

HEWLETT-PACKARD

HP 82901M/S, HP 82902M/S

FLEXIBLE DISC DRIVE OPERATOR'S MANUAL





HP 82901M/S, HP 82902M/S Flexible Disc Drive Operator's Manual

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www.hpmuseum.net

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General Information



Introduction

The HP 82900-Series Flexible Disc Drives are designed to provide mass storage capabilities for the HP-85 Computer as well as other computers. In most cases the disc drives will be used with the HP-85 in conjunction with the Mass Storage ROM. The ROM provides all of the capabilities that are required to effectively use the disc drives with the HP-85. All of the capabilities of the Mass Storage ROM are covered in the *HP-85 Mass Storage ROM Manual*.

Other computers may also provide capabilities that control the disc drives. Refer to the computer's documentation for information about those capabilities.

This operator's manual presents all of the information you will need to install and operate the disc drives.

Disc Drive Description

The HP 82900-Series Flexible Disc Drive is a random-access data storage system that utilizes a flexible disc. The options available are:

HP 82901M	(dual-drive master)	Contains two disc drives and a disc controller.
HP 82901S	(dual-drive add-on)	Contains two disc drives. This unit must be connected to a master unit.
HP 82902M	(single-drive master)	Contains one disc drive and a disc controller.
HP 82902S	(single-drive add-on)	Contains one disc drive. This unit must be connected to a master unit.

The dual-drive master (HP 82901M) will accept one dual-drive add-on (HP 82901S) or one single-drive add-on (HP 82902S). The single-drive master (HP 82902M) will accept one dual-drive add-on (HP 82901S) or one single-drive add-on (HP 82902S). An add-on unit connects directly to the master unit using an interconnect cable supplied with each add-on unit.

The master unit connects to the HP-85 or other controlling device using an HP-IB (Hewlett-Packard Interface Bus) Interface Module or card. The type of HP-IB interface used depends on the controlling device. In the case of the HP-85, the HP-IB Interface Module is model number HP 82937A.

Flexible Discs

The storage medium used in the HP 82900-Series Flexible Disc Drive is a flexible disc (or diskette). The flexible disc is 130 mm (5.12 inches) in diameter and is enclosed in a protective jacket. The jacket has slots for head access to the recording surfaces. Both sides of the flexible disc are used for storage.

Up to 286.72 kilobytes of information can be stored on each flexible disc (that's 286,720 characters). Since some of the storage space on the flexible disc is used for directories and system tables, the exact amount of disc space that is available for user storage depends upon the controller used.

Each flexible disc must be initialized before it can be used for storage. The initialization procedure clears, marks, and tests the disc. Depending upon the computer used, the initialization procedure may establish a volume label and file directories. Refer to the *HP-85 Mass Storage ROM Manual*, section 2, for information about the HP-85 Mass Storage ROM initialization procedure.

The performance and reliability of the flexible discs depend directly on the care you exercise in handling the discs. It is important that you read and follow the disc care and handling guidelines presented on page 20.

CAUTION

Use only Hewlett-Packard approved flexible discs in the HP 82900-Series Flexible Disc Drive. Other discs may be manufactured to different specifications and may result in damage to the disc drive.

Installation

Unpacking and Inspection

Your disc drive was carefully inspected, both electrically and mechanically, before shipment. Remove the unit from the shipping carton and carefully inspect the unit for any physical damage that may have occurred during shipment. You should immediately notify your dealer and file a claim with any carriers involved if there is any such damage.

Please check to ensure that you have received all of the standard accessories listed in appendix A. If any items are missing, please contact the dealer from whom you purchased the unit.

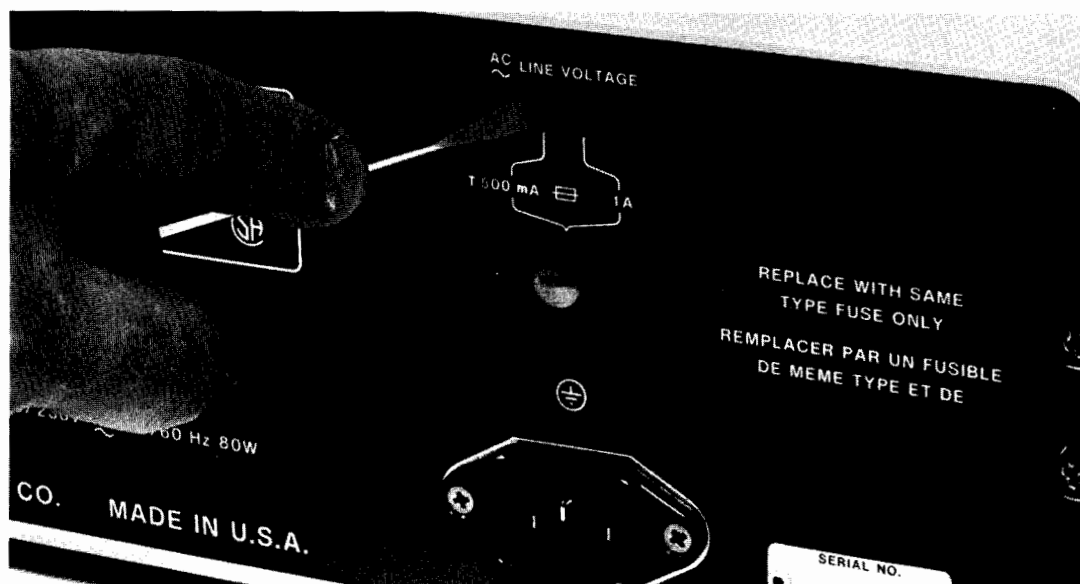
Power

Line Voltage Switch

WARNING

Always disconnect the disc drive from any power source before you adjust the line voltage switch. Failure to do so could result in electrical shock or damage to the unit.

Your disc drive should already be set to operate on the line voltage in your area. Check the switch on the rear panel to be sure that the switch is in the proper position for your area. If it is necessary to change the switch position, unplug the unit and insert the tip of a small screwdriver in the switch. Slide the switch so that the position of the switch corresponds to the correct voltage.



