

**HP Series 6300 Model 20GB/A
Optical Disk Library System:
CE Installation Guide for
Apollo Sites**



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HP Series 6300 Model 20GB/A Optical Disk Library System

CE Installation Guide for Apollo Sites

This guide is for Hewlett-Packard Customer Engineers who have experience installing Domain/OS peripherals. Follow these instructions to set up and configure the HP Series 6300 Model 20GB/A Optical Disk Library System (autochanger) to run on the Domain system.

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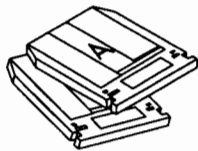
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Important Preliminary Information

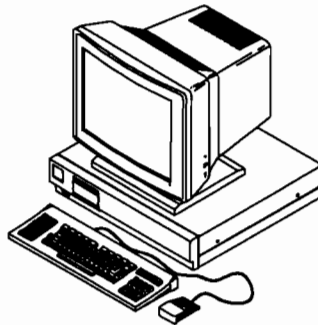
Before you begin the installation, read and comply with the following information:

- As the Customer Engineer (CE), you should have completed a site analysis and preparation for the installation of the autochanger. Site preparation information is located in the *Optical Disk Library Service Manual (C1700-90080)*.
- Make sure the customer has completed the instructions located in *Unpacking Instructions (C1700-90073)*, including the removal of the shipping bracket. Refer to *Optical Disk Library System Setup Guide for Deskside Models (C1700-90060)* for additional unpacking information.
- An Apollo server node can support only one autochanger; therefore, we recommend that the server node be used as a dedicated server for the autochanger.
- If you plan to use a UNIX environment, you need root login capability. If you plan to use the Aegis environment, root login capability is not necessary.
- Make sure that the autochanger is switched off and the power cord unplugged before you begin these installation instructions.

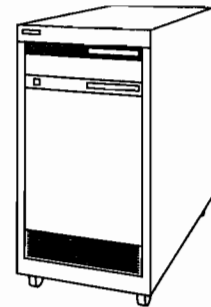
Necessary Hardware and Tools



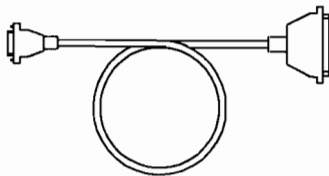
Magneto-Optical Disks



Apollo Server Node



Model 20GB/A



SCSI Cable



Terminator

Posidriv™ Screwdriver
Flat-blade Screwdriver

Installation Checklist

Perform the following steps to install and verify the operation of the autochanger. Each of the steps are explained in detail in the panels that follow this checklist.

Setting Up the Server Node

- Verify that the server hardware requirements have been met.
- Verify that Domain/OS SR10.4 is installed.
- Check for conflicts in the server node's SCSI device address settings.

Setting Up the Autochanger Hardware

- Set the Disk Drive SCSI Addresses.
- Attach the autochanger to the server node.
- Connect to the AC power source and power on.
- Check the autochanger controller address.

Labeling and Loading Magneto-Optical Disks

- Label two disks.
- Load the disks (side A up) into the autochanger.

Configuring for Operation with the Server

- Create device files (UNIX configuration only).
- Initialize the magneto-optical disks.
- Create mount directories (UNIX configuration only).
- Mount the initialized disk surfaces.

Verifying Operation

- Perform a copy test.
- Dismount the surfaces.
- Remove the disks.

Following Up with the Customer

- See the follow-up panel at the end of this guide.

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Setting Up the Server Node

The HP Apollo 9000 Series 400 Model 425x workstations are the only supported servers for the autochanger. This section describes the hardware and software configuration requirements to support the autochanger.

Hardware Requirements

The server node should be configured with at least 16 MB of memory.

The Model 425x workstations do not require an add-on SCSI controller; SCSI is integrated with the CPU Motherboard.

The following table lists the required Boot PROM revision for each of the supported workstations.

