



HEWLETT
PACKARD

HP 9125S

SERVICE MANUAL

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**THIS MANUAL IS INTENDED ONLY FOR SERVICE PERSONNEL
TRAINED IN ITS USE
BY HEWLETT-PACKARD**

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[1] PRODUCT DESCRIPTION

The HP 9125S Disc Memory (Figure 1-1) is a random access data storage device. The HP 9125S contains a single 5 1/4-inch double-sided disc drive providing a maximum of 360 Kbytes (double-sided) of storage capacity.

The HP 9125S Drive uses the standard HP-IB interface and can read, write and initialize disc in the IBM PC format. This provides data exchange capability between the HP 150 and the IBM PC. The HP 9125S also provides data compatibility between the HP technical computers and the HP 150 PC.

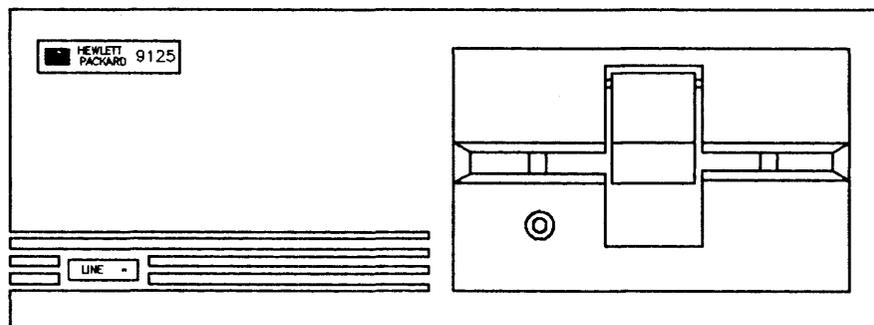


Figure 1-1. HP 9125S

[2] SPECIFICATIONS

PHYSICAL CHARACTERISTICS

Number of drives	1
Net Weight	7.26kg (16 lbs)
Height	100 mm (3.9 in.)
Width	325 mm (12.8 in.)
Depth	287.5mm (11.2 in.)

INTERFACE

IEEE 488-1978 (HP-IB)

PRODUCT INFORMATION

PERFORMANCE CHARACTERISTICS

Maximum Formatted Capacity		Capacity
Bytes per sector	512 (MSDOS, PCDOS) 256 (LIF)	
Sectors per track	8 (PCDOS version 1.0) 9 (HP MSDOS) 9 (PCDOS version 1.1) (Version 2.0 and greater) 16 (LIF)	160 Kbytes 270 Kbytes 180 Kbytes 360 Kbytes 270 Kbytes
Tracks per surface	40 (PCDOS, HP MSDOS) 35 (LIF)	

ELECTRICAL CHARACTERISTICS

Encoding	MFM (double-density)
Rotational Speed	300 RPM
Tracks per inch	48
Average access time	195 ms

OPERATING ENVIRONMENT

Operating Limits

Temperature	10° C to 40° C (50° F to 104° F) with maximum wet bulb temperature (non-condensing) not to exceed 29° C
Altitude	0 to 4572 m (0 to 15,000 ft)

Non-operating Limits (Storage and Transit)

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

POWER

LINE VOLTAGE	100-120 VAC (115 VAC line) 200-240 VAC (220 VAC line)
LINE FREQUENCY	48-66 Hz
POWER CONSUMPTION	50 Watts maximum

[3] EQUIPMENT SUPPLIED

Description	Quantity	HP Part Number
Power cord	1	Dependent on location
Fuse	1	2110-0002 (2 AMP, 250 VAC)
Operator's Manual	1	09125-90000

A package of ten discs has been set up as a product. This product is orderable using the 92190A product number.

[4] SUPPORT STRATEGY

The 5 1/4-inch disc drive assembly and the controller PCA are serviced on the exchange program.

EXCHANGE ASSEMBLIES	HP Part Number
5 1/4-inch disc drive	09131-69601
Controller PCA	09125-69502

[5] SERIAL INFORMATION

This Manual applies directly to Model 9125S Flexible Disc Drives having serial numbers prefixed by 2430. Drives with later prefix numbers will be covered in manual updating supplements.

SITE PREPARATION AND REQUIREMENTS

[1] INSTALLATION

The disc drive is connected to the computer or computing system using one of the HP-IB cables listed in Table 1. Refer to the Operators Manual for system specific interconnect.

Table 1

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

HP-IB INTERFACE RESTRICTIONS

1. All the AC line switches 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 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 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.

CAUTION

Disc drive performance and reliability are dependent on the type of media used. Disc drive specifications can be assured

only when using HP media. The use of improper media can result in premature disc failure or damage to the disc drive.

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.

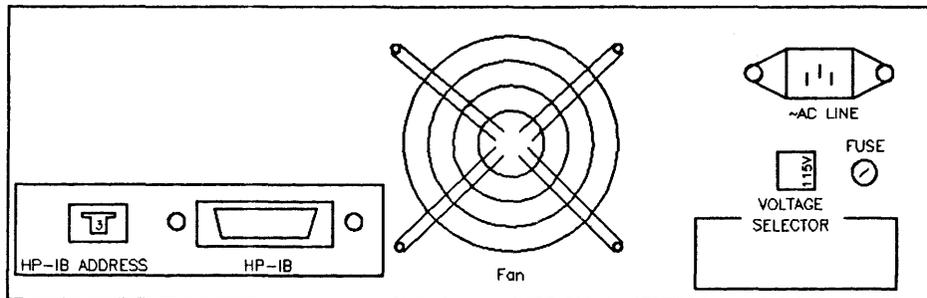
[2] CONFIGURATION OF STANDARD DRIVE UNIT

VOLTAGE SELECTION AND FUSING

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 3-2 shows the voltage select switch set for 115 VAC line voltage.

CAUTION

Always turn the AC power switch off or disconnect the AC line cord before changing the line voltage select switch position. Changing the line voltage select switch setting while AC power is on could damage the unit.



HP 9125S REAR PANEL

Figure 3-2

There is only one fuse required for each of the two voltage ranges of 110-120 and 220-240 VAC. The part number for the fuse is 2110-0002.