Fuses

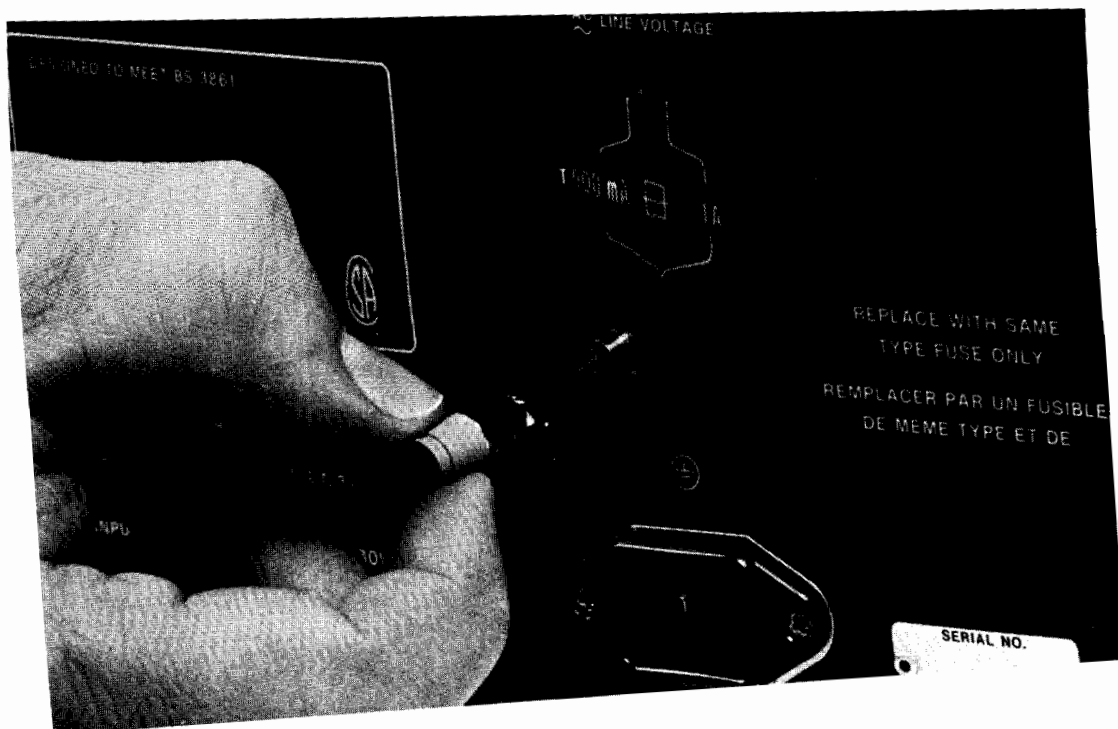
Two fuses are packaged with your disc unit. Before you begin using the system you must install the proper fuse. The fuse you install depends on the position of the line voltage switch.

WARNING

Always disconnect the disc drive from an ac power source before changing fuses. Failure to do so could result in electrical shock or damage to the unit.

To install or replace the fuse first disconnect the power cord from the unit. Using a small screwdriver turn the fuse cap counterclockwise about one-fourth turn until the fuse cap is released. Install the proper fuse into the fuse cap. (Either end of the fuse can be inserted into the cap.) Insert the fuse and cap back into the receptacle. Press the cap in and then turn the cap clockwise until it locks. The fuse holder is located on the rear panel of the unit, below the line voltage switch.

Line Voltage Setting	Fuse Rating	Cap Color
115V	1A	Grey
230V	T 500mA	Black

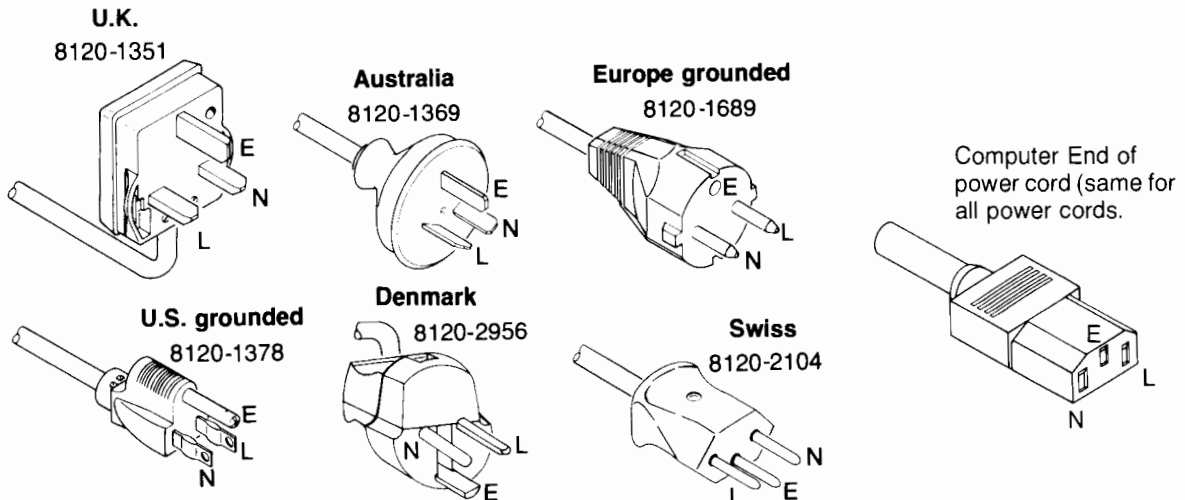


Power Cord

Power cords supplied by Hewlett-Packard for the disc unit should match the plug requirements in your area. However, power cords with different plugs are available and are illustrated below. If you unit has the wrong power cord for your area, please contact your local dealer or sales representative.

WARNING

Use only the power cord specified by Hewlett-Packard for your area. If it is necessary to replace the power cord, the replacement must have the same polarity as the original. Otherwise a safety hazard from electrical shock may exist. In addition, the unit could be extensively damaged.



Power Requirements

All of the disc drives have the following power requirements:

Line Voltage Setting	Line Voltage Range
115V	90-127 Vac
230V	200-254 Vac
Line Frequency: 50-60 Hertz.	
Power Consumption: 55 watts (HP 82902 M/S), 80 watts (HP 82901 M/S).	

Operating Environment

To prevent potential damage to the disc drive or loss of information, it is extremely important to maintain the cleanliness of the flexible discs and the environment around the disc drive. The disc drive should not be operated in any severe environment, such as an environment in which unusual amounts of dust, smoke, moisture, oil vapor, chemical gases, or other foreign matter are present. The life and performance of the flexible disc and the disc drive may be affected by such severe environments. Flexible disc care and handling guidelines are given in section 3. The environmental specifications for the disc drive are given in appendix B.

If the disc drive must be moved to a new location, be sure to handle it with care.

CAUTION

The disc drive is a precision device. A sudden jar could misalign the heads resulting in improper operation and damaged flexible discs.

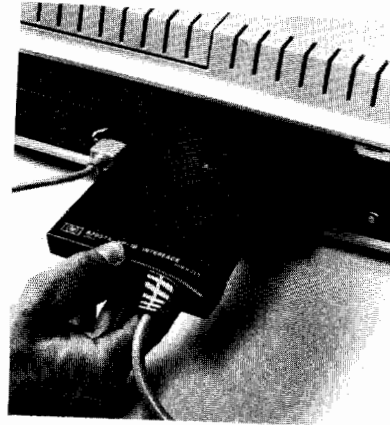
- Remove the disc from the drive and leave the latch open.
- Carefully pick up and set down the disc drive.
- Repack the unit in the original shipping carton or other adequate packaging before transporting it to another site.

System Connections

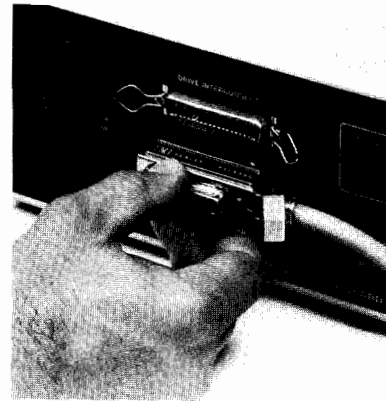
Connecting Master Units to the HP-85

The HP 82901M and HP 82902M (master) Flexible Disc Drives are connected to the HP-85 using an HP-IB Interface Module, model number HP 82937A. The following procedure shows how to connect the HP-85 and the master disc drives. If the disc drive is to be used with other computers, please refer to the interface connection guidelines for that system.