Server Node Type	Boot PROM Revision
Model 425s	1.95 or greater
Model 425t	1.95 or greater
Model 425e	3.0 or greater

Software Requirements

The server node needs to run Domain/OS SR10.4. Use the **bltd** command to check the software version installed on the server node. If you need to install another version, follow the instructions for installing operating system software located in the Domain/OS Software Release Document. The server node may run any one or any combination of the Aegis, SysV, or BSD environments.

Note that Domain/OS does not support the Differential SCSI interface, available as an option with the autochanger. An autochanger with a Differential SCSI interface has the label "differential" on its SCSI connectors.

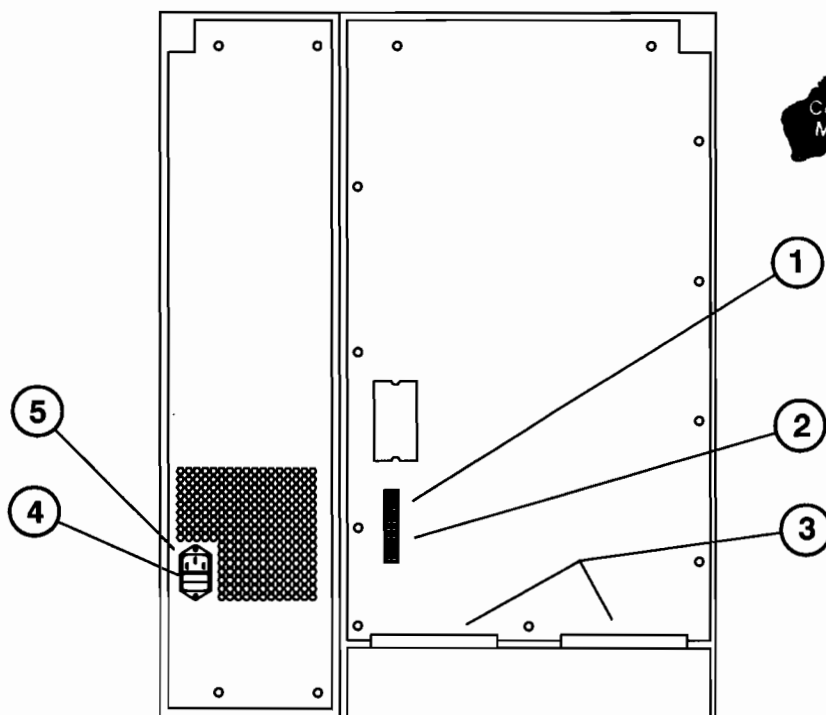
Checking the SCSI Device Addresses

The autochanger uses the server node's SCSI address 3, plus two additional SCSI addresses. Use the **scsi_info** utility located in the **/systest/ssr_util** directory to verify that address 3 plus two other addresses are available to the autochanger. If another device uses address 3, consult that device's documentation for instructions on moving the device to a nonconflicting SCSI address. For information about the **scsi_info** utility, read the **scsi_info.hlp** file located in the **/systest/ssr_util** directory.



Setting Up the Autochanger Hardware

This section describes how to set up the autochanger and attach it to the server node. The following illustration shows the autochanger's rear panel. Refer back to this illustration as you perform the steps in this section.



Number	Description
1	Drive 1 Address Select Switch
2	Drive 2 Address Select Switch
3	SCSI Connectors
4	Power Switch
5	Power Connector

1. Set the Disk Drive SCSI Addresses

The autochanger uses a SCSI address for each of the two magneto-optical disk drives. These addresses are set through switches 6, 7, and 8 on the rear panel of the autochanger. The default address settings are

