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Getting Started with Your HP 9122C Disk Drive



**HEWLETT
PACKARD**

**HP Part No. 09122-90901
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New editions are complete revisions of the manual. Update packages, which are issued between editions, contain additional and replacement pages to be merged into the manual by the customer. The dates on the title page change only when a new edition or a new update is published. No information is incorporated into a reprinting unless it appears as a prior update; the edition does not change when an update is incorporated.

Many product updates do not require manual changes and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one-to-one correspondence between product updates and manual updates.

Edition 1 January 1988

Edition 2 December 1988

Update 1 January 1989

Edition 3 June 1989

Safety Symbols

The following safety symbols are used in this manual:

Caution



This symbol calls attention to a condition or situation that could damage the product.

Warning



This symbol calls attention to a condition or situation that could cause injury to the user.

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- Re-orient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different branch circuit.

If necessary, the user should consult the dealer or authorized field service representative for additional suggestions. The Federal Communications Commission has prepared a booklet entitled *Interference Handbook* which may be helpful to you. This booklet (stock number 004-000-004505-7) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

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Contents

1. Introduction	
About Your Disk Drive	1-1
Getting Started	1-3
2. Setting Up Your Disk Drive	
Unpacking Your Disk Drive	2-1
A Look at Your Disk Drive	2-4
Checking the VOLTAGE SELECT Switch	2-6
Setting the ADDRESS Switch	2-7
Connecting the HP-IB Cable	2-9
Connecting the Power Cord	2-10
Starting the Self-test	2-11
3. Using Flexible Disks	
Flexible Disk Products	3-1
Flexible Disk Terminology	3-2
Flexible Disk Compatibility	3-4
A Look at the Flexible Disk	3-6
Window and Shutter	3-6
Centering Hub	3-7
Write-Protect Tab	3-7
Handling Disks	3-8
Inserting and Removing Flexible Disks	3-9
Labeling Disks	3-10

4. Initializing Flexible Disks	
Initializing Steps	4-1
Configuring Your Computer	4-1
Selecting a Format Option	4-2
Selecting an Interleave Factor	4-4
Initializing a Flexible Disk	4-5
5. Maintenance, Repairs, and Supplies	
Cleaning the Case	5-1
Replacing the Fuse	5-2
System Error Messages	5-4
Ordering Supplies	5-7
Warranty	5-8
A. Technical Reference	
Product Specifications	A-1
Interface	A-1
Performance	A-1
Recording	A-2
Electromagnetic	A-2
Safety	A-2
Power	A-3
Acoustic	A-3
Physical	A-3
Environmental Requirements	A-4
Temperature	A-4
Humidity	A-4
Altitude	A-5
Shock	A-5
Vibration	A-5
HP-IB Cabling Restrictions	A-5
System Support	A-6
HP 9000	A-6
HP 1000	A-8

Glossary

Index

Introduction

Welcome to one of Hewlett-Packard's most powerful data storage solutions. Designed for engineering, industrial, and business applications, the HP 9122C Disk Drive uses the new high-density, 2-megabyte (unformatted) flexible disk.

About Your Disk Drive

Note



Unless otherwise specified, all information in this manual applicable to the HP 9122C also applies to the HP 9122C Option 001 and the HP 9122C Option 560.

A **disk drive** is an electromechanical device that stores computer data on a disk and retrieves computer data from a disk.

A **disk** looks like a small phonograph record. The surface of a disk is coated with a magnetic layer that enables data to be stored in digital format. A disk can be flexible or hard, but your HP 9122C uses only flexible disks.

A **flexible disk** is made from a flexible, synthetic material. There are three types of flexible disks: single-sided, double-sided low density, and double-sided high density. Data can be stored on only one side of a single-sided disk, or on both sides of a double-sided disk. A flexible disk can be removed from the disk drive.

Depending on the option you ordered, your disk drive includes two flexible disk mechanisms, or one flexible disk mechanism and a storage box. A **flexible disk mechanism** contains electronic and mechanical parts to spin a flexible disk, write data on a flexible disk, and read data from a flexible disk.

The HP 9122C includes two 3.5-inch double-sided flexible disk mechanisms.

The HP 9122C Option 001 includes a single 3.5-inch double-sided flexible disk mechanism and a media storage box in place of the second disk mechanism.

The HP 9122C Option 560 adds a 2-meter HP-IB cable.

All HP 9122C disk drives are housed in a 72-mm high, 325-mm wide HP Design-Plus enclosure, and use HP-IB interfacing.

All HP 9122C disk drives use HP 92192X High Density, 2-megabyte (unformatted), 3.5-inch flexible disks. HP 9122C disk drives are also backward compatible with 1-megabyte and 0.5-megabyte flexible disks. Refer to chapter 3 for flexible disk usage and compatibility. Refer to chapter 5 to order flexible disks.

Getting Started

The following steps will help you set up and operate your HP 9122C Disk Drive:

1. Follow the steps in chapter 2 to set up your disk drive.
2. Read chapter 3 for information on using flexible disks.
3. Follow the steps in chapter 4 to initialize (format) flexible disks.
4. If you have problems operating your disk drive, or if you need to order supplies for your disk drive, refer to chapter 5.
5. If you have questions about product specifications, environmental requirements, or system support for your disk drive, refer to appendix A.

Place this manual into a three-hole book such as your system binder and keep it as a reference.

Setting Up Your Disk Drive

The steps in this chapter will help you set up your disk drive for use on your computer system. Please follow these steps carefully.

