HEWLETT PACKARD

This package contains a section of the

CE SERVICE HANDBOOK
FOR
91XX SERIES DISC DRIVES

and consists of the following document:

9122C
DISC DRIVE

Part no. 09122-90905

Microfiche No. 09122-90805

Insert this section into the handbook binder P/N 9282-0683 along with cover and tabset P/N 5957-4228.

P.O. Box 39, Boise, Idaho 83707-0039

PRINTED: JUNE 1988
PRINTED IN U. S. A.

09122-90905
E0688

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FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE
STATEMENT

Warning: This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 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 user may find the following booklet prepared by the Federal Communications Commission helpful: "Interference Handbook." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. Stock No. 004-000-00450-7.

Herstellerbescheinigung

Hiermit wird bescheinigt, daß das Gerät/System HP 9122C in Übereinstimmung mit den Bestimmungen von Postverfügung 1046/84 funkentstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes/Systems angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Manufacturer's Declaration

This is to certify that the product(s) HP 9122C is in accordance with the Radio Interference Requirements of Directive FTZ 1046/1984. The German Bundespost was notified that this equipment was put into circulation; the right to check the series for compliance with the requirements was granted.

Additional Information for Test and Measurement Equipment

If Test and Measurement Equipment is operated with unscreened cables and/or used for measurements on open setups, the user has to assure that under operating conditions the Radio Interference Limits are still met at the border of his premises.

For Japan Only

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取扱説明書に従って正しい取り扱いをして下さい。

This apparatus is a class 2 ITE (information apparatus which may be used in residential and adjacent areas) which meets the VCCI standards to prevent radio interference in residential and adjacent areas. However, this apparatus may become a source of radio interference if used within close range of radio or television receivers. To ensure compliance, this apparatus must be operated according to instructions included with the product.

Printing History

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.

A software code may be printed before the date; this indicates the version level of the software product at the time the manual or update was issued. Many product updates and fixes 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 ..... JUNE 1988

Safety Considerations

GENERAL - This product and related documentation must be reviewed for familiarization with safety markings and instructions before operation.

SAFETY SYMBOLS

Instruction manual symbol: the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual in order to protect the product against damage.

Indicates hazardous voltages.

Indicates earth (ground) terminal.

WARNING

The WARNING sign denotes a hazard. It calls attention to a procedure or practice that, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

CAUTION

The CAUTION sign denotes a hazard. It calls attention to an operating procedure or practice that, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

SAFETY EARTH GROUND - This is a safety class I product and is provided with a protective earthing terminal. An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, the product must be made inoperative and be secured against any unintended operation.

BEFORE APPLYING POWER - Verify that the product is configured to match the available main power source according to the input power configuration instructions provided in this manual.

If this product is to be operated with an autotransformer make sure that the common terminal is connected to the earth terminal of the main power source.

SERVICING

WARNING

Any servicing, adjustment, maintenance, or repair of this product must be performed only by service-trained personnel.

Adjustments described in this manual may be performed with power supplied to the product while protective covers are removed. Energy available at many points may, if contacted, result in personal injury.

Capacitors inside this product may still be charged after the product has been disconnected from the main power source.

To avoid a fire hazard, fuses with the proper current rating and of the specified type (normal blow, time delay, etc.) must be used for replacement. To install or remove a fuse, first disconnect the power cord from the device. Then, using a small flat-bladed screw driver, turn the fuseholder cap counterclockwise until the cap releases. Install either end of a properly rated fuse into the cap. Next, insert the fuse and fuseholder cap into the fuseholder by pressing the cap inward and then turning it clockwise until it locks in place.

Contents

Contents (continued)

Figures and Tables

Product Information 1

1-1. Product Description

FEATURES:

- Two 2-megabyte double-sided flexible disc mechanisms - 9122C
- One 2-megabyte double-sided flexible disc mechanism - 9122C, Option 001
- 3.5-inch flexible disc media
- 200 ms average access time
- Integrated controller and power supply
- Built-in diagnostic capability
- HP-IB interface

PHYSICAL CHARACTERISTICS:

Refer to table 1-2.

1-2. Options and Accessories

The following items are included with the 9122C disc drive:

- *Getting Started with Your HP 9122C Disc Drive*, reorder no. 09122-90299
- Power cord (part number depends on location and power source)
- Fuse, 1A, 250V, NTD (115V setting), part no. 2110-0001
- Fuse, 0.5A, 250V, NTD (220V setting), part no. 2110-0605
- Gray fuse holder (115V setting), part no. 2110-0565
- Black fuse holder (220V setting), part no. 2110-0567
- Two 2-megabyte double-sided flexible discs, part no. 92192X

The following option is available:

- Option 001 - deletes one 3.5-inch flexible disc mechanism, adds a media storage box in the vacant position.

The following packaging items are required when repackaging the disc drive for shipment:

- Shipping carton, part no. 09122-84407
- Plastic bag, part no. 1251-7999
- Plastic shipping disc, part no. 1150-1787

1-3. Service Kits

Table 1-1 lists the contents of the recommended Product Support Package for the disc drive.

NOTE

Disc Memory Division does not supply this package.

Table 1-1. Recommended Product Support Package

PART NO.	QTY	DESCRIPTION
09153-69201	1	3.5-inch Flexible Disc Mechanism (Exchange)
09122-69505	1	Power Supply/Controller PCA (Exchange)
09123-61611	1	Flexible Disc Mechanism Ribbon Cable (Nonexchange)
2110-0001	5	Fuse, 1A, 250V, NTD (115V setting)
2110-0012	5	Fuse, 0.5A, 250V, NTD (220V setting, Opt. 904 only)
2110-0605	5	Fuse, 0.5A, 250V, NTD (220V setting)
9300-0794	1	Anti-Static Workstation
09122-89415	1	Head Cleaning Disc*
92192X	2	2-Mbyte, Double-sided Flexible Disc

*Can only be used with SS/80 Exerciser

1-4. Operating Specs and Characteristics

Operating specifications and characteristics are listed in table 1-2.

1-5. Rack Mounting Kit

The HP 19500B Rack Mounting Kit is available to install the HP 9122C Disc Drive into an EIA 19-inch equipment rack.

Table 1-2. Operating Specifications and Characteristics

OPERATING SPECIFICATIONS

Average access time:	200 ms
Average rotational delay:	100 ms
Average time to transfer 1 kbyte:	33.3 ms
Data transfer rate (maximum sustained):	30 kbytes/s
Rotational speed:	300 rpm

DATA CAPACITY (formatted)

Media	Format Option	Sectors/ Track	Tracks/ Surface	Surfaces/ Disc	Number of Sectors	Sector Size	Capacity (Bytes)
0.5-Mbyte (Blue Discs)	4	16	66	1	1056	256	270336
1-Mbyte (Gray Discs)	0,1 Default	16	77	2	2464	256	630784
	2	9	77	2	1386	512	709632
	3	5	77	2	770	1024	788480
	4	16	66	1	1056	256	270336
	16	9	80	2	1440	512	737280
2-Mbyte (Black Discs)	0,1,4 Default	32	77	2	4928	256	1261568
	2	18	77	2	2772	512	1419264
	3	10	77	2	1540	1024	1576960
	16	18	80	2	2880	512	1474560

W9153A22

PHYSICAL CHARACTERISTICS

DIMENSIONS

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

WEIGHT

	Net	Shipping
9122C	5.4 kg (12 lb)	7.3 kg (16 lb)
9122C Option 001	5.0 kg (11 lb)	5.9 kg (13 lb)

Table 1-2. Operating Specifications and Characteristics (cont'd)

OPERATING CHARACTERISTICS

HEAT DISSIPATION

Maximum:	18 Watts (61 Btu/hr; 15.5 kcals/hr)

ELECTROMAGNETIC EMISSIONS

Radiated and conducted interference:

- HP 9122C – For U.S.A., designed to meet FCC docket 20780 for Class B computing peripheral devices. These products comply with the limits for a Class B computing device persuant to Subpart J of part 15 of the FCC Rules. See instructions if interference to radio reception is suspected.
- HP 9122C – for Europe, designed to meet EMI level FTZ 1046/84 and provides a Manufacturer's Declaration. Refer to your local sales representative for more information.

Magnetic nonoperating:	<5.25 milligauss at 4.6m (15 ft) on all surfaces
Magnetic operating:	<1 gauss on all surfaces

POWER CHARACTERISTICS

Voltages (true RMS):

115V setting;	100V, 115V, 120V, single phase (inclusive tolerance range is 86V to 127V)
220V setting;	220V, 240V, single phase (inclusive tolerance range is 195V to 253V)

Frequency:	48-66 Hz
Maximum Power:	50 Watts
Maximum Current (occurs during spin up):	115V setting; 1.0A (true RMS at 90V, 60 Hz) 220V setting; 0.5A (true RMS at 180V, 50Hz)

Line Dropout: No effect on performance; no operator intervention required for dropout equal to or less than one cycle of the ac line frequency (20.0 ms, 50 Hz; 16.7 ms, 60 Hz).

ACOUSTIC EMISSIONS

Sound power level (L_{wA}):	<50 dB(A)

SAFETY

- CSA certified to CSA 22.2 No. 154.
- Meets all applicable safety standards of IEC 380 and IEC 435.
- UL listed to UL 478, Fifth Edition

Environmental/Installation/PM 2

2-1. Environmental Requirements

Table 2-1 contains environmental information pertinent to the operation of the disc drive.

2-2. Installation

First-time installation of the drive requires use of the following manuals:

- *Getting Started with Your HP 9122C Disc Drive*, reorder no. 09122-90299
- *19500B Rackmount Kit Installation Instructions*, part no. 19500-90902

2-3. Installation Checklist

1) Check the VOLTAGE SELECT switch for the proper setting (refer to paragraph 2-7).

2) Check the back panel FUSE for the proper rating (refer to paragraph 2-8).

3) Install a power cord into the AC LINE receptacle (refer to paragraph 2-9).

4) Connect an HP-IB cable between the host and the disc drive (refer to paragraph 2-10).

5) Set the LINE~ switch to ON (1) and ensure that power-on self-test passes (refer to paragraph 4-2).

6) Insert flexible discs into the flexible disc mechanisms.

7) INITIALIZE the flexible discs with an interleave of 2 (refer to the Series 200 or Series 300 system manuals).

2-4. Handling

While the disc drive has been designed to withstand a certain shock level, it is still a delicate device. Care should be taken when handling or transporting the product. The following precautions should be observed when handling or transporting the disc drive. Failure to observe these handling precautions could result in damage to the product:

- Avoid sharp shocks to the disc drive.
- When transporting the disc drive over long distances, always repackage the disc drive in approved packaging (see figure 2-1).

Table 2-1. Environmental Requirements

ENVIRONMENTAL REQUIREMENTS

Note: The environmental specifications listed herein apply when this subsystem is not connected to a Hewlett-Packard (HP) system. When this subsystem is connected with HP systems, the more stringent environmental and performance specifications listed for any single HP device within the HP system are applicable and supersede these specifications.

The following specifications were type-tested under controlled conditions. Hewlett-Packard maintains an active program of auditing production products to ensure these specifications remain true when products are again tested under the same conditions. The limits of these specifications do not represent the optimum for long, trouble-free operation and are specifically not recommended for maximum customer satisfaction. The recommended conditions are stated separately where appropriate.

TEMPERATURE

Recommended operating range:	20°C to 25.5°C (68°F to 78°F)
Operating range:	10°C to 40°C (50°F to 104°F)
Nonoperating range:	-40°C to 60°C (-40°F to 140°F)
Maximum rate of change:	10°C (18°F) per hour

HUMIDITY

Operating:	20% to 80% relative humidity, noncondensing, wet bulb temperature not to exceed 29°C (84°F).
Nonoperating:	5% to 90% relative humidity, noncondensing and wet bulb temperature not to exceed 29°C (84°F).

VIBRATION

Operating	Random vibration with power spectral density (PSD) of 0.0002 g^2/Hz from 5 to 350 Hz; -6 dB/octave from 350 to 500 Hz.
Nonoperating	Random vibration with power spectral density (PSD) of 0.02 g^2/Hz from 5 to 100 Hz; -6 dB/octave from 100 to 137 Hz; PSD of 0.0107 g^2/Hz from 137 to 350 Hz; -6 dB/ octave from 350 to 500 Hz.