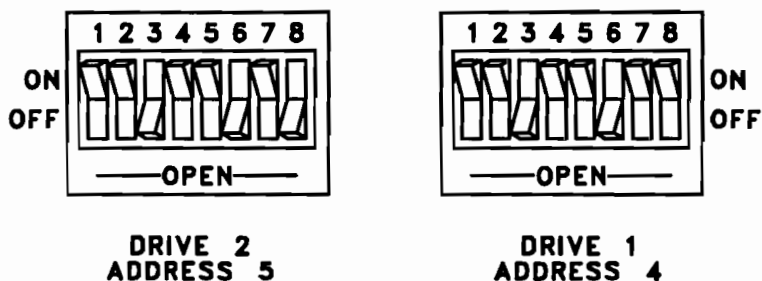
Optical Disk Drive #1	Address 4
Optical Disk Drive #2	Address 5

Perform the following steps to ensure that the disk drive addresses are set to available SCSI addresses and the rest of the switches are set to the default settings.

NOTICE: Make sure that the autochanger is off and the power cord is unplugged.

- 1a. Locate the switches on the rear panel of the autochanger.
- 1b. Verify that switches 1, 2, 4, and 5 are in the "OFF" position and switch 3 is in the "ON" position for both disk drives.

Default Switch Settings



1c. Set both disk drives to an appropriate SCSI address.

Use switches 6, 7, and 8 to set the addresses to a number from 0 to 2 or from 4 to 6. Address 3 is reserved for the SCSI controller. The following table lists the correct switch positions for each address setting.

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	ON	OFF	OFF
5	ON	OFF	ON
6	ON	ON	OFF
7	ON	ON	ON



1d. Record the address settings you chose for future reference.

2. Attach the Autochanger to the Server Node

The SCSI connector on the autochanger requires a SCSI cable with a bail lock. The SCSI connector on the node requires a SCSI cable with a thumbscrew or a squeeze lock. The total cable length is limited to six meters. (Domain/OS does not support the Differential SCSI interface, which allows a cable length up to 25 meters.) SCSI cables can be ordered from HP Direct (1-800-225-5290 or 1-800-538-8787). The table below lists the part numbers for available cables.

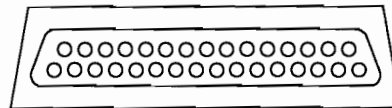
NOTICE: Make sure the server node is shut down and powered off before attaching the autochanger. Power on the autochanger before rebooting the node.

Follow these steps to attach the autochanger to the server node:

- 2a. Locate a SCSI cable that has a bail lock on one end and a thumbscrew or squeeze lock on the other. Connect the bail-lock end of the SCSI cable to the left SCSI connector on the rear of the autochanger (number 1 in the illustration below). SCSI connectors fit very snugly; make sure that the two connectors are aligned properly and gently work the cable connector onto the system connector until it is fully seated. Secure the bail-lock clips.
- 2b. Locate a SCSI terminator. (If you need to order a new terminator, the HP part number is K2291.) Plug the terminator into the right SCSI connector (number 2 in the illustration below). Press in fully, then secure the bail-lock clips.
- 2c. Connect the thumbscrew or squeeze-lock end of the SCSI cable to the SCSI interface on the node. Secure the thumbscrews by alternately turning each screw one turn at a time until the connector is fully inserted; secure the squeeze lock by squeezing the thumb tabs on each side of the connector while pushing it into the SCSI connector on the node. Release the thumb tabs to lock in the connector.



1



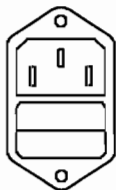
2

Node Type	Cable	HP part number
Model 425x (Pre 11/1/90)*	High density squeeze to low density bail lock	1.0 m (3.3 ft) K2286 1.5 m (4.9 ft) K2285
Model 425x (Post 11/1/90)*	High density thumbscrew to low density bail lock	0.9 m (3.0 ft) K2296 1.5 m (4.9 ft) K2297
*The high density squeeze to low density bail lock works for all Series 400 workstations. If you are uncertain of the manufacturing date of your workstation, order the high density squeeze to low density bail lock cable.		

