HP 9122D/S Disc Drives Service Manual

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Printing History

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GENERAL INFORMATION

CHAPTER 1

Introduction

The HP 9122 disc drives are random access data storage devices. The HP 9122S contains a single 3 1/2-inch double-sided drive and the HP 9122D contains two 3 1/2-inch double sided disc drives. The storage capacity ranges from 630K bytes to 788K bytes depending on the sector size beng used.

The HP 9122 dics drives have been designed using the SUBSET 80 command set. Refer to the Subset 80 Reference Manual, PN 5958-4129, for a complete description of this command set.

Technical Specifications

	HP 9122S	HP 9122D
Number of drives	1	2
Net Weight	3.6kg (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.)
Interface	HP-IB	
HP Double-Density Format		
Encoding	MFM	
Rotational Speed	600 RPM	
Bit Density @ 600 RPM	Track 79 (Inside track) 8717 BPI	
Track Density	135 tracks per inch	
Tracks per Surface	80	
Surfaces used per disc	2	

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	Double-sided			Single-sided
Capacity				
Bytes/Sector	256	512	1024	256
Sectors/Track	16	9	5	16
Tracks	80	80	80	70
Data Tracks Available	<----	154	------>	66

Access Time	
Track-to-Track Seek	15 ms/track, plus 42 ms settling
Maximum Track-to-Track Seek (80 tracks)	1242 ms
Average Track-to-Track	447 ms
Maximum Rotational Latency	100 ms
Average Rotational Latency	50 ms
Spindle Motor on time	400 ms
Maximum Data Access Time (Seek plus Latency plus Motor on time)	1.742 s
Average Data Access Time	497 ms

NOTE

The HP 9122 disc drives spare four complete tracks and reserve two tracks for system use with double sided formats, and spare four tracks in single sided format.

Power Requirements

86-125 volts or 195-250 volts @ 67 watts RMS (94 voltamps)
50-60 Hertz
Fuse 1A, 250 for 115V setting
.5A, 250 for 230V setting

Environmental Specs

Operating Limits	
Temperature	10 to 40°C (50 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 to 60°C (-40 to 140°F)
Altitude	-304 to 15240 m (-1000 to 50,000 ft)

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NOTE

The flexible disc in the HP 9122 disc drives is designed for operation in a typical office environment. Use of the equipment in an environment containing dirt, dust, or corrosive substances will cause the flexible disc drives and medium life to be drastically reduced.

Equipment Supplied

The following equipment is supplied with each HP 9122 disc drive.

Description	Quantity	HP Part Number
AC Power Cord	1	Dependent on location
Operator's Manual	1	09122-90020
Disc	1	N/A
Shipping Disc	1	1150-1786

A package of ten discs, product number 92192A, is available from DMK.

Unpacking The HP 9122D/S Disc Drive

The disc drive was carefully inspected before shipment. Remove the unit from the shipping carton and carefully inspect the unit for any physical damage that may have occurred during shipment. If you find any damage, you should immediately notify the dealer and file a claim with any carriers involved.

CAUTION

The disc drive is a precision instrument. Mechanical shock can misalign the read/write head, resulting in read errors and/or damaged discs whether the disc is operating or not.

When moving the disc unit, care must be taken to prevent excessive shock. Install the shipping disc (P/N 1150-1786 for half height drives and 1150-1787 for full height drives) before moving it to another location. If you do not have the parts metioned, they may be purchased from Hewlett Packard.

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Cleaning the Case

The disc drive case is made from a white plastic material and is not painted. The rear panel has a durable, non-toxic label. 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 any disc is 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. Dry 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.

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Installation

CHAPTER 2

Configuring Power

Setting The Line Voltage Select Switch

The voltage select switch on the rear panel must be set to the nominal line voltage for the area in which it is operating. Figure 2-1 shows the setting for the voltage select switch for the various voltages.

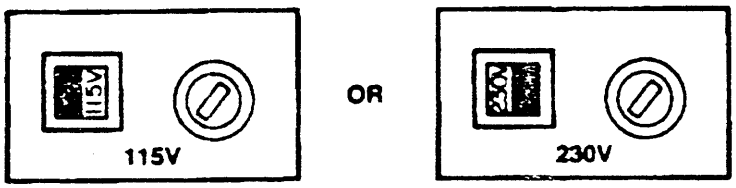


Figure 2-1. Line Voltage Select Switch

Fuses

The part numbers of the fuses used for the two voltage ranges of 90-125 and 180-250 VAC are 2110-0001 and 2110-0012 respectively.

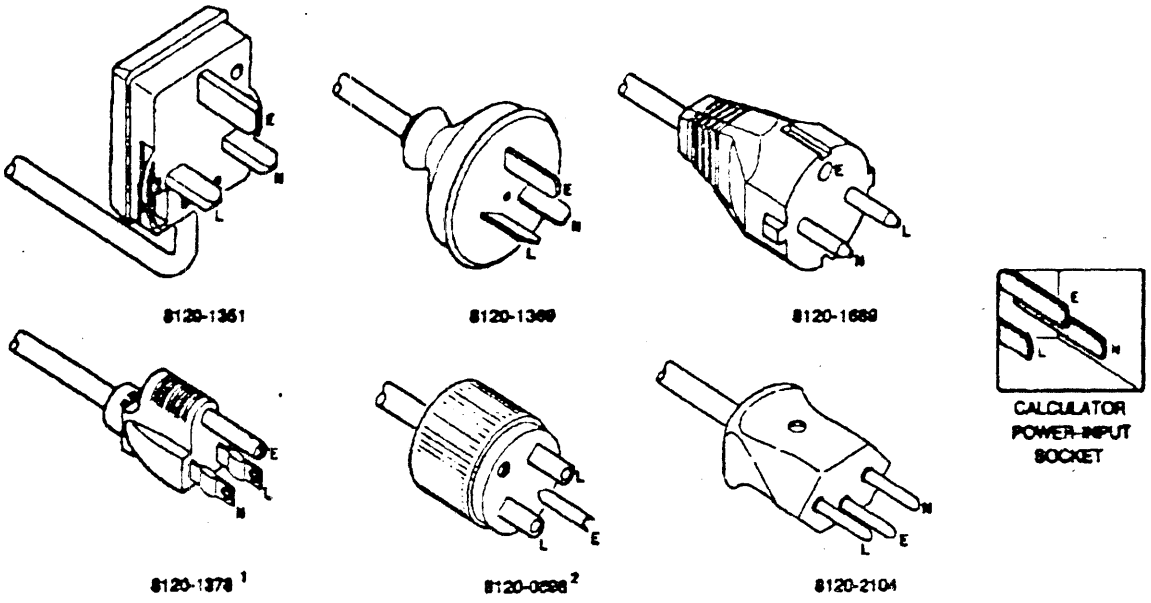
WARNING

Always disconnect the disc drive from any AC line before changing fuses.

Power Cords

The power cord supplied by HP has polarities matched to the power sockets on the equipment. See Figure 2-2 for details on the power cords.

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[1]UL and CSA approved for use in the United States of America and Canada with equipment set for either 100 or 120 Vac operation.

[2]UL and CSA approved for use in the United States of America and Canada with equipment set for either 200 or 240 Vac operation.

Figure 2-2. Available Power Cords.

Selecting the Device Address

Each device in an HP-IB system must be set to a unique device address. The HP 9122D/S contains address switches located on the rear panel for programming in this address. See the mass storage information of your controller for addressing information concerning mass storage devices. See Figure 2-5 for switch locations. An HP-IB address of 0 is set at the factory before shipment.

Prior to setting the device address switches, turn the disc drive AC line switch OFF. This is because part of the selftest and power-up sequence includes a check to see what the address switch settings are. Each time power is applied to the disc drive these switch settings are checked, so if you change the switches be sure to cycle the power switch.

The switches can be set to any one of eight addresses, from 0 through 7. Refer to Figure 2-3 when setting these switches to the desired device address.

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

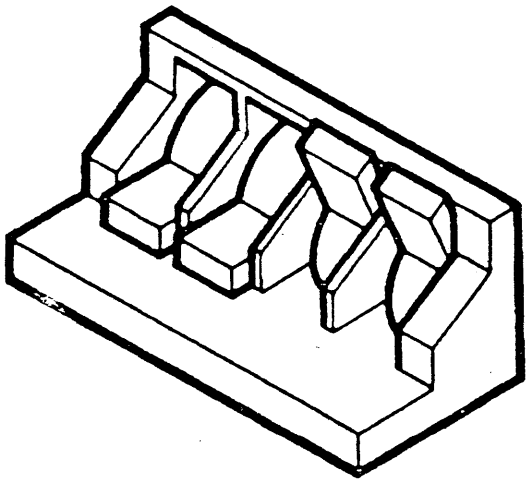


Figure 2-3. Device Address Switch Settings

Disc Compatibility

The table in Figure 2-4 details the recommended usage of single-sided and double discs. Words used in the table are defined as follows:

* "Exchange only" means that the disc should be used only for exchanging data and programs with single-sided disc drives, and should not be used on a daily basis.

* "OK" means that the disc may be used on a daily basis.

Single-sided HP disc	exchange only
Double-sided HP media in single-sided format	OK
Double-sided HP media in double-sided format	OK
HP software	OK

Figure 2-4. Usage of Single- and Double-sided Flexible Discs.

