

HP 9121D/S and 9122D/S Disc Drives Operator's Manual



**HEWLETT
PACKARD**

Manual Part No.
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Warranty and Service

Hewlett-Packard products are warranted against defects in materials and workmanship. For Hewlett-Packard products sold in the U.S.A. and Canada, this warranty applies for ninety (90) days from date of installation.* Hewlett-Packard will, at its option, repair or replace equipment which proves to be defective during the warranty period. A copy of the complete warranty statement is available upon request.

HP offers complete service and maintenance worldwide. Maintenance agreements are available for all 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 U.S.A. rates can be determined by contacting your local HP Sales Office.

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.

Repairs necessitated by misuse of the equipment, or by hardware, software, or interfacing not provided by Hewlett-Packard are not covered by this warranty.

NO OTHER WARRANTY IS EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. HEWLETT-PACKARD SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES.

* For other countries, contact your local Sales and Support Office to determine warranty terms.

**Federal Communications Commission
Radio Frequency Interference Statement
USA Only**

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- reorient the receiving antenna
- relocate the computer with respect to the receiver
- move the computer away from the receiver
- plug the computer into a different outlet so that computer and receiver are on different branch circuits

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV
Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.



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Worldwide Sales Offices



Part 1

INSTALLATION GUIDE

About This Manual

This manual has two parts: an installation guide and a reference section. Part I is the installation guide. Following the pictures and text in Part I allows you to connect your disc drive to your computer and learn to use your flexible discs. This installation guide is presented in five languages.

The second part of the manual is a reference section. This section elaborates on the contents of the installation guide, as well as providing information on what to do if something goes wrong. This material is presented in English.

The pages of this manual are perforated between the binding and the three-hole drill. Therefore, you can easily remove and discard the portions of the manual that you do not need. If you wish, you may also remove the portions of the manual that you wish to keep and insert those pages into a three-hole binder, such as your computer manual binder.

You can most easily remove the perforated pages by first folding the pages along the perforation. Start your tear at the top or bottom edge and then remove the page by tearing in a smooth, easy motion.

A Look at Your Disc Drive

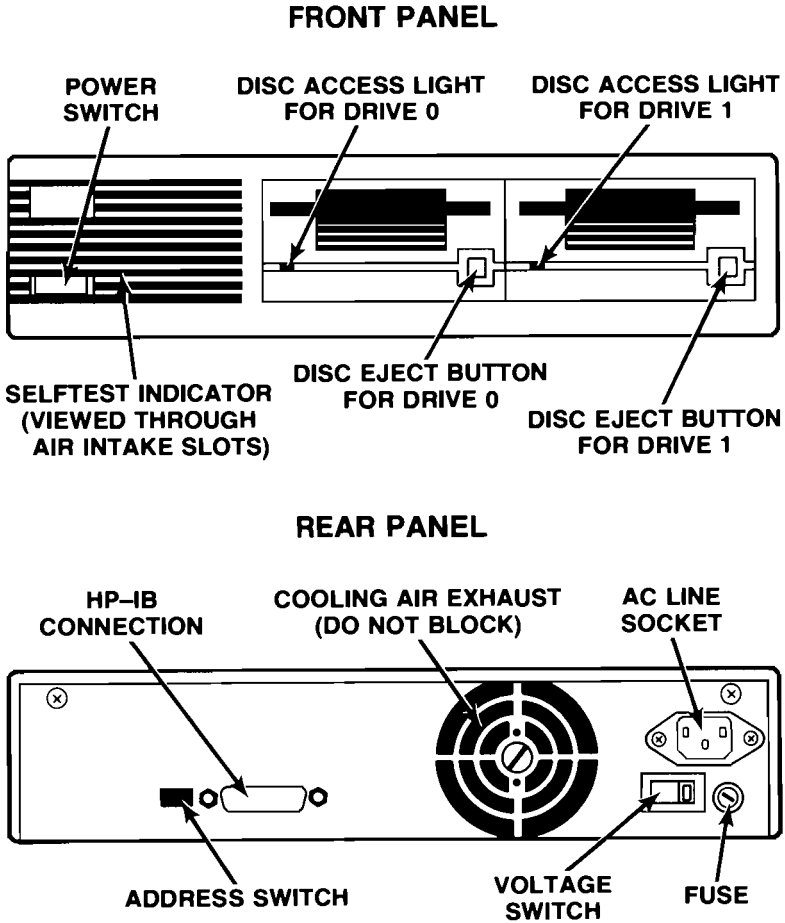


Figure 1: Front and Rear Panels of the HP 9121/9122

- Look at the parts of your disc drive illustrated in Figure 1.
- In particular, locate the power switch, fuse, voltage switch, address switch, HP-IB connection and the AC line socket.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

A Look at the Equipment Supplied

The following equipment is supplied with each HP 9121/9122 disc drive:

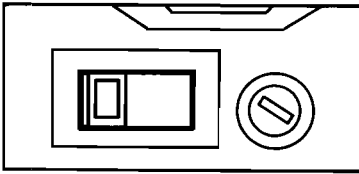
- Power cable
- Operator's manual

Installation

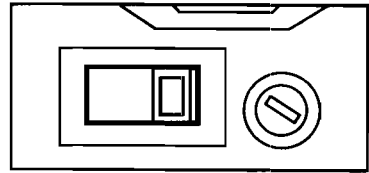
Setting the Voltage

WARNING

Always turn off the disc drive before changing the voltage setting in order to avoid damage to the disc drive.



86-125 V



195-250 V

Figure 2: Voltage Switch Settings

- Find the red voltage switch on the rear panel of your disc drive.
- Make sure the voltage switch is set correctly for your local power.
- If necessary, use a screwdriver to push the voltage switch sideways until the switch displays the proper setting.

Changing the Fuse

WARNING

BECAUSE OF A POTENTIAL SHOCK HAZARD, ALWAYS UNPLUG THE POWER CORD IF YOU NEED TO CHANGE A FUSE. Place the fuse into the fuse-holder and then into the unit.

Voltage Setting	Voltage Range	Required Fuse
115V	86-125 VAC	1.0 Amp 250 VAC
230V	195-250 VAC	0.5 Amp 250 VAC

Figure 3: Fuses

- The fuse in your disc drive should correspond to the voltage setting.
- Make sure you have the correct fuse for the voltage in your area.

Connecting the HP-IB Cable

- Turn off your disc drive.
- Plug one end of the HP-IB cable into the HP-IB socket of your disc drive.
- Plug the other end of the HP-IB cable into the HP-IB socket of your computer.
- Figure 4 illustrates the appearance of the HP-IB cable with an HP150 computer. If you have a different computer, the HP-IB connection on your computer may be in a different position.

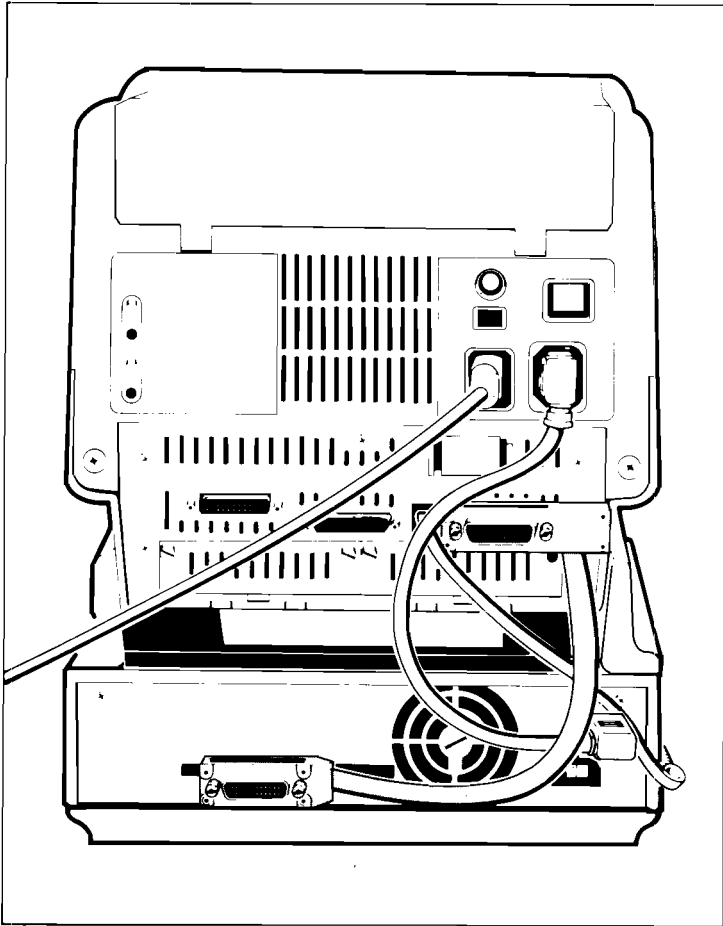


Figure 4: HP-IB cable connecting your computer and disc drive.

Setting the Address

You have a telephone number that is different from your neighbor's telephone number. Your telephone number allows others to call you when they have a message for you or when they need information from you. Similarly, each peripheral device on a bus needs a unique telephone number so that the computer can "call" the peripheral to get or give information. On the bus, this unique number is called an address.

Address	Position of 4 small switches			
	Left	Middle Left	Middle Right	Right
0	Up	Down	Down	Down
1	Up	Down	Down	Up
2	UP	Down	UP	Down
3	Up	Down	Up	Up
4	Up	UP	Down	Down
5	Up	Up	Down	Up
6	UP	Up	Up	Down
7	Up	Up	Up	Up

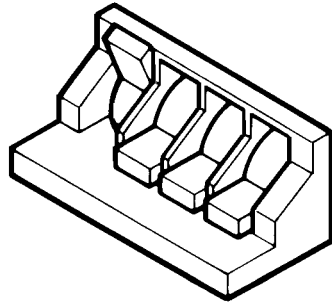


Figure 5: Address Switch Setting

- Each peripheral device must have a unique address.
- Hewlett-Packard sets your disc drive address at 0 (illustrated in Figure 5).
- If you have only one disc drive, one plotter, and one printer connected to your computer, you should not need to change the address.
- If you need to change the address:
 - Turn off the disc drive
 - Set the four small switches of the address switch to one of the addresses illustrated in Figure 5.