3. Connect to the AC Power Source and Power On

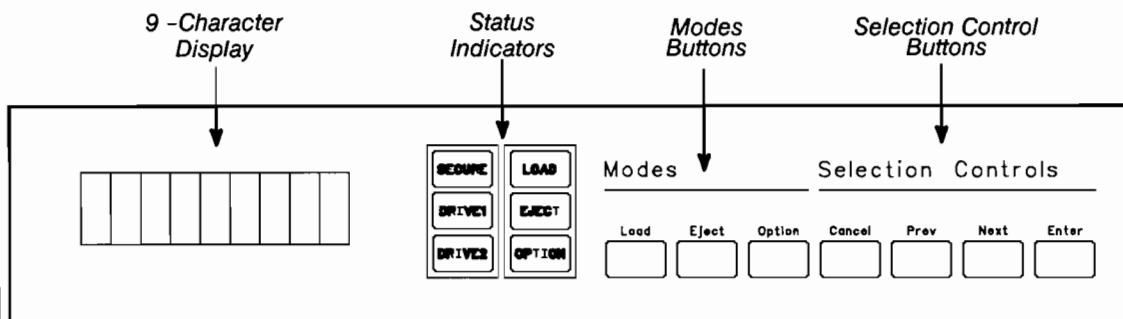
To connect to the AC power source, assemble the cabinet, and power on the autochanger, follow these steps:

- 3a. Plug the appropriate end of the power cord into the AC Line power connector, located on the rear panel (see the following illustration). Plug the other end of the power cord into the power outlet.



- 3b. Replace the rear panel cover by slightly lifting the top cover and correctly positioning the rear panel cover. Snap the top cover down to hold the rear panel cover in place.

- 3c. Locate the operation switch on the front panel and push it to activate the unit. Initially, the control panel displays TESTING. A sequence of tests runs when you first power on the autochanger. A successful self-test takes approximately one minute to execute. Once this poweron test completes, the control panel displays READY. A READY status on the control panel indicates that the unit is able to operate. If a FAIL status shows on the control panel display, consult the *HP Series 6300 Model 20GB/A Optical Disk Library Service Manual* for troubleshooting information.



4. Check the Autochanger Controller Address

The autochanger controller address should be set to 3 (the default setting). The following table shows how to use the control panel to verify or set the autochanger controller address.

STEP #	ACTION	RESULTING DISPLAY
1	Power on the unit	READY
2	Press OPTION	TEST *
3	Press NEXT	CONF *
4	Press NEXT	INFO *
5	Press NEXT	SCSI ID
6	Press ENTER	SCSI ID <i>n</i>
7	Press NEXT or PREV until....	The default (3) displays
8	Press ENTER	Autochanger controller address 3 is set

Pressing **OPTION** at any time (except when **READY** is already displayed) returns you to the **READY** state.

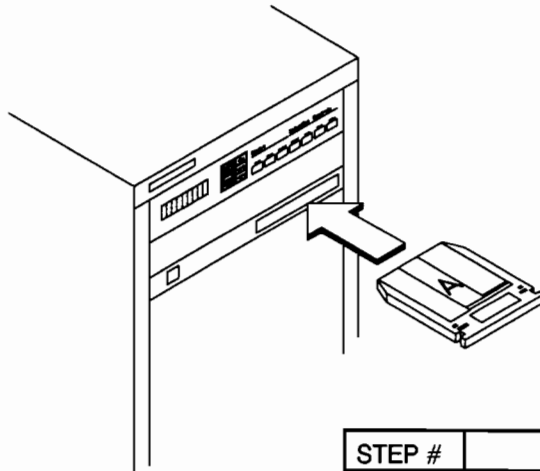
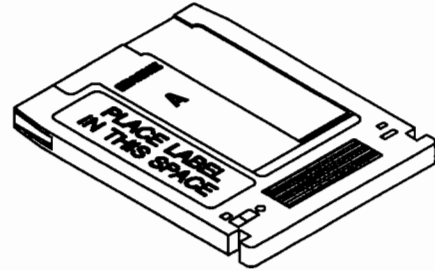
Pressing **CANCEL** takes you back one step each time it is pressed.

