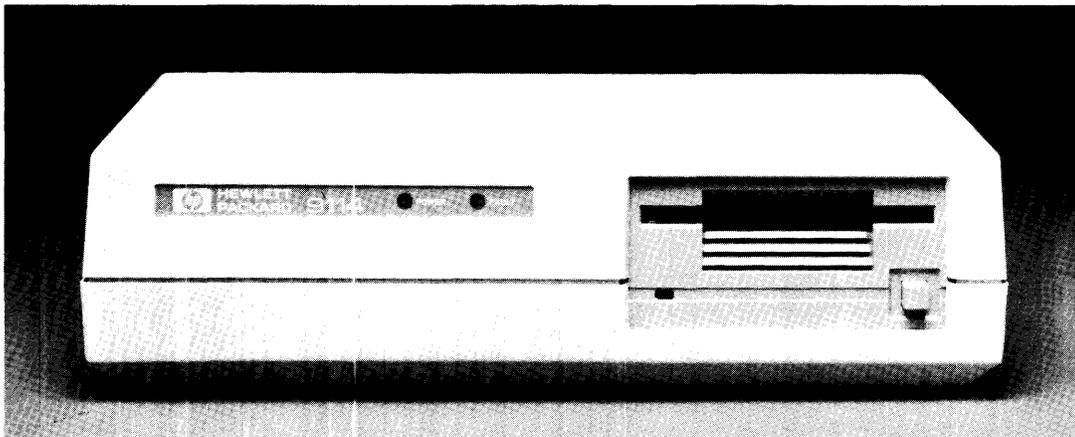


Introduction

The HP 9114A Disc Memory (Figure 1-1) is a random access data storage device. The HP 9114A contains a single 3 1/2 inch double sided disc drive providing 710 Kbytes of storage capacity. The HP 9114A is battery-powered by a 6 volt lead-acid dry cell.

The HP 9114A Drive supports both the SUBSET/80 and the FILBERT command set to allow the device to be compatible to existing and future HP-IL devices.



HP 9114A

Figure 1-1. HP 9114A Flexible Disc Memory

Technical Specifications

Listed next are the electrical and physical specifications for the HP 9114A disc memory.

Number of drives	1
Net Weight	2.68kg (5.9 lbs)
Height	76 mm (3.00 in.)
Depth	200 mm (8.00 in.)
Width	287.5mm (11.5 in.)

GENERAL INFORMATION

Interface	HP-IL
HP Double Density Format	
Encoding:	MFM
Rotational Speed:	600 RPM
Bit Density @ 600 RPM:	Track 79 (Inside track) 8717 BPI
Track Density:	135 tracks per inch
Tracks per Surface:	80
Surfaces used per disc:	2

Capacity	HP 110	Series 40 and 70
Bytes/Sector:	512	Max storage capacity will vary
Sectors/Track:	9	depending on the REV firmware
Bytes/Drive (Formatted):	710 Kbytes	used in the 40 and 70 series
		products. Typical would be 128K
		bytes.

NOTE

The HP 9114A spares 4 complete tracks. This reduces the usable user space to $512 \times 9 \times 78 \times 2$ (bytes/sector times sector/track times unspared tracks times number of sides.) This total equals 718.848 Kbytes. Additionally, directories further reduce usable user space. This, as implemented by HP, generally takes track 0. Actual usable space will be 718.848 Kbytes minus track 0 for a total of 709.632 Kbytes.

Access Time

Track-to-Track Seek:	15 ms/track plus 42 ms settling
Maximum Track-to-Track Seek (80 tracks):	1242 ms
Average Track-to-Track:	447 ms
Maximum Rotational Latency:	100 ms
Average Rotational Latency:	50 ms
Spindle Motor on time:	400 ms
Maximum Data Access Time (Seek plus Latency plus Motor on time):	1742 ms
Average Data Access Time:	497 ms
Maximum Sustained Transfer rate:	6 Kbytes/second

Maximum sustained transfer rate of the 9114 will be dependent on the number of devices contained within the HP-IL loop. As more devices are added, the apparent data transfer rate decreases.

Power Requirements

The HP 9114A is powered by a 6 volt lead-acid dry cell. The charging time of the battery to 80% of capacity is approximately five hours. The standby life (no access to the disc) is greater than three days. The following table shows the estimated battery life at various duty cycles.

TIME BETWEEN DISC ACCESSES	BATTERY LIFE	
	WITHOUT CHARGER	WITH CHARGER
0 SECONDS	40 MIN	60 MIN
10 SECONDS	75 MIN	2 HRS
30 SECONDS	2 HRS	3 HRS
60 SECONDS	4 HRS	20 HRS
90 SECONDS	6 HRS	CONTINUOUS

AC Adapter/Recharger

The adapter/recharger can be connected to the disc drive at any time. If you connect the recharger during read/write operations (disc access light is on), avoid jarring the drive.

You can use the disc drive while the battery pack is charging. In fact, it is recommended that you use the adapter/recharger whenever possible, even when the battery is fully charged.

The sealed lead-acid battery operates best on shallow, less than 30% discharge cycles, or constant "trickle" charge with the recharger usually connected.

Normal battery life is 3 to 5 years. Replacement batteries are available; order HP 88014A Rechargeable Battery Pack.

To preserve the maximum capacity of the battery pack, charge it fully and operate as much as possible with the recharger connected.

WARNING

Do not short the battery. This will blow a fuse internal to the battery pack and make the pack inoperative.

Do not incinerate. The battery can burst if thrown into a fire.

Do not put within reach of children.

Do not disassemble the battery. The strong acid electrolyte sealed inside can burn your skin and clothes.