SHOCK

Operating:	2 g maximum at 11 ms, half sine waveform
Nonoperating:	20 g maximum at 11 ms, half sine waveform

Table 2-1. Environmental Requirements (cont'd)

ALTITUDE	
Operating:	maximum 4 572 metres (15,000 ft.)
Nonoperating:	maximum 15 240 metres (50,000 ft)
ELECTROMAGNETIC SUSCEPTIBILITY OPERATING RANGE	
Radiated Electric Field:	14 kHz to 1 GHz, up to 5 V/m
Electrostatic Discharge:	<25.0 kV
Recommended limit:	<10 kV
Magnetic Field:	<4 gauss peak-to-peak, 47.5 to 198 Hz
Power line spike transients:	1.0 kV, repetitive with 1 ns rise time and 800 ns pulse width
COOLING REQUIREMENTS	
Ensure that the fan exhaust opening is not blocked or restricted	
POWER REQUIREMENTS	
Voltages (true RMS):	
115V setting;	100V, 115V, 120V, single phase (inclusive tolerance range is 87V to 127V)
220V setting;	220V, 240V, single phase (inclusive tolerance range is 195V to 253V)
Frequency:	48-66 Hz
Maximum Power:	115V setting; 0.43 V-A (90V, 60Hz) 220V setting; 0.22 V-A (200V, 50Hz)
Maximum Current (occurs during spin up):	115V setting; 1.0A (true RMS at 90V, 60Hz) 220V setting; 0.5A (true RMS at 180V, 50Hz)
Distortion:	<5% peak and flat harmonic distortion
Line Surge and Sag:	70% and 130% typical line voltage for 0.5 s 85% and 130% typical line voltage for 0.5 s

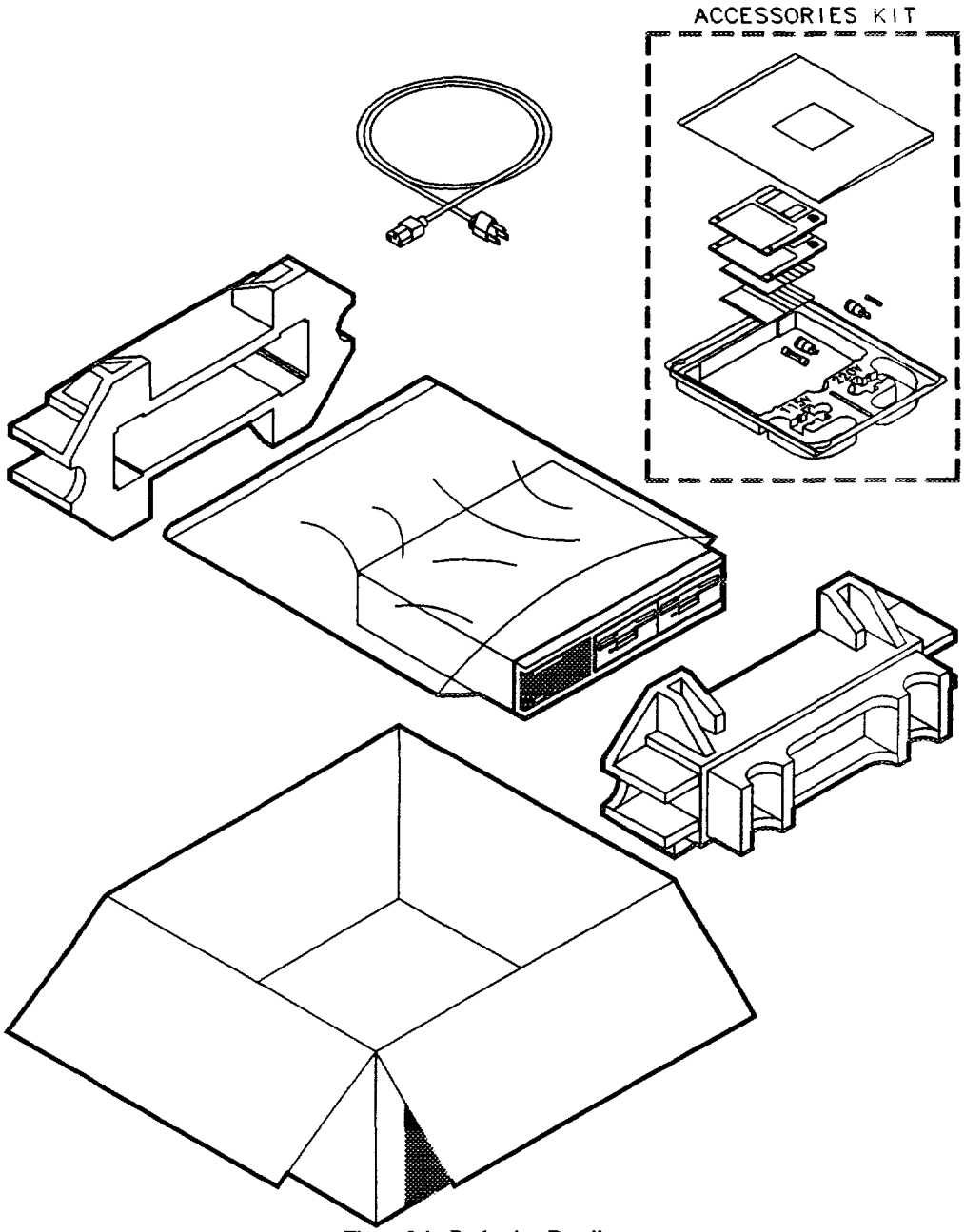

Figure 2-1. Packaging Details

2-5. Controls/Indicators/Connectors

Figure 2-2 shows the location of disc drive controls, indicators, and connectors.

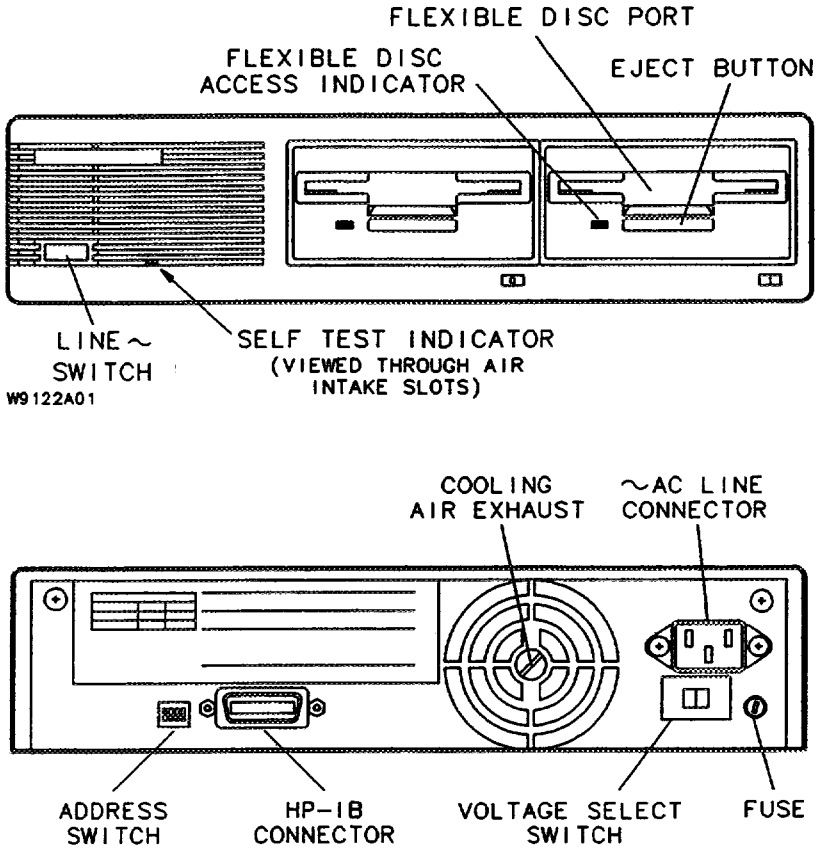

Figure 2-2. Controls, Indicators, and Connectors

2-6. AC Power: Voltage Selection/Fuses/Cords

2-7. Voltage Selection

CAUTION

Disconnect the power cord from the disc drive AC LINE connector before changing the VOLTAGE SELECT switch.

Slide the VOLTAGE SELECT switch to the proper position (115V or 220V) for the voltage available.

2-8. Fuse and Fuse Holder

WARNING

Remove the power cord from the disc drive before installing or replacing the fuse.

Replace the fuse with one of the same type and rating.

The following fuses and fuse holders are used:

- Fuse, 1A, 250V, NTD (115V setting), part no. 2110-0001
- Fuse, 0.5A, 250V, NTD (220V setting, Opt. 904 only), part no. 2110-0012
- Fuse, 0.5A, 250V, NTD (220V setting), part no. 2110-0605
- Gray fuse holder (115V setting), part no. 2110-0565
- Black fuse holder (220V setting), part no. 2110-0567

2-9. Power Cords

See figure 2-3 for power cord information.