NOTICE: The following panels, "Labeling and Loading Magneto-Optical Disks" and "Configuring for Operation with the Server" describe the steps for preparing only side A of two disks. Because these steps are time-consuming, you may want to encourage your customer to complete these steps for side B and the remaining disk surfaces at his or her convenience.

NOTICE: If Option 231 (delete 31 Optical Disk Cartridges) was ordered, you need to complete the steps for disk 1, side A only.

Labeling and Loading Magneto-Optical Disks

1. Remove the disks from their clear plastic sleeves.
2. Prepare a label for each disk. Adhesive labels are provided for this task. In addition to identification information such as disk number and disk owner, include the Sau type of the server node and the auto-changer storage slot number. Stick the labels on side A of each of the disks.



3. Load the disks into the autochanger, following the steps in the table. Position the disk in the mailslot so that side A is up and the metal shutter is forward, as shown in the illustration.

STEP #	ACTION	RESULTING DISPLAY
1	Power on the unit	READY
2	Put disk 1 in the mailslot	READY
3	Press LOAD	SLOT 1 (first empty slot)
4	Press ENTER	Disk is loaded in the first slot.
5	Put disk 2 in the mailslot	READY
6	Press LOAD	SLOT 2
7	Press ENTER	Disk is loaded in the second slot.

Configuring for Operation with the Server

This section explains the procedure for configuring the Optical Disk Library System to be accessible to Domain system users. The appropriate auto-changer software must be installed on the server node, and the node needs to be rebooted before you start this procedure. Follow the first part of this procedure, "Aegis Configuration Instructions," if you plan to use the Aegis environment. Follow the second part, "UNIX Configuration Instructions," if you plan to use a UNIX environment.

Aegis Configuration Instructions

Perform the following steps on the server node from an Aegis environment command shell.

1. Initialize the Magneto-Optical Disks

Use the **invol** utility to initialize the magneto-optical disks. Initialization takes about 25 minutes for each surface. You can decrease the total initialization time by running separate **invol** processes for each of the two drives.

- 1a. Log in. Logging in as root is not necessary.
- 1b. Invoke the **invol** utility by typing the following command at an Aegis command shell prompt:

```
/etc/invol
```

- 1c. The **invol** utility asks you for the option to perform. Enter **7** to initialize the physical badspot list and format the disk surface.
- 1d. **Invol** prompts you for the identity of the disk.

```
Select disk:  
[w=Winch|s=Storagemod|f=Floppy|q=Quit] [ctrl#:] [unit#]
```

Specify **wx;y**

where

x is the autochanger controller address.

y is the unit (or surface) number.



(Step 1d continued)

For example, **w3:0** specifies side A of disk 1 and **w3:2** specifies side A of disk 2.

For use with Domain systems, the autochanger controller address is always set at the default (3). Surface numbers in the autochanger run from 0 to 63.

Your responses to the remaining **invol** prompts may vary according to customer needs. For detailed information about **invol**, see the online manpage or help file.

- 1e. When option 7 completes, **invol** asks if you have any more requests. Type **y**, and then enter **1 -f** to place the file system on the surface.
- 1f. **invol** again prompts for the identity of the disk. Specify the same device as you did in Step 1d.
- 1g. When formatting completes, **invol** asks if you have more requests. Type **n** to return to the command shell prompt. (To initialize more surfaces, type **y** and repeat Steps 1c through 1g.)