Unpacking Your Disk Drive

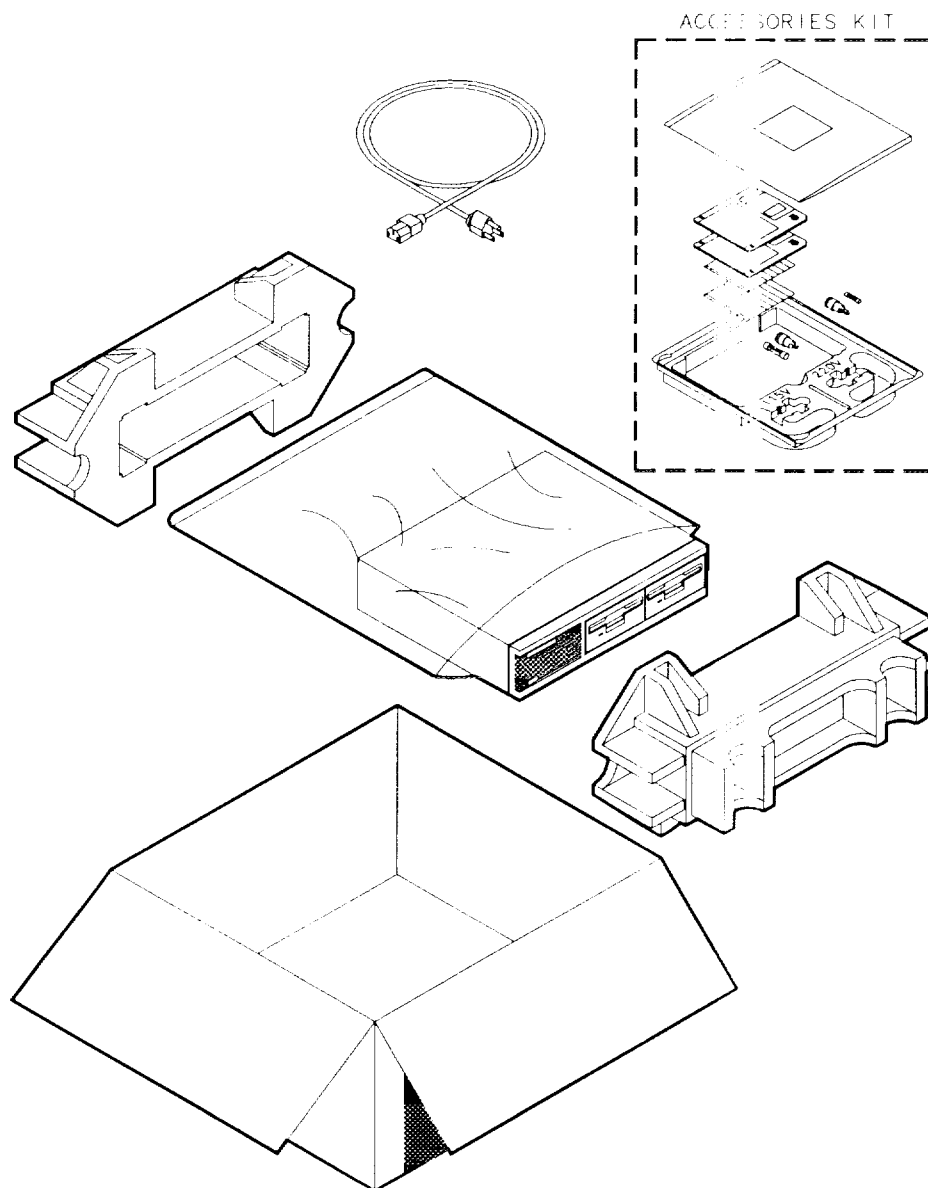
Caution



If you plan to transport your disk drive to another site, *do not* throw away the shipping carton and packing material. The shipping carton and packing material are designed to protect your disk drive against excessive shock and vibration. Before you transport your disk drive, perform the following steps in reverse order.

Unpack your disk drive as follows (see the figure on the following page):

1. Carefully remove your disk drive from the shipping carton.



Unpacking Your Disk Drive

2-2 Setting Up Your Disk Drive

2. Ensure the following items are packaged with your disk drive:

- Power Cord.
- Two fuses and two fuse holders (one *gray* fuse holder for the 115V~ setting and one *black* fuse holder for the 230V~ setting).
- Two flexible disks and labels.
- *Getting Started With Your HP 9122C Disk Drive* manual.

3. Inspect your disk drive for any physical damage that may have occurred during shipment.

4. If you find any damage, notify your dealer or the nearest HP Sales Office and file a claim with the carrier.

Caution



Do not turn on your disk drive with a plastic shipping disk in a flexible disk port. Damage to the flexible disk mechanism will result.

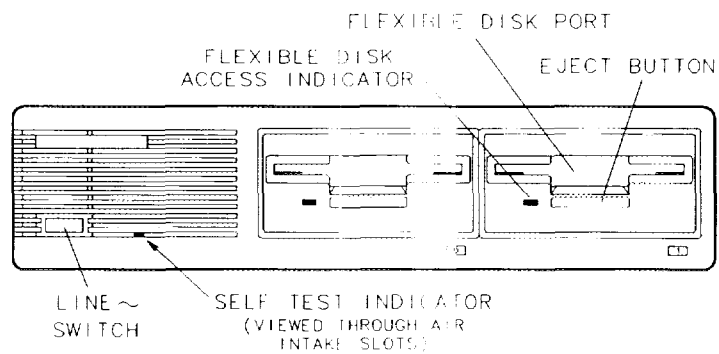
5. Slide the locking tab to the right on each plastic shipping disk, press the eject buttons, and remove the plastic shipping disks from the flexible disk ports.

Caution

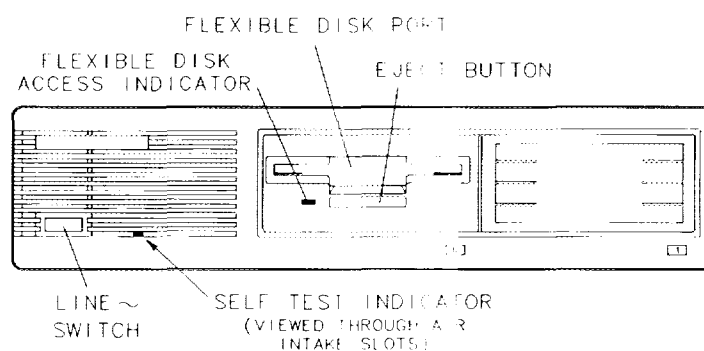


Do not throw away the plastic shipping disks. The shipping disks are designed to protect the read/write heads in the flexible disk mechanisms against excessive shock and vibration. The shipping disks must be inserted into the flexible disk ports *any time* you move your disk drive. Before you move your disk drive, insert the plastic shipping disks into the flexible disk ports and slide the locking tabs to the left.

A Look at Your Disk Drive

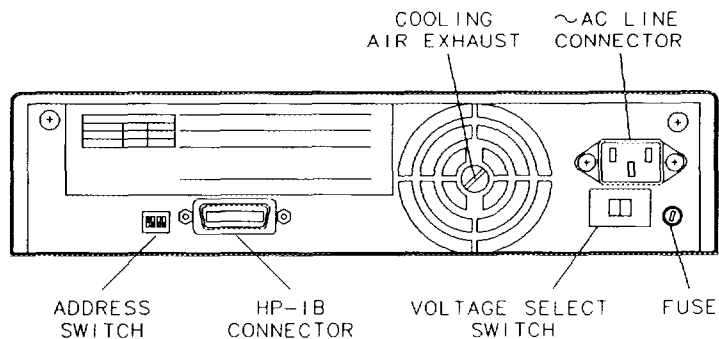


Front Panel Controls and Indicators (HP 9122C)



Front Panel Controls and Indicators (HP 9122C Option 001)

2-4 Setting Up Your Disk Drive



Rear Panel Controls and Connectors

Caution



- *Do not* block the cooling air exhaust vent on the rear panel of your disk drive. Excessive heat will build up inside your disk drive and damage to your disk drive will result.
- *Do not* operate your disk drive in a dirty or dusty environment. Please follow the environmental limits in appendix A.

Checking the VOLTAGE SELECT Switch

Note



Your disk drive should have been shipped with the VOLTAGE SELECT switch at the correct voltage setting, and with the correct fuse for the line voltage in your country. If the VOLTAGE SELECT switch is not at the correct voltage setting, you must set it to the correct voltage and you must replace the fuse with the correct fuse.

1. Locate the VOLTAGE SELECT switch on the rear panel of your disk drive.
2. Ensure the VOLTAGE SELECT switch is at the correct voltage setting. The following table shows the correct voltage setting for the line voltage in your country.

Line Voltages and Voltage Settings

Countries	Voltage Setting	Line Voltage
U.S., Mexico, Canada, Japan, Most South American Countries	115V	100-120 V
Most European Countries	220V	200-240 V

If the VOLTAGE SELECT switch is not set to the correct voltage setting, you must perform the following steps:

Caution



Before setting the VOLTAGE SELECT switch, make sure the power cord is disconnected and the LINE~ switch on the front panel is *out*. The disk drive is *on* when the LINE~ switch is *in* and *off* when the LINE~ switch is *out*. Operating the disk drive at an incorrect voltage may affect performance or damage the disk drive.

1. Insert a screwdriver into the slot on the VOLTAGE SELECT switch.
2. Slide the VOLTAGE SELECT switch left or right to the correct voltage setting.
3. Replace the fuse (follow the steps under "Changing the Fuse" in chapter 5).

Setting the ADDRESS Switch

Each peripheral connected to the Hewlett-Packard Interface Bus (HP-IB) on your computer must have a unique address, just as each house on a block must have a unique address. The ADDRESS switch enables you to select a unique address for your disk drive. Your computer uses this address to communicate with your disk drive.

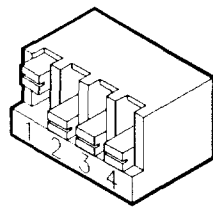
The ADDRESS switch is set to address 0 at the factory. If you want to change the ADDRESS switch setting, perform the following steps:

1. Turn off the disk drive.
2. Flip the switches to the positions corresponding to the address desired (refer to the table on the following page).

Note



Do not select an address used by another peripheral connected to your computer.