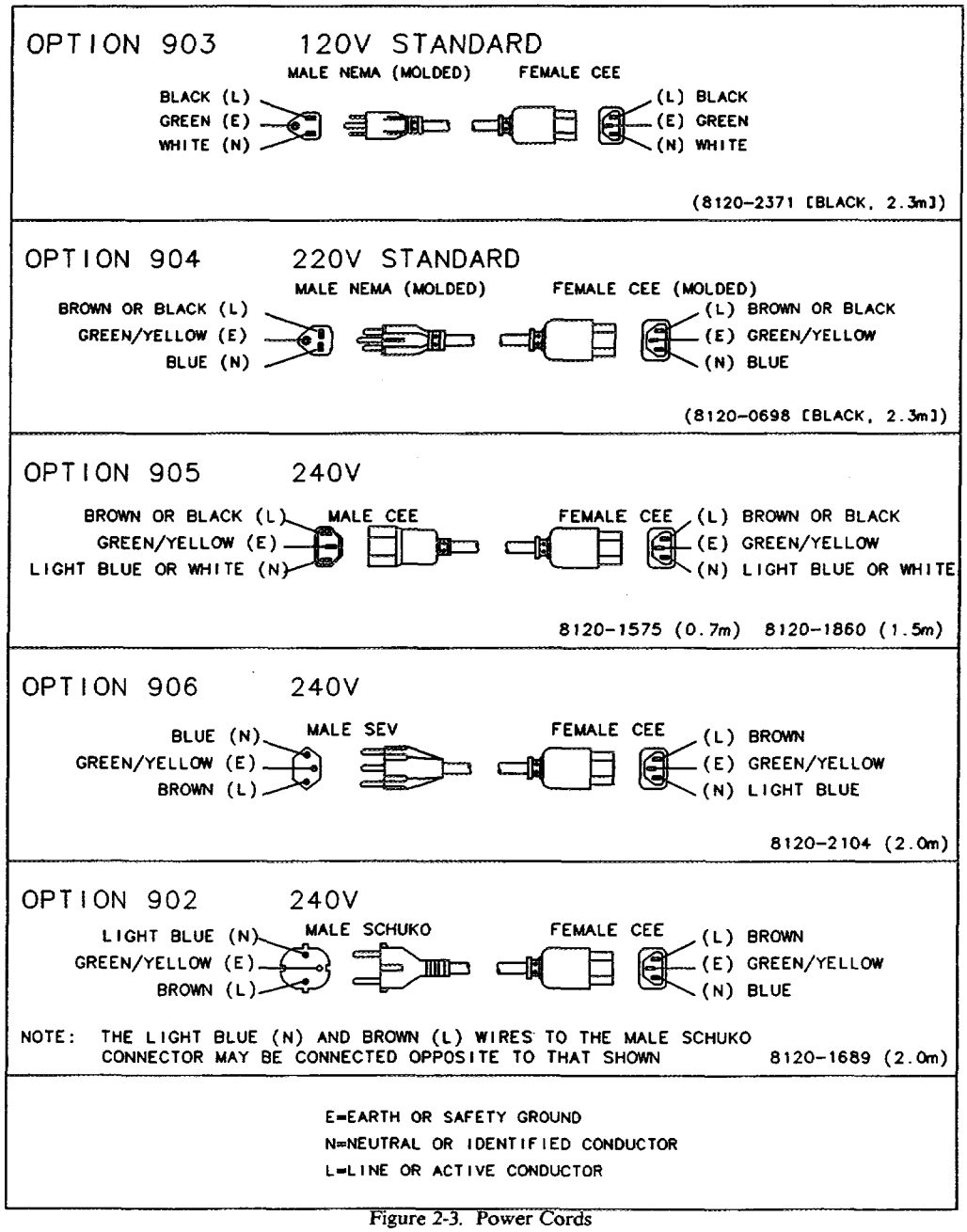

Figure 2-3. Power Cords

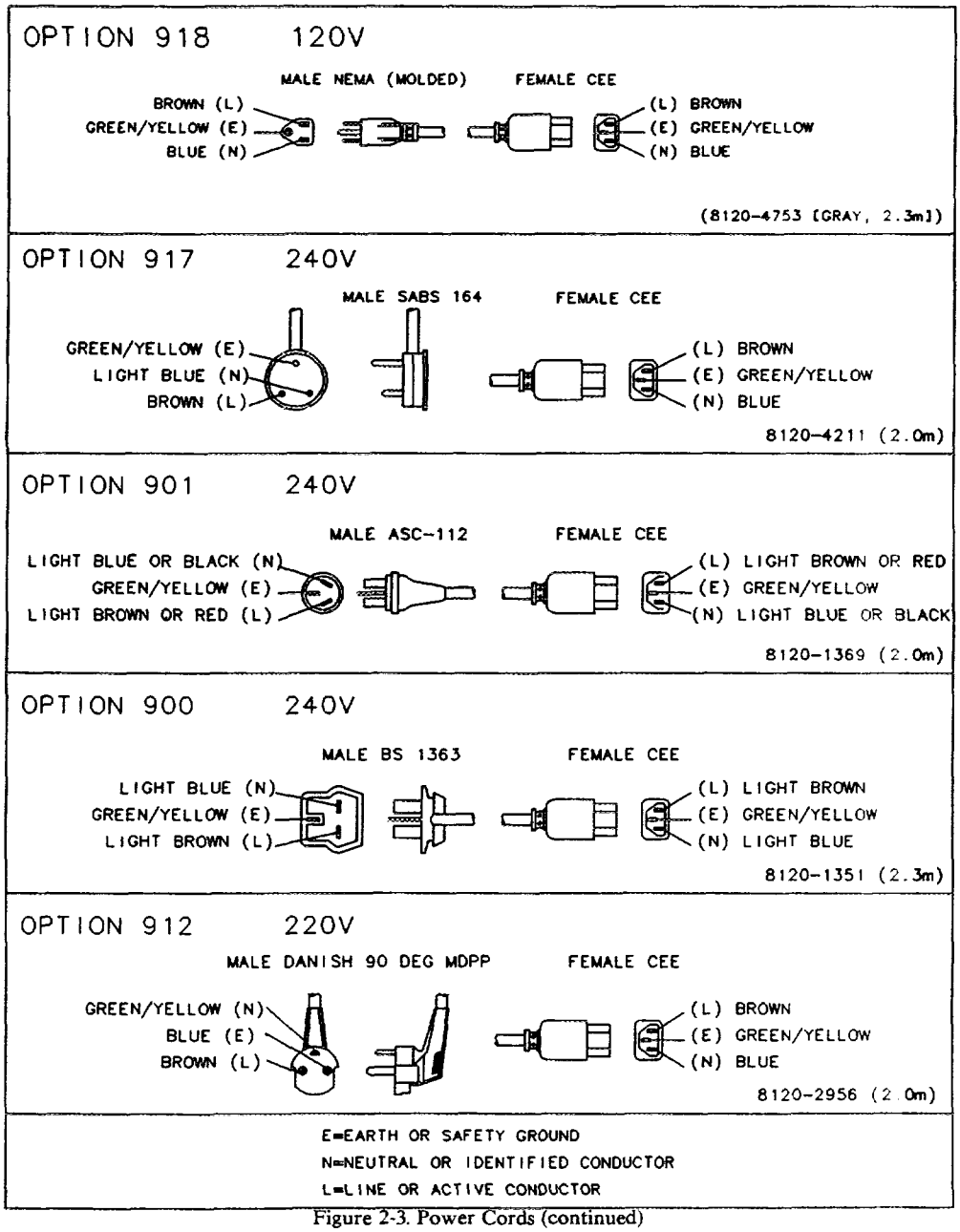

Figure 2-3. Power Cords (continued)

2-10. HP-IB Interconnections

NOTE

Part numbers for HP-IB cables available from the Corporate Parts Center are listed in Table 8-2.

CAUTION

- Do not connect or disconnect the HP-IB cable to the disc drive if the system is in an active state.
- Do not power the disc drive down if the system bus is in an active state.
- Do not stack more than four HP-IB cable connectors onto the HP-IB connector on the rear of the disc drive.

Cabling is limited to one metre per HP-IB load. Typically, the host system is seven equivalent loads and the disc drive is one equivalent load. In multi-drive systems, the HP standard allows seven metres of cable between the host and the nearest device, and one metre between each additional device. The maximum configuration is eight devices (not including the CPU) per HP-IB channel or a maximum of 15 metres or 15 equivalent loads (see figure 2-4). Refer to host configuration guides for any additional system limitations.

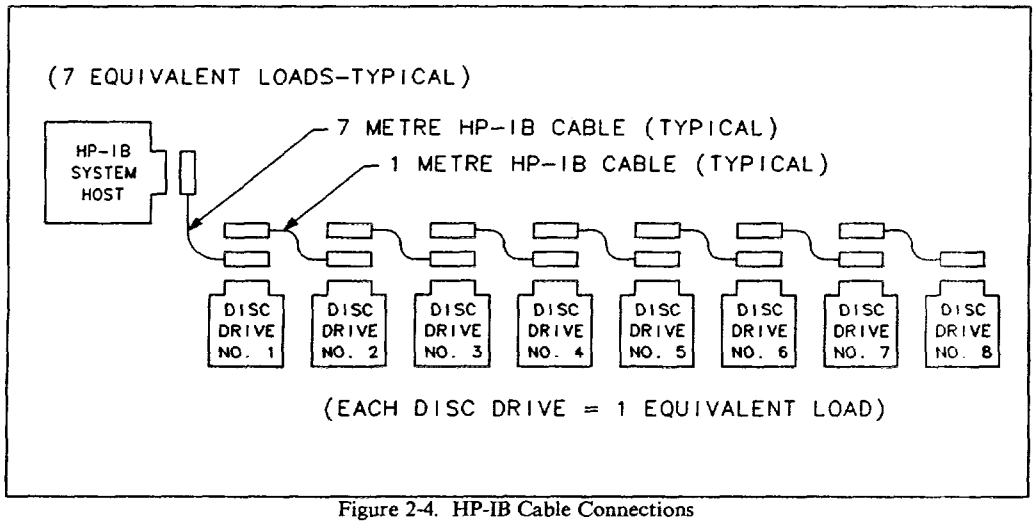

Figure 2-4. HP-IB Cable Connections

2-11. Preventive Maintenance

No regularly scheduled preventive maintenance is required.

Configuration 3

3-1. Introduction

This chapter contains information on setting internal and external switches on the disc drive to determine disc drive configuration.

3-2. Host Systems Support

Table 3-1 lists the host systems that support the disc drive.

Table 3-1. Host System Support Matrix

HOST SYSTEM	VERSION SUPPORTED	COMMENTS
HP 9000 Series 200/300	BASIC 3.0 or later Pascal 3.1 or later	
HP 9000 Series 300	HP-UX 6.0 or later	
HP 9000 SRM	SRM 3.1 or later	
HP 1000 A-Series	RTE-A 5.0 or later	
HP 3562 Dynamic Signal Analyzer HP 1630 Logic Analyzer	All	Cannot format new 0.5- or 1-Mbyte media with this system. Media can be used after formatting.
HP 9845B/C Desktop Computer HP 9825T Desktop Computer HP 150C Desktop Computer	Contact Stuctured Software Systems, telephone (609) 386-7294.	Operation requires third party ROM available from Structured Software Systems.

3-3. Disc Drive Configuration

3-4. ADDRESS Switch

The ADDRESS switch is a dip switch located on the rear panel of the disc drive (see figure 3-1). Set the ADDRESS switch for the desired HP-IB address as follows:

a. Set the LINE~ switch to OFF (0) and disconnect the HP-IB cable(s).

b. Set the ADDRESS switch to the desired HP-IB address (refer to table 3-2).

c. Connect the HP-IB cable(s) and set the LINE~ switch to ON (1).

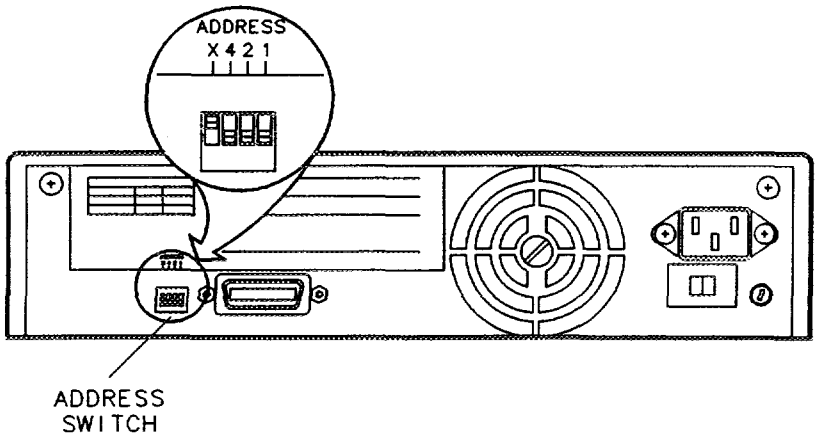

Figure 3-1. ADDRESS Switch

Table 3-2. ADDRESS Switch Settings

ADDRESS	X	4	2	1
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

3-5. FDM Unit Select Switch

Each flexible disc mechanism (FDM) has a unit select switch located on the right-hand side of the mechanism (see figure 3-3). The FDM unit select switch should be set to position 0 for unit 0, or to position 3 for unit 1.

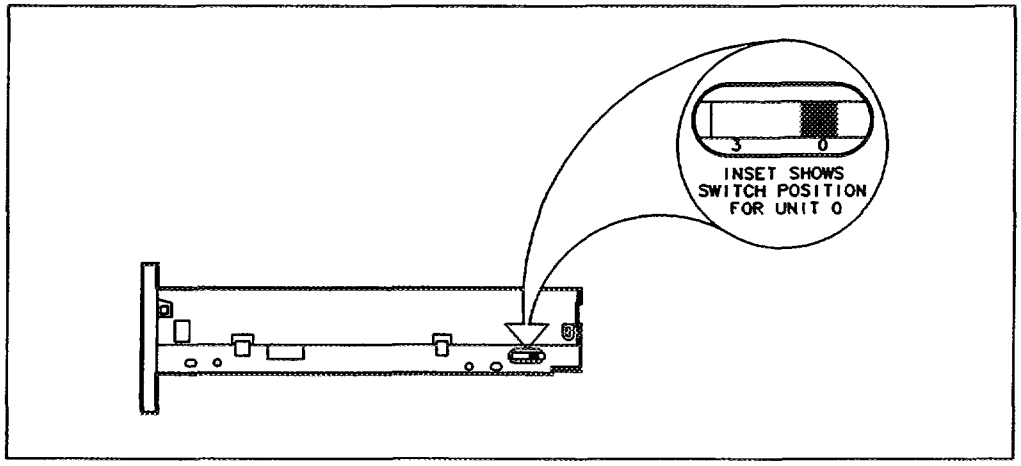

Figure 3-2. FDM Unit Select Switch

3-6. Option Jumper

The option jumper is located on connector J5 of the power supply/controller PCA (see figure 3-3). The jumper should be next to the D if the disc drive is a 9122C, or next to the S if the disc drive is a 9122C Option 001.

