Plasmon

D Series Users Guide

PREFACE

Thank you for purchasing the Plasmon D- Series library. This Operators Manual describes the library, its functions, and its method of use. Please read this manual thoroughly before operating the system, in order to completely familiarize yourself with the functions of the control panel, and to make the most of all the setup configuration functions. After reading this manual, store it in a safe place for future reference.

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Changes

The material in this manual is for reference only and is subject to change without notice, the revision level and revision date will change whenever a modification to this manual occurs.

While reasonable efforts have been taken in the preparation of the material contained in this manual, Plasmon/IDE assumes no liability resulting from any errors or omissions, or from the use of material contained herein.

Side Symbols

The following images are designed to draw your attention to important information within this manual.

NOTE. Information relating to important suggestions.

CAUTION. Warnings relating to directions which could put the operator or the system at risk of damage.

TIP. Hints to achieve optimal performance from your library system.

FCC COMPLIANCE STATEMENT

The equipment to which this manual pertains has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this User's Guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user is encouraged to try to correct the interference by one or more of the following measures:

🖉 Reorient or relocate the receiving antenna.

🖉 Increase the separation between the equipment and the receiver.

🖉 Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

🖉 Consult an experienced radio/TV technician for further help, at your own expense.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par l'Industrie Canada.

C€ This library system is in conformity with the EMC directive and low-voltage directive.

LASER SAFETY

The optical drives used in this unit are certified to comply with DHHS rule 21 CFR Chapter 1, Sub-chapter J as a Class 1 laser product 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. This means that the optical drives do not produce harmful radiation.

Since radiation emitted inside the optical drive unit is completely confined within protective housings and external covers, the laser beam cannot escape from the machine during any phase of user operation.

CDRH Regulations

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.

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

Power cord set selection

The voltage rating and the current rating of the power cord set shall be higher than the rated voltage and current of this unit. The voltage of the power cord set shall be higher than the power source.

For the U.S. and Canada:

Power cord must be UL listed and CSA labeled. Type SJT, SVT, ST, SJO or SO, 3-conductors, No. 18 AWG, rated 125v, 10A

For Germany and continental Europe:

STROMANFNAHME: 100-240 VAC, 50/60 Hz, 2A.

Für eine 230V-Anwendung, ist eine harmonisierte <HAR> konfektionierte Leitungsschnur, Typ H05vvf3G1.00, die für 250V/10A oder die Gleichwertigkeit geeognet ist, zu benutzen.

If you have questions in regards to the proper cord sets consult your distributor.

Lithium Battery

The Main Controller Board contains a lithium battery which could explode if incorrectly replaced. Replace only with a qualified replacement battery. Return the old battery to the manufacturer for disposal or dispose of in accordance with local regulations for the disposal of lithium batteries.

"ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REPLACEMENT INCORRECT DE LA BATTERIE. REMPLACER UNIQUEMENT AVEC UNE BATTERIE DU MEME TYPE OU D'UN TYPE RECOMMANDE PAR LE CONSTRUCTEUR. METTRE AU REBUT LES BATTERIES USAGEES CONFORMEMENT AUX INSTRUCTIIONS DU FABRICANT."

Vorsicht! Explosionsgeahr bei unsachgemabem Austausch der batterie. Ersatz nur durch denselbel oder einen vom Hersteller empfolhenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

SUPPORT INFORMATION

For support assistance in North America, South America, Asia Pacific, contact:
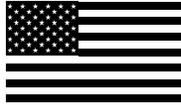
	United States Office
Address	Plasmon IDE, Inc. 9625 West 76th Street Eden Prairie, MN 55344
Telephone	(612) 942-2982
Fax	(612) 946-4132
Techweb	http://www.plasmontech.com
Email	support@plasmon.com

For support assistance in Europe, Africa, Asia, Middle East, contact:

	European Headquarters United Kingdom
Address	Plasmon Data Limited Whiting Way Melbourn, Herts. SG8 6EN
Telephone	+44 (0) 1763 262 963
Fax	+44 (0) 1763 264 444
Techweb	http://tech.plasmon.co.uk
Email	techsupport@plasmon.co.uk

When contacting Plasmon for support assistance, please provide the following information

✎ Serial number of the library system

✎ Model number of the library system

✎ Description of the problem or reason for the call, include error code information if appropriate

Web Site

Feel free to visit our internet web site, there you will find many useful items to help with support issues.

WWW

North America

http://www.plasmon.com

Europe

http://www.plasmon.co.uk

GENERAL PRODUCT INFORMATION

In this section you will find information on the layout and description of the components that make up the library system.

Functional Description

The D Series libraries make multiple CD-ROM, CD-R, DVD RAM media available to computer systems for reading or writing. These libraries offer capacities from 120 to 480 discs. The D Series libraries use disc packs (magazines) containing ten discs, which provide the ability to quickly add or remove related discs. Discs may also be added or removed individually through the import export drawer when the library is on-line.

The D–Series libraries use thin trays to rapidly move the CD or DVD discs within the unit. Also, the library systems use a dual picker to make rapid disc exchanges and offer fast performance in a multi-user environment. The double picker holds two discs simultaneously.

Library System Models

This manual covers the following D Series library systems.

TABLE 1. D Series Library System Models

Model	Maximum Magazines	Maximum Discs	Number of Drives
D120	12	120	2 or 4
D240	24	240	2, 4, or 6
D480	48	480	2, 4, or 6

MAJOR HARDWARE COMPONENTS

Refer to the following figures when reading the information in this section.

Operators
panel

Import/Export
Drawer

Tray   Transport
Assembly

Lift Assembly

Magazine
Bay

Lift Shaft

Drives
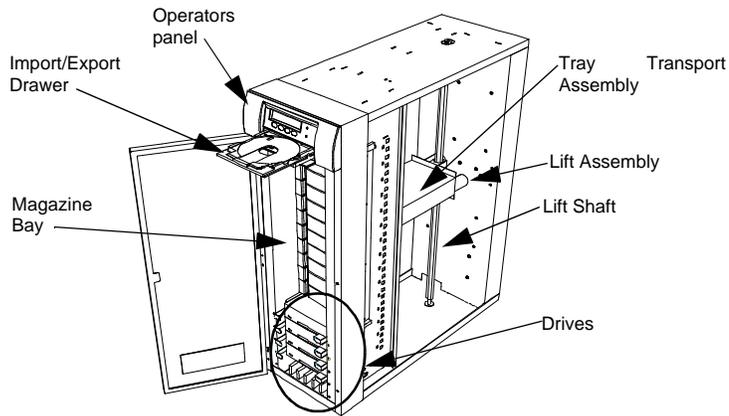
FIGURE 1. D120 Library System, Front View

Power
Supply

Main
Control
Board

Tray   Transport
Assembly

Power
Switch

And

Power
Receptacle

Drives
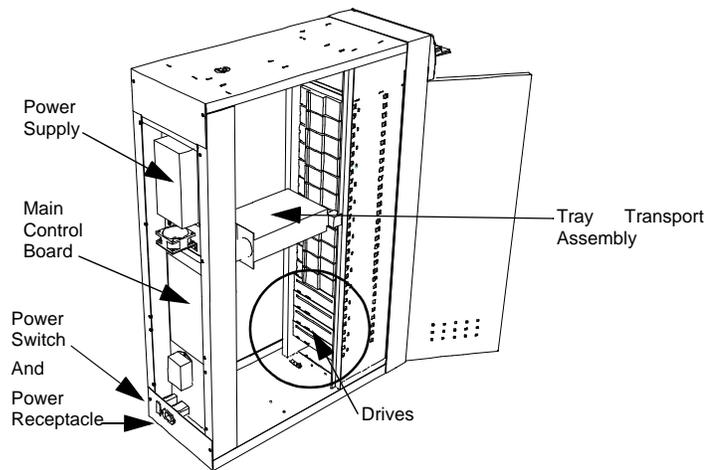
FIGURE 2. D120 Library System, Rear View
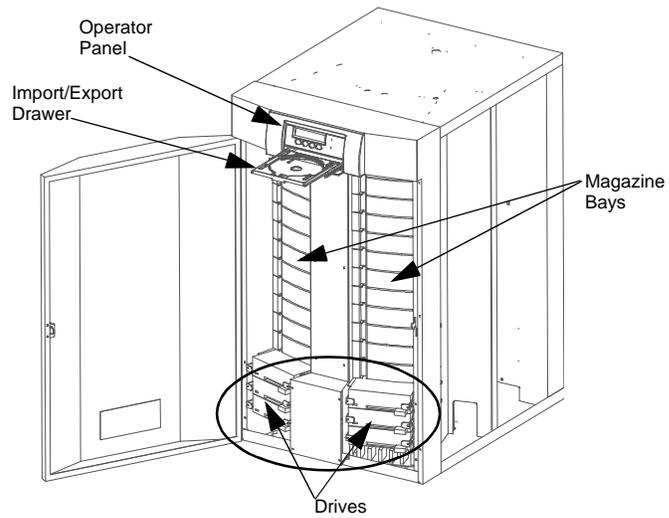
FIGURE 3. D240 and D480 Library System, Front View
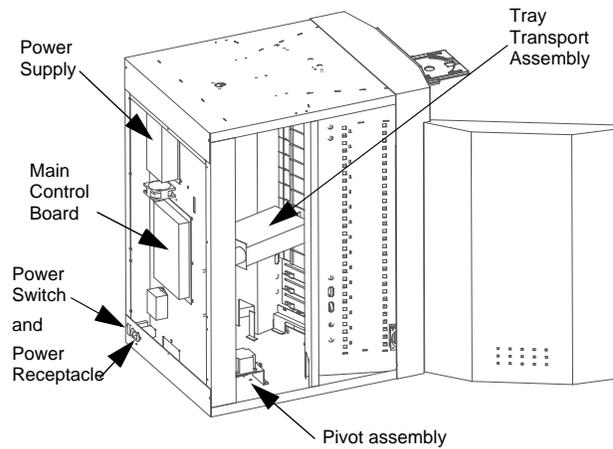
FIGURE 4. D240 and D480 Library System, Rear View

Front Panel Access Door

Front door of the system used to insert or remove magazines. The door is latched during power off to prevent the removal of magazines from the unit. When the library system is on-line, the door can only open in the Magazine Exchange or Drive Service modes.