WARNING

ALWAYS DISCONNECT THE DISC DRIVE FROM ANY AC LINE BEFORE CHANGING FUSES.

SELECTING THE HP-IB ADDRESS

To select the HP-IB address, locate the thumbwheel switch on the back of the unit. Use figure 3-2 for locating the switch. Turn the thumbwheel switch until the address you want appears in the window. Refer to your system Operator's Manual for proper setting of the HP 9125S address within the system.

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, ROM, and PIA chips; followed by a WRITE/READ test (if an initialized, non write-protected disc is inserted). The disc access LED acts as a pass-fail selftest indicator.

The basic (passing) selftest lasts approximately 5 seconds, as indicated by the disc-access LED. When an initialized, unprotected disc is inserted; read, write, and motor-speed tests are performed, adding 6 seconds to the test duration. A write-protected disc will not allow the WRITE/READ 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 Section 8 for troubleshooting procedures.

WRITE PROTECT ERROR ON INITIALIZATION

A motor speed check is performed when a disc is inserted into the drive. If the motor speed is on either side of the tolerance allowed, a Write Protect Error is generated and the disc cannot be initialized or used. If the drive is operating properly, this indication is one of a defective disc. Discard the disc.

INSTALLATION AND CONFIGURATION

PREVENTIVE MAINTENANCE

SECTION

IV

[1] INTRODUCTION

The disc drive does not require regular maintenance. However, to extend the life of the flexible disc drive, a head cleaning kit (Hewlett-Packard part number 92190HC) may be ordered. The kit should be used only if you experience excessive read errors or if a disc has been damaged. Do not use the kit routinely, since repetitive use of a cleaning disc may accelerate head wear in the disc drive.

The performance and life of the disc drive and the flexible discs depend on how carefully they are handled. Refer to the disc care and handling guidelines presented in Chapter 1 of the Operator's Manual for the proper care of the disc.

PREVENTIVE MAINTENANCE

FUNCTIONAL DESCRIPTION

SECTION

V

[1] INTRODUCTION

The following paragraphs give a brief overview of the hardware and shows the memory allocations for the major LSI components of the HP 9125S.

Figure 5-1 is the block diagram for the unit.

MAJOR COMPONENTS

1. An HP-IB interface chip, 8291A, appears to the microprocessor as a bank of eight addressable registers and all interaction with HP-IB is performed by reading and writing to these registers.
2. The microprocessor is a Motorola 68B09. During normal operations, the microprocessor controls all of the internal busses. This includes the reads and writes to and from all of the chips. It is run by an external 8Mhz clock and produces two, 2Mhz clock signals (Q and E) which are used for the bus timing signals. Addresses from the microprocessor will be valid with the leading edge of Q (which leads the E signal) and data is latched on the falling edge of E.
3. All firmware is stored in the Intel D27128 EPROM. This includes the information for various selftest procedures and for SUBSET/80 command interpretation.
4. The RAM, a Toshiba 2016AP-12, stores 2048 bytes of information. All data transferred to or from the disk will be temporarily stored here. The remaining RAM space is used for stack and general purpose data storage.
5. Controlling the CDC drive is done by the Western Digital 2793-3X Floppy Disk Controller (FDC) chip. This chip is a formatter/controller chip which includes an on-board PLL data separator and write precompensation logic.
6. The 68B21 Peripheral Interface Adapter (PIA), interfaces many interrupt and control signals to and from the 68B09 microprocessor. It controls and monitors signals to and from the CDC drive including HEAD LOAD, MOTOR ON, HEAD SELECT, DISK CHANGE, RESET DISK CHANGE, and READY. It interfaces the FDC's interrupts, INTRQ and DRQ, and the CDC's INDEX into the processors's IRQ and DIRQ ports. It also inputs the configuration of a service test to be performed, and signals to the user that the power-on selftest passed.

MEMORY MAP

ADDRESS ALLOCATION	HEX ADDRESS	BINARY ADDRESS	
8291A (HP-IB)		msb	lsb
Status Register	2XX0	001- ----	---- -000
Interrupt Register	2XX1	001- ----	---- -001
Data Register	2XX2	001- ----	---- -010

FUNCTIONAL DESCRIPTION

Parallel Poll Register	2XX3	001- ---- ---- -011
Loop Address Register	2XX4	001- ---- ---- -100
Scratchpad Register	2XX5	001- ---- ---- -101
Scratchpad Register	2XX6	001- ---- ---- -110
Auxiliary Input Register	2XX7	001- ---- ---- -111

FDC

READ	WRITE		
Status Reg.	Command Reg.	0XX0	000- ---- ---- --00
Track Reg.	Track Reg.	0XX1	000- ---- ---- --01
Sector Reg.	Sector Reg.	0XX2	000- ---- ---- --10
Data Reg.	Data Reg.	0XX3	000- ---- ---- --11

PIA

CONTROL REGISTER
A-BIT2 B-BIT2

Peripheral Reg. A	1	X	6XX0	011- ---- ---- --00
Data Dir. Reg. A	0	X	6XX0	011- ---- ---- --00
Control Reg. A	X	X	6XX1	011- ---- ---- --01
Peripheral Reg. B	X	1	6XX2	011- ---- ---- --10
Data Dir. Reg. B	X	0	6XX2	011- ---- ---- --10
Control Reg. B	X	X	6XX3	011- ---- ---- --11