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Controls and Indicators

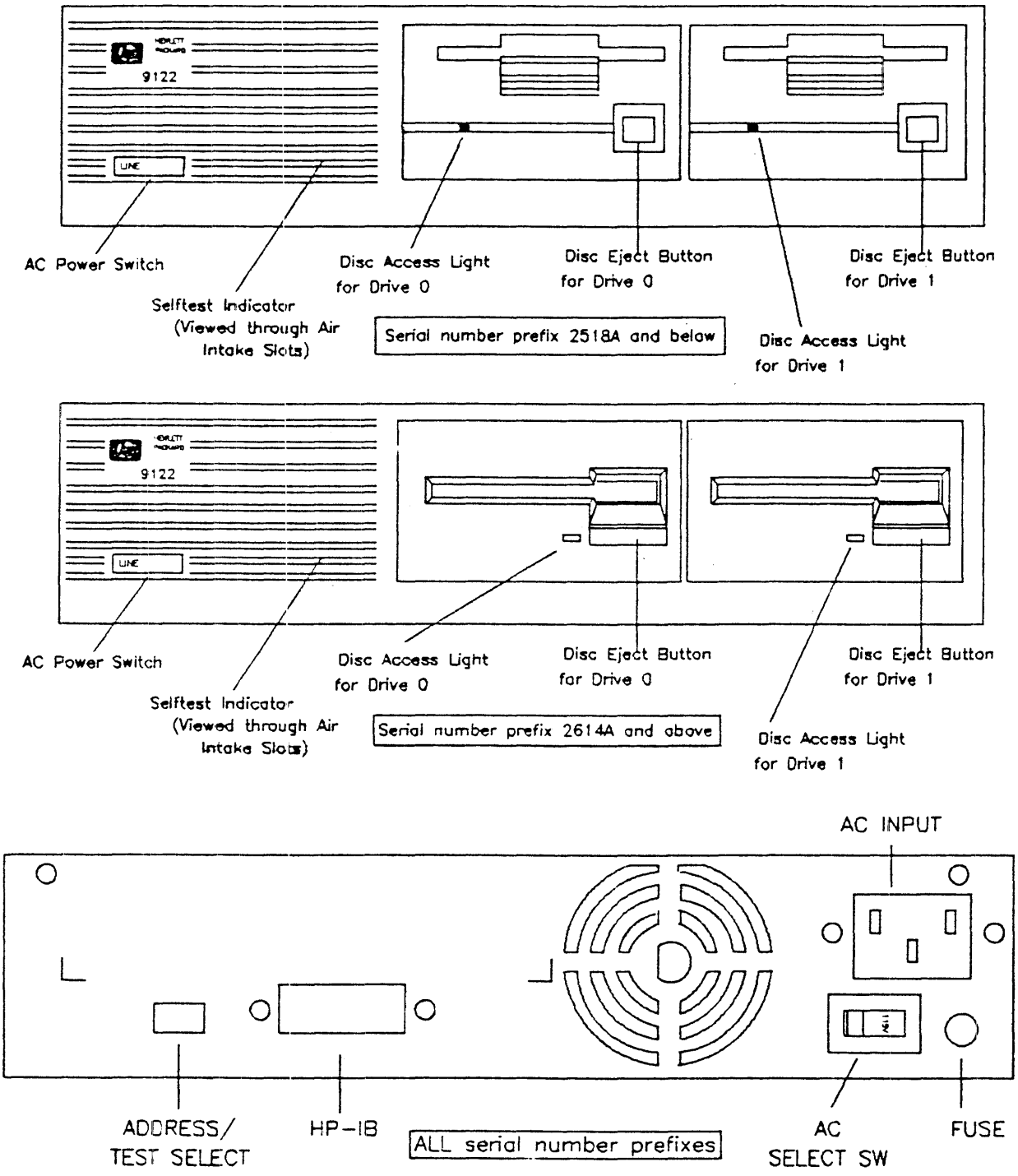


Figure 2-5. Controls and Indicators.

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Media Monitor

Through a feature called Media Monitor, the 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 a risk of loss of data through normal disc wear, the disc access light on the front panel blinks and a clicking sound is heard. Commands will still be performed by the computer. 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 will eventually automatically write protect the disc. After that time, you will only be able to read data from the disc or copy the disc.

Power-on Selftest

A power-on selftest is performed automatically when you turn on the disc drive. The selftest first checks the HP-IB, FDC, RAM, and ROM, followed by a WRITE/READ test (if an initialized, non write-protected disc is inserted). When a WRITE test is performed, it is done on a reserved area of the disc and no user data is at risk. The Selftest LED acts as a pass/fail indicator and is visible through the air intake slots.

When an initialized, unprotected disc is inserted; read, write, and motor-speed tests are performed. A write-protected disc will not allow the read and write tests to run. If the disc access light stays on after the normal testing time, an error within the disc drive has been detected. If an error occurs, refer to Chapter 4 for troubleshooting procedures.

Write Protect Error on Initialization

A motor speed check is performed before initialization is performed. If the motor speed is on either side of the tolerance allowed, a Write Protect Error is generated and the disc cannot be initialized. At this point, insert another disc. If a write protect error is generated again, refer to Chapter 4 for troubleshooting procedures. If no write protect error occurs with the second disc, then the first disc used is bad and should be discarded.

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Interface Information

CHAPTER 3

HP-IB Interface

Installation

The HP 9122D/S is connected to the computer via the Hewlett-Packard Interface Bus (HP-IB). Refer to Figure 3-1 for a list of the HP-IB interface cables used with HP computers.

Length	Accessory Number
1 metre	10833A
2 metres	10833B
4 metres	10833C
0.5 metres	10833D

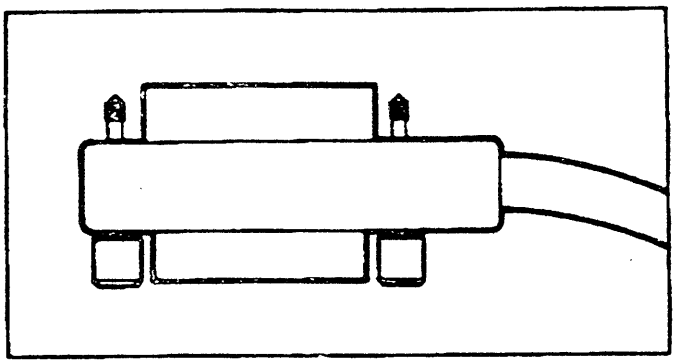


Figure 3-1. HP-IB Interface Cables

All the cables listed above are completely shielded to eliminate Radio Frequency Interference (RFI). The use of unshielded cables will cause increased RFI in the area of operation.

CAUTION

Never turn the disc drive off or remove the disc from the drive when the disc access light is on; doing so can cause loss of data.

HP-IB Interface Restrictions

1. All the AC line switches (of the host system) must be turned "OFF" when connecting (and disconnecting) devices to the system.

2. The total length of cable permitted in one bus system must be less than or equal to two metres times the number of devices connected together (the interface card is considered one device).

3. The total length of the cable must not exceed 20 metres. For example, a system containing six devices can be connected together with cables that have a total length less than or equal to 12 metres (six devices x 2m/device = 12 metres). 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 10 devices are to

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be connected together, cables shorter than two metres must be used between some of the devices to keep the total cable length less than 20 metres.

4. The maximum number of devices that can be connected together in a one-bus system is 15.

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.

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Troubleshooting

CHAPTER 4

Repair Philosophy

The HP 9122D/S are serviced on the exchange program.

Non-Exchange Assemblies

Part Number	Description	S/N Prefix 2614A and above	S/N Prefix 2518A and below
09123-61611	RIBBON CABLE ASSEMBLY	X	
09121-61611	RIBBON CABLE ASSEMBLY		X
09121-68511	FAN ASSEMBLY	X	X
09121-61612	DC POWER CABLE		X
09122-68802	LINE FILTER ASSEMBLY	X	X
2110-0001	FUSE 1A 250 VOLT	X	X
2110-0012	FUSE 1/2A 250 VOLT	X	X

Exchange Assemblies

09122-69511	Controller PCA		X
09122-69514	Controller PCA	X	
09114-69511	3 1/2-inch disc drive		X
09123-69101	3 1/2-inch disc drive	X	

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Controller Electronics and Power Supply Assembly

Figure 4-1 represents the power supply and controller electronics (S/N Prefix 2518A and below) of the printed circuit assembly (PCA). Figure 4-2 represents the supply and controller electronics (S/N Prefix 2614A, 2615A and above) of the PCA.

The following information applies to both controller PCAs shown in Figure 4-1 and 4-2. Jumper J6 is used to configure the controller PCA for either a single disc drive or for two disc drives (9122S or 9122D respectively). J7 is used to start the service tests. Jumper J6 is shown in the 9122D position, and J7 is shown in the normal operating position.

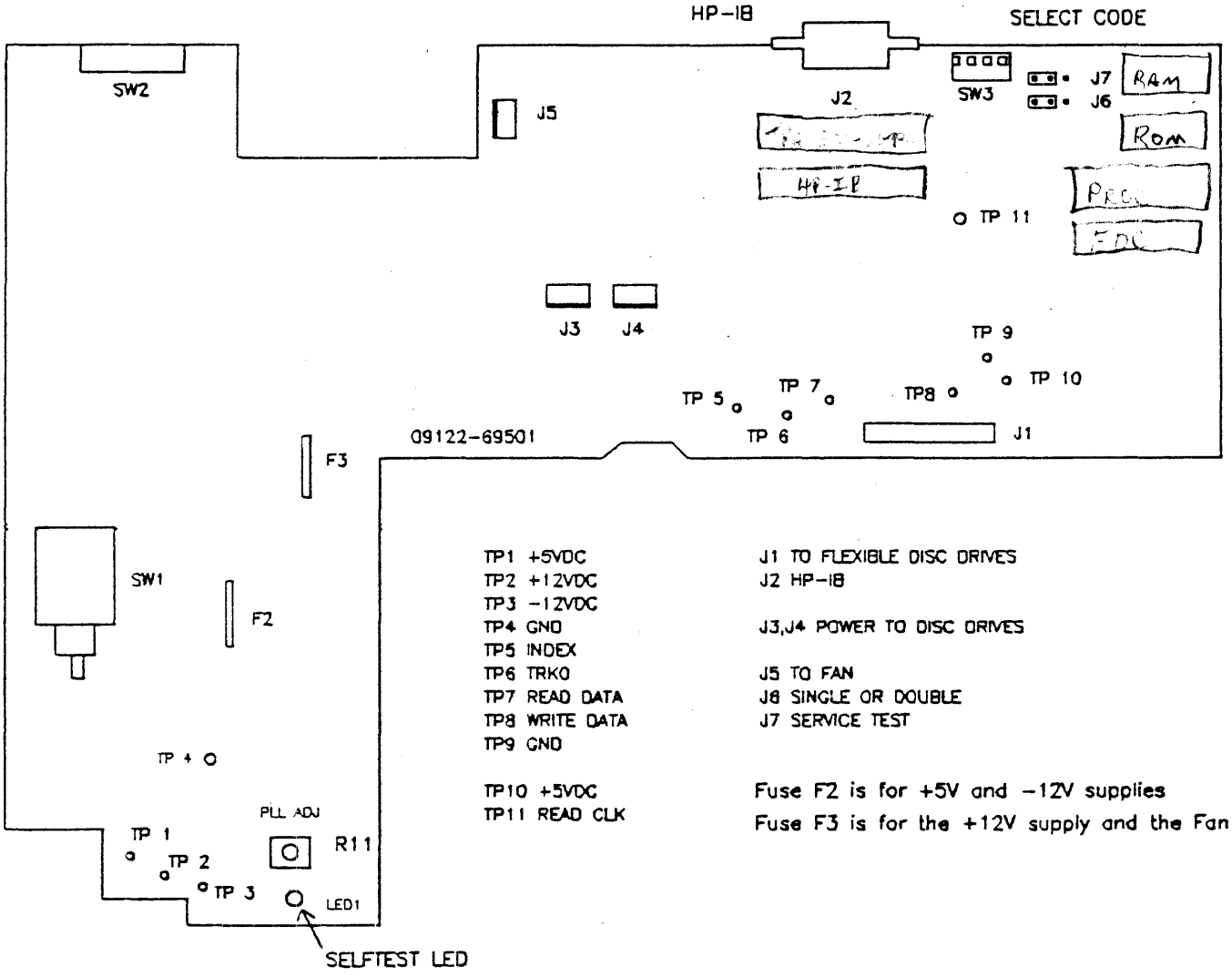


Figure 4-1. Controller and Power Supply PCA(09122-69511)

