HEWLETT PACKARD

Optical Disk Library System Models 10 and 20

User's Guide

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Optical Disk Library System User's Guide

Part No.: C1700-90075

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Optical Disk Library System User's Guide

Models 10 and 20

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Notice

FCC Radio Frequency Interference Statement (USA Only)

This equipment generates and uses radio frequency energy and, if not installed and used properly (that is, in strict accordance with the manufacturer's instructions) may cause interference to radio and television reception. The equipment has been type tested and found to comply within the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a commercial environment. Operation of this equipment in a residential area is likely to cause interference.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on (using the power switch located on the Disk Library System rear panel), the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Relocate the computer equipment with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/ television technician for additional suggestions.

The Federal Communications Commission has prepared a booklet entitled *How to Identify and Resolve Radio - TV Interference Problems* which may be helpful to you. This booklet (stock #004-000-00345-4) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

United Kingdom Telecommunications Act 1984

The C1700A, C1700M, C1710M, C1703A, and C1713M Optical Disk Library Systems are approved under Approval Number NS/G/1234/J/100003 for indirect connection to Public Telecommunication Systems within the United Kingdom.

German Electromagnetic Interference Regulations

Manufacturer's Declaration (English translation)

This certifies that the C1700A, C1700M, C1710M, C1703A, and C1713M Disk Library Systems are in accordance with the Radio Interference Requirements of Directive FTZ 1046/1984. The German Bundespost has been notified that this equipment has been put into circulation, and the right to check the series for compliance with the requirements was granted.

If this equipment is to be operated with a system

- and if the General License is being claimed, the complete system has to comply with the General Licensing requirements.

- which has its own FTZ Serial License, and for which an operating license has been granted or requested, usually no further steps are necessary.

Funkentstörung Deutschland

Herstellerbescheinigung

Hiermit wird bescheinigt, daß die Geräte C1700A, C1700M, C1710M, C1703A, und C1713M in Übereinstimmung mit den Bestimmungen von Postverfügung 1046/84 funkentstört sind. Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

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- so muß bei Inanspruchnahme der Allgemeinen Genehmigung FTZ 1046/84 die gesamte Anlage der oben genannten Genehmigung entsprechen.

- die mit einer FTZ-Serienprüfnummer gekennzeichnet ist, und für die eine Betriebsgenehmigung vorliegt oder beantragt wird, so sind in der Regel keine weiteren Schritte notwendig.

Turvallisuusyhteenveto

Laserturvallisuus

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

HP Series 6300 optiset levymuistiasemat ovat käyttäjän kannalta turvallisia luokan 1 laserlaitteita. Normaalissa käytössä levymuistiaseman kotelointi estää lasersäteen pääsyn laitteen ulkopuolelle.

Levymuistiasemat on tyyppihyväksynyt Suomessa laserturvallisuuden osalta Työsuojeluhallitus, Työsuojeluhallituksen hyväksyntänumero TSH 45/6019/90. Laitteiden turvallisuusiuokka on määritetty valtioneuvoston päätöksen nro 472/1985 ja standardin SFS-IEC 825 mukaisesti.

VAROITUS !

Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 yllttävälle näkymättömälle lasersäteilylle.

VARNING !

Om apparaten används pa annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstralning, som överskrider gränsen för laserklass 1.

Huolto

HP Series 6300 levymuistiasemien sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen kuolutettu henkilö. Levymuistiaseman sisälla asennettujen luku-/kirjoitusyksiköiden suojakoteloa ei tule avata huoltotoimenpiteiden yhteydessä.

VARO !

Mikäli luku-/kirjoitusyksikön suojakotelo avataan ja suojalukitus ohitetaan, olet alttiina näkymättömälle lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

VARNING !

Om skyddshöljet av den optiska drivmodulen öppnas och spärren urkopplas da apparaten är i funktion, utsättas användaren för osynlig laserstralning. Betrakta ej stralen.

Tiedot luku-/kirjoitusyksikössä käytettävän laserdiodin säteilyominaisuuksista:

Aallonpituus 785 nm
Teho 11,5 mW
Luokan 3B laser

Japanese VCCI Statement

この装置は，第一種情報装置(商工業地域において使用されるべき情報装置)で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。

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取扱説明書に従って正しい取り扱いをしてください。

Laser Safety Statement(USA Only)

The Hewlett-Packard C1700A, C1700M, C1710M, C1703A, and C1713M Optical Disk Library Systems are certified as Class 1 laser products under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968.

Because the HP C1700A, C1700M, C1710M, C1703A, and C1713M comply with this law, no hazardous laser radiation is produced by the products. Since laser light emitted inside the Disk Library System is completely confined within a protective housing and external covers, the laser beam cannot escape from the machine during any phase of user operation.

CDRH Regulations (USA Only)

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. The labels and artwork shown below indicate compliance with CDRH regulations and must be attached to laser products marketed in the United States.

Complies with 21 CFR Chapter 1 Subchapter J.

Warning

Use of controls, adjustments or performing procedures other than those specified in this manual may result in hazardous laser radiation exposure.

Laser Class Information: A black on yellow label which reads, "Class 1 Laser Product" printed in English, French, German, Finnish, Japanese, and Spanish.

Contents

Figures

Tables

1

Introduction

This chapter introduces you to the following:

- Features of the Optical Disk Library System
- Organization of this guide
- Typographical conventions used in this guide

The Optical Disk Library System

The Model 10 and Model 20 Optical Disk Library Systems are small, compact autochangers that contain the following components:

Component	Model 10	Model 20
An Autochanger mechanism (moves disks within the cabinet)	√	√
5.25-inch optical disk drives	1	2
A mailslot (used to insert and remove disks)	√	√
Storage slots for optical disks	16	32
Maximum total storage capacity when all slots are full	10.4 GBytes	20.8 GBytes
A SCSI Interface (may be either single-ended or differential)	√	√

Note

For more specific product information, refer to Appendix F, "Product Numbers and Options."

The Optical Disk Library System has many strengths which include the following:

- Reliable optical storage

  The disks are more durable than other media, have greater storage capacity, are reliable, are removable, and cost less per megabyte than magnetic disks.

- Economical online secondary storage

  The Optical Disk Library System provides an economical way to access a large amount of traditionally "offline" information such as archival or backup files, or records that were previously stored on paper or microfilm.

  The Optical Disk Library System contains either rewritable optical drives or multifunction optical drives. With rewritable drives, data can be repeatedly written and erased, and only rewritable optical disks can be used in the drive. Multifunction drives operate in both rewritable mode and write-once mode depending on the type of disk that is inserted into the drive. When multifuction drives are operating in write-once mode, data cannot be altered or erased once it is written to the disk.

- Upgradable storage capacity

  The Model 10 Disk Library System is upgradable to a Model 20 as your storage capacity needs increase. (Maximum total storage capacity for each model is given in the table on page 1-1.)

- Security

  Because of its compact size, the Optical Disk Library System can be easily located in a secured computer room environment. Access to inserting and removing disks through the mailslot can be restricted through security configurations that must be set using a password.

  In addition, each side of a rewritable optical disk can be write-protected or, with write-once optical disks, data is stored permanently on the disk with no risk of being overwritten or erased.

- Simplified integration

  Since the drive mechanisms and Autochanger have SCSI interfaces, system integration is simplified. The Optical Disk Library System adheres to the SCSI II command set.

Although the cost per megabyte of optical disks is much lower than that of hard disks, the time it takes to access data is typically 2 to 5 times longer than with high-performance magnetic hard disks. Therefore, the Optical Disk Library System should not be used as a hard disk replacement for high-performance applications.

About This Guide

This guide assumes you are familiar with computer terms. It is divided into four sections and is organized to allow you to quickly find the information you need.

Here's what you'll find in this manual:

Section 1: Introduction

Chapter 1 gives an overview of this guide, typographical conventions, and the features of the Disk Library System.

Chapter 2 gives a technical discussion of how the Disk Library System operates.

Chapter 3 gives information about optical disks.

Section 2: Setup and Moving

Chapter 4 gives information for installing the Optical Disk Library System.

Chapter 5 gives instructions for moving the Optical Disk Library System both short and long distances.

Section 3: Basic Operation

Chapter 6 describes the controls found on the front panel and gives specific steps to perform control panel operations.

Chapter 7 describes the switches and connectors found on the back panel and gives instructions for changing the SCSI address switches.

Chapter 8 gives information for securing the Optical Disk Library System.

Section 4: Reference

Appendix A gives a table of all control panel configurations, defaults, and options.

Appendix B gives a table of all control panel information logs.

Appendix C gives tables of all control panel diagnostic tests and their parameters.

Appendix D gives a table of solutions to problems that can occur during operation of the Disk Library System.

Appendix E gives lists of Disk Library System supplies and HP sales offices.

Appendix F gives product information relating to specific product and option numbers.

Glossary

Index

Typographical Conventions

The following typographical conventions are used in this manual:

Italics — *Italic text* is used for titles of manuals and other publications.

Computer — `Computer text` denotes information that is displayed on the control panel of the Disk Library System.

Keys — [Keys] indicate the key to press on the control panel of the Disk Library System.

Bold — **Bold text** is used when a command or file name and file path are discussed.

Warning 

A warning symbol calls attention to a procedure or practice which could result in personal injury if not correctly performed. Do not proceed beyond this symbol until you fully understand and meet the indicated conditions.

Caution 

A caution symbol calls attention to an operating procedure or practice which could result in damage to the product if not correctly performed. Do not proceed beyond this symbol until you fully understand and meet the indicated conditions.

Note 

A note symbol calls attention to information which can be helpful in understanding the operation of the product.

2

Technical Overview

In this chapter you will learn about these topics:

- Optical Disk Library components
- Common terms
- SCSI architecture
- Automated error recovery steps performed by the unit
- Optical Disk Library System maintenance
- Getting more technical information about the Optical Disk Library System
- Detailed specifications and characteristics of the Optical Disk Library System

