizes a drive.

Description. The drive type.

Status. The current status of the drive.

Add. HP-IB address of the HP drive.

Unt. The HP-IB unit number of the drive within the HP device.

Vol. Hardware-configured volume number of the drive within the device.

Sft. Software defined volume number of the drive within the device.

Available Functions

Print. Prints the entire list of drives.

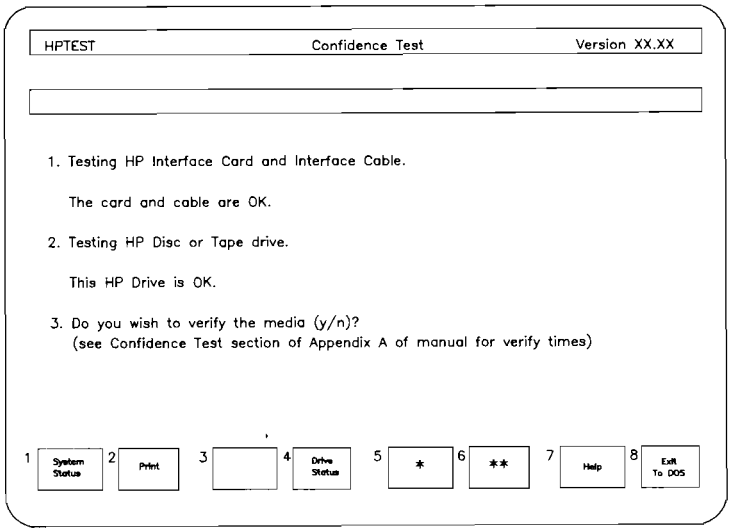
Confid Test. Selects the **Confidence Test** screen mode.

Drive Status. Selects the **Drive Status** screen mode.

Help. Selects the **Help** screen mode. A help screen with *System Status* information is displayed.

Exit to *DOS*. Returns control to *DOS*.

Drive Confidence Test



The *Drive Confidence Test* performs a test on the drive selected by the cursor while in the *System Status* mode. HPTEST starts the drive's internal selftest and monitors the status of the drive. An interface check is performed first, followed by a non-destructive Read/Write test. HPTEST then offers an optional media test. Only supported HP drives can be tested. The *Drive Confidence Test* indicates only whether each test has passed or failed. Select the *Drive Status* mode to see the drive test results and possible solutions.

Available Functions

System Status. Selects the *System Status* mode.

Print. Prints the results of the *Confidence Test.*

Drive Status. Selects the **Drive Status** screen mode.

Help. Selects the **Help** screen mode. A help screen with *Drive Status* information is displayed.

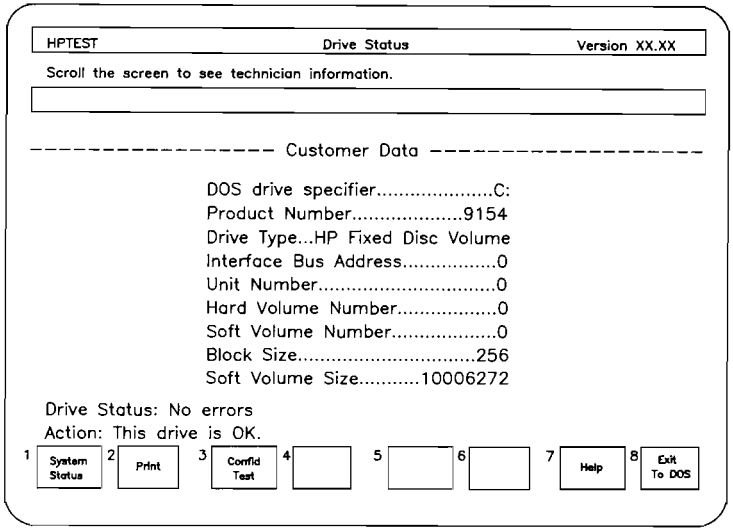
Returns control to *DOS*.