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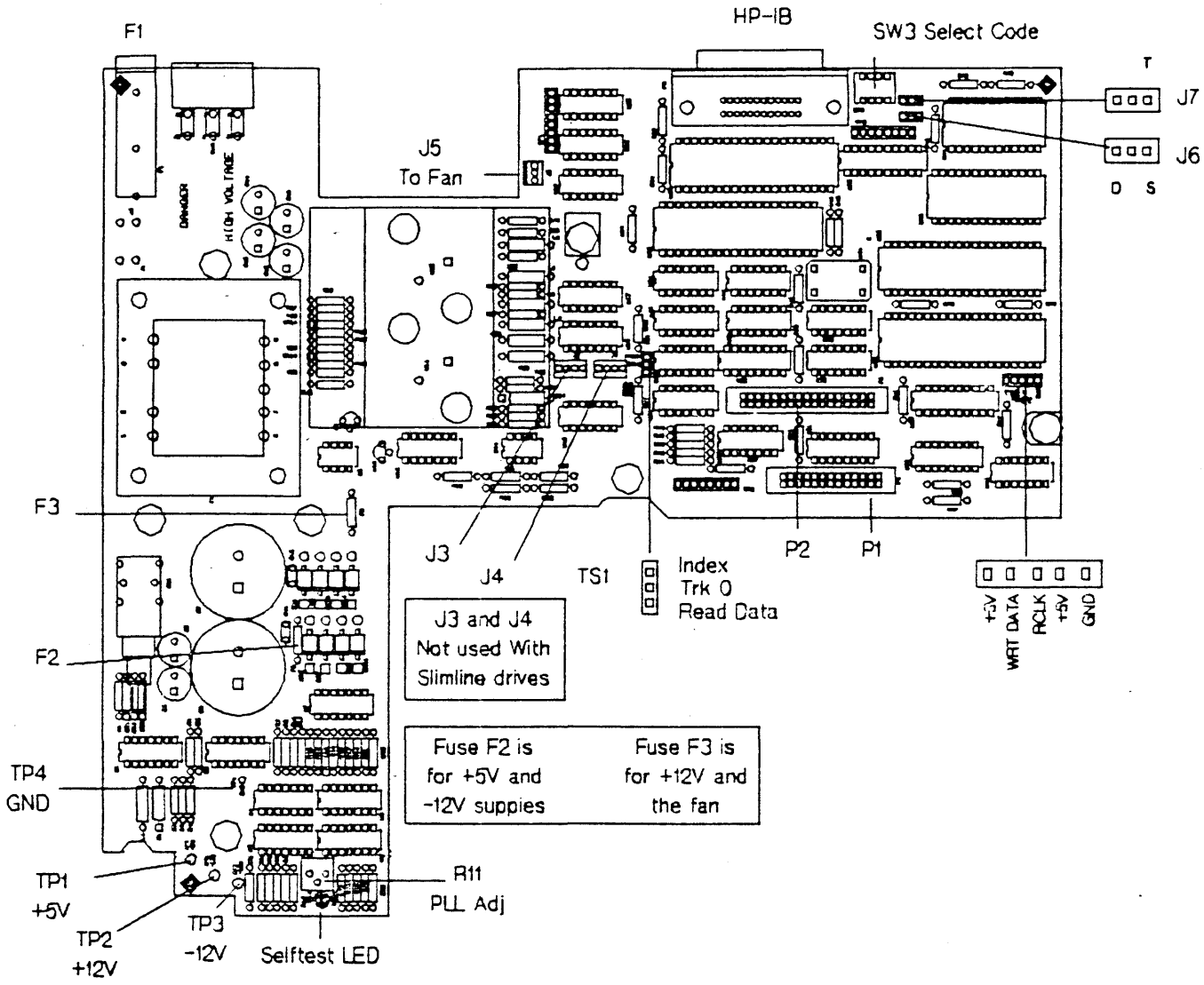


Figure 4-2. Controller and Power Supply PCA (09122-69504)

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Selftest

The selftest diagnostic capability of the HP 9122D/S can be initiated in three ways: Power-on, Service initiated, and Host initiated. The HP 9122 power-on selftest tests the RAM, ROM, FDC and the HP-IB chips, and performs a seek test. The HP 9122 also performs an index period test if any media is in the disc drive and a Write/Read test if formatted non write-protected discs are installed in the drive prior to powering on the unit.

Available Test

The following Service Test are available on the HP 9122D/S products:

Test Number	Test Time	Test Description
0 RAM	1-2s	All patterns are written in all locations of RAM
1 ROM	1-2s	A checksum calculation is performed
2 HP-IB chip	1-2s	Two of the registers are written and their content verified.
3 FDC chip	1-2s	Two of the registers are written and their content verified.
4 Drive 0 Seek	2-3s	Commands are given to the FDC to move the head on and off of track 0. The track 0 indicator is checked to see that movement occurred.
5 Drive 1 seek	2-3s	Same as above but on drive 1.
6 Motor 0 speed	2-3s	The head is stepped to track 35 and loaded. The period of the index pulse is measured and compared against the specification. No test if no media in drive.
7 Motor 1 speed	2-3s	Same as above but on drive 1.
8 * Write/verify disc 0	2 min.	Write on every sector of the disc and verify the data written.
9 * Write/verify disc 1	2 min.	Same as above but on drive 1.
10 * Verify disc 0	1 min	All sectors in the data area of the disc are checked for CRC errors.
11 * Verify disc 1	1 min.	Same as above but on drive 1.
12 Format disc 0	1 min.	The disc is re-initialized with a 011 data pattern.

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13	Format disc 1	1 min.	Same as above but on drive 1.
14	PLL test	1-2s	The free running frequency of the PLL is checked. The disc in drive 0 is used for the test, and its format is destroyed by the testing procedure. NOTE: Format the disc again if you are going to run test 8-11.

* Time shown is for the format generated by test 12 or 13. This time will be different if the disc is initialized with another interleave factor.

NOTE

A disc must be in the drives to perform test 6 through 14. Ensure that the discs are not write protected and that they are initialized scratch discs.

Selecting a Selftest

The service diagnostic testing function allows selection and looping of any of the test choices in the following table.

To initiate a test, perform the following:

1. Apply power to the unit and allow the power-on selftest to complete.

2. Install formatted, unprotected discs if tests 6 through 14 are to be performed. (Note: Scratch discs should be used, as some tests destroy the data and format)

3. Set the HP-IB ADDRESS switch (SW3) to the desired test number (see figure 4- 3)

4. Short the TEST jumper pins J7, see figure 4-1 or 4-2, with a jumper to start the test; LEAVE SHORTED TO LOOP ON THE SELECTED TEST.

When a selftest is initiated, the HP 9122 leaves its normal peripheral mode and enters the diagnostic test mode. The LED blinks (to show that the LED works).

The results of a successful test are displayed by the FAULT-LED blinking. A failure causes the LED to stay on. Results are displayed for five seconds after a test is completed, followed by a complete power-up sequence.

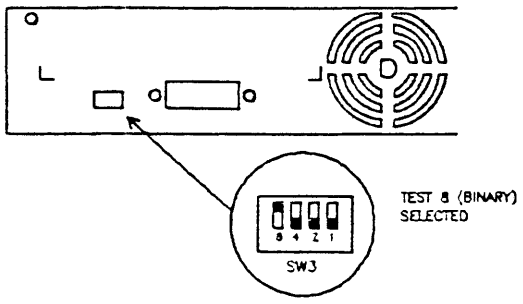


Figure 4-3. Rear view of HP 9122 disc drive.

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Troubleshooting Procedures

This section is divided into General information, a troubleshooting flowchart, procedures called out in the flowchart, and information on interpreting error codes obtained as well as use of the SS/80 Exerciser.

Fault Isolation Procedures

The following procedures will help to quickly and accurately determine which field replaceable assembly is defective if a failure occurs.

General Information

- If a flexible disc is damaged by a drive, inspect the HP 9122 to determine which drive is causing damage. The drive heads are visible through the media slot. Replace any drive mechanism which is determined to be damaging the media.

- If the fan is not operating check that the HP 9122 is receiving primary power that the voltage select switch is set correctly, and that the primary fuse is good. Also check that the fan is plugged into the controller PCA correctly, and that the power supply voltages on the controller PCA are correct.

- If possible, determine whether the customer has been using HP double-sided media. If the customer is using media from other sources, or HP single-sided media in double-sided mode, it is possible that media could be the cause of the problem.

Some media related problems which have occurred include visible wear of the disc, and a high pitched sound from the drive while the disc is being accessed. These problems have occurred when single-sided HP media is being used heavily with the HP 9122 (instead of its intended use;to exchange data with single sided disc drives) and with media from other vendors. Note that the head resonance problem may be found occasionally as an independent failure mode also.

Additional media related problems may occur as failure to initialize media, and intermittent failures. In some cases, media may cause an accumulation of residue on the read/write head of the disc drive which must be removed, if possible, before the drive will work properly with HP media. Heads may be cleaned using the 09122-89415 cleaning disc and the HD_CLN routine in the SS/80 Exerciser SERVC module to exercise the disc drive during the cleaning.

Power-on selftest

The power-on selftest tests the RAM, ROM, FDC, HP-IB chips, and performs a seek test (checks the track 0 detector) on each drive if no media is installed in the 9122. In addition, if media is installed in the drives, a motor speed test is performed (checks the time between index pulses). If the media is formatted in a double-sided format and not write protected a write/read test is also performed on the system cylinder, which does not affect any user data. (The write/read test is not performed if the disc is in singlesided format.)