FACTORY SETTING
(AS VIEWED FROM
THE REAR PANEL)

ADDRESS	SWITCH POSITIONS			
	1	2	3	4
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

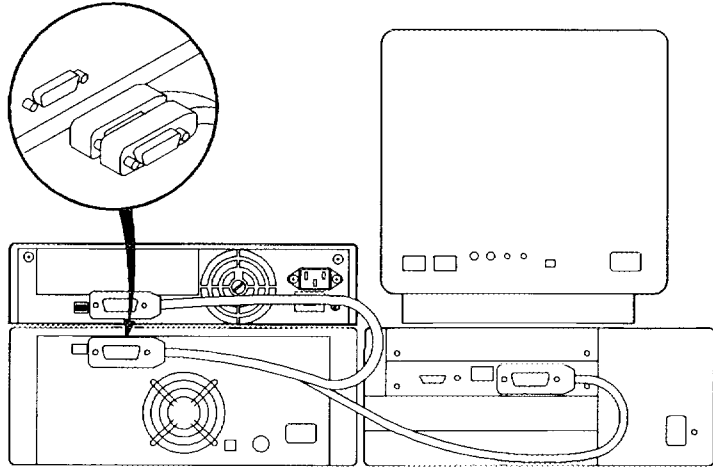
ADDRESS Switch

Note



If you want to change the address of your disk drive after it has been turned on, you *must* turn off your disk drive to clear the old address, set the ADDRESS switch to a new address, then turn on your disk drive so your computer recognizes the new address.

Connecting the HP-IB Cable



HP-IB Cable Connections

Caution



Use only Hewlett-Packard HP-IB cables. Hewlett-Packard cables are shielded to minimize interference with radio and television reception.

Note



Refer to appendix A for restrictions on HP-IB cable lengths for your disk drive and your computer.

Connect the Hewlett-Packard Interface Bus (HP-IB) cable to your disk drive as follows:

1. Turn off your disk drive and your computer.
2. Attach one end of the HP-IB cable to the HP-IB connector on the rear panel of your disk drive.
Tighten the cable connector screws with your fingers.

3. Attach the other end of the HP-IB cable to the HP-IB connector on your computer, or to another HP-IB cable attached to a peripheral on your system (see the inset in the figure above). Tighten the cable connector screws with your fingers.

Caution



Do not connect more than three HP-IB cables to the HP-IB connector on your disk drive. The resulting weight could damage the connector mounting.

Connecting the Power Cord

Warning

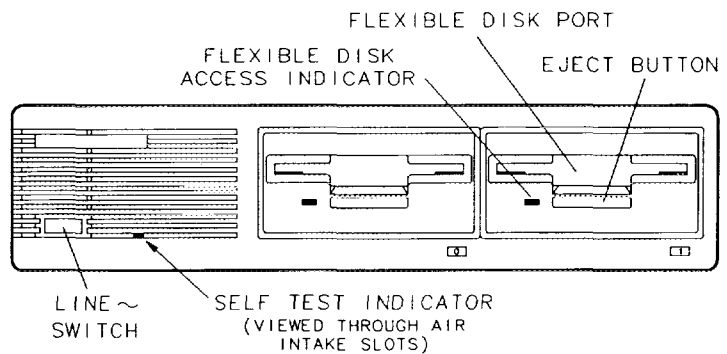


This product is equipped with a power cord and plug designed for your safety. Connect the power cord to a properly grounded receptacle to avoid possible electrical shock.

Connect the power cord as follows:

1. Make sure the LINE switch is *out*.
2. Connect one end of the power cord to the ~AC LINE connector on the rear panel of your disk drive.
3. Connect the other end of the power cord to an electrical outlet.

Starting the Self-test



Front Panel Controls and Indicators (HP 9122C)

Caution



- *Do not* turn on your disk drive with the plastic shipping disk in the flexible disk port. Damage to the flexible disk mechanism will result.
- *Do not* turn on your disk drive if it has experienced an abrupt change in temperature or humidity. Your disk drive may fail the self-test. An abrupt change in temperature or humidity may occur when you take your disk drive out of an air-conditioned office, take it to a warm automobile, then set it up in another air-conditioned office. You must allow your disk drive to stabilize at room temperature for two hours before you turn it on (refer to appendix A for limits on temperature and humidity).

Whenever you turn on your disk drive, it will perform a short self-test on its internal circuitry and mechanics.

1. Push the LINE~ switch *in* to turn on your disk drive.
2. The self-test indicator will light and the self-test will start.
3. The left-hand flexible disk access indicator will light and, if a formatted, non-write-protected flexible disk is installed in the left-hand flexible disk port, a short functional test will be performed on the flexible disk.
4. The left-hand flexible disk access indicator will extinguish.

Note



Steps 5 and 6 will not be performed if your disk drive is an HP 9122C Option 001.

5. The right-hand flexible disk access indicator will light and, if a formatted, non-write-protected flexible disk is installed in the right-hand flexible disk port, a short functional test will be performed on the flexible disk.
6. The right-hand flexible disk access indicator will extinguish.
7. The self-test indicator will extinguish if the disk drive passes the self-test.
8. The self-test indicator will stay illuminated if the disk drive fails the self-test.
9. If the self-test indicator stays illuminated, turn off the disk drive then turn it on again to repeat the self-test.
10. If the self-test indicator stays illuminated again, contact your dealer or the nearest HP Sales Office.

Caution



Do not press the eject button or turn off the disk drive when the flexible disk access indicator is illuminated. Loss of data or damage to the flexible disk mechanism may occur. The flexible disk access indicator is illuminated when your computer is storing data to, or retrieving data from a flexible disk.

Using Flexible Disks

This chapter provides information about using flexible disks.

Flexible Disk Products

Caution



The performance and reliability of your HP 9122C Disk Drive is ensured *only* when using HP flexible disk products. The use of non-HP flexible disk products may cause reliability problems or damage to the flexible disk mechanism. HP reserves the right to exclude from warranty and maintenance coverage any repairs which HP reasonably determines or believes were caused by the use of non-HP flexible disk products.

The following table lists flexible disk products that can be ordered from HP:

HP Flexible Disk Products

Product	Description
92192X	Box of 10, 3.5-inch, autoslatter, double-sided, 2-Mbyte unformatted, (1.4-Mbyte formatted)
92192A	Box of 10, 3.5-inch, autoslatter, double-sided, 1-Mbyte unformatted (710 kbyte formatted)
92191A*	Box of 10, 3.5-inch, autoslatter, single-sided, 0.5-Mbyte unformatted (270-kbyte formatted)
<i>*For data exchange only; not intended for continual use.</i>	

Flexible Disk Terminology

Single-sided disk drive: a disk drive that contains a flexible disk mechanism with one read/write head that records data on only one side of a flexible disk.

Double-sided disk drive: a disk drive that contains a flexible disk mechanism with two read/write heads that record data on both sides of a flexible disk. There are two types of double-sided disk drives:

- 1-megabyte disk drives
- 2-megabyte disk drives

3-2 Using Flexible Disks

The following table lists HP single- and double-sided disk drive products:

HP Single- and Double-sided Disk Drives

Single-sided 0.5-Mbyte	Double-sided	
	1-Mbyte	2-Mbyte
HP 9121D/S HP 9133A/B HP 9133V/XV	HP 9114A/B HP 9122D/S HP 9123D HP 9133D/II/L HP 9153A/B	HP 9122C HP 9153C

Single-sided disk: a flexible disk that has only one side upon which data can be recorded. HP single-sided disks are *blue*, have a 0.5-megabyte data capacity, and are labeled “single-sided.”

Double-sided disk: a flexible disk that has two sides upon which data can be recorded. There are two types of double-sided disks:

- *Gray* disks have a 1-megabyte data capacity.
- *Black* disks have a 2-megabyte data capacity and can be identified by the symbol “IID” (high density) printed near the shutter.

Single-sided formatting: prepares a disk for one-sided recording of data. Single-sided formatting can be done on 0.5-megabyte single-sided disks and on 1-megabyte double-sided disks in single- or double-sided disk drives.

Double-sided formatting: prepares a disk for two-sided recording of data. Double-sided formatting can be done *only* on double-sided disks in double-sided disk drives.