If the battery is accidentally broken and the electrolyte (gelled sulfuric acid) leaks out, neutralize the acid with some available alkaline substance, such as ammonium solution or baking powder (sodium hydrogen carbonate) and wipe up the spill with a cloth.

GENERAL INFORMATION

In the event electrolyte contacts the skin, immediately flush with water and consult a doctor.

CAUTION

This battery pack is designed specifically to work with an HP recharger; Therefore HP is not responsible for damages caused by using a non HP recharger.

The adapter/rechargers listed next are recommended for use with the HP 88014A Rechargeable Battery Pack.

Model	AC Voltage	Identification
HP 82059B	90 to 120	United States
HP 82066B	210 to 250	Europe
HP 82067B	210 to 250	United Kingdom
HP 82067B Opt 001	210 to 250	Republic of South Africa
HP 82068B	210 to 250	Australia
HP 82069B	90 to 120	Europe

Environmental Specs

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 (85° F)

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

Non-operating Limits (Storage and Transit)

Temperature: -40°C to 60°C (-40° to 140° F)

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

NOTE

The flexible disc in the HP 9114A Disc Memory is designed for operation in a typical office environment. Use of the equipment in an environment containing dirt, dust, or corrosive substances will cause the flexible disc drives and media life to be drastically reduced.

Equipment Supplied

The following equipment is supplied with each HP 9114A disc memory.

Description	Quantity	HP Part Number
AC Adapter/Recharger	1	Dependent on location
HP-IL Cable	1	82167B (1 metre)
Flexible Disc	1	-----
* Operator's Manual	1	09114-90000

A package of ten discs has been set up as a product. This product is orderable using the 92192A product number.

Unpacking Your HP 9114A Disc Memory

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

CAUTION

**THE DISC MEMORY IS A PRECISION INSTRUMENT.
MECHANICAL SHOCK CAN MISALIGN THE READ/WRITE
HEAD, RESULTING IN READ ERRORS AND/OR DAMAGED
DISCS WHETHER THE DISC IS OPERATING OR NOT.**

When moving the disc unit, care should be taken to prevent excessive shock. Install the cardboard disc supplied with the product before moving it to another location.

Cleaning the Case

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

CAUTION

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

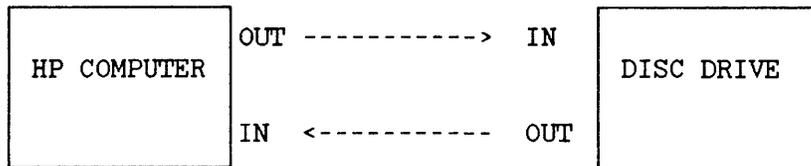
Before cleaning the case, disconnect the charger and HP-IL cables. Make sure that any disc is removed from the drive. Dampen a clean, soft, lint-free cloth in a solution of clean water and mild soap. Wipe the soiled areas of the case, making sure that no cleaning solution gets inside the case. For cleaning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

GENERAL INFORMATION

Connecting the Disc Drive to the System

The disc drive is connected to the computer or computing system using the HP 82167 HP-IL cable. Each device must have two cables connected to it, an "In" and an "Out". This is shown next.

DISC DRIVE AND COMPUTER ONLY



DISC DRIVE AND COMPUTER SYSTEM

These devices can be connected in any order. Also the devices can be in any location.

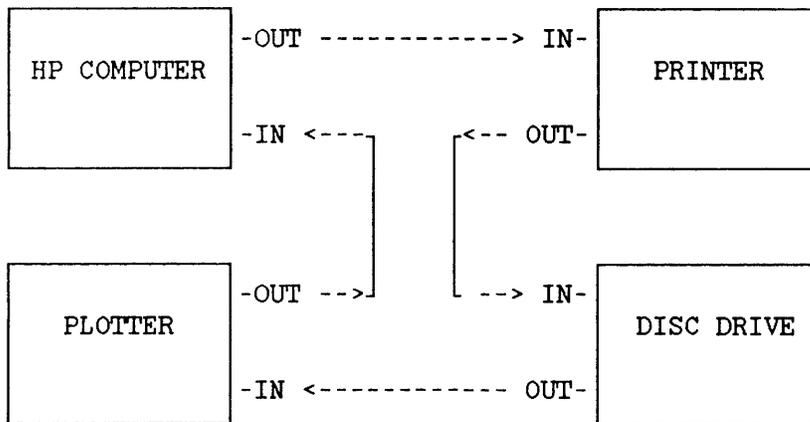


Figure 2-1. System Interconnects

CAUTION

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

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

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

Installing the AC Adapter/Recharger

The power light on the front panel flashes whenever it's time to charge the battery. When you get the low battery indication, the battery provides a reserve operating time of about five minutes, or a standby time of about thirty minutes. After the battery voltage drops below a minimum, the drive will not respond to read or write operations. This is to protect your data.