The following chart displays times required for the media verify test:

Drive or Volume Capacity	Time
10 Megabyte Fixed Disc	Less than 5 minutes
20 Megabyte Fixed Disc	Less than 5 minutes
15 Megabyte Tape Cartridge	9 minutes
60 Megabyte Tape Cartridge	35 minutes

The **Drive Status** screen provides detailed status information on the drive selected by the highlighter bar in the **System Status** mode.

Drive Status



The **Drive Status** screen provides detailed status information on the drive selected by the highlighter bar in the *System Status* mode.

Available Functions

System **Status.** Selects the *System Status* mode.

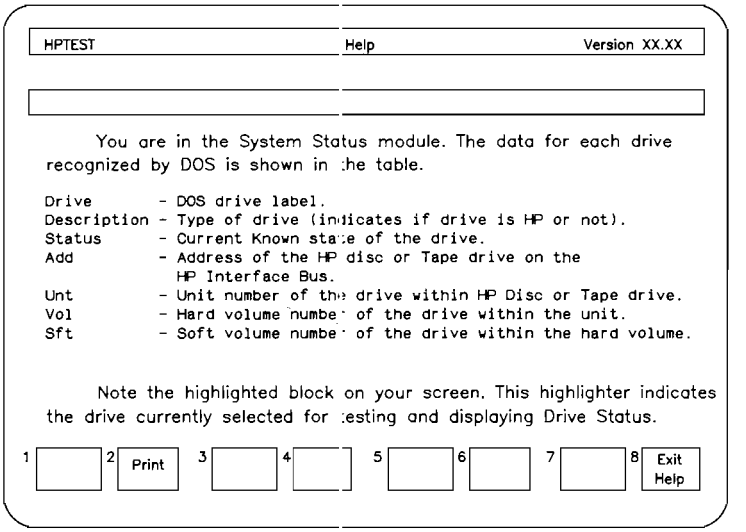
Print. Prints both the information screen and a blank problem form to be given to the dealer.

Confid. Test. Performs the *Confidence Test* on the drive that was selected in the *System Status* mode.

Help. Selects the **Help** screen. A help screen with *Drive Status* information is displayed.

Exit to *DOS*. Returns control to *DOS*.

The Help Screen



The **Help** screen displays useful information related to the current HPTEST screen mode. Help is available from every screen except the **System Check** screen and the **Help** screen itself. The help information may be scrolled up down if it exceeds the size of the display area.

Available Functions

Print. Sends the help screen to the printer.

Exit Help. Returns to the previous screen.

The Print Function

The Print function prints the contents of the display area of the screen with a descriptive header. You can print from every screen except **System Check**.

The printer must be ready to print before selecting the Print function. If the printer is not ready, selecting the Print function will "hang" HPTEST. In the event of a system hang, the system must be reset, booted, and reloaded with HPTEST.

System Problems

If the system doesn't boot, try the following steps:

1. Check to see that all interfaces, cable ends, and power cords are connected securely.
2. Disconnect the HP drive(s) and interface cable(s) from the computer. Try to boot the system. If the system boots, the problem is in either the HP interface cable or the previously connected drive(s).
3. If the system will not boot after disconnecting the peripherals, remove the HP 88500A HP-IB Interface Card and try booting again. If the system boots, the HP 88500A card may be defective. (The card may simply need to be reinstalled in the computer.)
4. If the system still does not boot, the problem is in the computer itself. The computer must be fixed before using HPTEST.

If the system "hangs" (appears not to be functioning and doesn't respond to commands), note the following:

1. System hangs generally require a system reset, system boot, and the reloading of HPTEST. If you are performing the Print function, make sure the printer is ready to print. If the printer isn't ready, and you select the print function, the system will hang. The computer waits for the printer to complete its task.

If any changes are made in the system while you are using HPTEST, you must exit HPTEST, reboot, and reload HPTEST to continue. Typical system changes include turning a drive off and on, reconnecting interface cables, and resetting drive addresses.

Diagnostic Error Messages

The following HPTEST messages may appear in the second column of the **System Status** screen and in the *Drive Status* line of the **Drive Status** screen.

Can't Test

The selected drive is not a supported HP drive. HPTEST cannot test this drive.

