

*Compaq StorageWorks*TM

ESL9198 Series Tape Library

Unpacking Guide

First Edition (September 2000)
Part Number: 201418-001
Compaq Computer Corporation

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Compaq StorageWorks ESL9198 Series Tape Library Unpacking Guide
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About This Guide

This guide is designed to be used as step-by-step instructions for unpacking the Compaq *StorageWorks ESL9198 Series Tape Library™*.

Document Structure

This guide contains the following information:

Chapter 1: Introduction

Chapter 2: Selecting an Installation Location

- Selecting an Installation Location

Chapter 3: Preparing for the Installation

- Required Tools and Equipment

Chapter 4: Unpacking and Moving the Library

Appendix A: Characteristics and Specifications

- Physical Specifications and Performance Characteristics
- Environmental Specifications
- Gripper Assembly

Appendix B: Pre-Installation Site Survey

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Related Documents

Document Title	Part Number
<i>Compaq StorageWorks™ ESL9198 Series Tape Library Reference Guide</i>	201416-001
<i>Compaq StorageWorks™ ESL9198 Series Tape Library Diagnostic Software Guide</i>	201419-001
<i>Compaq StorageWorks™ ESL9198 Series Tape Library Pre-Installation Site Survey</i>	216162-001
<i>Compaq StorageWorks™ ESL9198 Series Tape Library Tape Drive Upgrade Guide</i>	201417-001

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys

Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously

USER INPUT

User input appears in a different typeface and in uppercase.

FILENAMES

File names appear in uppercase italics.

Menu Options, Command Names, Dialog Box Names

These elements appear in initial capital letters.

COMMANDS, DIRECTORY NAMES, and DRIVE NAMES

These elements appear in uppercase.

Type

When you are instructed to *type* information, type the information **without** pressing the **Enter** key.

Enter

When you are instructed to *enter* information, type the information and then press the **Enter** key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings:



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.



Any surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.

WARNING: To reduce the risk of injury from electrical shock hazards, do not open this enclosure.



Any RJ-45 receptacle marked with these symbols indicates a Network Interface Connection.

WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



Power supplies or systems marked with these symbols indicate the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electrical shock, remove all power cords to completely disconnect power from the system.



Any product or assembly marked with these symbols indicates that the component exceeds the recommended weight for one individual to handle safely.

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

Cabinet Stability



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
 - The full weight of the cabinet rests on the leveling jacks.
 - The stabilizing feet are attached to the cabinet if it is a single cabinet installation.
 - The cabinets are coupled together in multiple cabinet installations.
 - Only one component is extended at a time. A cabinet may become unstable if more than one component is extended for any reason.
-

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Technical Support

In North America, call the Compaq Technical Phone Support Center at 1-800-OKCOMPAQ. For continuous quality improvement, calls may be monitored or recorded. This service is available 24 hours a day, 7 days a week.

Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for world wide Technical Support Centers are listed on the Compaq website. Visit the Compaq website at www.compaq.com.

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Applicable error messages
- Add-on boards or hardware

- Third-party hardware or software
- Operating system type and revision level

Compaq Website

The Compaq website has information on this product as well as the latest drivers and Flash ROM images. You can visit the Compaq website at www.compaq.com.

For the name of your nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, you can visit the Compaq website for locations and telephone numbers.

Chapter 1

Introduction

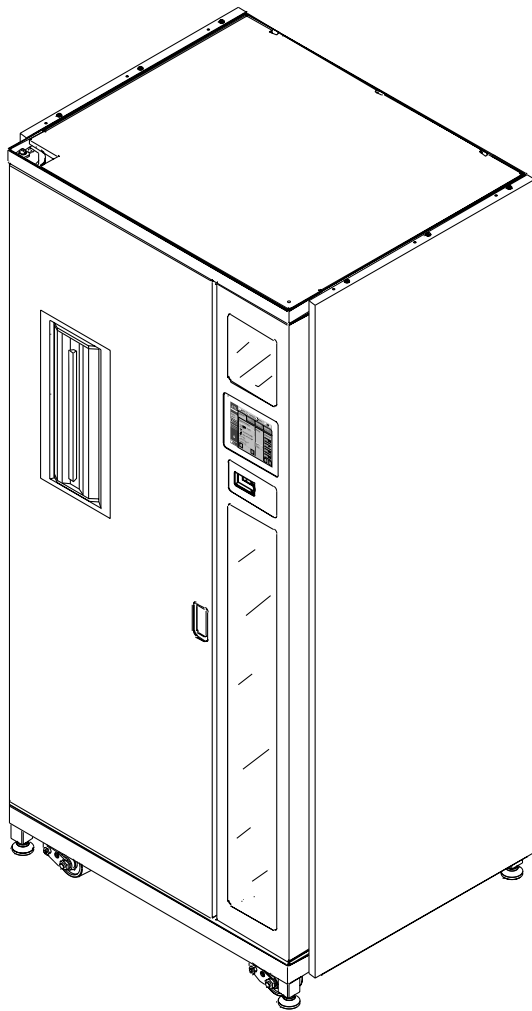


WARNING: Be sure to read this unpacking guide completely before attempting to unpack or move the library. Failure to follow the procedures in this guide could result in personal injury and/or equipment damage.

This document outlines procedures for unpacking the Compaq StorageWorks ESL9198 Series Tape Library. Once the library is moved to the desired installation location and unpacked, set up the library using the instructions in the *Compaq StorageWorks ESL9198 Series Tape Library Reference Guide*.

NOTE: If you have not already done so, read the information in Appendix A and then perform the instructions in Appendix B.

The ESL9198 Series is an automated storage and retrieval library consisting of up to 10 tape drives and up to 198 Digital Linear Tape (DLT™) cartridges (see Figure 1-1).



SHR-1756

Figure 1-1. ESL9198 series tape library (front view)

Chapter 2

Selecting an Installation Location

Selecting an Installation Location



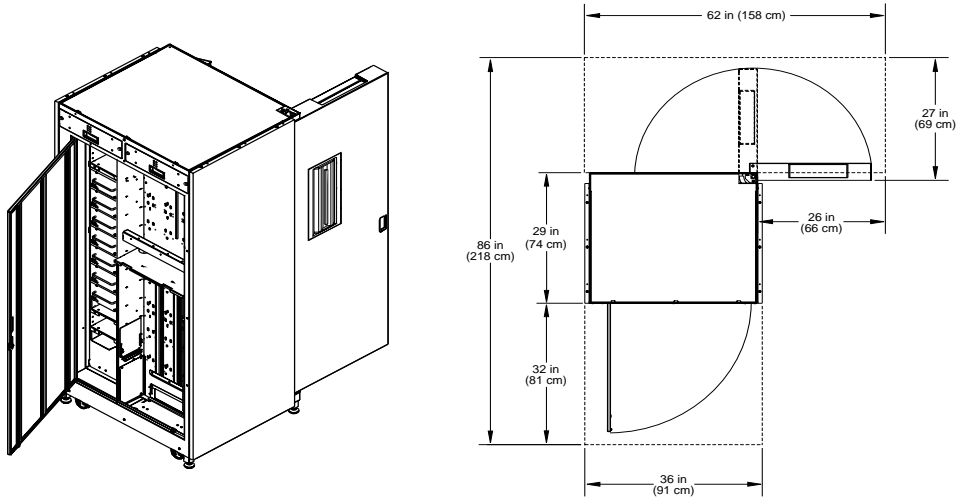
WARNING: Be sure to read and understand the pre-installation site survey instructions in Appendix B before selecting an installation site, moving, and unpacking the library. Failure to follow the instructions in Appendix B could result in personal injury and/or equipment damage.

When choosing an installation site for the Compaq StorageWorks ESL9198 Series Tape Library, consider the following requirements:

- Floor space
- Floor clearance
- Floor strength and inclination
- Power and grounding
- Environmental conditions
- Physical distance between the library and a host workstation.

Floor Space

Figure 2-1 shows the minimum floor space required by the library.



SHR-1757

Floor Clearance

The library has a nominal floor clearance of 0.75 inches (19.0 mm). Place the library on a level, uncarpeted floor free of defects.

Floor Strength and Inclination

The floor at the installation site must be rated at 250 lb/ft² (1221 kg/m²). This is sufficient to support a fully loaded library.

The floor must be level to within 0.25 inches (6.4 mm) over a 6 foot x 6 foot (1.83 m x 1.83 m) area.

Power and Grounding

The power supply cord and wall outlet receptacle are shown in Figure 2-2.

For the United States and Canada, the cords are UL/CSA certified and are equipped with a 14/3SJT cord, a 5-20P plug, and an IEC-C320 C19 female connector.

The library is rated for 100-240VAC~, 50-60 Hz, 16 A-8 A, 1600 W service.

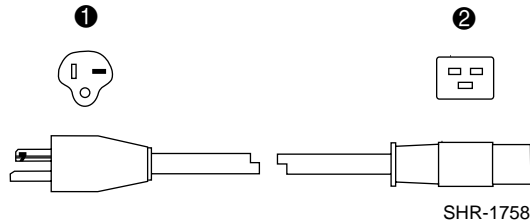


Figure 2-2. Power supply cord (United States and Canada shown)

- ❶ Plug: NEMA 5-20 (connects to the wall outlet)
- ❷ Connector: IEC-C320 C19 (connects to the library power supply)

The library power requirements may need you to modify the facility's existing power capabilities. Only a qualified electrician should perform these power modifications. The required wall outlet for the United States and Canada is rated at 125 VAC 20 A (see Figure e2-3).

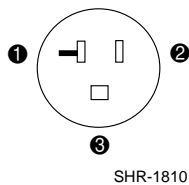


Figure 2-3. Wall outlet NEMA 5-20R (rated 125 VAC 20 A)

- ❶ Neutral
- ❷ Line
- ❸ Ground

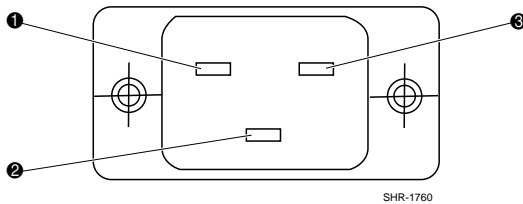
A dedicated outlet and a 20 A circuit breaker must provide power to the library only. It is necessary to use a harmonized 3 x 1.5 mm² power cord that is approved by the associated country of use, and install the appropriate wall outlet. For a listing of power cords available from Compaq Products refer to Appendix E of the *Compaq StorageWorks ESL9198 Series Tape Library Reference Guide*.