Connecting the Power Cord

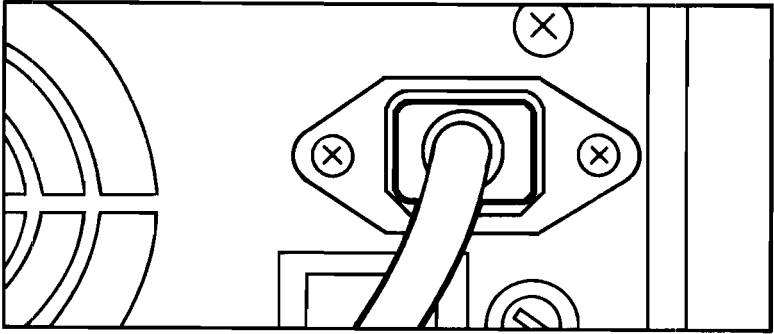
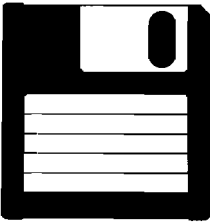


Figure 6: Power Cord Connection

- Turn off your disc drive.
- Connect the power cord to the socket labelled "AC line" on the rear panel.
- Plug the power cord into the wall socket.

Handling the Flexible Disc



DO

Make sure the shutter is closed when the disc is not in use.

WHY?

Protects the disc from dust, fingerprints, and scratches.

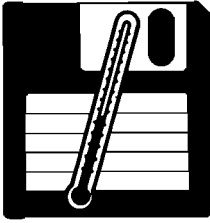


DO

Use the disc in a clean environment.

WHY?

Minimizes the risk of dust or dirt particles scratching the disc.



DO

Keep discs stored upright in a cool, dry place.

WHY?

Prevents moisture and heat damage.

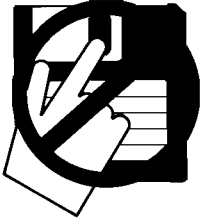


DO

Avoid magnetic fields, such as appliances with motors.

WHY?

Prevents magnetically erasing the data on your discs.



DON'T

Touch the surface of the disc.

WHY?

Particle contamination can scratch the disc or cause the disc to wear out sooner than normal.



DON'T

Try to clean the disc.

WHY?

The plastic jacket contains a mechanism for cleaning the disc surface. Other cleaning methods may damage the disc.

Single-Sided versus Double-Sided Discs

The HP 9122 records data on both sides of a disc. For daily use, we recommend gray double-sided Hewlett-Packard discs with an HP 9122.

The HP 9121 records data on only one side of a disc. For daily use, we recommend blue single-sided Hewlett-Packard discs with an HP 9121.

Table I details this recommended usage of single-sided and double-sided discs. Words used in the table are defined as follows:

- "Single-sided format" means that data is recorded on only one side of your disc.
- "Double-sided format" means that data is recorded on both sides of your disc.
- "Exchange only" means that the media should be used only for copying data and programs and should not be used on a daily basis.
- "OK" means that the media may be used on a daily basis.
- "NO" means that the media cannot be used.

CAUTION

Disc drive performance and reliability are dependent on the type of media used. Disc drive specifications can be assured only when using HP media. The use of improper media can result in premature disc failure or damage to the disc drive.

On some disc products, HP may qualify other non-HP media. When tested, this media met HP specifications. However, HP does not warrant or support this media and cannot control changes in its specifications or quality. The selection and use of such products is the customer's responsibility. HP reserves the right to exclude from warranty and maintenance agreement coverage any repairs which HP reasonably determines or believes were caused by the use of media not provided by HP. HP will, upon request, provide such repairs on a time and material basis.

Warranty and maintenance agreement coverage of repairs not caused by the use of non-HP media is unaffected.

	If you have an HP 9121	If you have an HP 9122 ¹
Single-sided HP media	OK	exchange only
Double-sided HP media in single-sided format	exchange only	OK
Double-sided HP media in double-sided format	NO	OK
HP software – single-sided or double-sided media ²	OK	OK
¹ You can only use discs with auto-shutters in the HP 9122. ² Software provided by Hewlett-Packard has been tailored for the computer/disc system on which the software will be used.		

Table I: Recommended usage of single-sided versus double-sided discs.

Write Protect Tab

- Write protecting ensures that the disc drive cannot write over or delete information on the disc.
- Write protect discs that contain valuable programs and data.
- Follow Figure 6 if you wish to write protect a double-sided disc, and Figure 7 if you wish to write protect a single-sided disc.

If you want to write protect a double-sided disc for the HP 9122:

- Place the tip of a pen in the small hole at the top of the write-protect tab.
- Slide the tab downward until it locks into place.
- If you no longer wish to write protect the disc, slide the tab up.

CHANGE SHEET

This change sheet is a supplement to manual part number 09122-90000 dated June 1, 1984.

Please replace the chart on page 10 with the following chart:

	If you have an HP 9121	If you have an HP 9122 *
Single-sided HP media	OK	exchange only
Double-sided HP media in single-sided format	OK **	OK
Double-sided HP media in double-sided format	NO	OK
HP software -- single-sided or double-sided media	OK	OK

* You can use only discs with auto-shutters in the HP 9122.

** If you have to manually open the shutter on a disc before inserting the disc into the HP 9121, you cannot use double-sided media.



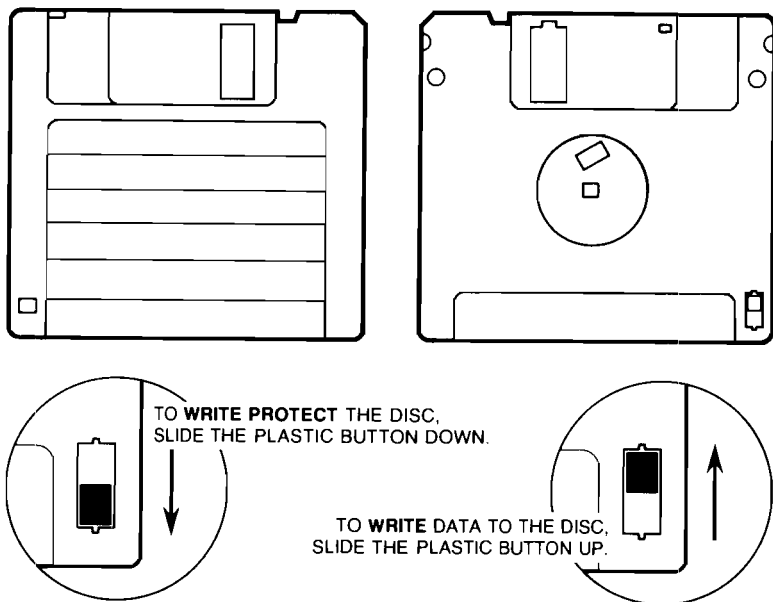


Figure 6: Write Protect Tab on the HP 9122

If you want to write protect a single-sided disc for the HP 9121:

- Use a screwdriver or the tip of a pen to gently lift up and break off the tab.
- Turn the tab sideways and position it next to the groove.
- Press firmly until the tab snaps into place.
- If you no longer wish to write protect the disc, slide the tab up away from the groove.

If you have a disc with the write protect tab missing, the disc is write protected. If you want to override the write protect, you can place tape over the tab opening in order to allow you to write data on the disc.



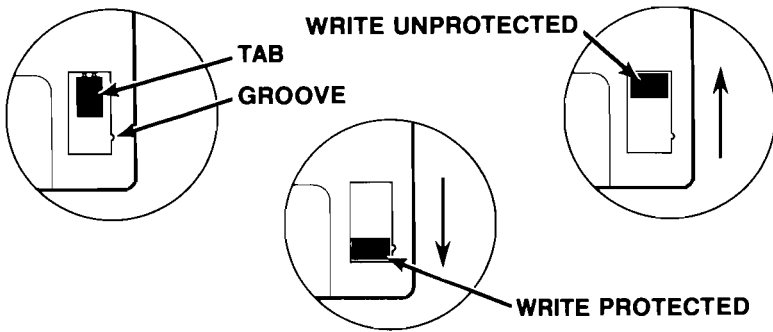


Figure 7: Write Protect Tab on the HP 9121

Media Monitor

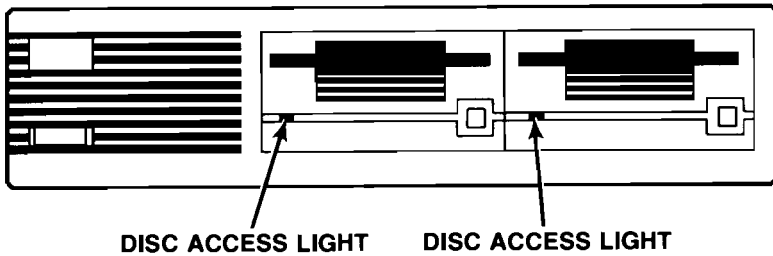


Figure 8: Position of the disc access light on the front panel of your disc drive.

- Through a feature called the Media Monitor, your disc drive monitors the cumulative use of a disc.
- When usage is approaching a level at which there is any risk of loss of data through normal disc wear, the disc access light blinks and a clicking sound is heard when the computer is NOT using the disc.
- At your earliest convenience, copy the disc you are using and begin using the copy. Discard the original disc.

Using Your Disc Drive

- You are now ready to use your disc drive.
- For information on how to configure your disc drive with your computer, refer to the configuration section of your computer manual.
- For information on formatting discs and making backup copies of discs, refer to the disc drive or mass storage section of your computer manual.
- Information on configuration, formatting, and backup may also be found in Part II, Chapter 3 of this manual.



Part II

REFERENCE SECTION

What is an HP 9121/9122 Disc Drive?

A disc drive is a device that allows a computer to read data that is stored on a disc or write data to a disc. A disc is similar to a phonograph record that stores programs and data instead of music. A disc may be flexible or hard. Data may be stored on only one side of the disc (single-sided) or on both sides of the disc (double-sided).

The HP 9121/9122 family of disc drives uses 3 1/2-inch flexible discs. The HP 9121 uses single-sided flexible discs, while the HP 9122 uses double-sided flexible discs. This manual describes both the HP 9121 and HP 9122 disc drives since these disc drives are similar in appearance and use.

Figure 1-1 describes the storage capacities for the HP 9121/9122 family of disc drives.

Disc Drive	Number of Drives	Type of Discs Used	Maximum Kbytes of Storage	Approximate Number of Typewritten Pages of Storage*
9122D	2	Double-sided	1,420	354
9122S	1	Double-sided	710	177
9121D	2	Single-sided	540	135
9121S	1	Single-sided	270	68

* Based on 80 characters per line of type and 50 lines of type per page.

Storage Capacities

Now that you know a little bit about this manual and your disc drive, let's set up your disc drive.



Chapter 1

GETTING SET UP

The installation instructions in this part of the manual are in greater detail than in Part I of this manual.

Step 1: Unpacking and Checking the Equipment Supplied

Remove your disc drive from the shipping carton. Your disc drive was carefully inspected before shipment. However, please check the unit for any physical damage that may have occurred during shipment. If you find any damage, immediately notify your dealer or the nearest Hewlett-Packard sales office. Also, file a claim with the carrier.

CAUTION

The disc drive is a precision instrument. Mechanical shock which occurs as a result of the disc drive being dropped may misalign the read/write heads and/or other internal parts. Damage may occur whether the disc drive is operating or not.