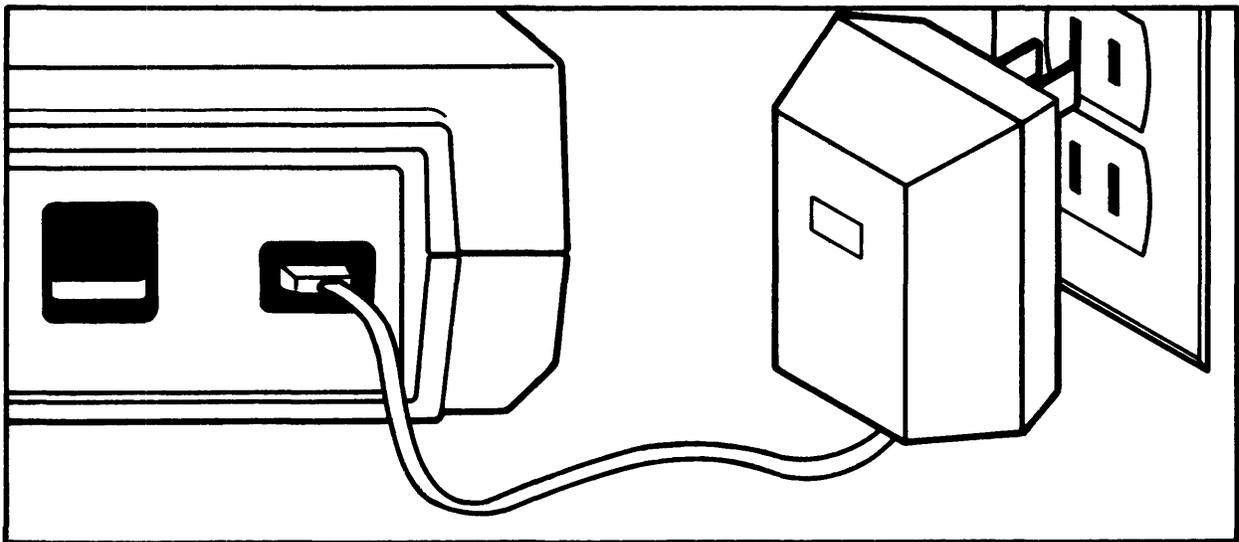


Figure 2-2. Connecting the Adapter/Recharger

The adapter/recharger can be connected to the disc drive at any time. If you connect the recharger during read/write operations (disc access light is on), avoid jarring the drive.

Insert the adapter/recharger plug into the recharger receptacle on the back of the disc drive.

Insert the power plug of the adapter/recharger into an AC power outlet.

You can use the disc drive while the battery pack is charging. In fact, it is recommended that you use the adapter/recharger whenever possible, even when the battery is fully charged.

Loading the Flexible Disc

To insert and remove flexible discs, perform these steps.

1. Remove the cardboard disc from the drive by pressing the disc eject button.
2. Hold the disc with the label up (centering hub down).

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

3. Slide the disc into the drive (shutter side first) until you feel the disc drop into the drive. The disc physically drops about 1/8 inch. Do not force the disc.
4. Remove the disc by pressing the disc eject button. Pull the disc straight out.

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.

After connecting the HP9114 to the system, locate the power (on/off) button on the back panel. This is a rocker switch with labeling on each side, "0" and "1". Pressing in the rocker on the "0" side, turns the drive off. Pressing in on the side labeled "1" turns the drive on. Now, let's turn it on.

Power-on Selftest

A power-on selftest is performed automatically when you turn on the disc drive. The Fault light is the selftest indication. This light is on when selftest is in operation. The selftest takes approximately 6 seconds after which the fault light goes out. If you have a disc inserted in the drive, read and write testing (involving the disc) takes an additional 5 seconds or a total of approximately 11 seconds. If the Fault light stays on after the normal testing time an error within the disc drive has been detected. If this ever happens, please see Chapter 4. Make sure that the disc used in the selftest is not write protected. If this disc is write protected, only the 6 second test is performed.

The selftest will check the HP-IL, FDC, RAM, ROM, and the PIA chips during the first half of the test. The second half of the test will attempt to do a write/read on system track 79 of an initialized discette only if the disc is installed and if it is initialized. If neither of these conditions are met, only the first half of the test is performed.

If any of the test mentioned fail, please refer to chapter 4 for further information to isolate the problem.

Media Monitor

Installation

Through a feature called Media Monitor, the disc drive automatically monitors the cumulative use of each individual disc. When the usage of a disc is approaching a level at which there is a risk of loss of data through normal disc wear, the disc access light on the front panel blinks and a clicking sound is heard. Once this point has been reached in the life span of a disc, read and write commands are still performed by the computer. However, after a command has been performed, the disc drive immediately resumes the warning indication.

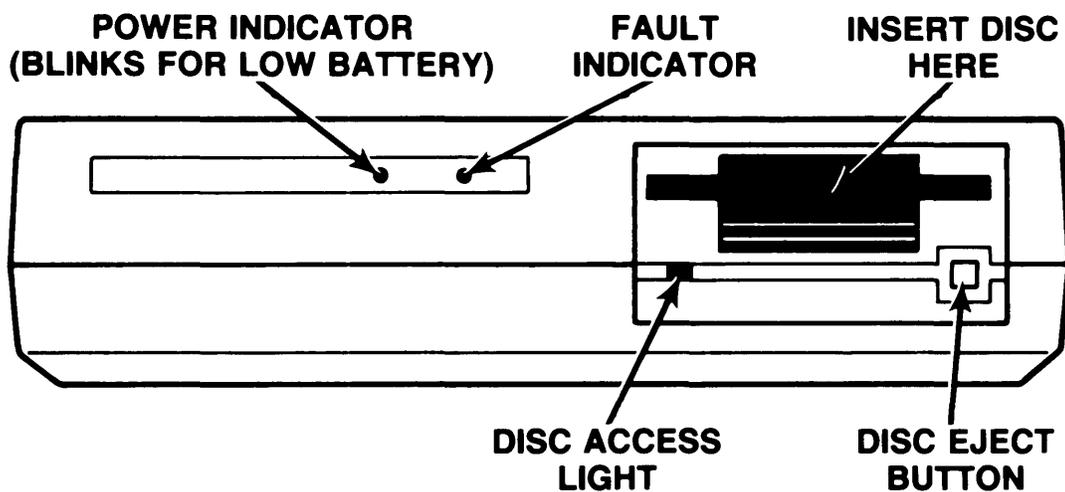
When the Media Monitor warning occurs, immediately copy your disc. If you continue to use this disc, the disc drive will eventually automatically write protect the disc. After that time, you will only be able to read data from the disc or copy the disc.