Flexible Disk Compatibility

Caution



Observe the following precautions when using flexible disks:

- *Never* use a single-sided flexible disk with a manual shutter in your HP 9122C Disk Drive. Damage to the flexible disk mechanism may result if a disk with a manual shutter is forced into the flexible disk port. All HP single-sided disks have blue cases, but single-sided disks with manual shutters do not have the words “AUTO SHUTTER” on the shutter.
 - Use 2-megabyte, double-sided flexible disks *only* in HP 9122C and 9153C disk drives. Two-megabyte flexible disks will not activate the “disk-in” switch in other disk drives, causing all read/write functions to be disabled.
 - Continual use of single-sided disks in a double-sided disk drive will result in *wear* and eventual *failure* of the lower read/write head. The unused side of a single-sided disk is not polished, and will scratch the surface of the lower head.
-

3-4 Using Flexible Disks

The table below lists the recommended use of flexible disks in your disk drive. Terms used in the table are defined as follows:

EXCHANGE ONLY means that the disks should be used only for exchanging data and programs with single-sided disk drives and should not be used on a daily basis.

COMPATIBLE means that the disks may be used on a daily basis.

HP 9122C Flexible Disk Usage

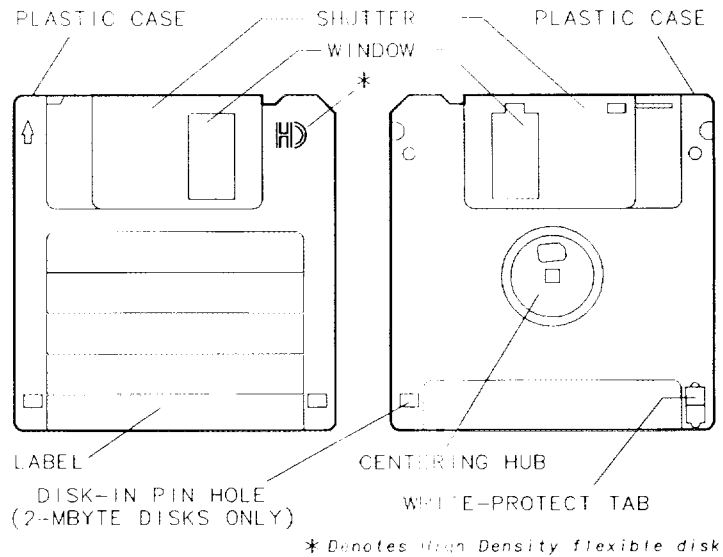
Single-sided, 0.5-megabyte, HP flexible disks	EXCHANGE ONLY (operates at half speed)
Double-sided, 1-megabyte, HP flexible disks	COMPATIBLE (operates at half speed)
Double-sided, 2-megabyte, HP flexible disks	COMPATIBLE
HP software	COMPATIBLE

Note



Older model flexible disk drives contain media monitors that check 1-megabyte and 0.5-megabyte flexible disks for wear. Advances in technology have eliminated the need for monitoring wear on the new 2-megabyte flexible disks. If you use one of the older 1-megabyte or 0.5-megabyte flexible disks in your disk drive, media wear is not monitored or indicated in any manner.

A Look at the Flexible Disk



Flexible Disk Parts

Window and Shutter

Your disk drive writes data on the disk and reads data from the disk in the space beneath the window. The window is covered by a metal shutter.

When you insert a flexible disk, the shutter automatically opens to expose the disk surface. When you remove a flexible disk, the shutter closes to protect the disk surface.

Caution



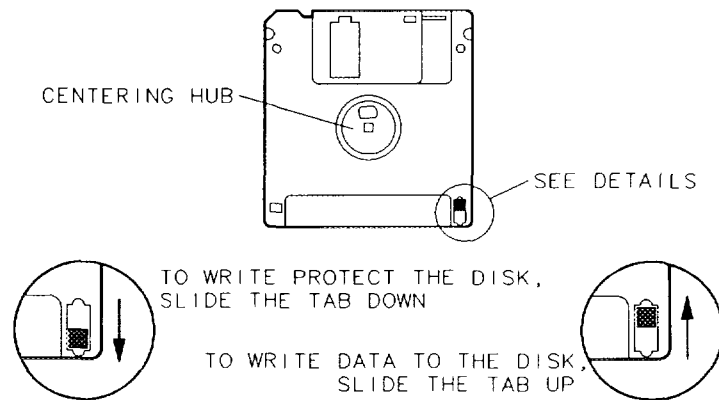
If you open the window manually, do not touch the disk surface or expose it to dust. Follow the guidelines in the “Handling Disks” section to prolong the life of your flexible disks.

Centering Hub

On the back of the plastic case is a round, metal center called the centering hub. The centering hub ensures accurate positioning when the flexible disk is inserted into the flexible disk port.

Write-Protect Tab

A sliding tab on the flexible disk allows you to write-protect the disk. Write-protecting ensures that the data on your flexible disk will not be written over. You should write-protect flexible disks that contain valuable programs and data.



Write-Protect Tab (Double-Sided Disks)

Write-protect a flexible disk as follows:

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

Note

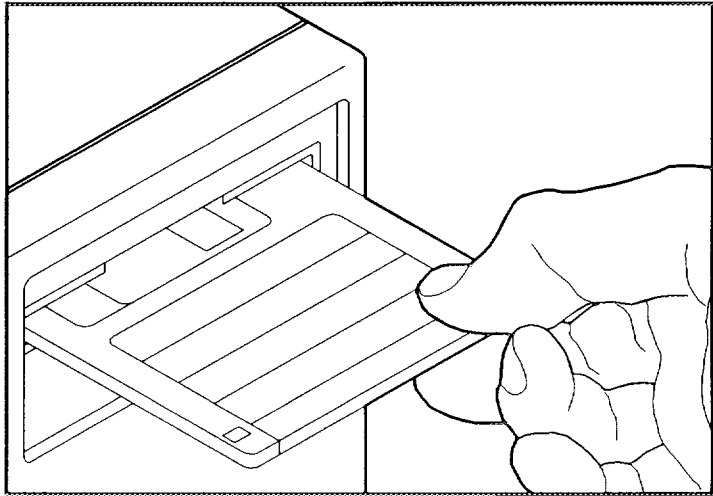
When the write-protect tab is in the write-protect (down) position, a square hole will be exposed above the tab.

Handling Disks

The plastic case and metal shutter make HP's 3.5-inch flexible disks more reliable than comparable 5.25-inch products. However, because your flexible disks contain valuable data and programs, you should treat them with care. Follow these guidelines to avoid data loss and prolong the life of your flexible disks and your disk drive:

- Use your disks in a clean environment to prevent dust or dirt particles from scratching the surface of the disk.
- Avoid magnetic fields, such as appliances with motors, to prevent magnetically erasing the data on your disks.
- Insert a disk all the way into the flexible disk port.
- Store disks in a cool, dry place to prevent moisture and heat damage.
- Do not touch the surface of a disk. Fingerprints contaminate the disk, which shortens disk life and causes data loss.
- Do not try to clean a disk. The plastic case contains a mechanism for cleaning the disk surface. Other cleaning methods may damage the disk.

Inserting and Removing Flexible Disks



Inserting a Flexible Disk

1. To insert a flexible disk, grasp the labeled edge of the disk with the centering hub down and carefully slide the disk all the way into the flexible disk port until the disk drops into place (see the figure above).
2. To remove a flexible disk, press the flexible disk eject button and pull the disk straight out of the flexible disk port.

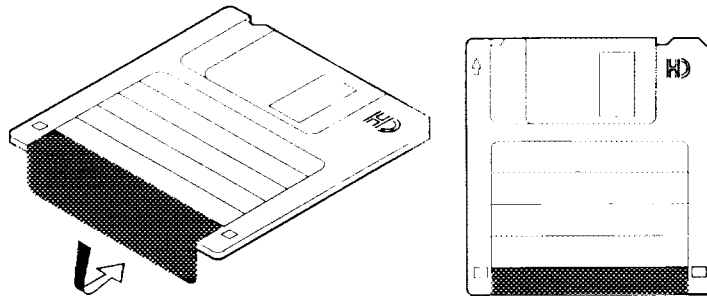
Labeling Disks

When you order a box of disks, you also receive a packet of labels in a variety of colors. Position a label on the plastic case as shown in the figure below. Write the name of the disk on the lines below the colored edge of the label.