Controller Fault

A *Controller Fault* indicates a defective drive. Bring the drive to your dealer for service.

Diagnostic Result

A drive selftest failed. This indicates that the drive is not able to communicate well enough to be diagnosed by HPTEST. Run the drive's built-in selftest. If the selftest fails, bring the drive to your dealer for service.

If the selftest passes, check the interface cable connections and run HPTEST again. If *Diagnostic Results* appears again, bring the drive, interface cable, and HP 88500A card to your dealer for service.

Error on Loopback

The computer was able to communicate with the drive; HPTEST found an error while performing a data loopback test (the data *received* from the drive was different than the data *sent* to the drive). Check all connectors, and repeat the **Confidence Test**. If the problem continues, have the dealer examine your system.

HP Interface Bus Error

There was a problem when talking to the drive. Repeat the test. If the problem continues, take the card, cable and drive to your dealer.

Media Wear

The media in the selected drive has reached the end of its useful life. Copy or backup the media and discard the old media. This message applies to flexible discs and tape cartridges.

No Data Found

This is only for tape drives. Insert a ***blank*** tape and run the test again. If the drive passes the test, try to save the data, then reformat the original tape. Formatting destroys all data on the tape, so be sure to try to save the data before formatting. If the drive does not pass the test with the blank tape, run the drive selftest.

No Error

The HP drive appears to be working properly. Run the confidence test to double check the drive.

No Volume

This message applies to tape drives only. There is either no tape cartridge in the drive, or there is a formatted tape in the drive with no volumes assigned.

DOS always assigns four volumes (letters) to a tape. If you have assigned less than four volumes, the remaining drive letters will show *No volume*.

Not Ready

There is no media in the selected drive. Place media in the selected drive and wait for the drive's power-on selftest to complete.

Uninitialized Media

You must format or initialize the media before you can store data on it.

Unit Fault

A *Unit Fault* indicates a defective drive. Retest to see if the error repeats. If the error repeats, bring the drive to your dealer for service.

Unrecoverable Data

You should copy or back up the media in the selected drive and reformat the media. If you continue to get the same error, replace the media. If this error occurs on a fixed disc, run the selftests and the **Drive Confidence test.** If the problem continues, take the drive to your dealer.

B System Error Messages

A bad cluster was detected on the __: drive.

An unrecoverable data error was encountered. The integrity of the media is questionable.

Access error on the __: drive.

Your system did not complete the last operation successfully. Try the operation again. If you still see this error, please run diagnostics to check for problems with your fixed disc drive.

All disc space is currently allocated.

There is no unallocated space left on the disc. If you have software partitioned your disc, try reducing the size of another disc volume to free up some disc space. Then retry the operation.

An interface bus error has occurred.

Your system did not complete the last operation successfully. Try the operation again. If you still receive this error, turn off your entire system. Turn the system on again and retry the operation. If you see the error again, run diagnostics.

Copy can't be finished. Media in __: drive is full.

There was not enough room on this tape for a successful image backup. Reformat the tape and repeat the image copy.

Data from drive __: will not fit on a single drive __: media.

HPTAPE does not support device backups which span multiple tape volumes. Assign fewer volumes to the current tape cartridge so that each volume is larger, or use a tape cartridge that has more capacity.

Drives __: and __: are at the same HP interface bus address.

The selected drives must be in physically different devices. Check the drive selections.

General *DOS* failure on the __: drive.

Your system did not complete the last operation successfully. Try the operation again.

No external drives are configured in the system.

Your computer cannot find your disc or tape drive. Turn off your computer and all your peripheral devices. Make sure your disc and/or tape drives are plugged in and turned on. Make sure the interface cable is connected. Also verify that each drive has a unique address setting. Turn on your system again. Retry the operation. If you see the error message again, run diagnostics.

No HP disc drives configured on the system.

The HPFORMAT program found no disc drives connected to the interface card. Make sure all your disc drives are plugged in, turned on, and that the interface cable connections are secure. Also, verify that each disc or tape drive has a unique address setting. Turn off your entire system. Turn the system on again, load *DOS* and retry the operation. If you see the error again, run diagnostics.