RAM

	4000	010- -000 0000 0000
Through	47FF	010- -111 1111 1111

ROM

	C000	1100 0000 0000 0000
Through	FFFF	1111 1111 1111 1111

UNUSED

Address...	8XXX	100- ---- ---- ----
And Address...	AXXX	101- ---- ---- ----

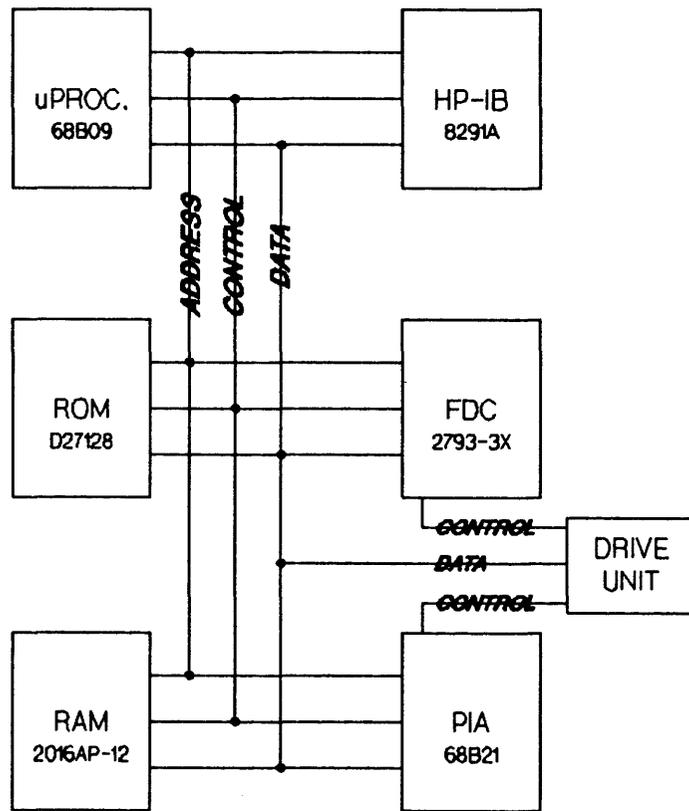


Figure 5-1

FUNCTIONAL DESCRIPTION

[1] INTRODUCTION

This chapter provides information for disassembly of the HP 9125S disc memory. An exploded view of the unit is also provided which references part numbers that are listed in the replaceable parts section.

The following tools are required for disassembly and reassembly of the disc memory.

1/4-inch nut driver
#1 pozidriv screwdriver (HP part number 8710-0899)
#2 pozidriv screwdriver (HP part number 8710-0900)
Needlenose pliers

Use **Figure 9-1** in the replaceable parts (Section IX) for assembly location. Use **Figure 6-1** and **6-2** for cable connector location.

The assemblies labeled on the drawing are as follows:

- 1 Top Cover
- A2 Power Supply PCA
- A3 Controller PCA
- 2 Disc Drive
- A5 HP-IB Connector Assembly

[2] TOP COVER REMOVAL (1)

To access the internal assemblies, the top cover must first be removed. Perform the following steps to remove the top cover.

- Remove the 2 screws located at the rear of the unit.
- Remove the 3 screws located on the bottom of the front panel.
- Slide the top cover forward for removal.
- To assemble, reverse the above process.

[3] CONTROLLER PCA REMOVAL (A3)

To remove the printed circuit assembly complete the following steps.

- Remove the 2 screws that attach the PC assembly to the chassis.

REMOVAL AND REPLACEMENT

- Carefully remove the two keyed ribbon cables (J1 and J2), and the DC power cable (J3).
- To assemble, reverse the above process.

[4] POWER SUPPLY PCA REMOVAL (A2)

- Remove the fan connector J6 and main DC power connector J5.
- Pull the white AC power button from the switch shaft and remove the shaft after pulling it forward from the switch.
- Disconnect the the two connectors and the ground strap coming from the AC line connector.
- Remove the two cable connectors coming from the power transformer to the power supply PCA (J3 and J4).
- Remove the two mounting screws and pull the plastic lock-pin upwards.
- Tilt the front of the PCA upwards enough to clear the transformer and lift the assembly from the chassis.
- To assemble, reverse the above process.

[5] DRIVE REMOVAL (2)

The drive assembly is attached to an aluminum mounting bracket, which is attached to the chassis. To remove the drive assembly, use the following steps:

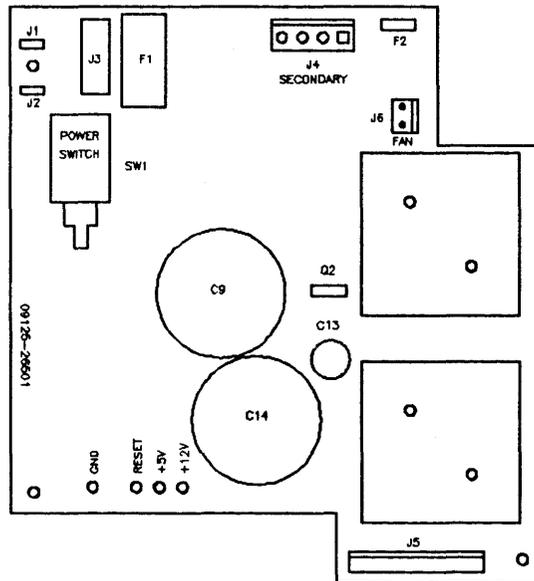
- Remove the top cover as stated above.
- Remove all connectors from the Drive control PCA.
- Remove the two screws that secure the Drive Control PCA; remove the PCA, and set it aside.
- Remove the power supply PCA using the steps stated above.
- Disconnect the 34 pin flat ribbon cable from the drive electronics board.
- Remove the two screws that secure the drive mounting assembly to the main frame.
- Slide the drive mounting assembly forward approximately 1/4 inch and lift upwards from the main frame.
- Remove the four screws that mount the drive to the drive mounting assembly.
- Remove the drive from the mounting assembly.
- Remove the DC power connector from the drive electronics board.

- To assemble, reverse the above process.

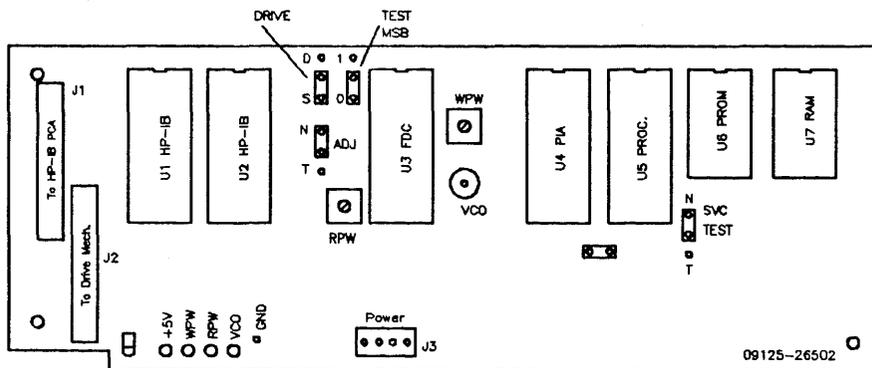
NOTE

Care should be taken to ensure proper fit of the drive unit front bezel into the front panel opening. When mounting the drive into the drive mounting assembly, adjust the drive down as far as possible before tightening the four drive mounting screws.