A disk used on a Series 200 or Series 300 computer system can be formatted with different sector sizes. We recommend that you write the sector size on the label to remind you of the correct format option for your system.

You may want to establish a color-coded system for cataloging your disks. For example, disks containing memos may have red labels, while disks containing personnel files may have blue labels.

Store your disks upright in a container so that the colored edges of the labels are visible. You may then use the colors to select the category of disks you desire, and then read the labels to select the specific disk needed.



Positioning the Label

Initializing Flexible Disks

This chapter provides information on initializing (formatting) flexible disks in your disk drive. A new flexible disk must be initialized before it can be used to store data. Initializing sets up a directory on the disk so that the computer knows where to store and retrieve data.

Initializing Steps

The following steps must be performed to initialize (format) a flexible disk:

1. Configure your computer for your disk drive.
2. Select a format option.
3. Select an interleave factor.
4. Insert a flexible disk into the flexible disk port.
5. Initialize the flexible disk with a command on your computer.

Configuring Your Computer

Refer to the configuration section of your system manual to configure your computer for your disk drive. (Refer to appendix A for information on system support for the HP 9122C.)

Selecting a Format Option

There are several format options to choose from. The format option you choose depends on the type of flexible disk media you are initializing (0.5-megabyte, 1-megabyte, or 2-megabyte), the type of disk drive the flexible disk will be used in (single- or double-sided disk drive), and the type of system the flexible disk will be used on. If you are initializing a 2-megabyte flexible disk in your HP 9122C, the default format option is 0. The following two points must be observed when selecting a format option:

- Single-sided formatting can be done on 0.5-megabyte single-sided disks and on 1-megabyte double-sided disks in single- or double-sided disk drives.
- Double-sided formatting can be done *only* on double-sided disks in double-sided disk drives.

Refer to the tables on the following page to select the proper formatting option.

Note



Format options 2 and 16 (512-byte formats) can *not* be used on systems with BASIC and Pascal.

Flexible Disk Format Options

Media	Format Option	Bytes/ Sector	Sectors/ Track	Tracks/ Surface	Surfaces/ Disk	Total Sectors	Capacity (bytes)
0.5-Mbyte	4	256	16	66	1	1,056	270,336
1-Mbyte	0	256	16	77	2	2,464	630,784
	1*	256	16	77	2	2,464	630,784
	2	512	9	77	2	1,386	709,632
	3	1,024	5	77	2	770	788,480
	4	256	16	66	1	1,056	270,336
	16	512	9	80	2	1,440	737,280
2-Mbyte	0	256	32	77	2	4,928	1,261,568
	1**	256	32	77	2	4,928	1,261,568
	2	512	18	77	2	2,772	1,419,264
	3	1,024	10	77	2	1,540	1,576,960
	4**	256	32	77	2	4,928	1,261,568
	16	512	18	80	2	2,880	1,474,560

*Same as Option 0 (default) when using 1-Mbyte media.

**Same as Option 0 (default) when using 2-Mbyte media.

Format Options and Media Usage

Format Option	0.5-Mbyte Media	1-Mbyte Media	2-Mbyte Media
0	Do not use	Normal usage	Normal usage
1	Do not use	Normal usage	Normal usage
2	Do not use	512-byte sectors	512-byte sectors
3	Do not use	1024-byte sectors	1024-byte sectors
4	Compatible with HP single-sided disk drives	Compatible with HP single-sided disk drives	Defaults to Format Option 0
16	Do not use	IBM compatible	IBM compatible

Selecting an Interleave Factor

The interleave factor determines the order the computer reads sectors on a flexible disk. The default interleave factor for flexible disks on any computer system is 1. However, an interleave factor of 2 is recommended for flexible disks used in your HP 9122C. An interleave factor of 2 optimizes system performance with your HP 9122C for most software applications.

Sometimes, you may want to format flexible disks in your HP 9122C that will be used in other HP disk drives. Refer to the table below for interleave factors and flexible disk media recommended for HP flexible disk drives.

Interleave Factors for HP Disk Drives

Interleave Factor	Media Type (-Mbyte)	Disk Drives
2	0.5 1 2	HP 9122C
2	0.5 1	HP 9122D/S HP 9123D HP 9133D/H/L
1	0.5 1	HP 9153A/B
1	0.5 1 2	HP 9153C

4-4 Initializing Flexible Disks

Initializing a Flexible Disk

After you have selected a format option and an interleave factor, insert a flexible disk into the flexible disk port and initialize the flexible disk with the command given in your HP 9000 Series 200 or Series 300 system manual.

Your disk drive will perform the following sequence when initializing a flexible disk:

1. The flexible disk access indicator will illuminate.
2. The flexible disk will be initialized.
3. The flexible disk access indicator will extinguish.

Note



Always initialize *both* sides of a 2-megabyte flexible disk in your HP 9122C Disk Drive. *Do not* use two-megabyte flexible disks in 0.5-megabyte single-sided or 1-megabyte double-sided disk drives. (Refer to “Flexible Disk Compatibility” in chapter 3.)

Maintenance, Repairs, and Supplies

This chapter provides information on maintaining your disk drive, replacing the fuse, system error messages, and ordering supplies for your disk drive.

Your disk drive does not require regular maintenance other than cleaning the case. However, the performance and life of your disk drive depend on how carefully it is handled. Be sure your disk drive operates within the environmental restrictions listed in the appendix A.

Cleaning the Case

1. Before cleaning the case, disconnect the power cord and HP-IB cables and make sure there is no flexible disk in the flexible disk port.
2. Dampen a clean, soft, lint-free cloth in a solution of clean water and mild soap.

Caution



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

3. Wipe the soiled areas of the case, making sure that no cleaning solution gets inside the case. For cleaning more heavily soiled areas, use a solution of 80% clean water and 20% isopropyl alcohol.
4. Dampen another clean, soft, lint-free cloth with cleaning solution and wipe the areas just cleaned. Remove pen and pencil marks with a non-abrasive eraser.

Replacing the Fuse

The fuse protects your disk drive from a line voltage overload. A new fuse was installed in your disk drive at the factory. You do not need to replace the fuse unless it is blown. If the fuse is blown, replace the fuse as follows:

Warning



To avoid danger of shock, disconnect the power cord before changing the fuse. For continued protection against fire hazard, replace the fuse only with one of the same type and rating.

1. Turn off your disk drive and disconnect the power cord from the ~AC LINE connector.
2. Verify that the voltage setting is correct for your local power (refer to the table on the following page).
3. Insert a screwdriver into the slot on the fuse holder, gently push in the fuse holder, and turn the screwdriver counter-clockwise until it springs out.
4. Remove the fuse holder from the rear panel of the disk drive.
5. Remove the old fuse from the fuse holder.

6. Select the correct fuse for your local power and voltage setting (refer to the table below).

Voltages and Fuses

Countries	Voltage Setting	Nominal Voltage	Fuse Type/ HP Part No.	Fuse Holder
U.S., Mexico, Canada, Japan, Most South American Countries	115V~	100–120 V	1 A, 250 V 2110-0001	Gray
Most European Countries	220V~	200–240 V	0.5 A, 250 V 2110-0819	Black

Warning



Do not hold the metal portion of the fuse while inserting the fuse into the unit.

- Put the new fuse into the fuse holder and insert the fuse holder into the FUSE receptacle on the rear panel of the disk drive.
- Insert a screwdriver into the slot on the fuse holder, gently push in the fuse holder, and turn the screwdriver in a clockwise direction.
- Turn on your disk drive.

Note



If the self-test indicator does not illuminate when you turn on your disk drive, the fuse may be blown again. Contact your dealer or the nearest HP Sales Office to repair your disk drive.