1. Be sure to turn the HP-85 and the disc drive OFF before you install the interface module.
2. Plug the HP 82937A HP-IB Interface Module into an I/O port on the HP-85.



3. Plug the HP-IB connector into the HP-IB receptacle on the disc drive. Secure the plug with the two screws on the HP-IB connector.



Select Code Switch. The select code of the HP-IB Interface Module for the HP-85 is preset to 7 at the factory. If you need to change that setting, please refer to the HP 82937A HP-IB Interface Module instructions.

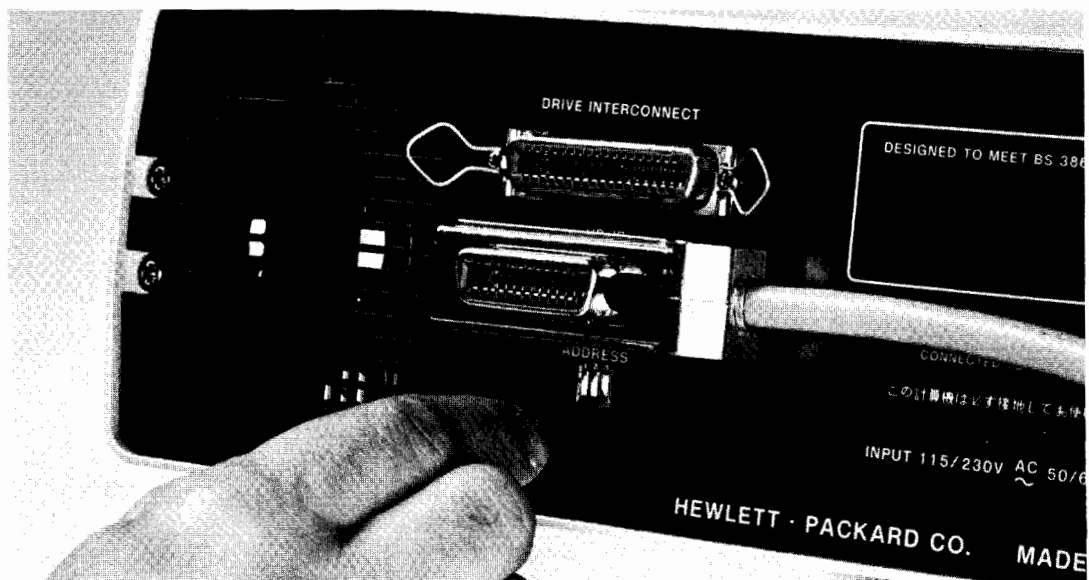
For computers other than the HP-85, please refer to the HP-IB information that is specific to that system.

Device Address Switch. The device address switch identifies the master units in your system. Each HP-IB Interface Module can accept up to eight master units. When more than one master unit is connected to an interface module, then the device address switch for each master that is connected to that interface module must be set to a different value.

The device address switch is set according to the following chart:

Switch			Value
1	2	3	
on	on	on	0
on	on	off	1
on	off	on	2
on	off	off	3
off	on	on	4
off	on	off	5
off	off	on	6
off	off	off	7

The device address switch is preset to zero (all switches on) at the factory. Before you change the device address switch settings, turn the disc drive power OFF. To turn the device address switches OFF, use a sharp object and press on the lower portion of the rocker. To turn the switches ON, press on the upper portion of the rocker. If your unit has slide switches, set them on or off according to the above table.



Drive Numbers. The drive numbers are preset at the factory to the values shown below and cannot be changed. The drive numbers also appear on the front panel next to each drive.

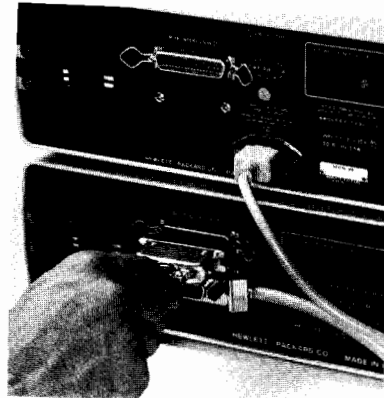
HP 82901M	(dual-drive master)	DRIVE 0, DRIVE 1
HP 82901S	(dual-drive add-on)	DRIVE 2, DRIVE 3
HP 82902M	(single-drive master)	DRIVE 0
HP 82902S	(single-drive add-on)	DRIVE 2

Connecting an Add-On Unit to the Master Unit

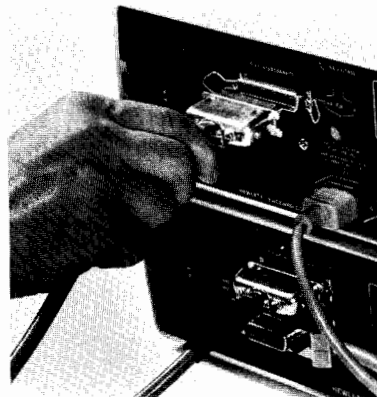
One add-on unit can be connected to each master unit using the disc drive interconnect cable supplied with the add-on unit (Hewlett-Packard part number 82901-60007).

To connect the add-on to a master:

1. Turn the HP-85 and the disc drives off.
2. Insert one end of the disc drive interconnect cable into the master unit DRIVE INTERCONNECT receptacle and secure it with the clips provided.



3. Insert the other end of the interconnect cable into the add-on DRIVE INTERCONNECT receptacle and secure it with the clips provided.



Mass Storage ROM Installation

When the HP 82900-Series Flexible Disc Drives are used with the HP-85, the HP-85 Mass Storage ROM should be installed in the HP-85. The ROM is installed in a ROM Drawer which is then installed in one of the four HP-85 I/O ports. The installation instructions for the ROM Drawer and the ROM are covered in the *HP 82936A ROM Drawer Instruction Sheet* and the *HP-85 Owner's Manual and Programming Guide*. The *HP-85 Mass Storage ROM Manual* provided with the Mass Storage ROM provides complete instructions for the use of the ROM with the disc drives.

When computers other than the HP-85 are used with the disc drives, refer to the documentation for that system for installation and use instructions.