If you plan to move the disc drive to another site in the future, save the shipping carton. When the time for the move arrives, make sure that you remove all discs from the disc drive. Seal the disc drive in a plastic bag and repack it in the shipping carton.

Your disc drive comes with a power cord and an operator's manual. Please verify that you have received this equipment. If you are missing either of these items, please contact your dealer or the nearest HP sales office.

One 3 1/2-inch flexible disc per drive is included with your operator's manual. A package of ten flexible discs may be ordered. If you have an HP 9122, you need gray double-sided discs; order part number 92192A. Specify part number 92191A for blue single-sided discs for the HP 9121.

Step 2: A Look at Your Disc Drive

Before you set up your disc drive, look at the parts of the disc drive illustrated in Figure 2-1. On the front panel of your disc drive, locate the power switch, the disc eject button for each drive unit, and the disc access light for each drive unit. Your disc drive is turned on when the power switch button is in. The disc drive is off when the button is out.

The disc access light is illuminated whenever your computer is storing data on the disc or retrieving data from the disc. The disc access light is also lit up momentarily when the disc drive is first turned on and when a new disc is inserted.

CAUTION

The disc access light on the front of each drive indicates usage of that drive. Do not depress the disc eject button when the disc access light is on. Also, do not turn off the disc drive when the disc access light is on.

Please note the cooling air exhaust on the rear panel. When positioning your disc drive, ensure that this exhaust is not blocked.

CAUTION

Keep the front and back of the disc drive free from obstructions in order to avoid restricting the air flow. Failure to do so could cause the unit to overheat and result in damage to the unit.

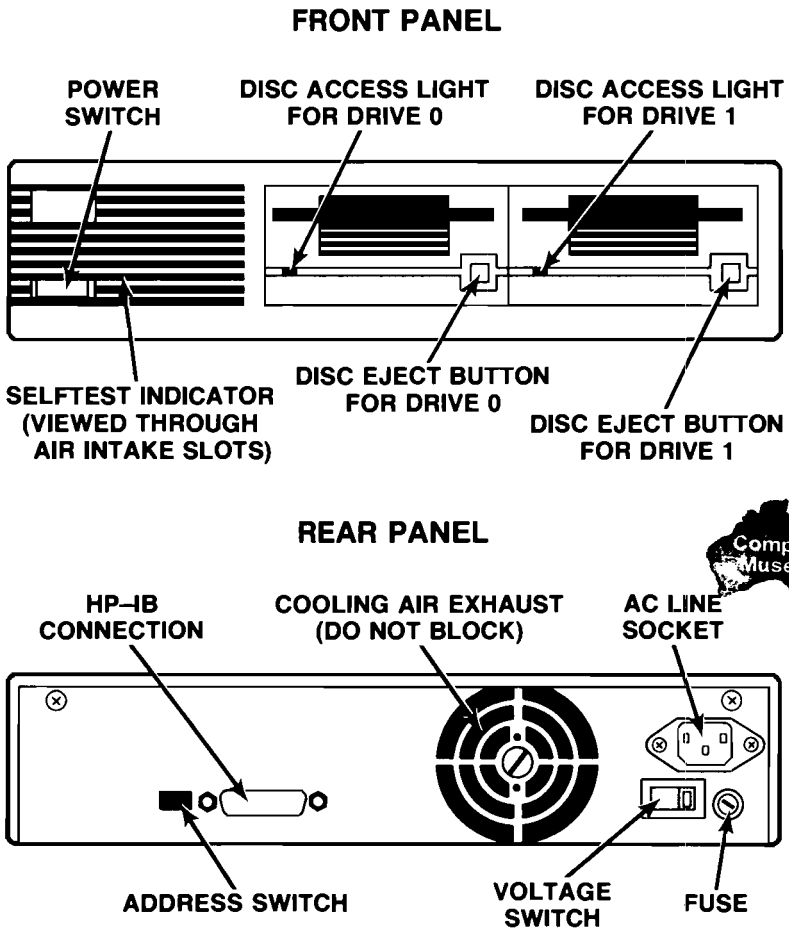


Figure 2-1: Front and Rear Panels of the HP 9121/9122

Step 3: Setting Up and Connecting Your Disc Drive to Your System

Before You Start

The only tool you need to set up your disc drive is a small blade screwdriver. If a screwdriver is not available, a nail file, pocket knife, coin, or similar tool may be substituted.

The five steps involved in setting up a disc drive include:

- 1) setting the voltage,
- 2) installing the fuse,
- 3) connecting the HP-IB cable,
- 4) setting the address, and
- 5) connecting the power cord.

During the manufacturing process, Hewlett-Packard completes steps 1, 2, and 4. Therefore, at this time, you may not need to install the fuse or reset the voltage and address switches on your disc drive. You do need to connect the HP-IB cable and power cord.

First, Set the Voltage Switch

WARNING

Always turn off the disc drive before changing the voltage setting in order to avoid damage to the disc drive.

Place your disc drive on a flat surface with the rear panel facing you. Be sure the disc drive is turned off. Check the voltage switch (see Figure 1-2). This switch was set for the voltage in your area prior to shipment, either 115 VAC (United States) or 230 VAC (Europe). Verify that the switch is set correctly for your local power. If necessary, you can change the setting by using a screwdriver to push the voltage switch sideways until the switch displays the proper setting.

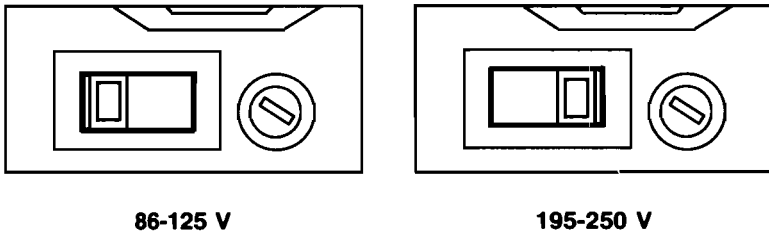


Figure 1-2: Voltage Switch

Second, Changing the Fuse

WARNING

TO AVOID POTENTIAL SHOCK HAZARD, ALWAYS UNPLUG THE POWER CORD BEFORE CHANGING FUSES. To install the fuse, first place the fuse into the fuse-holder and then into the unit.

The fuse in your disc drive corresponds to the voltage setting. If your voltage is 115 VAC, a 1.0 Amp fuse is required. If your voltage is 230 VAC, a 0.5 Amp fuse is necessary.

If you need to change the fuse, first unplug the unit. Then use a screwdriver to turn the fuse-holder in a counter-clockwise direction while pushing gently (see Figure 1-3). Once the fuse-holder is loosened, pull it out with your fingers. Remove the old fuse. Put the new fuse into the fuse-holder and then insert the fuse-holder into the unit. Do not hold the metal portion of the fuse while inserting the fuse into the unit, because if the unit is plugged in a potential shock hazard exists.

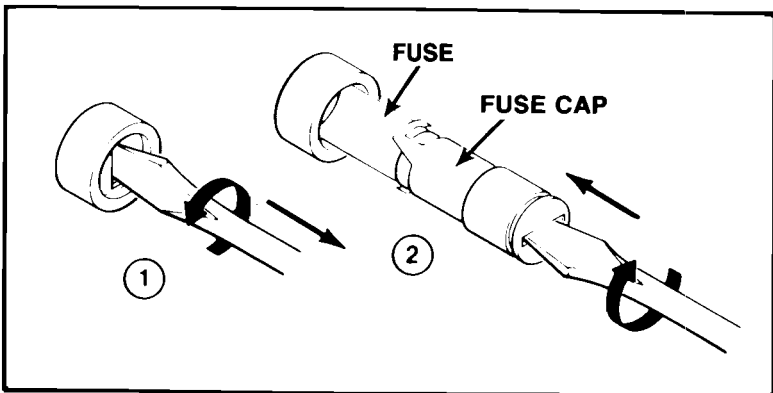


Figure 1-3: Fuse holder

Third, Connect the HP-IB Cable

The disc drive is connected to the computer using the Hewlett-Packard Interface Bus (HP-IB), illustrated in Figure 1-4. A bus is a bundle of wires over which computer devices can communicate. The bus is similar to a telephone line shared by several telephones. The computer, disc drives, plotters, and printers are the "telephones" hooked to this telephone line. (Just as telephones must have a unique phone number, each one of these devices must have a unique number. On the bus, these unique numbers are called addresses. You will learn how to assign a unique address to your disc drive in the section called, "Select the Address.")

Length	Accessory Number
1 meter	10833A
2 meters	10833B
4 meters	10833C
0.5 meters	10833D

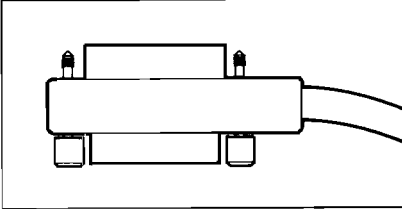
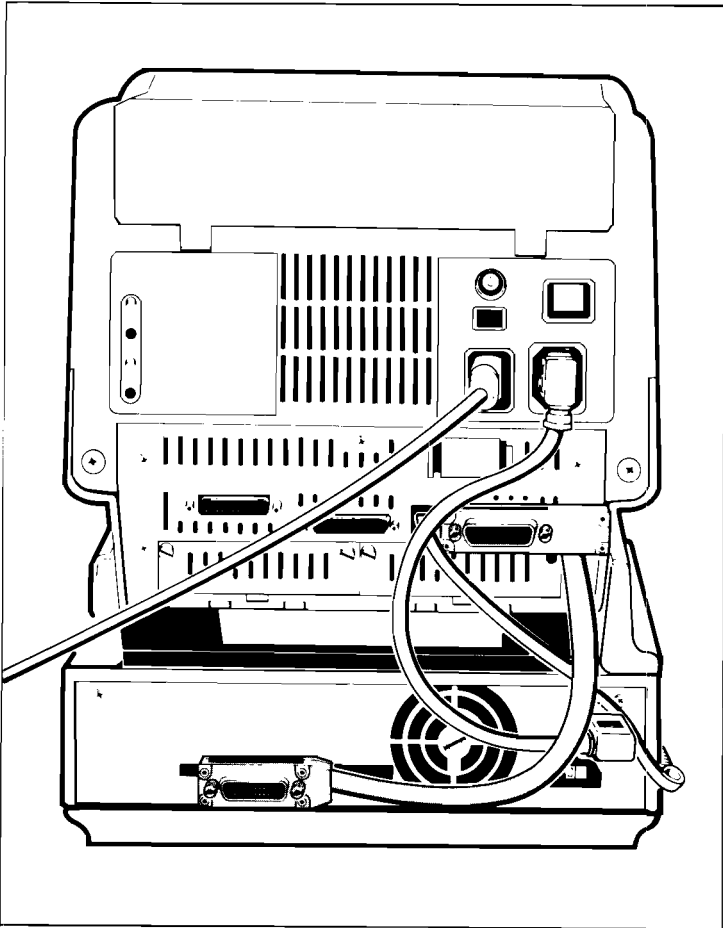


Figure 1-4: HP-IB Cable

The HP-IB cables from Hewlett-Packard (listed in Figure 1-4) are completely shielded to eliminate Radio Frequency Interference (RFI). The use of unshielded cables will cause increased RFI in the area of use.