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 your drive is operating properly, this indication is one of a defective disc. Discard the disc.

Controls and Indicators

FRONT PANEL



REAR PANEL

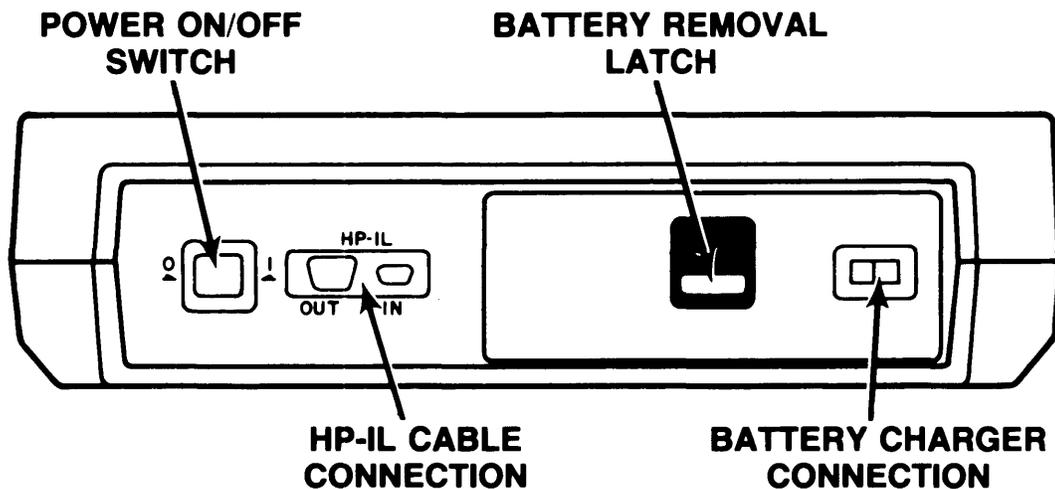


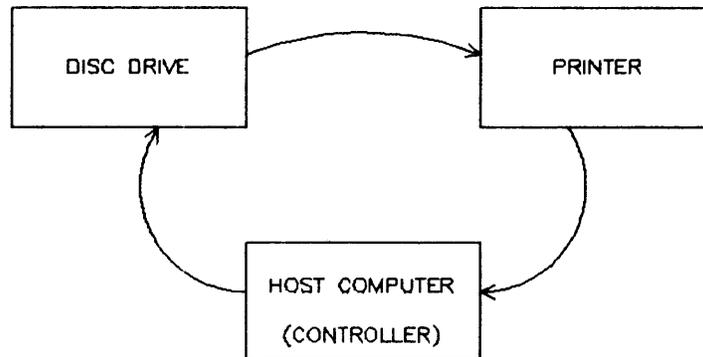
Figure 2-1. Controls and Indicators

Interface Information

CHAPTER

3

HP-IL (Hewlett Packard Interface Loop) is a medium speed, serial communications interface. It communicates one bit at a time over a two-wire cable connecting devices and controllers.



A simple HP-IL system

There are three types of devices in an HP-IL system: Talkers, listeners, and controllers. Talkers send data over the loop. Listeners receive from a talker, or commands from a controller.

Controllers are in charge of all loop operations. They assign addresses to devices, assign device roles, service device requests, and initiate the transfer of data from talker to listener(s). Messages originate at a controller or talker, circulate around the loop to each device and return to the source.

Device addressing is determined by device location in the loop. The host first sends an auto-address command around the loop to initiate addressing; the first device in the loop accepts the first address (1), increments the address by 1, and passes it to the next device in the loop. The devices continue to accept their address, increment, and pass until all devices have an address.

HP-IL will support up to 31 devices on a loop. The maximum supported length is 10 meters per device. Though the theoretical maximum transfer rate is 20 Kbytes per second, the maximum achievable rate is 6 Kbytes per second using currently available equipment.

For more detail on HP-IL, see the defining document: "HP-IL Interface Specification", part number 82166-90017.

Repair Philosophy

The 3 1/2-inch disc drive assembly is serviced on the exchange program. The assembly includes the drive and drive electronics board.

The selftest and alignment procedures are given to enable you to isolate problems and correct misalignment in the field.

Power supply information is presented in each tabbed section. Controller assembly detailed information is not presented.

Exchange Assemblies

The following assemblies are exchange assemblies:

3 1/2-inch Flexible Disc Drive	-- 09114-69511
Controller/Power Supply Assembly	-- 09114-69510

Non-Exchange Assemblies

The following assemblies are not exchangeable:

Internal HP-IL Cable	-- 09114-61611
Drive Cable, RBN	-- 09114-61612
Battery Cable	-- 09114-61613
On/Off Cable	-- 09114 61614
Internal Sony PWR Cable	-- 09114-61610
Battery Pack	-- 88014A
Recharger	-- 82059-60003

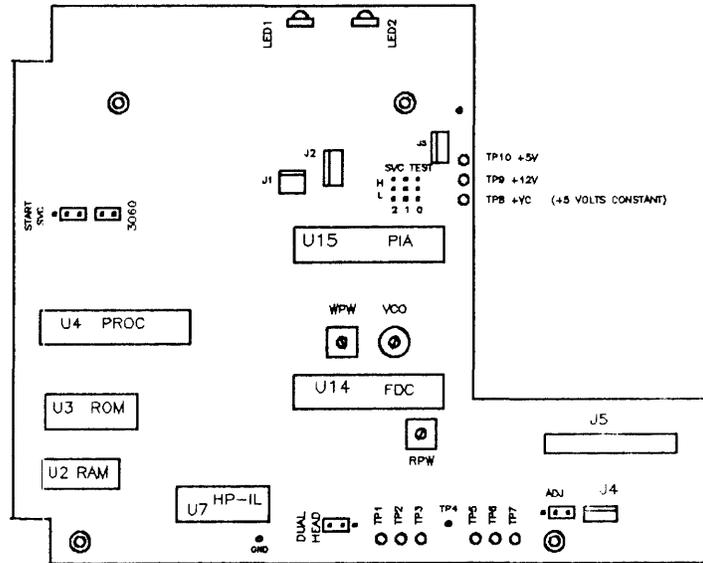
Field Service Inventory

The following list of assemblies and parts is recommended for your Field Service Inventory (FSI)