Operating the Disc Drives

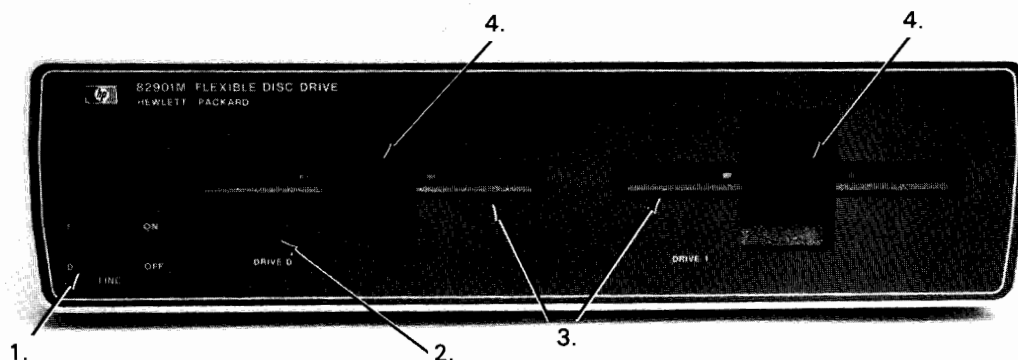
This section gives you information on how to operate the disc drives. Since each disc drive is completely controlled by the computer, refer to your computer documentation or mass storage documentation for information on how to use the disc storage capability. In the case of the HP-85, refer to the *HP-85 Mass Storage ROM Manual* for more information.

Front Panel



The front panel of the disc drives consists of the following items:

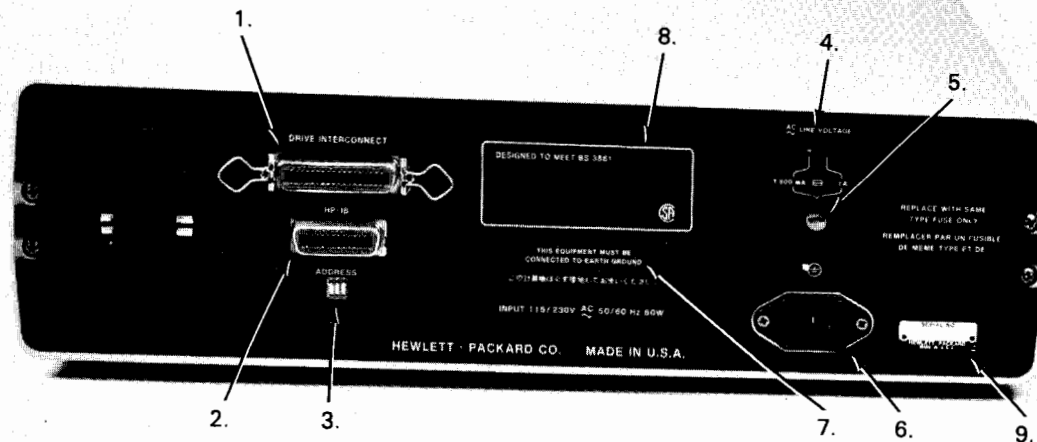
1. ON-OFF Switch.
2. Drive-ON Light.
3. Access Slot.
4. Drive Latch.



Back Panel

The back panel consists of the following items:

1. Drive Interconnect Receptacle.
2. HP-IB Receptacle (Master Units Only).
3. Drive Address Switch (Master Units Only).
4. Line Voltage Switch.
5. Fuse Receptacle.
6. Power Cord Receptacle.
7. Ground Information.
8. Worldwide Safety Approval Nomenclature.
9. Serial Number Plate.



Power-On

After all of the system connections are complete (refer to section 2) you can turn each disc drive ON using the power switch (located on the left side of the front panel). All of the devices in the system should be turned on *before* the controlling computer is turned on.

Self-Test

When you turn the master drives on, a self-test procedure is automatically performed. The self-test checks the electronics of the controller, not the disc drives. No information is read or written to the flexible discs.

If the master unit fails the self-test, the drive lights next to all disc drives in the master unit as well as disc drives in the add-on unit will begin flashing. While the drive lights are flashing, those drives cannot be used. If this should occur, try the test again. If the unit continues to fail the self-test, refer to appendix A for service information.

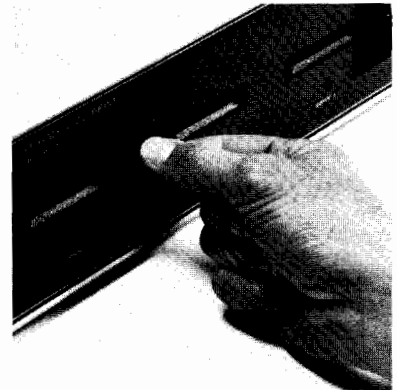
Installing and Removing Flexible Discs

CAUTION

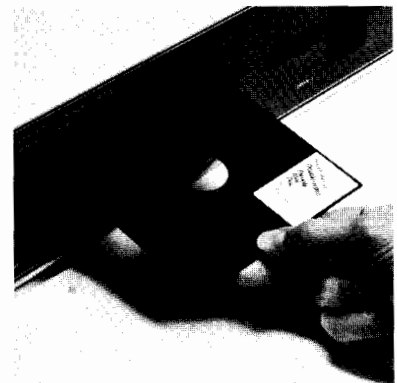
Disc drive performance and reliability is dependent on the type of media used. The use of unapproved media can result in premature disc failure or damage to the flexible disc drive. Disc drive specifications and reliability can be assured only when using HP media. HP cannot cover under warranty or service contract any damage sustained by heads or media when non-HP media are used.

Follow these steps to install a flexible disc:

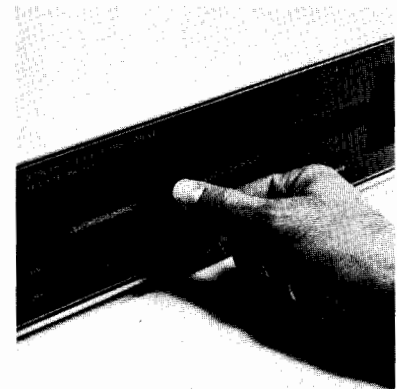
1. Open the disc slot by pulling up on the latch.



2. Remove the disc from its protective envelope. Do not remove the disc from the sealed jacket. Slide the disc into the drive slot, label side up and nearest you.

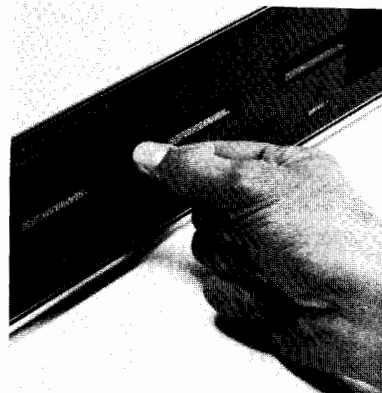


3. Press the latch down to secure the disc in the slot.

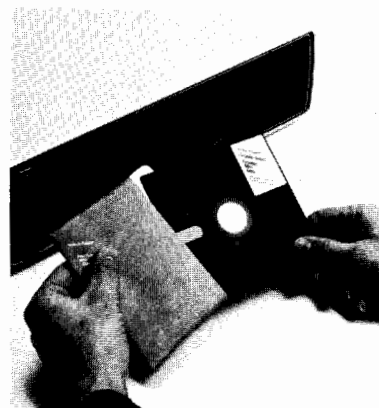


Follow these steps to remove a disc:

1. Open the disc slot by pulling up on the latch.



2. Remove the disc from the slot and replace it in its protective cover.



3. Press the latch down to close the slot.

Note: It is recommended that you remove the flexible discs from the drives before you turn the disc drive on or off.