WARNING: The library must be connected to a grounded electrical outlet. Failure to properly connect the library to a grounded electrical outlet could result in personal injury and/or equipment damage.

Library AC Power Receptacle

The library AC power receptacle is IEC-320C19 Type, ~100-120 VAC/~200-240VAC, 50/60 Hz, 20 A/16 A (see Figure 2-4).



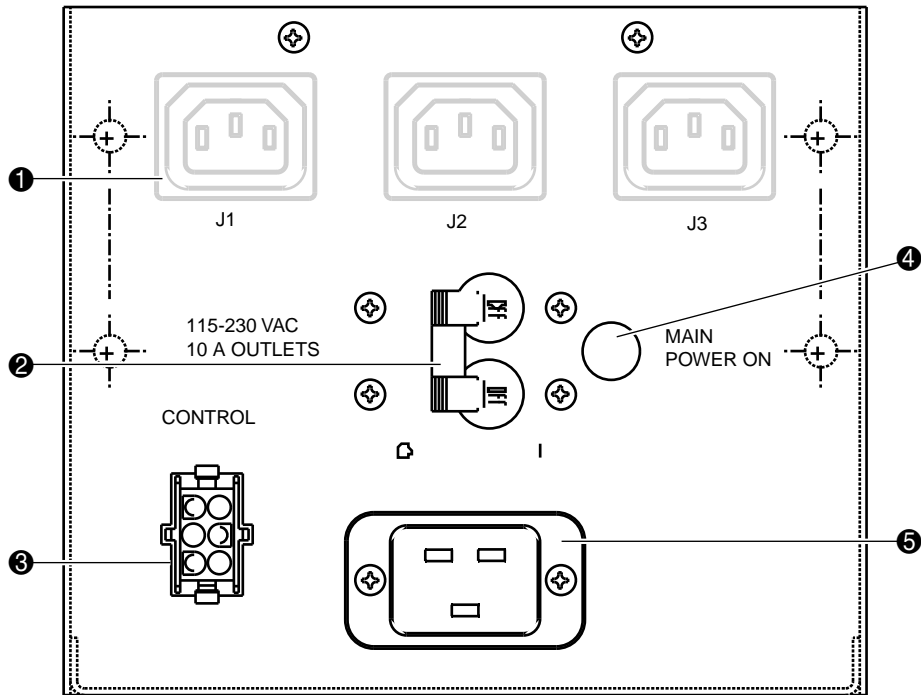
SHR-1760

Figure 2-4. Library AC power receptacle

- ① Line
- ② Ground
- ③ Neutral

Library Power Supply

Figure 2-5 shows the library wide-range power supply and describes its components.



SHR-1897

Figure 2-5. Library wide-range power supply

- ❶ Power receptacle (internal use only)
- ❷ Circuit breaker
- ❸ Circuit connector
- ❹ AC indicator light
- ❺ AC power connector (IEC-320 C19)

Environmental Conditions

The installation site must provide the following environmental conditions during normal library operation:

- Humidity: 20% to 80% non-condensing
- Temperature: 50°F to 90°F (10° to 32°C)
- Altitude: sea level to 10,000 feet (3,048 m)

NOTE: For additional library specifications (including environmental requirements during shipping and storage), see Appendix A.

Physical Distance Between the Library and a Host Workstation

The maximum physical distance between the library (SCSI bulhead) and the SCSI connector on a host workstation is dictated by the Low Voltage Differential (LVD) bus characteristics. For the ESL9198 library, a SCSI bus extender is used for bus 1 (robotic controller, drive 0, drive 1.) For the other drive pairs (D2, D3), (D4, D5), (D6, D7), (D8, D9) no internal SCSI extender is used. See Table 2-1 for the maximum external SCSI bus cable lengths.

Table 2-1 Physical Distances

Bus	Devices	Maximum External Length
1	Robot, D0, D1	20 meters
2	D2, D3	10 meters
3	D4, D5	10 meters
4	D6, D7	10 meters
5	D8, D9	10 meters

Chapter 3

Preparing for the Installation



WARNING: Be sure to read and understand the pre-installation site survey instructions in Appendix B prior to preparing the library for installation. Failure to follow the instructions in Appendix B could result in personal injury and/or equipment damage.

Before you begin the installation procedure in this guide, make the following preparations as described in this chapter:

- Providing necessary tools and equipment
- Taking ESD precautions

Providing Necessary Tools and Equipment

Provide the following tools for unpacking the library:

- Metal shears for the cutting steel packing bands
- Ratchet with 15/16-inch socket

Provide the following tools for removing the shipping restraints:

- #2 Phillips screwdriver
- Tie wraps (various lengths)

Provide the following tools for leveling the library:

- 3/4-inch open-end wrench
- Carpenter levels (12 inches [40.4 cm] and 2 feet [60.9 cm])
- 5/32-inch hex key wrench (for opening the rear door)

Providing Tape Cartridges

You must provide all the tape cartridges used in the library. Refer to the *Compaq ESL9198 Series Tape Library Reference Guide* to determine the type of tape cartridge to use.

Preserving Tape Cartridges

To preserve the life of cartridges, follow these guidelines for proper care and handling:

- Do not drop or bang the tape cartridge. This can displace the tape leader, making the cartridge unusable and possibly hazardous to the tape drive.
- Store cartridges in a dust-free environment with a temperature of between 50°F to 104°F (10°C and 40°C) and a relative humidity of between 20% and 80%. For longer life, store the cartridges in their plastic containers at room temperature (72°F \pm 7°F or 22°C \pm 4°C) in a relative humidity of 40% \pm 20%.
- Keep cartridges out of direct sunlight and away from any type of heat source and electromagnetic interference. If a cartridge is exposed to extremes of heat or cold, stabilize the cartridge at room temperature for the same amount of time it was exposed (up to 24 hours).
- Follow guidelines provided by the tape cartridge manufacturer.

Designating Host and Diagnostic Workstations

You must provide the host and diagnostic workstations that communicate with the library.

Host workstations communicate with the library using a SCSI interface and the standard SCSI-2 command set. Diagnostic workstations communicate with the library using special diagnostic software (located on the CD-ROM) and a low-speed EIA/TIA-574 (RS-232 9-pin) serial interface.

NOTE: Hosts without a direct SCSI interface require external communications bus converters.

Taking ESD Precautions

Some components within the library contain static-sensitive parts. To avoid damage to these parts while performing installation, maintenance, or replacement procedures, observe the following precautions:

- Keep the library turned off during all installation procedures.
- Keep the library power cord plugged into a grounded power outlet except when working with AC electrical components.
- Avoid contact with power supplies, EMI filters, and AC electrical components while the library is connected to a power outlet.
- Use an anti-static wrist strap.
- Keep static-sensitive parts in their original shipping containers until ready for installation.
- Do not place static-sensitive parts on a metal surface. Place them inside their protective shipping bag or on an anti-static mat.
- Avoid touching connectors and other static-sensitive components.
- Close the library door and access panel when not working on the library.

NOTE: Dry climates and cold-weather heating environments have lower relative humidity and are more likely to produce static electricity.

Chapter 4

Unpacking and Moving the Library

This chapter explains how to unpack the library and move it to its final installation location. The Compaq *StorageWorks ESL9198 Series Tape Library* is shipped in packing materials designed to protect it from damage during transit. By following these instructions, you help ensure that the library will continue to be safeguarded after it arrives at the installation site.

Major steps in this procedure are:

- Receiving the library
- Removing the shipping container
- Moving the library
- Removing the shipping plate
- Removing the shipping restraints
- Storing the shipping materials
- Leveling the library
- Reinstalling the gripper restraint

Receiving the Library

To receive the library:



WARNING: The library weighs approximately 985 pounds (447 kg). At least two people should move and install the library. Failure to use two people could result in personal injury and/or equipment damage.

1. Unpack the library as close to the installation site as possible.
2. Inspect the shipping pallet and shipping container for damage that may have occurred during shipment. Report any damage to the shipper.

Removing the Library Shipping Container

To remove the library shipping container:

1. Choose the unloading side. The library can be unloaded from either the right or the left side of the pallet.
2. Verify the minimum floor space requirements.

NOTE: Removing the library shipping container requires a minimum of 3 feet (92 cm) on all sides. For the side being used for the ramp, an additional 5 feet (1.5 m) is required for a total of 8 feet (2.4 m). The minimum height required for unpacking the library is 85 inches (2.16 m). Figure 4-1 shows the minimum floor space required by the library to remove its shipping container.

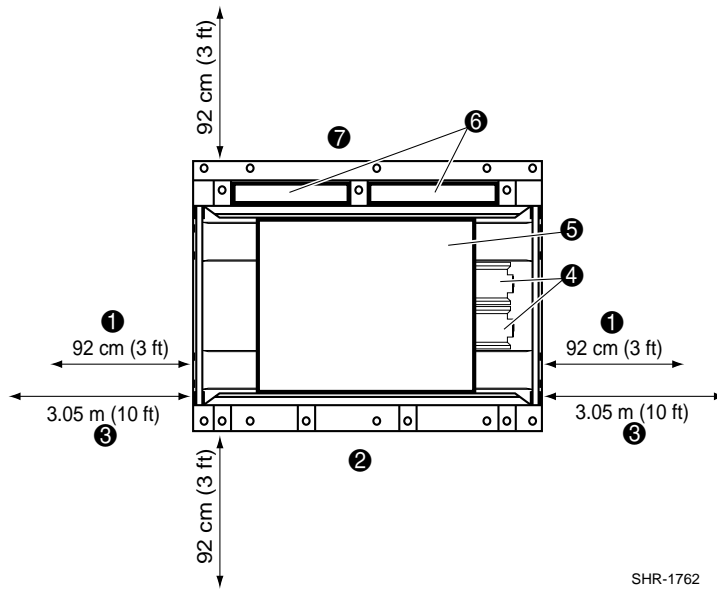


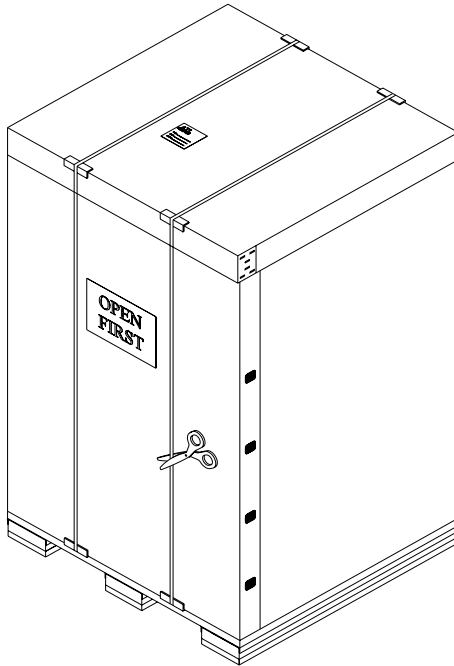
Figure 4-1. Minimum floor space requirements (top view of unpacking site)

- ❶ Without ramp extensions
- ❷ Front
- ❸ With ramp extensions
- ❹ Ramp extensions
- ❺ Library
- ❻ Accessory kits
- ❼ Rear

3. Using metal shears, cut the two steel bands that secure the library and packing material to the pallet (see Figure 4-2).