Troubleshooting Procedures

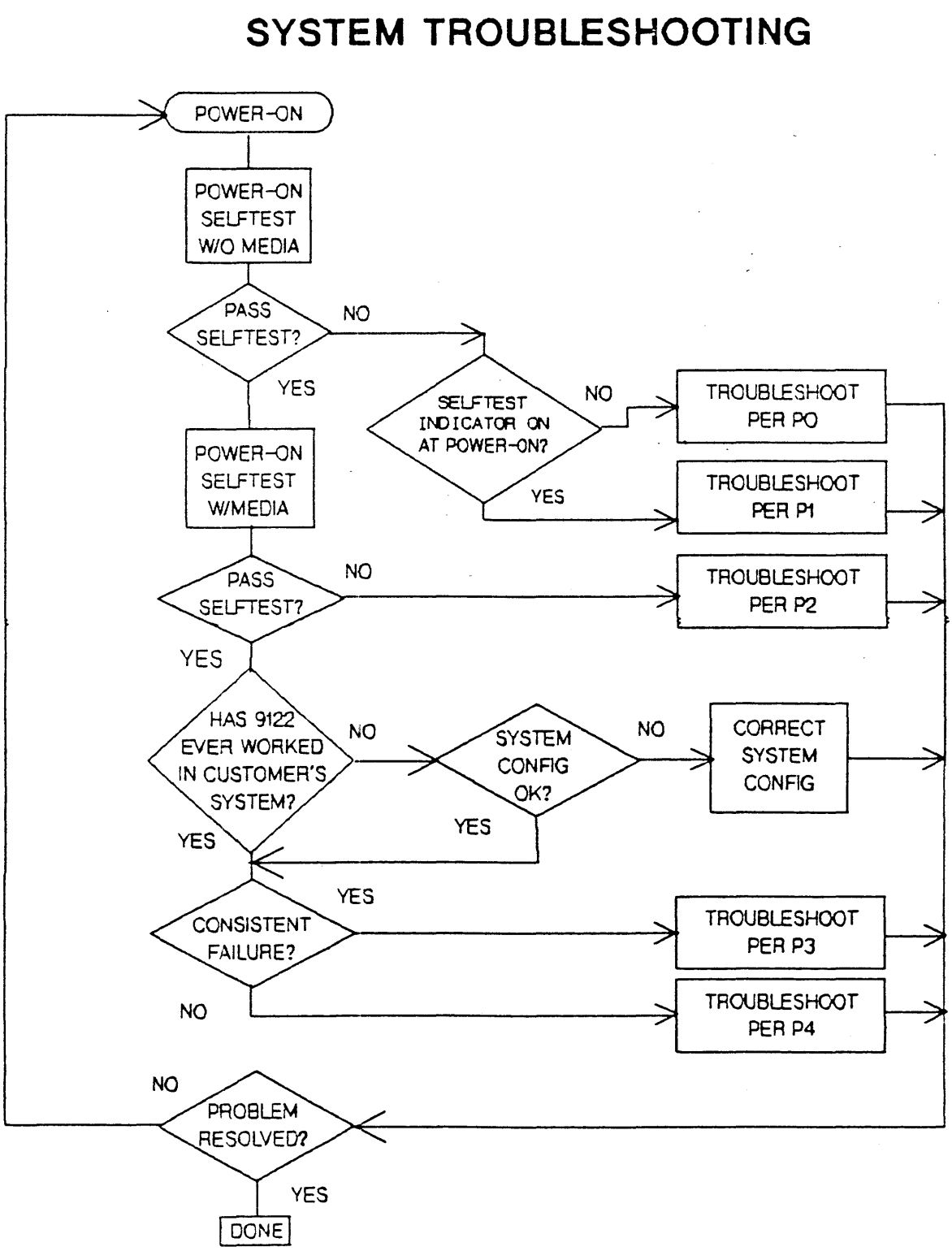
- All tests specified in the following procedures should be performed using HP double-sided media ONLY.

- If an HP-85 and the SS/80 Exerciser, P/N 5010-0310, are available it is recommended that the Exerciser be used to diagnose the failure and verify a repair. See information on use of the SS/80 Exerciser on page 4-11.

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- Internal service diagnostics in the 9122 are referenced by "Test #" in the following procedures. Refer to pages 4-4 and 4-5 for information on the tests and how to perform the tests.

Troubleshooting Flowchart



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The following procedures should be referenced when referred to by the "Troubleshooting Flow Chart".

PROCEDURE P0 (Selftest indicator not on at power-on)

1. Check primary fuse
2. Check setting of the primary voltage select switch (115/220V) see Figure 2-1.
3. Check power supply voltages on the controller/power PCA. (See Figure 4-1, 4-2). Repair by replacing fuses F2 (-12V and +5V) or F3 (+12V) on controller PCA or replacing controller PCA.

PROCEDURE P1 (Fails power on selftest with out media in drive)

1. Check that all internal cables in the drives are connected properly and are seated correctly.
2. Perform Tests 4 and 5 (seek or track O test) or perform TRK_0 test in the SS/80 Exerciser SERVC module.

   9122D

   If one drive fails then replace the failing drive mechanism.

   If both drives fail replace the controller/power PCA.

   9122S

   If any of Tests 0-3 fail then replace controller/power PCA.

   If Tests 0-3 pass, replace the drive mechanism.

PROCEDURE P2 (Fails power-on selftest with media installed)

1. Perform Tests 6 and 7 (measures index period) or perform MTR_SPD test using the SS/80 Exerciser SERVC module.

   If disc access light comes on but drive fails then replace drive.

   If disc access light does not come on then replace controller/power PCA.

PROCEDURE P3 (Consistent failure)

In some cases, media may cause this type of problem. Refer to statement concerning media in the "General" information on page 4-6.

If the SS/80 Exerciser is available, do the following steps:

1. Perform the LOOPBAK test in the SS/80 Exerciser "MANUAL" module (This tests the 9122 I/O)

   If test fails then replace 9122 controller/power PCA

   If test passes, go on to step two.

2. Perform the INIT test in the SS/80 Exerciser "MANUAL" module on each unit. (This tests the read/write capability of the drive and the controller PCA.)

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9122D

If one drive fails then replace the failing drive mechanism.

If both drives fail, then perform Test 14.

If test fails then adjust the PLL per procedure on page 4-14.

If PLL adjustment does not correct the problem or cannot be made, then replace the controller/power PCA.

9122S

If INIT fails, it is possible that either the drive or controller/power PCA could cause the failure.

If disc access light comes on then perform Test 14

If Test fails then adjust the PLL per procedure on page 4-14

If the PLL adjustment does not correct the problem or cannot be made, then replace the drive

If drive replacement does not correct the problem, then replace the original drive in the 9122S and change the controller/power PCA.

If disc access light did not come on, replace the controller first; if failure persists, replace original controller and change the drive mechanism.

If SS/80 Exerciser is not available perform the following:

1. If a computer which supports the 9122 is available, attempt to INITIALIZE or FORMAT using appropriate host commands on each drive. (This tests the read/write capability of the drive and the controller/power PCA.)

   9122D

   If disc access light comes on,the HP 9122 I/O circuitry is good. If it does not come on, replace the controller/power PCA

   If one drive fails then replace the failing drive mechanism

   If both drives fail then perform Test 14.

   If test fails then adjust the PLL per procedure on page 4-14

   If PLL adjustment does not correct the problem or cannot be made, then replace the controller/power PCA.

   9122S

   If disc access light comes on the 9122 I/O circuitry is good

   If disc access light does not come on then replace the controller/power PCA

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If INITIALIZE/FORMAT fails, it is possible that either the drive or controller/power PCA could cause the failure.

If disc access light comes on then perform Test 14.

If test fails then adjust the PLL per procedure on page 4-14

IF PLL adjustment does not correct problem or cannot be made, then replace the drive.

If failure persists, replace original drive in the 9122S and change the controller/power PCA.

If disc access light did not come on, replace the power/controller PCA first; if failure persists, replace original controller and change the drive mechanism.

2. If no host computer is available: (This could occur if a drive has failed and it is not possible to boot the computer.)

9122D

Perform Tests 12 and 13

If one drive fails then replace the failing drive mechanism.

If both drives fail, then perform test 14.

If Test 14 fails then adjust the PLL per procedure on page 4-14.

If PLL adjustment does not correct the problem or cannot be made, then replace the controller/power PCA.

9122S

Perform Test 14

If test fails then adjust the PLL per procedure on page 4-14.

If PLL adjustment does not correct the problem or cannot be made, then replace the controller/power PCA.

If Test 14 passes then perform Test 12.

If Test 12 fails, then replace the drive; if failure persists, then replace orginal drive and replace power/controller PCA in 9122S.

If Test 12 passes, replace power/controller PCA; if failure persists, then replace original power/controller PCA and replace drive.

PROCEDURE P4 (Occasional or Intermittent failures)

Some causes of this type of problem include the following:

- Media problems; see information in "General" section.

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- Environmental problems

  Temperature/humidity outside the range specified for product
  Dusty or dirty environment
  Noise on power lines (Transients or continual noise on lines from other equipment)
  Strong electromagnetic fields in vicinity of the drive

- Compatibility problems

  Drive can read discs it has written but cannot read discs written on other drives, such as software discs or data recorded on other drives.

  This type of failure can be identified as follows:

  9122D

  Format disc in each drive using any available host or Tests 12 and 13

  Exchange the discs just formatted between drive 0 and 1, then attempt to read the discs with a host computer, or verify the discs. Tests 10 and 11 may be used for this purpose.

  If discs cannot be read, then a compatibility problem exists. The defective drive cannot be identified in this way. An additional test which MAY indicate the possible defective drive involves attempting to READ a disc which contains prerecorded software. (Tests 10 and 11 may also be used for this test.)

  9122S

  Attempt to READ a known good disc, such as one containing prerecorded software. (Test 10 may be used for this purpose)

- Infrequent read or write errors

  The recommended method of verifying this type of failure is to use the tests in the R/W_TEST module of the SS/80 Exerciser. These tests transfer data and when an error occurs the status information will provide an indication of the possible cause of the problem. Refer to page 4-11 for a description of using the SS/80 Exerciser. These tests can be set up to loop and can run for long periods of time.

  If the error occurs on only one drive in a 9122D, then the drive is the probable cause of the problem. If errors occur on both drives, then the controller is the most probable cause of the failure.

  In the case of the 9122S there is no means of determining whether the disc mechanism or the controller PCA is the cause of the problem.

Using the SS/80 Exerciser

The following information will help in interpreting the results obtained with the SS/80 Exerciser, and will also assist in effective use of the Exerciser.

DERRORS

DERRORS may be indicated following the execution of certain commands. The DERROR is basically run-time status of the 9122 and provides additional information concerning what the product is doing.

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The DERROR alone never indicates a failure; additional status information will be displayed if a problem exists.

Some common DERRORS which occur with the 9122 are as follows:

DERROR	Description
BA	Occurs following power on selftest if media which is formatted in single sided format is in the drive. Indicates that no read/write test was performed during the selftest.
BB	Occurs following power on selftest if media which is formatted in double sided format is in the drive. Indicates that a read/write test was performed during the selftest.
B9	Occurs following execution of INIT MEDIA. The number of tracks spared on both sides of the media is then printed.