Flexible Disc Care and Handling

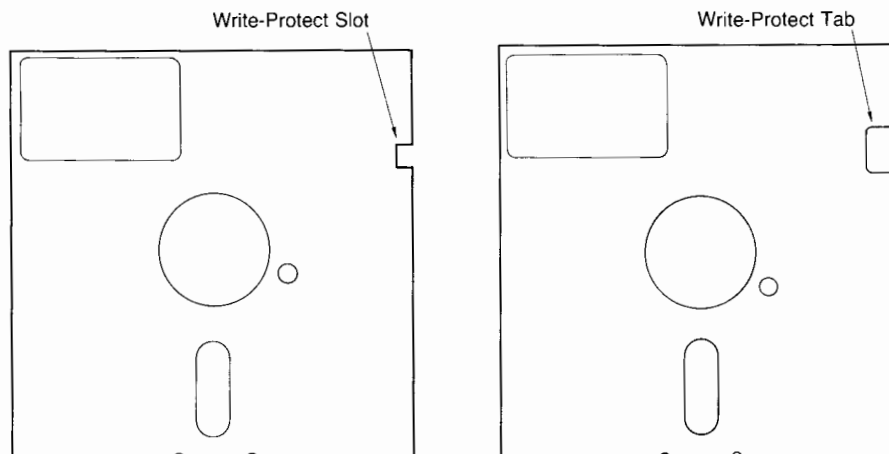
The flexible disc is maintenance free, but the performance and reliability depend directly on the care you exercise in handling the discs. Here are some basic disc handling guidelines:

1. Always return discs to their storage envelopes immediately after they are removed from the disc drive.
2. Never touch the surface of the disc that shows through the jacket slot. Fingerprints and dirt on the discs may cause loss of information.
3. Do not write on the disc jackets or envelopes with a hard instrument. Hard writing instruments such as pencils and ball-point pens may emboss the disc surfaces and cause damage and loss of information. Use a soft felt-tip pen and write on the label only.
4. Do not bend or fold the discs. This may cause damage and loss of information.
5. Dust, ashes, smoke, etc. may damage the discs.
6. Avoid placing discs in strong magnetic fields such as near transformers, magnets, or large fixed-disc units. This may cause loss of information.
7. Discard worn discs. Shiny tracks or visible irregularities indicate worn or contaminated surfaces. Recommended lifetime is 140 hours (rotating).

8. The inside of the sealed jackets are coated with a special material that cleans the discs as they rotate. Any other method of cleaning may cause damage and loss of information.
9. Do not store the discs in an environment that is outside the range of 10° to 52°C (50° to 125° F).

Write Protecting Discs

Data and programs stored on flexible discs can be protected from being written over. The disc is “write protected” by covering the write protect slot with a write protect tab (provided with the discs) as shown in the illustration below.

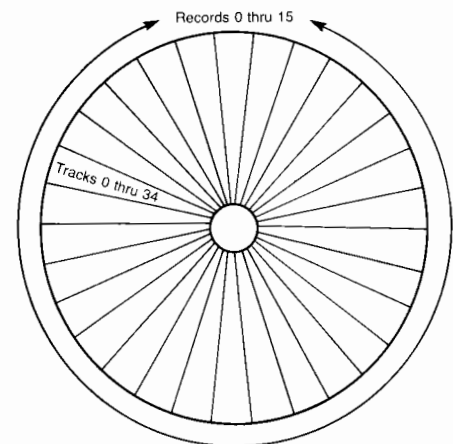


This prevents you from writing any information on the disc. The disc can, however, be read normally. To write on a protected disc, remove the write protect tab from the write protect slot.

Disc Structure

Each flexible disc is a plastic disc 130 mm (5.125 inches) in diameter enclosed in a plastic jacket. The surface of the disc is coated with ferromagnetic iron oxide. Data is stored in the form of binary digits represented by magnetic flux reversals on the disc. Information is stored and retrieved by the disc unit's heads that come in contact with the disc's upper and lower surfaces.

Information is stored in 35 concentric tracks on each side of the disc. The tracks are numbered 0 through 34. Each track is divided into the 16 physical records, numbered 0 through 15. Each record contains 256 bytes (characters) of information. There is an important difference between a physical record and a logical record. A physical record is the smallest accessible unit of data on the disc. It is always the same size (256 bytes). A logical record is one that you define when you create a data file. Its size is variable and depends on the type of data you are storing.



Some of the space on each disc is reserved for the system. The amount reserved depends on the controlling computer and the number of records in the file directory.

Accessories, Maintenance and Service

Accessories

The following accessories are supplied with each disc drive:

HP 82901M, HP 82902M	HP 82901S, HP 82902S
Power Cord	Power Cord
One Flexible Disc per Drive	One Flexible Disc per Drive
Operator's Manual	Instruction Sheet
Two Fuses	Two Fuses
	Interconnect Cable

Packages of 10 double-sided discs are also available (model number HP 92190A).

Maintenance

The HP 82900-Series Flexible Disc Drives do not require regular maintenance. However, the performance and life of the heads and the flexible discs depend directly on how carefully they are treated. To extend the life of your flexible disc drive, a head cleaning kit (Product Number 92190HC) is available from HP. Instructions on its use are contained in the kit. Be sure to follow the disc care and handling guidelines presented on page 20 and the Operating Environment guidelines presented on page 11.

There are several other areas of caution that you should be aware of. They are:

WARNING: Do not place fingers, tools, or other foreign objects into the plug-in receptacles. Such actions may result in minor electrical shock hazard and interference with some pacemaker devices. Damage to plug-in receptacle contacts and the computer's internal circuitry may also result.

CAUTION: Always switch off the HP-85 and the disc drives involved when inserting or removing modules or interface cables. Use only plug-in modules and cables designed by Hewlett-Packard specifically for the HP 82900-Series Flexible Disc Drives. Failure to do so could damage the disc drive, the controlling computer or the module.

CAUTION: Keep the sides and back of the disc drive free from obstructions to avoid restricting the air flow and the cooling fan. Failure to do so could cause the unit to overheat and result in damage to the unit.

Service

If at any time you suspect that the disc drive is malfunctioning, the following information will help you determine whether or not service is needed.

Turn all of the disc drives in the system off and then back on. If the drive lights begin blinking, repeat this procedure several times. If the lights fail to stop blinking, the unit requires service. If the drive lights stop blinking or do not blink when the units are turned on, there may be a problem with the controlling computer, the interface module, or the mass storage ROM (if one is used). Refer to the service information for your system for more information. In the case of units that are being used with the HP-85 and the Mass Storage ROM, refer to the *HP-85 Owner's Manual and Programming Guide* for information about HP-85 service, and the *HP-85 Mass Storage ROM Manual* for information about ROM service.

Warranty Information

The complete warranty statement for the U.S. and Canada is included inside the front cover of this manual. For other countries, contact your local Sales and Service Office to determine warranty terms.

If you have questions concerning the warranty, please contact the authorized dealer or the HP sales and service office where you purchased your disc drive.

How to Obtain Repair Service

Not all Hewlett-Packard facilities offer service for the HP 82900-Series Flexible Disc Drives. For information on service in your area, contact your nearest authorized HP dealer or the nearest Hewlett-Packard sales and service office.