Internal HP-IL Cable	-- 09114-61611
Sony Drive Cable	-- 09114-61612
Battery Cable	-- 09114-61613
On/Off Cable	-- 09114 61614
Internal drive PWR Cable	-- 09114-61610
Battery Pack	-- 88014
Recharger	-- 82059-60003
Controller/Power PC Board	-- 09114-69510
3 1/2-inch Flexible Drive	-- 09114-69511

Controller Electronics and Power Supply Assembly

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



ALL JUMPERS ARE SHOWN IN NORMAL OPERATING POSITION.

FIGURE 4-1

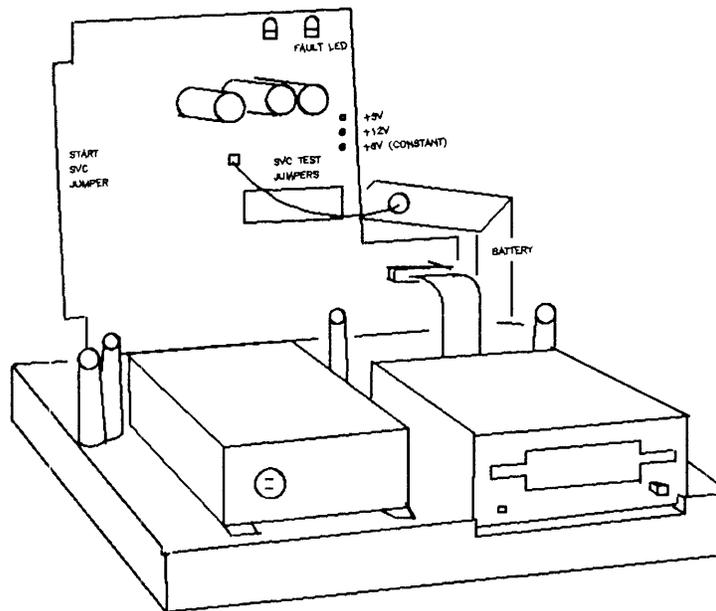


FIGURE 4-2

Selftest

To implement the selftests available on the HP9114A controller, the following setup procedure should be followed.

Setup:

- remove the battery pack and set it on its rear pannel adjacent to the unit as shown in figure 4-2
- remove the 4 recessed Torx-head screws from the bottom of the unit.
- remove the top cover by pulling the cover straight up.
- remove the 4 Torx-head screws attaching the PCA to the bottom chassis
- Carefully lift the front edge of the PCA and remove the battery connector (J1)
- Position the PCA as shown in figure 4-2
- Connect on end of the supplied cable, (P/N 09114-61613), to the battery and the other end to J1 on the PCA.

The selftest diagnostics are selected as follows.

1. Turn off the drive, and install a blank, formatted disc.
2. Configure the SVC TEST jumpers for the desired test. See figure 4-3
3. Turn on the drive, and set the START SVC jumper to the test enable position.

NOTE

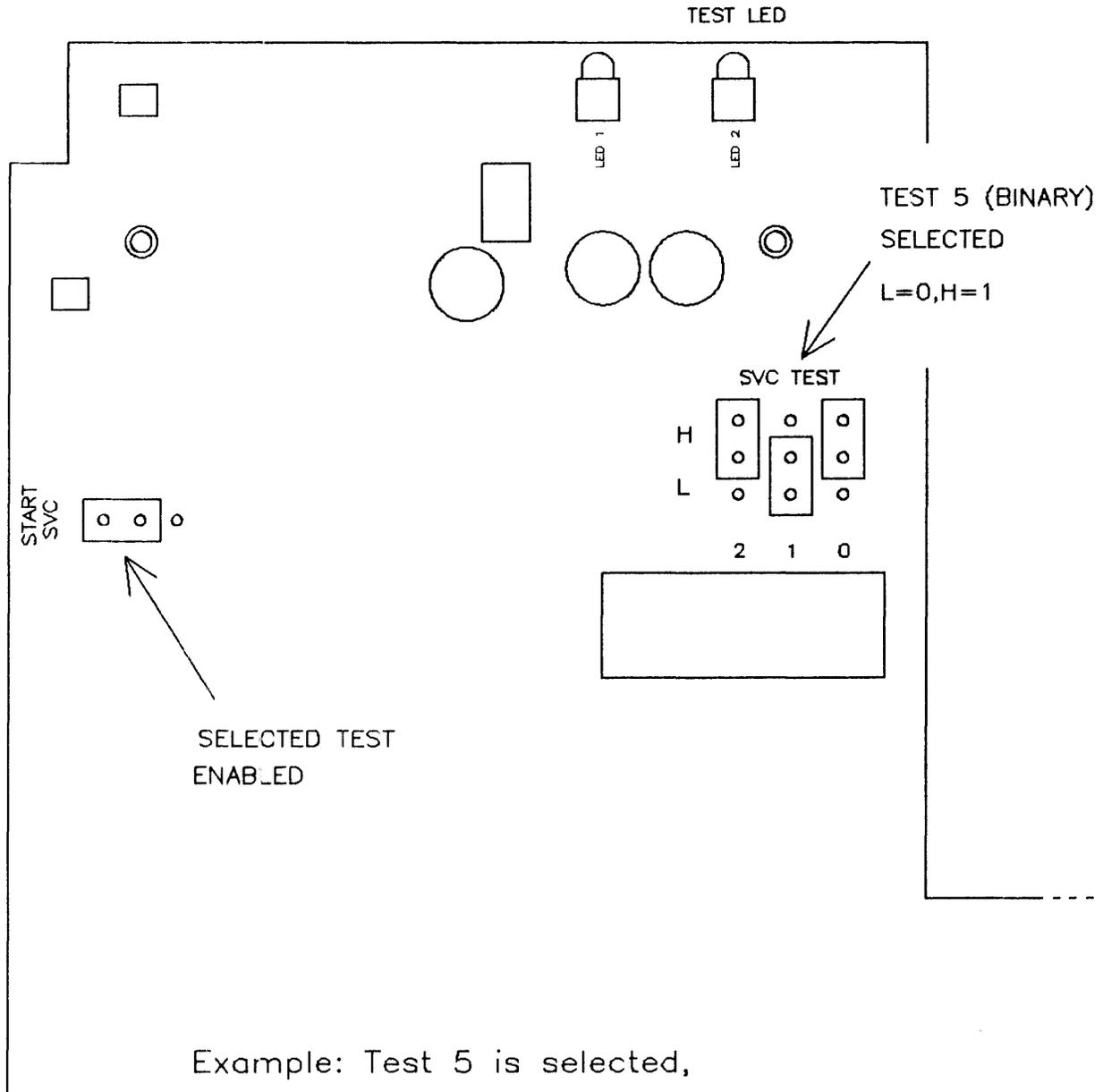
The 9114 goes into STANDBY mode 30 seconds after power-up, or the last HP-IL command. STANDBY mode enables only the RAM, the HP-IL chip, and the power-enable flip-flop.