Use the following steps to connect your disc drive to your computer using the HP-IB cable.

1. Make sure that the power switch on your computer and on your disc drive are turned off.
2. Plug one end of the HP-IB cable into the HP-IB socket on the rear panel of your disc drive (See Figure 1-5). The socket is shaped so that the HP-IB cable can only be plugged in one way. Once the HP-IB is connected, secure the connection by turning the thumbscrews on the HP-IB connector in a clockwise direction.
3. Plug the other end of the HP-IB cable into the HP-IB socket on your computer, and secure using the thumbscrews (see Figure 1-5).



Note: This figure illustrates the connection on an HP 150 computer. If you have a different computer the connection may appear slightly different.

Figure 1-5: HP-IB Connection

If you examine the HP-IB cable you have just hooked up, you will note that the side of the HP-IB cable facing you looks very similar to the HP-IB socket on the back of your disc drive. This means that you can now plug another HP-IB cable into the back of the cable you have just hooked up. This stacking of HP-IB cables is called piggybacking. Piggybacking allows you to hook up more than one peripheral to your computer. The most important point to remember when piggybacking is to stack no more than four HP-IB cables on one piece of equipment. Placing too much weight on any HP-IB socket may damage the socket. See Appendix I for additional information on HP-IB interface restrictions.

Fourth, Select the Address

You have a telephone number that is different from your neighbor's telephone number. Your telephone number allows others to call you when they have a message for you or when they need information from you. Similarly, each peripheral device on a bus needs a unique number so that the computer can "call" the peripheral to get or give information. On the bus, this unique number is called an address.

Hewlett-Packard sets your disc drive address at 0. You probably do not need to change this address if you have only one peripheral of each type (e.g. one disc drive, one printer, and one plotter) connected to your computer. The reason is that HP usually sets the disc drive address at 0, the printer address at 1, and the plotter address at 5. Therefore, when you have only one peripheral of each type, these peripherals probably have unique addresses.

Check the peripherals that you are connecting to your computer. The address switches can be set to any one of eight addresses, ranging from 0 through 7. Figure 1-6 illustrates these eight addresses.

Address	Position of 4 small switches			
	Left	Middle Left	Middle Right	Right
0	Up	Down	Down	Down
1	Up	Down	Down	Up
2	UP	Down	UP	Down
3	Up	Down	Up	Up
4	Up	UP	Down	Down
5	Up	Up	Down	Up
6	Up	Up	Up	Down
7	Up	Up	Up	Up

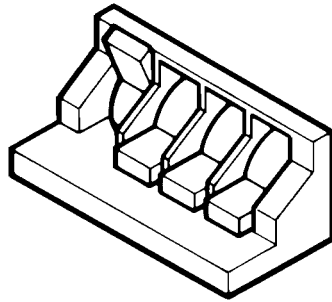


Figure 1-6: Address Switch Settings

If you need to change the address on your disc drive, use the following steps to set the address:

1. Make sure your disc drive power switch is "OFF".
2. Look at the address switch on your disc drive. The switch is actually four small switches.

3. Compare the four switches to Figure 1-6. In the figure, the switches are described as being "up" or "down". Think of the switches in comparison to your light switches at home. You can flip your light switch up or down. When the switch is at the top, it is "up". When the switch is at the bottom, it is "down".
4. As an example, look at the address "0" in Figure 1-6. When the address is set at "0", the first, second and third switch from the right are all down. The switch farthest to the left is up. For all addresses, this left switch should be up for normal operation.
5. Using Figure 1-6, set your disc drive address to a unique address.

While your unit may contain two separate drives, it is one device. Therefore, only one address is required. However, when reading data from or writing data to the disc drive, you must specify not only the address, but also the unit number of the drive you are using. On your unit, the left drive is labelled "0" for unit 0 or drive 0. The right drive is labelled "1". See the configuration section of your computer operator's manual or Chapter 3 of this manual for more information on this subject.

Fifth, Connect the Power Cord

A power cord was packaged with your equipment. Make sure that your disc drive and computer are turned off. Connect the power cord to the socket labelled "AC Line" on the right rear panel (see Figure 1-7). Plug the power cord into the wall socket. Contact your dealer or the nearest HP sales office if you do not have the correct power cord.

WARNING

If it is necessary to replace the power cord, the replacement cord must be identical to the original cord. Otherwise a shock hazard might exist. If you need to replace a power cord, contact your dealer or the nearest HP sales office for the appropriate HP part number.

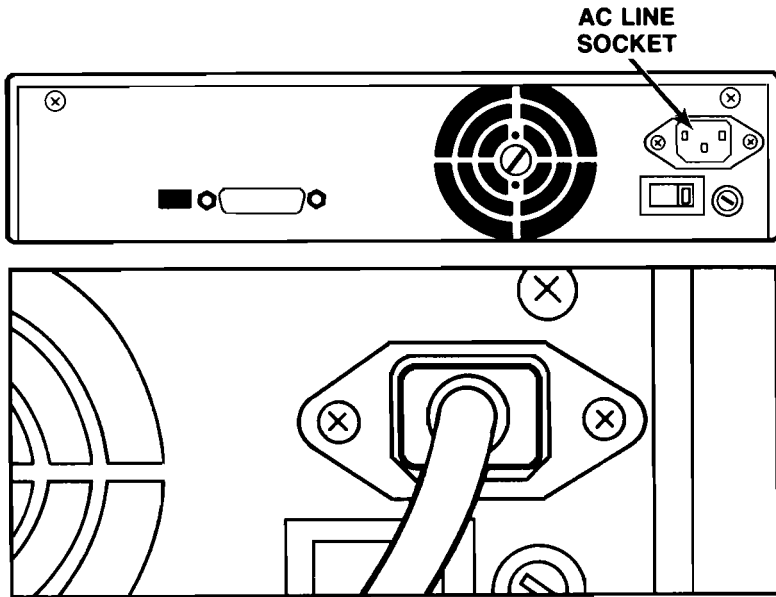


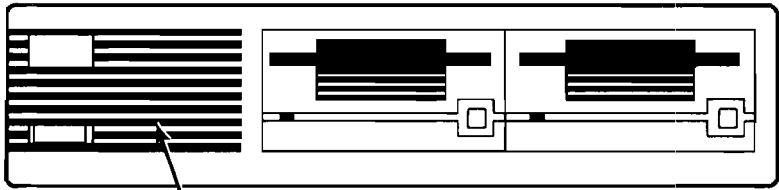
Figure 1-7: Power Cord Connection

Step 4: Try It!

Power-On Selftest

If you have performed all of the above procedures, you are ready to turn on your disc drive. Locate the power button on the front panel. When the button is in, the disc drive is on. When the button is out, the disc drive is off.

A power-on selftest is performed automatically when you turn on your disc drive. Figure 1-8 illustrates the location of the selftest light. This light may be viewed through the air intake slots on the front panel of your disc drive. However, this light is visible only when it is lit. When you know where to locate the selftest light, turn on your disc drive. Watch the selftest light.



**SELFTEST INDICATOR
(VIEWED THROUGH
AIR INTAKE SLOTS)**

Figure 1-8: Selftest Light Location

If you have an HP 9122, the selftest light should be illuminated less than 1 minute and then go out. When the light goes out, the disc drive has passed the selftest. If the selftest indicator light continues to burn after 1 minute, turn off the disc drive. Then turn on the disc drive and repeat the observation of the selftest light. If after several retries of this selftest, the indicator light continues to be lit, contact your dealer or the nearest HP sales office.

If you have an HP 9121, the selftest light flashes five times to indicate that the disc drive has passed the selftest. If the light does not flash, turn off the disc drive. Make sure you are looking behind the air intake slots for the indicator light, and then turn on the disc drive again. If no flashing occurs after trying this test several times, contact your dealer or the nearest HP sales office.



Chapter 2

● USING YOUR FLEXIBLE DISC

What is a Flexible Disc?

A flexible disc is similar to a phonograph record that stores programs and data instead of music. The computer can record data and programs on the disc and can later recall the programs and data from the disc.

● The flexible disc is made from a flexible mylar sheet coated with a thin layer of magnetic oxide. This mylar sheet is enclosed in a protective plastic jacket designed to keep the recording surface clean. The plastic jacket also helps keep the disc flat when the disc is rotating in your drive.

A Look at the Flexible Disc

Figure 2-1 illustrates the parts of the flexible disc. As you read the following description, please note the described features on your disc.

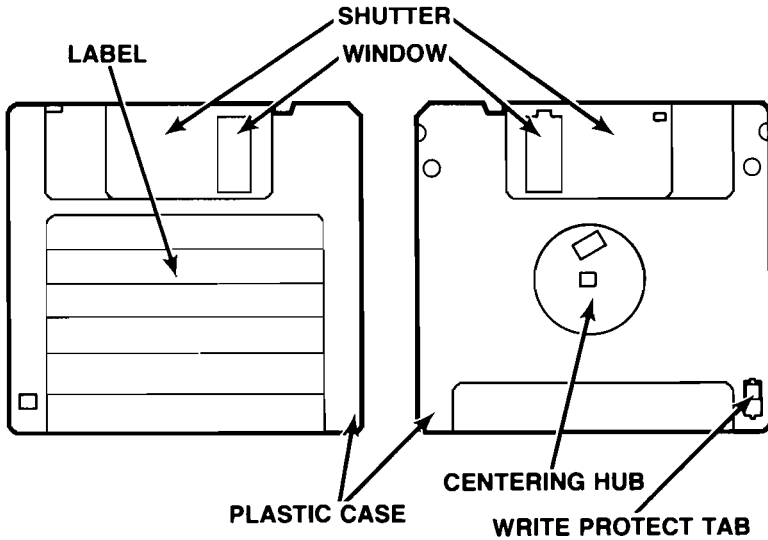


Figure 2-1: Parts of the Flexible Disc

Window and Auto Shutter

The disc drive reads data from the disc and writes data on the disc in the space under the window. The window is covered by a metal shutter. The shutter helps protect the disc surface from particles and accidental fingerprints.

The flexible disc is equipped with an auto shutter. This means that when the disc is placed in the drive, the shutter is automatically opened to expose the disc surface. You do not need to manually open the shutter before inserting the disc in the drive.

If you have an **HP 9122**, the auto shutter on your double-sided discs can be held open for visual inspection of the disc surface. When you let go of the shutter, it will automatically snap shut.