If your disc drive malfunctions and repair is required, you can help assure efficient servicing by having the following items with your disc drive at the time of service:

1. A description of the configuration of the controlling computer and the disc drives, exactly as they were at the time of malfunction, including any plug-in modules, tape cartridges, flexible discs, or other accessories.
2. A brief description of the malfunction symptoms for service personnel.
3. Printouts or any other materials that illustrate the problem area.
4. A copy of the sales slip or other proof of purchase to establish the warranty coverage period.

Computer and peripheral design and circuitry are proprietary to Hewlett-Packard and service manuals are not available to customers.

Serial Number

Each disc drive carries an individual serial number. It is recommended that you keep a separate record of this number. Should your disc drive be stolen or lost, the serial number is often necessary for tracing and recovery, as well as any insurance claims. Hewlett-Packard does not maintain records of individual owner's names and disc drive serial numbers.

General Shipping Instructions

Should you ever need to ship the disc drive, be sure that all components are packed in a protective package (use the original shipping case), to avoid in-transit damage. Refer to Operating Environment on page 11. Hewlett-Packard suggests that the customer always insure shipments.

If you happen to be outside of the country where you bought your computer or peripheral, contact the nearest authorized dealer or the local Hewlett-Packard office. All customs and duties are your responsibility.



Appendix B

Specifications

Compatibility: HP 82901M/82902M: Interface to controlling computer with HP-IB. HP 82901S/82902S: Connect to HP 82901M/ 82902M.

Number of Disc Drives: HP 82901M/S: Two drives. HP 82902M/S: One drive.

Head Life: More than 20,000 operating hours with Hewlett-Packard-approved flexible disc media.

Flexible Disc: Diameter: 130 mm (5.12 in.). Recording Surfaces: Two per disc. Tracks: 70 per disc (35 per side). Records: 16 per track. Bytes: 256 per record. Total Capacity: 286,720 bytes. Media Life: Typically 2,500,000 revolutions (140 hours rotating).

Power Requirements: 90-127 Vac (115 Vac line), 200-254 Vac (230 Vac line), switchable at rear panel. Frequency: 50-60 Hz. Fuse: 1A (115 Vac line), T500 mA (230 Vac line). Power Consumption: 80W (HP 82901 M/S), 55W (HP 82902 M/S).

Environmental Limits: Operating Temperature: 10° to 40° C (50° to 104° F). Storage Temperature: -40° to 70° C (-40° to 158° F). Operating Humidity: 20 to 80 percent with maximum wet-bulb temperature (non-condensing) not to exceed 25.5° C (77.9° F). Storage Humidity: 5 to 95 percent (non-condensing). Operating Altitude: sea level to 4600 m (sea level to 15,000 ft). Storage Altitude: - 300 to 15,200 m (- 1000 to 50,000 ft).



SALES & SUPPORT OFFICES

Arranged alphabetically by country

Product Line Sales/Support Key

Key	Product Line
A	Analytical
CM	Components
C	Computer Systems
CP	Computer Systems Primary Service Responsible Office (SRO)
CS	Computer Systems Secondary SRO
E	Electronic Instruments & Measurement Systems
M	Medical Products
MP	Medical Products Primary SRO
MS	Medical Products Secondary SRO
P	Consumer Calculators
.	Sales only for specific product line
..	Support only for specific product line

IMPORTANT: These symbols designate general product line capability. They do not insure sales or support availability for all products within a line, at all locations. Contact your local sales office for information regarding locations where HP support is available for specific products.

HP distributors are printed in italics.

ANGOLA

Telectra
Empresa Tecnica de Equipamentos
Electricos, S.A.R.L.
R. Barbosa Rodrigues, 41-I. DT.
Caixa Postal 6487
LUANDA
Tel: 355 15, 355 16
A,E,M,P*

ARGENTINA

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Avda Santa Fe 2035
Martinez 1640 **BUENOS AIRES**
Tel: 798-6086, 792-1293
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A,E,CP,P
Biotron S.A.C.I.y.M
Avenida Paseo Colon 221
9 Piso
1399 BUENOS AIRES
Tel: 30-4846, 30-1851, 30-8384,
34-9356, 34-0460, 34-4551
Telex: (33)17595 BIONAR
Cable: BIOTRON Argentina
M
Fate S.A. Electronica
Bartolomeu Mitre 833
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74-43459
Telex: 18137, 22754
P

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Telex: 62650
Cable: HEWPARD Canberra
A,CM,CS,E,MS,P*
New South Wales
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17-23 Talavera Road
NORTH RYDE, N.S.W. 2113
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Telex: 21561
Cable: HEWPARD Sydney
A,CM,CP,E,MS,P

Queensland

Hewlett-Packard Australia Pty.Ltd.
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Telex: 42133
Cable: HEWPARD Brisbane
A,CM,CS,E,MS,P

South Australia

Hewlett-Packard Australia Pty.Ltd.
153 Greenhill Road
PARKSIDE, S.A. 5063
Tel: 272-5911
Telex: 82536
Cable: HEWPARD Adelaide
A,CM,CS,E,MS,P*

Victoria

Hewlett-Packard Australia Pty.Ltd.
31-41 Joseph Street
BLACKBURN, Victoria 3130
Tel: 89-6351
Telex: 31-024
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Western Australia

Hewlett-Packard Australia Pty.Ltd.
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NEDLANDS, W.A. 6009
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Telex: 93859
Cable: HEWPARD Perth
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AUSTRIA

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A-8052 GRAZ
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Telex: 32375
CM,C,E**
Hewlett-Packard Ges.m.b.h.
Wehlstrasse 29
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A-1205 VIENNA
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BAHRAIN

Green Salon
P.O. Box 557
BAHRAIN
Tel: 5503
Telex: 88419
P

Wael Pharmacy
P.O. Box 648

BAHRAIN
Tel: 54886, 56123
Telex: 8550 WAEI GJ
M

BANGLADESH

The General Electric Co. of
Bangladesh Ltd.
Magnet House 72
Dilkusha Commercial Area
MOTIJHELL, Dacca 2
Tel: 252415, 252419
Telex: 734
Cable: GECDAC Dacca
A,E,M

BELGIUM

Hewlett-Packard Belgium S.A./N.V.
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BRAZIL

Hewlett-Packard do Brasil I.e.C.
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20000 **RIO DE JANEIRO-RJ**
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Telex: 021-21905 HPBR-BR
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*A,CM,E,MS,P**

BURUNDI

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B.P. 553
BUJUMBURA
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P

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CHILE

Jorge Calcagni y Cia. Ltda.
Arluro Burtie 065
Casilla 16475
Correo 9, SANTIAGO
Tel: 220222
Telex: JCALCAGNI
A,E,M,P
Olympia (Chile) Ltd.
Rodrico de Araya 1045
Casilla 256-V
SANTIAGO 21
Tel: 25-50-44
Telex: 40-565
P

COLOMBIA

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H. A. Langebaek & Kier S.A.
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BOGOTA 1 D.E.
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Telex: 44400
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Instrumentacion
H.A. Langebaek & Kier S.A.
Edil. Camacol, Local 105
Carrera 63 NO. 49-A-31
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Cientifica Costarricense S.A.
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A,E,M,P