To enable a test, the START SVC jumper must be installed within 30 seconds after the drive has been turned on. Repeat this procedure for each test. Allow the power-on selftest to complete before installing the START SVC jumper.

4. Reset the jumpers after testing.

There is no method of looping on a test.

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



Example: Test 5 is selected,
test is enabled.

Figure 4-3 SVC Test Jumpers

Available Test

- 0 NO TEST CURRENTLY
- 1 RAM/ROM/FDC/PIA TEST: This test tests all of the preceding chips in the order indicated. The RAM is tested, the LED is blinked twice to indicate it passed; the ROM is tested, then the LED is blinked three times to indicate it passed, etc.
- 2 HP-IL CHIP TEST: This is an interface loop-back test which tests the ability of the HP-IL chip to send and receive data. The supplied HP-IL cable must be connected between the input and output of the HP-IL port.
- 3 WRITE/READ TEST: A worst case pattern is written on the disc. The data is then read and compared to the originally written data.

CAUTION

A blank disc should be inserted during this test, as the data and format will be destroyed by the testing procedure.

- 4 VERIFY TEST: All sectors in the data area of the disc are checked for CRC errors.
- 5 SEEK TEST: The track zero detector is checked while the head is moved on and off of track zero.
- 6 MOTOR SPEED: The period of the index pulse is measured to check motor speed accuracy.
- 7 FORMAT: The disc is formatted. Data patterns are written and verified.

CAUTION

A blank disc should be inserted during this test, as the data and format will be destroyed by the testing procedure.

NOTE

A disc must be in the drive to perform test 3 through 7. Ensure that the disc is not write protected and that it is an initialized scratch disc.

TROUBLESHOOTING

Additional Hints

The power on selftest can be used to isolate the PCA or the drive in the following manner:

- With no disc installed, power up the unit. If the selftest fails (the fault LED stays on) then it would clearly point to the controller PCA as the cause of the failure.
- If the preceding test passed, power down the unit and insert an initialized scratch disc and power up the unit. The selftest will now attempt to do a write and then a read from the disc. If it fails at this point, you should attempt to use another new initialized scratch disc and repeat the test. If it still fails then use the available selftest described in the beginning of this chapter to further isolate the problem.

NOTE

If you are experiencing **DISC COMPATIBILITY** problems, proceed to the **ADJUSTMENTS** section that follows only after you have verified that a known good formatted disc presents the same symptoms. This type of problem may mean that the PLL has drifted out of tolerance.

Adjustments

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 4). 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.

PLL Adjustment

The PLL, as well as the RPW and WPW adjustments require that the STANDBY mode be defeated to allow the FDC chip to warm up and stay on during adjustment. Perform the following procedures at an ambient temperature of 25° C (77° F) in the order specified.

Use figure 4-1 for locating test points.

1. Power on the unit, and allow the power-on selftest to finish.
2. Immediately install a jumper-lead from pin 2 of U7 to the ground test-point. This disables the STANDBY mode.
3. Set the ADJ jumper to the ADJ position. This enables the FDC adjust mode.
4. After 2 minutes warm up, attach the frequency counter test leads to the VCO test-point. The frequency should be 500 KHz \pm 5%. If adjustment is necessary, adjust the variable capacitor C15 for a frequency of 500 KHz \pm .2% (\pm 1 KHz).
5. Return the ADJ jumper to the original position, and remove the ground lead.
6. Verify disc operation.

RPW and WPW adjustment

1. Perform the preceding power-on, jumper, and warm up procedure (steps 1 through 3).
2. Attach the oscilloscope test lead to the RPW test point.
3. Observe the waveform pulse-width (see figure 4-4). The pulse width should be 250 ns. \pm 10%.
4. Attach the test lead to the WPW test point and observe the pulse width. The width should be 125 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, and remove the ground lead.
7. Verify disc operation.