If you have an **HP 9121**, the auto shutter on your single-sided discs may be opened and closed manually. Open the auto shutter by sliding the shutter to the left until it locks in place. Close the auto shutter by pinching the upper left corner of the disc.

NOTE

Original 3 1/2-inch flexible discs did not have the auto shutterfeature. If you have a flexible disc that is not labelled "auto shutter" on the shutter, you must manually slide back the shutter before inserting the disc into the drive. After removing the flexible disc from the drive, you must manually close the shutter in order to protect the disc. You can only use discs with auto-shutters in the HP 9122.



Centering Hub

On the back of the plastic jacket is a round metal center, called the centering hub. The centering hub ensures rapid and accurate positioning when the disc is inserted in the drive.

Single-Sided Versus Double-Sided Discs

Please refer to Part I, the Installation Guide, for information on single-sided versus double-sided discs.

Loading the Flexible Disc

To insert and remove flexible discs, perform these steps.

1. Turn on the disc drive. Do not insert a disc before you have turned on the disc drive.
2. Hold the disc with the label on the top and the shutter pointing at the slot in the disc drive. Slide the disc into the drive until you feel the disc drop into the slot. Do not force the disc. See figure 2-2 for proper loading of the disc.

If you have a disc that is **NOT** auto shutter, you must manually open the shutter before inserting the disc into the drive or the disc will not drop down into the drive.

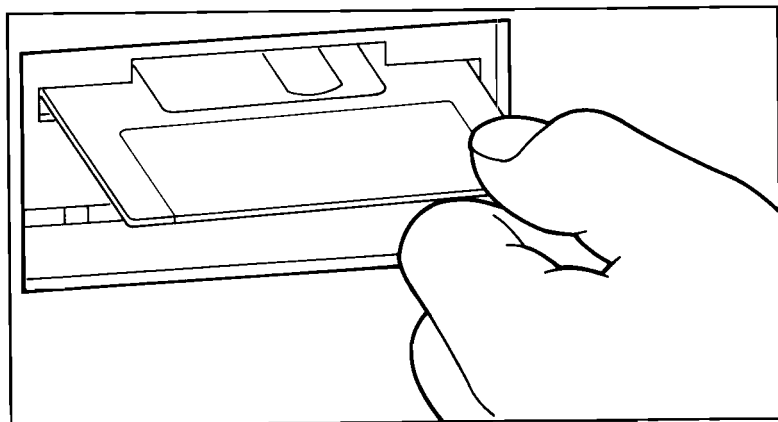


Figure 2-2: Proper Loading of the Flexible Disc

3. Remove the disc by pressing the disc eject button. Pull the disc straight out.
If you have a disc that is NOT auto shutter, you must manually close the shutter immediately after removing the disc from the drive.
4. Turn off the disc drive only after you have removed the disc.

Labeling the Flexible Disc

When you order boxes of flexible discs, you receive a packet of labels with the discs. Note that the labels come in a variety of colors. Position the label on the disc so that the colored portion of the label is folded over the lower edge of the disc (see Figure 2-3).

You can establish a color-coded system for cataloging your discs. For example, discs containing memos may be labeled in red while discs containing personnel files can have blue labels. Store your discs upright in a container so that the colored edge of the labels are visible. You may use the colors to select the category of discs you desire, and then read the labels to select the specific disc needed.

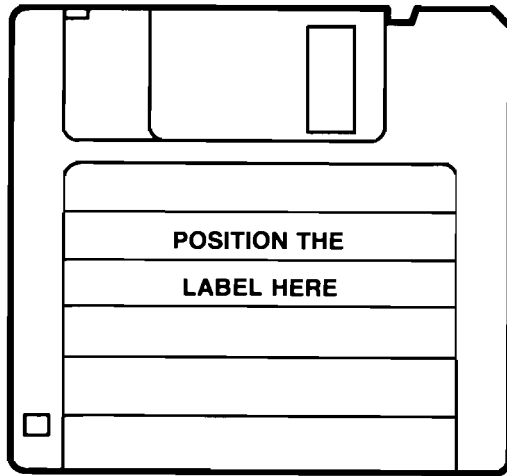


Figure 2-3: Usual Positioning of the Label on the Disc

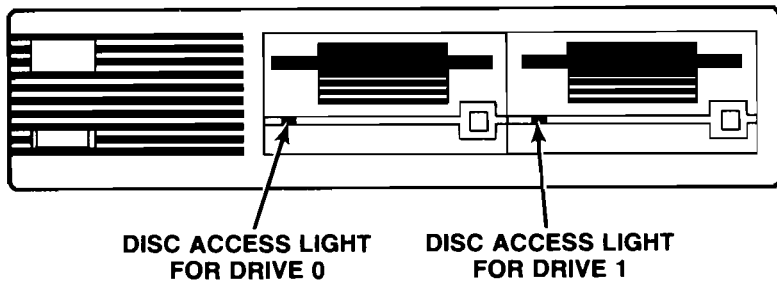
What is the Life Expectancy of a Flexible Disc

The read/write head of the disc drive touches the disc. As a result, the flexible disc media does wear out. The Media Monitor indication helps assure reliable operation.

Media Monitor

Through a feature called Media Monitor, your disc drive automatically monitors the cumulative use of each individual disc. When the usage of a disc is approaching a level at which there is any risk of loss of data through normal disc wear, the disc access light on the front panel blinks (see Figure 2-4), and a clicking sound is heard when the the computer is NOT using the disc. Once this point has been reached in the life span of a disc, the disc drive accepts commands from the computer and performs the commands. However, after a command has been performed, the disc drive immediately resumes the warning indication.

When the Media Monitor warning occurs, immediately copy your disc. If you continue to use this disc, the disc drive eventually automatically write protects the disc. After that time, you will only be able to read data from the disc or copy the disc.



The disc access light will blink and a clicking sound is heard when the Media Monitor has determined that the disc should be replaced.

Figure 2-4: Location of Media Monitor Lights

Chapter 3

USING YOUR DISC DRIVE WITH YOUR COMPUTER

Introduction

For your convenience, this chapter normally includes system operation information to help you configure your disc drive and format and backup your discs. However, this information is not yet available at the time of this printing. System operation information, when available, will be included as an insert to this manual. You may order this insert using Hewlett-Packard part number 09122-90012. For information on using your disc drive with your computer, please consult the appropriate system manual described below.

HP 150

For information on using your disc drive with your HP 150 computer, please consult your HP 150 Personal Computer Owner's Guide.

Series 200

For information on using your disc drive with your Series 200 computer, please consult your Series 200 Operating Manual. If you are using BASIC 3.0, you may also consult the BASIC manuals that you received with your computer. If you are using PASCAL 3.0, you may also consult the PASCAL manuals that you received with your computer.

All Other Computers

For information on using your disc drive with any other computer, please consult the operator's manual that you received with your computer.



Chapter 4

CARING FOR YOUR DISC DRIVE



Caring for the Case

The disc drive case is made from a white plastic material and is not painted. The rear panel has been painted with a durable, non-toxic paint. In the event of damage to the case finish, consult your HP Sales Office for touchup paints.

CAUTION

Chemical spray-on cleaners used for appliances and other household and industrial applications may damage the case finish. Do not use detergents that contain ammonia, benzenes, chlorides, or abrasives.

Before cleaning the case, disconnect the power cord and HP-IB cables. Make sure that all discs are removed from the drives. Dampen a clean, soft, lint-free cloth in a solution of clean water and mild soap. Wipe the soiled areas of the case, making sure that no cleaning solution gets inside the case. For cleaning more heavily soiled areas, a solution of 80% clean water and 20% isopropyl alcohol may be used. Wipe the areas that had cleaning solution applied with another clean, soft, lint-free cloth. A non-abrasive eraser may be used to remove pen and pencil marks.

Warranty

The complete warranty statement for the U.S. and Canada is included inside the front cover of this manual. If you have questions concerning the warranty, please contact your dealer or the nearest HP sales office. In countries other than the U.S. and Canada, contact your dealer or the nearest HP sales office for the warranty statement.

Maintenance

Your disc drive does not require regular maintenance. However, the performance and life of the disc drive and the flexible discs depend on how carefully they are handled. Be sure to follow the disc care and handling guidelines presented in Part I and the environmental restrictions presented in the Specifications Table in Appendix I.

If you have an HP 9121, a part of the disc drive known as a load pad will wear out and must be replaced. (The HP 9122 does not have load pads.) The replacement of the load pad is a complicated process and should only be attempted by a trained service person.

The life expectancy of the load pad depends on the use of the drive. A normally used drive (disc access light lit less than 20 minutes per day) requires load pad replacement approximately every 5 years. A heavily used drive (disc access light lit more than 2 hours per day) requires load pad replacement every 1 to 2 years.

What If Something Goes Wrong?

1. *What if the disc access light begins blinking and the disc drive makes a clicking noise?*

The blinking of the disc access light and the clicking noise are a feature of your disc drive, called the Media Monitor. This warning indicates that the disc currently in use in the blinking and clicking drive should be replaced. Immediately copy the worn disc and discard it. For further information about the Media Monitor, please see the "Media Monitor" section of Chapter 2.

2. *What if my disc drive does not pass the selftest?*

If your disc drive does not pass the selftest, take the following actions:

- A) Turn off your disc drive. Then turn the disc drive back on and repeat the selftest.
- B) If the disc drive still fails the selftest, repeat the selftest 2 to 3 more times.
- C) If your disc drive still fails the selftest, contact your dealer or the nearest HP sales office.

3. *When I try to initialize my disc, I get an error stating that the disc is write protected. What should I do?*

First, check to make sure that you are not using a disc that you have write protected or that has been automatically write protected by the Media Monitor.

When a disc is inserted to be initialized, the disc drive performs a motor speed check. If the motor speed is out of specification a Write Protect Error is generated and the disc is not initialized. This indicates a defective disc. Discard the disc.

Please note that if you receive a Write Protect Error on several discs in a row, your disc drive may not be operating properly. Contact your dealer or the nearest HP sales office.

4. *When I try to store information on a disc, I get an error stating that the disc is write protected. What should I do?*

You are trying to store information on a disc that you have write protected. If you wish to write information on this disc, reverse the write protect tab on the disc (see Part 1). If you wish to keep this disc write protected, insert another disc.

Also, the disc may have been automatically write protected by the Media Monitor. If the Media Monitor warning is on, the disc should be discarded.

5. *What should I do if I get a message that says, "Disc Not Present" or "No Discs Were Found"?*

- A) Be sure the disc drive is turned on.
- B) Check your cables to make sure they are secure.
- C) Be sure that you have a disc in the correct disc drive.
- D) Be sure that the disc has been initialized.
- E) Check your disc drive to make sure it is addressed correctly.
- F) If all this fails, you may have a bad disc. Try another disc.