DERROR's B0 thru BF, C0, and F0 thru F4 could occur. Except for the ones indicated above, these DERROR's do not provide significant additional information.

HINTS ON USING THE SS/80 EXERCISER

The SS/80 Exerciser provides some capabilities which are not available otherwise, and also provides more information about the 9122 than is otherwise available. Specifically, the Exerciser provides the capability to transfer data and commands between a host computer and the peripheral, and to performs certain tests which cannot be implemented in any other way.

Please refer to the SS/80 Exerciser manual, P/N 5958-4142 for an overview of the capabilities contained in the Exerciser.

Some general testing solutions which can be implemented using the Exerciser are as follows:

HP-IB channel test	The LOOPBAK test in the MANUAL module tests the capability to communicate with the product across the HP-IB.
Testing for R/W errors	The R/W_TEST module allows either a Read Only, or a Write then Read test to be performed on a single unit. This test can be set to loop up to 32K times and allows extensive testing to identify a problem or verify a repair.
General product evaluation	The R/W_TEST module provides capability to perform general product testing and is recommended for this use.
Flexible disc tests	The SERVC module contains special flexible disc drive tests-Motor speed, Track 0, Head cleaning routine, etc.
Complete product evaluation	The OPER program provides the capability to test all units and volumes of a disc drive without manually selecting each one. An OPER program can be defined which will select each unit and volume and then perform a locate and verify, locate and read, locate and write, etc. The program will allow looping to perform extensive testing.

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If the drives are removed or replaced, refer to figures 4-4 or 4-5 for the proper setting of the drive select switch.

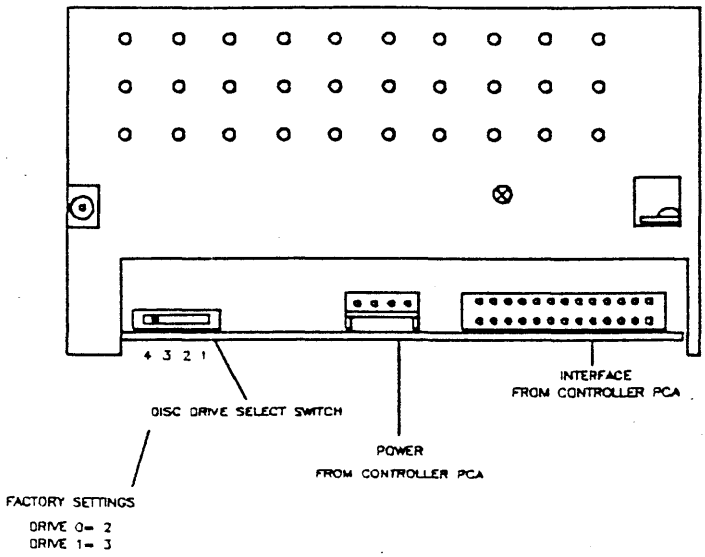


Figure 4-4. Disc Drive Select Switch(09114-69511).

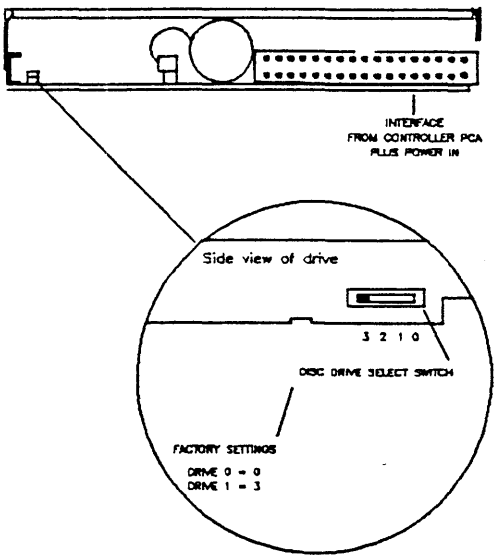


Figure 4-5. Disc Drive Select Switch (09123-69101).

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Adjustments

PLL Adjustment

The Phase LockLoop (PLL) adjustment is performed as follows. The PLL adjustment should be performed when the unit exibits read/verify errors or fails the PLL test (TEST 14).

Use figure 4-1 or 4-2 for locating test points.

1. Power on the unit, and allow the power-on selftest to finish.

2. After two minutes warm up, attach the frequency counter test leads to the VCO test-point (TP11). The frequency should be 500K Hz ±5%. If adjustment is necessary, adjust the variable resistor R11 for a frequency of 500 KHz±.2%(+-1 KHz).

3. Verify disc operation.

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Assembly Access

CHAPTER 5

Introduction

The following is additional information which pertains to the 9122D/S and the 9121D/S disc drives.

Top Cover Removal

To remove the top cover perform the following steps. Remove the AC power cord, then remove the two cover securing screws on the rear of the unit. Depress the front panel power switch so that the cover will clear the button. Tilt the rear of the cover upwards, and carefully remove the cover in a forward direction. Assembly is performed in the reverse order, while depressing the power switch button through the front panel hole.

NOTE

When installing drives (for units having a S/N prefix of 2614A and above), the controller PCA or the disc drive cable (P/N 09123-61611) ensure that the disc drive cable is placed between the drive and the controller PCA. Also, all star washers removed during disassembly must be reinstalled. These steps will ensure that the 9122D/S will conform to all the relevent FCC/VDE requirements for electromagnetic emission.

9122D/S PARTS LIST

LEVEL	REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	A1	09122-69511	CONTROLLER PCA
.2	C11,12	0160-3622	C-F .1UF 100V
.2	C19	0160-4574	C-F 1000PF 10%
.2	C10	0160-4805	C-F 47PF 5% 100V
.2	C17,22,23	0160-4830	C-F 2200PF 10%
.2	TEMP.	0160-4831	C-F 4700PF 10%
.2	C31-46	0160-4832	C-F .01UF 10%
.2	C4,5,8	0160-4835	C-F .1UF 10% 50V
.2	C25,26	0160-5098	C-F .22UF 10%
.2	C9,18,27-30	0160-5349	C-F 200PF 5%
.2	C24	0180-0210	C-F 3.3UF 15V
.2	C1,20,21	0180-0291	C-F 1UF 35V 10%
.2	C2,3,15,16	0180-0692	C-F 220UF 35V AL
.2	C6	0180-3007	C-F .015F 25V AL
.2	C7	0180-3260	C-F 6800UF 50V

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LEVEL	REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
.2	C13,14	0180-3390	C-F 33MF 100V
.2		0340-0122	INSUL-FLG-BSHG
.2	BOTTOM	0340-0583	INSUL-XSTR TO-3
.2	TEST PTS	0360-0124	STUD-TERM
.2	J2	0360-2035	CONN-SGL CONT
.2	HEATSINK NUT	0590-0305	NUT-HEX 6-32
.2	R1,39	0683-1015	R-F 100 OHM .05
.2	R4,26,37,38	0683-1025	R-F 1K 5% .25W
.2	R40,41,46		
.2	R30	0683-1045	R-F 100K .05
.2	R23,24	0683-1205	R-F 12 5% .25W
.2	R32,33	0683-1245	R-F 120K .05
.2	R36	0683-1535	R-F 15K 5% .25W
.2	R7	0683-5655	R-F 5.6M .05
.2	R25	0683-6815	R-F 680 OHM.25W
.2	R35	0683-8215	R-F 820 OHM .05
.2	R5,27	0698-0082	R-F 464 OHM 1%
.2	R3	0698-3132	R-F 261 OHM .01
.2	R9,22	0698-3154	R-F 4.22K 1%
.2	R21,45	0698-3442	R-F 237 OHM 1%
.2	R14,16,17,18	0698-3445	R-F 348 OHM 1%
.2	R15,19,	0757-0280	R-F 1K 1% .125W
.2	R28	0757-0411	R-F 332 OHM 1%
.2	R2,6,8	0757-0417	R-F 562 OHM 1%
.2	R12,13,20,29 R31,34,42,43 R44	0757-0442	R-F 10.0K 1/8W
.2		09121-00611	SHIELD-TRANS
.2	T1	09121-82500	TRANSFORMER
.2	T1	09121-82501	XFMR SUPPORT
.2	U40	09122-15511	IC-SONY DSCTL E.
.2	ROM SOCKET	1200-0861	SKT-IC 28-CONT
.2		1205-0500	HEATSINK
.2	PLSTC GASKET	1205-0503	XSTR MOUNT T03
.2	J1	1251-5153	CN SGL-CONT TAB
.2	J5	1251-6429	CN3.1 SQ POST
.2	J3,J4	1251-7018	CN4.1 SQ POST
.2	HP-IB-P2	1251-7651	CN24 M AMP CHAMP
.2		1251-8248	CN26.1 SQ POST
.2	J6.7.8	1252-0058	CN3.1 SQ POST
.2		1258-0141	JUMPER-REM
.2	RP1,RP2,RP3	1810-0204	NTWK-R 7X1K SIP
.2	MOTOROLA	1813-0194	XTAL-CLK-OSC
.2	U41	1818-1611	IC-STATIC RAM
.2	U7,19,42	1820-0471	IC-SN7406N
.2	U16,27	1820-1112	IC SN74LS74AN
.2	U15,24,32	1820-1197	IC SN74LS00N
.2	U10	1820-1201	IC-SN74LS08N