Warning



Only qualified service personnel should repair your disk drive. Hazardous voltages are present when the top cover is removed.

System Error Messages

Note



When booting a system with your HP 9122C,

- If no flexible disk is present in either flexible disk port, the left and right flexible disk access indicators will flash alternately.
- If a non-system disk is present in only one of the flexible disk ports, the flexible disk access indicator for the empty port will light.
- If non-system disks are present in both flexible disk ports, neither flexible disk access indicator will light.

The error messages that appear on your monitor depend on how your disk drive has failed and the type of computer system you have. The following is a list of system error messages and steps you can perform to determine the cause of the error.

Warning



Only qualified service personnel should repair your disk drive. Hazardous voltages are present when the top cover is removed.

- If an error message states the flexible disk is write-protected:
 1. Ensure the flexible disk is not write-protected. If you want to store information on the disk, reverse the write-protect tab (refer to chapter 3). If you want to keep the disk write-protected, insert another disk.
 2. If you get a write-protect error on several flexible disks that are not write-protected, your disk drive may not be operating properly. Contact your dealer or HP Sales Office.
- **Disk Not Present or No Disks Were Found.**
 1. Ensure your disk drive is turned on.
 2. Ensure all cables are securely connected.
 3. Ensure there is a flexible disk in the flexible disk port.
 4. Ensure the flexible disk has been initialized (formatted).
 5. Ensure your disk drive is addressed correctly.
 6. Ensure your computer is configured properly. Refer to your computer manual for details.
 7. If these steps fail, you may have a bad flexible disk. Try another flexible disk. If this fails, contact your dealer or HP Sales Office.

■ **Disk Error Reading Drive 0 or Disk Error Reading Drive 1.**

1. Your flexible disk may be worn or damaged. Try using other flexible disks to see if you get the same error message.
2. If you get the same error message on only one flexible disk, copy the data on that disk to a new flexible disk and discard the old one.

Note



If the old flexible disk is worn or damaged, the copy may not contain all the data from the old disk.

3. If you get the same error message on several flexible disks, contact your dealer or HP Sales Office.

■ **Disk drive empty, off, or undefined.**

1. Ensure your disk drive is turned on.
2. Ensure all cables are securely connected.
3. Ensure there is a flexible disk in the flexible disk port.
4. Ensure your disk drive is addressed correctly.
5. Ensure your computer is configured properly. (Refer to your computer manual for details. BASIC users should check that the MSUS is correct.)
6. If you get the same error message again, try a new flexible disk.
7. If the new flexible disk fails, contact your dealer or HP Sales Office.

Ordering Supplies

The following table lists supplies you can order for your HP 9122C:

DESCRIPTION	HP PART NO.
Black Double-Sided 2-Megabyte Flexible Disks (10 disks/box)	92192X
Fuse, 1.0 A, 250 V (115V~ setting)	2110-0001
Fuse, 0.5 A, 250 V (230V~ setting)	2110-0819
Power Cord*	(see footnote)
HP-IB Cable, 0.3-meter, right-angle connector	92220R
HP-IB Cable, 0.5-meter	10833D
HP-IB Cable, 1-meter	10833A
HP-IB Cable, 1-meter, right-angle connector	82977A
HP-IB Cable, 2-meter	10833B
HP-IB Cable, 2-meter, right-angle connector	82977B
HP-IB Cable, 4-meter	10833C
Shipping Disk Kit	5061-2819
HP 9122C Manual Kit	09122-90299

**The type of power cord you order depends on your location. Please consult your dealer or HP Sales Office for the correct part number.*

To order supplies for your HP 9122C, contact your HP Sales Office. Headquarter offices are listed at the end of this manual. You may also contact the Hewlett-Packard Direct Marketing Division at the following address:

Direct Marketing Division
1320 Kifer Road
Sunnyvale, California 94086

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

Warranty

If you have any questions about the warranty on your disk drive, please contact your dealer or the nearest HP Sales Office.

Technical Reference

This appendix provides information on HP 9122C product specifications, environmental requirements, computer support, and HP-IB cable restrictions.

Product Specifications

Interface

Interface type: HP-IB

Addressable devices: 1

Address range: 0–7

Equivalent loads: 1

Internal bus cable length: 0.0 m

Performance

Average track-to-track seek time: 85 ms

Average rotational delay: 100 ms

Data transfer rate (maximum sustained): 35 kbytes/s

Recording	Unformatted capacity: 2.00 megabytes
	Formatted capacity: 1.42 megabytes
	Bits per inch: 17,434
	Tracks per inch: 135
	Bytes per sector: 256/512/1,024
	Sectors per track: 32/18/10
	Tracks per surface: 80
	Surfaces per disk: 2
	Rotational speed: 300 rpm
Electromagnetic	Operating emissions: < 1 gauss on all surfaces
	Nonoperating emissions: < 5.25 milligauss at 4.6 m (15 ft) on all surfaces
	Radiated and conducted interference: The HP 9122C is certified by FCC subpart J, part 15, level B, and VDE-FTZ 1046/84 level B.
Safety	The HP 9122C meets all applicable safety standards of the following:
	■ UL 478, fifth edition
	■ CSA C22.2 No. 154
	■ IEC 380 and 435

Power Line voltage:
115V~ setting: 100–120 V
230V~ setting: 200–240 V

Operating voltage:
115V~ setting: 86–127 V
230V~ setting: 195–253 V

Line frequency: 50–60 Hz

Operating frequency: 48–66 Hz

Maximum power: 50 Watts

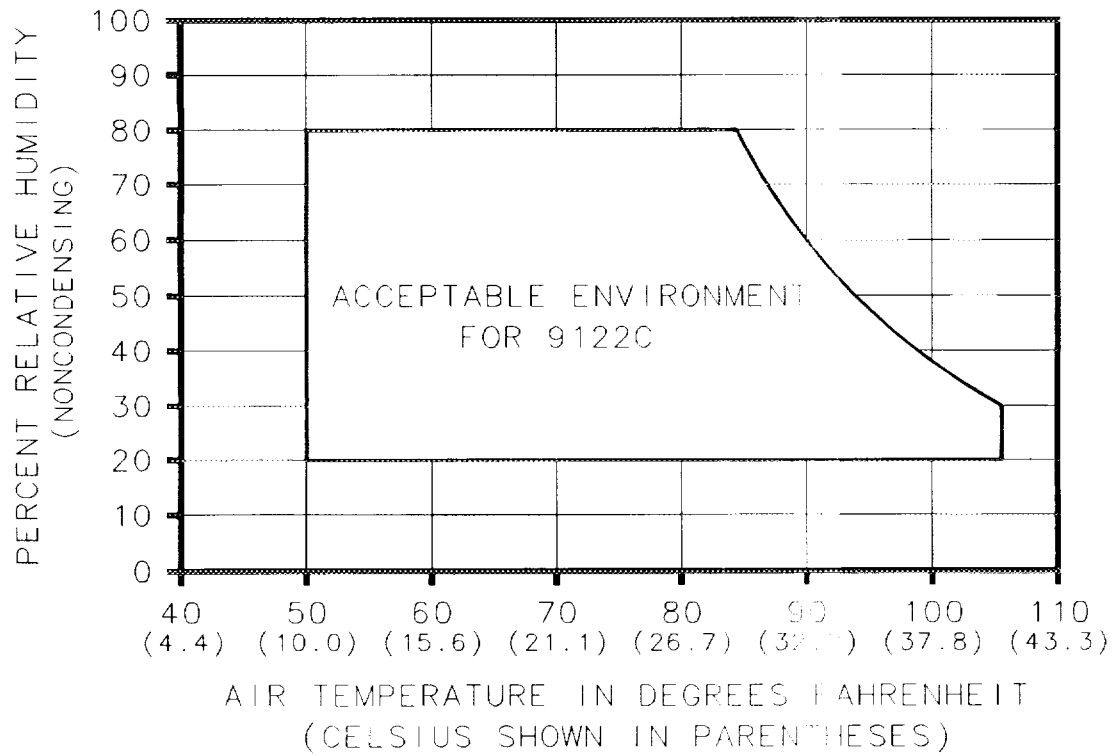
Acoustic Acoustic emissions: < 49 dB(A) sound power level

Physical Dimensions:
Height: 72 mm (2.9 in.)
Width: 325 mm (12.8 in.)
Depth: 285 mm (11.2 in.)