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P*
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Telex: 2548 CYEDE ED
Cable: CYEDE-Quito
A,E,P
Hospitalar S.A
Casilla 3590
Robles 625
QUITO
Tel: 545-250, 545-122
Cable: HOSPITALAR-Quito
M

EGYPT

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Sam Amin Trading Office
18 Abdel Aziz Gawish
ABDINE-CAIRO
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P
International Engineering Associates
24 Hussein Hegazi Street
Kasr-el-Aini
CAIRO
Tel: 23-829
Telex: 93830
E,M

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Arranged alphabetically by country

2



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IPESA
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A*, C, E, M, P

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Abdella Abdulmalik
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A, E, M

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SF-02100 **ESPOO** 10
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FRANCE

Hewlett-Packard France
Le Ligoures
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F-69130 **ECULLY** Cedex
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Telex: 310617F
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Hewlett-Packard France
Immeuble France Evry
Tour Lorraine
Boulevard de France
F-91035 **EVRY** Cedex
Tel: (60) 77-96-60
Telex: 692315F
CM, E

Hewlett-Packard France
Batiment Ampere
Rue de la Commune de Paris
Boite Postale 300
F-95153 **LE BLANC MESNIL**
Tel: (01) 865-44-52
Telex: 211032F
CM, CP, E, MS

Hewlett-Packard France
Avenue du President JF Kennedy
F-33700 **MERIGNAC**
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CM, CP, E, MS

Hewlett-Packard France
32 Rue Lothaire
F-57000 **METZ**
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CM, CS

Hewlett-Packard France
Avenue des Tropiques
Zone d'activites de Courtaboeuf
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F-91401 **ORSAY** Cedex
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Hewlett-Packard France
15 Boulevard De L'Amiral Bruix
F-75016 **PARIS**
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CM, CP, MS, P

Hewlett-Packard France
2 Allee de la Bourgonette
F-35100 **RENNES**
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Hewlett-Packard France
4 Rue Thomas Mann
F-67033 **STRASSBOURG** Cedex
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20 Chemin de la Cepiere
31081 **TOULOUSE** Cedex
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Telex: 531639F
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Hewlett-Packard France
Bureau de Vente de Lille
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Rue Van Gogh
F-59650 **VILLENEUVE D'ASO**
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D-3000 **HANNOVER** 91
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Hewlett-Packard GmbH
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West Midlands B90-3BJ
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Telex: 339105
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Hewlett-Packard Ltd.
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Telex: HEWPIE WINNERSH 847178
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GREECE

Kostas Karayannis
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ATHENS 133
Tel: 32-30-303, 32-37-371
Telex: 21 59 62 RKAR GR
E, M, P

"Plaio"
G. Gerados
24 Stournara Street
ATHENS
Tel: 36-11-160
Telex: 21 9492
P

GUAM

Guam Medical Supply, Inc.
Jay Ese Bldg., Room 210
P.O. Box 8947
TAMUNING 96911
Tel: 6464513
Cable: EARMED Guam
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GUATEMALA

IPESA
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Zona 9
GUATEMALA CITY
Tel: 316627, 314786, 664715
Telex: 4192 Teltro Gu
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Hewlett-Packard Hong Kong, Ltd.
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TST P.O. Box 98524
KOWLOON, Hong Kong
Tel: 3-721143/8
Telex: 36678 HEWPA HX
Cable: PASIALTO Hong Kong
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Hewlett-Packard Hong Kong, Ltd.
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KOWLOON, Hong Kong
Tel: 3697446
Telex: 36678 HEWPA HX
Cable: HEWPACK Hong Kong
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Schmidt & Co. (Hong Kong) Ltd.
Wing On Centre, 28th Floor
Connaught Road, C.
HONG KONG
Tel: 5-455644
Telex: 74766 SCHMX HX
A, M

ICELAND

Eliding Trading Company Inc.
Halnarnvoli-Tryggvagotu
P.O. Box 895
IS-REYKJAVIK
Tel: 1-58-20, 1-63-03
M

INDIA

Blue Star Ltd.
Bhavdeep
Stadium Road
AHMEDABAD 380 014
Tel: 42932
Telex: 012-234
Cable: BLUEFROST
E

Blue Star Ltd.
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Tel: 55668
Telex: 0845-430
Cable: BLUESTAR
A, CM, C, E

Blue Star Ltd.
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BOMBAY 400 025
Tel: 45-73-01
Telex: 011-3751
Cable: BLUESTAR
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Blue Star Ltd.
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414/2 Vir Savarkar Marg
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BOMBAY 400 025
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Telex: 011-4093
Cable: FROSTBLUE
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Cable: BLUESTAR
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Blue Star Ltd.
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A*

Blue Star Ltd.
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Telex: 041-379
Cable: BLUESTAR
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Blue Star Ltd.
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Telex: 0155-459
Cable: BLUESTAR
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Blue Star Ltd.
T.C. 7/603 Poornima
Maruthankuzhi
TRIVANDRUM 695 013
Tel: 65799
Telex: 0884-259
Cable: BLUESTAR
E



SALES & SUPPORT OFFICES

Arranged alphabetically by country

INDONESIA

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JAKARTA
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Telex: 46748 BERSAL IA
Cable: BERSAL
A.E.M.P

BERCA Indonesia P.T.
J.L. Jimeno 23
SURABAYA
Tel: 42027

Telex: 31146 BERSAL S.D.
Cable: BERCACON
A*,E,M,P

IRAQ

Hewlett-Packard Trading S.A.
Mansoor City 9B/37

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Telex: 2455 HEPAIRAQ 1k
CP

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A,E,P*

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2C Avongberg Ind. Est.
Long Mile Road
DUBLIN 12, Eire
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Telex: 30439
A*,CP,E,MS,P*

Cardiac Services Ltd.
Kilmore Road
Artane
DUBLIN 5, Eire
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M

ISRAEL

Electronics & Engineering Div.
Motorola Israel Ltd.
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TEL-AVIV
Tel: 338973
Telex: 33569
Cable: BASTEL Tel-Aviv
A,CM,C,E,M,P

ITALY

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Capadimonte, 62A
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A,CM,CS,E

Hewlett-Packard Italiana S.p.A.
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I-35100 **PADOVA**
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A,CM,CS,E,MS
Hewlett-Packard Italiana S.p.A.
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Hewlett-Packard Italiana S.p.A.
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ATSUGI, Kanagawa 243
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CM,C*,E
Yokogawa-Hewlett-Packard Ltd.
Kumagaya Ashai Building
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KUMAGAYA, Saitama 360
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CM,CS,E

Yokogawa-Hewlett-Packard Ltd.
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CM,CS,E
Yokogawa-Hewlett-Packard Ltd.
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Yokogawa-Hewlett-Packard Ltd.
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Yodogawa-ku, Osaka-shi
OSAKA, 532
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Telex: 523-3624 YHPOSA
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YOKOHAMA, Kanagawa 221
Tel: (045) 312-1252
Telex: 382-3204 YHP YOK
CM,CS,E