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LEVEL	RFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
.2	U2	1820-1202	IC-74LS10N
.2	U28	1820-1216	IC-SN74LS138
.2	U31	1820-1300	IC SN74LS195N
.2	U17,30	1820-1416	IC SN74LS14N
.2	U20,23	1820-1433	IC SN74LS164N
.2	U35	1820-2024	IC-SN74LS244
.2	U36	1820-2046	IC SN74LS353N
.2	U18,33	1820-2096	IC SN74LS393N
.2	U25	1820-2549	IC-8291AP
.2	U39	1820-2624	IC-68B09
.2	U21,U29	1820-2684	IC-74F00 N
.2	U22	1820-2686	IC-74F08 PC
.2	U38	1820-3006	IC-MB8876A CTLR
.2	U37	1820-3318	IC SN74ALS273N
.2	U4,6	1821-0001	XSTR-ARRAYCA3046
.2	U1	1826-0210	IC-LM361
.2	U8	1826-0346	IC-LM358
.2	U14	1826-0412	LM 393 V.COMPAR
.2	U9	1826-0555	IC-LM340LAZ-5
.2	U11,12	1854-0611	XSTR-2N6055 NPN
.2	U3,5	1858-0058	XSTR ARY MPQ3906
.2	U13	1884-0074	IC-2N5060
.2	CR1,3	1901-0050	DIO SWITCHING
.2	CR4	1901-0518	DIO- SM-SIG-S
.2	CR5-12	1901-1135	DIO-PWR 3A 70V
.2	CR2	1902-0029	DIO-ZNR 12V 5%
.2	CR14	1902-0040	DIO-ZNR 14V 5%
.2	CR13	1902-0074	DIO-ZNR 7.15V 5%
.2	LED1	1990-0450	LED-LMP
.2	U26	1LH4-0001	TRANSCEIVER
.2	R10	2100-0554	R-V 500 OHM 10%
.2	F1	2110-0001	FUSE 1A 250V
.2	F1	2110-0565	CAP-FUSE HOLDER
.2	F1	2110-0642	FUHLR-EXTR POST
.2	F2,3	2110-0711	5 AMP FUSE
.2	XFMR MOUNT	2200-0107	SCR-MACH 4-40
.2		2200-0205	SCREW-MACHINE
.2	SW1	3101-0680	SW-PB-DPDT
.2	SW3	3101-2264	SW-RKR 4-1A
.2	SW2	3101-2623	SWITCH-SLIDE
.2	L1	9100-0539	IDCTR 10UH 5%
.2	L2,L3,L4,L5	9140-0183	IDCTR 20UH 10%
1		09122-68802	LINE FILTER ASSY
1		2110-0001	FUSE 1A 250V
1		2110-0012	FUSE .5A 250V

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LEVEL	REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1		09122-69514	CONTROLLER PCA
.2	C11,12	0160-3622	C-F .1UF 100V
.2	C19	0160-4574	C-F 1000PF 10%
.2	C10	0160-4805	C-F 47PF 5% 100V
.2	C27	0160-4810	C-F 330PF 5%
.2	C17,22,23	0160-4830	C-F 2200PF 10%
.2	C21,31-38,43-46	0160-4832	C-F .01UF 10%
.2	C4,5,8,39-42	0160-4835	C-F .1UF 10% 50V
.2	C25,26	0160-5098	C-F .22UF 10%
.2	C9,18,29,30	0160-5349	C-F 200PF 5%
.2	C24	0180-0210	C-F 3.3UF 15V
.2	C1	0180-0291	C-F 1UF 35V 10%
.2	C2,3,15,16	0180-0692	C-F 220UF 35V AL
.2	C6	0180-3007	C-F .015F 25V AL
.2	C7	0180-3260	C-F 6800UF 50V
.2	C13,14	0180-3390	C-F 33UF 100V
.2		0340-0122	INSUL-FLG-BSHG
.2		0340-0583	INSUL-XSTR TO-3
.2	TP4	0360-0124	STUD-TERM
.2	J2	0360-2035	CONN-SGL CONT
.2		0590-0305	NUT HEX 6-32
.2	R1,39	0683-1015	R-F 100 OHM .05
.2	R4,26,37,38,40 R41,49	0683-1025	R-F 1K 5% .25W
.2	R46,48	0683-1035	R-F 10K .05 1/4W
.2	R30	0683-1045	R-F 100K .05
.2	R23,24	0683-1205	R-F 12 5% .25W
.2	R32,33	0683-1245	R-F 120K .05
.2	R34	0683-2735	R-F 27K .05
.2	R7	0683-5655	R-F 5.6K .05
.2	R5	0698-0082	R-F 464 OHM 1%
.2	R3	0698-3132	R-F 261 OHM .01
.2	R36	0698-3136	R-F 17.8K 1%
.2	R9,22	0698-3154	R-F 4.22K 1%
.2	R21,45	0698-3442	R-F 237 OHM 1%
.2	R14,16-18	0698-3445	R-F 348 OHM 1%
.2	R25,28	0698-3511	R-F 665 .01
.2	R27,35	0698-4465	R-F 931 OHM 1%
.2	R15,19	0757-0280	R-F 1K 1% .125W
.2	R2,6,8	0757-0417	R-F 562 OHM 1%
.2	R47	0757-0437	R-F 4.75K 1%
.2	R10,12,13,20,29 R31,42	0757-0442	R-F 10.0K 1/8W
.2		09121-00611	TRANSISTOR SHIELD
.2		09121-48305	STAND-OFF CAP
.2	T1	09121-82500	TRANSFORMER
.2	T1	09121-82501	XFMR SUPPORT
.2	U40	09122-15514	EPROM

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LEVEL	REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
.2		1200-0861	SKT-IC 28-CONT
.2		1205-0503	XSTR MOUNT T03
.2		1205-0656	HEAT SINK
.2		1251-5103	CN5.1 SQ POST
.2	J1	1251-5153	CN SGL-CONT TAB
.2	J5	1251-6429	CN3.1 SQ POST
.2	P3	1251-7651	CN24 M AMP CHAMP
.2	P2	1251-8683	CONNECTOR,34 PIN
.2	J6,7,TS1	1252-0058	CN3.1 SQ POST
.2		1258-0209	JUMPER-REMOVABLE
.2	RP1,RP3	1810-0204	NTWK-R 7X1K SIP
.2	RP2	1810-0205	NTWK-R 7X4.7KSIP
.2		1813-0194	CRYSTAL OSC 8MHZ
.2	U41	1818-1611	IC STATIC RAM 2K
.2	U7,19,42	1820-0471	IC SN7406N
.2	U16,27	1820-1112	IC SN74LS74AN
.2	U15,24,32	1820-1197	IC SN74LS00N
.2	U10	1820-1201	IC SN74LS08N
.2	U2	1820-1202	IC 74LS10N
.2	U28	1820-1216	IC SN74LS138
.2	U31	1820-1300	IC SN74LS195N
.2	U17,30	1820-1416	IC SN74LS14N
.2	U20,23	1820-1433	IC SN74LS164N
.2	U35	1820-2024	IC SN74LS244
.2	U36	1820-2046	IC SN74LS353N
.2	U18,33	1820-2096	IC SN74LS393N
.2	U25	1820-2549	IC 8291AP
.2	U39	1820-2624	IC 68B09
.2	U21,29	1820-2684	IC 74F00 N
.2	U22	1820-2686	IC 74F08 PC
.2	U38	1820-3006	IC MB8876A CTLR
.2	U37	1820-3318	IC SN74ALS273N
.2	U4,6	1821-0001	XSTR-ARRAY (CA3046)
.2	U1	1826-0210	IC LM361
.2	U8	1826-0346	IC LM358
.2	U14	1826-0412	LM 393 VOLTAGE COMPAR
.2	U9	1826-0555	IC LM340LAZ-5
.2	U11,12	1854-0611	2N6055 NPN TRANSISTOR
.2	U3,5	1858-0058	MPQ3906 TRANSISTOR ARRAY
.2	U13	1884-0074	2N506 THYRISTOR
.2	CR1,3	1901-0050	SWITCHING DIODE
.2	CR4	1901-0518	SMALL SIGNAL DIODE
.2	CR5-12	1901-1135	POWER DIODE (3A 70V)
.2	CR2	1902-0029	ZENER DIODE (12V 5%)
.2	CR14	1902-0040	ZENER DIODE (14V 5%)
.2	CR13	1902-0074	ZENER DIODE (7.15V 5%)
.2	LED1	1990-0450	LED
.2	U26	1LH4-0001	IC (TRANSCEIVER)
.2	R11	2100-0554	VARIABLE RES (500 OHM 10%)

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LEVEL	REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
.2	F1	2110-0001	FUSE 1A 250V
.2	F1	2110-0565	CAP-FUSE HOLDER
.2	F1	2110-0642	FUHLR-EXTR POST
.2	F2,3	2110-0711	5 AMP FUSE
.2		2200-0107	SCR-MACH 4-40
.2		2200-0205	SCR-MACH 4-40
.2	SW3	3101-2264	SW-RKR 4-1A
.2	SW2	3101-2623	SWITCH-SLIDE
.2		3101-2887	SWITCH-PUSHBUTON
.2	L1	9100-0539	IDCTR 10UH 5%
.2	L2	9100-1627	IDCTR 39UH 10%
.2	L3	9100-3551	IDCTR 1UH 5%
.2	L4,5	9140-0183	IDCTR 20UH 10%

Disc Drives

1		09114-69511	FLEXIBLE DISC DRIVE (S/N PREFIX 2518A AND BELOW)
1		09123-69101	FLEXIBLE DISC DRIVE (S/N PREFIX 2614A AND ABOVE)

CASE PARTS

Top Cover Hardware

1		09121-88866	COVER ASSEMBLY
.2		0590-0681	U-CLIP
.2		09121-44411	TOP COVER
.2		09122-00103	EMI SHIELD
.2		09122-84303	NAMEPLATE-9122
.2		09121-48306	SWITCH SHAFT
1		2360-0117	MACHINE SCREW 6-32

HP-IB Mounting Hardware

1	HP-IB STANDOFF CONNECTION	0380-0643	NUT #6-32/M 3.5

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Drive Mounting Hardware

		(S/N prefix 2614A and above)	
1		09122-24700	STANDOFF (5 ea)
1		09122-24701	STANDOFF (1 ea)
1		0515-1738	MOUNTING SCREW (6 ea)
		(S/N prefix 2518A and below)	
1		0515-1738	MOUNTING SCREW (6 ea)