Optical Disk Library Components

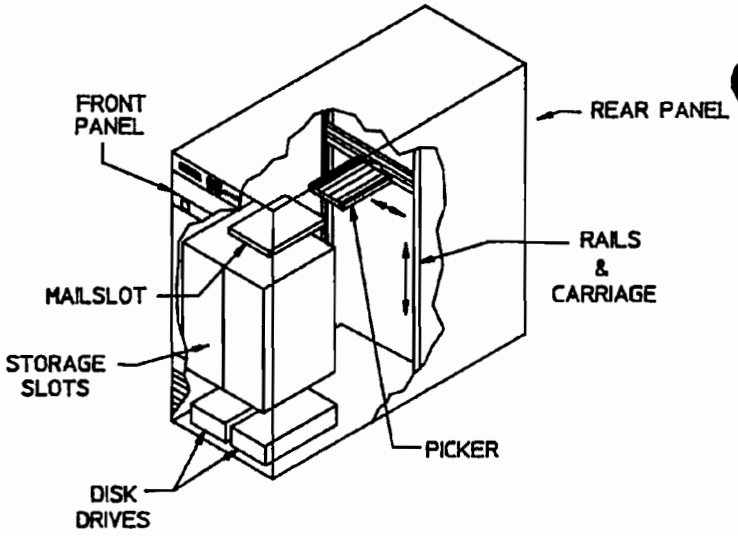

Figure 2-1. Deskside Optical Disk Library Components

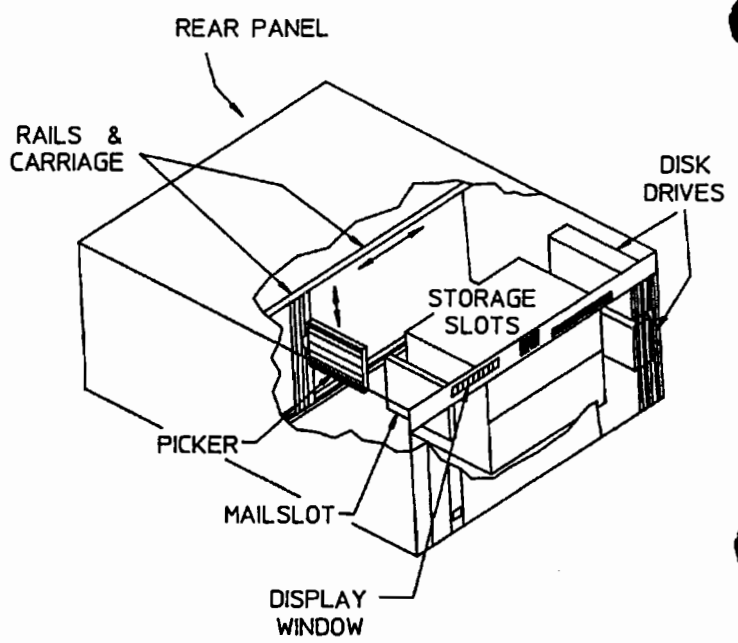

Figure 2-2. Rackmount Optical Disk Library Components

1. Disk Drives	The Disk Library System contains either one or two optical disk drives for read/write data transfer. Each drive requires a unique SCSI address. When you face the front panel of the deskside version, drive 1 is located on the right side and drive 2 is on the left. When you face the front panel of the rackmount version, drive 1 is located on the top and drive 2 is on the bottom. (See Figure 2-1 or 2-2.)
2. Magazines	The Disk Library System contains either 2 or 4 magazines. Each magazine has 8 storage slots for a total of either 16 or 32 optical disk storage slots.
3. Mailslot	The mailslot is used to insert and remove optical disks from the Disk Library System.
4. Front Panel	The Front Panel includes a control panel used to manage and display Autochanger functions, and a mailslot to insert and remove disks. (All front panel and control panel features are fully described in Chapter 6, "Basic Front Panel Operations.")

5. Rear Panel	The rear panel includes SCSI and power cord connections, and drive address select switches. (Instructions for setting the address select switches are given in Chapter 7, "Rear Panel Configurations and Connectors." Information for connecting the Disk Library System to the host computer is given in the *Optical Disk Library System Setup Guide for Deskside Models,* part number C1700-90060, or the *Optical Disk Library System Setup Guide for Rackmount Models,* part number C1700-90055.)
6. Carriage and Rails	The carriage and rails support the picker for its movement within the Disk Library System.
7. Picker	Rotates, flips, and transports disks to and from storage slots, drives, and the mailslot.

Definition of Common Terms

This section defines some of the more common terms used in conjunction with the Optical Disk Library System.

Autochanger	A term synonymous with "Optical Disk Library System."
Autochanger Controller	Controls the sending and receiving of SCSI commands and controls the mechanical system.
Disks, Optical Disks, Cartridges	These terms are synonymous with the 5.25-inch magneto-optical disks. There are two disk types and two formats. Disks can either be rewritable (which allow data to be repeatedly written and erased) or write-once (data cannot be altered once it is written). Both disk types can be ordered in either the 1,024 bytes/sector format or the 512 bytes/sector format. (See Chapter 3.)
Element	A SCSI term for any one of the Autochanger components—drives, mailslot, storage slots, or picker.
Flip	This occurs when the picker rotates to switch from one side of a disk to the other.
Magazine	A component of the Disk Library System that contains 8 storage slots. The Disk Library System has either 2 or 4 magazines and, therefore, either 16 or 32 optical disk storage slots.

Picker Move	This occurs when a disk needs to be transported to and from any of these elements—drives, mailslot, and storage slots.
SCSI	An acronym for the industry-standard Small Computer Systems Interface.
Swap	When a picker replaces one disk in the drive with another, returning the first to its storage slot.
Terminator	A resistor array device used for terminating a SCSI bus line. The last device in the chain of devices needs a terminator.
Translate	A picker move from one side of the carriage to the other.

The SCSI Architecture

The Optical Disk Library System connects to the host system through a Small Computer Systems Interface (SCSI). This interface conforms to SCSI standards ANSI X3T9 (2/86 - 109 Rev. 8).

Usually each SCSI-connect peripheral requires one SCSI address. With the Disk Library System, however, there are either two or three unique SCSI interface addresses—one SCSI address for the autochanger controller and one for each drive contained in the Disk Library System. (The Disk Library System has either 1 or 2 optical drives.)

The autochanger controller and the host operating system manage communication through the SCSI bus to each drive's unique SCSI address.

Depending on the option ordered, the SCSI interface may either be Single-ended or Differential SCSI. To determine which option is installed, locate the SCSI connectors on the lower rear panel of the Optical Disk Library System. If the SCSI connectors are not labeled, the interface is Single-ended SCSI; if the connectors are labeled "Differential," the interface is Differential SCSI.

Although both interface types use the same SCSI cables, different terminators are required. Also, the allowable external cable lengths differ as follows:

- Single-Ended SCSI Interface - Up to 6 meters of total cable length is allowed.
- Differential SCSI Interface - Up to 25 meters of total cable length is allowed.

Note

With either type of SCSI interface, an internal cable length of 1.1 meters must be included in the total cable length calculation.

Control Panel Information Logs

When the Autochanger hardware encounters difficulty, the system automatically goes into error recovery mode. For example, if the picker can't complete a move, the Autochanger tries to remedy the problem automatically. If the recovery is successful, information about the error is recorded in an Information Log which is maintained in non-volatile RAM. (Appendix B provides a listing of all Information Logs.)

If the attempted recovery fails, information about how it failed is also passed to an Information Log. Your service representitive can use this information, and other information recorded in information logs, to identify the appropriate service needed.

Control Panel Diagnostic Tests

Poweron Test

The poweron test runs automatically when the Disk Library System operation switch is first switched on, and may also be initiated from the control panel. The poweron test initiates a controller test, a power supply test, and a motor connection test. It then initializes the mechanism by setting RAM variables to default, and moves the picker to its home position.

Diagnostics

Other diagnostic tests can be initiated from the control panel. Each test exercises a specific portion of the Optical Disk Library System. Once a test completes, the control panel displays either **PASS** or **FAIL**.

These tests are combined into the following groups:

Sequence Tests (Tests 1 - 9) are not specific tests but rather execute a sequence of individual tests within the range of Tests 10 through 70. When a sequence test is selected, the Optical Disk Library System executes the tests in sequence until an error occurs or until the sequence successfully completes.

Exerciser Tests (Tests 10 - 29) perform various moves to test basic functions within the Optical Disk Library System.

Electronics Core Tests (Tests 30 - 44) perform basic tests of the Autochanger controller.

Mechanism Core Tests (Tests 50 - 70) perform basic tests of the Autochanger mechanism. They perform combinations of moves which can help in problem solving.

Using Diagnostic Tests

Typically these diagnostic tests are used by service personnel who are trained to interpret the results and follow through with the appropriate action. There are, however, a few tests which may help you in taking initial troubleshooting steps. (Instructions for running diagnostic tests are found in Chapter 6. A complete list of diagnostic tests is given in Appendix C.)

Caution

Some diagnostic tests can result in a disk being placed into an improper storage slot. If this happens, the Optical Disk Library System's file system is no longer accurate.

Please contact your service representative if you feel diagnostic steps are necessary unless you are trained to perform these diagnostic tests and to interpret their results for the purposes of troubleshooting.

(1) Poweron Test	Checks all digital data paths and normal machine operation. This sequence runs tests that are identical to those run when the Disk Library System operation switch is switched on.
(2) Wellness Test	Checks out the general capability of the Autochanger. Requires one loaded cartridge, and the drives and mailslot must be empty.
(3) Controller Test	A sequence of tests that are run by the Autochanger controller at poweron to check out all paths, and operation of the servo motor and Autochanger circuitry.
(10) Initialize Element Status	Performs the same function as the SCSI INITIALIZE ELEMENT STATUS command. It physically scans the entire unit to determine which slots and drives contain disks.
(23) Shipping	Moves the picker to the appropriate position for preparation for shipping.
(38) Front Panel Light Show	Lights each portion of the display individually and then together. Requires pushing each control panel button to finish the test.

Optical Disk Library System Maintenance

While there are no general maintenance tasks needed, there are some precautions you should take with the Optical Disk Library System.

Caution

- Do not move the Disk Library System without taking the necessary steps documented in Chapter 5 "Moving the Optical Disk Library System."

  Moving the Disk Library System improperly can damage the disk drive mechanisms.

- Do not press the Disk Library System operation switch (located on the front panel) or the power switch (located on the rear panel) until you are sure that the SCSI bus is inactive. Pressing either button when the bus is active can cause data loss and/or indeterminate bus states.

  Check the host sytem reference manuals for information on checking the status of the SCSI bus.

3

Optical Disks

In this chapter you will learn about these topics:

- The advantages of Rewritable and Write-Once optical technology.
- Choosing your optical disk brand.
- Removing the optical disk from its shipping container.
- Labeling your disk.
- Caring for your disks.
- Securing your disks.
- The physical characteristics and environmental requirements for HP optical disks.

Optical Storage Advantages

The Optical Disk Library System takes advantage of magneto-optical (**MO**) technology to write data to its optical disks. When data is written to an MO disk, a laser light focuses on the inner magnetic layer of data, so minor scratches, and small amounts of dust or fingerprints on the disk's outer surface have no effect on the readability of the data. Optical disks are not susceptible to head crashes, and are more tolerant of magnetic interference and office mishandling than other types of recording media. These durable disks can be stored for at least ten years with no loss of data and, unlike conventional tape backup systems, no retensioning, reconditioning or maintenance is required.

The disk is mounted in a rigid plastic polycarbonate case with a metal shutter, similar to a 3.5-inch magnetic flexible disk. The MO disk has two recording sides. The disk storage capacity may be less than indicated in Table 3-1 depending on the format mode and the host system.

Table 3-1. Disk Formats and Storage Capacities

Format	Disk Capacity (one surface)	Total Disk Capacity
1,024 bytes/sector	325 Mbytes	650 Mbytes
512 bytes/sector	297 Mbytes	594 Mbytes

Since optical disk drives read only one side of an optical disk, the Autochanger flips the disk over as necessary to access both sides.

Optical Disk Types

There are two types of disks available for use in the Optical Disk Library System: rewritable optical disks and write-once optical disks. Write-once disks can be used only in Disk Library Systems with multifunction drives, while rewritable disks can be used with any Hewlett-Packard Optical Disk Library System.

To determine which type of drive your Disk Library System contains, locate the product information labels located on the Disk Library System rear panel.

For example,

If your Disk Library System is an *HP C1700M,* it contains *multifunction drives* and *rewritable or write-once disks* can be used.

If, however, your Disk Library System is an *HP C1700A,* it contains *rewritable drives* and only *rewritable disks* can be used. (See the caution note below.)