Import/Export Drawer

Access drawer for entering or removing individual discs. The drawer can only open if there is an empty tray available to be moved to the drawer.

Operator Panel

Keypad and display controller which provide the operator interface to the system. Also called the front panel, it is used to display tests, modes, error codes and other user related messages.

Magazine Bay

Area that holds each magazine in place. Consists of two vertically arranged plates with plastic grooved guide panels that hold each magazine.

Magazine

Carriers containing up to ten disc trays, the trays are used as carriers for the discs. Magazines fit within the magazine bay.

Tray Transport Assembly

Mechanism that moves discs between magazine locations and the disc drives, and is made up of the following:

🖉 Picker and lift assemblies

🖉 Pivot assembly (for systems with more than one magazine bay)

Lift Shaft

Vertical shaft which guides the tray transport assembly.

Drives

The drives used in the library system. They have been fully tested to work with the system and modified to accept the disc trays.

Contact Plasmon for the latest drive updates.

SCSI² Interface

Connection between the library system and a host computer. The interface is single ended.

Pivot Assembly

Used to align the tray transport assembly with each of the 2 magazine bays in the D240 and D480.

Identifying Drives, Magazines, and Trays

Within the library system, drives, magazines, and trays all follow the same numbering scheme. The component closest to the bottom left of the system is number 1. For example, the drive closest to the bottom is drive number 1, the next drive up is drive number 2, and so on. In the case of a multiple bay system the bays are numbered from left to right, with drive

number one starting at the bottom of bay 1. Similarly, the bottom magazine is number 1, and the trays in this magazine are numbered 1 through 10 beginning at the bottom of the magazine and counting up. The next magazine is number 2 and the trays are numbered 11 through 20 counting up.

SYSTEM OVERVIEW

The following topics will be a short overview of the library system capabilities.

Command Processing

The library system responds to SCSI[2] commands from the host computer system to load and unload drives, and move discs and trays within the library.

Media Movement

The tray transport assembly is used to move individual discs within the library system between the magazine storage area and a drive or the import/export drawer. To speed the process, the tray transport assembly can hold two discs, moved simultaneously.

Magazine Exchange

The library system magazines may be exchanged by opening the front panel access door and adding, removing or exchanging magazines. After closing the front panel door, new or replaced magazines are automatically scanned for the presence of media.

Importing and Exporting

Importing and exporting of single discs can be performed by using the import/export drawer. The import/export drawer is accessible from both pickers in the tray transport assembly. Access to the import/export function is controlled by the application software to provide data security.

Error Recovery and Diagnostics

In the event of an error when on-line, the library system retries the operation that failed. If this operation fails, the library system will attempt to return the trays to their location before the operation, and will send an error code to the host computer. This error code will also be displayed on the front panel of the library system.

Component Interaction

The following example describes how the library system components interact in a swap media situation, assume the library is on-line and media is loaded in the destination drive.

1. The SCSI command Exchange Medium is received, and the media location and the drive are specified.

2. The tray transport assembly moves to the magazine holding the requested media.

3. One picker extends forward, grabs tray 1 (holding the media) out of the magazine, and retracts with the tray back into the tray transport assembly. The home and current location of this tray is retained in the library system's NVRAM (non volatile memory)

4. The tray transport assembly swaps pickers and moves down to the destination drive, positioning the empty picker in front of this drive.

5. The empty picker extends forward, grabs tray 2 and media currently in the drive, and retracts with the tray back into the tray transport assembly.

6. The tray transport assembly swaps pickers and positions the picker with tray 1 in front of the drive.

7. The picker containing tray 1 extends forward and inserts the tray into the drive, and then retracts back into the tray transport assembly, leaving tray 1 in the drive.

8. The tray transport mechanism moves to the original location of tray 2 (the location where it was originally stored in the magazine in the magazine bay).

9. The picker containing tray 2 extends forward and inserts the tray and media into the magazine. This completes the operation. Completion status is returned to the host.

Library System Operating Modes

The library system can operate in the following modes.

🖉 On-line running from EPROM

🖉 On-line running from Flash ROM

🖉 Magazine exchange mode

🖉 Drive service mode

🖉 Setup mode

🖉 Maintenance mode (reserved for Service Technicians)

The following is a brief description of each mode, for instructions on running the library system in the modes please refer to the procedures section

On-line Running From EPROM

In this mode the library system is operating from its boot PROM. The system runs in this mode when:

🖉 It has never received microcode to download to its Flash memory.

🖉 It has received incomplete microcode downloaded to its Flash memory

🖉 It is directed to run in this mode by the host computer (usually done in preparation for receiving microcode).

🖉 Power is supplied while a key on the front panel is held down.

On-line Running From Flash

This is the normal operating mode for the library system. Drive, transport, and import status is displayed on the front

panel, and all movement of discs is controlled by the application software.

Magazine Exchange Mode

Normal method of introducing new media into the library system or removing existing media for off-line storage. In this mode, magazines of discs may be inserted into or removed from the library system.

Drive Service Mode

This mode is used to insert, replace, or remove drives. Tray movement commands are allowed while in this mode but no magazines may be inserted or removed. That is, the library system may continue normal operation except for magazine exchange which is not permitted.

Setup Mode

This mode is used to set certain library system configuration parameters and display basic library system parameters and error information.

Maintenance Mode

This mode is used by the Service Technician to test and maintain the library system.

SETUP AND INSTALLATION

The following section contains information regarding the installation and setup of the library system.

Unpacking Instructions

Allow sufficient time for the library system to normalize to the room temperature before applying power.

The library systems are shipped from the factory assembled and aligned. There is a packing foam tube which needs to be removed from the lift shaft inside the unit. This should be done after applying power to the library system. The front panel access door opens and instructions appear on the operator panel.

To unpack the library system:

1. Remove the library system from the shipping crate, moving it in the following manner:

✎ For the D120: lift up on the handle in the rear of the unit and roll it forward or backward on its front wheels. Avoid tipping the unit too far.

✎ For the D240: Push the unit to the desired location, rolling the unit on its casters. When the unit is positioned as desired, push down the lever on each of the casters to lock the caster in place.

✎ For the D480: Refer to the unpacking instructions included with the unit. Make sure that because of the increased height of the D480 to prevent accidental tipping the stabilizers are installed.

Packing Instructions

IMPORTANT! D-Series libraries must be shipped in the original packaging. Shipping the units in anything other than the manufacturers packaging will result in the units warranty being voided.

The library must be parked before proceeding with packing the system. Refer to the Procedures section "Park Library" on page 62 for instructions on parking the library system.

The magazine detents are not strong enough to hold the trays during shipment. Remove all magazines before shipping the library

Applying Power

Power up the library system following these steps:

1. Plug the AC power cord supplied with the library system into the power receptacle located on the lower rear panel.

Caution: Do not use an extension cord! The unit must be located next to the AC outlet, and the outlet must be easily accessible. In the event an emergency power cutoff is required, pull the plug from the AC socket.

VORSICHT: Kein Verlängerungskabel verwenden! Das Gerät muß in der Nähe einer leicht zugänglichen Netzsteckdose aufgestellt werden. Zum Abschalten in einem Notfall den Stecker aus der Netzsteckdose ziehen.

ATTENTION: Ne pas utiliser de rallonge ! L'appareil doit être placé près de la prise secteur, qui doit être facilement accessible. Si une coupure d'alimentation d'urgence est nécessaire, débrancher l'appareil de la prise secteur.

2. Plug the SCSI terminator supplied with the library system into either of the SCSI connectors located on the lower rear panel.

3. If you have allowed the unit to normalize to the room temperature, turn on the power switch at the lower left rear of the library.

Applying Power (cont.)

The LCD displays the serial number and the firmware version:

```
SN NNNNNNNNNNNNN

FIRMWARE VN.N
```

The library system then performs a diagnostic check of its internal systems and displays:

```
ID'S: N,N,N,N: M

MODES=0000,SCHEME 1
```

The top display line indicates the SCSI IDs. *N*=Drive 1,2,3,4,etc SCSI ID. and *M*=Changer SCSI ID. Enabled mode settings display on the second line. The defaults are 00,00, and scheme1.

Offset Adjustments

Immediately after the library system has performed the diagnostic check, execute the offset adjustments. Perform the following steps in order to successfully execute the offset adjustments.

1. Place a magazine in the top and the bottom position in each magazine bay. Each magazine must have a tray in the top tray slot and the bottom tray slot.

2. Select maintenance mode from the front panel. If it is password protected, the default password is AAAA.

3. Select Test 3 in maintenance mode.

```
3 OFFSETS

0HP    0FP    0NP    0MP
```
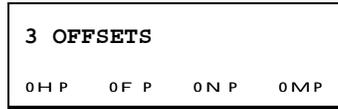
Step	Press	To do the following	The LCD displays	Tips and Notes
1.	H	Begin the offset test	`AUTO SET OFFSETS`	Place a magazine in the top and the bottom position in each magazine bay. Each magazine must have a tray in the top tray slot and the bottom tray slot.
2.	R	Begin the test		The test executes and sets all offsets automatically.
		D240 & D480:	`PIVOT ALSO   (8 MIN)?` `   YES           NO`	Select **YES** to set pivot offsets.