No room in the root directory to add a volume label.

All the root directory entries have been used. Deleting one file in the root directory will allow a disc volume label to be created.

No tape drive or tape driver is installed on the system.

Your computer is unable to locate the tape drive on the system. Make sure the tape drive is plugged in, turned on, and connected to the interface cable. If everything checks out, turn off the system. Turn the system on and make sure you see a copyright message on your screen for the *HP Installable Tape Driver*. If you do not see this message, you need to load the **Disc/Tape software** on your fixed disc. See *Chapter 5*.

Not able to allocate enough buffer memory.

The HP program you are using cannot run with the current memory configuration. Exit the program. Use the *DOS* **CHKDSK** command to determine the amount of bytes free. Most HP programs require at least 100K bytes free. If you have 100K bytes free, try rerunning the program.

Not able to find the HP interface card.

The interface card is not installed or is improperly installed. Use diagnostics to determine the cause of the problem.

One of the devices selected must be a tape device.

The operation you are trying to do must be performed on a tape drive. Make sure that the drive you have selected is a tape drive.

Patched around a bad tape block during Verify Pass.

Verify Pass has detected and corrected an error. The data on the tape is accurate. If you wish to use this same tape cartridge for another backup in the future, reformat the tape cartridge before doing the backup.

Permanent data error on tape drive. Reformat the tape.

Verify Pass has detected an error that cannot be corrected on your tape cartridge. Reformat the tape cartridge or use another tape cartridge. Then retry the operation.

Read error on the __: drive.

Your system did not complete the last operation successfully. Try the operation again. If you still see this error, run diagnostics to check for problems with your fixed disc drive.

Tape cartridge must be initialized first.

You must format the tape cartridge and assign volumes before this operation can be performed. Format the tape cartridge and retry the operation.

The copy can't be finished. Media in __: drive is full.

A bad data cluster has been detected on the media. No spare data clusters are available for patching and the media is full. If you have some unwanted files on the source drive, delete these files and retry the copy.

The __: drive does not respond.

Make sure the disc or tape drive is plugged in and turned on and that the interface cable connections are secure. Also verify that each disc or tape drive has a unique address. If everything checks out, turn off the entire system. Turn the system on again and retry the operation. If you still see this error, use diagnostics to check for problems with your system.

The __: drive encountered an unrecoverable data error.

Your system did not complete the last operation successfully. Try the operation again. If you still see this error, run diagnostics to check for problems with your drive.

The __: drive has experienced a hardware failure.

Your system did not complete the last operation successfully. Try the operation again. If you still receive this error, turn off the entire system. Turn the system on again and retry the operation. If error persists, use diagnostics to check for problems.

The _: drive has too many allocation units spared out.

Too many data clusters have been marked bad on the _: drive. The media is of questionable integrity.

The _: drive is empty or loading.

Check your disc or tape drive to make sure you have inserted a removable disc or tape cartridge. If a removable disc or tape cartridge has been inserted, make sure the busy light is off. Retry the operation.

The _: drive is not a tape device.

The operation you are trying to perform can only be performed on a tape drive. Check the drive selections to make sure you have selected a tape drive.

The format operation failed.

The media in your tape cartridge is worn or damaged. Remove the current tape cartridge. Insert a new tape cartridge and retry the operation.

The maximum number of volumes have been created.

A maximum of 16 software volumes can be assigned to a fixed disc. You cannot assign any additional volumes.

The maximum volume size has been allocated.

DOS currently allows a maximum volume size of 32 megabytes. You cannot increase the size of your volume any further.

The media in drive _: does not match the original image.

The media in the specified drives does not match the image on the backup tape in either data capacity, sector size or *DOS* version. Check to make sure you have selected the right drives

The media in the __: drive is write protected.

Your tape cartridge or removable disc is write protected. If you wish to write data to this media, remove the media from the drive. Remove the write protection, and reinsert the media. Try the operation again.

The source and destination drives are the same.

The source drive cannot be the same as the destination drive. Check your drive selections to make sure you have selected a destination drive that is different from the source drive.

The tape drive is busy.