Data can be repeatedly written and erased with rewritable optical disks; however, once data is written to a write-once disk, the data cannot be altered or erased. If you have a need for data security and audit trails, write-once disks should be your disk choice.

Caution

Do not use write-once disks in the following situations:

- Host systems that do not support write-once disks (Check your host system reference manuals to determine the disk types that are supported.)
- Disk Library Systems that do not have multifunction drives (The disks won't be recognized by the drive. Depending on how the host system reacts to this error, the drive could "hang" and you may be unable to remove the disk from the drive. **If this situation occurs, contact your service representative.**

The two disk types are distinguishable by the words "write-once" or "rewritable" printed on the disk's protective metal shutter. Both disk types are available from HP in either 1,024 bytes/sector or 512 bytes/sector format. For HP part numbers and information on how to order additional optical disks, refer to Appendix E, "Supplies and HP Sales Offices."

Note

Some host computers or host adapters may support only one disk type or format. Refer to your host system documentation to determine the disk type(s) or sector size(s) your computer or host adapter supports.

Choosing Your Optical Disk Brand

Hewlett-Packard recommends that only HP brand optical disks be used with the Optical Disk Library System because of the close relationship between optical disks and optical drives. HP optical disks are qualified by HP for reliable use in demanding Optical Library environments. Some optical disks are inappropriate for use in HP optical products, and while they might seem to work initially, HP cannot guarantee the disk's performance or long-term data integrity.

Note

Part numbers for Hewlett-Packard disks are given in Appendix E, "Supplies and Hewlett-Packard Sales Offices."

Labeling the Optical Disk

Make it a practice to label your optical disks. You are provided adhesive labels with each disk for this purpose. Here are some suggestions for labeling:

- Disk number (e.g. 1, 2, ... 32)
- Date of format or initialization
- Disk owner (e.g. group/department, etc.)
- Storage purpose (e.g. backup, old version of operating system, etc.)

Caution

Do not apply the label to an area on the optical disk that obstructs the movement of the metal shutter. On side A of an optical disk, this is the area just to the right of the metal shutter; on side B, this is the area just to the left of the metal shutter.

If a label is applied incorrectly, the disk cartridge will get caught in the drive and can only be removed by an authorized service representative.

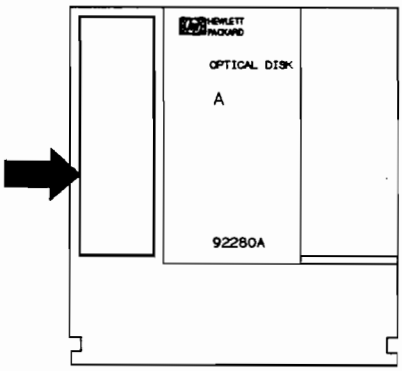

Figure 3-1. Correct Label Position

Caring for Your Optical Disks

Typically, optical disks do not need periodic cleaning; however, there are some everyday precautions you should take.

- Do not expose the disk to extreme magnetic fields.
- Do not expose the disk to dust particles.
- Do not expose the disk to extreme temperatures or extreme humidity. (See the specifications for environmental conditions at the end of this chapter.)
- Do not drop the disk.
- Do not open the shutter and touch the disk surface.
- Do not clean the disk surface.
- Do not take the disk cartridge apart.
- Do not insert disks with loose labels.
- Remove the old label before putting on a new one.
- Store your disk in the plastic case when it is not in use.

Securing Your Optical Disk

Each side of an optical disk can be write-protected by sliding the write-protect tab on the corner of the cartridge. (Refer to item 1 in the following illustration for the location of the write-protect tab.)

With rewritable optical disks, the use of the write protect tab ensures data safety for files that have been previously written to the disk and prevents any additional files being written to the disk.

With write-once optical disks, existing files cannot be altered or erased regardless of whether or not the write-protect tab has been set. However, the use of the write-protect tab will prevent any additional files being written to a disk.

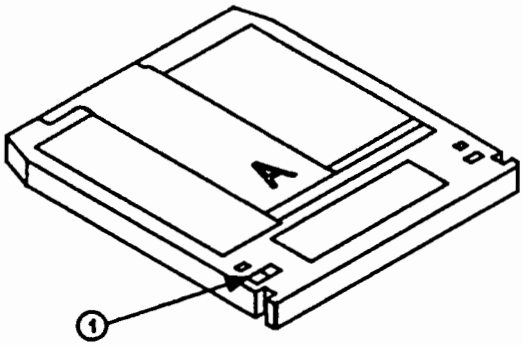

Figure 3-2. Write-Protect Tab Location

4

Setting Up The Optical Disk Library System

The initial set up of the Optical Disk Library System should be completed only by qualified service personnel.

Note

If you want to move the Disk Library System or modify the system hardware configuration, you might need these Hewlett-Packard-supplied reference materials:

- *Optical Disk Library System Setup Guide for Deskside Models*, part number C1700-90060.
- *Optical Disk Library System Setup Guide for Rackmount Models*, part number C1700-90055.
- *Optical Disk Library System User's Guide* (this manual).
  - Chapter 5 "Moving the Optical Disk Library System."
- Host system reference manuals.

5

Moving the Optical Disk Library System

In this chapter you will learn the following:

- How to move the Optical Disk Library System a short distance.
- How to move the Optical Disk Library System a long distance.

Moving a Short Distance

If you simply need to move the Disk Library System down the hall, to another floor level, or to another building onsite, follow these steps.

1. Unmount (unreserve) any disk surfaces from the host system if necessary.
2. Eject all disks from the Autochanger and, if the disks were not labeled with a storage slot location prior to inserting them into the Autochanger, do it now.

Caution

Failure to eject the disks from the optical drives prior to transport could result in damage to the drive mechanism.

See "Removing Disks" in Chapter 6 for the procedure for ejecting disks.

See "Labeling the Plastic Case and Optical Disks" in Chapter 3 for suggestions for labeling disks.

Caution 

Do not press the Disk Library System operation switch (located on the front panel) or the power switch (located on the rear panel) until you are sure that the SCSI bus is inactive. Pressing either button when the bus is active can cause data loss and/or indeterminate bus states.

Check the host sytem reference manuals for information on checking the status of the SCSI bus.

3. Switch off the Disk Library System operation switch (located on the front panel) and the power switch (located on the rear panel).
4. Remove the power cord and SCSI cable connections from the Disk Library System.
5. Raise the leveler feet (if your Disk Library System is in a cabinet) using a 1/2-inch wrench.
6. Carefully roll the Disk Library System to its new destination.
7. Connect the Disk Library System to the host.
8. Re-connect the power cord.
9. Lower the leveler feet using a 1/2-inch wrench.
10. Configure the Disk Library System to the host. (Refer to your host system manual for configuration information.)
11. Re-insert the optical disks into their correct storage slot locations. (See "Loading Disks" in Chapter 6 for the procedure for loading disks.)

Moving a Long Distance

If you need to move your Disk Library System a long distance, do the following:

1. Unmount (unreserve) any disk surfaces from the host system if necessary.
2. Eject all disks from the Autochanger and, if the disks were not labeled with a storage slot location prior to inserting them into the Autochanger, do it now.

Caution

Failure to eject the disks from the optical drives prior to transport could result in damage to the drive mechanism.

See "Removing Disks" in Chapter 6 for the procedure for ejecting disks.

See "Labeling the Plastic Case and Optical Disks" in Chapter 3 for suggestions for labeling disks.

3. Run TEST 23 to position the picker for shipping.
   a. Press [OPTION].
   b. Press [NEXT] until TEST * appears, and then press [ENTER].
   c. Press [NEXT] until TEST 23 appears, and then press [ENTER].

Caution

Do not press the Disk Library System operation switch (located on the front panel) or the power switch (located on the rear panel) until you are sure that the SCSI bus is inactive. Pressing either button when the bus is active can cause data loss and/or indeterminate bus states.

Check the host sytem reference manuals for information on checking the status of the SCSI bus.

4. Switch off the Disk Library System operation switch (located on the front panel) and the power switch (located on the rear panel).
5. Attach the orange shipping bracket as shown in Figure 5-1.
6. Have the unit repackaged and shipped in the same manner in which it was received.

Note

Your service representative can provide assistance or advise you on how to best repackage and ship your Disk Library System.

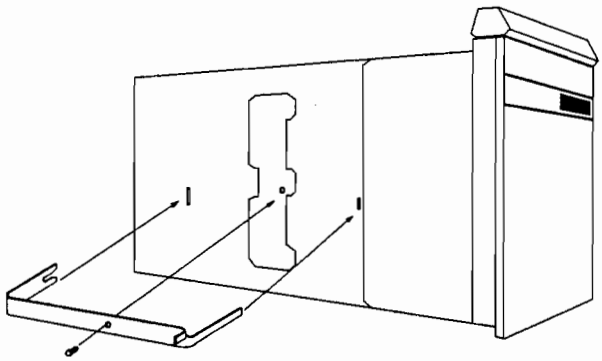

Figure 5-1. Attaching the Shipping Bracket

Note

Before powering on the Disk Library System once it has reached its destination, the shipping bracket must be removed to allow free movement of the picker.

7. Remove the shipping bracket (see Figure 5-1).
8. Connect the power cable to the Disk Library System.
9. Connect the one end of a SCSI cable to the Disk Library System, and connect the other end to the host system.

6

Basic Front Panel Operations

In this chapter you will learn the following front panel procedures:

- Inserting disks.
- Removing disks.
- Changing Disk Library System configurations.
- Retrieving performance information.
- Running diagnostic tests.
- Changing the Disk Library System SCSI addresses.

Front Panel Features and Controls

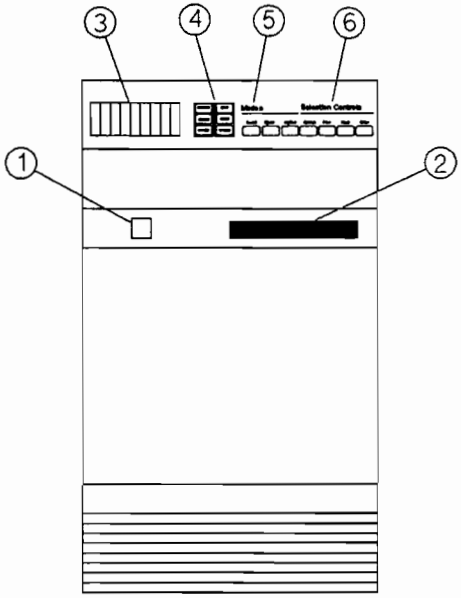

Figure 6-1. Deskside Optical Disk Library Front Panel

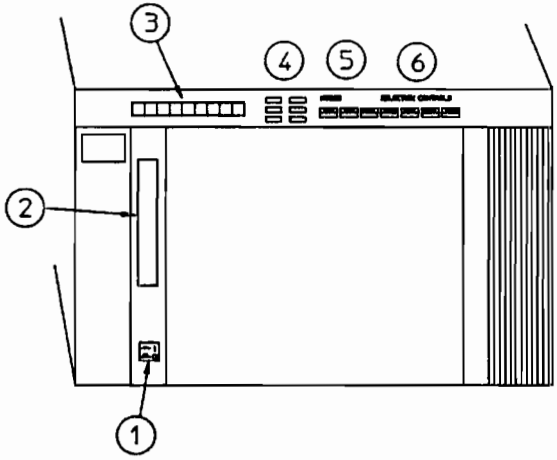

Figure 6-2. Rackmount Optical Disk Library Front Panel

1. Operation Switch — Pushed to enable or disable operation of the Disk Library System. (This is **NOT** the power switch. The power switch is located on the rear panel.)