6. *What if I get an error message saying, “Disc Error Reading Drive — _____?”*

Your disc is probably worn or damaged. Try using other discs to see if you get the same message. If you receive the message on only one disc, copy the disc immediately and discard it. (Please note that if the disc is worn or damaged, the copy may not work.) If you receive the same message on several discs, contact your dealer or HP sales office.

7. *What should I do if I get a message that says, “Disc drive is empty, off, or undefined”?*

- A) Be sure the disc drive is turned on.
- B) Be sure that you have a disc in your disc drive.
- C) Check your disc drive to make sure it is addressed correctly.
- D) If all this fails, you may have a bad disc. Try another disc.

Your disc drive can be repaired only by a trained service person. If you suspect that your disc drive is malfunctioning, contact your dealer or the nearest HP Sales Office.

How to Order Supplies

DESCRIPTION	HP PART NUMBER
Blue Single-Sided Micro Flexible Discs (10 discs/box)	92191A for 9121
Gray Double-Sided Micro Flexible Discs (10 discs/box)	92192A for 9122
Fuse, 1.0 amp for voltage range of 86-125VAC	2110-0001
Fuse, 0.5 amp for voltage range of 195-250VAC	2110-0012
Power Cord ¹	See footnote
HP-IB Cable, 1 meter length	10833A
HP-IB Cable, 2 meter length	10833B
HP-IB Cable, 4 meter length	10833C
HP-IB Cable, 0.5 meter length	10833D
HP 9121/9122 Operator's Manual	09122-90000

¹ Power cords are dependent on delivered location. Please consult your dealer or nearest HP sales office if you need to order a power cord.

Order supplies for your disc drive by contacting your dealer or the nearest HP sales office. You may also contact the Hewlett-Packard Computer Supplies Operation at the following address:

Computer Supplies Operation
1320 Kifer Road
Sunnyvale, California 94086

Telephone: (800) 538-8787 toll free in the United States
(406) 738-8858



Appendix I

TECHNICAL REFERENCE

HP-IB Interface Restrictions

The total length of cable permitted in one bus system must be less than or equal to two meters times the number of devices connected together (your computer counts as one device). However, the total length of cable must not exceed 20 meters.

For example, a system containing six devices can be connected together with cables that have a total length less than or equal to 12 meters (six devices \times 2m/device = 12 meters). The individual lengths of cable may be distributed in any manner desired as long as the total length does not exceed the allowed maximum. If more than ten devices are to be connected together, cables shorter than two meters must be used between some of the devices to keep the total cable length less than 20 meters.

The maximum number of devices that may be connected together in one bus system is 15. Up to eight of these devices may be disc drives. There are no restrictions to the way cables may be connected together. However, it is recommended that no more than four piggyback connectors be stacked together on one device. The resulting structure could exert enough force on the connector mounting to damage it.

For HP-IB Programmers Only

The HP 9121/9122 disc drives do not support the following HP-IB commands:

Serial Poll
Parallel Poll Configure
Parallel Poll Unconfigure

NOTE

Parallel Poll Response occurs at the HP-IB address to which the rear panel switches have been set.

Technical Specifications

Listed next are the electrical and physical specifications for the HP 9121/9122 disc drives.

	HP 9121S HP 9122S	HP 9121D HP 9122D
Number of drives	1	2
Net Weight	3.6 kg (8.5 lbs)	4.5 kg (10 lbs)
Height	76 mm (2.99 in.)	76 mm (2.99 in.)
Depth	285 mm (11.2 in.)	285 mm (11.2 in.)
Width	325 mm (12.8 in.)	325 mm (12.8 in.)
	HP 9121D/S	HP 9122D/S
Interface	HP-IB	HP-IB
HP Double Density Format		
Encoding:	MFM	MFM
Rotational Speed:	600 RPM	600 RPM
Bit Density (@ 600 RPM):	Track 69 (Inside track) 7610 BPI	Track 69 8717 BPI
Track Density:	135 tracks per inch	135 tracks per inch
Tracks per Surface:	70	80
Surfaces used per disc:	1	2
Capacity		
Bytes/Sector:	256	512
Tracks:	70	80
Bytes/Drive (Formatted):	270 Kbytes	710 Kbytes
See note below.		

NOTE

All of HP's computers spare tracks for data reliability. These tracks are not used for data storage. As a result, the usable space on the HP 9121 is 270 Kbytes/drive. The usable space on the HP 9122 is 710 Kbytes/drive maximum.

	HP 9121D/S	HP 9122D/S
Access Time		
Track-to-Track Seek:	15 ms/track plus 20 ms settling	15 ms/track plus 42 ms settling
Maximum Track-to-Track Seek:	1070 ms (70 tracks)	1242 ms (80 tracks)
Average Track-to-Track:	370 ms	447 ms
Maximum Rotational Latency:	100 ms	100 ms
Average Rotational Latency:	50 ms	50 ms
Spindle Motor on time:	1 s	400 ms
Maximum Data Access Time (Seek plus Latency plus Motor on time):	2.170 s	1.742 s
Average Data Access Time:	420 ms	497 ms

Data Transfer Rates:

	Maximum Sustained Transfer Rate (256 bytes/sector)	Maximum Sustained Transfer Rate (512 bytes/sector)
Interleave	HP 9121/9122	HP 9122
2	16.0K	17.6K

NOTE

The above transfer rates are possible on a Series 200 computer. Transfer rates may vary depending on the system and software programs used. Performance on systems other than Series 200 may be lower.

Power Requirements

86-125 volts or 195-250 volts @ 67 watts RMS (94 voltamps)
50-60 Hertz
Fuse 1A, 250 for 115V setting

Environmental Specs

Operating Limits

Temperature:

10°C to 40°C
(50°F to 104°F)

Humidity:

20 to 80% with maximum wet bulb
temperature (non-condensing) not
to exceed 29°C (85°F).

Altitude:

0 to 4572 m (0 to 15,000 ft)

Non-operating Limits

(Storage and Transit)

Temperature:

- 40°C to 60°C
(- 40°F to 140°F)

Altitude:

- 304 to 15240 m (- 1000 to 50,000 ft)

NOTE

Your disc drive is designed for operation in a typical office environment. Use of the equipment in an environment containing dirt, dust, or corrosive substances will drastically reduce the life of the disc drive and of the flexible discs.

Appendix II

GLOSSARY

- ADDRESS** A number that identifies the exact location to which your computer can send data or from which your computer receives data. Just as you have a unique home address, your computer, disc drive, plotter and printer must each have a unique address.
- BACKUP** A backup is a duplicate copy of a disc made in case the original disc is lost or damaged.
- BOOTING** Booting up your computer puts it in a ready-to-run condition. The computer literally “pulls itself up by it’s bootstraps” and gets ready to go. (Booting loads the operating system and utilities.)
- BYTE** A byte is used to represent one character, such as a single letter, number, or other symbol.
- CABLE** Cables provide the connection between computers and peripherals (printers, plotters, and disc drives). The cable used in this manual is the HP-IB (Hewlett-Packard Interface Bus).
- CONFIGURATION** Configuration is the way you let your computer know which disc drive it is talking to, where the disc drive is on the bus, and which drive you want the computer to access.
- CRT** Acronym for cathode ray tube. The CRT is the video screen of the computer.

DIRECTORY	The table of contents for the files stored on a disc.
DISC	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. HP's 3 1/2-inch flexible disc is enclosed in a plastic jacket. A disc may be flexible or hard. The flexible disc may also be single-sided or double-sided.
DISC DRIVE	A device that allows a computer to read data that is stored on a disc or write data on a disc.
FORMATTING	The process by which a disc is prepared to receive and store data. Also known as "initializing." If you think of your disc as being like a filing cabinet, formatting is equivalent to getting an empty file cabinet and preparing the cabinet for use. First, you check the cabinet for any damage. Similarly, the disc drive checks the disc for any damaged areas in which data cannot be stored. Second, you place hanging folders and dividers in your file cabinet. Likewise, the disc drive sets up storage areas on the disc. Finally, you label your filing cabinet so that you know what is in each drawer. Similarly, the disc drive sets up a directory on your disc.
HARDWARE	The physical parts of the computer system; the computer and the peripheral devices.
HEAD	The part of the disc drive that reads data from your disc and writes data onto your disc.
HP-IB	Stands for Hewlett-Packard Interface Bus. The HP-IB is a bundle of wires that allows the computer and the peripherals to communicate.
INITIALIZING	The process by which a disc is prepared to receive and store data. Also known as "formatting."
INTERFACE	The interface makes communication possible between the computer and its peripherals.

INTERLEAVE	Interleaving a disc is a method of alternately numbering sectors on the disc to improve data acquisition efficiency. See the interleave section of your computer programming manual for additional information.
KBYTES	A unit of measurement for memory storage. One Kbyte is technically equal to 1,024 bytes. However, we use Kbyte to mean 1,000 bytes. Also called "K" or "kilobyte."
LOAD MEMORY	To read programs into a computer. The size of the computer's brain. Memory is the combination of hardware and/or discs on which data is stored.
MFM	Modified frequency modulation (MFM) is a method for storing data on discs.
PERIPHERALS	Devices that are external to and controlled by the computer. Peripherals are so called because they are not part of the computer (e.g. tape drives, disc drives, printers, and plotters).
PIGGYBACKING	Hooking one HP-IB cable into the back of another HP-IB cable. Piggybacking is one way to connect more peripheral devices to your computer system.
PROGRAM	A set of instructions or steps telling the computer how to handle a problem or task.
READ/WRITE HEAD	The part of the disc drive that reads data from your disc and writes data onto your disc.
SOFTWARE UTILITY	A computer program or set of programs. A utility is a program that performs a task required by most users. For example, most users need to make copies of discs. Therefore, the copy utility is a program that tells the computer how to copy discs.
WRITE PROTECT	A method of protecting disc information from being erased or overwritten.



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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, 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

- * Birkerød
Phone: 2/81-66-40

El Salvador

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

Finland

- * Espoo
Phone: 90/455-0211
- * Jyväskylä
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
- * Sagami-hara
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

* Full Field Repair Center capabilities

Spain

- * Mirasierra, Madrid
Phone: 91/734-1162

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
- * Widdersley, 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

- * Full Field Repair Center capabilities

Supplement

USING YOUR DISC DRIVE WITH YOUR COMPUTER

Supplement to manual P/N 09122-90000 dated June, 1984

Introduction



For your convenience, this supplement provides information to help you get started using your disc drive with your computer. Information available to date is included in this supplement. As further system information becomes available, we will update this supplement. Revisions of this document may be ordered using Hewlett Packard part number 09122-90012.

This supplement helps you configure your disc drive, format discs, and make copies of your discs. Don't let the terminology scare you. Configuration is simply a way to let your computer know which disc drive it is talking to, where the disc drive is on the HP-IB bus, and which drive you want the computer to access.