The tape drive cannot complete your operation because it is busy. Wait for the busy light to go out. Retry the operation.

The tape is unformatted or a previous format attempt failed.

The media in the tape cartridge is worn or damaged. Remove the tape cartridge. Insert a new tape cartridge and retry the operation.

This function does not support the HP Boot Disc.

You are trying to **Label** or **Clear** an HP Boot Disc. You can only use the **Label Disc** and **Clear Disc** keys with an HP fixed or removable Disc.

Unknown media in the __: drive.

Your disc or tape cartridge is unformatted and/or does not have a *DOS* directory. Format the media. Then try the operation again. If you still receive this error, run diagnostics.

Write error on the __: drive.

Your system did not complete the operation successfully. Try the operation again. If you still receive the error, run diagnostics to check for problems with your drive.

C

Card Configuration

Switch Configuration

This section deals with the configuration switches on the interface card. Use this section if you have:

1. Other interface cards installed in your computer.
2. Two HP 88500A Interface Cards to install.
3. An HP Vectra with an HP 45816A or HP 45817A.

If you do not have the equipment listed above, this section should be read only for additional information.

Configuration switches on the card set the card address and designate the computer to be the system controller. A system controller is the device that controls all interaction on the interface cable.

PC-Network Users

If you are using a PC-Network Interface bus, set the HP 88500A address to the next higher address. The PC-Network Interface is preset to the lowest possible address.

AST Six Pack Plus Card

When using the SuperDrive, SuperSpool, or RAMCLEAR features of the AST card, use the /**DNC** option to prevent memory conflicts with the HP 88500A Interface.

The section on addressing requires some knowledge about memory (ROM) addressing and hexadecimal values for memory addressing. See the documentation accompanying any additional interface cards you have installed in your personal computer and a reference manual on decimal to hexadecimal code conversion.

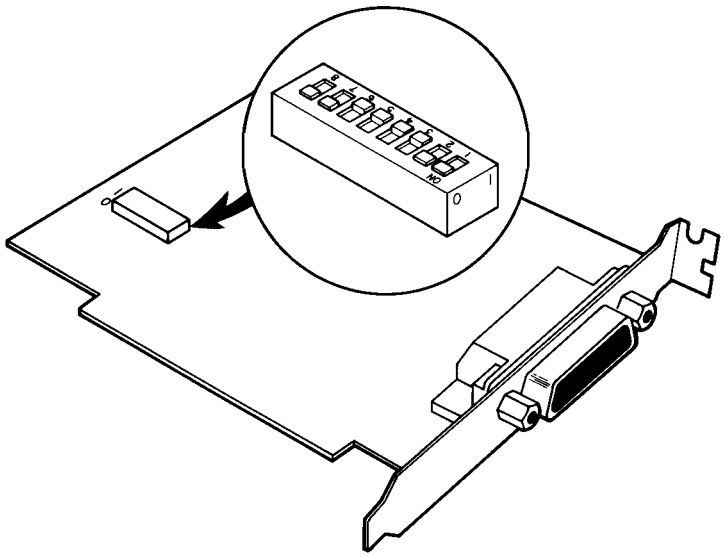
If the preceding paragraph presents any problems or is confusing to you, please call your dealer or the nearest

Hewlett-Packard Sales and Support Office to have the interface card switches set for you.

WARNING Unplug the computer and all attached drives before removing the cover.

See Chapter 2 for interface card installation instruction.

The following figure shows the card and its factory setting.



Card Configuration

Factory Settings

Switch	Setting	Meaning
8	0	Not Used
7	0	Not Used
6	1	System Controller
5	1	There is an HP Disc at address 0 on the interface bus.
4	1	
3	1	Address (CC000)
2	0	
1	0	

Card Addressing

Switches 1 through 4 set the card address. The value represented by each unique switch setting allows for addressing in increments of 16K bytes (the card was designed to allow only four switches for this function). The HP interface card contains 16K bytes of memory.

All possible addresses appear next. The addresses allowed by the different personal computers are bracketed with the computer's name.