NOTE: It is highly recommended that after the offset adjustments have been completed that a new password for the Maintenance Mode is entered by the system administrator.

Connecting the SCSI Interface
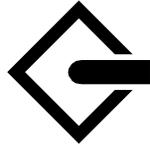
There are two default configurations for the SCSI interface to the D Series libraries.

If the unit contains only CD-ROM drives (models D120-40, D240-60 and D480-60), or DVD-RAM drives (models D120-DR, D240-DR, and D480-DR) then the internal SCSI bus is configured in a single chain, including the library controller and all of the drives. The top connector on the rear panel, as shown in the following figure, is used to connect the SCSI cable from the host computer. The lower connector is used for the external terminator.

Top   connector:
SCSI interface cable

Bottom   connector:
External terminator
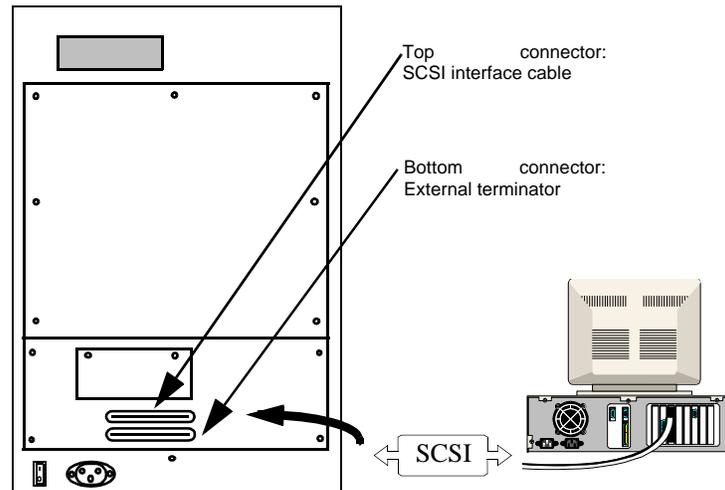
SCSI

If the unit contains CD-R drives (models D120-22, D240-60 and D480-60, the internal SCSI bus is configured in two separate channels: one channel connects the CD-ROM drives. The other channel connects the two CD-R drives. Both of these channels are terminated internally and no external terminator is necessary. The use of a separate SCSI bus for CD-R drives is a requirement or recommendation of many library management software products. Two host adapter boards will also be required in the host computer.

You should refer to the documentation of the software for more information.

SCSI Bus Configuration for Dual Bus

Most disk library management software programs either require or recommend that CD-R drives, if installed in the library, be configured on a separate SCSI bus from the library changer and the CD-ROM drives. This is to maximize the throughput of the data to the CD-R drives, and ensure that the stream is not interrupted, which could result in a damaged CD-R disc. D Series models equipped with CD-R drives are shipped with the SCSI bus split into two channels.

NOTE. Mixing CD-ROMs or CD-R drives in a DVD-RAM library is not allowed, the library must contain only DVD-RAM drives

If it is desirable to reconfigure the split bus into a single chain, follow the procedure below. It is strongly recommended that this procedure be carried out by a qualified service technician.

D240 and D480

1. Take the library off-line.
2. Open access door using Exchange Magazine command.
3. Turn off the library power and unplug the unit from the outlet.
4. Remove the drive covers using a #1 phillips screwdriver (drive covers removed in figure).
5. Remove the center cover.
6. Locate the ends of the two SCSI cables and disconnect the terminators. Store these terminators in a safe place for possible future use.
7. Connect the two SCSI cables together.
8. Replace the center cover and then replace the drive covers taking care not to pinch any of the cables.

Drive number 2 location

Drive number 1 location

The split SCSI connector is located behind this center cover

Note: The CD-R drives are in location 1 & 2
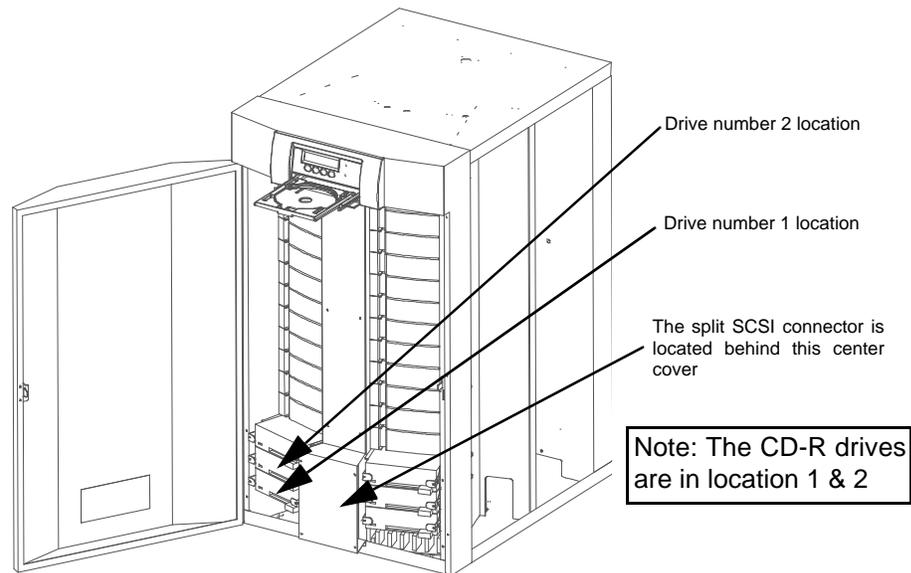
9. Install the external terminator on the lower SCSI connector.

10. Plug the library system into the outlet, and turn on the main power switch.

11. Enter SETUP mode and execute the CONFIG DRIVES menu to assure there are no conflicts.

12. Refer to the software manual for operation

FIGURE 5. Split bus connector location D240 & D480

D120

To reconfigure the D120 library system you must remove the outer case cover. Locate the four Phillips head screws that secure the case to the frame, and remove these screws using a #2 phillips head screwdriver. Once the cover has been removed locate the two SCSI cable ends and remove the terminators. Store these terminators in a safe place for possible future use. Connect the SCSI cable connector together and reinstall the outer case cover. Install the external terminator on the lower SCSI connector, and refer to the software manual for operation.

Location of case outer mounting screws

The split SCSI connector is located here

Note: The CD-R drives are in location 1 & 2
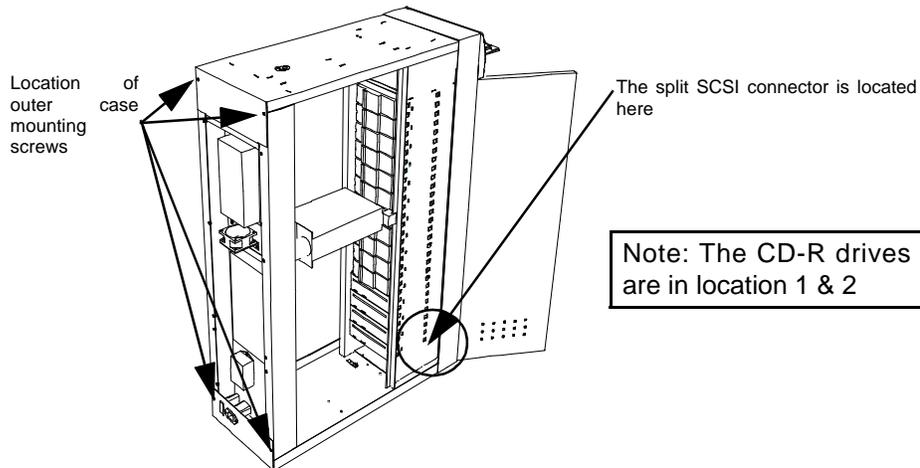
FIGURE 6. Split bus connector location D120

PROCEDURES

This section covers all of the steps within setup mode

Using the Operators Panel and Menu

The library system has an LCD (Liquid Crystal Display) panel, located on the upper front panel. Below the LCD panel are membrane switches, used to toggle between modes or functions of the unit.

```
1 CHANGER ADDRESS                       Description line

  ⊙H⊳      ⊙F⊳      ⊙N⊳      ⊙M⊳          Switch indicators
```

Description line. Displays the number and name of the mode or test. An ellipsis (...) following a name indicates that the selection contains several submenus.

Switch indicators. Displays the function of the membrane switch keys located below the legend. a dash above a key means that no function is associated with this key. Refer to the table LCD symbols and definitions for an explanation of each symbol.

Use of italics. Indicates a placeholder for data. On the systems LCD, you will see the actual data. For example, Drive *N* in the manual displays as Drive 1,2,3 etc. on the system LCD panel.

The following table format is used to describe how to navigate through the LCD panel selections:

Step	Press	To do the following	The LCD displays	Tips and Notes
1	⊢	Run the selection.	SCSI ADDRESS *N*	Use ∨ or ∪ decrease or increase the robotic changer SCSI ID.

Step. Denotes the number of the procedure step

Press. Directs you to the membrane switch key to press. Not all steps require you to press a key.

To do the following. Describes what the step performs.

The LCD displays. Shows the actual message you see on the display panel.

Tips and Notes. Provide helpful information to further describe this step.