After assembling, verify that the disc drive eject lever does not bind on the front panel.



9125S POWER SUPPLY
Figure 6-1



9125S Controller PCA
Figure 6-2

REMOVAL AND REPLACEMENT

[1] INTRODUCTION

The Phase Lock Loop (PLL), Read Pulse Width (RPW), and Write Pulse Width (WPW) adjustments are performed as follows. The PLL adjustment should be performed when the unit exhibits read/verify errors or fails the VERIFY test (TEST 7). The RPW and WPW adjustments are not recommended as they rarely drift, and are not critical. The RPW and WPW procedures are included for troubleshooting purposes and for the case of unintentional adjustment only.

[2] PREPARATION FOR ADJUSTMENTS

The following procedure arranges the Drive Control PCA for easy access to test-points and jumpers.

1. Remove the top cover as described in Section VI, subsection 2
2. Remove the two Drive Control PCA mounting screws.
3. Unplug the 4-pin power supply connector from the Drive Control PCA (leave the flat ribbon cables connected).
4. Lift out the Drive Control PCA, and rotate it so that the ribbon cables face the rear of the unit.
5. Install one of the PCA mounting screws in the left mounting location. This screw serves as a support for the left side of the PCA.
6. With the Drive Control PCA in the rotated position, install the remaining PCA mounting screw through the lower right-hand corner of the PCA into the right mounting location. Rest the left side of the PCA on the left-side support screw.
7. Reconnect the power supply cable to the Drive Control PCA. The unit now appears as shown in figure 7-3.

To assemble, reverse the above process.

NOTE

Care should be taken to ensure proper fit of the drive unit front bezel into the front panel opening. When mounting the drive into the drive mounting assembly, adjust the drive down as far as possible before tightening the four drive mounting screws.

After assembling, verify that the disc eject lever does not bind on the front panel.

ADJUSTMENTS

PLL ADJUSTMENT

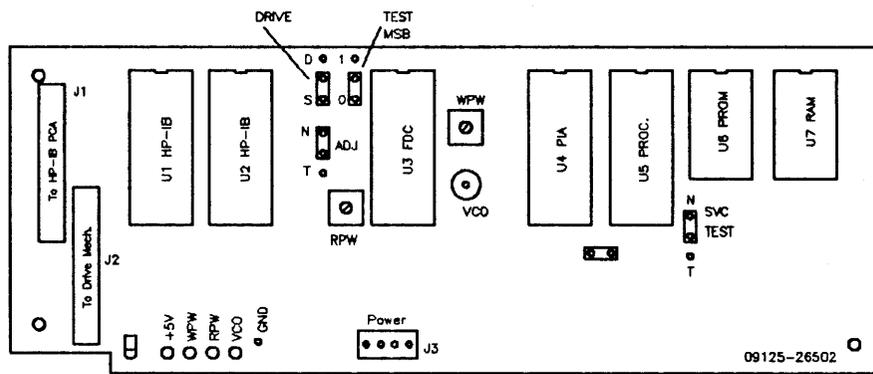
The PLL, as well as the RPW and WPW adjustments require the FDC chip to warm up prior to adjustment. Perform the following procedures at an ambient temperature of 25° C (77° F) in the order specified.

Use Figure 8-1 for locating test points.

1. Power-on the unit, and allow the power-on selftest to finish.
2. Set the ADJ jumper to the "T" position. This enables the FDC Adjust Mode.
3. After 2 minutes warm up, attach the frequency counter test leads to the VCO testpoint. The frequency should be 250 KHz \pm 5%. If adjustment is necessary, adjust the variable capacitor C3 for a frequency of 250 KHz \pm .2% (\pm 500 Hz).
4. Return the ADJ jumper to the original position.
5. Verify disc operation; recycle power and observe the selftest results.

RPW AND WPW ADJUSTMENTS

1. Perform the preceding power-on, and warm up procedure (repeat above steps 1 and 2)
2. Attach the oscilloscope test lead to the RPW test point.
3. Observe the waveform pulse width (see Figure 7-2). The pulse width should be 500 ns \pm 10%.
4. Attach the test lead to the WPW test point and observe the pulse width. The width should be 250 ns \pm 10%.
5. The RPW and WPW adjustments are rarely necessary. Perform only if the adjustments were inadvertently altered.
6. Return the ADJ jumper to the original position.
7. Verify disc operation as in step 5 of the PLL adjustment section above.



9125S Controller PCA

Figure 7-1

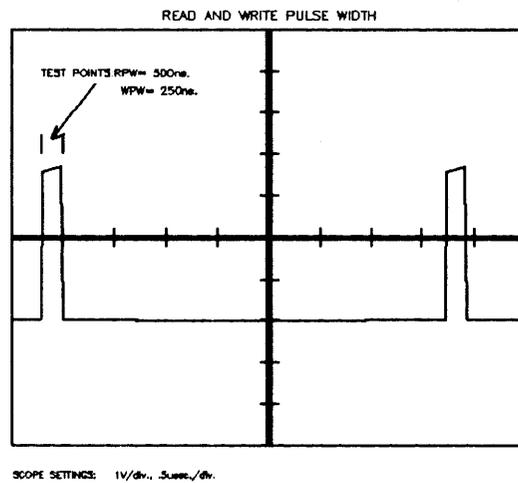
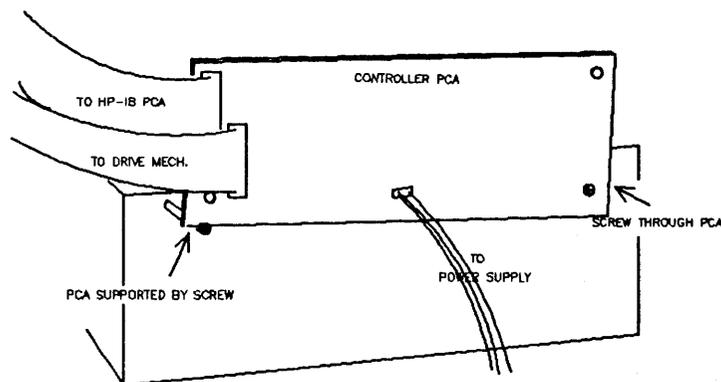