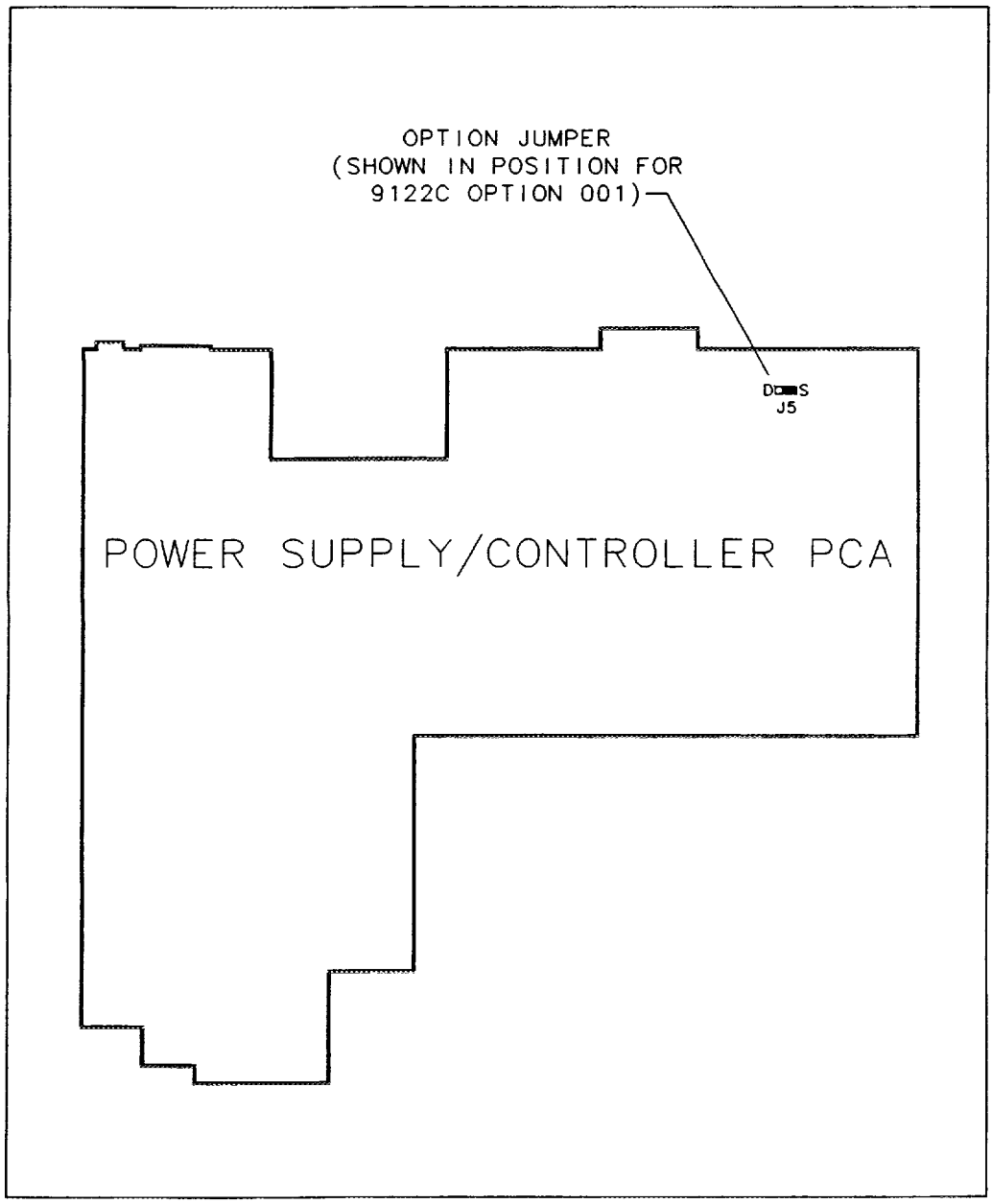

Figure 3-3. Option Jumper

Troubleshooting 4

4-1. General Information

Power-on self-tests and selectable self-tests can be used to troubleshoot the disc drive without using a customer's host computer or other external computers. The SS/80 Exerciser can be used to perform self-test diagnostics and extensive servo and read/write tests. Information on the SS/80 Exerciser is contained in chapter five.

4-2. Power-on Self-test

The following self-test sequence is performed when the LINE~ switch is set to ON (|):

a. The self-test indicator illuminates (see figure 4-1).

b. The HP-IB, ROM, RAM, and FDC chips are tested.

c. The unit 0 access indicator illuminates (see figure 4-1).

d. If a formatted, non-write-protected disc is installed in the unit 0 flexible disc mechanism (FDM), a seek test is performed, a spindle speed test is performed, and a write/read test is performed on the system cylinder.

e. The unit 0 access indicator extinguishes.

f. The unit 1 access indicator illuminates (see figure 4-1).

g. If a formatted, non-write-protected disc is installed in the unit 1 FDM, a seek test is performed, a spindle speed test is performed, and a write/read test is performed on the system cylinder.

h. If power-on self-test passes, the self-test indicator extinguishes then the unit 1 access indicator extinguishes.

i. If power-on self-test fails, the unit 1 access indicator extinguishes and the self-test indicator stays illuminated. The disc drive will not respond to any commands on the HP-IB bus until power is cycled.

NOTE

A flexible disc mechanism will fail power-on self-test if a write protected or unformatted disc is installed.

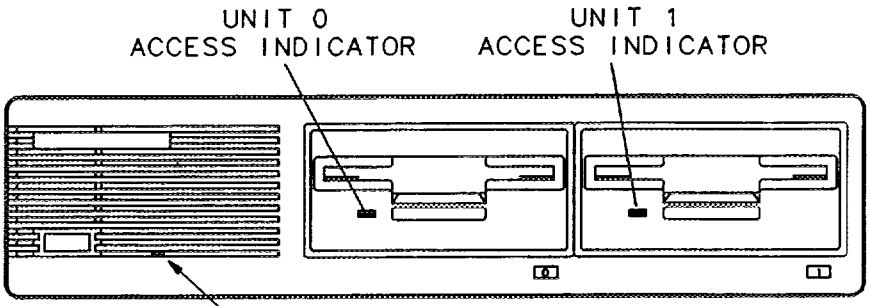

Figure 4-1. Power-on Self-test Indicators

4-3. Selectable Self-tests

The selectable self-tests allow selection of and looping on any of the self-tests listed in table 4-1. Perform a selectable self-test as follows:

CAUTION

A formatted, non-write-protected disc should be used if selectable self-test numbers 6 through 14 are to be performed. Disc format and data may be destroyed.

a. Set the LINE~ switch to ON (1) and allow power-on self-test to complete.

b. Install formatted, non-write-protected discs if tests 6 through 14 are to be performed.

c. Set the ADDRESS switch (figure 4-2) to the desired selectable self-test number (refer to table 4-2).

d. Start the selectable self-test by moving the selectable self-test jumper on connector J6 of the power supply/controller PCA one pin over to the T position (see figure 4-3).

e. The self-test indicator blinks once to show that it works, then the selectable self-test is performed.

f. Leave the selectable self-test jumper in the T position to loop on the selectable self-test.

g. Terminate looping on the selectable self-test by moving the jumper to its original position.

h. If the selectable self-test passes, the self-test indicator blinks five times then a power-on self-test is performed (refer to paragraph 4-2).

i. If the selectable self-test fails, the self-test indicator stays illuminated.

j. To perform another selectable self-test, follow steps c through i.

Table 4-1. Selectable Self-tests

TEST NO.	TEST NAME	TEST TIME	TEST DESCRIPTION
0	RAM	1 s	All possible patterns are written to all locations of RAM.
1	ROM	1 s	A ROM checksum calculation is performed.
2	HP-IB	1 s	Two registers of the HP-IB chip are written to, then their contents are verified.
3	FDC	1 s	Two registers of the FDC chip are written to, then their contents are verified.
4	Seek 0	1 s	The heads in unit 0 seek to track 0, then move off track. The track 0 detector verifies track 0 was accessed.
5	Seek 1	1 s	Same as test no. 4 but on unit 1.
6	Spindle 0	1 s	The speed of the spindle motor in unit 0 is checked by measuring the period of the index pulse on track 35, and comparing it against a specification.
7	Spindle 1	1 s	Same as test no. 6 but on unit 1.
8	WRT/VFY 0	2.5 min.	All sectors on the disc in unit 0 are written with a worst case 6D B6 DB data pattern, then verified.
9	WRT/VFY 1	2.5 min.	Same as test no. 8 but on unit 1.
10	Verify 0	1.5 min.	The data field of each sector on the disc in unit 0 is checked for CRC errors.
11	Verify 1	1.5 min.	Same as test no. 10 but on unit 1.
12	Format 0	2.5 min.	The disc in unit 0 is formatted with 256 bytes per sector, an interleave of 2, and a 00 data pattern, then verified.
13	Format 1	2.5 min.	Same as test no. 12 but on unit 1.

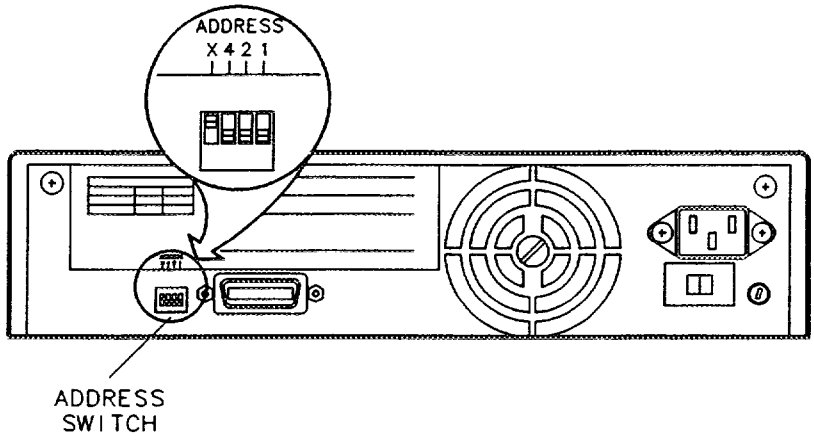

Figure 4-2. ADDRESS Switch

Table 4-2. Selectable Self-test Switch Settings

TEST NO.	X	4	2	1
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
8	UP	DOWN	DOWN	DOWN
9	UP	DOWN	DOWN	UP
10	UP	DOWN	UP	DOWN
11	UP	DOWN	UP	UP
12	UP	UP	DOWN	DOWN
13	UP	UP	DOWN	UP
14	UP	UP	UP	DOWN