Formatting (or initializing) is the process that prepares your disc to receive and store data. The formatting process checks your disc for defects. Formatting also creates a directory. The directory holds the name and location of each file on the disc, similar to the way your address book holds the names and addresses of all your friends.

An important thing to remember about formatting is that it is system dependent. What this means to you is that if a disc is formatted on one computer system, the disc may not necessarily work on another computer system.

CAUTION

Formatting will destroy any data already stored on the disc.

Copying means that you make a duplicate copy of a disc. Like phonograph records, flexible discs wear out. Also, flexible discs can be damaged by accidents or careless handling. Since your valuable data and programs can be lost when a disc wears out or is damaged, it is recommended that you make an extra copy of your important discs.

Read only the portion of this supplement that refers specifically to your computer.

HP Touchscreen PC

The following section describes the use of the HP 9122D and HP 9121D with the HP Touchscreen PC. (The HP 9122S and HP 9121S are not described due to the fact that these drives are add-on drives. This means that you can connect an HP 9122S or HP 9121S to your HP Touchscreen PC only if you already have another flexible disc drive connected to your HP Touchscreen PC. Please consult the HP Touchscreen PC manual, "More About Connecting Printers, Plotters and Disc Drives," for information on installing an add-on drive.)

Configuration

Complete the configuration as follows:

1. Make sure the address switch on the back of your disc drive is set at 0. Figure 1 illustrates the appearance of the address switch when the address is set at 0.
2. Load P.A.M. (Personal Applications Manager) and the operating system in one of the following ways:
 - A. If you are using an interconnect power cord from your HP Touchscreen PC to your disc drive, insert the SYSTEM_MSTR disc into the left flexible disc drive. Turn on your HP Touchscreen PC.
 - B. If your disc drive has a separate power cord plugged into a wall socket, first turn on your disc drive. Then insert the SYSTEM_MSTR disc into the left flexible disc drive. Turn on your HP Touchscreen PC.

Address	Position of 4 small switches			
	Left	Middle Left	Middle Right	Right
0	Up	Down	Down	Down
1	Up	Down	Down	Up
2	Up	Down	Up	Down
3	Up	Down	Up	Up
4	Up	Up	Down	Down
5	Up	Up	Down	Up
6	Up	Up	Up	Down
7	Up	Up	Up	Up

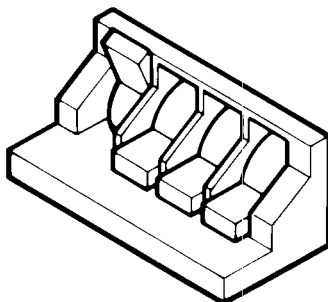


Figure 1: Address setting of 0

3. A screen appears labeled, "Personal Applications Manager (P.A.M.)." When this screen appears, touch:

**EASY CONFIG
SYS_MASTER-A**

This block should now be highlighted.

4. Next, touch **START APPLIC.**
5. A new screen appears with illustrations of computer products. The screen displays the message, *Select device to be configured and press NEXT STEP.* Touch the **DISC DRIVE** illustration so that this illustration is highlighted. Then touch **NEXT STEP.**
6. Another screen appears with illustrations of disc drives. Touch the illustration that contains the name of your disc drive, for example HP 9122D.
7. Make sure the illustration you touched is highlighted.
8. Touch **MAIN SCREEN.**
9. Touch **EXIT.**

Formatting Flexible Discs

Before a flexible disc can be used for the first time, it must be formatted. The following steps format your flexible discs:

1. Make sure the **SYSTEM_MSTR** disc is write protected. Then, insert this disc in the left flexible disc drive.
2. When P.A.M. appears on your screen, load the **FORMAT** utility by touching:

**FORMAT
SYS_MASTER-A**

3. Touch **START APPLIC**

4. Insert a blank disc in the right drive (drive B).
5. Select the disc you wish to format. Since you wish to format the blank disc that you inserted in the right drive, touch **DRIVE B**.
6. The screen displays, *Type the disc label (11 characters or less) and press Return*. If you wish to label your disc so that the computer can read the label, you may do so now by typing in the name you wish to give the disc and pressing the Return key. If you do not wish to label the disc, touch **NO DISC LABEL**.
7. **If you have an HP 9121D**, the HP Touchscreen PC formats your discs in a single-sided format. If you have an HP 9121D, you can skip the rest of this step and go to step 8.

If you have an HP 9122D, you now have a choice. Discs may be formatted using single-sided format or double-sided format. **The HP Touchscreen PC formats your discs in a double-sided format, unless you tell the HP Touchscreen PC that you wish to format single-sided.** Select a single-sided format if:

- A. you are using single-sided media; or
- B. you want to format a disc so that you can use the disc in either a single-sided or a double-sided disc drive.

If you have an HP 9122D and you want to choose single-sided formatting:

- A. Touch **FORMAT OPTIONS**.
 - B. The "Format Options" menu appears. Touch **SINGLE-SIDED** on this menu. An asterisk appears in the **SINGLE-SIDED** block to indicate that this option has been selected.
 - C. Touch **MAIN MENU** to return to the main formatting screen.
8. You can copy the operating system (MS-DOS) and P.A.M. at this time. (If you want to be able to boot your computer from the flexible disc you are formatting, you need to copy the operating system to the disc.) If you want to copy the operating system to the new disc, make sure the **SYSTEM_MSTR** disc is in drive A and touch the **COPY SYSTEM** block. An asterisk (*) in this block indicates that the operating system will be copied during the formatting process.
 9. Touch **START FORMAT**. When you touch **START FORMAT**, the screen may display the message, *"This disc has files. Do you want to destroy them? Type Y or N; press Return."* Remember that formatting destroys any data already stored on the disc. If you

wish to destroy the information on the disc, type Y and press Return. If you do NOT want to destroy the information on the disc, type N and press return.

10. If you are copying the operating system, the HP Touchscreen PC first reads all operating system files. When all the files have been read and are ready for transfer, a message appears on the screen, *"All system files have been read. Insert disc(s) to be formatted."* If you have not yet inserted a blank disc to be formatted, insert the blank disc now and press Return. If you have already inserted the blank disc, press Return.
11. The *Formatting* screen appears, and the disc that you selected for formatting is highlighted. Formatting and copying take less than 5 minutes. After your disc is formatted, the highlight is removed and the screen displays the message, *Press Start Over or Exit Format.*
12. Touch **EXIT FORMAT** on the screen to return to P.A.M.

Copying a Disc

The COPY/BACKUP program on your APPLIC_MSTR disc exactly copies a disc, as long as the disc does not contain APPLICATION programs. (If the disc is an applications MASTER disc, this disc can be copied using the INSTALL program.)

Copy a disc as follows:

1. When in P.A.M. insert the APPLIC_MSTR disc in the left drive and touch **REREAD DISCS.**
2. When the menu appears, touch:
COPY/BACKUP
APPLIC_MSTR-A
3. Touch **START APPLIC.**
4. When the prompt asks, *"Where are the files coming from?"*, remove the APPLIC_MSTR disc and replace it with the disc you wish to copy.
5. Type A: (the source drive) and press the Return key.
6. Insert an initialized disc in the right drive (Drive B).
7. When the prompt asks, *"Where are the files going,"* type B: (the destination drive). Press the Return key.
8. Touch **COPY FILES.**
9. You can individually select the files to be copied by touching each individual file name that you wish to copy so that the file

name is highlighted. You can also copy all files by touching **SELECT ALL** so that all file names are highlighted.

10. After you have selected the files that you wish to copy, touch **START COPY**.
11. When copying is complete, touch **CONTINUE**. Next, touch **COPY/BKP MAIN**. Finally, touch **EXIT COPY/BKP**. This sequence returns you to the P.A.M. screen.
12. Your disc has now been copied. Remove the original disc and the copy. Store the original disc in a safe place, and use the copy.

If you have trouble at any time, return to the P.A.M. screen and begin again. Make sure you follow all steps exactly.

Copying Application Discs

Hewlett-Packard distributes all APPLICATION programs on flexible discs labeled "MASTER." While you can use your MASTER discs just as they are, we strongly recommend that you install them onto a new working disc. We have already furnished you with working discs of all your MASTER discs. However, if you need to make additional working discs in the future, use the following steps:

1. With P.A.M. on your screen, insert the APPLIC_MSTR disc in the left drive and touch **INSTALL**.
2. Touch **START APPLIC**.
3. After the program loads, touch **INSTALL APPLIC**.
4. The screen prompt states, "*Select the correct discs below. Press show applics.*" Since the system automatically defaults to a source disc of A and a destination disc of B, the appropriate discs have already been selected for you. However, verify that the A block is highlighted in the *From* column and that the B block is highlighted in the *To* column.
5. Remove the APPLIC_MSTR disc from the left drive, and insert the MASTER disc you wish to copy.
6. Touch **SHOW APPLIC** in order to list the application programs available for copying. Touch each application program that you wish to copy so that the application is highlighted.
7. When you have selected all the applications programs that you wish to copy, touch **START INSTALL**.

8. When the copying is complete, touch **EXIT SELECT**. Then touch **MAIN MENU**. Finally, touch **EXIT MAIN** to return to P.A.M.

Points to Remember When Copying Discs

1. **APPLICATION** programs are copied from their **MASTER** discs via the **INSTALL** utility.
2. Most other files that are not **APPLICATION** program files can be copied using the **COPY/BACKUP** utility.
3. Write protect all **MASTER** discs to guard against accidental erasure.

Series 200 Basic 3.0 Operating System

The following section describes the most commonly used **BASIC** commands as they apply to the HP 9121D and HP 9122D disc drives. Additionally, we list and define other frequently used **BASIC** commands.

Mass Storage Unit Specifier

Before you begin using **BASIC 3.0** commands, you need to understand the **Mass Storage Unit Specifier (MSUS)**. **MSUS** is what the computer uses to identify your disc drive. For example, the **MSUS** of an HP 9122D might appear as follows:

“:HP9122,700,0”

Note that the **MSUS** is composed of three parts, separated by commas:

- 1) A device type :HP 9122
- 2) A device selector 700
- 3) A unit number 0

The device type is simply the name of the disc drive you are using, such as the HP 9122. If you are using an HP 9121D, the device type is HP8290X or HP9121. **The device type is optional with the BASIC 3.0 operating system.** For example, you may type your **MSUS** as “:,700,0”, leaving out the HP 9122 device type.

The device selector refers to the address of your disc drive. The first number is 7 as long as you are using the internal HP-IB connection. The last two numbers are the address of your disc drive. These numbers may vary from 00 to 07, depending on the address setting. In this example, the disc drive address is 00.

The unit number refers to the drive you wish to access. In this example, the unit number of 0 means that you wish the computer to access the left drive (unit 0) of the HP 9122D. If you wish the computer to access the right drive, the unit number is 1.