2. Mailslot — Allows you to insert or remove disks.

3. Status Indicators — Lit when the indicated activity is taking place.

4. Selection Control Buttons — Press these buttons to perform the desired operation.

   [CANCEL] is pressed to cancel the current operation or choice.

   [PREV] is pressed to scroll the display choice backward by one.

   [NEXT] is pressed to scroll the display choice forward by one.

   [ENTER] is pressed to choose the displayed selection.

5. Modes Buttons — Press these buttons to perform the desired operation.

   (LOAD) is pressed after you place the disk in the mailslot. Once (LOAD) is pressed, the display prompts you for the desired destination inside the unit. Once you choose the location, press (ENTER). The disk loads to that location.

   (EJECT) is pressed to remove a disk from storage in the library. Once (EJECT) is pressed, the display prompts you for which disk location to eject. Once you choose the location, press (ENTER). The disk is then brought from that location to the mailslot.

   (OPTION) is pressed to display the current operation options available such as `TEST`, `INFO`rmation, `CONF`iguration, and `SCSI ID`.

6. 9-Character Display — Displays information about the the current operation. Generally you press (NEXT) or (PREV) to control the selections. Once your selection is displayed, you press (ENTER). You may press (CANCEL) to cancel your selection.

Control Panel Tips

- Pressing [OPTION] a second time returns the Disk Library System display to the READY state. The [OPTION] key acts like a toggle.
- Pressing [CANCEL] takes you back one step each time it is pressed.
- When selecting a number on the display, you can usually get to your selection three different ways.
  - Press [NEXT] or [PREV] to increment/decrement by one.
  - Hold [NEXT] or [PREV] down to increment/decrement by one at an accelerated speed.
  - Press [EJECT] or [LOAD] to increment/decrement respectively by tens.

  For example, perhaps one of the numbers in your password is 167. You could press [NEXT] to get to that number. You could press [PREV] to work backwards to that number. Or you could press [EJECT] or [LOAD] to work forward or backward to the nearest ten (160 or 170) of that number and then press [NEXT] or [PREV] to get the exact number.

Note

Using the [LOAD] and [EJECT] buttons to increment the display numbers by tens won't work if you are loading or ejecting disks.

Loading Disks

To load disks into the Disk Library System, do the following steps:

1. Before loading the disk cartridge, make sure it is unpackaged from the clear plastic storage box or sleeve and is properly labeled. (See Chapter 3 for these procedures.)
2. With the Disk Library System switched on and in the READY state, put the disk in the mailslot.
   - Side A faces in the direction shown in Figure 6-3 or Figure 6-4.
   - The metal shutter goes in first.
3. Press the [LOAD] key.

   SLOT 1 (or the first available slot) displays.

Note

If you attempt to add more disks than the library's capacity, you will receive a FULL message on the control panel display. The Disk Library is full when all storage slots and drives contain optical disks.

Before you can add another disk when the library is at capacity, you must first remove a disk from the Disk Library System.

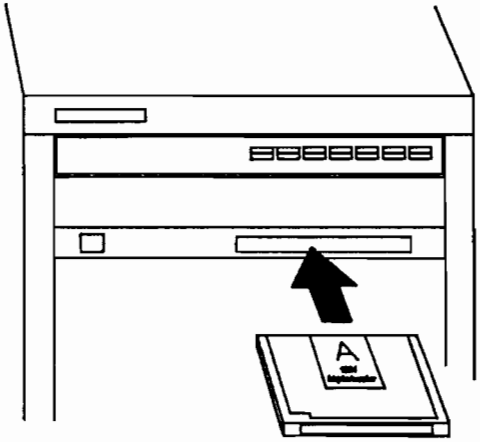

Figure 6-3. Inserting a Disk into a Deskside Unit

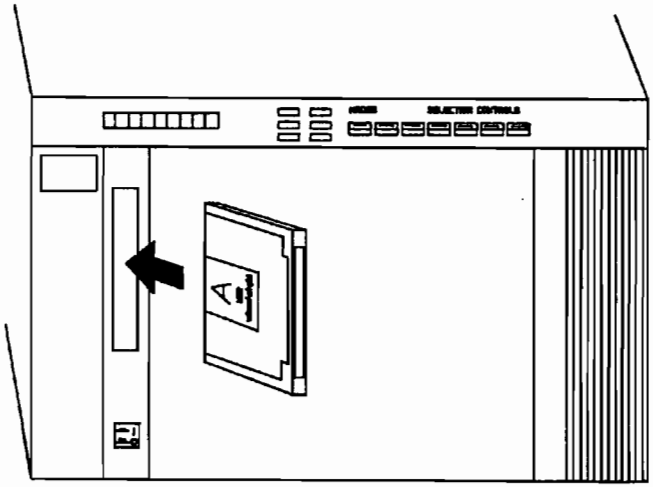

Figure 6-4. Inserting a Disk into a Rackmount Unit

4. You may press [ENTER] to accept the displayed choice or you can press the [NEXT] or [PREV] key to see the other choices. Only those storage slots that are empty and unreserved/available are displayed.

   Pressing [NEXT] or [PREV] scrolls you through selections for the storage slots, drive 1, drive 2, or the mailslot. Once your choice is displayed press [ENTER].

   As the picker moves the disk from the mailslot to its storage slot or drive destination, the LOAD indicator blinks and `SLOT ##` displays, where `##` is the actual number of the slot in which the disk was loaded.

   After the picker moves the disk from the mailslot and puts it in the chosen slot or drive, the display returns to `READY`.

Note

When loading disks you should take care to insert the disks into the mailslot correctly. If you don't insert it fully, you could see an `EMPTY` message on the display. If this happens, press [CANCEL] and try firmly inserting the disk again.

Removing Disks

Caution

It is critical that disks temporarily removed from the Disk Library System be labeled with their storage slot locations. If the disks are not re-inserted into their original storage slot location, your file system will no longer be accurate.

1. With the Disk Library System switched on and in the READY state, press the [EJECT] key. SLOT 1 (or the first occupied storage slot) displays.
2. You may press [ENTER] to accept the displayed choice or you can press the [NEXT] or [PREV] key to see the other choices. Only those storage slots that are filled and unreserved/available are displayed.

   Pressing [NEXT] or [PREV] scrolls you through selections for the storage slots, drive 1, or drive 2. Once your choice is displayed, press [ENTER].

   While the picker moves the disk from its slot or drive to the mailslot, the EJECT indicator blinks. SLOT ## is displayed, where ## is the actual number of the slot from which the disk was ejected.
3. Once the display returns to READY, you can remove the disk from the mailslot.

Note

If a disk is already in the mailslot when [EJECT] is pressed, a FULL message displays. Remove the disk from the mailslot and try the [EJECT] procedure again.

If a disk is partially in the mailslot when [EJECT] is pressed, a MISLOAD message displays. Press [CANCEL], remove the disk from the mailslot and try the [EJECT] procedure again.

Changing Control Panel Configurations

The following steps show you how to change a control panel configuration. Refer to Appendix A for a listing of all configuration options and defaults.

1. Switch on the Disk Library System if it is not already on.
2. With `READY` displayed, press (OPTION). `TEST *` displays.
3. Press (NEXT). `CONF *` displays.
4. Press (ENTER). `CONF 0` displays.
5. Press (NEXT) or (PREV) until `CONF ##` displays (where `##` is the configuration number you want to change.)

   See Appendix A for a complete listing of configurations.
6. Press (ENTER).

   You may be prompted for a password before your options, if any, display. An explanation of passwords is found in Chapter 8, "Securing the Optical Disk Library System."
7. Press (NEXT) or (PREV) until the setting for this particular configuration is appropriate for your situation.
8. Press (ENTER) once your choice displays. `SET ##` displays followed by `CONF *`.

Retrieving Performance Information

To display information about the Disk Library System (the error log or move success log, for example), you need to access the `INFO` option. All the information log selections are identified in Appendix B.

Here are the steps to access an information log.

1. With the Disk Library System switched on and `READY` displayed, press (OPTION). `TEST *` displays.
2. Press (NEXT) until `INFO *` displays.
3. Press (ENTER).
4. Press (NEXT) or (PREV) until the desired log number displays.

   See Appendix B for a complete listing of information logs.
5. Press (ENTER). The log information displays.

Note

Some logs will display more information when (NEXT) or (PREV) is pressed.

Press (CANCEL) to stop the `INFO` display. Press (ENTER) to choose another log.

Running Diagnostic Tests

To display test information and to choose tests to execute, you need to access the TEST option. All diagnostic tests are described in Appendix C.

Here are the steps to perform a diagnostic test.

Caution

Some diagnostic tests can corrupt your file system by moving a disk from its original storage slot to a new storage slot.

Please contact your service representative if you feel diagnostic steps are necessary unless you are trained to perform these diagnostic tests and to interpret their results for the purposes of troubleshooting.

1. With the Disk Library System switched on and READY displayed, press [OPTION]. TEST * displays.
2. Press [ENTER]. TEST 0 displays.
3. Press [NEXT] or [PREV] until the needed test number displays.

   See Appendix C for a complete listing of diagnostic tests.
4. Once you press [ENTER] for the chosen test, ONCE displays.

   You may accept ONCE by pressing [ENTER] or press [NEXT] or [PREV] to choose 10, 100, 1000, or LOOP test repetition times.

   LOOP indicates that the test runs continuously until [CANCEL] is pressed or the unit is switched off.

Note

A test may be stopped by pressing [CANCEL]. The current test iteration completes.

5. Once you press [ENTER] for the number of test iterations, **RUN ##** displays (where **##** is the test number.)

6. The test runs. If no problems are encountered the message **PASS ##** displays.

   You may press [OPTION] to get back to the **READY** state; or, you may press [ENTER] or [CANCEL] to perform another test.

   If a problem occurs during the test, the message **FAIL ##** displays. Press [ENTER] to gain information about the failure. An **ERROR ##** displays. Relevant information is stored in the Error information log.

   Press [CANCEL] or [OPTION] to exit this display.

Setting The Disk Library System Controller Address

The Disk Library System uses either two or three SCSI addresses: one for each optical drive, and one for the autochanger controller.

If you want to change one or both of the optical drive addresses, go to "Changing the Disk Drives' Addresses" in Chapter 7.

The autochanger controller default SCSI address is 3. If you want to change the address, follow these steps.

1. Switch on the Disk Library System.
2. With `READY` displayed, press (OPTION). `TEST *` displays.
3. Press (NEXT). `CONF *` displays.
4. Press (NEXT). `INFO *` displays.
5. Press (NEXT). `SCSI ID` displays.
6. Press (ENTER). `SCSI ID 3` displays.
7. Press (NEXT) or (PREV) until the address you want displays.
8. Press (ENTER). The address you chose is now set.

Caution

Do not press the Disk Library System operation switch (located on the front panel) or the power switch (located on the rear panel) until you are sure that the SCSI bus is inactive. Pressing either button when the bus is active can cause data loss and/or indeterminate bus states.

Check the host sytem reference manuals for information on checking the status of the SCSI bus.