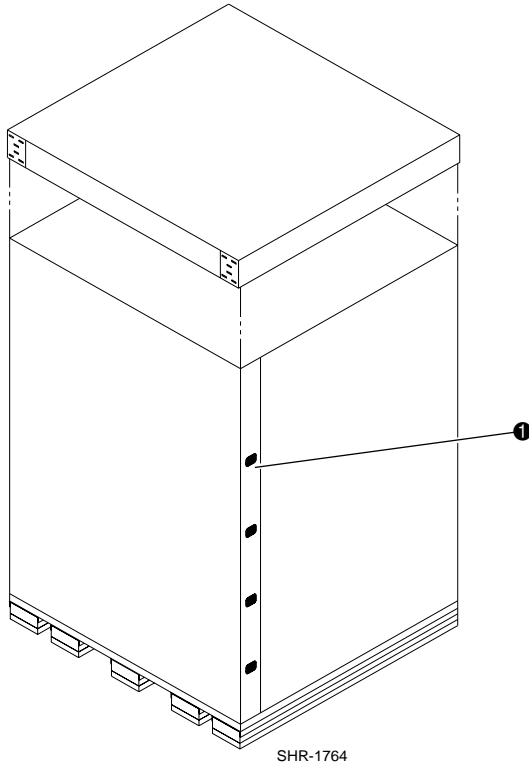
WARNING: The steel bands are under tension and will snap away from the shipping container when cut. Be sure to stand clear of the bands while cutting. Failure to stand clear of the bands could result in personal injury.



SHR-1763

Figure 4-2. Removing the steel bands

4. Lift the top cover straight up and off the shipping container (see Figure 4-3).
5. Pull the eight retaining clips, on opposing corners of the shipping container, to their open position (❶ Figure 4-3).



SHR-1764

Figure 4-3. Removing the box top cover

6. Unwrap the cardboard box from the library (see Figure 4-4).

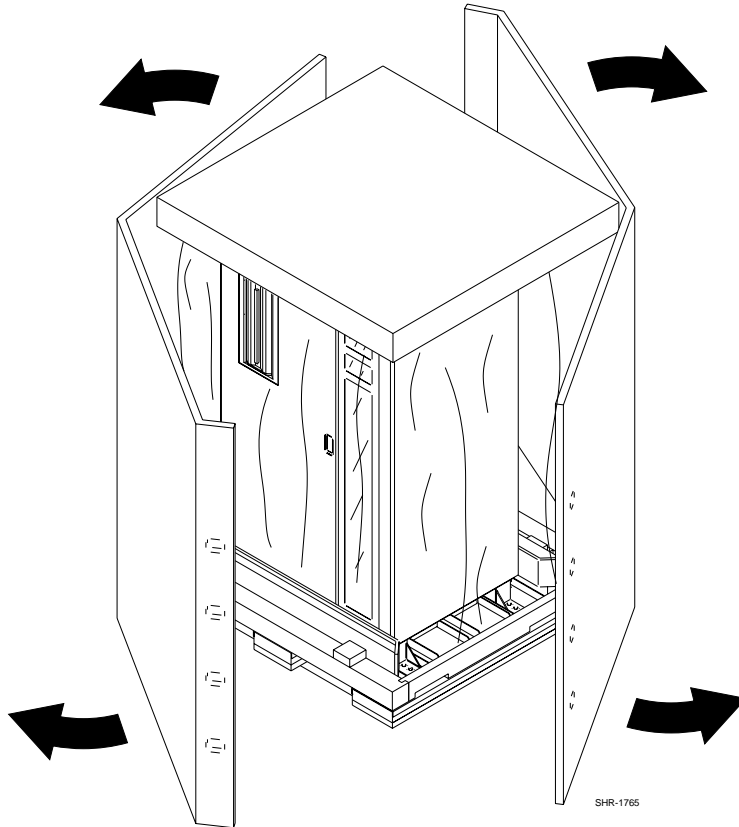


Figure 4-4. Removing the cardboard box

7. Remove the accessory kits from the rear compartment of the crate (ⓐ Figure 4-1).
8. Check the packing list and verify that all accessories have been received. If any part is missing or damaged, contact your authorized reseller.