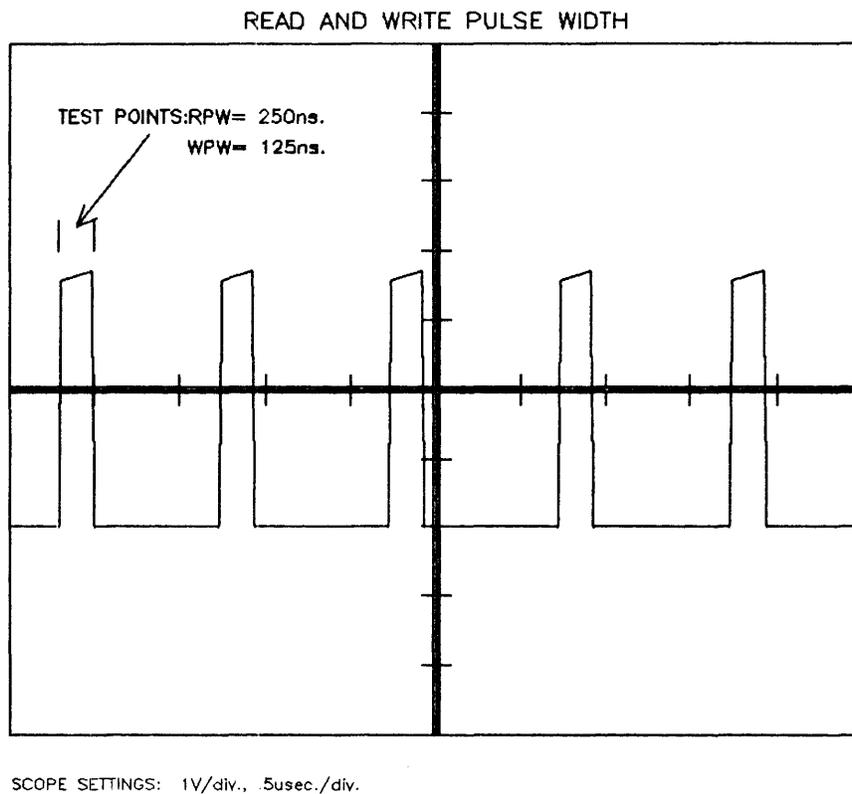


Figure 4-4

TROUBLESHOOTING

Introduction

This chapter provides information for disassembly of the 9114A disc memory. An exploded view is also provided with instructions. The exploded view references part numbers that are listed in the replaceable parts section.

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

Torx Drivers T7 and T9

The T9 driver must be capable of reaching to the bottom of a hole which is approximately 2.3 inches deep and 0.3 inches in diameter.

Needlenose pliers

Top Cover Removal

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

- Remove the 4 recessed Torx-head screws from the bottom.
- Remove the top cover by pulling the cover straight up.

Printed Circuit Assembly Removal

To remove the printed circuit assembly complete the following steps.

- Remove the 4 Torx-head screws attaching the PC assembly to the chassis.
- Carefully lift the the front edge of the assembly and remove the 5 cable connectors.
- To assemble, reverse the above process.

CAUTION

CAUTION MUST BE USED WHEN REINSTALLING THE CONNECTORS TO THE PC ASSEMBLY. IT IS POSSIBLE TO REVERSE AND MISSALIGN THE CONNECTOR PINS WHEN REASSEMBLING.

Drive Removal

The drive assembly is attached to an aluminum mounting plate, which is attached to the bottom cover. To remove the drive assembly, disconnect the 3 cables connected to the drive assembly, remove the 4 mounting plate screws, and remove the drive and mounting plate as one unit. Remove the 4 screws attaching the drive to the mounting plate.

9114 PARTS LISTS

LEVEL	REFERENCE DESIGNATOR	PART NUMBER	CD	DESCRIPTION
1	A1	09114-66510		CTLR/PWR PC BD
.2	C14, 16, 108, 112	0160-4571	8	C-F .1UF + 80
.2	C119	0160-4574	1	C-F 1000PF 10%
.2	C10	0160-4800	6	C-F 130PF 5%
.2	C101	0160-4801	7	C-F 100PF 5%
.2	C116, 117	0160-4808	4	C-F 470PF 5%
.2	C19, 20	0160-4810	8	C-F 330PF 5%
.2	C1-4, 6-9, 11-13, 17 C102, 107, 111, 118	0160-4832	4	C-F .01UF 10%
.2	C105	0160-4833	5	C-F .022UF 10%
.2	C5	0160-5349	0	C-F 200PF 5%
.2	C103, 104	0180-0291	3	C-F 1UF 35V 10%
.2	C109, 113	0180-0374	3	C-F 10UF 20VDC
.2	C110, 114, 115	0180-0693	9	C-F 1000MF 25V
.2	3 GNDS	0360-0124	3	STUD-TERM
.2	R101, 127	0683-1015	7	R-F 100 OHM .05
.2	R7, 8, 9, 15	0683-1025	9	R-F 1K 5% .25W
.2	R2, 5, 12	0683-1035	1	R-F 10K .05 1/4W
.2	R3, 4, 13, 14	0683-2025	1	R-F 2.0K 5%
.2	R115, 128	0683-3315	4	R-F 330OHM .05
.2	R1, 6	0683-5105	4	R-F 51 OHM 5%
.2	R138	0683-8215	3	R-F 820 OHM .05
.2	R131	0698-3161	9	R-F 38.3K .01
.2	R109	0698-3268	7	R-F 11.5K 1%
.2	R102	0698-3279	0	R-F 4.99K OHM
.2	R17, 18	0698-3446	3	R-F383 OHM .125
.2	R130	0698-3499	6	R-F 40.2K 1%
.2	R114, 122	0698-4202	1	R-F 8.87K 1%
.2	R129, 140	0698-4205	4	R-F21K 1% .125W
.2	R104	0698-4435	2	R-F 2.49K 1%
.2	R106, 139	0698-4481	8	R-F 16.5K 1%
.2	R141	0698-4488	5	R-F 26.7K .01
.2	R119	0698-4516	0	R-F 113K 1% .125W
.2	R123	0757-0283	6	R-F 2.0K 1%
.2	R126	0757-0289	2	R-F 13.3K 1%
.2	R105, 103, 112, 116, R118, 124, 125, 132, R133, 135	0757-0442	9	R-F 10.0K 1/8W