Addressing

	Hex Value of Address	Switch Setting 1	2	3	4	Computer Used
Lowest Address	C0000	0	0	0	0	
	C4000	0	0	0	1	
	C8000	0	0	1	0	IBM AT and Vectra; IBM PC, IBM PC XT and Compaq
	CC000	0	0	1	1	IBM AT and Vectra
	D0000	0	1	0	0	IBM AT and Vectra
	D4000	0	1	0	1	IBM AT and Vectra
	D8000	0	1	1	0	IBM AT and Vectra
	DC000	0	1	1	1	IBM AT and Vectra
	E0000	1	0	0	0	IBM PC, IBM PC XT and Compaq
	E4000	1	0	0	1	IBM PC, IBM PC XT and Compaq
	E8000	1	0	1	0	IBM PC, IBM PC XT and Compaq
	EC000	1	0	1	1	IBM PC, IBM PC XT and Compaq
	F0000	1	1	0	0	IBM PC, IBM PC XT and Compaq
	F4000	1	1	0	1	IBM PC, IBM PC XT and Compaq
Highest Address	F8000	1	1	1	0	IBM PC, IBM PC XT and Compaq
	FC000	1	1	1	1	IBM PC, IBM PC XT and Compaq

The factory setting is CC000. If you change the address (the memory location), you must select an address that does not conflict with any other installed interface card. Cards conflict if memory space overlaps or if memory locations are the same.

As an example, look at the manuals supplied with each of your optional interface cards. Determine the amount of memory or ROM each card contains. Some cards contain no memory, other cards contain memory but have a preset address. Still other cards contain memory with selectable address locations like the HP interface card.

Use the following steps to set your card address.

1. Sum up the memory contained on all the interface cards you have installed in your personal computer.
2. Convert this value to a hexadecimal value.
3. From the table select the next highest hex value. This is the hex value you should use as the beginning memory address for the HP interface card.
4. Follow the table over to the switch settings and set your card switches to these settings.

CAUTION If you have an HP Vectra and an HP 45816A, make sure the HP 45816A controller card is set a lower address than the HP88500A interface card.

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5. As a final check, be sure no preset card has the same address setting or that no card overlaps into another card's addressing "memory" space. This information should be explained in the manuals that came with your other interface card(s).

If you find overlapping memory addressing or two cards with the same memory address, move the HP interface card to the next higher address.

6. If you have more than one HP interface card, each card must be at a separate address. Also, the HP card that is used for disc and tape drives should be the lowest addressed card.

System Controller

The system controller switch must be set to the "1" position if you are using HP disc drives with your computer.

1. Set switch 6 to the "1" position for any application described in this manual or in *Data Manager*.

System Controller

Switch Setting 6	Meaning
0	Non System Controller
1	System Controller*

*The computer must be set to system controller to operate HP disc drives.

HP Disc Switch

The HP Disc switch must be set to "1" if you are going to connect an HP disc drive at address 0 (address wheel on the disc set at 0).

If you have an internal fixed disc in your computer, the computer will automatically boot from the internal disc. If you have a disc in the flexible disc drive and the door to this drive is closed, the computer automatically boots from the flexible disc.

1. Set switch 5 to the "1" position if you are connecting an HP fixed disc with the fixed disc set at address 0.

HP Disc Switch Switch Setting 5	Meaning
0	There is no HP Disc on the interface cable at address 0.
1	There is an HP Disc on the interface cable at address 0.

After verifying that all the switches are set properly, install the HP interface card as instructed in *Chapter 2* of this manual.

Glossary

ADDRESS. A number that tells your computer the location of your disc or tape drive. Just as you have a unique home address, your disc drive or tape drive must have a unique address.

BACKUP COPY. A backup copy is a duplicate copy of a disc made in case the original disc is lost or damaged. For example, you might make a backup copy of your fixed disc on a tape cartridge.

BOOTING. Booting your computer puts it in a ready-to-run condition. The computer literally "pulls itself up by its bootstraps" and gets ready to go. Booting is also known as loading since booting loads the operating system and utilities.

BYTE. A byte is a group of binary digits (bits) used to represent one character, such as a letter, number, or other symbol.