Booting Your System

Boot your system using the following steps:

1. Be sure the address switch on the back of your disc drive is set to "0."
2. Turn on your disc drive, but be sure your computer is not turned on.
3. Insert the BASIC 3.0 System disc in the left disc drive.
4. Turn on the your computer. Your computer automatically loads the BASIC 3.0 operating system. When the prompt "*BASIC Ready 3.0*" appears on the screen, the operating system is loaded. Loading of the operating system takes approximately 50 seconds.
5. Remove the BASIC 3.0 System Disc and insert the BASIC 3.0 Driver's disc into a flexible disc drive.
6. Type **LOAD BIN "HPIB"** and press Enter.
7. When the prompt "*BASIC HPIB 3.0*" appears, type **LOAD BIN "CS80"** and press Enter.
Loading time is approximately 20 seconds.
8. The system is now ready to use with BASIC 3.0.

Following are the disc drive commands most commonly used with BASIC 3.0. All commands have the same basic format. You type the command, followed by the MSUS of the disc drive to which the command should be directed.

Mass Storage Specifier

The "mass storage is" (MSI) command is used to direct all your disc drive commands to your most frequently used disc. If you use the MSI command, you do NOT have to specify an MSUS with

every disc drive command. (The exception to this rule is the initialize command, which always requires the specification of an MSUS).

Boot your system according to the directions above. Make sure your disc drive is turned on. The MSI command appears similar to the following example:

MSI":HP9122,700,0" and press ENTER

Once you have typed this MSI command, subsequent disc drive commands will be directed automatically to the left drive of an HP 9122D.

Catalog

The CAT command displays the directory of all files on the disc. In addition, the command displays the device MSUS in the upper right corner of the screen. The default MSUS for the HP 9122D appears as :CS80,700,0 (if the address is set at 00 and the disc is in the left drive). The default MSUS for the HP 9121D appears as :HP8290X,700,0. For example, if you wish to display the directory for the disc that is in the left drive of your HP 9122D, type:

CAT":HP9122,700,0" and press ENTER.

If you used the MSI command to specify the left drive of your HP 9122D as the default drive, you can simply type:

CAT

Disc Initializing

Place the disc you wish to initialize in either the right or left drive.

HP 9121D

If you have an HP 9121D, initialize discs using a command similar to the following command:

INITIALIZE ":HP9121,700,0" or INITIALIZE ":,700,0"

This command tells the computer that you wish to initialize a disc that is in the left drive of an HP 9121 with an address setting of 0. If you wish to initialize a disc that is in the right drive, type:

INITIALIZE ":HP9121,700,1" or INITIALIZE ":,700,1"

Initializing takes about two minutes, during which time the disc access light is lit.

HP 9122D

If you have an HP 9122D, you have several formatting options from which to choose. The following table illustrates the choices.

Format Option	Bytes/ Sector	Double-Sided or Single-Sided Formatting	Kbytes of Storage ¹
0	256	Double-Sided	630K
1	256	Double-Sided	630K
2 ²	512	Double-Sided	710K
3	1,024	Double-Sided	788K
4	256	Single-Sided	270K

¹ Kbyte is assumed to be 1,000 bytes.

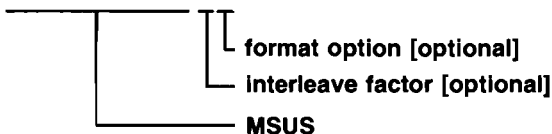
² Note: This formatting option is not presently supported by BASIC 3.0. Do NOT select a format option of 2.

You must remember three important things when selecting a format option.

1. You can format double-sided ONLY on double-sided discs in a double-sided disc drive (e.g., HP 9122D).
2. A disc formatted double-sided can only be used in a double-sided disc drive (e.g., HP 9122D).
3. A disc formatted single-sided can be used in both a single-sided and a double-sided disc drive (e.g., HP 9121D and HP 9122D).

You may initialize a disc using a command similar to the following command:

INITIALIZE ":HP9122,700,0",0,0



An interleave factor of zero specifies the default interleave.

The above command tells the computer that you wish to initialize a disc that is in the left drive of an HP 9122D with an address setting of 00.

Initializing takes approximately two minutes, during which time the disc access light is lit.

Backup

To make backup copies of discs, place the disc to be copied in the left drive of your HP 9121D or 9122D. Place an initialized disc in the right drive. Type the following command:

```
COPY “:,700,0” TO “:,700,1”
```

This tells the computer that you wish to copy the disc that is in the left drive (drive 0) to the disc that is in the right drive (drive 1).

You may also copy files from a disc, using a command similar to the following:

```
COPY “Filename:,700,0” TO “Filename:,700,1”
```

or

```
COPY “Filename:CS80,700,0” TO “Filename:CS80,700,1”
```

where “Filename” is the name of a file on your disc that you wish to copy.

Most Used Mass Storage Commands

The following commands are probably the commands you will use most often when communicating with the disc drive. These commands operate as described in your BASIC Programming Techniques manual.

CAT	Reads the directory of files on the disc.
COPY	Copies a volume or file.
CREATE	Creates a data file.
ENTER	Reads data from a data file.
INITIALIZE	Checks the disc for defects, establishes a volume label on the disc, and creates a directory.
LOAD	Reads programs from the disc.
LOAD BIN	Reads binary programs from the disc.

OUTPUT	Writes data to a data file.
PURGE	Deletes files from the directory.
RE-STORE	Rewrites a program to the disc, and then purges the old revision from the directory.
STORE	Writes programs to the disc.

Series 200 Pascal 3.0 Workstation System

The following sections explain how to initialize discs and make backup copies of discs using Pascal 3.0 Workstation System.

Disc Initialization

Use the following steps to initialize a disc:

1. Turn the computer system on.
2. Insert the **Boot:** disc in either drive.
3. When the screen says, *Please put SYSVOL in unit # 3 and press the X key,* remove the **Boot:** disc. Insert the **Sysvol:** disc in the left drive, and press the X key.
4. When the screen displays, *New system date?*, type the date and press Enter.
5. When the screen displays, *New system clock time?*, type the time and press Enter.
6. Next, the following command line appears on the screen:
Command: Compiler Editor Filer Initialize Librarian Run eExecute Version?
 When the command line appears, remove the **Sysvol:** disc and insert the **Access:** disc.
7. Type "X" for eExecute.
8. When the screen displays, *Execute what file?*, type:
 ACCESS:MEDIAINIT
 Press Enter.
9. The screen then displays, *Volume ID?*. Insert the disc you want to initialize into a drive. Type #3, if the disc you wish to initialize is in the left drive. Type #4, if the disc you wish to initialize is in the right drive. (Your unit number may vary. Check your computer user's manual.)

10. Remove the **Access:** disc. This is a precautionary step just to make sure that you do not accidentally initialize the **Access:** disc.
11. When the screen displays, *Are you sure you want to proceed Y/N*, type Y if you wish to continue with the initialization procedure. Type N if you wish to stop the initialization procedure.
12. **If you have an HP 9121**, proceed to step 13. You will not see the display described in step 12 on your screen.

If you have an HP 9122, the screen now displays, *Formatting option? (defaults to 0)*. You have five choices, as follows:

Format Option	Bytes/ Sector	Double-Sided or	
		Single-Sided Formatting	Kbytes of Storage ¹
0	256	Double-Sided	630K
1	256	Double-Sided	630K
2	512	Double-Sided	710K
3	1,024	Double-Sided	788K
4	256	Single-Sided	270K

¹ Kbyte is assumed to be 1,000 bytes.

You must remember three important things when selecting a format option.

- A. You can format double-sided only on double-sided discs in a double-sided disc drive (e.g., HP 9122D).
- B. A disc formatted double-sided can only be used in a double-sided disc drive (e.g., HP 9122D).
- C. A disc formatted single-sided can be used in both a single-sided and a double-sided disc drive (e.g., HP 9121D and HP 9122D).

Press ENTER if you wish to select the default option of 0. Otherwise, type the number of the format option that you wish to select, and press Enter.

13. The screen now displays, *Interleave factor? (defaults to 2)*. Performance may vary with different interleave factors. Press ENTER if you wish to select the default interleave of 2. Otherwise, type the number of the interleave factor that you wish to select, and press Enter.



14. The screen now displays, *Medium initialization in progress*. Initialization takes approximately three minutes and the disc access light is lit during this entire period.
15. At the end of the initialization process, the screen displays:
Medium initialization in progress
Medium initialization completed
About ten seconds later, the screen displays:
Volume zeroing in progress
Volume zeroing completed
16. The disc has been successfully initialized.

Copying

Use the following steps to make a copy of all the files on a disc:

1. Once you have booted the computer, insert the **Access:** disc into either the right or left drive.
2. When the command line appears (Command: Compiler Editor Filer . . .), type F for Filer.
3. When the filer line appears (Filer: Change Get . . .), remove the **Access:** disc. Place the disc that you wish to copy in the left drive. Place an initialized disc in the right drive.
4. Type F for Filecopy.
5. When the screen displays, *Filecopy what file?*, type #3: and press Enter. This tells the computer that you wish to copy all the files and the volume name from the disc that is in the left drive.
6. When the screen displays, *Filecopy to what?*, type #4: and press Enter. This tells the computer that you wish the copy to go TO the disc that is in the right drive.
7. The screen now displays *Reading . . .* and the left disc access light is lit.
8. When the screen displays *Destroy Directory V4? Y/N*, type Y if you wish to proceed with the copying. Type N if you wish to stop the copying process.
9. The screen now displays *Writing . . .*. The disc access light is lit alternately on the left and right drives. The copying process takes only a few minutes.
10. When copying is complete, the filer line (Filer: Change Get . . .) again appears on the screen.
11. Type Q for Quit and press Enter.

Use the following steps when you want to make copies of some files on a disc, but do not want to copy all the files on the disc:

1. Once you have booted the computer, insert the **Access:** disc into either the right or left drive.
2. When the command line appears (**Command: Compiler Editor Filer . . .**), type **F** for **Filer**.
3. When the filer line appears (**Filer: Change Get . . .**), remove the **Access:** disc. Place the disc that you wish to copy in the left drive. Place an initialized disc in the right drive.
4. Type **F** for **Filecopy**.
5. When the screen displays, *Filecopy what file?*, type **#3:filename**, and press **Enter**. This tells the computer that you wish to copy "filename" from the disc that is in the left drive.
6. When the screen displays, *Filecopy to what?*, type **#4:filename**, and press **Enter**. This tells the computer that you wish to copy "filename" to the disc that is in the right drive.
7. The screen now displays *Reading . . .* and the left disc access light is lit.
8. The screen now displays *Writing . . .*. The disc access light is lit first on the left and then on the right drive. The copying process takes only a few minutes.
9. When copying is complete, the filer line (**Filer: Change Get . . .**) again appears on the screen.
10. Type **Q** for **Quit** if you are finished copying. Repeat steps 4 through 9 if you wish to copy more files.