JORDAN

Mouasher Cousins Company
P.O. Box 1387
AMMAN
Tel: 21456, 24907, 39907
Telex: 21456 SABCO JO
E,M,P

KENYA

International Aeradio (E.A.) Ltd.
P.O. Box 95221
MOMBASA
M
ADCOM Ltd., Inc.
City House, Wabera Street
P.O. Box 30635
NAIROBI
Tel: 331955
Telex: 22639
A*,E,M
International Aeradio (E.A.) Ltd
P.O. Box 19012
Nairobi Airport
NAIROBI
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Telex: 22201, 22301
M

KOREA

Samsung Electronics
C.P.O. 2775
SEOUL
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A,C,E,M,P

KUWAIT

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P.O. Box 830 Safat
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Tel: 42-4910, 41-1726
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A,E,M
Photo & Cine Equipment
P.O. Box 270 Safat
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Tel: 42-2846, 42-3801
Telex: 2247 Malin
P

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P.O. Box 1917
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Kuching, **SARAWAK**
Tel: 53544
Telex: MA 70904 PROMAL
Cable: PROTELENG
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Telex: 038-410
CS

MOROCCO

Dolbeau
81 rue Karatchi
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Telex: 23051, 22822
E
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Boite Postale 156
CASABLANCA
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Telex: 23 739
P

MOZAMBIQUE

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Telex: 6-203 NEGON Mo
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NEW ZEALAND

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A,M
Northrop Instruments & Systems Ltd.
Terrace House, 4 Oxford Terrace
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CHRISTCHURCH
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A,M
Hewlett-Packard (N.Z.) Ltd.
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Cable: HEWPACK Wellington
CM,CP,E,P

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WELLINGTON
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A,M

NIGERIA

The Electronics Instrumentations Ltd.
N6B/770 Oyo Road
Oluseun House
P.M.B. 5402
IBADAN
Tel: 461577
Telex: 31231 TEIL NG
A,E,M,P
The Electronics Instrumentations Ltd.
144 Agege Motor Road, Mushin
P.O. Box 6645
Mushin, **LAGOS**
A,E,M,P

NORTHERN IRELAND

Cardiac Services Company
95A Finaghy Road South
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M

NORWAY

Hewlett-Packard Norge A/S
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Telex: 16621 hpnas n
CM,CS,E
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OMAN

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P

PAKISTAN

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Cable: FEMUS Rawalpindi
A,E,M,P
Mushko & Company Ltd.
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Telex: 2894 MUSHKO PK
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SALES & SUPPORT OFFICES

Arranged alphabetically by country

4



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Calle Samuel Lewis
Edificio "Alfa" No. 2
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Telex: 3480380
Cable: ELECTRON Panama
A,E,M,P
Foto Internacional, S.A.
P.O. Box 2068
Free Zone of Colon
COLON 3
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Telex: 3485126
Cable: IMPORT COLON/Panama
P

PERU

Compania Electro Medica S.A.
Los Flamencos 145, San Isidro
Casilla 1030
LIMA I
Tel: 41-4325
Telex: Pub. Booth 25424 SISIDRO
Cable: ELMED Lima
A,E,M,P

PHILIPPINES

The Online Advanced Systems
Corporation
Rico House, Amoroso Cor. Herrera
Street
Legaspi Village, Makati
P.O. Box 1510
Metro MANILA
Tel: 85-35-81, 85-34-91, 85-32-21
Telex: 3274 ONLINE
A,C,E,M
Electronic Specialists and
Proponents Inc.
690-B Epifanio de los Santos
Avenue
Cubao, **QUEZON CITY**
P.O. Box 2649 Manila
Tel: 98-96-81, 98-96-82, 98-96-83
Telex: 742-40287
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P

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Buro Informacji Technicznej
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Ul. Slawki 2, 6P
PL00-950 WARSZAWA
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Telex: 81 24 53
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Telectra-Empresa Tecnica de
Equipamentos Eletricos S.a.r.l.
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P-LISBON 1
Tel: (19) 68-60-72
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A,C,E,P
Mundinter
Intercambio Mundial de Comercio
S.a.r.l.
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138
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M

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P
Nasser Trading & Contracting
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M

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Telex: 670136
Cable: ELECTA AL-KHOBAR
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JEDDAH
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Modern Electronic Establishment
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C,E,M,P

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A,CM,CP,E,MS,P
Hewlett-Packard Espanola S.A.
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A,CM,E,MS
Hewlett-Packard Espanola S.A.
Calle Jerez 3
E-MADRID 16
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Telex: 23515 hpe
A,CM,E,MP,P
Hewlett-Packard Espanola S.A.
Colonia Mirasierra
Edificio Juban
c/o Costa Brava 13
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CM,CP
Hewlett-Packard Espanola S.A.
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Edificio Sevilla 1, Planta 9
E-SEVILLA 5
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A,CM,CS,MS,P
Hewlett-Packard Espanola S.A.
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CM,CS,P

SRI LANKA

Metropolitan Agencies Ltd
209/9 Union Place
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Telex: 1377METROLTD CE
Cable: METROLTD
A,E,M,P

SUDAN

Radison Trade
P.O. Box 921
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A,E,M

SURINAM

Surtel Radio Holland N.V.
Grote Holstr. 3-5
P.O. Box 155
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E,M

SWEDEN

Hewlett-Packard Sverige AB
Enighetsvagen 3
S-16120 **BROMMA**
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Hewlett-Packard (Schweiz) AG
29 Chemin Chateau Bloc
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Cable: ELECTROBOR DAMASCUS
E
Sawah & Co.
Place Azme
Boite Postale 2308
DAMASCUS
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Telex: 11304 SATACO SY
Cable: SAWAH, DAMASCUS
M
Suleiman Hital El Miawi
P.O. Box 2528
Mamoun Bitar Street, 56-58
DAMASCUS
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Telex: 11270
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M

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361-5448, 361-5449
Telex: 22894 SANKWANG
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A

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THAILAND

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Telex: TH81160, 82938, 81038
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A,E,M
Bangkok Business Equipment Ltd.
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Cable: BUSIQUIPT Bangkok
P

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Arranged alphabetically by country

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E,P

Corema

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TUNIS

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Telex: 12319 CABAM TN
M

TURKEY

Teknim Company Ltd.

Riza Sah Pehlivi

Caddesi No. 7

Kavaklidere, ANKARA

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Telex: 42155

E

UNITED ARAB EMIRATES

Emilac Ltd.

P.O. Box 2711

ABU DHABI

Tel: 331370, 331371

E,M,P

Emilac Ltd.

P.O. Box 1641

SHARJAH

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Telex: 68136

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see: GREAT BRITAIN

NORTHERN IRELAND

SCOTLAND

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SAN DIEGO, CA 92123

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SANTA ANA, CA 92705

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A,CM,C*,E

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3003 Scott Boulevard

SANTA CLARA, CA 95050

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CM,CP

Colorado

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5600 DTC Parkway

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CM,C*,E*,MS**

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ORLANDO, FL 32809

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CM,E

Hawaii

Hewlett-Packard Co.

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HONOLULU, HI 96826

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Idaho

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CM,CP

Hewlett-Packard Co.

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