9. Lift the foam cap up and off the library (see Figure 4-5).

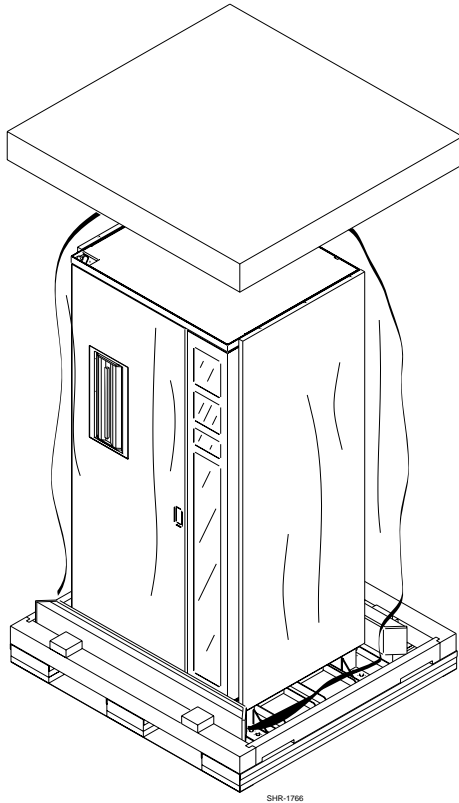


Figure 4-5. Removing the foam cap

10. On the left side of the library, lift the wooden bar out of its brackets on the pallet (see Figure e4-6).

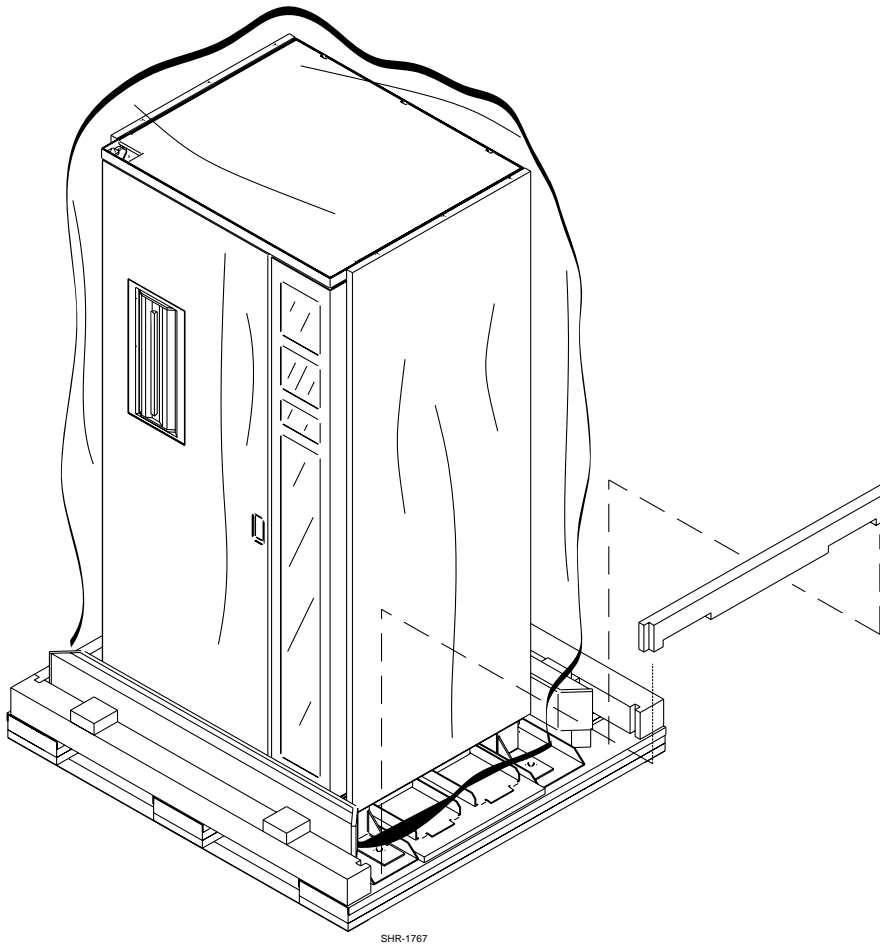


Figure 4-6. Removing the wooden bar

11. On the left side of the library, unscrew the two bolts that secure each of the two stop blocks.

12. Remove the two stop blocks from under the left side of the library (see Figure 4-7).

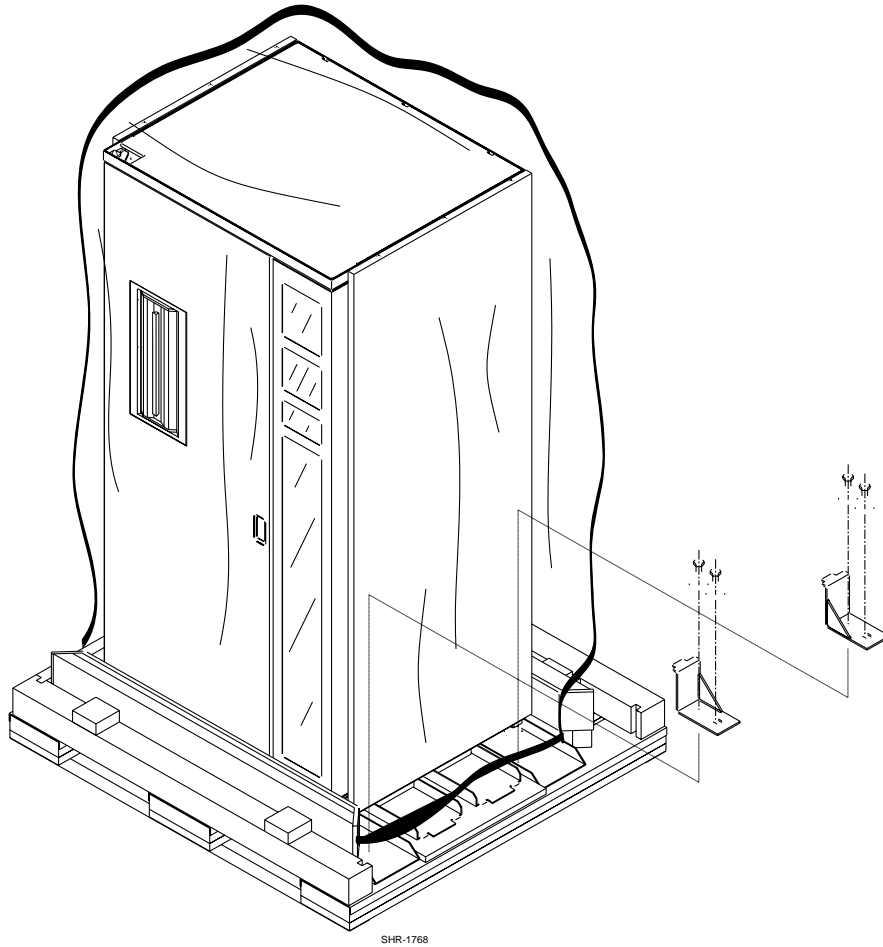


Figure 4-7. Removing the stop blocks

13. Reinsert the left wooden bar in its brackets on the pallet to hold the library in place (see Figure 4-6).

14. Repeat steps 10, 11, and 12 for the right side of the library. Do not replace the right wooden bar.

15. Slide the two ramp extensions and the foam block out from under the right side of the library (see Figure 4-8). Set the ramp extensions aside until you are ready to move the library.

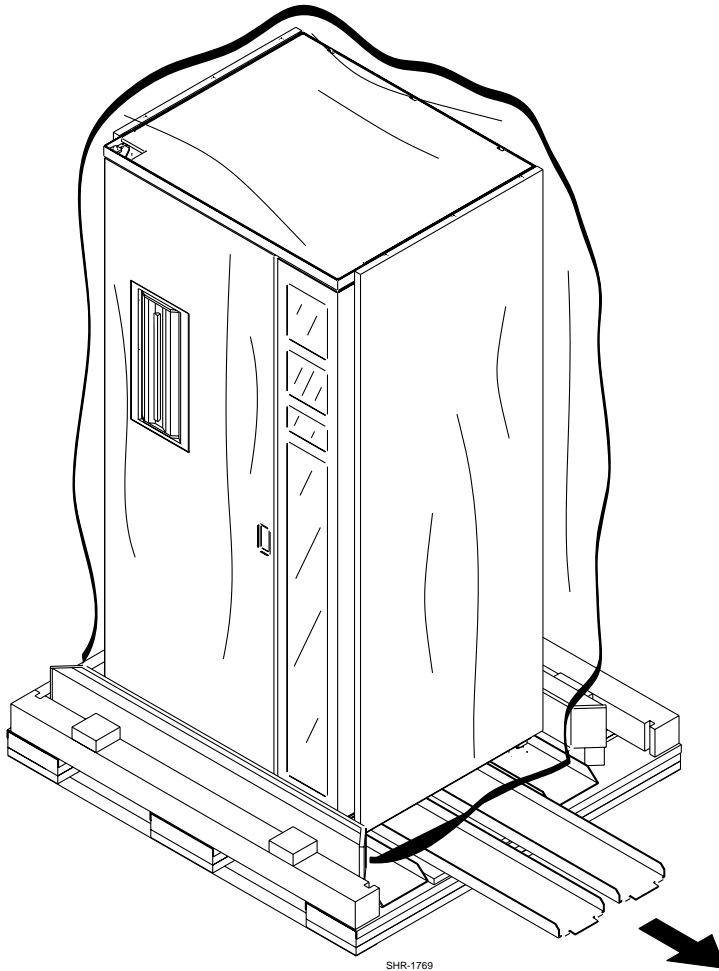


Figure 4-8. Removing the ramp extensions

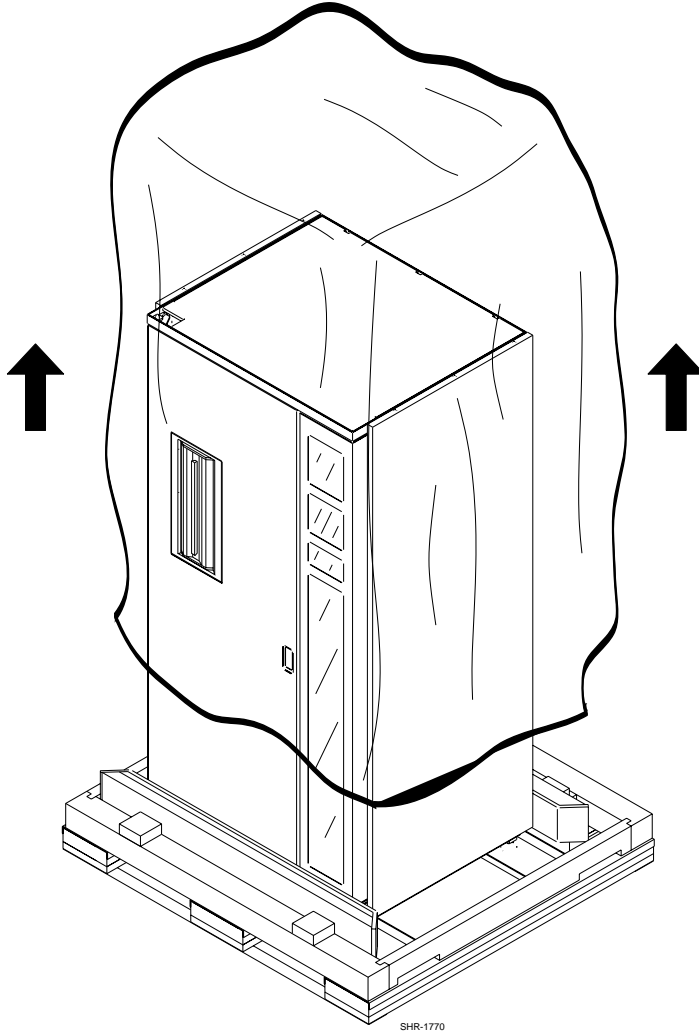
16. Reinsert the right wooden bar into its brackets on the pallet to hold the library in place.

Moving the Library

To move the library to its installation site:

1. Carefully lift the shipping bag off of the library (see Figure 4-9).

NOTE: Use caution when removing the shipping bag so that it can be used to repack the library.

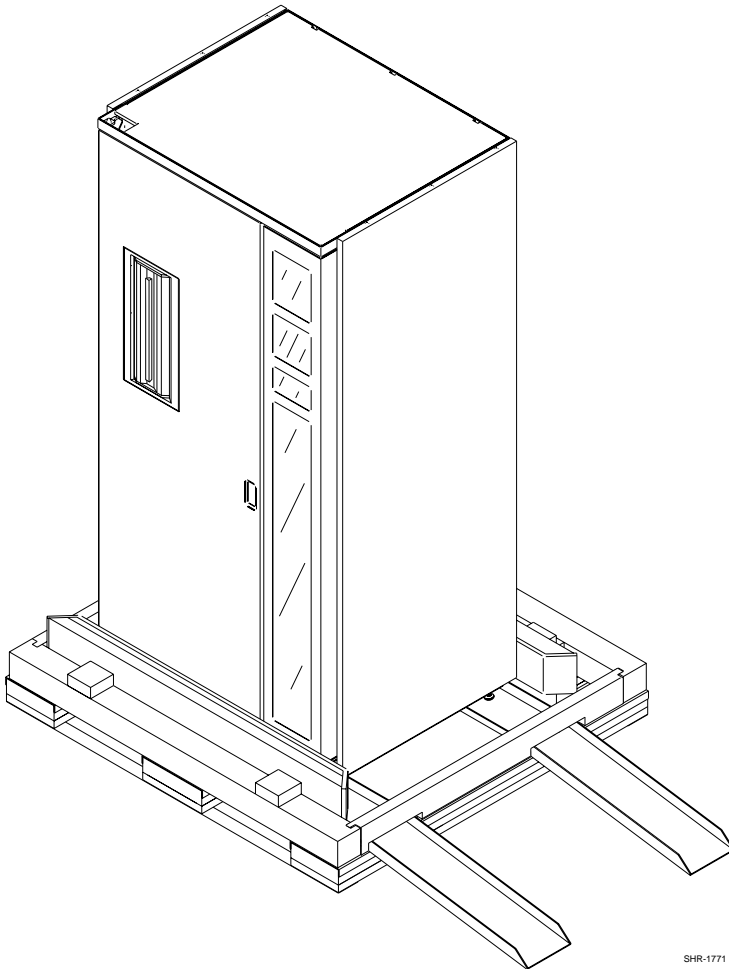


SHR-1770

Figure 4-9. Removing the shipping bag

2. Inspect the library for any damage that might have occurred during shipment.
3. Place the two ramp extensions in the slots provided at the edge of the pallet (see Figure e4-10). The ramp can be set up on either the right side or the left side of the pallet.