9. Push the operation switch (located on the Disk Library System front panel) off and then back on so the new address setting(s) will be recognized by the host system.

7

Rear Panel Configurations and Connections

This chapter gives information about the following:

- SCSI and power connectors
- SCSI address switches
- Setting the disk drive addresses

Note

Refer to the following manuals for detailed instructions for connecting the Disk Library System to the host computer:

- *Optical Disk Library System Setup Guide for Deskside Models*, part number C1700-90060.
- *Optical Disk Library System Setup Guide for Rackmount Models*, part number C1700-90055.
- *Configuring and Using the Disk Library System on HP 9000 Series 300/400 Computers*, part number C1700-90079.
- *Configuring and Using the Disk Library System on HP 9000 Series 700 Computers*, part number C1700-90077.
- *Configuring and Using the Disk Library System on HP 9000 Series 800 Computers*, part number C1700-90078.
- *Configuring and Using the Disk Library System on HP 9000 Series 900 Computers*, part number C1700-90076.

If you are configuring the Disk Library System to a host computer other than those listed above, refer to your host system manuals for configuration steps.

Rear Panel Connectors and Controls

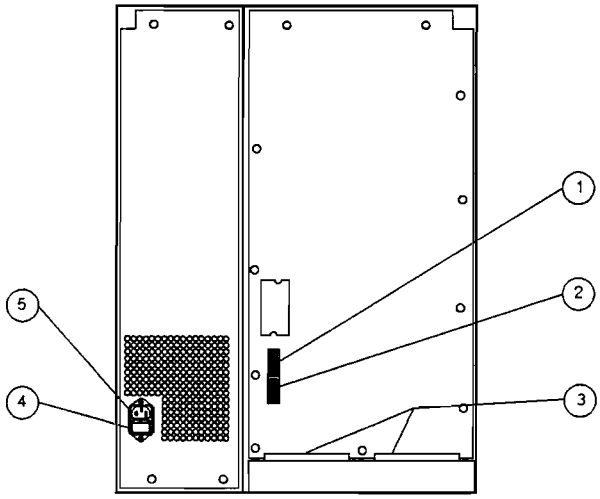

Figure 7-1. Deskside Optical Disk Library Rear Panel

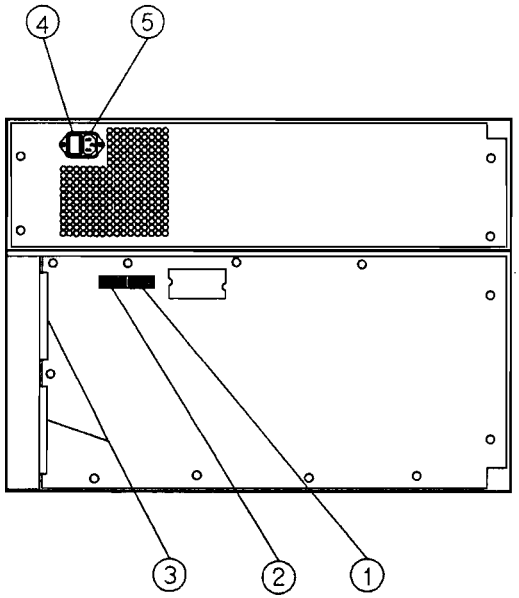

Figure 7-2. Rackmount Optical Disk Library Rear Panel

1.	Drive 1 Address Select Switch	Used to set the SCSI ID for Disk Drive 1. Default address is 4.
2.	Drive 2 Address Select Switch	Used to set the SCSI ID for Disk Drive 2. Default address is 5.
3.	SCSI Connectors	Two SCSI bus connectors that allow SCSI devices to be daisy-chained. If no other SCSI device exists after the current device on the chain, a terminator must be connected to the unused connector.
4.	Power Switch	Used for switching on or off power to the Disk Library System.
5.	Power Connector	Connection for the power cord.

SCSI Address Switches

Accessing the Rear Panel

To set the SCSI address switches you need to access the Disk Library System rear panel.

- If your Disk Library System in not in a cabinet, go to the next section, "Changing the SCSI Address Switches."
- If you have a Deskside model Disk Library System in a cabinet, expose the rear panel by doing the following steps.
  1. Lift up along the back edge of the top cover until it snaps free.
  2. Remove the back cover by pulling out along the top edge of the back cover until it snaps free.
  3. Go to the next section, "Changing the SCSI Address Switches."
- If you have a Rackmount model Disk Library System in a cabinet, expose the rear panel by doing the following:
  1. Unlock the door on the back of the cabinet and open it. (Carefully feed the cords through the opening at the top of the door while it is being opened.)
  2. Go to the next section, "Changing the SCSI Address Switches."

Changing the Drive Address Switches

Each Disk Library System uses either 2 or 3 SCSI addresses—one for each optical drive and one for the autochanger controller. The addresses for the optical drives are set using the switches on the Disk Library System rear panel. The autochanger controller address is set using the control panel. This section gives instructions for setting the optical drive addresses. Instructions for setting the autochanger controller address are given in Chapter 6, "Basic Front Panel Operations."

Note

If you are configuring more than one Disk Library System to the same host, you must change the SCSI addresses on one of the Disk Library Systems to avoid an address conflict.

The default address settings are:

Model 10

Optical Disk Drive #1 Address 4

Model 20

Optical Disk Drive #1 Address 4
Optical Disk Drive #2 Address 5

Caution

Make sure the Disk Library System is switched off (using the power switch located on the Disk Library System rear panel) and the power cord is unplugged before changing the disk drive addresses.

Do not press the Disk Library System operation switch (located on the front panel) or the power switch (located on the rear panel) until you are sure that the SCSI bus is inactive. Pressing either button when the bus is active can cause data loss and/or indeterminate bus states.

Check the host sytem reference manuals for information on checking the status of the SCSI bus.

To change the Optical Drive addresses, do the following steps.

1. Locate the address switches on the rear panel of the Disk Library System.
2. Verify that switches 2, 4, and 5 are in the "OFF" position and switch 3 is in the "ON" position.

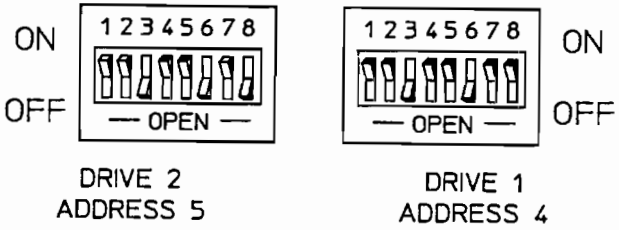

Figure 7-3. Default Switch Settings

Table 7-1. Switch Explanations

Switch	Selection	Description
1 - * Write-with-Verify	On	When enabled, each time you write to an optical disk, the data that was just written is verified on the next disk rotation (see the note that follows this table).
	Off	(Default) Write-with-Verify is disabled.
2 - Eject Mode	On	Eject button disabled—eject only by host commands.
	Off	(Default) Eject Button enabled. Must be off.
3 - Eject Through SCSI Command	On	(Default) When SCSI Eject Command is received, the drive spins down but the disk is not ejected. Must be on.
	Off	When SCSI Eject Command is received, the drive spins down and the disk is ejected.
4 - Diagnostic Switch	On	Run diagnostics. This switch may be used by qualified service personnel.
	Off	(Default) No diagnostics - normal operating mode. Must be off.
5 - SCSI Parity Check Mode Selection	On	Parity check disable.
	Off	(Default) Parity Check enable.
6, 7, and 8 - SCSI Address		These switches combine to set the SCSI address. Refer to the next step.

Note

It is highly recommended that your library system operate with verify after write to assure data integrity. If your host system does not initiate a write-with-verify, you may wish to initiate the function using switch 1. Because of the verification process, you can expect to see a 0-40% overall system performance degradation, depending on the host system and the application.

3. Set the appropriate address switches on both disk drives.

   Switches 6 through 8 are used to set the address. The address can be set from 0 to 7. However, you should **avoid address 7** as it is used by the host HP-UX system or other hosts for the SCSI controller address.

Table 7-2. SCSI Address Settings

SCSI ID	SWITCH 6	SWITCH 7	SWITCH 8
0	OFF	OFF	OFF
1	OFF	OFF	ON
2	OFF	ON	OFF
3	OFF	ON	ON
4 (default)	ON	OFF	OFF
5 (default)	ON	OFF	ON
6	ON	ON	OFF
7	ON	ON	ON

4. Record the address settings you chose for future reference.

8

Securing the Optical Disk Library System

In its default condition, the Optical Disk Library System is unsecured. Any user can insert or remove disks or access Control Panel displays, configurations, or tests. In an open environment, some precautions should be taken to secure access to the control panel as well as to the following:

- Sensitive data stored on optical disk surfaces
- Configuration settings
- Diagnostic log information

If you are concerned about security you should do the following:

- Set a new Disk Library System password periodically and limit the number of people who know the password.
- Implement the following security configurations:
  - Configuration 15 - restricts disk insertion and removal
  - Configuration 20 - maintains the configuration 15 setting in the event of a power failure
- Consider locating the Disk Library System in a physically secure environment.

Setting A New Password

Note

Don't forget your password. If you forget it, only your service representative can reset the password to default.

The default factory set password is 0-0-0. When setting a new password you must first key in the old one and then the new one.

Follow these steps to set a new password.

1. With READY displayed, press (OPTION). TEST * displays.
2. Press (NEXT). CONF * displays.
3. Press (ENTER). CONF 0 displays.
4. Press (NEXT) until CONF 17 displays.
5. Press (ENTER). 0 displays.
6. Enter the current password (or the default password, 0-0-0).
   a. Press (NEXT) or (PREV) until first number of old or default password displays.
   b. Press (ENTER). 0 displays.
   c. Press (NEXT) or (PREV) until second number of old or default password displays.
   d. Press (ENTER). 0 displays.
   e. Press (NEXT) or (PREV) until third number of old or default password displays.
   f. Press (ENTER).

Note

If the password was keyed in successfully, the display prompts you for the new one. If a mistake was made in keying in the password, `NO CONFIG` briefly displays and the unit returns to the `CONF 17` display.

If you realize you've made a mistake in keying in a password, press [CANCEL] to return to the `CONF 17` option.

7. Enter a new password.

Note

It is a good idea to write down your new password prior to entering it into the Disk Library System. Also, store this information in a place where you can find it easily in case you forget your password.

a. Press [ENTER]. `A 0` displays.

b. Press [NEXT] or [PREV] until first number of new password displays.

c. Press [ENTER]. `B 0` displays.

d. Press [NEXT] or [PREV] until second number of new password displays.

e. Press [ENTER]. `C 0` displays.

f. Press [NEXT] or [PREV] until third number of new password displays.

g. Press [ENTER]. `SET 17` displays.

Setting Security Configurations

The following are two security configurations you might consider implementing.

- CONF 15 - when this is set to ON, you cannot insert or remove disks. If you need to insert or remove disks, you must set CONF 15 back to OFF. (Setting CONF 15 requires a password.) This restricts users from "illegally" inserting or removing disks.
- CONF 20 - when this is set to ON, the CONF 15 status is maintained when a power failure occurs. Also the reserved status on optical surfaces is maintained if the Disk Library System power fails.

When setting CONF 15 or CONF 20, the display prompts you for a password. This password is 0-0-0 or the new one you set for CONF 17.