Figure 7-2



CONTROLLER PCA IN ROTATED TEST-POSITION

Figure 7-3

ADJUSTMENTS

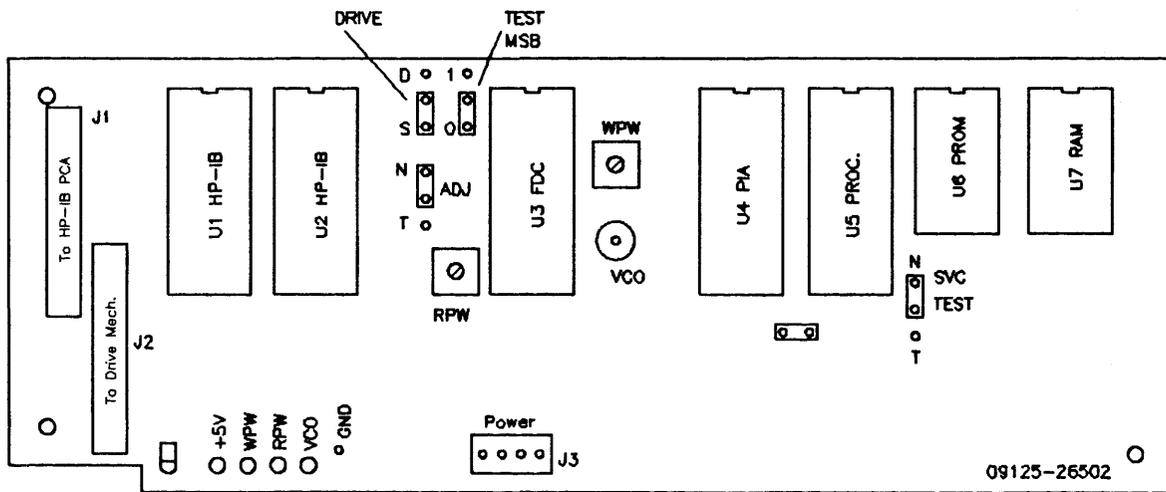
[1] REPAIR PHILOSOPHY

The 5 1/4-inch disc drive assembly and the controller PCA are serviced on the exchange program. The part numbers are as follows:

- 5 1/4-inch Flexible Disc Drive -- 09125-69601
- Controller/Power Supply Assembly -- 09125-69502

CONTROLLER ELECTRONICS ASSEMBLY

Figure 4-1 represents the controller printed circuit assembly. Along with key components, test points and jumpers are also labeled.

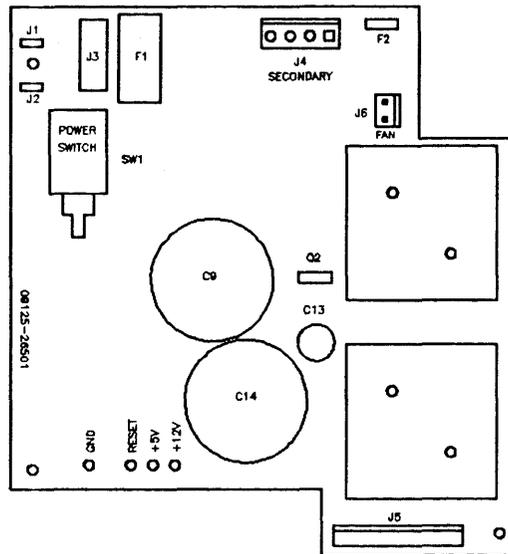


9125S Controller PCA

Figure 8-1

POWER SUPPLY ASSEMBLY

The power supply PCA is not an exchange assembly. The following Figure (Figure 8-2) is provided only for location of power supply voltage test points. This will aid you in isolating the failure to a replaceable assembly.



9125S POWER SUPPLY

Figure 8-2

[2] SELFTEST

Selftest routines can be initiated in 3 different ways. These test are initiated as follows

1. At power-on a selftest of the processor, ROM, HP-IB chip, microprocessor RAM, buffer RAM, and drive is performed.
2. With a host, the Initiate Diagnostic command can be given. It runs a test similar to those at power on.
3. The SVC TEST, when set to the "T" position, causes the HP 9125S to go into the diagnostic test mode. The HP 9125S interprets the 4 bit HP-IB switch and the TEST MSB jumper as a selftest to perform. The LED is blinked (to show th at it works) and then the test, as selected by the address switch setting, is performed. A successful test is indicated by the LED blinking (once per second). A failure causes the LED to stay on. The test results are displayed for 5 seconds. If the SVC TEST jumper is left on, the same test will be performed again. When the SVC test jumper is no longer in the diagnostic test position, the HP 9125S will go through the power-up sequence and will again be in the peripheral mode of operation, waiting for commands over the HP-IB.

NOTE

Putting the SVC TEST jumper in the "T" position, and then turning the unit on, will not initiate the selftest selected. You must install the SVC TEST jumper after the unit has gone through its power-on reset sequence.

The following table illustrates how to select the desired test using the HP-IB address switch and the TEST MSB jumper. Use Figure 8-1 for location of the TEST MSB jumper.

TABLE 1

HB-IB ADDRESS SW	TEST MSB JUMPER	SELECTED TEST
0	0	0
1	0	1
2	0	2
3	0	3
4	0	4
5	0	5
6	0	6
7	0	7
0	1	8
1	1	9
2	1	10
3	1	11
4	1	12
5	1	13
6	1	14
7	1	15

The Self-Test capability of the HP 9125 consists of being able to select and optionally loop on any one selected test from the following choices:

The results of a successful test are displayed by the FAULT-LED blinking (once per second). A failure causes the LED to stay on. Results are displayed for five seconds followed by a complete power-up sequence.

NOTE

A disc must be in the drive to perform test 5-8. Ensure that the disc is not write protected and that it is an initialized scratch disc.