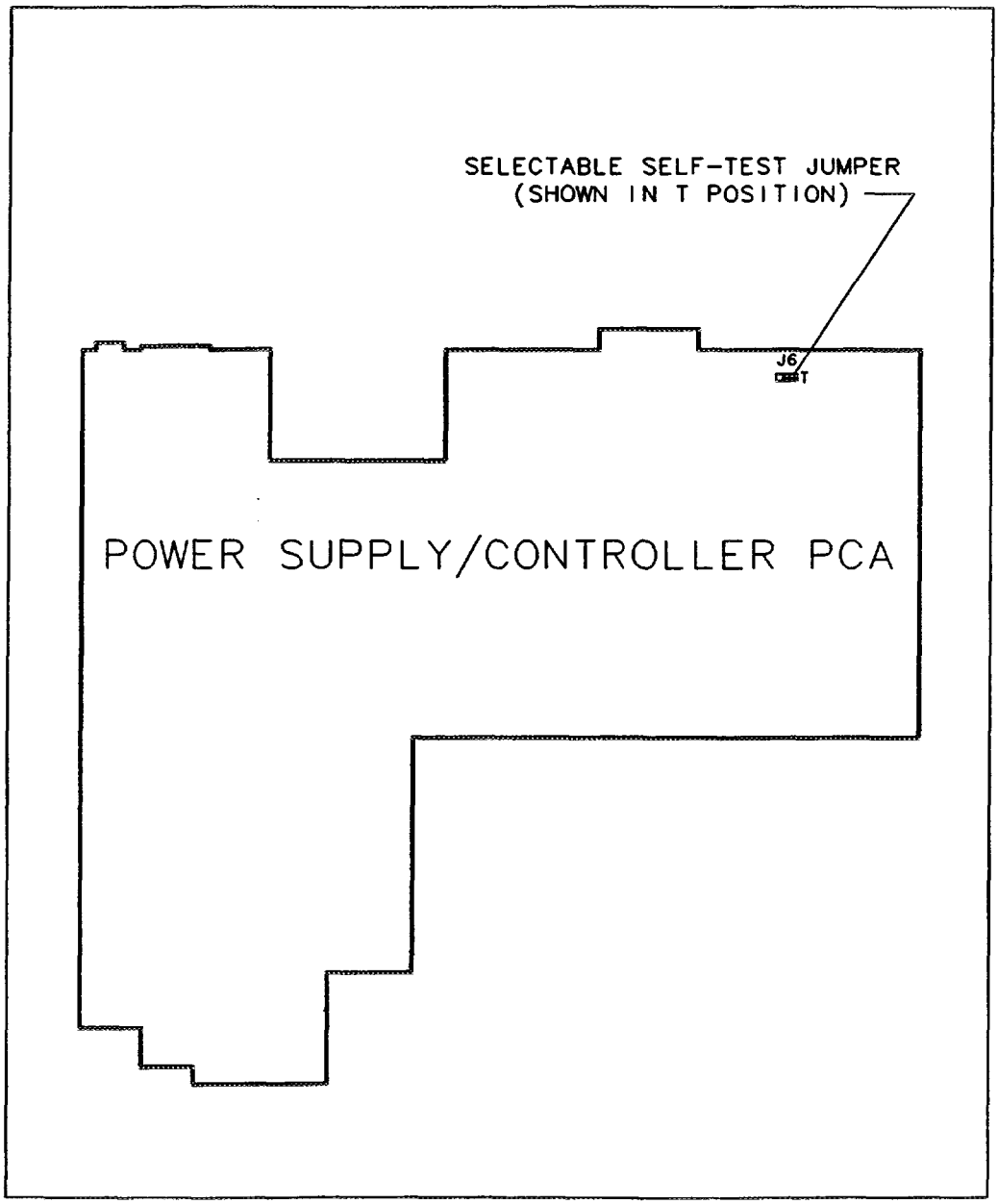

Figure 4-3. Selectable Self-test Jumper

4-4. Flowchart

The troubleshooting flowchart (see figure 4-4) points to the following troubleshooting procedures:

- Self-test indicator doesn't illuminate at power-on
- Fan doesn't operate
- Fails power-on self-test without media
- Fails power-on self-test with media
- Intermittent read/write failures

4-5. Procedures

The following procedures are referred to in the troubleshooting flowchart (see figure 4-4). The procedures are common to 9122C and 9122C Option 001 disc drives and will aid troubleshooting down to the smallest replaceable assembly.

4-6. Self-test Indicator Doesn't Illuminate at Power-on

a. Ensure that the power cord is firmly seated in the AC LINE receptacle.

b. Check the VOLTAGE SELECT switch for the proper setting.

c. Set the LINE~ switch to OFF (0) and remove the power cord from the AC LINE receptacle.

d. Check the rear panel FUSE.

e. Install the power cord into the AC LINE receptacle and set the LINE~ switch to ON (1).

WARNING

Hazardous voltages are present when the top cover is removed. Be careful when measuring voltages with power applied.

f. Check the line filter output for 120 Vac at J1 and J2 on the power supply/controller (PS/controller) PCA.

g. If the line filter output is 120 Vac at J1 and J2, replace the PS/controller PCA.

h. Cycle power to verify that the self-test indicator illuminates.

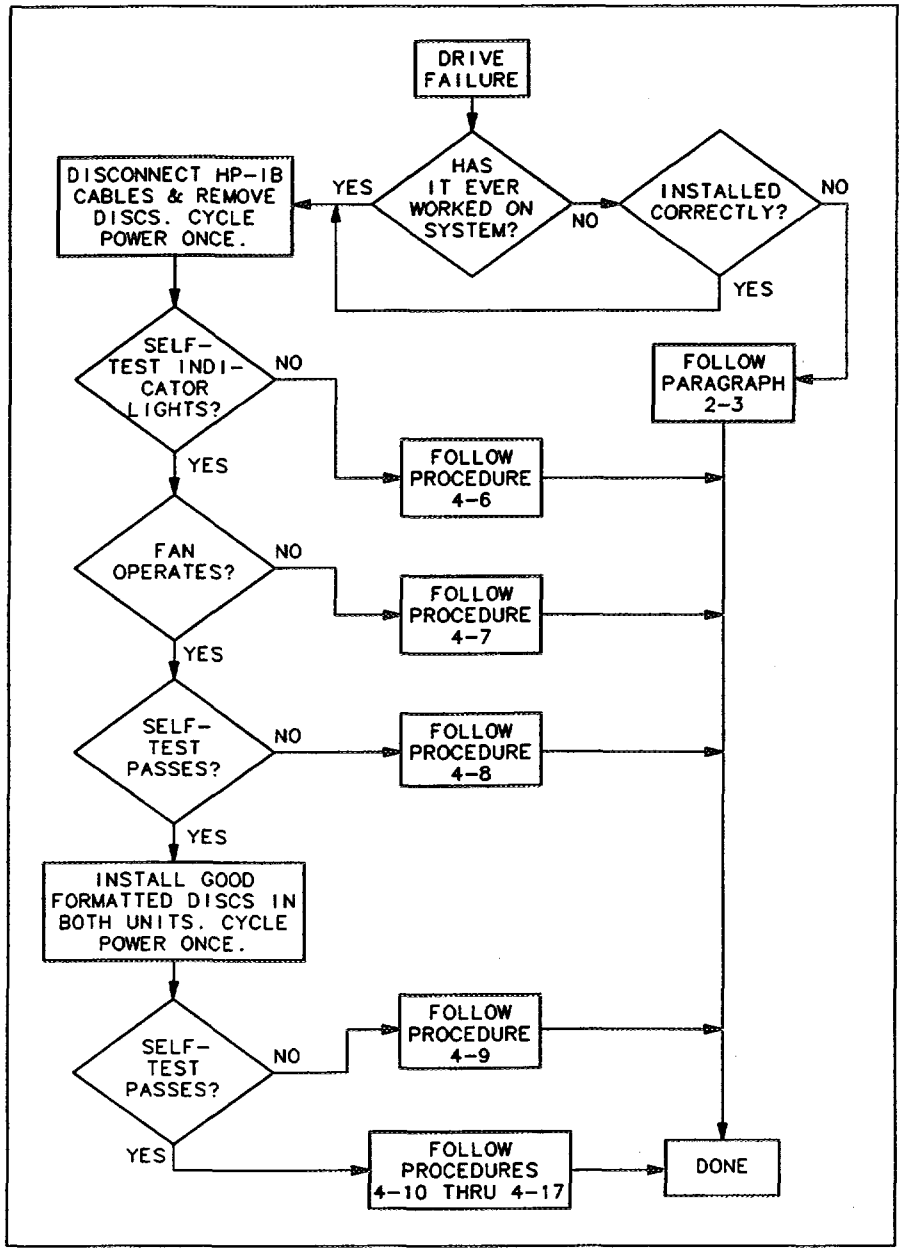

Figure 4-4. Troubleshooting Flowchart

4-7. Fan Doesn't Operate

a. Check for 24 Vac at connector J3 on the power supply/controller PCA.

b. If 24 Vac is missing, replace the power supply/controller PCA.

c. If 24 Vac is present, replace the fan assembly.

4-8. Fails Power-on Self-test Without Media

a. Ensure that the flexible disc mechanism (FDM) ribbon cable is firmly seated in the connectors on the FDM's and in connector P2 on the power supply/controller PCA.

b. Replace the power supply/controller PCA and perform a power-on self-test.

c. If power-on self-test fails, replace the flexible disc mechanisms one at a time until power-on self-test passes.

4-9. Fails Power-on Self-test with Media

If the disc drive is a 9122C, perform steps a through g below. If the disc drive is a 9122C Option 001, perform steps e and g only.

a. Disconnect the flexible disc mechanism (FDM) ribbon cable from the unit 1 FDM.

b. Remove the unit 1 FDM from the chassis.

c. Move the option jumper on connector J5 of the power supply/controller PCA to the S (single) position (see figure 3-3).

d. Perform a power-on self-test with a formatted disc in unit 0.

e. If unit 0 fails power-on self-test, perform the following steps:

   1) Replace the unit 0 FDM and install the same disc.

   2) Set the FDM unit select switch to position 0 (see figure 3-2).

   3) Perform a power-on self-test.

   4) If power-on self-test fails, replace the power supply/controller (PS/controller) PCA.

f. If unit 0 passes power-on self-test, perform the following steps:

   1) Disconnect the FDM ribbon cable from the unit 0 FDM.

   2) Set the unit 1 FDM unit select switch to position 0 (see figure 3-2).

3) Connect the FDM ribbon cable to the unit 1 FDM.

4) Perform a power-on self-test with a formatted disc in unit 1.

5) If power-on self-test fails, replace the unit 1 FDM and install the same disc.

6) Set the FDM unit select switch to position 0.

7) Perform a power-on self-test.

8) If power-on self-test fails, replace the power supply/controller (PS/controller) PCA.

g. After replacing an FDM or PS/controller PCA, perform the following steps:

1) Connect the FDM ribbon cable to both FDM's.

2) Set the unit 0 FDM unit select switch to position 0 and the unit 1 FDM unit select switch to position 3.

3) Move the option jumper on connector J5 to the D (dual) position if the disc drive is a 9122C, or leave the jumper in the S (single) position if the disc drive is a 9122C Option 001 (see figure 3-3).

4) Install a formatted disc into each FDM.

5) Perform a power-on self-test and ensure that it passes.

4-10. Intermittent Read/Write Failures

If the disc drive passed power-on self-test with formatted discs, it may have experienced an intermittent read/write failure on the customer's system. Follow procedures 4-11 through 4-16 to determine the root cause of the failure.

4-11. Media Wear

a. Ensure that the customer is using HP double-sided media in each flexible disc mechanism (FDM).

CAUTION

Only HP double-sided media is recommended for continual use in HP 9122C FDM's. HP single-sided media should only be used to exchange data with single-sided FDM's. Visible media wear may result if HP single-sided media or media from other vendors is continually used. Symptoms include failure to initialize media and intermittent read/write problems.

b. Check the surfaces of the customer's disc for visible wear by opening the disc shutter and looking through the window while slowly turning the center hub.

c. If the customer's disc shows visible wear, store the customer's data onto another formatted disc and throw away the worn disc.

NOTE

A worn or dirty disc may cause its associated head to resonate with a high pitched sound when seeking across the disc.

4-12. Head Contamination

If a surface of the customer's disc is worn or dirty, clean any media residue off the head associated with the surface.

NOTE

Use the cleaning disc, P/N 09122-89415, and the HD_CLN routine in the SS/80 Exerciser SERVC module to exercise the FDM during cleaning.

4-13. Format Test

Test the formatting capability of the disc drive as follows:

a. Perform selectable self-test numbers 12 and 13 (refer to paragraph 4-3), execute the SS/80 Exerciser INIT command in the SERVC module (refer to paragraph 5-5), or use the customer's host computer to INITIALIZE the discs in unit 0 and unit 1.

b. If an FDM fails while formatting a disc, replace the FDM.

c. Format the same disc in the new FDM.

d. If the new FDM fails, replace the power supply/controller PCA.

e. Replace the new FDM with the original FDM and format the same disc to ensure that the disc drive formats properly.

4-14. Read/Write Test

If the disc drive passed the format test, perform more extensive read/write tests as follows:

a. Load the SS/80 Exerciser RW_TEST module (refer to paragraph 5-4) and use the UNIT command to set the unit equal to 0 or 1, depending on which unit is to be tested.

b. Execute the W/R_TEST command to set the following test parameters and perform a write/read error rate test on both sides of a disc previously formatted with an interleave of 2:

- LOOP COUNT = 1
- TYPE OF WRITE THEN READ TEST = SEQ
- STARTING BLOCK ADDRESS = 0
- LENGTH IN BYTES = 1261568
- SOURCE OF BIT PATTERN = RND_PAT
- OUTPUT OPTION = 2
- PRINT ERROR DECODING INFORMATION = N
- # OF ERRORS TO ALLOW BEFORE ABORTING TEST = 10

c. The test takes 1.75 minutes to complete on an error-free disc.

d. If the unit doesn't fail in one loop, try ten loops.

e. If the unit fails within ten loops, determine if the error is repeatable by performing the same error rate test.

f. If the error repeats, replace the FDM and perform the same error rate test.

g. If the error repeats again, replace the PS/controller PCA and perform the same error rate test to ensure that no read/write errors occur.