Setting CONF 15 or CONF 20

1. Press [NEXT] or [PREV] until CONF 15 or CONF 20 displays.
2. Press [ENTER]. 0 displays.
3. Press [NEXT] or [PREV] until the first password number displays.
4. Press [ENTER]. 0 displays.
5. Press [NEXT] or [PREV] until the second password number displays.
6. Press [ENTER]. 0 displays.
7. Press [NEXT] or [PREV] until the third password number displays.
8. Press [ENTER]. SET 15 or SET 20 displays.

A

Configuration Options and Defaults

This chapter lists the Optical Disk Library System configuration options and defaults. Chapter 6, "Basic Front Panel Operations," describes how to access and set these configurations.

Note

Your service representative can assist you in implementing the right configuration selections for your Disk Library System.

Mailslot Rotation Configurations

Configurations 31 and 32 allow you to control mailslot rotation as described below. (Instructions for setting Disk Library System configurations are located in Chapter 6, "Basic Front Panel Operations.")

Note

In its default state, the Disk Library System's mailslot stays open, ready to accept an optical disk.

The following configurations allow you to change the mailslot's default position of open to closed.)

- `CONF 31` - when this is set to ON and `CONF 15` is also set to ON, the mailslot's default position is closed. The mailslot cannot be opened and disks cannot be inserted or removed until `CONF 15`, (which requires a password to set), is set to `OFF`. Setting this configuration to `ON` makes it visible to the user that the mailslot cannot be used until security configuration 15 is switched OFF.

  If the Autochanger disk capacity is full, the mailslot will only open for an eject command.

- `CONF 32` - when this is set to ON, the mailslot can be rotated open or closed from the control panel or it allows the host to control mailslot rotation using a SCSI rotate mailslot command. Pressing [Option] on the Disk Library System's control panel displays an `OPEN MS` or `CLOSE MS` message. When the open or close message displays, press [ENTER] to toggle the mailslot open or closed.

  If the Autochanger disk capacity is full, the `OPEN/CLOSE MS` is not displayed and the mailslot will only open for an eject command.

Security Configurations

The following security-related configurations will be of value to you and are discussed in detail in Chapter 8, "Securing the Optical Disk Library System."

- `CONF 15` - when this is set to ON, you cannot insert or remove disks without a password. This restricts users from "illegally" inserting or removing disks.
- `CONF 20` - when this is set to ON, the `CONF 15` status is maintained when a power failure occurs. Also, the reserved status on optical surfaces is maintained if the Disk Library System power fails.
- `CONF 17` - this configuration allows you set a password that will be needed when `CONF 15` and `CONF 20` are implemented. The default factory-set password is 0-0-0. When setting a new password you must key in the old one first and then the new one.

Note

Don't forget your password. If you forget it, only your service representative can reset the password to default.

Table of Configuration Options and Defaults

The following table lists the Optical Disk Library System configuration options and defaults. Chapter 6, "Basic Front Panel Operations," describes how to access and set these configurations.

Note

Your service representative can assist you in implementing the right configuration selections for your Disk Library System.

Configuration Selections

No.	Function	Default	Options
0	Clear/Save Error Log (Information Log 0)	Clear	Clear - clears the error log immediately. Save - saves the error log until Clear is configured.
8	No Break on Failure	Off	Off - if a test encounters a failure, the test stops. On - if a test encounters a failure, the test continues.
10	Clear/Save Move Log (Information Log 10)	Save	Clear - clears the move log immediately. Save - saves the move log until Clear save is configured.
11	Clear/Save Runtime Log (Information Log 11)	Clear	Clear - clears the runtime log immediately. Save - saves the runtime log until clear is configured.
	Configurations 15 - 20 require a password. See Chapter 8, "Securing the Optical Disk Library System."		
15	Prevent Media Removal (password required)	Off	On = No mailslot I/O Off = Normal mailslot I/O
16	Set Default Configurations (password required)	Save	Clear - restores default configurations immediately. Save - maintains all set configurations.
17	Set New Password (password required)	0-0-0	

Configuration Selections (continued)

No.	Function	Default	Options
18	Clear/Save Logs (password required) Clears/zeros these logs: #4 - Drive Load Count #5 - Poweron Hours #9 - Move #12 - Flip #13 - Translate #14 - Mailslot Rotation	Save	Clear - clears/zeros the specified logs. Save - maintains the specified logs until Clear is configured.
19	Set Autochanger Retries A - Max. attempts to find home B - Max. attempts to do move C - Max. attempts to restore move after failure.	 4 2 1	Sets the number of attempts to retry moves before giving up.
20	Poweron Cartridge Security (password required)	Off	On - maintains the status of Configuration 15 upon power cycle or power failure. Off - Configuration 15 is not maintained through a power cycle or power failure.
21	Enable Autochanger Retries	On	On - Autochanger attempts to correct itself when it encounters difficulty. Off - Autochanger does not attempt to correct itself when it encounters difficulty.
22	Clear Drive 1 Load Count Log (Information Log 4)	Save	Clear - clears the Drive 1 Load Count Log immediately. Save - saves the Drive 1 Load Count Log until clear is configured.

Configuration Selections (continued)

No.	Function	Default	Options
23	Same as Config. 22, for Drive 2.		
27	Report Recovered Error	Off	On - reports the SCSI-level error to the host. Off - no reports of SCSI-level errors to the host.
31	Secured Mailslot Rotation (Password required, see Chapter 8, "Securing the Optical Disk Library System.")	Off	Off - Normal mailslot operation. On - The mailslot rotates in when Configuration 15 is set to ON or a Prevent Media Removal command is received. The mailslot remains closed until Configuration 15 is set to OFF or an Allow Media Removal command is received. If the Autochanger is full, the mailslot will open only for an EJECT command.

Configuration Selections (continued)

No.	Function	Default	Options
32	Mailslot Rotation Command (Password required, see Chapter 8, "Securing the Optical Disk Library System.")	Off	Off - Normal mailslot operation. If the host sends a Rotate mailslot command and Config. 32 is set to off, the host will receive a Check Condition followed by a Sense Key of Illegal Request. On - When a Rotate Mailslot command is received (either from the host or via the control panel), the mailslot is toggled open or closed.
50	Emulate Model 10 (Must be a Model 20. Password required, see "Securing the Optical Disk Library System.")	Off	Off - Normal Model 20 mode. On - Emulates a Model 10. (Reduces the number of available storage slots from 32 to 16.) This is only used for system integration, and should not normally be used.
66	Zero all RAM (Password required)	Save	RAM remains unchanged.
		Clear	Zeros all RAM locations and reboots. **This configuration should be used by qualified service personnel only.**

B

Information Logs

The following pages list the information logs available through the control panel. To access these logs, see Chapter 6 "Basic Front Panel Operations."

Note

Your service representative can help you interpret the information held in the information logs.

These information logs will be of value to you:

- Log 1 - Firmware Version Number
- Log 16 - Drive 1 SCSI Address
- Log 17 - Drive 2 SCSI Address

Other information logs record information that tell you how much your Disk Library System is used.

Information Logs

No.	Log Name	Description
0	Autochanger Error Log	A time-stamped history of past diagnostic test errors. The error message maintained for each error indicates the failure and the possible Field Replaceable Units (FRUs) which may have caused the failure.
1	Firmware Version Number	Displays the current Autochanger firmware version number.
2	Element Status NOTE: The number of drives and storage slots your Autochanger contains depends on the Autochanger option that was ordered.	Displays the status (`empty` or `full`) of the selected Autochanger element. Actually displays three numbers: First Number = Element number 0 = picker 1 = drive 1 2 = drive 2 10 = mailslot 11 - 16 = storage slots or 11 - 32 = storage slots Second Number = Element type 1 = picker 2 = storage slot 3 = mailslot 4 = drive Third Number = Data mask 00 = empty 01 = full
3	Software Clock	Displays the current "count" in seconds of the software clock. (hexadecimal)

Information Logs (continued)

No.	Log Name	Description
4	Drive Load Count	Displays the number of cartridge loads for either Drive 1 or Drive 2.
5	Poweron Hours	Displays the number of operation hours (operation button on-time).
	The term **Move** used in Logs 6 - 10 means SCSI-level moves by the picker mechanism.	
6	Current Move Success Count	Displays the number of successful moves since the most recent failure.
7	Move Success Average	Displays the average of the values in Log #10 - Move Success Log.
8	Current Move Retry Count	Displays the number of move retries performed since the most recent failure.
9	Total Move Count	Displays the total number of moves and move attempts.

Information Logs (continued)

No.	Log Name	Description
10	Move Success Log	Contains the number of successful moves which have occurred without a failure. Each time a failure occurs, the number of good moves is entered into the log and a new count is started. This **INFO** display shows the most recent 10 (or less) entries in the log. This log also shows the retry counts corresponding to each log entry. Example (2 displays for each entry): 1 33482 3 First display: 1 = entry number and 33482 = number of moves Second display: 3 = number of retries
11	Display Runtime Log	Flashes to each display until **CANCEL** is pressed. A - Moves performed B - Retries C - Automatic recoveries D - Hard errors
12	Display Flip Count	Displays total number of picker flips.
13	Display Translate Count	Displays total number of picker translates.
14	Display Mailslot Rotation Count	Displays total number of mailslot rotations.
15	Number of Drives	Displays the number of disk drives in the unit.

Information Logs (continued)

No.	Log Name	Description
16	Drive #1 SCSI Address	Displays Drive #1's SCSI address.
17	Drive #2 SCSI Address	Displays Drive #2's SCSI address. (if installled)
20	Distance	Displays the maximum distance that your carriage can move. (hexadecimal)
21	Picker Core Angle	Displays the measured picker core angle from the nominal position. (hexadecimal)
22	Stack Tilt	Displays the measured stack tilt of the box. (hexadecimal)
	Minimum Clearance	Minimum clearance for cartridge insertion
23	Magazine 1	into a magazine or mailslot. Up/down clearance
24	Magazine 2	is calculated by Test 65 and Test 67 and is
25	Magazine 3	displayed in hexadecimal format.
26	Magazine 4	Example: 00DC 0028 = 220, 40 FFEC 0014 = -20, 20 NOTE: Your Autochanger contains either 2 or 4 Magazines depending on the option ordered.

C

Control Panel Diagnostic Tests

The following tables describe the Optical Disk Library System diagnostic tests. A brief discussion of diagnostic tests can be found in Chapter 2, "Technical Overview." Procedures for how to perform a diagnostic test are found in Chapter 6, "Basic Front Panel Operations."

Caution

Some diagnostic tests can result in a disk being placed into an improper storage slot. If this happens, the Optical Disk Library System's file system is no longer accurate.

Please contact your service representative if you feel diagnostic steps are necessary unless you are trained to perform these diagnostic tests and to interpret their results for the purposes of troubleshooting.