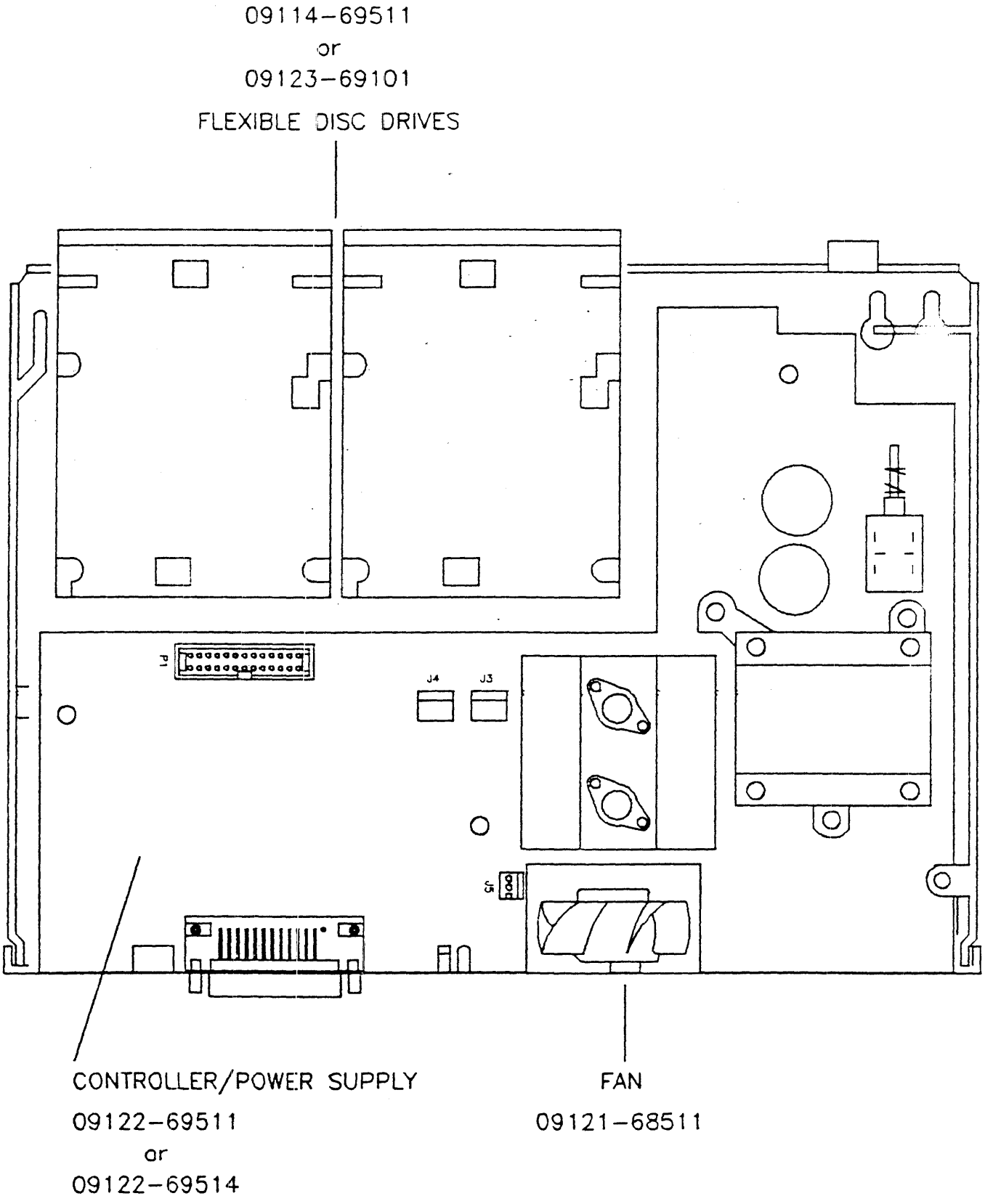
Miscellaneous Parts

1	FEET-REAR	0403-0427	BUMPER FOOT
1		0515-1079	SCREW
1	LINE FILTER GND	0624-0583	SCREW
1		09121-00110	BASE
1		09121-48306	PUSH ROD,PLASTIC
1		09121-48302	PILLAR, SUPPORT
1	FRONT FEET	09121-48303	FOOT-MOLDED
1		09121-61611	RIBBON CABLE ASSEMBLY (S/N prefix 2518A and below)
1		09123-61611	RIBBON CABLE ASSEMBLY (S/N prefix 2614A and above)
1		09121-61612	DC POWER CABLE (S/N prefix 2518A and below)
1		09121-68511	FAN ASSEMBLY
1		5041-1203	PWR BUTTON, WHITE
1	PCA Mounting	2360-0117	6-32 SCREW

EXCHANGE ASSEMBLIES

1		09114-69511	FLEXIBLE DISC DRIVE (S/N PREFIX 2518A AND BELOW)
1		09123-69101	FLEXIBLE DISC DRIVE (S/N PREFIX 2614A AND ABOVE)
1		09122-69511	CONTROLLER PCA (S/N PREFIX 2518A AND BELOW)
1		09122-69514	CONTROLLER PCA (S/N PREFIX 2614A AND ABOVE)

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Location of Field Replaciable Assemblies (FRA)

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Product History

CHAPTER 6

Introduction

This section of the manual is complete for all 9122D/S products now in the field. Applicable serial numbers are as follows:

HP 9122D/s - serial numbers prefixed by 2513A and below
- serial numbers prefixed by 2614a and above

Service Note History

The following table shows the service notes which have been issued against the HP 9122D/S products. The service notes are provided at the end of this chapter for reference.

Service Note Number	Description	S/N Prefix	Affected Part
9122D-1A	Required screws in exchange drives	ALL	09114-69510 09114-69511
9122D-2	3 1/2-inch drive New drive electronics and Cassette-up assembly	ALL	09114-69511
9122D-3	Potential Service Test failure (Firmware update needed)	2518A and above	09122-69501
9122D-4	Controller/Power supply generates noise Affects Read AMP. (New Controller PN 09122-69511)	2513A and below	09122-69501
9122D-5	New shipping disc PN 1535-4881	Drive date codes 2418 or 2432	09114-69511
9122D-6	Head damage on 09114-69511 drives. Rubber wedge added for shipment (PN 9223-0648)	ALL	9122D/S
9122D-7	New drive and controller PCA	ALL	09114-69511 09122-69504
9122D-8	Torque specs for 09123-69101 drives	2614A	09123-69101
9122D-9	New controller PCA (PN 09122-69514)	2614A-56267 to 70474	09122-69504
9122D-10	New shipping disc Full height = 1150-1786 Half height = 1150-1787	ALL	9122D/S

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SERVICE NOTE

Supersedes:

APPLIES TO:	All Units ☒	Only Units on Agreement ☐
PERFORM:	Immediately ☐	At PM/Normal Call ☐
	On Failure ☐	Information Only ☒

WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X

SERVICE INVENTORY	Return for update ☐	Use as is ☒
	Return for salvage ☐	See text ☐

WARRANTY EXTENDED UNTIL:

9122D
09114-69511
All Serial Numbers

Required Screws in Exchange Flexible

SITUATION:
The 09114-69511 Flexible Disc drive is currently used in three products; the 9114A, the 9122D/S, and the 9133D. There are 5 possible locations for mounting-screws that attach the shield to the frame of the drive. Each product requires a different minimum number of screws. In some cases, screws must NOT be installed in certain locations.
All drives in the 9122D's have been shipped with the proper mounting-screws. However, many of the EXCHANGE drives shipped prior to September 1984 contained only the one rear mounting-screw. The exchange drive is now being shipped with the MAXIMUM number of screws to accommodate all products that use the drive.

DESCRIPTION:
The 9122D requires the following:

	Min. Required	Must Be Removed
Drive 0:	1,2,3,4,5	
Drive 1:	1,2,3,4	5

If the required screws are not in the exchange drive, use screws from the original (removed) drive.

LM/tm

08/24/85-5800

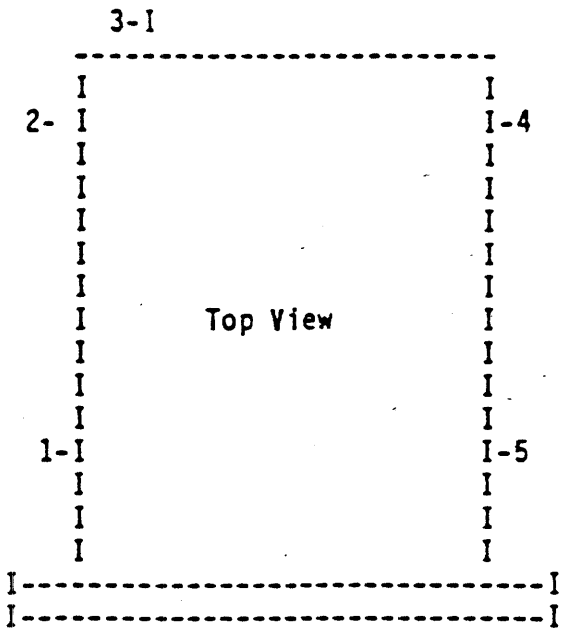
9320-4766 (1/83)

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Shield Mounting-Screw Locations

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SERVICE NOTE

Supersedes: None SUPERSEDES

APPLIES TO:	All Units ☒		Only Units on Agreement ☐
PERFORM:	Immediately ☐		At PM Normal Call ☐
	On Failure ☐		Information Only ☒

WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X

SERVICE INVENTORY	Return for update ☐	Use as is ☒
	Return for salvage ☐	See text ☐

WARRANTY EXTENDED UNTIL: NA

9122D Dual Drive

09114-69511
3.5 Inch Drive Mechanism
(All Prefix 2518A and later)

Situation:

Starting with Serial Number prefix 2518A, a new 3.5 Inch Drive (PN09114-69511) is being used in the 9122D. The new drive has a different Drive Electronics PCA (Fewer components) and Cassette-Up Assembly. The new drive will be used interchangeably with the existing 3.5 Inch Drive, therefore it will be stocked with the same exchange part number and no FSI action is required.

Cause: The drive is being changed to reduce cost and improve reliability. The new drive has fewer parts to increase reliability.

Warranty: Both drives will be used interchangeably using exchange part number 09114-69511. No F.S.I or warranty action is required.

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4/9/85 - 5800

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SERVICE NOTE

Supersedes: SUPERSEDES

9122D
Dual Drive

09122-69501 Firmware Change
Controller Power PCA
(All Prefix 2518A and later)

Potential Service Test Failure

APPLIES TO:	All Units ☒		Only Units on Agreement ☐
PERFORM:	Immediately ☐		At PM/Normal Call ☐
	On Failure ☐		Information Only ☒
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X
SERVICE INVENTORY	Return for update ☐		Use as is ☒
	Return for salvage ☐		See text ☐
WARRANTY EXTENDED UNTIL:	NA		

Symptom: The latest 3 1/2-inch Drive mechanism part number 09114-69511 date codes 2513 and 2514, when in products with the older E-PROM, part number 09122-15512 and earlier, does not perform the jumper-initiated Format Test correctly.

Due to timing differences between the new drive and controllers with older firmware, step commands may not all be performed by the drive during the Service Format Test. When this occurs, all tracks will not be formatted. The test will not indicate a failure as no read operation is done during the test. A failure will not occur until an read or write operation is attempted. The failure occurs on the jumper-initiated Format Tests (Tests 12 and 13) ONLY. No other tests or functions are effected.

Solution: The New E-PROM, part number 09122-15513, corrects timing problems for both the earlier and later drives. The Controller/Power PCA, part number 09122-69501 date code 2513 and later has the new E-PROM.

09114-69511 Drive Date Code	E-PROM PN 09122-15512 and earlier	E-PROM PN 09122-15513 and later
2418 and 2432	Will pass Service Format Test on good unit	Will pass Service Format Test on good unit
2513 and 2514	May not complete Service Format Test.(All tracks may not be formatted)	Will pass Service Format Test on good unit

Warranty: As no customer operations are affected, no warranty or F.S.I. action is required. All other operations are unaffected.