CARD CONFIGURATION. The setting of the eight switches on the interface card.

DATA MANAGER. A special program provided by Hewlett-Packard that helps you work with your files and directories without having to use *DOS* commands.

DISC (DISK). A circular plate of magnetically coated material used to store computer information. The disc is similar to a phonograph record that stores programs and data instead of music. A disc may be flexible (also called removable) or fixed (also called hard).

DISC DRIVE. The device that records information on or retrieves information from a disc.

DOS. The Disc Operating System.

FIXED DISC. A fixed disc is a disc that cannot be removed from your disc drive.

FLEXIBLE DISC. A flexible disc can be removed from your disc drive. The disc is called flexible because it is made from a flexible piece of polyester. (Can be called removable.)

FORMATTING. The process by which a disc is prepared to receive and store data. Also known as "initializing."

HARD DISC. See FIXED DISC.

HARDWARE PARTITIONING. The process of dividing a fixed disc into multiple sections (volumes) using the partition switch. Also known as "hard" partitioning. (Hewlett-Packard does not support hardware partitioning on the 10 and 20 megabyte drives.)

HEAD. See READ/WRITE HEAD.

IMAGE COPY. A complete, exact copy (backup) of the data stored on disc.

IMAGE RESTORE. The process of copying the exact copy (image copy) back to the disc.

INITIALIZING. See FORMATTING.

INTERFACE CABLE. The cable that connects your IBM personal computer to your Hewlett-Packard disc and tape drives.

INTERFACE CARD. A printed circuit board inserted into your computer which connects Hewlett-Packard disc and tape drives to your computer.

INTERLEAVE. Interleaving a disc is a method of alternately numbering sectors on the disc. Selecting an appropriate interleave factor helps maximize your system performance.

K BYTES. A unit of measurement for memory storage, also called "K" or "kilobyte." One K byte is technically equal to 1,024 bytes. However, a K byte is often described as approximately 1,000 bytes.

LOAD. To move (read) programs into the computer memory.

M BYTES. A megabyte is approximately one million bytes.

MEDIA MONITOR. A feature of Hewlett-Packard disc and tape drives that monitors the cumulative use of each individual disc or tape. The Media Monitor warns you when a disc or tape may lose data through normal wear.

OPERATING SYSTEM. A set of programs that control a computer's operations.

PARTITIONING. Dividing a tape or disc into multiple sections (volumes).

PERIPHERALS. Devices that are external to and controlled by the computer, including disc drives, tape drives, printers and plotters. These devices are called peripherals because they are EXTERNAL components.

PROGRAM. A set of instructions or steps telling the computer how to handle a problem or task.

RAM. The computer's random access memory (or main memory).

RAM DISC. A system feature that allows you to use a portion of your computer's RAM memory as you would use a disc.

READ/WRITE HEAD. The part of the disc drive that reads data from your disc and writes data onto your disc.

SOFTWARE. A computer program or set of programs.

SOFTWARE PARTITIONING. Dividing a fixed disc or tape into multiple volumes using the HPFORMAT program. Also known as "soft" partitioning.

TOGGLE KEY. A single keyboard key that selects one of two possible choices; each key stroke selects the alternate choice.

UTILITY. A utility is a program that performs a common task.

VOLUME. A section of a disc or tape which *DOS* recognizes as a single drive with a unique *DOS* drive letter.

WRITE PROTECT. A method of protecting information on a tape cartridge or disc from being erased or overwritten.

INDEX

Worldwide Sales Offices

Hewlett-Packard products are sold and supported worldwide through Hewlett-Packard Sales and Service Offices and through dealers.

- *To contact Hewlett-Packard:* There are more than 240 Hewlett-Packard Sales and Service Offices worldwide. To locate the one nearest you, use your telephone directory or contact one of the major Hewlett-Packard offices listed.
- *To contact a dealer*: Call 800/FOR-HPPC in the U.S. or call your local Hewlett-Packard Sales and Service Office. Ask for "Personal Computer Dealer Sales."