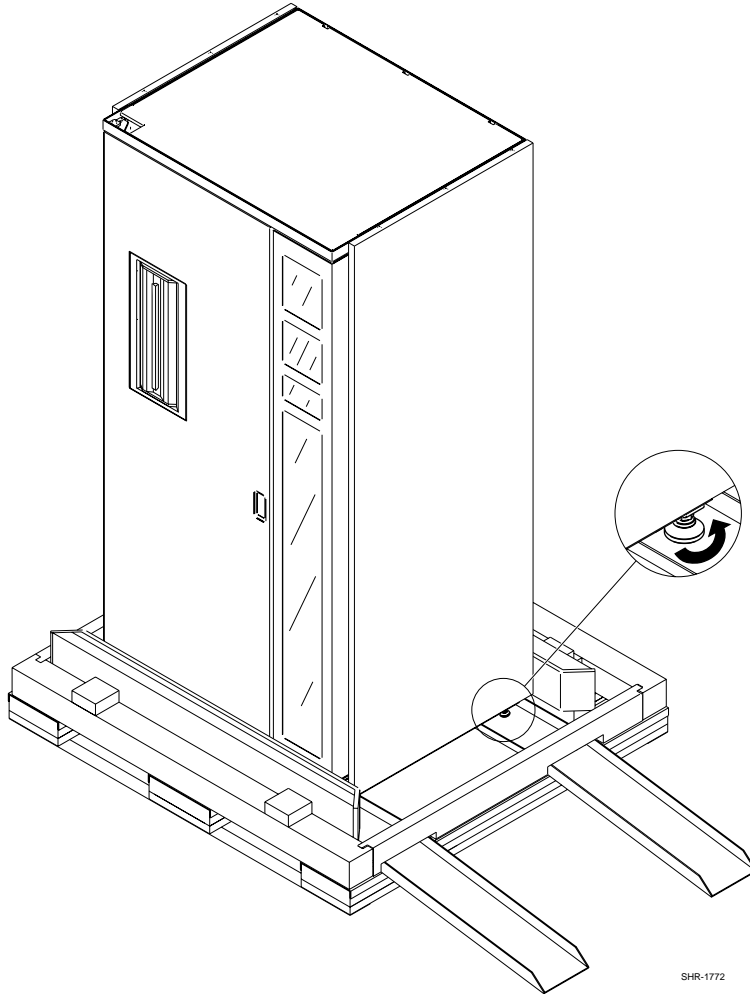
NOTE: The following illustrations show the ramp setup procedure from the right side of the library.



SHR-1771

Figure 4-10. Preparing the ramp

4. Verify that the library's four leveling feet are raised. If the library is resting on the leveling feet, turn each of them to the right (using the $\frac{3}{4}$ -inch open-end wrench supplied in the Accessory Kit) until they are all $\frac{1}{2}$ inch above the pallet (see Figure e4-11).



SHR-1772

Figure 4-11. Raising the leveling feet

5. Move the wooden bar (see Figure 4-12):
 - a. Remove the wooden bar from the ramp-side of the pallet.
 - b. Turn the wooden bar over and place under the ramp extensions for support.

NOTE: Align the notches in the wooden bar with the ramp extensions.

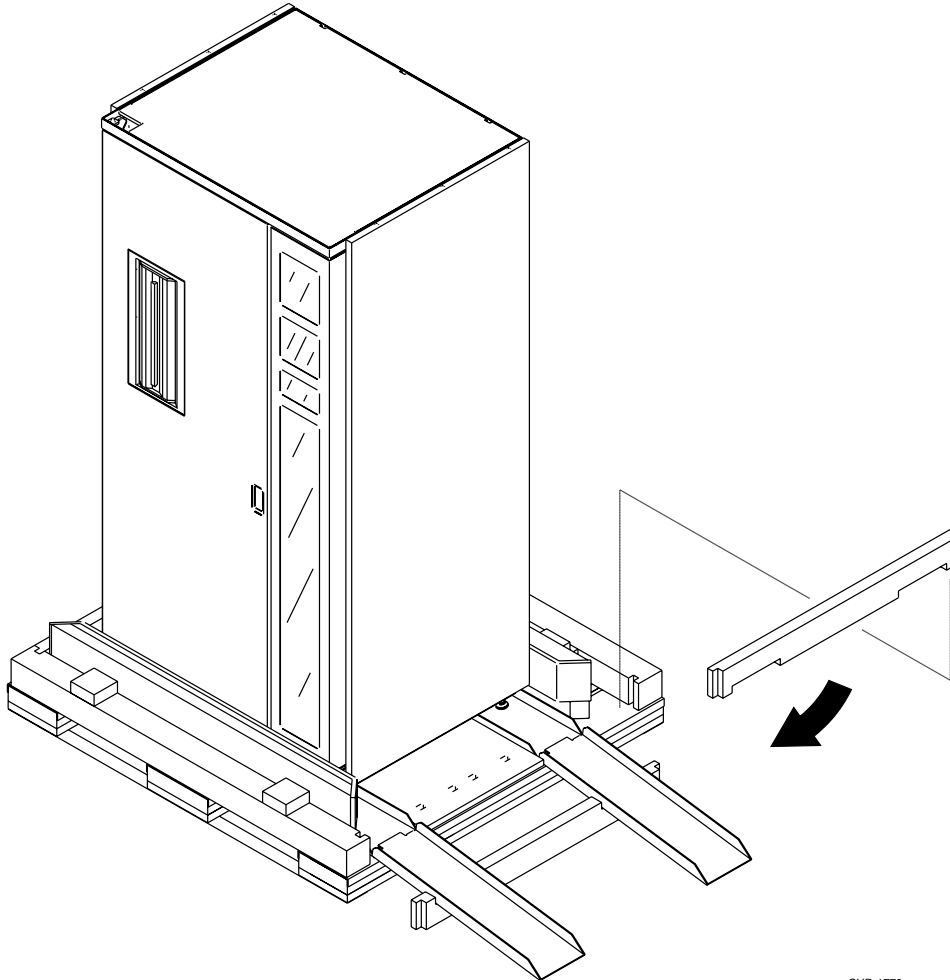
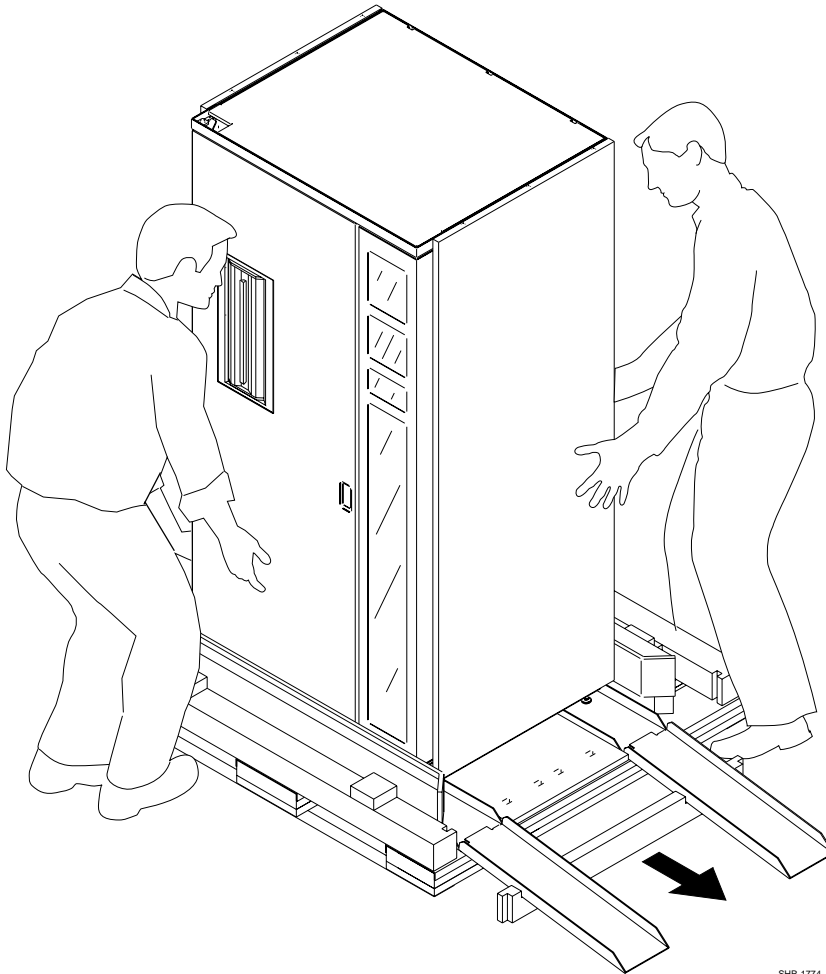


Figure 4-12. Moving the wooden bar

6. With the help of two people, slowly guide the library down the ramp (see Figure 4-13). Control the speed of its descent.
7. Move the library to its final installation site.



WARNING: The library weighs approximately 985 pounds (447 kg). At least two people must roll it down the ramp. Failure to use two people could result in personal injury and/or equipment damage.



SHR-1774

Figure 4-13. Rolling the library down the ramp

Removing the Shipping Plate

To remove the shipping plate:

1. Connect the library to a grounded power source.

NOTE: Do not turn the library on.

2. Unlock and open the front library door:
 - a. Using the key from the accessories kit, unlock the door.
 - b. Lift the door handle straight up and then turn the handle counterclockwise to unlatch it.
 - c. Gently pull the door handle to open the door.
3. Remove the foam pads from inside the front doors and around the robotics.

4. Remove the shipping plate that protects the load port (see Figure 4-14):

NOTE: The load port is located inside the front door of the library and is secured with a steel plate for protection during shipment.

- a. Unscrew and remove the 12 bolts and washers securing the plate to the load port.
- b. Remove the shipping plate from the load port.

NOTE: Save the bolts, washers, and shipping plate to use in re-packing the library.

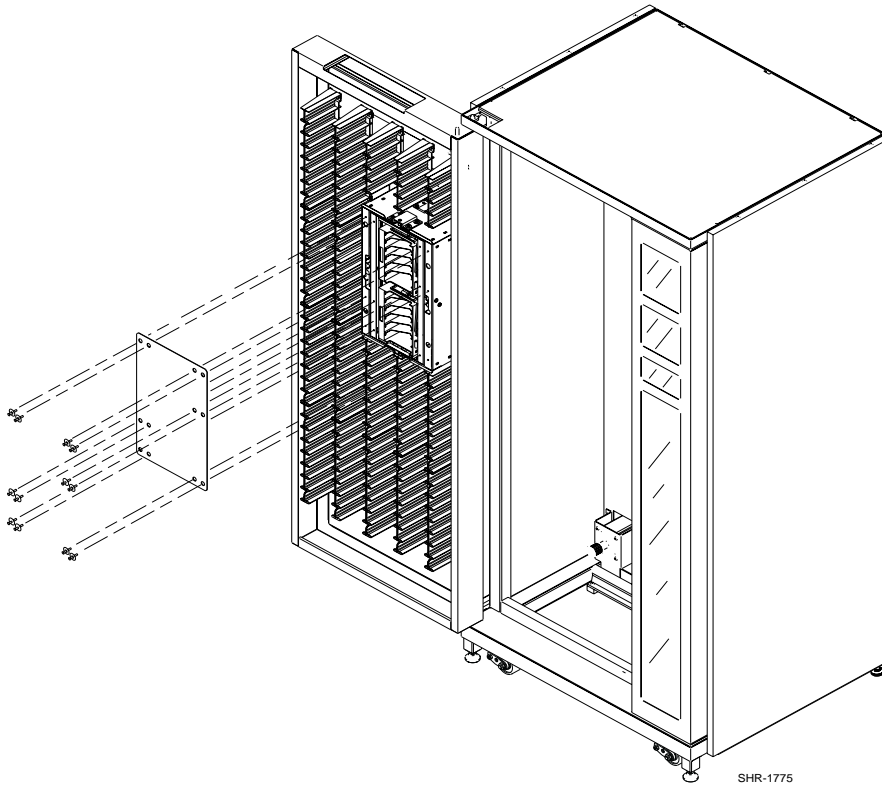


Figure 4-14. Removing the shipping plate

Removing the Shipping Restraints

Use the following procedures to remove the library shipping restraints.