2. Mount the Surfaces

The Aegis **mtvol** command creates a mount directory and mounts a surface. Use a directory naming convention that easily identifies the surface. The **mtvol** command uses the following format:

```
mtvol wx:y mountdir
```

where

x is the autochanger controller address

y is the unit (or surface) number

For example, type the following command lines to mount side A of disks 1 and 2:

```
mtvol w3:0 /ac1a  
mtvol w3:2 /ac2a
```

Go to the "Verifying Operation" section, located later in this manual.



UNIX Configuration Instructions

Perform the following steps on the server node, from either a BSD or a SysV UNIX environment command shell.

1. Create Device Files

Each optical disk surface requires two device files: one character type and one block type device file. Use the **mkdev** utility to create these device files.

1a. Log in as root.

1b. Run **/etc/mkdev** with the **ac** option by typing the following command line at a UNIX shell prompt:

```
/etc/mkdev /dev -d \node_data/device_numbers ac
```

NOTICE: Even though these steps explain how to prepare just two disks, the **mkdev** utility creates device files to support a fully loaded autochanger (64 surfaces).

1c. The **mkdev** utility creates device files in three formats to support SysV, BSD, and HP-UX device file-naming conventions. Check the contents of the **/dev** directory to verify completion of the **/etc/mkdev** command. The following are examples of some device file names:

/dev/dsk/W0b3d0s1	(SysV naming convention)
/dev/wn384a	(BSD naming convention)
/dev/ac/1a	(HP-UX naming convention)



2. Initialize the Magneto-Optical Disks

Use the **invol** utility to initialize the disks. Initialization takes about 25 minutes for each surface. You can decrease the total initialization time by running separate **invol** processes for each of the two drives.

- 2a. Invoke the **invol** utility by typing the following command at the command shell prompt:

```
/etc/invol
```

- 2b. The **invol** utility asks you for the option to perform. Enter **7** to initialize the physical badspot list and format the disk surface.

- 2c. **Invol** prompts you for the identity of the disk.

```
Select disk:  
[w=Winch|s=Storagemod|f=Floppy|q=Quit] [ctrl#:] [unit#]
```

Specify **wx:y**

where

x is the autochanger controller address.

y is the unit (or surface) number.

For example, **w3:0** specifies side A of disk 1 and **w3:2** specifies side A of disk 2.

For use with Domain systems, the autochanger controller address is always set at the default (3). Surface numbers in the autochanger run from 0 to 63.

Your responses to the remaining **invol** prompts may vary according to customer needs. For detailed information about **invol**, see the online manpage or help file.

- 2d. When option 7 completes, **invol** asks if you have any more requests. Type **y**, and then enter **1 -f** to place the file system on the surface.
- 2e. **Invol** again prompts for the identity of the disk. Specify the same surface as you did in Step 2c.
- 2f. When formatting completes, **invol** asks if you have more requests. Type **n** to return to the command shell prompt. (To initialize more surfaces, type **y** and repeat Steps 2b through 2f.)

3. Create Mount Directories

The `/etc/mkdir` command creates mount directories for the disk surfaces. Use a directory naming convention that clearly identifies the surface number. Use the `chmod` command to set access permissions. For example, type these commands to create global read/write/execute mount directories for side A of disks 1 and 2:

```
/bin/mkdir /ac1a ; chmod 777 /ac1a  
/bin/mkdir /ac2a ; chmod 777 /ac2a
```

4. Mount the Surfaces

The `/etc/mount` command mounts the disk surfaces. The `/etc/mount` command uses the following format:

```
/etc/mount device_file mountdir
```

where

device_file is the device file name of the disk surface you want to mount.

mountdir is the name of the mount directory.

Type the following commands to mount side A of disks 1 and 2 as read/write. Note that although these commands identify the autochanger device file with the HP-UX naming convention, you may use any of the UNIX naming conventions.

```
/etc/mount /dev/ac/1a /ac1a  
/etc/mount /dev/ac/2a /ac2a
```

Verifying Operation

Verify that the autochanger is operable by running a test that requires disk access. This section explains how to run a copy test, dismount the surfaces, and remove the disks.