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5/9/85 - 5800

9320-4766 (1/83)

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SERVICE NOTE

Supersedes: NONE SUPERSEDES.

APPLIES TO:	All Units X		Only Units on Agreement ☐
PERFORM:	Immediately X		At PM/ Normal Call ☐
	On Failure ☐		Information Only ☐
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X
SERVICE	Return for update X		Use as is ☐
INVENTORY	Return for salvage ☐		See text ☐
WARRANTY EXTENDED UNTIL:	NA		

9122D Dual Drive

09122-69501 Controller/Power Supply
Date Code 2513 and Earlier
Serial Numbers: NA

Symptom: Controller/Power Supply, PN09122-69501, generates noise which can affect the read amplifier of some 3.5 Inch Drives, PN09114-69511. The noise reduces the window margin resulting in an increased soft error rate. 3.5 Inch Drives with date codes 2513 and 2514 are more susceptable to this noise. The failure rate for the test used to detect error rate problems increased to 4.8% from 0.8% when these drives were used in production units.

Solution: Controller/Power Supply PN09122-69511 has improved filtering to reduce this noise. Return all Controller/Power Supplies PN09122-69501 for credit and reorder using PN09122-69511.
We have not shipped drives with date codes 2513 or 2514 as repair inventory. If these drives are shipped as repair inventory they will be tested to ensure they have adequate noise rejection to meet our specification with any Controller/Power Supplies that have been shipped.

Warranty: Units that have been shipped have been tested for error rate problems. No extended warranty is given.

Part Number	09122-69501	09122-69511
Date Code	2513 and earlier	2515 and later
F.S.I. Disposition	Return for Credit	Current Assembly

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05/06/85 - 5800

9320-4766 (1/83)

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SERVICE NOTE

Supersedes: SUPERSEDES:

APPLIES TO:	All Units ☒		Only Units on Agreement ☐
PERFORM:	Immediately ☐		At PM/Normal Call ☐
	On Failure ☐		Information Only ☒
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X
SERVICE INVENTORY	Return for update ☐		Use as is ☐
	Return for salvage ☐		See text ☒
WARRANTY EXTENDED UNTIL:			

9122D
3 1/2 Inch Double Sided
Floppy Disc Drives

New Shipping Disc

Situation:
The 3 1/2 inch double sided disc drive PN 09114-69511 has been changed by Sony to improve performance and reliability from a -10 drive to a -11 drive. The new date codes on these drives will be 2513 or 2514. The older date codes on these drives were 2418 or 2432. The newer drives have a plastic shipping disc that has been designed especially for these newer drives, but is backward compatable with the older drives. All the double sided drives are now being shipped with the new plastic shipping disc. The older cardboard shipping disc PN 1535-4881 can be used with both the newer and older drives. The new plastic shipping disc will also have part number 1535-4881. The old cardboard shipping disc does not eject as smoothly as the new plastic disc in the new drives, but careful handling when removing the disc from the drive will not damage the drive.

Implementation:
CPC will use up all old cardboard shipping discs. No action on FSI because the old cardboard shipping discs can used on either drive. Use up all FSI before using new shipping discs.

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06/20/85 - 5800

9320-4766 (1/83)

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SERVICE NOTE

9122D

3 1/2 In. Double Sided Floppy Disc Drive

Serial number:
All

Top Head Damage of the Drive Mechanism HP part number 09114-69511.

Supersedes:

APPLIES TO:	All Units: X	Only Units on Agreement:	
PERFORM:	Immediately: On Failure:	At PM/Normal Call: Information Only: X	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:		X	
PARTS:		X	
TRAVEL:		X	
SERVICE INVENTORY:	Return for Update:	Use as is:	
	Return for Salvage:	See Text: X	
WARRANTY EXTENDED UNTIL:	N/A		

Situation:

Top head damage is occuring on the Sony drive mechanism (09114-69511) used in this unit. This top head damage could cause: 1. Scratching of media. 2. Failing self tests. 3. Not being able to read or write data on media. 4. Intermittent failures.

Cause:

The new plastic shipping disc, HP part number 1535-4881, used in this drive may become partially ejected, due to shock of shipment. When the shipping disc becomes ejected without first pressing the eject button, the cassette up assembly is still in the head load position. Since the heads are then loaded incorrectly on the shipping disc, vibration and shock can easily damage the heads. Other damage could occur if the customer perceives that the shipping disc, although slightly ejected, is ready to install or remove from the drive. When the disc or media is installed or ejected without first pressing the eject button to unload the heads, head damage can occur. This damage may be either loosening of the top head causing failures at a later date or tearing out the top head completely causing a DOA.

It is also possible for media to become partially ejected from the mechanism due to shock and vibration. The same cautions regarding removal and insertion of partially ejected shipping discs also applies to media.

RP
9-23-85

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Solution:

1. If the drive is moved or shipped, customers should install a rubber wedge into the drive above the shipping disc to prevent the shipping disc from ejecting. The HP part number of the rubber wedge is 9223-0648.

2. Educate customers regarding removing and installing the shipping disc or media into the drive without first depressing the eject button. New products will contain an instruction sheet explaining the situation. The part number of the instruction sheet is 09114-90036.

FSI: All 09114-69511 drives shipped from CSR and CSE will have the rubber wedge and instruction sheet with the drive. All drives in FSI should have the rubber wedge installed immediately. Any drives received in FSI with the shipping disc ejected should be returned to CSR or CSE. No drive mechanisms should be shipped without the rubber wedge.

RP
9-23-85

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SERVICE NOTE

9122D

9122D Dual Disc Drive

Serial number:
All

Required Repair Parts

Supersedes: None

APPLIES TO:	All Units: X	Only Units on Agreement:	
PERFORM:	Immediately: On Failure:	At PM/Normal Call: Information Only: X	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X
SERVICE INVENTORY:	Return for Update:	Use as is:	
	Return for Salvage:	See Text: X	
WARRANTY EXTENDED UNTIL:	N/A		

Situation:

All 9122D's with serial number prefix 2614A and above will be produced with a new 3.5-inch flexible disc drive and a new controller/power PCA. Two new exchange assemblies and a new ribbon cable will be required to support repair of 9122D's manufactured with these new assemblies.

Solution:

The following exchange assemblies are required to service the 9122D:

S/N Prefix <=2518A	S/N Prefix >=2614A	Description
09114-69511	*09123-69101	3.5-inch flexible disc drive
09122-69511	09122-69504	Controller PCA

Cables required for service of the 9122D are as follows:

S/N Prefix <=2518A	S/N Prefix >=2614A	Description
09121-61611	09123-61611	Ribbon cable
09121-61612	Not required	D.C. power cable

*The 09123-69101 is currently used in the 9123D with serial prefix of 2536A and above, and the 9114B.

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3/11/86

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SERVICE NOTE

9122D

3 1/2 Inch Floppy Disc Drive

Serial number:
2614A and above

Torque specification for 09123-69101 drive mechanisms.

Supersedes: N/A

APPLIES TO:	All Units: X	Only Units on Agreement:	
PERFORM:	Immediately: On Failure:	At PM/Normal Call: Information Only: X	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X
SERVICE INVENTORY:	Return for Update:		Use as is: X
	Return for Salvage:		See Text:
WARRANTY EXTENDED UNTIL:	N/A		

Situation:

The new slim-line Sony 3 1/2 Inch floppy drive mechanism, HP exchange part number 09123-69101, is susceptible to damaging the threads in the drive mechanism when the mounting standoffs are attached.

Solution:

The drive casting threads may be damaged if the standoffs are tightened beyond the 6.5 inch-pound or 0.734 newton-meter torque specification. If there is no way of measuring the torque when attaching the standoffs to the drive mech, firmly hand tighten the standoffs. DO NOT OVERTIGHTEN.

RP
5-10-86

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SERVICE NOTE

9122D

Dual 3 1/2 Inch Floppy Disc Drives

Serial number:
2614A56267 to 2614A70474

New exchange part number 09122-69514

Supersedes: N/A

APPLIES TO:	All Units: X	Only Units on Agreement:	
PERFORM: **	Immediately: On Failure:	At PM/Normal Call: Information Only:	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X
SERVICE INVENTORY:	Return for Update: X		Use as is:
	Return for Salvage:		See Text:
WARRANTY EXTENDED UNTIL:	N/A		

** See Text

Situation:

An incorrect part was used in the design of the controller which could cause incompatibility between the drive mechanism and the controller board if either the drive mechanism or controller board has been replaced. This incompatability will NOT appear on new units that have not had the drive mechanism or controller replaced.

Solution:

Return all 09122-69504 controller boards to SMR or CSG for upgrade to new part number 09122-69514.

RP
12-19-86

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SERVICE NOTE

Supersedes: N/A

9122D

Dual 3 1/2 Inch Floppy Disc Drives

Serial number:
See below

New shipping disc

APPLIES TO:	All Units: X	Only Units on Agreement:	
PERFORM:	Immediately: On Failure:	At PM/Normal Call: Information Only: X	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			X
PARTS:			X
TRAVEL:			X
SERVICE INVENTORY:	Return for Update:		Use as is:
	Return for Salvage:		See Text: X
WARRANTY EXTENDED UNTIL:	N/A		

Situation:

There is a new improved shipping disc available for both the full height (09114-69511) and the slim line (09123-69101) 3 1/2 inch floppy disc drives. This new shipping disc has a sliding lock attached to the plastic disc which eliminates the need for the rubber wedge (9223-0648) that is required on the old shipping disc (1535-4881).

Solution:

All products will ship with the new shipping disc starting approximately Mar 1, 1987. The new shipping disc will have part number 1150-1786 for the full height drive (09114-69511) or 9122D's with serial number prefix below 2614A. The part number is 1150-1787 for the shipping disc used on the slim line drive (09123-69101) or 9122D's with serial number prefix 2614A and above.

PCE and CPC will stock the new shipping discs and will use the old discs and wedges until gone. There will be NO upgrade, users must purchase the shipping discs if needed.

RP
2-24-87

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MORE INFORMATION, CALL YOUR LOCAL HP SALES OR SERVICE OFFICE or East (201) 265-5000, Midwest (312) 255-9800, South (404) 955-1500, West (213) 970-7500 or (415) 968-9200 OR WRITE,Hewlett-Packard,1820 Embarcadero, Palo Alto, California

IN EUROPE, CALL YOUR LOCAL HP SALES or SERVICE OFFICE OR WRITE, Hewlett-Packard S.A.,7,rue du Bois-du-Lan,P.O. Box, CH-1217 Meyrin 2-Geneva,Switzerland. IN JAPAN, Yokogawa-Hewlett-Packard Ltd., 1-27-15, Yabe Sagamihara City, Kanagawa Prefecture, Japan 229.

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