AVAILABLE TEST

0	RAM	All possible patterns are written in all locations of RAM.
1	ROM	A checksum calculation is performed.
2	HP-IB	Two of the registers on the HP-IB chip are written and their contents verified.
3	FDC chip	Two of the registers on the FDC chip are written and their contents verified.

TROUBLESHOOTING AND DIAGNOSTICS

4	Floppy Seek	Commands are given to the FDC to move the head on and off track 0. The track 0 indicator is checked to see that movement occurred.
5	Floppy Speed	The head is stepped to track 35 and loaded. The period of the index pulse is measured and compared against the specification. No test is performed if there is no medium in the drive.
6	Floppy Write/Verify	Every sector on the disc is written and the data is verified. All user data on the medium is lost.
7	Floppy Verify	All sectors in the data area of the disc are checked for CRC errors. No user data is affected.
8	Floppy Format	The disc is re-initialized with a 011 data pattern.

NOTE

There are 16 selftests available. Test 9-16 are not used.

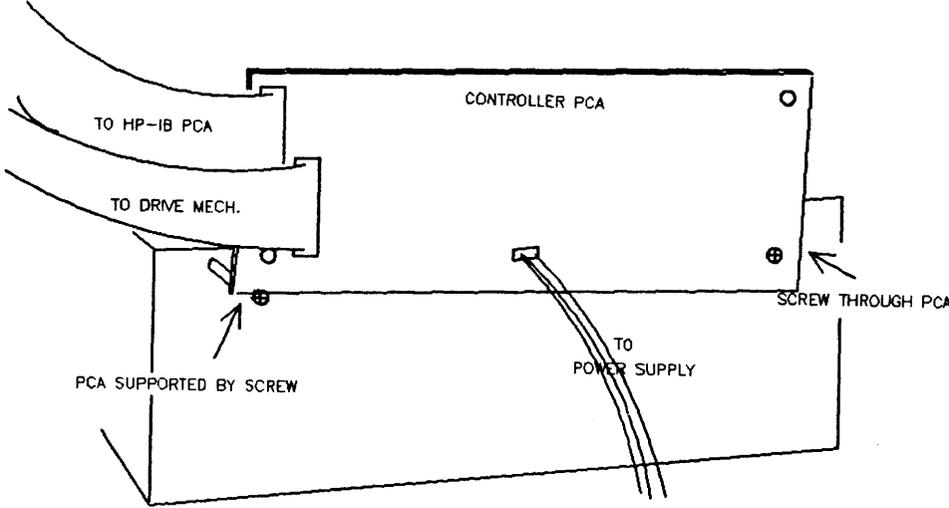
[3] PREPARATION FOR TROUBLESHOOTING

The following procedure arranges the Drive Control PCA for easy access to test-points and jumpers for troubleshooting.

1. Remove the top cover as described in Section VI, subsection 2.
2. Remove the two Drive Control PCA mounting screws.
3. Unplug the 4-pin power supply connector from the Drive Control PCA (leave the flat ribbon cables connected).
4. Lift out the Drive Control PCA, and rotate it so that the ribbon cables face the rear of the unit.
5. Install one of the PCA mounting screws in the left mounting location. This screw serves as a support for the left side of the PCA.
6. With the Drive Control PCA in the rotated position, install the remaining PCA mounting screw through the lower right-hand corner of the PCA into the right mounting location. Rest the left side of the PCA on the left-side support screw.
7. Reconnect the power supply cable to the Drive Control PCA. The unit now appears as shown in Figure 8-3.

To assemble, reverse the above process.

After assembling, verify that the disc eject lever does not bind on the front panel.



CONTROLLER PCA IN ROTATED TEST-POSITION

Figure 8-3

REPLACEABLE PARTS

SECTION

IX

[1] INTRODUCTION

In the following parts list, the major assemblies are designated by the number "1". All piece parts of that major assembly are designated by a decimal number ".2", and lower level parts by ".3" etc.

CABLES

1	09125-61600	DRIVE CONTROL CABLE
1	09125-61601	POWER CABLE
1	09125-61602	INTL HP-IB CABLE

ELECTRICAL PARTS

1	09125-66501	POWER SUPPLY BD
1	09125-66502	CONTROLLER BD
1	09125-66503	HP-IB BD
1	09153-68801	LINE FILTER ASSY

MECHANICAL PARTS

1	09125-68500	FAN ASSY
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CASE PARTS

1	0380-1756	SNAP-IN STANDOFF
1	0403-0427	BUMPER FOOT
1	07940-00026	FAN GUARD
1	09121-48303	FOOT-MOLDING
1	09125-00100	CHASSIS
1	09125-04700	DRIVE BRKT
1	09125-40200	FRONT PANEL
1	09153-04100	TOP COVER (1)
1	09153-43700	PUSH ROD
1	5041-1203	PWR BUTTON, WHITE
1	0515-0413	SCR-MACH M4X.7

REPLACEABLE PARTS

1	0515-1085	SCR-MA M4X.7 8MM
1	0624-0525	SCR-TPG 10-14

EXCHANGE ASSEMBLIES

1	09125-69601	DISC DRIVE (2)
1	69125-69502	CONTROLLER BOARD

POWER SUPPLY BOARD (A2)