Net weight:
Single-drive configuration: 4.67 kg (10.3 lbs)
Dual-drive configuration: 5.22 kg (11.5 lbs)

Shipping weight:
Single-drive configuration: 6.58 kg (14.5 lbs)
Dual-drive configuration: 7.09 kg (15.63 lbs)

Environmental Requirements



- Temperature** Operating: 10°C to 40°C (50°F to 104°F)
 Nonoperating: -40°C to 60°C (-40°F to 140°F)
- Humidity** Operating: 20% to 80% RH (noncondensing)
 Nonoperating: 5% to 95% RH (noncondensing)

A-4 Technical Reference

Altitude	Operating: 0 to 4 572 m (0 to 15,000 ft) Nonoperating: -304 m to 15 240 m (-1000 ft to 50,000 ft)
Shock	Operating: 2 g, 11 ms half sine ($\Delta V = 0.14$ m/s) Nonoperating: 100 g, 3 ms half sine ($\Delta V = 1.90$ m/s) Packaged transportation: 30 g, 24 ms trapezoidal ($\Delta V = 7.06$ m/s)
Vibration	Operating: 0.30 g_{rms} , random, 5 to 500 Hz Nonoperating: 2.40 g_{rms} , random, 5 to 500 Hz; 0.5 g_{rms} , swept sine, 5 to 500 Hz

HP-IB Cabling Restrictions

- HP-IB cables may be connected in any configuration as long as there is an unbroken path between each device and your computer.
- The maximum number of devices you can connect to one HP-IB port on your computer is eight.
- The maximum length of cabling you can connect between two devices on an HP-IB bus is two meters.
- The maximum length of cabling you can connect between your computer and the nearest device on an HP-IB bus is 7 meters.
- The total length of cabling on an HP-IB bus is limited to 20 meters.

System Support

HP 9000 The following table summarizes HP 9000 Series support for the HP 9122C. BASIC, Pascal, and HP-UX versions listed are the earliest operating versions. All later versions are also supported.

HP 9000 Series Support

Series	ROM*	BASIC	HP-UX	Pascal
200	A	3.0	N/A	3.2
300	A	3.0	6.0	3.2
<i>*Indicates minimum boot ROM</i>				

The following tables provide information on operating the HP 9122C with HP 9000 Series computers:

Series 200 and Series 300 BASIC

Typical MSUS	:;702, 0 or :CS80, 702, 0 (drive 0)
	:;702, 1 or :CS80, 702, 1 (drive 1)
Binaries required	CS80 and HPIB (or FHPiB for 98625)
Optional binaries	MS, TRANS
LIF directories per drive	1
Format options supported	0, 1, 3, 4

Series 200 and Series 300 Pascal

Media specifier	Q
Default volumes	:3 and 4 (if first/sole disk) :7 and 8 (if second flexible disk)
Modules required	Disk HPIB, CS80 and DMA (if using 98620 DMA) Disk HPIB, CS80 and DISK_INTF (if using 98625)
Modules optional	ASC_AM, WS1.0_AM,TEXT_AM
LIF directories per drive	1 or 2
Format options supported	0, 1, 3, 4

Series 300 HP-UX

Mountable volumes per drive	1 or 2
Driver required	CS80
Block-mode Major	0
Character-mode Major	4
Format options supported	0, 1, 2, 3, 4, 16

Series 300 HP-UX Driver Minor Number

Bits	23-16	15-8	7-4	3-0
Fields	Select Code	HP-IB Address	Unit No.	Not Used
Values (Hex)	07 to 1F	00 to 07	0=drive 0 1=drive 1	0

HP 1000 The HP 9122C is supported on the HP 1000 A-Series Computer with RTE-A 5.0 or later. Refer to the following manuals for information on operating the HP 9122C with HP 1000 A-Series computers:

RTE-A System Generation and Installation Manual

RTE-A User's Manual

RTE-A Utilities Manual

RTE-A Driver Reference Manual

Glossary

Address

A number that identifies each peripheral on a computer system. The computer uses the address to communicate with each peripheral.

ADDRESS Switch

A switch located on the rear panel of the disk drive used to set an HP-IB address for the disk drive.

Application

A software package that enables a user to perform a task with a computer.

Backup

A duplicate copy of the data on a disk, stored on another disk or magnetic tape.

Booting

The process of loading the operating system and utilities into your computer's memory.

Bus

A group of signal lines over which devices on a computer system communicate. The bus is similar to a telephone line shared by several telephones with different numbers.

Byte

Eight consecutive data bits.

Capacity

The total amount of data storage on a disk measured in bytes or megabytes.

Disk

A circular plate coated with magnetic material used to store programs and data in digital format. A disk may be flexible or hard.

Disk Drive

An electromechanical device that enables a computer to store and retrieve data.

Double-sided Disk

A flexible disk that has two sides on which data may be recorded.

Double-sided Disk Drive

A disk drive that contains a flexible disk mechanism with two read/write heads that record data on both sides of a flexible disk.

Double-sided Formatting

Prepares a flexible disk for recording data on two sides (see "Formatting").

Flexible Disk

A disk made from a synthetic material.

Flexible Disk Access Indicator

An indicator that illuminates when the computer is sending data to or receiving data from the flexible disk drive.

Flexible Disk Mechanism

A device that contains electronic and mechanical parts to spin a flexible disk, write data on a flexible disk, and read data from a flexible disk.

Formatting

The process that prepares a disk to receive and store data. Also known as “initializing.” Formatting first checks a disk for damaged surfaces where data cannot be stored, then sets up a directory on the disk so that the computer knows where to store and retrieve data.

Hard Disk

Also called a “fixed” or “Winchester” disk. A hard disk is called hard because it is made of aluminum.

Head

A disk drive part that reads data from the disk and writes data to the disk.

HP-IB

An acronym for Hewlett-Packard Interface Bus. The HP-IB is a group of signal lines that enables a computer and peripherals to communicate.

HP-IB Cable

Provides the connection between a computer and peripherals (printers, plotters, scanners, and disk drives).

Initializing

The process that prepares a disk to receive and store data (see “Formatting”).

Interleave Factor

The interleave factor determines the order your computer reads sectors on a disk, and affects system performance.

Mbyte

Abbreviation for “megabyte”, a unit of measurement for memory storage. One megabyte is equal to one million bytes.

Media

A word that means the same as disk. Media also refers to the magnetic material on the surface of a disk (see "Disk").

Peripheral

A device external to the computer that is controlled by the computer (e.g., tape drives, disk drives, printers, and plotters).

Program

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

Read/Write Head

See "Head".

Sector

The smallest addressable data storage area on the surface of a disk.

Self-test

A series of internal routines performed by the disk drive when it is turned on. The routines ensure the disk drive is functioning correctly (see Fault Indicator).

Self-test Indicator

An indicator that illuminates when the disk drive is turned on and signals the start of the internal self-test diagnostic.

Single-sided Disk

A flexible disk that has only one side on which data may be recorded.

Single-sided Disk Drive

A disk drive that contains a flexible disk mechanism with one read/write head that records data on only one side of a flexible disk.

Single-sided Formatting

Prepares a flexible disk for recording data on one side (see "Formatting").

Software

A computer program or a set of computer programs.

Track

A ring of sectors on the surface of a disk. Tracks form concentric rings on the surface of a disk where data can be recorded.

Write-protect

A method of protecting against data being erased or overwritten on a disk.