4-15. Compatibility Test

Test the disc drive for compatibility problems as follows:

a. Perform selectable self-test numbers 12 and 13, execute the SS/80 Exerciser INIT command in the SERVC module, or use the customer's host computer to INITIALIZE the discs in unit 0 and unit 1.

NOTE

If the SS/80 Exerciser INIT command is being used, selecting format option 1 with an interleave of 2 will format the disc in the same manner as performing selectable self-test number 12 or 13.

b. Swap the discs between unit 0 and unit 1.

c. Perform selectable self-test numbers 10 and 11 to verify the discs in unit 0 and unit 1.

d. If selectable self-test numbers 10 and 11 fail, an FDM may be causing compatibility problems. Perform the following steps to determine which FDM is at fault:

1) Install a disc containing prerecorded software into unit 0.

2) Use a host computer such as an HP 150 to read the directory from the software disc in unit 0.

3) Repeat steps 1 and 2 with unit 1.

4) If unit 0 or unit 1 can't read the directory, replace the FDM for that unit.

5) Load and run an application program from a software disc in unit 0.

6) Load and run an application program from a software disc in unit 1.

7) If read/write errors occur while running an application program on unit 0 or unit 1, replace the FDM for that unit and run the same program to ensure that the disc drive is operating properly.

4-16. Environmental Problems

The following environmental conditions can cause intermittent read/write failures on the customer's system:

- Atmospheric contaminants
- Temperature or humidity outside the specified range
- Power line transients or noise from other equipment
- Strong magnetic fields in the vicinity of the product

4-17. System Problems

Refer to the host system manual for system related problems.

Diagnostics 5

5-1. SS/80 Exerciser

The Subset 80 (SS/80) Exerciser is a diagnostic program that can transfer data and commands between a 9122C and an HP 85 to test servo and read/write functions. Test results can be printed out to obtain detailed error information.

5-2. Equipment and Materials Required

The list below includes equipment and materials required to use the SS/80 Exerciser. The *SS/80 Reference Manual* describes SS/80 commands and protocol and the *SS/80 External Reference Manual* explains how to use the SS/80 Diagnostic Tape to test a 9122C.

- HP 85, including the following:

  82903A 16 K Memory Module
  82936A ROM Drawer with I/O ROM
  82937 HP-IB Interface

- SS/80 Diagnostic Tape, part no. 5010-0310 (rev. 2822 or later)

- *SS/80 Reference Manual*, part no. 5958-4149

- *SS/80 External Exerciser Reference Manual*, part no. 5958-4142

5-3. Test Modules

The SS/80 Exerciser contains three test modules. The following paragraphs tell about general test capabilities of each module as applied to the 9122C. Refer to the SS/80 manuals listed above for more specific information on the test modules.

5-4. RW_TEST

The RW_TEST module enables a user to select a unit with the UNIT command, then execute the W/R_TEST command to loop on write/read or read only error rate tests so that errors and unit status can be reported to the screen or printer of an HP 85. Generally, all error and status information should be reported to the printer to obtain as much failure data as possible.

5-5. SERVC

The SERVC module DIAG command executes the power-on self-test routine, which tests the FDC chip, track zero detector, spindle speed, and performs a write/read test on the system cylinder. The SERVC module also contains a head cleaning routine (HD_CLN), a routine that reads the head loaded revolution log (WEAR_CT), and a formatting routine (INIT).

5-6. OPER

The OPER module enables a user to design programs that use SS/80 commands to perform servo and read/write tests. Generally, the RW_TEST module is easier to use when testing the 9122C in this manner. However, the OPER module gives a user freedom to concatenate several tests for very extensive testing.

5-7. Error Codes

Table 5-1 lists error codes reported by the flexible disc mechanism (FDM) and table 5-2 lists error codes reported by the FDM controller. Refer to the REQUEST STATUS section of the *SS/80 Reference Manual* for byte specific information.

Table 5-1. FDM Error Codes

HEX CODE	ERROR DESCRIPTION
B0	SEEK failed in M_INIT_MEDIA routine
B1	SEEK failed in POSITION_HEAD routine
B2	READ ADDRESS failed in POSITION_HEAD routine
B3	READ ADDRESS failed in POSITION_HEAD routine
B4	RESTORE failed in POSITION_HEAD routine
B5,X	Timeout in WAIT_FOR_FDC routine, FDC status byte
B6	SEEK failed in WAIT_FOR_FDC routine
B7	RESTORE failed in WAIT_FOR_FDC routine
B8	SEEK failed in RESTORE routine
B9,X,X	M_INIT_MEDIA routine failed, head 0 tracks spared, head 1 tracks spared
BA	M_INIT_DIAG routine failed read/write tests, no system cylinder available
BB	Read miscompare in M_INIT_DIAG routine
BC,X	Busy bit set in FDC_TERM routine, FDC status byte
BD,X	INTER_FDC_ERROR routine called with no bits set, FDC status byte
BE	Unit fault in STP_HD_IN routine
BF	Unit fault in STP_HD_OUT routine

Table 5-2. FDM Controller Error Codes

HEX CODE	ERROR DESCRIPTION
F0	Command aborted by a CLEAR or CANCEL command
F1	ERR bit was set in the 8291
F2	END bit was set in the 8291
F3	BI bit was set in the 8291
F4	Data buffer failed during INITIATE DIAGNOSTIC command

Adjustments 6

No operating or maintenance adjustments are required.

Peripherals 7

This chapter is not applicable to this product.

Replaceable Parts 8

8-1. Major Replaceable Assemblies

This chapter provides listings of all field-replaceable assemblies (FRA's) and parts, and an illustrated parts breakdown of the disc drive. Replaceable parts ordering information is also provided in this chapter.

Table 8-1 lists recommended spare parts for repair and, where applicable, shows which parts are exchange assemblies and which parts are nonexchange assemblies.

Table 8-1. Recommended Product Support Package

PART NO.	QTY	DESCRIPTION
09153-69201	1	3.5-inch Flexible Disc Mechanism (Exchange)
09122-69505	1	Power Supply/Controller PCA (Exchange)
09123-61611	1	Flexible Disc Mechanism Ribbon Cable (Nonexchange)
2110-0001	5	Fuse, 1A, 250V, NTD (115V setting)
2110-0012	5	Fuse, 0.5A, 250V, NTD (220V setting, Opt. 904 only)
2110-0605	5	Fuse, 0.5A, 250V, NTD (220V setting)
9300-0794	1	Anti-Static Workstation
09122-89415	1	Head Cleaning Disc*
92192X	2	2-Mbyte, Double-sided Flexible Disc

*Can only be used with SS/80 Exerciser

8-2. Removal and Replacement

This paragraph provides removal and replacement instructions for disc drive FRA's and parts.

CAUTION

All electrostatic discharge (ESD) precautions must be observed when removing any disc drive FRA's or parts. Place the disc drive on an anti-static mat and ground its chassis (28) to the mat. If ESD precautions are not observed, damage to electronic components may result.

8-3. Top Cover

Remove the top cover (1, figure 8-1) as follows:

a. Set the LINE~ switch to OFF (0).

b. Remove the power cord and disconnect the HP-IB cable(s).

c. Remove the two top cover mounting screws (2) from the rear of the chassis (28).

d. Lift the rear of the top cover until the plastic tabs on the bottom front edge of the top cover are free of the metal tabs on the bottom front edge of the chassis.

e. Lift the top cover straight up until it is free of the chassis.

Replace the top cover as follows:

a. From the rear of the disc drive, lower the front end of the top cover over the chassis until the bottom front edge of the top cover touches the table and is inclined 60 degrees to the rear.

b. Push the front of the top cover against the chassis until the plastic tabs on the bottom front edge of the top cover engage the metal tabs on the bottom front edge of the chassis.

c. Lower the rear of the top cover until the LINE~ switch cap (24) is positioned in its opening in the front panel of the top cover.

d. Press the LINE~ switch cap slightly so that it springs out through its opening in the front panel of the top cover.

e. Push the top cover toward the rear until it is touching the flexible disc mechanisms (3,7).

f. Press down on the rear of the top cover until the top cover mounting holes line up with the holes in the rear of the chassis.

g. Install the two top cover mounting screws.

8-4. Flexible Disc Mechanisms

CAUTION

A defective flexible disc mechanism being returned to the factory must be packaged and shipped in the proper Hewlett-Packard shipping container. Failure to use the proper container will void the warranty.

Remove the flexible disc mechanisms (FDM's) (3,7, figure 8-1) as follows:

a. Remove the top cover (refer to paragraph 8-3).

b. If the disc drive is a 9122C,

1) Disconnect the FDM ribbon cable (15) from the connectors on the FDM's and from connector P2 on the power supply/controller PCA (16).

2) Turn the disc drive upside down onto the anti-static mat.

3) Remove the screw (8) which secures the FDM (7) to the side of the chassis.

4) Remove the five screws (4,9) which secure the FDM's to the bottom of the chassis.

5) Remove the FDM's from the chassis.

c. If the disc drive is a 9122C Option 001,

1) Disconnect the FDM ribbon cable (15) from the connector on the FDM (3) and from connector P2 on the power supply/controller PCA (16).

2) Turn the disc drive upside down onto the anti-static mat.

3) Remove the three screws (4) which secure the FDM to the chassis.

4) Remove the three screws (14) which secure the media storage box (13) to the chassis.

5) Remove the FDM and the media storage box from the chassis.

Replacement is the reverse of the removal procedure. Ensure that the FDM ribbon cable is firmly seated in the connectors on the the FDM's and in connector P2 on the power supply/controller PCA.

NOTE

Check the FDM unit select switche for the proper setting before securing an FDM to the chassis (refer to paragraph 3-5).

CAUTION

Before tightening the five screws (4,9) which secure the FDM's to the chassis, ensure that the FDM's are positioned far enough forward so that the front panel of the top cover barely touches the fronts of the FDM's when the top cover is installed. Flexible discs may not eject properly if the FDM's are skewed relative to the front of the top cover, or if the installed top cover exerts pressure on the FDM's.

8-5. Power Supply/Controller PCA

Remove the power supply/controller (PS/controller) PCA (16, figure 8-1) as follows:

a. Remove the top cover (refer to paragraph 8-3).

b. Remove the two standoffs (20) and the two washers (21) from the rear of the chassis.

c. Disconnect the fan power cable from connector J3 on the PS/controller PCA.

d. Disconnect the two line filter wires from terminal lugs J1 and J2 on the PS/controller PCA by twisting a flat-blade screwdriver underneath the lugs.

e. Pull the LINE~ switch push rod (23) all the way out of the switch on the PS/controller PCA and out through the push rod guide tab on the chassis.

f. Remove the two FDM's or one FDM and the media storage box (refer to paragraph 8-4).

g. Remove the six screws (17) which secure the PS/controller PCA to the chassis.

h. Remove the screw (19) and the support post (18) from the PS/controller PCA.

i. Lift the PS/controller PCA forward so that it clears the line filter (25), then lift it out of the chassis.

Replacement is the reverse of the removal procedure. Ensure that all connectors are firmly seated.

NOTE

Ensure that the option jumper on connector J5 of the PS/controller PCA is in the correct position (refer to paragraph 3-6).

8-6. ROM Replacement

If an upgrade or replacement of the ROM (22) is necessary, ensure that all electrostatic discharge precautions are observed while removing and handling the ROM.

8-7. Line Filter

Remove the line filter (25, figure 8-1) as follows:

a. Remove the top cover (refer to paragraph 8-3).

b. Disconnect the two line filter wires from their terminal lugs J1 and J2 on the power supply/controller PCA (16) by twisting a flat-blade screwdriver underneath the lugs.

c. Remove the line filter grounding screw.

d. Remove the two power receptacle screws (26).

e. Pull the line filter out the rear of the chassis carefully so as not to damage any wires.