1. Locate the vertical carriage assembly ⑤ as shown in Figure 4-15.

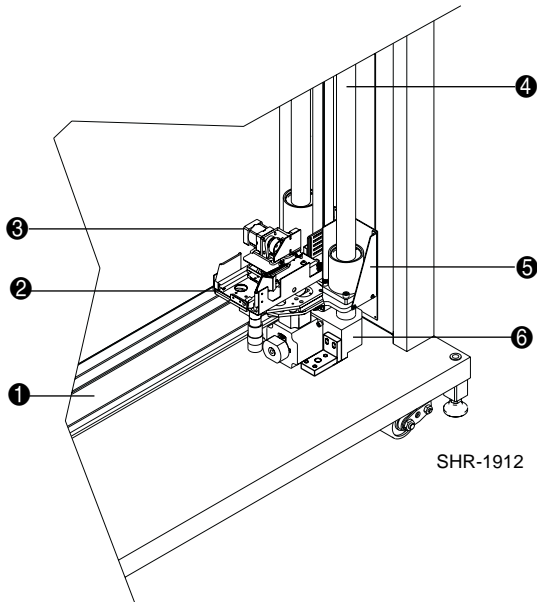


Figure 4-15. Locating the vertical carriage assembly

- ① Horizontal axis
- ② Extension axis assembly
- ③ Gripper assembly
- ④ Vertical axis
- ⑤ Vertical carriage assembly
- ⑥ Horizontal carriage assembly

2. Remove the horizontal carriage restraint ④ as shown in Figure 4-16:
 - a. Remove the two screws that secure the horizontal carriage restraint to the horizontal carriage.
 - b. Remove the screw that secures the horizontal carriage restraint to the floor of the library.
 - c. Remove the horizontal carriage restraint ④ .

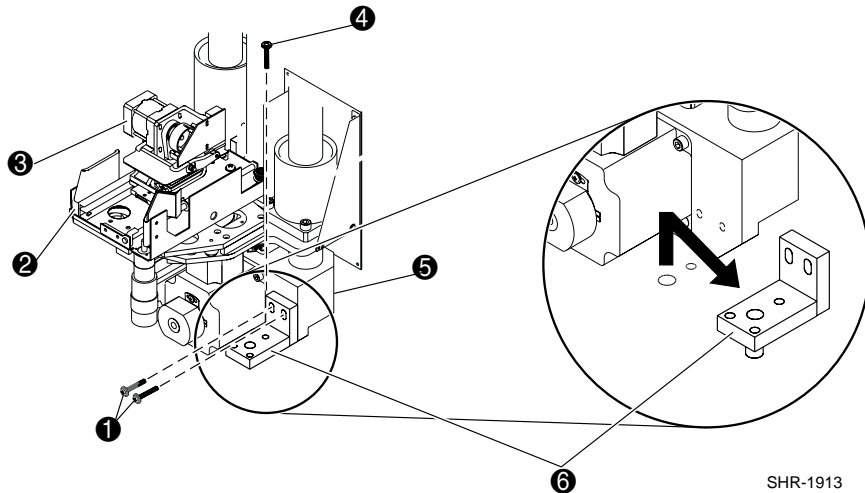


Figure 4-16. Removing the horizontal carriage restraint

- ① Extension axis assembly
- ② Gripper assembly
- ③ Horizontal carriage assembly
- ④ Horizontal carriage restraint

3. Slide the horizontal carriage assembly along the horizontal axis toward the middle of the library.

4. Remove the gripper restraint:
 - a. Remove the screw that secures the gripper restraint to the belt clamp ④ as shown in Figure 4-17.

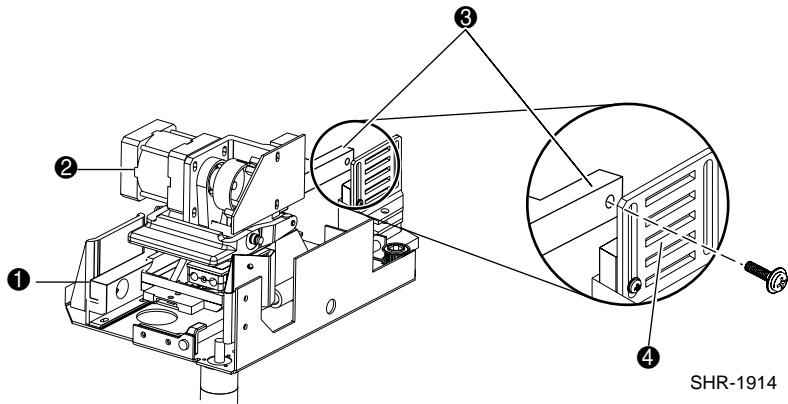


Figure 4-17. Removing the gripper restraint screw

- ① Extension axis assembly
- ② Gripper assembly
- ③ Gripper restraint
- ④ Belt clamp

- b. Slide the gripper assembly ④ away from the vertical axis until the gripper assembly is fully extended and the gripper restraint ② disengages from the follower guide ① (see Figure 4-18).

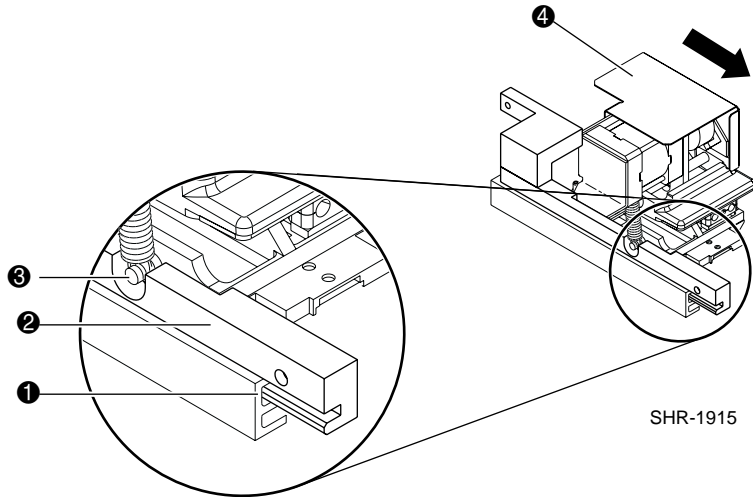


Figure 4-18. Releasing the gripper restraint

- ① Follower guide
- ② Gripper restraint
- ③ Spring post
- ④ Gripper assembly (view rotated)

- c. Pivot the gripper restraint ③ until it clears the motors and spring post as shown in Figur e4-19.
- d. Remove the gripper restraint ③ by gently pulling it back toward the vertical axis.
- e. Slide the gripper assembly ① toward the vertical axis.

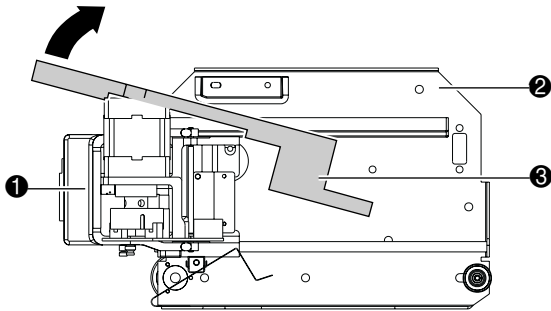


Figure 4-19. Removing the gripper restraint

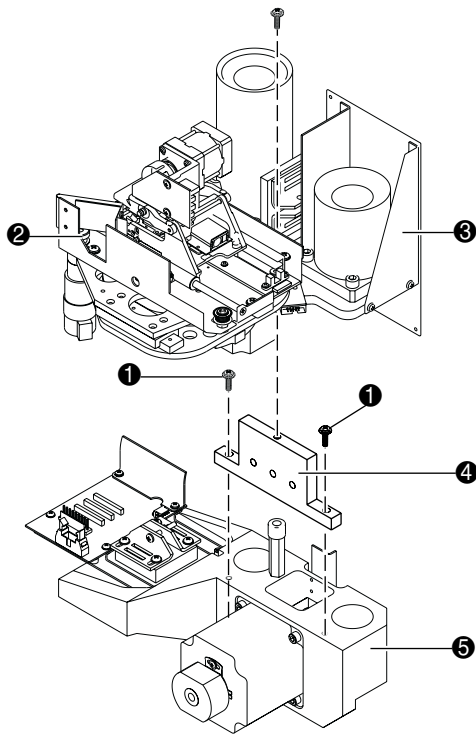
- ① Gripper assembly (fully extended)
- ② Extension axis assembly (top view)
- ③ Gripper restraint

5. Remove the vertical carriage restraint ④ as shown in Figure 4-20:



WARNING: The vertical carriage assembly is extremely heavy.

- a. Rotate the extension axis ② assembly 90 degrees.
- b. Remove the screw that secures the vertical carriage assembly ③ to the vertical carriage restraint ④.
- c. Gently slide the vertical carriage assembly ③ up to eye level.
- d. Squeeze the two sides of the vertical belt together, making sure to interlock the belt cogs.
- e. Secure the vertical belt to the vertical carriage assembly ③ using a tie wrap.
- f. Remove the two screws ① that secure the vertical carriage restraint to the horizontal carriage.
- g. Remove the vertical carriage restraint ④.
- h. Remove the tie wrap installed in step 5e.
- i. Gently lower the vertical carriage assembly ③.



SHR-1917

Figure 4-20. Removing the vertical carriage restraint

- ❶ Vertical carriage restraint screws
- ❷ Extension axis assembly (rotated 90°)
- ❸ Vertical carriage assembly
- ❹ Vertical carriage restraint
- ❺ Horizontal carriage assembly

Storing the Shipping Materials

To store the shipping and packaging materials for future use:

1. Using the gripper, horizontal, and vertical restraint screws, secure the shipping restraints to the inside of the library as shown in Figure 4-21.

NOTE: The profile of each shipping restraint is clearly outlined on the storage label.