1	09125-66501	POWER SUPPLY BD
.2	C1,2	C-F .1UF 100V
.2	C8,10	C-F 2200PF 10%
.2	C5,6,12	C-F .01UF 10%
.2	C15,16	C-F .22UF 10%
.2	C11	C-F 3.3UF 15V
.2	C7,13	C-F 220UF 35V AL
.2	C4	C-F 100UF 63V AL
.2	C3	C-F 33UF 100V
.2	C9	4700 UF CAP
.2	C14	C-F .01F
.2		0340-0583 INSUL-XSTR T0-3
.2	J1	0360-2035 CONN-SGL CONT
.2		0590-0305 NUT HEX 6-32
.2	R8	0683-1025 R-F 1K 5% .25W
.2	R9,16	0683-1045 R-F 100K .05
.2	R3,7	0683-1205 R-F 12 5% .25W
.2	R14,15	0683-1245 R-F 120K .05
.2	R18	0683-1635 R-F 16K 5% .25W
.2	R2	0683-6225 R-F 6.2K 5%
.2	R13	0698-3136 R-F 17.8K 1%
.2	R4,6	0698-3511 R-F 665 .01
.2	R1	0698-3628 R:F 220 5% 2W MO
.2	R5,12	0698-4465 R-F 931 OHM 1%
.2	R10,11	0757-0442 R-F 10.0K 1/8W
.2		09121-48305 STAND-OFF CAP
.2		09125-84302 CAP CAUTION LBL
.2		1205-0503 XSTR MOUNT T03
.2		1205-0602 HEATSINK
.2	J2	1251-5153 CN SGL-CONT TAB
.2	J6	1251-6427 CN2 .1 SQ POST
.2	J4	1251-8958 CN4 .156 RND PST
.2	J5	1252-0349 10.1 CONN
.2	J3	1252-0362 PRIMARY 4.1 CONN
.2	U2	1826-0346 IC-LM358
.2	U4	1826-0412 LM 393 V.COMPAR
.2	U1	1826-0555 IC-LM340LAZ-5
.2	Q1	1854-0087 XSTR-ST NPN
.2	U5,6	1854-0611 XSTR-2N6055 NPN

REPLACEABLE PARTS

.2	U3	1884-0074	IC-2N5060
.2	CR9, 10	1901-0025	DIO-SI
.2	CR1-8	1901-1135	DIO-PWR 3A 70V
.2	CR12	1902-0040	DIO-ZNR 14V 5%
.2	R17	0811-3292	R-F .15 ohm 5% 2W
.2	R19	0683-1515	R-F 150 ohm 5% .25W
.2	CR14	1902-0562	DIO-ZNR 22V 5% 1W
.2	Q2	1884-0293	THYRISTOR
.2	CR13	1902-0074	DIO-ZNR 7.15V 5%
.2	CR11	1902-0644	DIO-ZNR 1N5363B
.2	F1	2110-0002	FUSE 2A 250V
.2		2110-0565	CAP-FUSE HOLDER
.2		2110-0642	FUHLR-EXTR POST
.2	F2, 3	2110-0711	5 AMP FUSE
.2	SW1	3101-0680	SW-PB-DPDT
.2	SW2	3101-2623	SWITCH-SLIDE
.2		7120-7500	LABEL-INFO

CONTROLLER BOARD (A3)

1		09125-66502	CONTROLLER BD
.2	C3	0121-0552	C-V 7-60PF VAC
.2	C1, 2, 4, 6-8, 11	0160-4832	C-F .01UF 10%
.2	C5	0160-5098	C-F .22UF 10%
.2	C9	0160-5349	C-F 200PF 5%
.2	C10	0180-0374	C-F 10UF 20VDC
.2		0360-0124	STUD-TERM
.2	R5	0698-4507	R-F 76.8K 1%
.2	R3	0757-0280	R-F 1K 1% .125W
.2	R4	0757-0411	R-F 332 OHM 1%
.2	R6	0757-0442	R-F 10.0K 1/8W
.2	U6	09125-89101	IC EPROM CTRL
.2		1200-0861	SKT-IC 28-CONT
.2	3060	1251-5380	CN2.1 SQ POST
.2	J3	1251-7018	CN4.1 SQ POST
.2	J2	1251-8683	CONNECTOR, 34 PIN
.2	J1	1252-0407	CONN-33 PIN POST
.2		1258-0141	JUMPER-REM
.2	RP3	1810-0190	NTWK-R13X2.2KDIP
.2	RP2	1810-0204	NTWK-R 7X1K SIP
.2	RP1	1810-0205	NTWK-R 7X4.7KSIP
.2	U17	1813-0194	XTAL-CLK-OSC
.2	U7	1818-1611	IC-STATIC RAM
.2	U11, 12	1820-0471	IC-SN7406N
.2	U10	1820-0681	IC-SN74S00N
.2	U13, 18	1820-1112	IC SN74LS74AN
.2	U19	1820-1208	IC-74LS32
.2	U9	1820-1216	IC-SN74LS138
.2	U8	1820-1416	IC SN74LS14N
.2	U14	1820-1423	TTL SN74LS123N
.2	U20	1820-1433	IC SN74LS164N
.2	U15, 16	1820-2096	IC SN74LS393N
.2	U2	1820-2549	IC-8291AP

REPLACEABLE PARTS

.2	U5	1820-2624	IC-68B09
.2	U4	1820-2983	IC 68B21
.2	U3	1820-3659	WD-2793-02 FDC
.2	CR1	1901-0050	DIO SWITCHING
.2	LED 1	1990-1022	LED,VIS-RED/BRKT
.2	U1	1LH4-0001	TRANSCEIVER
.2	R1,2	2100-3210	RES-TRMR 10K 1%
.2		7120-6830	LABEL INFO

HP-IB BOARD (A5)

1		09125-66503	HP-IB BD
.2		0380-1717	STANDOFF-HEX
.2		09125-04101-P	PERS COVER PLATE
.2		1251-7651	CN24 M AMP CHAMP
.2		1251-8683	CONNECTOR,34 PIN
.2		2190-0843	WSHR-LK INTL T#8
.2		2200-0107	SCR-MACH 4-40
.2		3100-1951	SW-THUMBWHEEL-10
.2		7120-7501	LABEL-INFO