LCD Symbols

The following symbols appear on the LCD panel:

TABLE 2. LCD Display symbols

This LCD symbol ...	Is used to
H	Make a first selection, and move to a submenu
F	Exit a menu selection
A	Allow a mode selection to be changed
B	Confirm a selection
V	Decrement a numeric value
U	Increment a numeric value
N	Go to the previous menu item
M	Go to the next menu item
G	Open or shut the Import/Export drawer
L	Move picker in and out to test picking when setting offsets
D	Display a list of menu items
R	Run a motor or execute a function
X	Indicate that a drive is turned off or is not installed
W	Indicate that a tray containing a CD or DVD disc exists in an element
T	Indicate that no tray exists in an element
C	Indicate that an empty tray exists in an element
S	Scroll the message display to the left
Q	Scroll the message display to the right

Initial Power Up

When you initially power up the library system, you can perform the following functions:

✎ Select a library system mode

✎ Access error information

✎ Open or close the import/export drawer

When the library system powers up, the LCD displays:

Displays element status information as described in the table below

```
D:xccccc      T:ɪ ɪ     I:ɪ

•ɪ▷ SELECT▷      • ɪ ▷      • ɪ ▷
```

Displays **G** if tray is present in the import/export

Displays ? when an error has occurred

By pressing the key below this symbol, the system will display a menu of functions
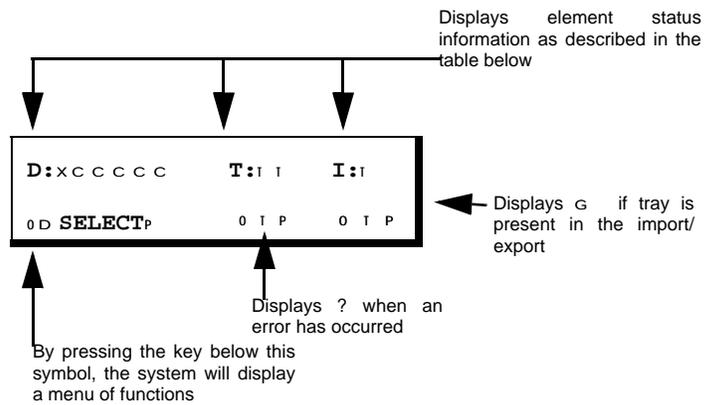
TABLE 3. LCD symbols at power up

Symbol	Meaning
D	Drive status
T	Tray transport assembly (pickers) status
I	Import/export drawer status
x	Drive is turned off or is not installed
c	Empty tray in element
ɪ	No tray in element
w	Full tray in element

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Menu of Functions

By pressing the ▷ select key you will display a menu of functions as listed below.

Exchange Magazines. Puts the library system in Magazine exchange mode.

Service Drive. Puts the library system in Service Drive mode. Drives may be removed, replaced or installed.

Turn Drive Off. Turns off a drive.

Turn Drive On. Turns on a drive.

Setup. Puts the library system in Setup mode.

Maintenance Mode. Puts the library system in Maintenance Mode for use by a qualified Service Technician.

Upon power up, you can perform one of the following actions:

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	▷	Enter the on-line functions menu.	`EXCHANGE MAGAZINES`	Refer to the corresponding procedures on the next few pages.

	?	Display the description of an error	`ERROR DESCRIPTION`
			AND
			`? CHANGES TO C`
				The error description displays for 5 seconds. During this time press the C key to clear the error display

	◖	Open or close the import/export drawer		You can also manually push the drawer closed.

EXCHANGE MAGAZINES

To exchange magazines or remove magazines from the library follow the following procedure.

In the Magazine Exchange mode, magazines of CD or DVD discs may be removed, replaced, or inserted. This the normal method for introducing new media into the library system, or removing existing media for off-line storage

---

NOTE: As a result of the introduction of DVD technology in Plasmon's D-Series libraries, a new magazine with grey trays has been introduced. The new magazine and trays may not be compatible with units shipped with a serial number of the form xxxxAxxxxxxx (serial numbers containing an "A"), and may require an upgrade to the library I/E mechanism. Please contact Plasmon or your supplier for details.

To enter Magazine Exchange mode, press the **◖ SELECT** key on the front panel. The LCD displays:

```
 ┌─────────────────────────────┐
 │                             │
 │  EXCHANGE MAGAZINES         │
 │                             │
 │ ◖HP   ◖FP   ◖NP   ◖MP       │
 │                             │
 └─────────────────────────────┘
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢⊣	Enter Magazine Exchange mode.	`TAKE CHGR OFFLINE?`	To exchange magazines, the library must be taken off-line. If a password has been setup for this mode, you are prompted to enter the password.
2.	**YES**	Take the changer off-line.	`EXCHANGE MAGAZINES AND CLOSE DOOR`	The front panel access door opens to allow access to the magazines.
3.		Release the magazines and slide them out of the magazine bay		Press the white button to the right of the magazine
4.		Replace the magazines. Slide the magazine into the magazine bay until it clicks into place.		
5.		Shut the front panel access door.		The library system automatically scans the new magazine, checking for trays and discs.

Each magazine contains ten trays. within each magazine are detents that hold the trays in place. Inside the magazine bay are plastic detents to hold the magazine.

CD or CD-R discs can be manually loaded, DVD discs from Plasmon come preloaded 10 in a magazine. DO NOT touch the surface of a DVD-RAM disc.

To release the trays:

1. Release the trays by depressing the release button.
2. Pull out the trays and load one disc on each tray.(label side up)
3. Push the trays back in the magazine until they lock into place.
4. Place the magazine into the magazine bay.

Tray

Magazine

Tray release button
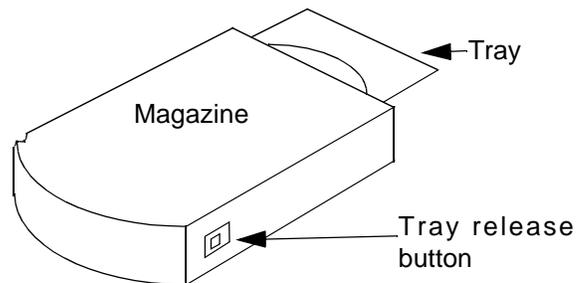
TURNING A DRIVE OFF AND ON

If you are experiencing problems with one of the library system drives, you can unload it and power it off by selecting Turn Drive Off from the front panel. When you are ready to put the drive back in service you can select Turn Drive On from the front panel.

Turn Drive Off

To turn a drive off, press the ◘ **SELECT** key on the front panel and press the **M** key twice. The LCD displays:

```
TURN DRIVE OFF

◘HP    ◘FP    ◘NP    ◘MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Prepare to turn off a drive.	DRIVE TO TURN OFF: *N*	Use **v** or **u** to identify the drive to turn off.
2.	⊢	Turn off the selected drive.	ONE MOMENT PLEASE	This message appears while the drive is unloaded and powered off.

Turn Drive On

To turn a drive off, press the ⏻ **SELECT** key on the front panel
and press the **M** key three times. The LCD displays:

```
TURN DRIVE ON

OHP    OFP    ONP    OMP
```
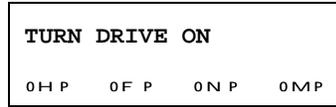
Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Prepare to turn a drive on.	DRIVE TO TURN ON: *N*	Use ∨ or ∪ to identify the drive to turn on.
2.	⊢	Turn on the selected drive.		

SETUP MODE

The following is the setup configuration menus used to setup the library.

You can setup the library system by selecting any number of setup mode menu options, described in the remainder of this section. To enter Setup mode, press the ◻ **SELECT** key on the front panel and press the **M** key four times.

The LCD displays:

```
SET UP LIBRARY

◗H►    ◗F►    ◗N►    ◗M►
```
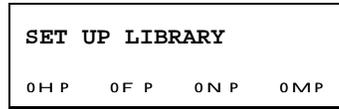
Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Enter Setup mode.	**ENTER PASSWORD**	The password prompt only appears if required.
2.	front panel keys	Enter the password (if required)		Entering an incorrect password returns you to the main menu.
3.	▬	Confirm the password.	**TAKE CHANGER OFFLINE?**	This prompt only appears if no password was required.
4.	**YES** -OR- **NO**	Take the changer off-line. Returns to the main menu.	**1 CHANGER ADDRESS**	The message **ONE MOMENT PLEASE** appears. The first setup mode selection then appears.

CHANGER ADDRESS

The Changer address selection is used if you wish to change the SCSI ID (address) of the robotic changer to make it compatible with your system or with the software you are using.

From the setup menu select **CHANGER ADDRESS**.