Sequence Tests

No.	Test Name	Description
1	Poweron	Checks all digital data paths and normal machine operation. This sequence runs tests that are identical to those run when the Disk Library System operation button is switched on. When the test is requested via SCSI, the tests which cannot be executed over SCSI will be skipped. Sequence Order: 3 - Controller Test 41 - Power Supply Test Motor Connection Test 5 - Initialize Mechanism
2	Wellness Test	Checks out the general capability of the Autochanger. Requires one loaded cartridge; drives and mailslot empty. Sequence Order: 1 - Poweron test 11 - Mechanical Exerciser Test

Sequence Tests (continued)

No.	Test Name	Description
3	Controller Test	This sequence is run by the Autochanger controller when the Disk Library System operation switch is switched on to check out all paths, and operation of the servo motor and autochanger circuitry. Sequence Order: 30 - Processor Test 31 - ROM Checksum Test 33 - Non-Destructive RAM Test 32 - RAM Checksum Test 34 - SCSI Interface Controller IC Test 36 - Motor Control IC Test 35 - Multi-Function Peripheral IC Test 37 - Drive Connect Test
5	Initialize Mechanism	Prepares the unit for movement. Sequence Order: Initialize RAM variables to defaults 50 - Find Home

Exerciser Tests

No.	Test Name	Description
10	Initialize Element Status	Performs the same function as the SCSI INITIALIZE ELEMENT STATUS command. It physically scans the entire unit to determine which storage slots and drives contain disks.
11	Mechanism Exercise Test	Performs a combination of moves with a pass/fail result. This exerciser is actually a sequence of other exerciser tests—12, 13, 14, 15, 16, and 17. Requires one loaded cartridge, drives and mailslot empty.
12	Carriage Move Test	Performs a combination of carriage moves with a pass/fail result. It moves the carriage assembly to the maximum distance away from the sensor on both sides. No cartridges are required.
13	Translate Test	Performs a combination of moves with a pass/fail result. It performs several translations from from various starting positions. No cartridges are required.
14	Flip Test	Performs a combination of moves with a pass/fail result. It performs several flips at various locations. No cartridges are required.

Exerciser Tests (continued)

No.	Test Name	Description
15	Storage Slot Test	Performs a combination of moves with a pass/fail result. It moves a cartridge from a randomly-chosen full slot to a randomly-chosen empty slot, with a random flip. It then moves the cartridge back to its original storage slot with its original orientation. This exerciser returns an error code #57H `Invalid Configuration` if there are no cartridges loaded into the unit, or if any drive is full. Requires one loaded cartridge.
16	Drive I/O Test	Performs a combination of moves with a pass/fail result. It moves a cartridge from a randomly-chosen full slot to a drive, with a random flip. It then moves the cartridge back to its original slot with its original orientation. It does this once for each optical drive. Returns an error code #57H `Invalid Configuration` if there are no cartridges loaded into the unit. Requires one loaded cartridge; drives must be empty.
17	Mailslot I/O	Performs a combination of moves with a pass/fail result. It moves a cartridge from the lowest-numbered full slot to the mailslot with a random flip. It then moves the cartridge back to its original slot with its original orientation. Returns an error code #57H `Invalid Configuration` if there are no cartridges loaded into the unit. Requires one loaded cartridge; mailslot must be empty.

Exerciser Tests (continued)

No.	Test Name	Description
18	Speed Factor Setting Utility	Allows the setting of the speed factor as the first parameter given. The speed factor determines how fast the system moves the mechanics. The number provides 1/Parameter speed (e.g. Parameter=3 runs the motors at 1/3 of full speed). This test can only be run from the SCSI Interface.
19	Zero Maximum Force Log	The maximum force log is initialized to all zeros.
20	Set Speed Factor to Full Speed	Allows the mechanics to be run at full speed.
21	Set Speed Factor to Half Speed	Allows the mechanics to be run at half speed.
22	Set Speed Factor to Quarter Speed	Allows the mechanics to be run at quarter speed.
23	Shipping	Moves the picker to the appropriate position in preparation for shipping.
24	Fill Picker	Moves a cartridge into the picker from the first full storage slot.
25	Empty Picker	Moves a cartridge from the picker to the first empty storage slot.

Exerciser Tests (continued)

No.	Test Name	Description
26	Zero Runtime Log	The entire runtime log is initialized to all zeros.
27	Set Minimum Retries	This sets the number of retries to 1. This may be set to see if the chosen test is doing what you want it to do. After you are satisfied that the test is what you want, run Test 28 which resets the number of retries to default values.
28	Set to Default Number of Retries	Resets the number of retries to powerup default values. Used after setting retries to 1 by Test 27.
29	Zero Error Log	Sets Information Log 0, Autochanger Error Log back to zero.

Electronic Core Tests

No.	Test Name	Description
30	Microprocessor Operation Test	Performs a functional check of the microprocessor. This test will shut down the servo system; a poweron sequence runs upon completion.
31	ROM Checksum Test	Performs a checksum verification of the ROM.
32	RAM Checksum Test	A checksum of the "Controlled" area of RAM is kept on an ongoing basis. This test verifies that the checksum is still valid.
33	Non-Destructive RAM Test	Tests all of the controller's RAM, checking for data acceptance and retention. The test is non-destructive to RAM unless interrupted by power failure. This test will shut down the servo system; a poweron sequence runs upon completion.
34	SCSI Interface Controller Chip Test	Checks out operations of the SCSI interface controller chip. This test will not be run if initiated via SCSI, it reports PASS.
36	Motor Control Chip Test	Exercises the registers of the motor control IC. In order to perform correctly, this test shuts down the servo system.

Electronic Core Tests (continued)

No.	Test Name	Description
37	Drive Connect Test	Checks for expected drive configuration. This is done by polling the drive connect signal on each of the possible drives. This line is grounded at the drive end if a drive is connected. If the drives physically connected do not match the expected configuration then an error is reported.
38	Control Panel Light Show & Button Test	Lights each portion of the display individually and then together. Requires pushing each front panel button to finish the test.
40	Power Supply Test	Looks at both the 12-Volt and the 24-Volt power supplies to verify that they are within limits. The limits for the 12V supply are 11V and 13V and the 24V supply limits are 23.5V and 25.5V.
41	SCSI Connector Loopback Test (Interactive)	Performs a loopback through SCSI connectors, checking proper operation of the SCSI drivers, receivers, and cables. Requires an external loopback hood with terminator power. Will not run if it was initiated via SCSI; if so, it reports error FCH `Test Did Not Run`.
42	Optical Sensor Test (Interactive if done through the control panel.)	Checks the status of the four optical sensors. Also checks the status of the mailslot sensor (see Test 43). Four "0"s are placed on the control panel display; two at the left position in the display, and two at the right position in the display. The mark is an open zero if the sensor is not blocked, and a zero filled in with lit segments if a sensor is blocked. No FRU is returned.

Electronic Core Tests (continued)

No.	Test Name	Description
43	Mailslot Sensor Test (Interactive if done through the control panel.)	Checks the status of the two mailslot flag sensors. Displays F-0 (front sensor) and B-0 (back sensor). If a sensor is blocked, the "0" is filled in with lit segments, otherwise the "0" is open.

44	"Cartridge-in-path" (Infrared beam) Test (Interactive if done through the control panel.)	Displays max/min intensity and ambient readings for the left and right beams. You must enter a parameter to choose the beam to display (0=left, 1=right).
		
		The following is an example of an error message for the right beam and how it is translated:
		
		`F0` is hexadecimal for decimal for 240
		`E1` is hexadecimal for decimal for 225
		`R` means right beam
		`06` is the maximum ambient reading
		`00` is the minimum ambient reading
		
		`Intensity L/R Ambient`
		`Max Min Max Min`
		`240 225 R 6 0`
		
		Press CANCEL to stop.

Mechanism Core Tests

No.	Test Name	Description
50	Find Home Sequence	Moves the picker to a known "home" position. This test assumes nothing about the state of the mechanics. The "home" location is the lower left position of the box. The servo system is initialized to the "home" location. It then automatically runs Test 51.
51	Carriage/Picker Assembly Calibration Test	Runs the portion of the mechanism recalibration related to the optical sensors. It measures sensor offsets and calculates picker tilt and droop. This test assumes that the mechanics and servo system are functional.
52	Solenoid Test	Pulls each drive solenoid back in the order of drive number. This test always returns `Pass` because there is no feedback from the solenoids.
60	FRU Isolation Test	Assumes that something has physically failed, either electronic or mechanical. A series of special low-level tests are executed to select the three (or fewer) FRUs which are most likely to be at fault. Tests 30, 31, 33, 35, 36, 40, and 50 are executed as a part of the isolation process.

Mechanism Core Tests (continued)

No.	Test Name	Description
65	Calibrate Magazines	Calculates a min/max clearance for a magazine. (The selected magazine should be empty.) The Autochanger requires a disk in the mailslot. The test passes if clearance is 85 encoder counts (1 mm) up and down. (See Info 23 for actual values.) If this test is run by SCSI command, set Byte 1 to the magazine number. (Model 10 contains 2 magazines; Model 20 contains 4 magazines.) The test returns: `PASS` or `FAIL`.
66	Clear Magazine Min/Max.	Clears the value calculated in Test 65.
67	Calibrate Mailslot	Calculates a min/max clearance for the mailslot. The Autochanger requires a disk in the mailslot. The test passes if clearance is 85 encoder counts (1 mm) up and down. (See Info 23 for actual values.) The test returns: `PASS` or `FAIL`.
68	Clear Mailslot Max/Min.	Clears the value calculated in Test 67.

D

Troubleshooting

This section can provide solutions to problems that can occur in the operation of the Optical Disk Library System. If you are experiencing difficulty operating the system, the following table lists steps you should take before consulting your service representative.

Note

If you decide that a service call is needed, record the following information about your Disk Library System prior to calling your service representative. This information is found on the product information labels located on the Disk Library System rear panel. (The information on the labels should also be transferred to the tables in Appendix F for quick reference in the future.)

- Product Number
- Option Number(s)
- Serial Number

For problems that may be host system related, refer to your host system documentation.

Task	Problem/Symptom	What to do
Changing Drive Addresses	Changed drive address but the new addresses aren't recognized.	After changing the addresses be sure to switch off the Autochanger and then switch it on again. New addresses won't be recognized until this is done.
Inputting Password	Can't remember the Autochanger password.	First, try the default password (0-0-0). If the default does not yield results, call your service representative for assistance.
Installing the Disk Library System	Initial Installation	Call your service representative. Installation of the Optical Disk Library System should only be done by qualified service personnel.
Loading Disks	Disk inserted in the mailslot, but the display reads `EMPTY` or `MISLOAD`.	Press (CANCEL) and try inserting the disk in the mailslot again. Check Figure 6-2 for the correct disk loading orientation.
Performing Diagnostic Tests	Started a test in Loop Mode and need to stop. Performed a diagnostic test which resulted in a `FAIL` message.	Press (CANCEL). Write down the displayed error code and call your service representative to discuss the problem and possible solutions.

Task	Problem/Symptom	What to do
Powering On	Disk Library System won't poweron.	■ Check to make sure the power cord connections are tight. ■ Check to make sure the power switch (located on the back panel) and the operation switch (located on the front panel) are both switched on. ■ Check to make sure the power outlet is operating. ■ Replace the power cord with a known good one. ■ If the Disk Library System still won't poweron, call your service representative.
	Poweron selftest fails.	Press the operation switch (located on the front panel) off and then on again. Observe the poweron test result. If the unit continues to fail poweron selftest, write down the displayed error code and call your service representative for assistance.
	Poweron Sequence	Make sure your boot disk is spun-up and ready before the Disk Library System is powered on.

Caution

Do not press the Disk Library System operation switch (located on the front panel) or the power switch (located on the rear panel) until you are sure that the SCSI bus is inactive. Pressing either button when the bus is active can cause data loss and/or indeterminate bus states.