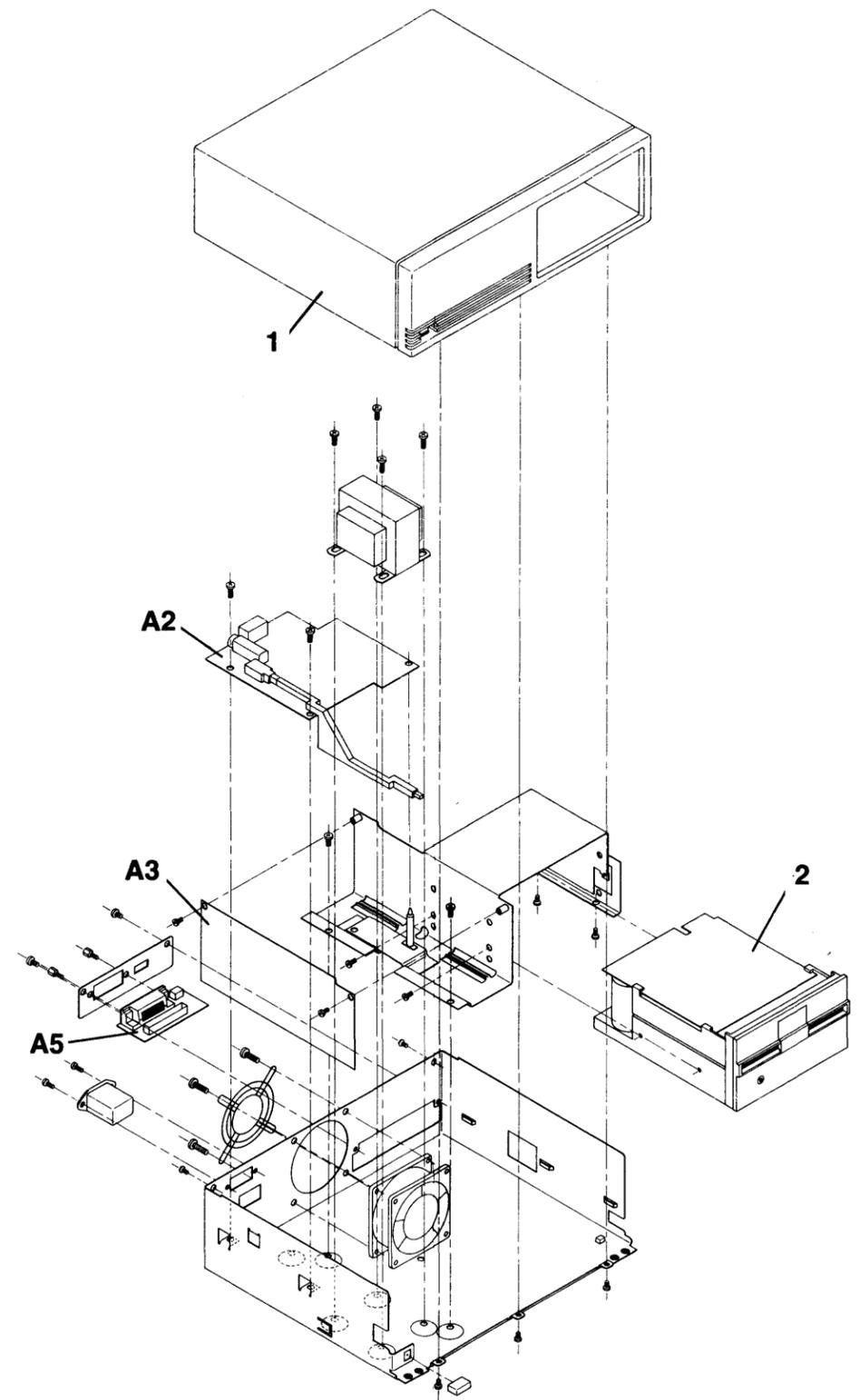


Figure 9-1

REFERENCE

SECTION

X

NONE DESIGNATED AT THIS TIME

REFERENCE

PRODUCT HISTORY

SECTION

XI

NOT APPLICABLE AT PRESENT TIME

PRODUCT HISTORY

DIAGRAMS

SECTION

XII

ADDITIONAL DIAGRAMS NOT REQUIRED.

DIAGRAMS

ADDITIONAL INFORMATION

SECTION

XIII

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ADDITIONAL INFORMATION

HP 9125S

SELF-STUDY GUIDE

This guide will temporarily act as the self-study training for the HP 9125S. The final HP 9125S Self-Paced Training Guide will be introduced mid-1985.

BEFORE YOU BEGIN THIS COURSE

This section is a learning guide for the HP 9125S Disc Drive. To successfully complete this program you should have the following:

1. A good understanding of digital electronics
2. At least one year of experience in digital electronic repair or direct supervision by a person with more than one year experience in disc repair
3. A working HP 9125S disc drive
4. The HP 9125S Service Manual.

Products Covered

This guide covers the HP 9125S product only.

How to Take This Course

Refer to the reference material as instructed, perform the labs, and answer the lab questions.

Theory of Operation

Turn now to the Section V of the 9125S Service Manual, and read the functional description section.

Installation

Refer to Section III of the Service Manual during the following exercises.

Lab 1

1. Unpack your disc unit and inventory the standard equipment provided with the unit.
2. Check the setting of the line voltage select switch, and ensure that it is properly set for the line power in your area.
3. Remove the line fuse from the unit, and verify that it is the correct value for the selected line voltage setting.
4. Locate the HP-IB address switch. It is used to select selftests (explained later) as well as to select the device address. The device address will vary with the host computer.

Reference

Refer to the following sections of this manual when performing the following lab exercises.

Functional Description	Section V
Removal and Replacement	Section VI
Adjustments	Section VIII
Troubleshooting	Section VII

Lab 2

1. Install a formatted, unprotected disc; power the unit on. Observe the Power-on selftest results.
2. Repeat step 1 with a WRITE-PROTECTED disc installed. Were the selftest results different? How?
3. Perform each of the jumper-selectable selftests. Remember that a disc must be installed for all tests that access the disc; unprotected discs are necessary to allow the write operation.

ADDITIONAL INFORMATION

Lab 2 discussion

1. Observe the Power-on Selftest results.
2. The duration of the Selftest is shorter than that of step 1. Tests involving the WRITE operation are skipped when a WRITE-PROTECT tab is detected.
3. Observe the Selectable Selftest results.

Troubleshooting

Read the Troubleshooting section of the HP 9125S Service manual and proceed to Lab 3.

Lab 3

1. Install a WRITE PROTECTED disc in the drive, and run the WRITE/READ test (TEST 6).
2. Select and run TEST 10 (HP-IB switch to 2; MSB jumper to 1). What are the test results? Why?

Lab 3 discussion

1. The WRITE/READ test fails since the WRITE PROTECT tab prevents the WRITE operation.
2. The test fails (test-LED stays on for 5 seconds). Test 10 is not a valid test.

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