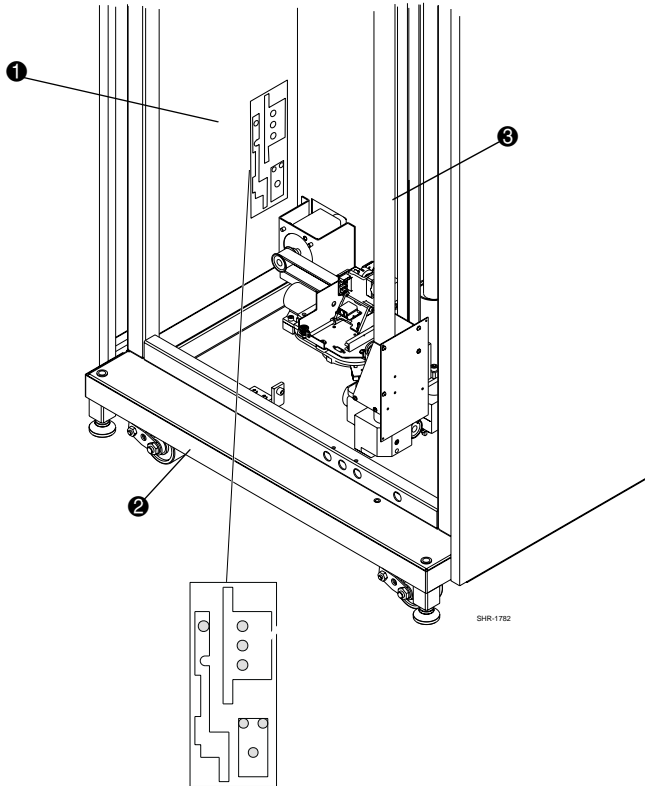


Figure 4-21. Storing the shipping restraints

- 1 Label with shipping restraints outlined
- 2 Front of library
- 3 Vertical belt

2. Slide the two ramp extensions into their shipping position on top of the pallet.
3. Secure the ramp extensions with the foam block.
4. Re-insert the wooden bar into its brackets on the pallet.
5. Fold the shipping bag.
6. Place the shipping bag, load port shipping plate, stop blocks, foam cap, screws, and other packaging materials on the pallet.
7. Collapse the cardboard box.
8. Place the cardboard box on top of the packaging materials on the pallet.
9. Secure the pallet, packaging materials, and cardboard box for future use.

Leveling the Library

To level the library:

NOTE: If a multi-unit library is being implemented, refer to the installation instructions in Chapter 6 of the *Compaq StorageWorks ESL9198 Series Tape Library Reference Guide*.

1. Using the $\frac{3}{4}$ -inch open-end wrench (supplied in the Accessory Kit), rotate each foot of the library until it makes contact with the floor.
2. Rotate each foot an additional one-quarter turn to begin raising the library.
3. Center a carpenter's level on the top front edge of the library.
4. Check the gauge on the level. If the front of the library is level, proceed to step 6. If it is not level:
 - a. Determine the tilt of the library.
 - b. Lower the foot on the low side of the library by applying a one-quarter turn with the open-end wrench.
5. Repeat step 4 until the front is level.
6. Repeat steps 3 and 4 for the left edge, back edge, and right edge of the library.
7. Recheck the level on all top edges.
8. If necessary, repeat steps 3 and 4 until all four top edges of the library are level.

NOTE: You can now configure the library for normal operation. Refer to the *Compaq StorageWorks ESL9198 Series Tape Library Reference Guide* for more information.

Reinstalling the Gripper Restraint

If the library is to be moved to a different location, use this procedure to re-install the gripper restraint:

NOTE: To prepare for moving the library to a different location or to prepare it for shipment, refer to Appendix B in the *Compaq StorageWorks ESL9198 Series Tape Library Reference Guide*.

1. Pull the gripper all the way out toward you (see Figure 4-22).
2. Insert the gripper restraint ❶ into the follower guide so that it is in the same position as shown in Figure 4-22.
3. Slide the gripper and restraint to lock them into the groove (approximately half way in).
4. Rotate the gripper 90 degrees.
5. Line up the restraint and then attach it. See the section “Removing the Shipping Restraints” for attaching information.

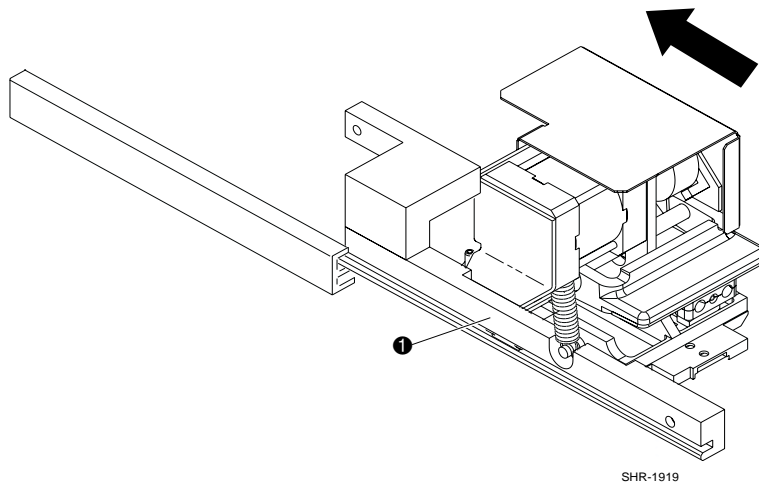


Figure 4-22. Re-installing the gripper restraint

Appendix **A**

Library Specifications

This appendix lists the physical, reliability, and environmental specifications for the Compaq StorageWorks ESL9198 Series Tape Library.

Table A-1 lists dimensions and other physical specifications of the library.

Table A-1 Physical Specifications	
Description	Specification
Width	36 inches (91 cm)
Depth	29 inches (74 cm)
Footprint	7.25 square feet (0.673 sq m)
Height	75 inches (191 cm)
Weight	985 lb (447 kg) 10 drive configuration without cartridges
Maximum tape drives	Up to 10
Maximum cartridges	0 through 198
Drive type	DLT 8000 (LVD)
SCSI bus type	Low Voltage Differential
Host to library interface software	SCSI-2 medium changer command set
Power cord	1 standard, US, IEC 320 C19 male connector rated at 125 VAC (NEMA 5-20 P connector included)
Host to tape drive interface software	SCSI-2
Library diagnostics	RS-232C service port for connecting to a field service computer (MS-DOS based).

Table A-2 lists the performance characteristics of the library.

Table A-2 Performance Characteristics	
Description	Specification
Average swap time	22 seconds, consisting of two MOVE MEDIUM commands
Inventory	Less than 5 minutes, fully loaded with labeled cartridges
MTBF	250,000 power-on hours
MSBF	1 million load/unload cycles
MTTR	Less than 30 minutes
Warranty	Next day on-site service for one year

Table A-3 lists the power-environmental and mechanical-environmental specifications of the library.

Table A-3 Environmental Specifications		
Description	Specification	
Electrical inputs	Voltage	90 VAC to 264 VAC
	Frequency	47 Hz to 63 Hz
	Power consumption	VA max 1600 W
	Electrical connection to power	IEC 320 C19 male connector inside rear door
Operating temperature	Dry bulb	59 to 90 F (15 to 32 C)
	Wet bulb	77 F (25 C) max
	Thermal transition	51.8 F (11 C) per hour
Shipping and storage temperature	Dry bulb	-40 to 151 F (-40 to 66 C)
	Wet bulb	115 F (46 C) max
	Thermal transition	54 F (30 C) per hour
Relative humidity	Operating	20% to 80% non-condensing
	Shipping and storage	5% to 95% non-condensing
Altitude	Operating	Sea level to 10,000 feet (3,048 m)
	Shipping and storage	Sea level to 12,000 feet (3,657 m)
Heat dissipation	Operating	5500 BTU/hr (1400 KCal/hr or 1600 W)

Table A-3 Environmental Specifications (Continued)

Description	Specification	
Direct Electrostatic Discharge (ESD)	Contact discharge	@ 2.0, 4.0, 6.0, 8.0 kV to all external metal panels and doors
	Air discharge	@ 2.0, 4.0, 6.0, 8.0, 10.0, 12.0, 15.0 kV to the front control panel display
Indirect ESD	Contact discharge	@ 2.0, 4.0, 6.0, 8.0 kV to the VCP
RF radiated emissions (per CISPR 22: 1993 + A1: 1995 + A2: 1996)	30 MHz to 230 MHz @ 40 dBuV/m (quasi-peak limit)	
	230 MHz to 1000 MHz @ 47 dBuV/m (quasi-peak limit)	
RF conductive emissions (per CISPR 22: 1993 + A1: 1995 + A2: 1996)	0.15 MHz to 0.50 MHz @ 66 dBuV/m (quasi-peak limit)	
	0.50 MHz to 30 MHz @ 60 dBuV/m (quasi-peak limit)	
Harmonic current emissions (per EN 61000-3-2: 1995)	Class A	
Voltage fluctuations and flicker (per EN 61000-3-3: 1994)	Conforms to EN standard	
Direct ESD (per EN 61000-4-2: 1995)	Contact discharge	@ +/- 2.0, 4.0 kV to conductive surfaces
	Air discharge	@ 2.0, 4.0, 8.0 kV to non-conductive surfaces
Indirect ESD (per EN 61000-4-2: 1995)	Contact discharge	@ 2.0, 4.0 kV to the VCP
Radiated fields (per EN 61000-4-3: 1995)	80% AM modulation	1 kHz from 80 MHz to 1000 MHz
Radiated fields (per ENV50204: 1996)	Pulse modulation	200 MHz from 895 MHz to 905 MHz
Electric fast transients (per EN 61000-4-4: 1994)	Data cables	+/- 0.5 kV
	Power cables	+/- 0.5, 1.0, kV
Power line surge (per EN 61000-4-5: 1994)	Common mode coupling	+/- 0.5, 1.0, 1.5, 2.0 kV
	Differential mode coupling	+/- 0.5, 1.0, kV
Conductive fields	Data cables and power lines	80% AM modulation, 1 kHz from 0.15 MHz to 80 MHz

Table A-3 Environmental Specifications (Continued)

Description	Specification	
Power frequency magnetic field (per EN 61000-4-8: 1993)	3 A/m @ 50 Hz	
Voltage dips and interruptions (per EN 61000-4-11: 1994)	30% power line reduction, 60% power line reduction, 100% power line reduction	
Acoustical noise (sound power level)	Operating	8.10 Bel
	Idle	7.63 Bel
Acoustical noise (pressure @ bystander)	Operating	63 dB

Gripper Assembly

The gripper assembly includes a Class II laser bar code scanner that reads standard six-character, 3 of 9 bar code labels. The scanner is used to maintain an inventory of the tape cartridges within the library. For example, an inventory occurs automatically whenever the library is turned on or after the front door has been closed. An inventory can also be initiated manually from a host computer.