Index

A

- ~AC LINE connector
 - location, 2-5
- AC LINE connector
 - see ~AC LINE connector, 2-5
- Acoustic emissions, A-3
- Address
 - setting, 2-7
- ADDRESS switch
 - location, 2-5
 - setting, 2-8
- Altitude
 - nonoperating, A-5
 - operating, A-5

B

- Bit density
 - flexible disk, A-2
- Bits per inch
 - flexible disk, A-2
- Bytes per sector
 - flexible disk, A-2

C

- Cable
 - HP-IB, 2-9
 - interface connection, 2-9
 - stacking, 2-10
- Cables
 - HP-IB, 2-10
- Case
 - flexible disk, 3-6

- Centering hub
 - flexible disk, 3-6
- Changing
 - voltage setting, 2-6
- Claims, damage, 2-3
- Cleaning, disk drive, 5-1
- Compatibility
 - flexible disk, 3-4
- Computer
 - system error messages, 5-4
- Connector
 - HP-IB, 2-9
- Connectors
 - location, 2-4
- Controls
 - location, 2-4

D

- Damage claims, 2-3
- Data
 - write-protecting, 3-7
- Data transfer rate
 - flexible disk, A-1
- Dimensions, A-3
- Disk
 - 2-megabyte flexible, 1-2
 - double-sided, 1-2
 - flexible, 1-2
 - flexible, parts, 3-6
 - shipping, 2-3
 - single-sided, 1-2
- Disk drive, 1-1

- cleaning and care, 5-1
- environment, 2-11
- environmental limits, 2-5
- maintenance, 5-1
- shipping, 2-3
- turning on, 2-12
- Disk mechanism
 - flexible, 1-2
- Disks
 - ordering, 5-7
- Double-sided disk, 1-2
- Double-sided disks
 - compatibility, 3-4
- Double-sided flexible disk
 - formatting, 4-2
- E**
- Eject button, 2-3
 - location, 2-4
 - removing the flexible disk, 3-9
- Electromagnetic
 - emissions, A-2
 - specifications, A-2
- Environment
 - disk drive, 2-11
- Environmental limits
 - disk drive, 2-5
- Environmental requirements, A-4
- Error messages
 - disk drive, 5-4
 - system, 5-4
- F**
- FAULT indicator
 - during power-on self-test, 2-12
- Flexible disk, 1-2
 - 0.5-megabyte usage, 4-4
 - 1-megabyte usage, 4-4
 - 2-megabyte, 1-2
 - 2-megabyte usage, 4-4
 - access time, A-1

- avoiding data loss, 3-8
- bit density, A-2
- bits per inch, A-2
- bytes per sector, A-2
- care, 3-8
- centering hub, 3-7
- compatibility, 3-4
- data transfer rate, A-1
- eject button, 3-9
- format options, 4-3
- formatted capacity, A-2
- inserting, 3-9
- interleave factor, 4-4
- parts, 3-6
- performance specifications, A-1
- recording specifications, A-2
- removal, 3-9
- rotational delay, A-1
- rotational speed, A-2
- sectors per track, A-2
- shutter, 3-6
- tracks per inch, A-2
- tracks per surface, A-2
- unformatted capacity, A-2
- window, 3-6
- write-protecting, 3-7
- write-protect tab, 3-7
- Flexible disk access indicator
 - location, 2-4
- Flexible disk port
 - location, 2-4
- Flexible disks
 - formatting, 4-2
 - initializing, 4-2
 - labeling, 3-10
 - ordering, 3-2, 5-7
 - recommended use, 3-5
 - using, 3-1
- Format option
 - selecting, 4-2
- Format options

Index-2

flexible disk, 4-3
media usage, 4-3
Formatted capacity
flexible disk, A-2
Formatting
double-sided flexible disks, 4-2
single-sided flexible disks, 4-2
Fuse
changing, 2-6
location, 2-5
ordering, 5-7
replacing, 5-2
selection, 5-3
Fuse holder
selection, 5-3

H

Handling disks, 3-8
Hard disk
rotational delay, A-1
HP-IB
address range, A-1
connector, 2-9
device address, A-1
interface restrictions, A-5
internal bus cable, A-1
rate modes, A-1
standard loads, A-1
HP-IB address
setting, 2-7
HP-IB cable
connecting, 2-9
ordering, 5-7
HP-IB cables
stacking, 2-10
HP-IB connector
location, 2-5
Humidity
nonoperating, A-4
operating, A-4
problems, 2-11

I

Indicators
location, 2-4
Initializing
single-sided flexible disks, 4-2
Interface
restrictions, A-5
Interface cable
connecting, 2-9
stacking, 2-10
Interference
radiated and magnetic, A-2
Interleave factor
flexible disk, 4-4

L

Limits
environmental, 2-5
Line frequency, A-3
LINE~ switch, 2-6
location, 2-4
Line voltage
115V~ setting, A-3
230V~ setting, A-3
Line voltages
fuses and fuse holders for, 5-3
Locking tab, 2-3

M

Maintenance
disk drive, 5-1
Manual
ordering, 5-7
Mechanism
flexible disk, 1-2
Media
compatibility, 3-4
flexible disks, 3-2
warranty exclusions, 3-1
Moving, disk drive, 2-3

N

- Net weight
 - dual-drive configuration, A-3
 - single-drive configuration, A-3

O

- Operating frequency, A-3
- Operating voltage
 - 115V~ setting, A-3
 - 230V~ setting, A-3
- Option 001, 1-2
- Option 560, 1-2
- Ordering supplies, 5-7

P

- Performance
 - characteristics, A-1
 - specifications, A-1
- Physical
 - specifications, A-3
- Power
 - 115V~ setting, A-3
 - 230V~ setting, A-3
 - consumption, A-3
 - specifications, A-3
- Power cord
 - connection, 2-10
- Power cords
 - ordering, 5-7
- Problems
 - disk drive on system, 5-4

R

- Ranges
 - voltage, 2-6, 5-3
- Restrictions
 - interface, A-5
- Rotational delay
 - flexible disk, A-1
- Rotational speed
 - flexible disk, A-2

Index-4

S

- Safety
 - specifications, A-2
- Sectors, 4-4
- Sectors per track
 - flexible disk, A-2
- Seek time
 - flexible disk, A-1
- Self-test
 - power-on, 2-12
- Self-test indicator
 - function when self-test fails, 2-13
 - function when self-test passes, 2-13
 - location, 2-4
- Setting
 - voltage, 2-6, 5-3
- Shipping disk
 - ordering, 5-7
 - removal, 2-3
- Shipping, disk drive, 2-3
- Shipping weight
 - dual-drive configuration, A-3
 - single-drive configuration, A-3
- Shock
 - nonoperating, A-5
 - operating, A-5
 - packaged transportation, A-5
- Shutter
 - damage to flexible disk mechanism, 3-4
 - flexible disk, 3-6
- Single-sided disk, 1-2
- Single-sided disks
 - compatibility, 3-4
- Single-sided flexible disk
 - formatting, 4-2
- Single-sided flexible disks
 - initializing, 4-2
- Specifications
 - dimensions, A-3
 - electromagnetic, A-2

interface, A-1
performance, A-1
physical, A-3
power, A-3
recording, A-2
safety, A-2
Supplies
 ordering, 5-7
System
 error messages, 5-4

T

Temperature
 nonoperating, A-4
 operating, A-4
 problems, 2-11
Track density
 flexible disk, A-2
Tracks per inch
 flexible disk, A-2
Tracks per surface
 flexible disk, A-2
Transporting
 disk drive, 2-3

U

Unformatted capacity
 flexible disk, A-2

V

Vibration
 nonoperating, A-5
 operating, A-5
Voltage
 ranges, 2-6, 5-3
 setting, 2-6
Voltages
 line, 5-3
VOLTAGE SELECT switch
 incorrect setting, 2-7
 location, 2-5
 setting, 2-6

W

Warranty, 5-8
 media, 3-1
Weight
 net, A-3
 shipping, A-3
Window
 flexible disk, 3-6
Write-protecting flexible disk, 3-7
Write-protect tab
 flexible disk, 3-7
 location, 3-7

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UNITED KINGDOM:

Hewlett-Packard Ltd.
Miller House
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Telephone: (44/344) 424-898