Replacement is the reverse of the removal procedure. Ensure that the line filter wires are firmly seated on terminal lugs J1 and J2 on the power supply/controller PCA.

8-8. Fan

Remove the fan assembly (27, figure 8-1) as follows:

a. Remove the top cover (refer to paragraph 8-3).

b. Disconnect the fan power cable from connector J3 on the power supply/controller PCA (16).

c. Remove the screw which secures the fan assembly.

d. Remove the fan assembly.

Replacement is the reverse of the removal procedure. Ensure that the keyed fan hub matches the keyed hole in the chassis. Also, ensure that the fan power cable is firmly seated in connector J3 on the power supply/controller PCA, and that the fan cable is secured by the retention lugs stamped into the chassis near the fan vent.

8-9. Replaceable Parts

Replaceable parts are listed in order of disassembly in table 8-2 and illustrated in figure 8-1. Attaching parts are listed immediately after the item they attach. Asterisks in the DESCRIPTION column identify the assembly level of each item. The symbol "- - - X - - - " follows the last attaching part for the item. Assemblies and parts are identified as follows:

Major Assembly

*Replaceable Assembly

**Attaching Part for Replacement Assembly

***Subassembly or component Part

**Attaching Part for Subassembly or Replacement Part

The replaceable parts list provides the following information for each part:

a. FIG. & INDEX NO. The figure and index number which indicates where the replaceable part is illustrated.

b. HP PART NO. The Hewlett-Packard number for the replaceable part.

c. DESCRIPTION. The description of the replaceable part. See table 8-3 for an explanation of the abbreviations used in the DESCRIPTION column.

d. MFR CODE. The 5-digit code that denotes a typical manufacturer of a part. Refer to table 8-4 for a listing of manufacturers that corresponds to the codes.

e. MFR PART NO. The manufacturer's part number for each replaceable part.

f. UNITS PER ASSY. The total quantity of each part used in the major assembly.

g. The MFR CODE and MFR PART NO. for common hardware are listed as 00000 and OBD (order by description), respectively, because these items can be purchased locally.

8-10. Ordering Information

To order replaceable parts for the disc drive, address the order to your local Hewlett-Packard Sales and Support Office. Headquarter Offices are listed at the back of this manual. Specify the following information for each order:

a. Model and full serial number.

b. Hewlett-Packard part number.

c. Complete description of each part as provided in the replaceable parts listing.

Table 8-2. Replaceable Parts

FIG.& INDEX NO.	HP PART NO.	DESCRIPTION	MFR CODE	MFR PART NO.	UNITS PER ASSY
8-1-	9122C	DISC DRIVE	28480		REF
1	09121-88866	* TOP COVER	28480	09121-88866	1
		(Attaching Parts)			
2	0624-0404	* SCREW, tapping, pnh, pozi, 6-19, 0.563 in. long	00000	OBD	2
		- - - X - - -			
3	09153-67201	* MECHANISM, flexible disc, 2-Mbyte, 3.5-in., (new)	2K658	MP-S73W-50	1
	09153-69201	* MECHANISM, flexible disc, 2-Mbyte, 3.5-in., (exchange)	28480	09153-69201	REF
		(Attaching Parts)			
4	0515-1738	* SCREW, truss head, M3 by 0.5, 8mm long	00000	OBD	3
5	09122-24700	* STANDOFF, hex, 12.7mm long	28480	09122-24700	3
6	3050-0716	* WASHER, flat, no. 5, 0.128 in. ID	00000	OBD	3
		- - - X - - -			
7	09153-67201	* MECHANISM, flexible disc, 2-Mbyte, 3.5-in., (new)	2K658	MP-S73W-50	1
	09153-69201	* MECHANISM, flexible disc, 2-Mbyte, 3.5-in., (exchange)	28480	09153-69201	REF
		(Attaching Parts)			
8	0515-1146	* SCREW, pnh, pozi, M3 by 0.50, 6mm long	00000	OBD	1
9	0515-1738	* SCREW, truss head, M3 by 0.5, 8mm long	00000	OBD	2
10	09122-24701	* STANDOFF, hex, 22.2mm long	28480	09122-24701	1
11	09122-24700	* STANDOFF, hex, 12.7mm long	28480	09122-24700	1
12	3050-0716	* WASHER, flat, no. 5, 0.128 in. ID	00000	OBD	2
		- - - X - - -			
13	09121-48304	* MEDIA STORAGE BOX (Option 001 only)	28480	09121-48304	1
		(Attaching Parts)			
14	0515-1738	* SCREW, truss head, M3 by 0.5, 8mm long (Option 001 only)	00000	OBD	3
		- - - X - - -			
15	09123-61611	* CABLE, flexible disc mechanism ribbon	28480	09123-61611	1
16	09122-67505	* PCA, power supply/controller (new)	28480	09122-67505	1
	09122-69505	* PCA, power supply/controller (exchange)	28480	09122-69505	REF
		(Attaching Parts)			
17	0624-0583	* SCREW, tapping, pozi, 6-32, 0.438 in. long, w/ext-tooth washer	00000	OBD	6
18	09121-48302	* POST, support	28480	09121-48302	1
19	0624-0583	* SCREW, tapping, pozi, 6-32, 0.438 in. long, w/ext-tooth washer	00000	OBD	1
20	0380-1717	* STANDOFF, hex, 6-32, 0.255 in. long	00000	OBD	2
21	2190-0843	* WASHER, lock, intl-tooth, no. 8	00000	OBD	2
		- - - X - - -			

Table 8-2. Replaceable Parts (continued)

FIG.& INDEX NO.	HP PART NO.	DESCRIPTION	MFR CODE	MFR PART NO.	UNITS PER ASSY
8-1-					
22	09122-15515	** ROM, coded	28480	09122-15515	1
23	09121-48306	** PUSH ROD	28480	09121-48306	1
24	5041-1203	** CAP, LINE- switch	28480	5041-1203	1
25	09122-68802	* LINE FILTER ASSEMBLY	28480	09122-68802	1
		(Attaching Parts)			
26	0624-0583	* SCREW, tapping, pozi, 6-32, 0.438 in. long, w/ext-tooth washer	00000	OBD	3
		- - - X - - -			
27	09121-68511	* FAN ASSEMBLY (includes screw)	28480	09121-68511	1
28	09122-00104	* CHASSIS, disc drive	28480	09122-00104	1
29	09121-48303	* FOOT, plastic, molded	28480	09121-48303	2
30	0403-0427	* FOOT, rear	94959	SJ-5008	2
31	2110-0001	* FUSE, 1A, 250V, ntd, 0.250 in. by 1.250 in. (115V setting)	75915	312 001	1
	2110-0605	* FUSE, 0.5A, 250V, ntd, 5mm by 20mm (220V setting)	61857	EQ-500MA	REF
	2110-0012	* FUSE, 0.5A, 250V, ntd, 0.250 in. by 1.250 in. (220V setting, Option 904 only)	75915	312.5	REF
32	2110-0565	* CAP, fuseholder (115V setting or Option 904)	28480	2110-0565	1
	2110-0567	* CAP, fuseholder (220V setting)	28480	2110-0567	REF
33	8120-2371	* POWER CORD, NEMA10A/CEE (option 903)	28480	8120-2371	1
	8120-0698	* POWER CORD, NEMA15A/CEE (option 904)	28480	8120-0698	REF
	8120-1860	* POWER CORD, CEE/CEE, 1.5 m, (option 905)	28480	8120-1860	REF
	8120-2104	* POWER CORD, SEV/CEE (option 906)	28480	8120-2104	REF
	8120-1689	* POWER CORD, GMBH/CEE (option 902)	28480	8120-1689	REF
	8120-4753	* POWER CORD, NEMA12A/CEE (option 918)	28480	8120-4753	REF
	8120-4211	* POWER CORD, SABS/CEE (option 917)	28480	8120-4211	REF
	8120-1369	* POWER CORD, ASC 112/CEE (option 901)	28480	8120-1369	REF
	8120-1351	* POWER CORD, BS 1363/CEE (option 900)	28480	8120-1351	REF
	8120-2956	* POWER CORD, MDPP/CEE (option 912)	28480	8120-2956	REF
34	10833A	* HP-IB CABLE ASSEMBLY, 1m	28480	10833A	1
	10833B	* HP-IB CABLE ASSEMBLY, 2m	28480	10833B	REF
	10833C	* HP-IB CABLE ASSEMBLY, 4m	28480	10833C	REF
	10833D	* HP-IB CABLE ASSEMBLY, 0.5m	28480	10833D	REF
	82977A	* HP-IB CABLE ASSEMBLY, 1m, right angle	28480	82977A	REF
	82977B	* HP-IB CABLE ASSEMBLY, 2m, right angle	28480	82977B	REF
	92220R	* HP-IB CABLE ASSEMBLY, 0.3m, right angle	28480	92220R	REF