The LCD displays:

```
1 CHANGER ADDRESS

0HP    0FP    0NP    0MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Run the selection	SCSI ADDRESS N	Use v or u to decrease or increase the SCSI ID.
2.	⊟	Write the new value into non-volatile memory.		The LCD returns to the main setup menu.

NOTE: **No two devices on a SCSI bus may share the same SCSI ID. Make sure you know which IDs are available and not in use on your system.**

DRIVE ADDRESSES

The Drives Addresses selection is used to change the SCSI address of the drives. If there is a bus expander installed on the library system you can also change the SCSI address of the bus expander in this menu selection.

When you enter this selection, the LCD displays:

```
2 DRIVE ADDRESSES

●H P    ●F P    ●N P    ●M P
```
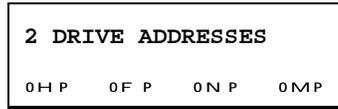
To change the SCSI address of a drive.

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	◄	Run the selection	A. DRIVE ADDRESS	
2.	◄	Select the drive to modify.	DRIVE *N*	Use ∪ or ∨ to select a drive to modify, from 1 to 6.
3.	◄	Set the SCSI address.	SCSI ADDRESS *N*	Use ∪ or ∨ to increase or decrease the address, from 1 to 7.
4.	▬	Select the SCSI bus.	ON CHANGER BUS: Y	Use ▲ to change this setting but only if the drive is not on the same SCSI bus as the medium changer device.
5.	▬	Write the new setting into non-volatile memory.	A. DRIVE ADDRESS	

Step	Press	To do the following	The LCD displays	Tips and Notes
6.	**M** -or-	Select the Expander Address menu selection.	**B. EXPANDER ADDRESS**	A bus expander must be installed to use this function.
	F	Return to the setup menu		
6.	**H**	Select the bus expander to modify	**BUS EXPANDER N**	Use **u** or **v** to select the bus expander to modify, from 1 to 6
7.	**H**	Set the bus expander address.	**SCSI ADDRESS N**	Use **u** or **v** to increase or decrease the address.
8.	**B**	Write the new value into non-volatile memory.	**B. EXPANDER ADDRESS**	
9.	**F**	Return to the main setup menu	**2. DRIVE ADDRESSES**	

To view which drives are on a bus expander group:

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	**H**	Run the selection.	**A. DRIVE ADDRESS**	
2.	**M** two times	View the drive grouping selection	**C. DRIVE GROUPING**	
3.	**H**	Select the drive to be put in the drive grouping	**DRIVE N**	Use **u** or **v** to select a drive, from 1 to 6.

Plasmon

Step	Press	To do the following	The LCD displays	Tips and Notes
4.	▶	Confirm the selected drive	`EXPANDER M, GROUP N`	*M*= the bus expander. *n*= the bus expander group.
5.	☞	Return to the Drive Grouping submenu selection.	`C DRIVE GROUPING`	
6.	☞	Return to the main Setup menu.	`2. DRIVE ADDRESSES`	

MODE SETTINGS

The Mode Settings option allows you to set up the library system preferences. From the Setup menu, select **MODE SETTINGS.**

For this selection the LCD displays:

```
3 MODE SETTINGS

 HP    FP    NP    MP
```
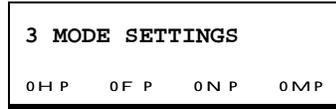
Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Access mode settings.	`DISAB TRAY RETURN: N`	the current setting displays.
2.	▲	Change the setting.	`DISAB TRAY RETURN: Y`	
3.	M,	Select the next mode setting.	`TRAY RET ON POWER: N`	The next mode setting displays.
4.	F	Return to the main Setup menu.		

Repeat the above steps for the other mode settings. The mode settings are described here:

Disab Tray Return

Y. The tray are not returned to their magazines when entering Magazine Exchange mode.

Default   **N.** The trays are returned to their magazines when entering Magazine Exchange mode.

Tray Ret on Power

Y. The trays that are not already in magazines are returned upon library system power on.

Default **N.** The trays that are not in magazines are left where they are upon library system power on.

Disab Auto Ld/Ej

Y. The medium changer device will not clamp and start newly loaded drives nor stop and unclamp drives to be unloaded. In this case the application software controls the clamp, start, stop, and unclamp functions.

Default **N.** The medium changer device will clamp and start newly loaded drives and stop and unclamp drives to be unloaded.

Ignore Recov Errs

Y. The medium changer device will not return SCSI *check condition* status for hardware errors from which it has recovered.

Default **N.** The medium changer device will return SCSI *check condition* status for hardware errors from which it has recovered.

Limit Recovery

Y. The medium changer device limits the extent of error recovery that the system will perform.

Default ✓ **N.** The medium changer device does not limit the extent of error recovery.

NOTE: Changing the value to Y also prevents the changer device from performing any transfers on a tray in the event of an unrecoverable error, or when the sequence of moves cannot be undone. The tray is left in its current position and the host software is responsible for moving the tray back to a magazine.

Wait on load

Y. The medium changer device waits for a *ready* response from a drive upon completion of a *move medium* or *exchange medium* command.

Default ✓ **N.** The medium changer device does not wait for a *ready* response from a drive upon completion of a *move medium* or *exchange medium* command.

Closed on Export

Y. The import/export drawer is not opened after a tray is moved to it.

Default ✓ **N.** The import/export drawer is opened after the tray is moved to it.

Skip On/Off Delay

Y. The medium changer device does not delay after powering up or down a drive.

Default ✔ **N.** The medium changer device introduces a suitable delay after powering up or down a drive.

> **NOTE: Changing the value to Y means the host must be responsible for introducing suitable delays.**

Ignore Parity

Y. Parity is ignored on the SCSI bus.

Default ✔ **N.** Parity is not ignored on the SCSI bus.

Emulate LF-JXXX

Y. The library system is set to emulate a Panasonic/MEI LF-JXXX series library system.

Default ✔ **N.** The library system is not set to emulate a Panasonic/MEI LF-JXXX series library system.<

Enable Thresholds

Y. Threshold values for various library counts is enabled. Notification is sent to the host computer when a threshold value is reached

Default ✔ **N.** Threshold values are disabled. No notification is sent to the host computer.

512 Sector Reads

Y. The library is to configure all installed CD-ROM drives to read 512 byte sectors.

Default ✔ **N.** The library is to configure all installed CD-ROM drives to read 2048 byte sectors.

Write Cache Enable

Y. The library is to configure all installed DVD-RAM drives to enable write caching.

Default ✔ **N.** The library is to configure all installed DVD-RAM drives to disable write caching.

Force Verify on Write

Y. The library is to configure all installed DVD-RAM drives to force verify on write

Default ✔ **N.** The library is to configure all installed DVD-RAM drives not to force verify on write.

ADDRESS SCHEME

The address scheme affects the addresses the host computer uses to refer to different parts of the library system. The address scheme used in the library system should agree with that used by the controlling software on the host computer.

For this selection the LCD displays:

```
4 ADDRESS SCHEME

 HP     F P    NP    MP
```
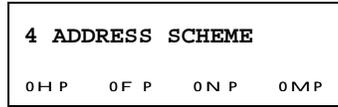
Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Access the address scheme choices.	ADDRESS SCHEME 1	scheme 1 is the default selection. Use u or v arrow to change to a different scheme.
2.	⊟	Commit the change.		The LCD displays the Setup menu.

PASSWORDS

Passwords limit access to the eight different modes of operation of the library system which can be invoked from the front operator panel. Each function may have a one to eight letter password. By default, only the service drive and maintenance mode functions have passwords. This menu selection allows passwords to be set, removed, or changed.

Passwords are used for the following front panel functions of the library system:

✎ Exchange Magazines

✎ Service Drive

✎ Turn Drive Off

✎ Turn Drive On

✎ Setup Library

✎ Maintenance Mode

✎ Restart Library

✎ Set Drive Region

For all of the functions listed above, the library system follows the steps listed below. The Exchange Magazines mode is used as an example

For this selection, the LCD displays:

```
5 PASSWORDS

 OHP    OFP    ONP    OMP
```
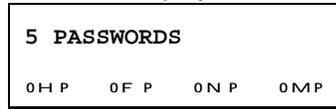
Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Change or enter a password.	EXCHANGE MAGAZINES	The LCD prompts you to **SELECT FUNCTION TO SET PASSWORD FOR.** Use **N** or **M** to choose a different function for which to set a password.

Step	Press	To do the following	The LCD displays	Tips and Notes
2.	⊨	Change the password for **EXCHANGE MAGAZINES.**	PASSWORD= ▫A-H▪ ▫I-Q▪ ▫R-Z▪ ▫⊟▪	
3.	front panel keys	Do one of the following: If a password has not been previously established, skip to step 5. If a password has already been established, the prompt **ENTER CURRENT PASSWORD** displays.	ENTER PASSWORD ▫A-H▪ ▫I-Q▪ ▫R-Z▪ ▫⊟▪	Press the correct sequence of alpha characters for your password. Up to 8 characters may be entered. Asterisks (*) display as the password is entered.
4.	⊟	Confirm the old password.		If you enter the wrong password, you exit to the Setup menu.
5.	front panel keys	Enter the new password as prompted.	PASSWORD= ▫A-H▪ ▫I-Q▪ ▫R-Z▪ ▫⊟▪	Press the correct sequence of alpha characters for your password. Up to 8 characters may be entered. Asterisks (*) display as the password is entered. To remove password protection do not enter any characters.
6.	⊟	Save the new password.		Record the password in a safe place.

The requirement to enter the old password is a security feature to prevent unauthorized change of passwords.

If you forget your password, contact your system administrator or Plasmon Technical support.

UNIT INFORMATION

The unit information setup command is used to display the serial number of the library system.

For this selection, the LCD displays:

```
6 UNIT INFORMATION

●HP    ●F P    ●NP    ●MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊶	View the serial number.	SN *NNNNNNNNNNNN*	*NNNNNNNNNNNN=* the serial number.
2.	☞	Return to the Setup menu.		

FIRMWARE VERSION

The Unit Information setup command is used to display the serial number of the library system.

For this selection, the LCD displays:

```
7 FIRMWARE VERSION

●HP    ●FP    ●NP    ●MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊷	View the Flash firmware version.	**FIRMWARE V*N.NN***	*N.NN* = the Flash firmware version.
2.	⊶	Return to the setup menu.		

CONFIGURATION SUMMARY

The Configuration Summary setup command is used to display the library system parameters as presently configured. The summary information includes Changer Address, Drive Types and addresses, Mode Settings and address scheme.

For this selection, the LCD displays:

```
8 CONFIG SUMMARY

 HP    F P   NP    MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	View the configuration information.	**PRESS A KEY NOW, AND AFTER EACH DISPLAY**	Press any key for each new display until **END OF INFO!** displays
2.	☞	Return to the Setup menu.		

ELEMENT STATUS

The element status setup command is used to display which elements (magazine slots, drives, pickers, or the import/export drawer) of the library system are populated with trays, trays and discs, or no trays.