.2	R19,20	0757-0446	3	R-F 15K .125W
.2	R121	0757-0462	3	R-F 75K 1% .125W
.2	R103,111,117,120 R134,136,137	0757-0465	6	R-F 100K .01
.2	R107	0757-0469	0	R-F 150K1% .125W
.2	R110,113	0757-0477	0	R-F 332K 1% .125W
.2	U3	09114-15514	8	SONY CTRL EPROM
.2	U4,14	1200-0654	7	SKT-IC 40-CIBT
.2	U3	1200-0861	8	SKT-IC 28-CONT
.2	J3,4	1251-7018	8	CN4.1 SQ POST
.2	J5	1251-8682	4	CN 26.1 SQ POST
.2	SVC,ADJ,DUAL HD	1252-0058	4	CN3.1 SQ POST
.2	SVC,ADJ,3060	1258-0141	8	JUMPER-REM
.2	RP1	1810-0190	9	NTWK-R13X2.2KDIP
.2	RP2	1810-0206	8	NETW-R 10K SIP
.2	U5	1813-0194	9	XTAL-CLK-0SC
.2	U2	1818-1611	7	IC-STATIC RAM
.2	U13	1820-0175	1	TTL 7405
.2	U6,12	1820-1112	8	IC SN74LS74AN
.2	U10	1820-1197	9	IC SN74LS00N
.2	U9	1820-1208	3	IC-74LS32
.2	U8	1820-1427	8	IC-SN74LS156
.2	U11	1820-1433	6	IC SN74LS164N
.2	U1	1820-1445	0	IC SN74LS375N
.2	U4	1820-2624	9	IC-68B09
.2	U15	1820-2983	3	IC 68B21
.2	U14	1820-3659	2	WD-2793-02 FDC
.2	U104,108	1826-0174	2	IC-QUAD MC3302
.2	U102,106,107	1826-0180	0	IC NE555V
.2	U101	1826-0346	0	IC-LM358
.2	U105	1826-0544	0	IC MC1403U
.2	U103	1826-0904	6	IC LM330T-5.0
.2	Q101,108	1853-0363	8	XSTR PNP SI
.2	Q102,103,104,107	1854-0215	1	XSTR-2N3904
.2	Q105	1855-0548	5	XSTR-MOSFET 12A
.2	CR1,CR102	1901-0050	3	DIO SWITCHING
.2	CR101	1901-0347	1	DIO-SCHOTTKY SM
.2	CR103	1901-0782	8	DIO-PWR RECT
.2	CR4,5	1902-0953	7	DIO-ZNR 6.2V
.2	CR2,3	1902-0970	8	DIO-ZNR 33V 5%
.2	U7	1LB3-0003	8	HPIL CHIP 1LB3
.2	R10,11	2100-3210	6	RES-TMR 10K 1%
.2	L1	9100-1631	8	COIL-CHOKE 56UH
.2	L102	9100-3551	5	IDCTR 1UH 5%
.2	U17	9100-4226	3	XFMR-PLS
.2	L101	9140-0890	3	IDCTR-10UH 6A
.2	J2	T-30126	1	HDR 3 PIN ON/OFF
.2	C15	T-30127	2	C-V 9-80PF VAC
.2	LED1,LED2	T-30131	8	LED,VIS-RED/BRKT
.2	J1	T-30165	8	HDR 2 PIN

Assembly Access

1	0403-0427	1	BUMPER FOOT
1	0515-1079	8	SCREW-MACHINE
1	0624-0615	7	SCR #2-28X.562
1	0624-0616	8	SCR #4-20X.625
1	0624-0621	5	SCR #4-20X.375
1	09114-88800	2	COVER ASSEMBLY
1	09114-44401	3	BASE
1	09114-67511	3	SONY FLPY DBL SD
1	09114-61610	8	DC POWER CABLE
1	82059-60003	6	BASE-RCHGR-TC-US
.2	82066-60002	4	BASE-RCHGR-TC-EU
.2	82067-60003	6	BASE-RCHGR-TC-UK
.2	82067-60004	7	BASE-RCHGR-TC-SA
.2	82068-60002	6	BASE-RCHGR-TC-AU
1	09114-67197	2	INVENT PARTS PKG
.2	09114-61611	8	CABLE, INTL-HPIL
.2	09114-61612	9	CABLE, SONY DR RBN
.2	09114-61613	0	CABLE, BRTY
.2	09114-61614	1	CABLE, ON/OFF
.2	09114-69510		CTL/PWR PC BD
.2	88014A		BATTERY PACK
.2	09114-61610		CABLE-SONY PWR
.2	09114-69511		SONY FLPY DBL SD
1	09114-83400	4	DEAL SUPPT KIT
1	0624-0616	8	SCR #4-20X.625
1	0624-0621	5	SCR#4-20X.375
.2	09114-61611	8	CABLE, INTL-HPIL
.2	09114-61612	9	CABLE, SONY DR RBN
.2	09114-61613	0	CABLE, BRTY
.2	09114-61614	1	CABLE, ON/OFF
.2	09114-67510		CTL/PWR PC BD
1	09114-67511		DRIVE ASSEMBLY