Appendix B

Pre-Installation Site Survey

The following pre-installation site survey is required for installing a Compaq *StorageWorks ESL9198 Series Tape Library* for the following reasons:

- Advance planning is necessary to ensure that the library can be received, unpacked, moved to the installation site, and installed.
- The library is large and heavy. Crated, it weighs approximately 1220 lb (553 kg) when fully populated with 10 tape drives. It occupies a footprint of 48 x 48 in (122 cm x 122 cm), and is 80 in (203 cm) tall.
- The library is rated for 100-240VAC~, 50-60 Hz, 16 A-8 A, 1600 W service.
- A dedicated outlet (Figure B-1) and a 20 A circuit breaker must provide power to the library only. It is necessary to use a harmonized 3 x 1.5 mm² power cord that is approved by the associated country of use, and install the appropriate wall outlet. For a listing of power cords available from Compaq Products, refer to Appendix E of the *Compaq StorageWorks ESL9198 Series Tape Library Reference Guide*.

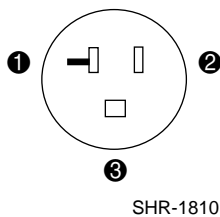


Figure B-1. Wall outlet requirements for North America

- ① Neutral
- ② Line
- ③ Ground

NOTE: Wall outlet is a NEMA 5-20R rated 125 VAC 20 A.

Site Information

Site Name: _____

Site Address: _____

Date: _____

Sales Reference #: _____

VAR: _____

Contacts

Contact	Name	Phone #	eMail
Customer 1:	_____	_____	_____
Customer 2:	_____	_____	_____
VAR SR:	_____	_____	_____
VAR FSE:	_____	_____	_____
Compaq SSR:	_____	_____	_____
Compaq Acct. Mgr.:	_____	_____	_____
Compaq FSE:	_____	_____	_____

Host System Information

Host system make and model: _____

Host system application software
and revision: _____

Host SCSI controller: _____

Type of data is to be stored
(database, video, exchange mail, etc.): _____

Type of industry that describes the company
(financial, manufacturing, software, etc.): _____

Country in which the library to be operated: _____

Power cord that is required: _____

Receiving the Library (Physical Requirements)

	Site Ready	
	Yes	No
1. Is there a loading dock that is accessible by tractor-trailer?	<input type="checkbox"/>	<input type="checkbox"/>
2. Are a minimum of two people available to help uncrate the library?	<input type="checkbox"/>	<input type="checkbox"/>
3. Is there a location to store crating/packaging material for future use?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are pallet jacks or moving dollies available?	<input type="checkbox"/>	<input type="checkbox"/>
5. Is there adequate space to uncrate the library?	<input type="checkbox"/>	<input type="checkbox"/>
6. Are tools for uncrating the library available?	<input type="checkbox"/>	<input type="checkbox"/>

Installation Route Requirements (Receiving Dock to Installation Site)

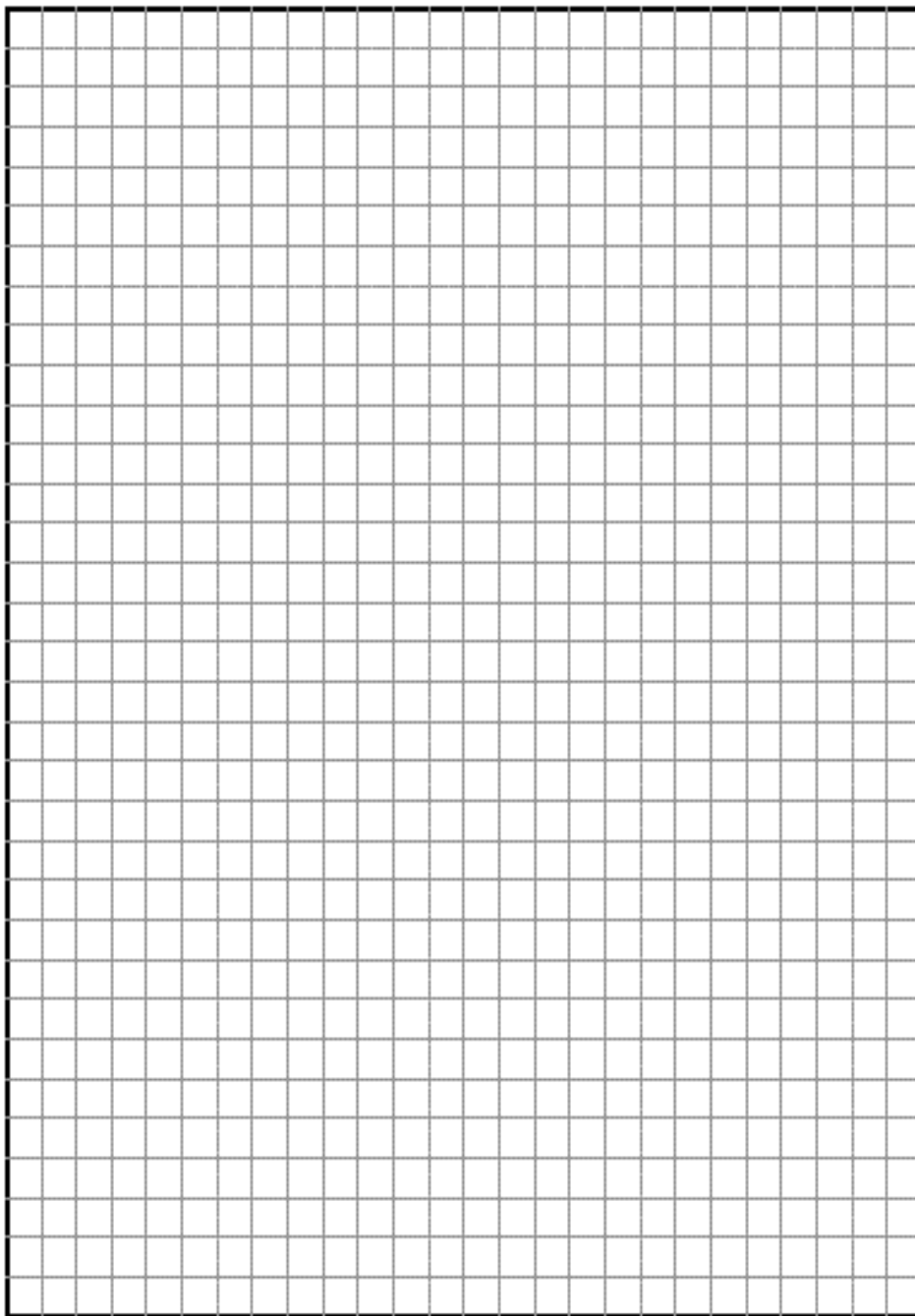
	Site Ready	
	Yes	No
1. Are the clearances of all doorway and elevators on the route adequate [must be greater than 80 inches (203.2 cm)]?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the route free of steps (no steps should exist along route)?	<input type="checkbox"/>	<input type="checkbox"/>
3. Will all flooring (route and installation site) support 250 lb/ft ² (1221 kg/m ²)?	<input type="checkbox"/>	<input type="checkbox"/>
4. Is the route free of carpet or obstacles that would impede caster movement?	<input type="checkbox"/>	<input type="checkbox"/>

Installation Requirements

	Site Ready	
	Yes	No
1. Are the correct number of dedicated host SCSI controllers available or on order (typical installation is one SCSI controller for every two drives)?	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the SCSI ID scheme been reviewed with the customer?	<input type="checkbox"/>	<input type="checkbox"/>
3. Has the equipment location/arrangement been planned? (power source/host/library/cabling)?	<input type="checkbox"/>	<input type="checkbox"/>
4. Is service and traffic clearance provided (ceiling height/sprinkler heads/cable racks)?	<input type="checkbox"/>	<input type="checkbox"/>
5. Has flooring tile cutout (for cabling, if required) been arranged?	<input type="checkbox"/>	<input type="checkbox"/>
6. Are SCSI cables available or on order?	<input type="checkbox"/>	<input type="checkbox"/>
7. Are SCSI connection kits for forward connectivity available or on order?	<input type="checkbox"/>	<input type="checkbox"/>

	Site Ready	
	Yes	No
8. Are all SCSI cables less than or equal to 49.2 ft (15 m) (for forward connectivity)?	<input type="checkbox"/>	<input type="checkbox"/>
9. Is a dedicated power source with the correct outlet available?	<input type="checkbox"/>	<input type="checkbox"/>
10. The library contains a redundant power supply. Are there two dedicated power sources with correct outlets available?	<input type="checkbox"/>	<input type="checkbox"/>
11. Is a bypass switch planned (Note: Only BBM type is approved for use with the library)?	<input type="checkbox"/>	<input type="checkbox"/>
12. Is emergency power-off capability provided?	<input type="checkbox"/>	<input type="checkbox"/>
13. Is the power disconnect (breaker panel or bypass switch) located within sight of the library (This is a National Electric Code requirement)?	<input type="checkbox"/>	<input type="checkbox"/>
14. Is the power source backed up by a generator UPS?	<input type="checkbox"/>	<input type="checkbox"/>
15. Are the temperature and humidity at the installation site controlled?	<input type="checkbox"/>	<input type="checkbox"/>
16. Has qualified application backup software been installed on the hosts?	<input type="checkbox"/>	<input type="checkbox"/>
17. If spares have been ordered, is spares storage space available?	<input type="checkbox"/>	<input type="checkbox"/>
18. Has access to the customer site been provided to complete this survey?	<input type="checkbox"/>	<input type="checkbox"/>

Using the grid on the following page, draw a map on the following page of the route the library will follow from the receiving dock to the installation site. Note any potential obstacles such as steps, ramps, carpet, thresholds, elevator size and weight ratings, raised floor weight ratings, and rough surfaces. Confirm the installation site selection is appropriate for the size and weight of the library.



Unusual Conditions

Note any unusual or detrimental conditions that exist at the installation site.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Contingency Plans

Note the question number and the contingency plan for each item in the survey for which you answered "No" (site not ready).

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

Site Status

This site has satisfied the survey requirements and is ready to receive a library.



There are [] open items before the requirements of this survey are satisfied.



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