Argentina

* Martinez
Phone: 798-6086

Australia

* North Ryde, N.S.W.
Phone: 02/887-1611
* Blackburn, Victoria
Phone: 03/890-6351

Austria

* Vienna
Phone: 222/3516210

Belgium

Supplies: 02/762-3200

* Brussels
Phone: 02/762-3200

Brazil

* Alphaville, Barueri
Phone: 011/421-1311

Canada

Software Assistance:
1-800/267-6115
(In English and French)

Supplies: 514/697-4232

* Edmonton, Alberta
Phone: 403/452-3670
* Richmond, British Columbia
Phone: 604/270-2277
* Mississauga, Ontario
Phone: 416/678-9430

Chile

HP Distributor:
Olympia (Chile)
Santiago
Phone: 2/25-5044

Denmark

* Birkeroed
Phone: 2/81-66-40

El Salvador

HP Distributor
IPESA
San Salvador
Phone: 503/26-6858

Finland

* Espoo
Phone: 90/455-0211
* Jyvaskyla
Phone: 41/216318
* Oulu
Phone: 81/338785

France

Supplies: 6/928-32-64

* Les Ulis
Phone: 1/9077825

Guatemala

HP Distributor:
IPESA
Guatemala City
Phone: 2/31667

Hong Kong

* Wanchai
Phone: 5/832-3211

Italy

* Cernusco Sul Naviglio
Phone: 2/903691

Japan

Yokogawa-Hewlett-Packard

* Osaka
Phone: 6/304-6021
* Sagamihara
Phone: 427/59-1311
* Tokyo
Phone: 3/331-6111

Malaysia

* Kuala Lumpur
Phone: 03/943-022

Mexico

* Xochimilco, Mexico City
Phone: 905/676-8895

The Netherlands

Supplies: 020/47-06-39

* Amstelveen
Phone: 020/472021

New Zealand

Pakuranga
Phone: 9/68-7159

Norway

* Oesteraas
Phone: 2/17-11-80

Puerto Rico

Carolina
Phone: 809/762-725

Saudi Arabia

* HP Distributor:
Modern Electronics
Riyadh
Phone: 01/4919715

Singapore

* Singapore
Phone: 631788

South Africa

Supplies: 802-5111
53-7954
28-4178

* Sandton, Transvaal
  Phone: 11/802-511

Spain

* H.P. Española, S.A.
  Carretera Nacional
  Vi, Km. 16,400
  Las Rozas (Madrid)
  Phone: 637 00 11 -
  637 40 13

Sweden

* Spanga
  Phone: 8/750-2000

Switzerland

Supplies: 057/31-22-54
or 31-22-59

* Widen
  Phone: 57/31-21-11

Taiwan

* Taipei
  Phone: 2/712-0404

United Kingdom

Supplies: 0734/79-2868
or 0734/79-2959

* Altrincham
  Phone: 61/928-6422
* Winnersh, Wokingham
  Phone: 734/784-774

United States

For assistance before your purchase, to locate an HP dealer, or to obtain your local Phone-In Software Assistance number: 800/FOR-HPPC

Hardware maintenance information or Dealer Repair Center locations: 800/835-HPHP

Computer Supplies:
–All states except California, Alaska, and Hawaii: 800/538-8787

–In California, Alaska, and Hawaii: 408/738-4133 (collect)

* Santa Clara, California
  Phone: 408/988-7000
* Los Angeles, California
  Phone: 213/970-7500
* Englewood, Colorado
  Phone: 303/649-5000
* Atlanta, Georgia
  Phone: 404/955-1500
* Rolling Meadows, Illinois
  Phone: 312/255-9800
* Rockville, Maryland
  Phone: 301/948-6370
* Andover, Massachusetts
  Phone; 617/861-8960
* Novi, Michigan
  Phone: 313/349-9200
* Paramus, New Jersey
  Phone: 201/265-5000
* King of Prussia, Pennsylvania
  Phone; 215/265-7000
* Richardson, Texas
  Phone: 214/231-6101

Venezuela

* Caracas
  Phone: 2/239-4133

West Germany

Supplies: 07031/142829 or 07031/223133

* Boeblingen
  Phone: 7031/667750

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* Full Field Repair Center capabilities.