For this selection the LCD displays:

```
9 ELEMENT STATUS

0HP    0FP    0NP    0MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	H		MAG 1: wcɪ wɪ wɪ w wɪ	w = Full tray in element c = Empty tray in element ɪ = No tray in element
2.	M -or- N	View the next magazine. View the drive, tray transport assembly, or I/E drawer status.	MAG 2: wcɪ wɪ wɪ w wɪ D: x c c T: ɪ ɪ I: ɪ	D = Drive T = Tray transport assembly (pickers) I = I/E drawer x = Drive turned off or not installed
3.	F	Return to the Setup menu.		

POWER ON HOURS

The Power on Hours setup command is used to display the number of hours that the library system has been powered on.

For this selection, the LCD displays:

```
10 POWER ON HOURS

0HP    0FP    0NP    0MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	View the hours.	`HOURS = NN`	*NN* = power on hours.
2.	☞	Return to the setup menu.		

NOTE: The number displayed is the total system on time information, and is never cleared.

UNIT CYCLE COUNT

The Unit Cycle Count menu selection is used to display the overall library system cycle count.

For this selection, the LCD displays:

```
11 UNIT CYCLE COUNT

OHP    OFP    ONP    OMP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	View the count.	CYCLES = NNNNN	NNNNN = the number of times *any drive* has been loaded.
2.	⊢	Return to the setup menu.		

NOTE: This number represents system usage information, and is never cleared.

DRIVE LOAD COUNTS

The Drive Load Counts menu selection is used to provide information about the number of times the drives have been loaded.

For this selection, the LCD displays:

```
12 DRIVE LOAD COUNTS

◦H▸   ◦F▸   ◦N▸   ◦M▸
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Select a drive.	**DRIVE N**	*N* = the drive number.
2.	⊢	View the information.	**COUNT = NN**	*NN* = the number of times this drive has been loaded.
3.	⊩	Return to the setup menu.		

FUNCTIONAL COUNTS

The Functional Counts setup command is used to display counts for the movement of the mechanisms within the library system.

For this selection the LCD displays:

```
13 FUNCTIONAL COUNTS

0HP    0FP    0NP    0MP
```
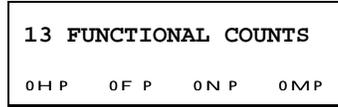
Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	View the information.	LIFT UP/DOWN COUNT	Use ᴜ or ᴠ to select the desired count.
2.	⊢	Display the selected count.	UP/DOWN = *NNNN*	*NNNN*= the number of times the tray transport assembly has moved up or down (vertically).
3.	⊩	Return to the Functional Counts submenu	LIFT UP/DOWN COUNT	Repeat these steps for other counts in this submenu.
4.	⊩	Return to the Setup menu.		

The following will describe the counters in this menu.

For this counter...	The LCD displays...
Lift Up/Down	The number of times the tray transport assembly has moved up or down (vertically).
Picker 1 In/Out Picker 2 In/Out	The number of times each picker element has moved in or out (horizontally).

For this counter...	The LCD displays...
Change Picker	The number of times the active picker has changed. For example, an Exchange Medium command typically requires three picker changes to complete.
Pivot Left/Right	The number of times the tray transport has pivoted left or right to reach another column of magazines or drives.
Drawer Open/ Close	The number of times the import/export drawer was opened or closed.
Door Open	The number of times the front panel access door was opened.
Cumulative Up/ Down distance	The cumulative distance (in meters) traveled vertically by the tray transport assembly.
Cumulative In/ Out distance	The cumulative distance (in meters) traveled horizontally by both pickers in the tray transport assembly.
Cumulative Left/ Right rotation	The cumulative angular distance (in radians) traveled by the tray transport assembly.

RESCAN ELEMENTS

The Rescan Elements menu selection causes the library system to scan all elements for the presence of trays and media. The elements scanned are the pickers, drives, magazine slots, and the import/export drawer.

For this selection the LCD displays:

```
14 RESCAN ELEMENTS

0HP    0FP    0NP    0MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	◄	Start the scanning process.	RESCANNING...	This message displays while scanning occurs.
			ELEMENTS SCANNED	This message displays if the process completed successfully.
2.	◄	Return to the Setup menu.		

RETURN ALL TRAYS

The Return All Trays menu selection is rarely ever used. Normally, you will let the software unload the drives, empty the import/export drawer and return all trays to the magazines to maintain a correct catalog of the library system's contents. If it is not necessary to maintain consistency with a host software catalog or if consistency has been lost, then this function may be used.

For this selection, the LCD displays:

```
15 RETURN ALL TRAYS

OHP    OFP    ONP    OMP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Unload drives, empty the import/ export drawer and return all trays.	**RETURNING TRAYS...** **ALL TRAYS RETURNED TO MAGAZINES**	This message displays as trays are returned to their original storage locations. This message displays if the process completed successfully.
2.	⊏	Return to the Setup menu.		

PARK LIBRARY

The Park Library menu selection is used only when preparing the library system for shipment.

For this selection the LCD displays:

```
16 PARK LIBRARY

0HP   0FP   0NP   0MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⏮	Return all trays to their magazines and move the tray transport assembly to the library system baseplate.	PARKING... LIBRARY SYSTEM PARKED!	This message displays while parking occurs. The access door then opens. This message displays when the process completes.
2.		Manually remove all magazines from the library system.		
3.		Insert the foam packing tube around the lift shaft.		
4.		Turn off power and close the door. Pack in accordance with packing instructions.		

DRIVE TESTS

The Drive Tests menu selection is used to test the library system drives.

For this selection the LCD displays:

```
17 DRIVE TESTS

●H►    ●F►    ●N►    ●M►
```
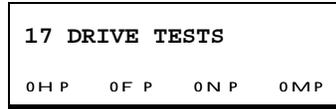
NOTE: Drive tests will not work for CD-R drives that are off the changer bus unless a SCSI cable is connected between the ports on the back of the library system.

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Select a drive.	`DRIVE N`	Use ∪ or ∨ to select the desired drive.
2.	⊢	Enter the drive test submenu.	`A. DRIVE INFORMATION`	
3.	⊢	Display drive information.	`PRESS A KEY NOW AND AFTER EACH DISPLAY`	press any key for each new display until `END OF INFO!` displays.
4.	M	Display disc information.	`B. DISK INFORMATION`	
5.	⊢	Begin the test. The I/E drawer opens.	`INSERT TEST DISK`	Insert the test disc and close the drawer.

Step	Press	To do the following	The LCD displays	Tips and Notes
6.			`PRESS A KEY NOW AND AFTER EACH DISPLAY`	press any key for each new display until **END OF INFO!** displays.
7.			`REMOVE/REPLACE DISK`	Remove or replace the disc and close the drawer.
8.	**M**	Read from the test disc to check for proper drive operation.	`C. READ TEST`	
9.	**H**	Begins the test.	`INSERT TEST DISK`	The I/E drawer opens. Insert the test disc and close the drawer.
			`TESTING`	This message displays as testing occurs.
10.			`REMOVE/REPLACE DISK`	Remove or replace the disc and close the drawer.
11.	**M**	Select the read from, and write to, test disc, to check for proper drive operation	`D. READ/WRITE TEST`	This only works with DVD discs (this test is reserved)

Step	Press	To do the following	The LCD displays	Tips and Notes
12.	⊢⊣	Begins the test.	`INSERT TEST DISK`	The I/E drawer opens. Insert the test disc and close the drawer.
			`TESTING...`	This message displays as testing occurs.
13.			`REMOVE/REPLACE DISK`	Remove or replace the disc and close the drawer.
14.	☞	Return to the Setup menu.		

ERROR STATISTICS

The Error Statistics menu selection is used to display the occurrence count of library system, system errors.

For this selection, the LCD displays:

```
18 ERROR STATISTICS

0HP    0FP    0NP    0MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	View the error, if any.	**-NO ERRORS-** **OR** **#1 E# *NN* *NNX***	Appears if no error has occurred since error statistics were last cleared. **#1**= the most frequently logged error. **E#*NN***= the error number. ***NNX***= The number of occurrences.
2.	**?**	Display the actual error message.	***ERROR MESSAGE TEXT***	
3.	◂	Return to the list of error statistics.		Use **N** or **M** to scroll through the error statistics. Errors display in order from the most frequently to the least frequently logged error.
4.	◂	Display the number of errors listed.	**ERRORS LISTED = *NN***	***NN*** = the total logged errors.

Step	Press	To do the following	The LCD displays	Tips and Notes
5.	⊂ 0	Clear all error statistics.		
6.	☞	Return to the setup menu		

ERROR LOG

The Error Log menu selection is used to display the library system error log.