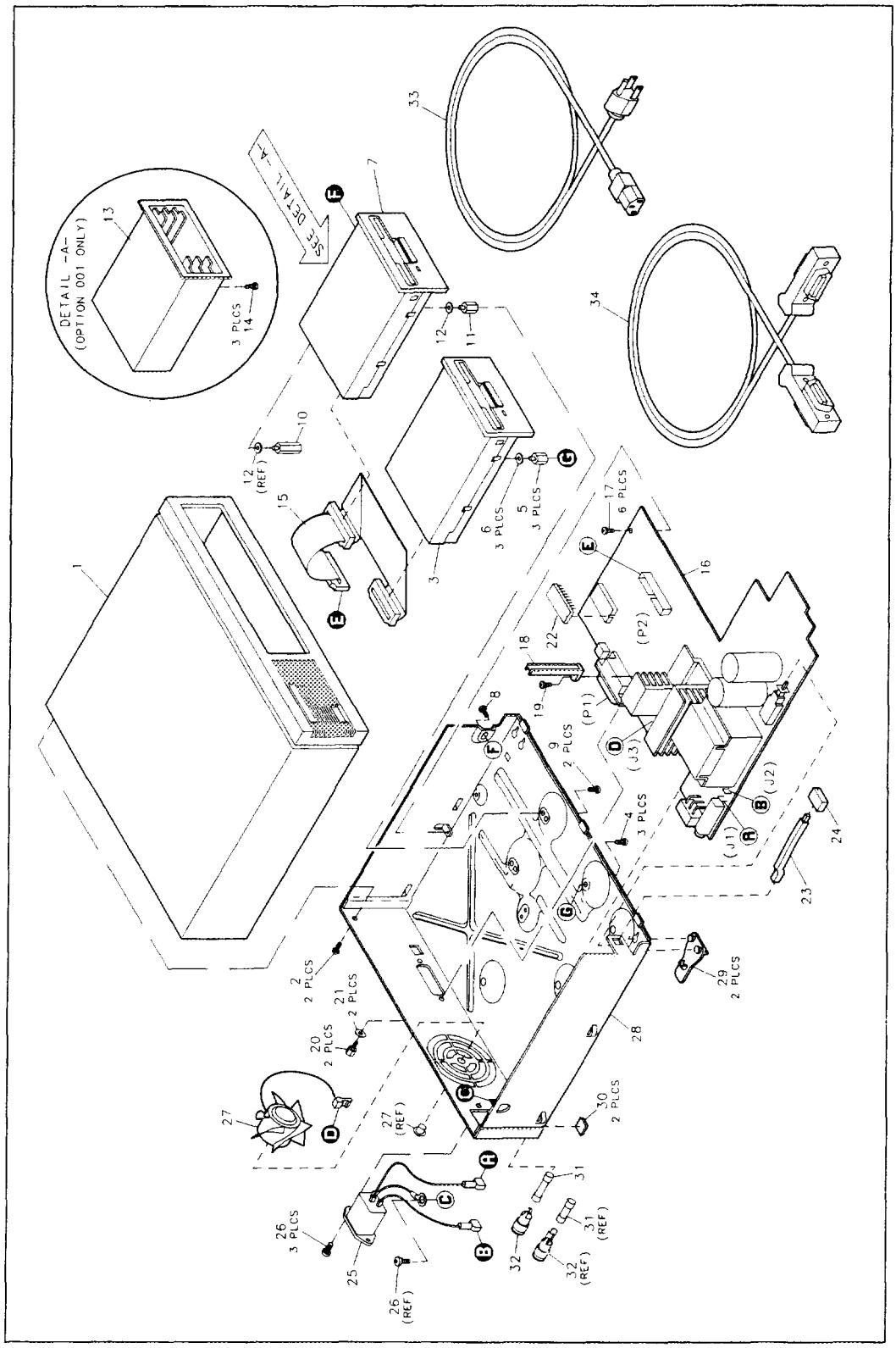

Figure 8-1. Exploded View

Table 8-3. Abbreviations

A	= ampere(s)	incl	= include(s)	rdh	= round head
ac	= alternating current	intl	= internal	rect	= rectifier
		I/O	= input/output	ref	= reference
AR	= as required			rf	= radio frequency
assy	= assembly	k	= kilo (10^3), kilohm	rfi	= radio frequency interference
brkt	= bracket	kg	= kilogram	rh	= right hand
				rpm	= revolutions per minute
c	= centi (10^{-2})	lb	= pound		
C	= Celsius, centigrade	LED	= light-emitting diode	rwv	= reverse working voltage
cer	= ceramic	lh	= left hand		
cm	= centimetre			sb	= slow blow
comp	= composition	M	= mega (10^6), megohm	SCR	= semiconductor-controlled rectifier
conn	= connector				
		m	= milli (10^{-3})		
d	= deci (10^{-1})	mach	= machine	scw	= square cone washer
dc	= *direct current*	*mb*	= *medium blow*		
deg	= degree(s)	met oxd	= metal oxide	Se	= selenium
dia	= diameter	mfr	= manufacturer	Si	= silicon
dpdt	= double-pole, double-throw	misc	= miscellaneous	slftpg	= self-tapping
		mm	= millimetre	spdt	= single-pole, double throw
dpst	= double-pole, single throw	mtg	= mounting		
		My	= Mylar	spst	= single pole, single throw
elctlt	= electrolytic	n	= nano (10^{-9})	sst	= stainless steel
ext	= external	n.c.	= normally closed	stl	= steel
		no.	= number	sw	= switch
F	= Fahrenheit, farad	NSR	= not separately replaceable	T	= TORX® screw
fb	= fast blow			Ta	= tantalum
fh	= flat head	ntd	= no time delay	tgl	= toggle
fig.	= figure			thd	= thread
filh	= fillister head	OBD	= order by description	Ti	= titanium
fw	= full wave			tol	= tolerance
fxd	= fixed	OD	= outside diameter		
G	= giga (10^9)	ovh	= oval head	U (μ)	= micro (10^{-6})
Ge	= germanium	oxd	= oxide		
				V	= volt(s)
H	= Henry, Henries	p	= pico (10^{-12})	var	= variable
hd	= head	PCA	= printed-circuit assembly	Vdcw	= direct current working volts
hex	= hexagon, hexagonal	phh	= phillips head		
hlcl	= helical	pnh	= pan head	W	= watt(s)
Hz	= Hertz	P/O	= part of	w/	= with
		pot	= potentiometer	WIV	= inverse working volts
ID	= inside diameter	pozi	= Pozidriv		
in.	= inch, inches			ww	= wire-wound
incand	= incandescent	qty	= quantity		

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Table 8-4. Code List of Manufacturers

CODE NO.	MANUFACTURER	ADDRESS
OBJK9	Plastech	Monrovia, CA
28480	Hewlett-Packard Co.	Palo Alto, CA
2K658	Sony Corp.	Dallas, TX
61857	SAN-O Industrial Corp.	Bohemia, NY
75915	Littelfuse Tracor Inc.	Des Plaines, IL
94959	3M Co., Adhesives, Coating, and Sealers Div.	St. Paul, MN

Diagrams 9

9-1. Introduction

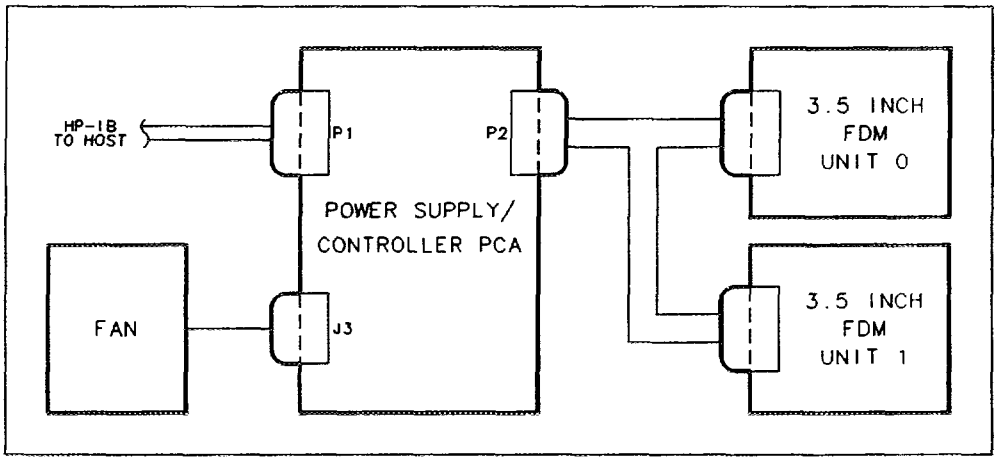
This chapter contains connector pinouts (tables 9-1 and 9-2), a disc drive cabling diagram (figure 9-1), and a diagram of the power supply/controller PCA (figure 9-2).

Table 9-1. HP-IB Connector (P1) Pinout

PIN	FUNCTION	PIN	FUNCTION
1	Data Bus 1	13	Data Bus 5
2	Data Bus 2	14	Data Bus 6
3	Data Bus 3	15	Data Bus 7
4	Data Bus 4	16	Data Bus 8
5	EOI	17	Remote Enable
6	Data Valid	18	Ground
7	Not Ready For Data	19	Ground
8	Not Data Accepted	20	Ground
9	Interface Clear	21	Ground
10	Service Request	22	Ground
11	Attention	23	Ground
12	Chassis Ground	24	Ground

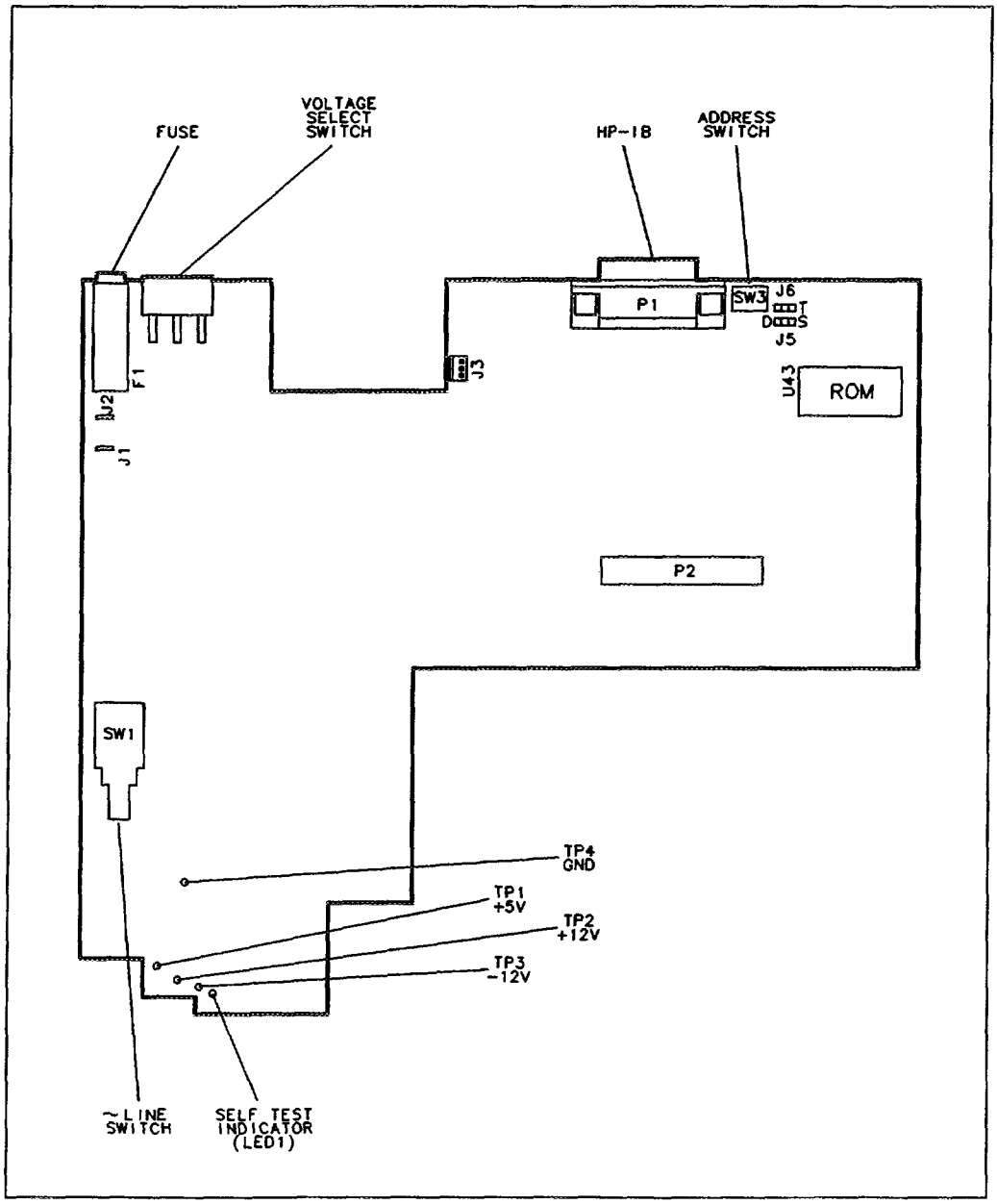
Table 9-2. FDM Connector (P2) Pinout

PIN	FUNCTION	PIN	FUNCTION
1	Disc Change Reset	18	Direction Select
2	Disc Change Indicator	19	Ground
3	+5V	20	Step
4	Density Bit	21	Ground
5	+5V	22	Write Data
6	Drive Select	23	Ground
7	+5V	24	Write Gate
8	Index Pulse	25	Ground
9	+5V	26	Track 0 Indicator
10	Drive Select 0	27	Ground
11	+5V	28	Write Protect Indicator
12	Drive Select 1	29	+12V
13	Ground	30	Read Data
14	Drive Select 2	31	+12V
15	Ground	32	Head Select
16	Motor On	33	+12V
17	Ground	34	Ready



C9122A01

Figure 9-1. Cabling Diagram (9122C)



C9122A04

Figure 9-2. PS/Controller PCA

Reference 10

10-1. Introduction

This chapter provides information on other manuals for this product and on media compatibility.

10-2. Related Manuals

- *Getting Started with Your HP 9122C Disc Drive*, reorder no. 09122-90299
- *19500B Rack Mounting Kit Installation Instructions*, part no. 19500-90902
- *SS/80 Exerciser Manual*, part no. 5958-4142

10-3. Media Compatibility

The HP 9122C uses 2-megabyte, double-sided, flexible discs. Table 10-1 lists recommendations when using other types of media.

CAUTION

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

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

Table 10-1. Recommended Use of Media

MEDIA	RECOMMENDATIONS
Single-sided, 0.5-megabyte HP discs	USE FOR DATA EXCHANGE ONLY. Do not use on a daily basis. Repeated use can cause wear and eventual failure of discs or heads. NEVER use a single-sided disc with a manual shutter in this disc drive (manual shutters lock open when moved to the open position). Single-sided discs operate at half speed and should be used with format option 4. Can be identified by blue case.
Double-sided, 1-megabyte HP discs	COMPATIBLE. May be used on a daily basis. Operates at half speed in this disc drive. Can be identified by gray case.
Double-sided, 2-megabyte HP discs	COMPATIBLE. Recommended for daily use. Provides best performance for this disc drive. Can be identified by "HD" symbol and black case. DO NOT USE IN EARLIER MODEL DISC DRIVES, loss of data may result.

Service Notes 11

No service notes existed at the time of this printing.