1. Perform a Copy Test

This test copies a file from the Domain server node to side A of disk 1, then copies the same file from side A of disk 1 to side A of disk 2.

1a. Create and edit a file called **ac.test** in the **/tmp** directory.

1b. Copy **/tmp/ac.test** to side A of disk 1 by typing

```
cpf /tmp/ac.test /ac1a/ac.test      (Aegis)
cp /tmp/ac.test /ac1a/ac.test      (UNIX)
```

1c. Verify that the file was correctly copied to side A of disk 1.

1d. Copy **ac.test** from side A of disk 1 to side A of disk 2 by typing

```
cpf /ac1a/ac.test /ac2a/ac.test    (Aegis)
cp /ac1a/ac.test /ac2a/ac.test    (UNIX)
```

1e. Verify that the file was correctly copied to side A of disk 2.

1f. Remove these files by typing

```
dlf /ac1a/ac.test /ac2a/ac.test    (Aegis)
rm /ac1a/ac.test /ac2a/ac.test    (UNIX)
```

2. Dismount the Surfaces

Use the following command lines to dismount the disk surfaces:

```
dmtvol w3:0 /ac1a      (Aegis)
dmtvol w3:2 /ac2a

/etc/umount /ac1a      (UNIX)
/etc/umount /ac2a
```

3. Remove the Disks

Perform these steps to remove the two disks from the autochanger.

STEP #	ACTION	RESULTING DISPLAY
1	Press EJECT	SLOT 1
2	Press ENTER	Disk 1 is ejected
3	Remove disk 1 from the mailslot	READY
4	Press EJECT	SLOT 2
5	Press ENTER	Disk 2 is ejected
6	Remove disk 2 from the mailslot	READY

Following Up with the Customer

All the server configuration steps you have completed are documented in the customer's product manual, *Administering Optical Disk Library System on Domain/OS*. Remind the customer of the following:

- Put the shipping bracket in a safe place for any future moves of the autochanger.
- Initialize side B of the disks used in this installation session.
- Dismount both surfaces before removing disks from the autochanger.
- Rebooting the node does not automatically remount the media.
- The Rackmount Optical Disk Library System, shown in the *Optical Disk Library System User's Guide*, is not supported at Apollo sites.
- The *Optical Disk Library System User's Guide* contains information specific to the autochanger. *Administering the Optical Disk Library System on Domain/OS* contains information specific to server nodes and network access to the autochanger.

Documentation References

Refer to the *Apollo Documentation Quick Reference* (002685) and the *Domain Documentation Master Index* (011242) for a complete list of Apollo documents. For more information on administering and using Domain/OS, refer to the following documents:

- *Installing Domain Software* (008860)
- *Getting Started with Domain/OS* (002348)
- *Using Your SysV Environment* (011022)
Using Your BSD Environment (011020)
Using Your Aegis Environment (011021)
- *Domain/OS System Administration Guide* (019001)
- *Domain/OS SysV Command Reference* (005798)
Domain/OS BSD Command Reference (005800)
Domain/OS Aegis Command Reference (002547)

For more information about the HP Series 6300 Model 20GB/A Optical Disk Library System, refer to the following documents:

- *Unpacking Instructions* (C1700-90073)
- *Optical Disk Library System Setup Guide for Deskside Models* (C1700-90060)
- *Optical Disk Library System User's Guide* (C1700-90075)
- *Administering the Optical Disk Library System on Domain/OS* (018904-A00)
- *Optical Disk Library Service Manual* (C1700-90080)
- *Optical Drive and SCSI Command Reference* (5960-7608)
- *The Optical Storage Primer* (5180-0043)
- *HPC1700A Self-Paced Guide* (C1700-90031)
- *HPC1700A Self-Paced Training Kit* (C1700-90201)
- *HPC1700A Audio Refresher* (5062-8330)

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