For this selection, the LCD display:

```
19 ERROR LOG

0HP    0FP    0NP    0MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	View the error log	**-NO ERRORS-** **OR** **#1 E# NN LNN POS NN** **OR** **#1 E# NN (DN) LNN**	Appears if no error has occurred since error log was last cleared. **#1** = most recent error. **E#NN** = error number. **L NN** = internal library system firmware location where error occurred. **POS NN** = lift (tray transport assembly) position when this error occurred. **DN**= drive at which this error occurred.
2.	**?**	Display the actual error message.		Use **M** to display more information about this error.

Step	Press	To do the following	The LCD displays	Tips and Notes
3.	☞	Return to the error message log.		Use N or M to scroll through the error log. Errors display in the order from the most recent to the least recent.
4.	⌂ 0	Clear the error log.	`ERRORS LOGGED = N`	N= the total number of logged errors.
5.	☞	Return to the Setup menu.		

EVENT HISTORY

The Event History menu selection is used to display the information about selected events which occurred to and in the library system. This information may be useful for service personnel in diagnosing library system problems.

For this selection, the LCD displays:

```
20 EVENT HISTORY

●HP    ●FP    ●NP    ●MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊨	View the event history.	**EVENT TYPE = 59**	Use ∨ or ∪ to select the desired event type. Changing the event type clears the event history list. (Event type is described in the *Plasmon D-Series SCSI Reference Manual*)
2.	⊨	View event type information	**LIST EMPTY** **-OR-** **0001:*NN NN NN NN NN***	This message displays if no events occurred since the event history list was last cleared. The hexadecimal numbers define SCSI and machine control events to help technical support personnel in the event of an error

Step	Press	To do the following	The LCD displays	Tips and Notes
3.	▪ or▫	Scroll to the left or the right. The first number (**001:**) is the index of the first displayed event.		
4.	☞	See the number of events logged	`EVENTS LOGGED = NN`	*NN* = the total number of logged events
5.	▫ 0	Clear all event history events.		
6.	☞	Return to the Setup menu.		

RESTART LIBRARY

The Restart Library menu selection is used to reboot the library system from the front panel display.

For this selection, the LCD displays:

```
21 RESTART LIBRARY

●HP    ●FP    ●NP    ●MP
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊢	Begin the restart process.	ENTER PASSWORD ●A-H● ●I-Q● ●R-Z● ●⊟●	Library will restart after the correct password is entered.

SET DRIVE REGION

The Set Drive Region menu selection is used to set or change the region code for DVD library system drives. The region code designates which CSS (Content Scrambling System) enabled video disks the drive can play based on one of seven world region codes embedded on the disks. Generally, the region code for the drives must match the region code on the disks. To set the drive region code, a representative disk may be required. Also, an empty tray must be present to transport the disk. Use the Exchange Magazines front panel selection to install a magazine with an empty tray before using this selection.

For this selection, the LCD displays:

```
22 SET DRIVE REGION

◦H►    ◦F►    ◦N►    ◦M►
```

Step	Press	To do the following	The LCD displays	Tips and Notes
1.	⊶	Begin the restart process.	ENTER PASSWORD ◦A-H► ◦I-Q► ◦R-Z► ◦⊟►	Enter the proper password.
2	⊟	Display the current drive region and number of changes remaining.	DRIVES SET FOR REGION 1 REGION CHANGES REMAINING : 4 CONTINUE ? YES NO	The region code may only be changed 5 times and then the drives must be sent back to the factory for further updates. Select **YES** to continue.
3.	**YES**	Select a new drive region.	REGION 1 ◦A-H► ◦I-Q► ◦R-Z► ◦⊟►	Use ∨ or ∪ to select a new drive.

Step	Press	To do the following	The LCD displays	Tips and Notes
4.	⊢	Change the drive region.	**INSERT REGION DISK** 0H? 0F? 0C? 0G?	Insert a DVD video disk encoded for the same region as set in Step 3. Close the drawer. The disk will be moved to each drive in succession to set the drive's region code. **NOTE:** This step and the next step will be unnecessary if no region has ever been set for ant of the drives. In this case, no disk is necessary.
5.			**REMOVE DISK** 0C? 0C? 0C? 0G?	Remove the video disk and close the drawer.
6.			**DRIVE REGION SET!** 0C? 0F? 0C? 0C?	All DVD drives have now been set to the new region.
7.	F	Return to Setup menu		

ERROR CODES AND CORRECTIVE ACTIONS

The following error codes are provided to assist you in detecting the cause or finding a corrective action for a library system error. Note the error code number displayed on the front panel, then find the corresponding error code from the following table. The table is sorted by error code number.

Table D-1

Error	Description	Suspect part list	Corrective action
01	EPROM checksum failure	Main control board EPROM	Fatal error, setup may have to be performed.
02	Flash checksum failure	Main control board download new flash firmware.	Fatal error, setup may have to be performed.
03	SRAM failure	Main control board	Fatal error, setup may have to be performed.
04	Old EPROM version	EPROM	Fatal error, Replace EPROM with the latest version.
05	Configuration cable failure	configuration cable	Fatal error.
07	SCSI chip failure	Main control board	Fatal error.
0A	Firmware error: bad element code	Download new firmware	Fatal error.
0C	Firmware error: operation stack overflow	Download new firmware	Fatal error.
0D	Firmware error: bad operation stack index	Download new firmware	Fatal error
10	Library memory reset	power supply Main controller missing EPROM	Normal if a new main control board is being powered up for the first time.
11	Servo CPU failure	Download new firmware Main control board	
12	Lift Cable error	Lift ribbon cable	Check the connections of the lift cable, and all tray transport connections.
13	Main harness failure	Main harness cable	Check connections
14	I/E harness failure	I/E harness	Check connections
15	DCB board error	Drive control board	Check all connections

Table D-1

Error	Description	Suspect part list	Corrective action
16	Front panel	Front panel display board	Check all connections
17	SCSI terminator power is low	SCSI terminator SCSI cable	Check connections
18	Magazine board A	Magazine board A	Check connections
19	Magazine board B	Magazine board B	Check connections
1A	Magazine Board C	Magazine Board C	Check connections
1B	Magazine Board D	Magazine Board D	Check connections
1C	Magazine Board E	Magazine Board E	Check connections
1D	Magazine Board F	Magazine Board F	Check connections
1E	Drive interface cable	Drive interface cable Drive control board	Check connections
1F	Bad drive type cable	Drive type cable Firmware version	Check cable and firmware version
20	Drive unclamp bounce	Drive Drive cable	Check connections
21	Unclamp switch failure	Drive Drive cable	Check connections
30	Drive is off-line	Drive	Unit tried to load, or unload a drive that was turned off
31	Drive already on		An attempt was made to turn on a drive that was already on
32	Drive already off		An attempt was made to turn a drive off that was already off
33	Drive clamp failure	Drive Drive cable	
34	Drive unclamp failure	Drive drive cable	
35	Drive load failure	Lift motor and encoder Vertical path sensors Is drive already loaded	Run auto offset program
36	Drive unload failure	Lift motor and encoder Vertical path sensors Is there a disc actually loaded	Run auto offset program

Table D-1

Error	Description	Suspect part list	Corrective action
37	Drive wont go to ready	Drive cable Drive Media	Check power to drive
38	Can't inquire drive	SCSI cable	Check SCSI cable connections
39	Need drive on/off delay		Check host software
3A	Drive wont go ready-SCSI	Drive cable Drive Media	Check drive power
3B	Drive offset not set		Run auto offset program
3C	Can't reserve drive	SCSI cable	Check connections Check host software
3D	Can't release drive	SCSI cable	Check connections Check host software
3E	No tray for offset		Select magazine exchange mode and insert magazine with at least one tray
3F	Drive address conflict	Drive ID cable	Select setup and change the SCSI ID of the conflicting drive
40	Bus expander error	Bus expander	Check bus expander connections and setup
50	Picker home failure	Power supply Slider home sensors Picker motor Slider obstructed	Check that slider fingers are not caught
51	Picker position failure	Picker motor Picker encoder Selector nut	Check that slider fingers are not caught Check for obstructions
52	Swap picker failure	Picker motor Picker encoder Selector nut	Check that slider fingers are not caught Check for obstructions
53	Picker load failure	Picker encoder	
54	Picker misposition	Picker motor Gears Picker encoder	Did disc stay in drive Check for obstructions Are fingers catching on drive bezel
55	Picker not at drive		Reinitialize unit

Table D-1

Error	Description	Suspect part list	Corrective action
56	Picker offset, not set		Run auto offset program
57	Tray disengaged	Picker finger Vertical path	Check for damage to picker finger Run auto offset program
60	Lift home failure	Power supply Lift home sensor Lift interface board Lift motor Lift encoder Brake solenoid	Check for obstructions Check all connections to the lift interface board
61	Lift position failure	Lift motor Lift encoder	Check for obstructions Check brake release solenoid
62	Lift blocked by projecting tray (left column)		Check for obstruction
63			
64	Lift blocked by projecting tray (right column)		Check for obstruction
65	Remove packing tube		Foam packing tube Lift home failure
68	Pivot not aligned	Pivot home sensor Pivot motor	Check for pivot obstruction
69	Pivot align failure	Pivot home sensor Pivot motor	Check for pivot obstruction
6A	Pivot failure	Pivot cable Lift cable Pivot motor	Check connections Check for obstruction
6B	Pivot offset, not set		Run auto offset program with pivot offset option
70	Door open failure	Door latch solenoid	Check connections Check for door binding
71	Access door is open	Door closed switch	Check connections
72	Door open is prevented		An operation command to open the door was made when the door is in the door prevent state
73	Access door is in use		The host is opening the access door, or has already opened it.

Table D-1

Error	Description	Suspect part list	Corrective action
78	Drawer home failure	Drawer motor Drawer belt	Check connections
79	Drawer open failure	Drawer motor Drawer belt	Check connections Check obstruction at drawer opening
7A	Drawer close failure	Drawer motor	Check connections Check for disc jammed
7B	I/E drawer is open		An attempt was made to move media to the I/E drawer while it was open
7C	Drawer open is prevented		An operation command was made to open or close the drawer, while in the drawer prevent state
7D	Import offset, not set		Run the auto offset program
80	Destination magazine is of wrong type		Reserved
81	Magazine not present	Magazine sensor board	Is magazine missing Check connections
82	Tray not present	No tray was detected in the magazine slot to which the tray transport assembly was directed. The unit may have received a command to move from an element which is truly vacant. Is the tray missing? Is a single tray in slot 1 (needed for cycle pivot) Did the picker mispick?	
84	Source is empty	No disc was detected in the magazine slot to which the tray transport assembly was directed. The unit may have received a command to move from an element which is truly full. Is a disc present? Check if an element unexpectedly empty error occurred previously because of a mispick. Rescan elements	
85	Destination is full	A tray was detected in the storage element to which the tray transport assembly was directed. The unit may have received a command to move to an element that is truly full. Is a disc present? Check if an element unexpectedly full error occurred previously because of a jam condition. Rescan elements	

Table D-1

Error	Description	Suspect part list	Corrective action
86	Element unexpectedly empty	No tray was detected in the magazine slot to which the tray transport assembly was directed. Is tray present? Check for mispick Run auto offset program Rescan elements	
87	Element unexpectedly full	A tray was detected in the magazine slot to which the tray transport assembly was directed. Is tray present? Is there a jam condition at the move to destination Run auto offset program Rescan elements	
88	Unexpected tray full	A disc was detected in a tray that was previously empty Is disc present?	
89	Unexpected tray empty	A disc was not detected in a tray that was previously full Is disc present?	
8A	Unexpected tray type		Reserved
8B	Picker is full		Reinitialize unit
8C	Both pickers are full		Reinitialize unit
90	Tray in drive	Access door may not be opened to exchange magazines because there is a tray in the drive	
91	Tray in picker	Access door may not be opened to exchange magazines because there is a tray in the picker	
94	Not enough trays for test		Reserved for service technician
95	Too many trays for test		Reserved for service technician
96	Tray in import/export	Access door cannot be opened to exchange magazines, or Maintenance mode test cannot be performed, because there is a tray in the import/export drawer.	
97	No drives on-line	Drive	Run Power on Drive in setup. Check connections to drive.
98	Slot offsets not set		Run auto offset program
99	Empty tray not found		Insert a magazine with an empty tray.
9A	Full tray not found		A tray with media was not found in any magazine

Table D-1

Error	Description	Suspect part list	Corrective action
9B	Empty slot not found		An empty slot was not found in any magazine to which a tray could be moved
9C	Tray magazine unknown		The magazine from which a tray came is not known, therefore the tray cannot be moved.
9D	Wrong media type		Reserved
A0	Illegal magazine exchange		Magazine inserted or removed while in drive service mode.
A1	Wrong password		An incorrect password was entered from the front panel
A2	One or more magazine slots are reserved		The front access door cannot be opened because one or more magazine slots have been reserved by the host
F1	SCSI bus not available	Terminator SCSI cable Terminator power	Check for conflicting SCSI ID's
F2	SCSI selection time-out	Terminator SCSI cable Terminator power	Check for conflicting SCSI ID's
F3	More than two ID's on bus	Terminator SCSI cable	Check for conflicting SCSI ID's
F4	Undefined SCSI phase	Terminator SCSI cable	Check for conflicting SCSI ID's
F5	SCSI phase error	Terminator SCSI cable	Check for conflicting SCSI ID's
F6	Bus not terminated	Terminator SCSI cable	Check for conflicting SCSI ID's
F7	SCSI parity error	Terminator SCSI cable	Check for conflicting SCSI ID's
F8	Unexpected loss of busy	Terminator SCSI cable	Check for conflicting SCSI ID's
F9	Abort message received	Terminator SCSI cable	Check for conflicting SCSI ID's
FA	Improper message received	Host adapter	
FB	Two devices responding to same selection	Terminator SCSI cable	Check for conflicting SCSI ID's

Table D-1

Error	Description	Suspect part list	Corrective action
FC	SCSI time-out command	Terminator SCSI cable	Check for conflicting SCSI ID's
FD	Host communication time-out	Terminator SCSI cable	Check for conflicting SCSI ID's
FE	Drive is busy	Terminator SCSI cable	Check for conflicting SCSI ID's
FF	SCSI sense failure	Terminator SCSI cable	Check for conflicting SCSI ID's

SPECIFICATIONS

The library system is designed to meet these certification requirements:

Requirement	Type	Description		
Product certification	Safety	VDE0805 UL1950 Cul950 IEC950 EN60950		
	Emissions	FCC Class A CISPR 22 Class A		
	Immunity	EN 50082-1 (1992)		
Shock and Vibration	Transportation	Shock	D120	1 bottom drop@ 18" (46cm) free fall
				4 side drops @ 12" (30cm) free fall
			D240	2 bottom drops@12" (30cm) free fall
				10 side drops@4" (10cm) free fall
			D480	2 bottom drops@10" (25cm) free fall
				10 side drops@4" (10cm) free fall
		Vibration	1.04 G RMS, 5-200 Hz, 15 minutes, 3 Axis	
	Operating	Shock	3.5 G peak, half sine, 3.0 ms	
		Vibration	0.1 G RMS	
Electrostatic Discharge ESD	Operating	+/- 8 KV, No effect on operation		

SITE REQUIREMENTS

The following table provides the site requirements and environmental specifications:

Requirement	D120		D240		D480	
Space						
Width	16"	40.6cm	22"	55.9cm	22"	55.9cm
Height	32.5"	82.5cm	34"	86.3cm	54"	137.2cm
Depth	28"	71.1cm	28"	71.1cm	28"	71.1cm
Allow 3" airflow behind unit						
Dimensions and weight						
Width	10"	25.4cm	20"	50.8cm	20"	50.8cm
Height	32.5"	82.5cm	34"	86.3cm	54"	137.2cm
Depth	26"	66cm	26"	66cm	26"	66cm
Weight	91lbs	41Kg	150lbs	68Kg	185lbs	83Kg
Power						
Voltage	100 to 240 VAC (*Auto ranging power supply*)					
Frequency	50 / 60 Hz					
Environmental						
Operating Temperature	+10 to +40° C +50 to +104°F					
Non-operating Temperature	- 40 to +70° C -40 to +158°F					
Gradient Temperature	10°C to 18°C per hour					
Operating Humidity	10 to 90% RH *non condensing*					
Non- Operating Humidity	5 to 95% RH *non condensing*					

GLOSSARY OF TERMS

Front Panel Access Door

> The door on the library system through which magazines are inserted or removed, or through which drives are replaced.

Data Transfer Elements

> The drives within the library system.

Drive Control Board

> The PWA controlling power to the drives and controlling their clamping, unclamping, and assignment of SCSI ID's.

Drive Service

> Unloading a drive, turning it off (removing drive power), and opening the access door to allow an operator to have access to it. This is the means by which drives are installed, removed, or replaced.

Drive Type

> A numeric classification of the type of optical drive installed. This value is encoded in the connector to the drive from the library system drive control board.

Element

> A host addressable location within the library system.

EPROM

Erasable Programmable Read Only Memory. An integrated circuit chip within the library system containing microcode to enable programming of the library system's Flash memory via the SCSI bus

Event History/Event list

A list of code bytes associated with events occurring within the library system and an associated host or optical drive. The particular code bytes logged depends upon the value of the event history type. This list is used only for error analysis and debugging.

Export

Moving a full tray to the import/export drawer do that the operator may remove a disc from the library system.

Flash

A non volatile, electrically erasable area of memory used to store microcode for the library system. The microcode must be downloaded from a host while the library system is running from its boot PROM. Programming of the flash is usually done at the factory but as new firmware is developed it may be required to update the system on location.

Import

Moving an empty tray to the import/export (I/E) Drawer so that an operator may introduce a disc into the library system.

Import Export (I/E) Drawer

The operator accessible drawer through which individual discs may be introduced or removed form the library system.

Initiator

A SCSI device, such as a host computer, which issues SCSI commands.

Load

Moving a disc into a drive and clamping the disc in the drive.

Magazine

A carrier containing up to ten disk trays. Disk magazines must contain disk trays and discs. Magazines may be inserted or removed as a unit when the library system is in magazine exchange mode. A magazine may contain empty trays.

Magazine Bay

Within the library system, the magazine bay contains the magazines.

Magazine Exchange

Placing the library system either through the front panel or via SCSI command in a state in which magazines may be inserted, replaced, or removed. The inserted or replaced magazine are automatically canned for the presence of media when the access door is closed.

Magazine Board

The PWA mounted vertically beside each column of magazines and containing switches to sense the insertion or removal of those magazines.

Park

To prepare the tray transport assembly within the library system for shipment.

Picker

The part of the tray transport assembly responsible for pulling or pushing a tray. *The Tray Transport assembly has two pickers.*

Pivot

The portion of the library system responsible for rotating the tray transport assembly between columns of magazines.

PWA

*P*rinted *W*iring *A*ssembly

SCSI

*S*mall *C*omputer *S*ystem *I*nterface. A specification defining the transfer of commands and data between 2 devices such as a host computer and a computer peripheral. The second version of this specification is known as SCSI-2 and is defined in ANSI X3.131-1994.

SCSI ID

A unique address for each device on a SCSI bus. The host and the medium changer device must each have a SCSI ID between 0 and 7, inclusive. The drives must each have a SCSI ID between 0 and 7, or between 0 and 15, or 31 if wide SCSI is supported. The host generally reserves ID 7 for its ID.

Tray

Carrier for discs. A tray may also be empty.

Tray Transport Assembly

The optical disc transport mechanisms in the library system. The library system contains two tray assemblies. These are also referred to as pickers, or jointly as the lift when moving vertically.

Unload

Unclamping a disc in a drive and moving the disc from the drive.

PASSWORD REFERENCE

Enter your passwords here for your reference.

Exchange Magazines_____

Service Drives_____

Turn Drive Off_____

Turn Drive On_____

Setup_____

Maintenance Mode_____