Check the host sytem reference manuals for information on checking the status of the SCSI bus.

Task	Problem/Symptom	What to do
Reading the Control Panel	No display messages appear.	Check to see if the power cord is connected. Power cycle the Autochanger. Still no display, call your service representative for assistance.
Reading/Writing Optical Disks	Can't write to the disk.	■ Check the host file system access permissions. ■ Check the write-protect tab on each disk side to assure write-enabled status. ■ Check to make sure the disk was initialized. ■ If you do not have a multifuntion drive, make sure your disk is labeled as "Rewritable." If you are unable to eject the disk from the drive, call your service representative for assistance.
	An optical drive doesn't seem to be working correctly.	Power cycle your Autochanger. If the drive still isn't working, call your service representative for assistance.

Caution

Do not press the Disk Library System operation switch (located on the front panel) or the power switch (located on the rear panel) until you are sure that the SCSI bus is inactive. Pressing either button when the bus is active can cause data loss and/or indeterminate bus states.

Check the host sytem reference manuals for information on checking the status of the SCSI bus.

Task	Problem/Symptom	What to do
	Disk removal attempted, but a `FULL` or `MISLOAD` message displays.	1) If there is a disk in the mailslot, remove the disk and try to remove the desired disk again. 2) If there isn't a disk in the mailslot and a `MISLOAD` message still displays, this could indicate a drive failure; call your service representative for assistance.
	The unit's power failed while a disk was in the drive.	■ Press the operation switch (located on the front panel) off and then on again. If the poweron test is unsuccessful, switch off the operation switch. ***Do not move the unit.*** Moving the unit risks damaging the optical drive. Call your service representative for assistance.

E

Supplies and Hewlett-Packard Sales Offices

Supplies and Accessories

A full range of computer supplies may be ordered through your Hewlett-Packard representative, sales office, or by phoning or writing HP Direct. To phone HP Direct call 1-800-538-8787; to write to HP Direct use the following address:

HP Direct
Hewlett-Packard
P.O. Box 60008
Sunnyvale, California 94088

If you wish to place an order from outside the United States, contact your local Hewlett-Packard sales office.

See Table E-1 for a list of basic supplies and re-orderable parts.

Table E-1. Basic Supplies and Re-orderable Parts

Item	HP Part Number
Rewritable Optical Disks (1,024 bytes/sector)	
Single Disk	92280A
Pack of 8 Disks	92280M
Pack of 32 Disks	92280Z
Rewritable Optical Disk (512 bytes/sector)	
Single Disk	92279A
Pack of 8 Disks	92279M
Pack of 32 Disks	92279Z
Write-Once Optical Disks (1,024 bytes/sector)	
Single Disk	92290A
Pack of 8 Disks	92290M
Pack of 32 Disks	92290Z
Write-Once Optical Disk Cartridge (512 bytes/sector)	
Single Disk	92289A
Pack of 8 Disks	92289M
Pack of 32 Disks	92289Z
0.5m (1.6 ft) SCSI interface cable	92222A
1m (3.3 ft) SCSI interface cable	92222B
2m (6.6 ft) SCSI interface cable	92222C
1m (3.3 ft) SCSI extender cable	92222D
1m (3.3 ft) High density SCSI cable for HP Model 425x (Use with models manufactured before 11/1/90)	K2286
1m (3.3 ft) High density SCSI cable for HP Model 425x (Use with models manufactured after 11/1/90)	K2296
1.5m (4.9 ft) High density SCSI cable for HP Model 425x (Use with models manufactured before 11/1/90)	K2285
1.5m (4.9 ft) High density SCSI cable for HP Model 425x (Use with models manufactured after 11/1/90)	K2296
Single-ended SCSI terminator	K2291
Differential SCSI terminator	A1658-62024

Hewlett-Packard Sales and Support Offices

United States:

Hewlett-Packard
4 Choke Cherry Road
Rockville, MD 20850
(301) 670-4300

Hewlett-Packard
5201 Tollview Drive
Rolling Meadows, IL 60008
(312) 255-9800

Hewlett-Packard
5161 Lankershim Blvd.
North Hollywood, CA 91601
(818) 505-5600

Hewlett-Packard
2015 South Park Place
Atlanta, GA 30339
(404) 955-1500

Canada:

Hewlett-Packard (Canada) Ltd.
6877 Goreway Drive
Mississauga, Ontario L4V 1MB
Canada
(416) 678-9430

Europe:

Central Mailing Department, Europe
Hewlett-Packard Nederland B.V.
P.O. Box 529
NL-1105 LN Amstelveen
The Netherlands
(31/20) 547-98 32

Australia/New Zealand:

Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Australia
(61/3) 895-2895

Japan:

Yokogawa-Hewlett-Packard Ltd.
3-29-21, Takaido-Higashi
Suginami-ku, Tokyo 168
Japan
(81/3) 331-6111

Far East Area:

Hewlett-Packard Asia Ltd.
22nd Floor
West Tower, Bond Centre
89 Queensway, Central
Hong Kong
(852/5) 848-7777

Latin America:

Hewlett-Packard Mexico, S.A. de C.V.
Monte Pelvoux No. 111
Fracc. Lomas de Virreyes
11000 Distrito Federal
Mexico
(52/5) 202 01 55

F

Product Numbers and Options

The following products are discussed in this manual. To determine which product you have, find the product information labels located on the Disk Library System rear panel and check the corresponding information on the following table.

Table F-1. Disk Library System Products Matrix

√	Product No./Options	Description
	C1710M	Model 20 Optical Library System with 32 storage slots, 2 multifunction drives, and a single-ended SCSI interface.
	002	Differential SCSI Interface
	100	Deskside version with cabinet
	101	Rackmount version with rackslides
	102	Rackmount version without rackslides
	103	Deskside version without cabinet
	104	Rackmount version with 1.0 m cabinet

Table F-1.
Disk Library System Products Matrix (continued)

√	Product No./Options	Description
	C1713M	Model 10 Optical Library System with 16 storage slots, 1 multifunction drives, and a single-ended SCSI interface.
	002	Differential SCSI Interface
	100	Deskside version with cabinet
	101	Rackmount version with rackslides
	102	Rackmount version without rackslides
	103	Deskside version without cabinet
	104	Rackmount version with 1.0 m cabinet
	C1700A	Model 20 Optical Library System with 32 storage slots, 2 rewritable drives, and a single-ended SCSI interface.
	1AB	Deskside version with cabinet
	1AC	Rackmount version with 1.0 m cabinet
	133	Rackmount version with rackslides
	231	Includes 1 rewritable optical disk (1,024 bytes/sector)
	241	Includes 32 rewritable optical disks (1,024 bytes/sector)

Table F-1.
Disk Library System Products Matrix (continued)

√	Product No./Options	Description
	C1700M	Model 20 Optical Library System with 32 storage slots, 2 multifunction drives, and a single-ended SCSI interface.
	1AB	Deskside version with cabinet
	1AC	Rackmount version with 1.0 m cabinet
	133	Rackmount version with rackslides
	231	Includes 1 rewritable optical disk (1,024 bytes/sector)
	232	Includes 1 write-once optical disk (1,024 bytes/sector)
	241	Includes 32 rewritable optical disks (1,024 bytes/sector)
	242	Includes 32 write-once optical disks (1,024 bytes/sector)
	C1703A	Model 10 Optical Library System with 16 storage slots, 1 rewritable drive, and a single-ended SCSI interface.
	1AB	Deskside version with cabinet
	1AC	Rackmount version with 1.0 m cabinet
	133	Rackmount version with rackslides

Glossary

Autochanger
Synonymous with the Optical Disk Library System.

Autochanger Controller
Controls the sending and receiving of SCSI commands and controls the picker.

Block Device File
A type of device file that buffers the I/O. Reads and writes to block devices are done in "block" mode (data is transferred one block at a time).

Carriage Move
Used to correctly position the picker in front of a storage slot and to position the picker for translates.

Cartridge
See *Optical Disk*.

Continuous Composite (C*C)
A format that describes the physical, optical, and data format characteristics of a disk that complies with ISO DP 10089-2A.

Disk
See *Optical Disk*.

Element
A SCSI term for any one of the Autochanger components—drives, mailslot, storage slots, or picker.

Error Detection and Correction

The process of identification and correction of data errors that occur in the reading and writing processes. Redundant information on the disk is used to detect errors. Error Detection Codes along with Error Correction Codes are used to reconstruct the data after an error occurs.

Flip

A picker rotation used to switch the disk from one side to the other.

Front Panel

Includes a power switch, a control panel used to manage and display Autochanger functions, and a place to insert and remove disks. (All front panel features are fully described in Chapter 6, "Basic Front Panel Operation.")

Magneto-Optical (MO)

A type of optical technology which uses a laser to read from and write to a magnetic layer on an MO disk. To write, a spot on the magnetic layer is heated by a laser to a point where it can be magnetically altered by the write magnetic head. To read, a light from the laser is reflected from the spot. The magnetic alteration causes the light to be polarized in one direction (interpreted as a "1") or the opposite direction (interpreted as a "0").

Magazine

Magazines contain 8 optical disk storage slots. The Disk Library System has either 2 or 4 magazines and, therefore, either 16 or 32 optical disk storage slots.

Mailslot

Where disks are inserted and removed from the Optical Disk Library System.

Multifunction Drive

An Optical Disk Drive that supports both rewritable and write-once optical disks. The drive detects the disk type by reading a factory-stamped code on the disk, and automatically determines whether to operate in rewritable or write-once mode.

Optical Disks

Synonymous with the 5.25-inch magneto-optical disks. There are two types of optical disks: rewritable and write-once.

Picker

The part of the Disk Library System that rotates, flips, and transports disks to and from storage slots, drives, and the mailslot.

Rails and Carriage

The parts that support the picker for movement within the Autochanger.

Read/Write Head

The part of the disk drive assembly that uses a laser and a magnet to read and write data on the MO disk. To write, a spot on the magnetic layer of the disk is heated by the laser to a point where it can be altered by the magnet. To read, the light from the laser (at low power) is reflected from the spot. The magnetic alteration causes the light to be polarized in one direction (interpreted as a "1") or the opposite direction (interpreted as a "0").

Rear Panel

The rear panel of the Autochanger provides either single-ended or differential SCSI connections, and power connection.

Rewritable Optical
An optical disk technology in which data can be repeatedly written using magneto-optical reading and writing technology.

Rewritable Optical Disk Drives
An Optical Disk Drive that supports only rewritable optical disks where data can be repeatedly written and erased.

SCSI
An acronym for the Small Computer Systems Interface.

Storage Slots
Hold cartridges when they are not in the drives or being passed out through the mailslot.

Swap
Occurs when a picker replaces one disk in the drive with another, returning the first to its storage slot.

Terminator
A resistor array device used for terminating a SCSI bus. A SCSI bus must be terminated at its two physical ends. A peripheral device uses a terminator only if it is at the end of the bus.

Translate
A picker movement from one side of the carriage to another.

Write-Once

An additional operating mode available with multifunction drives. When a write-once disk is inserted, the drive will write data, but will not write over data that has been previously written. This feature is useful for applications that need permanent data security and audit trails.

Write-Protect

Prevents data from being written to a disk. A write protect tab is located on both sides of the optical disk cartridge to enable write-protection on one or both surfaces of the disk.

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