Quantum PX720 Unpacking and Installation Instructions

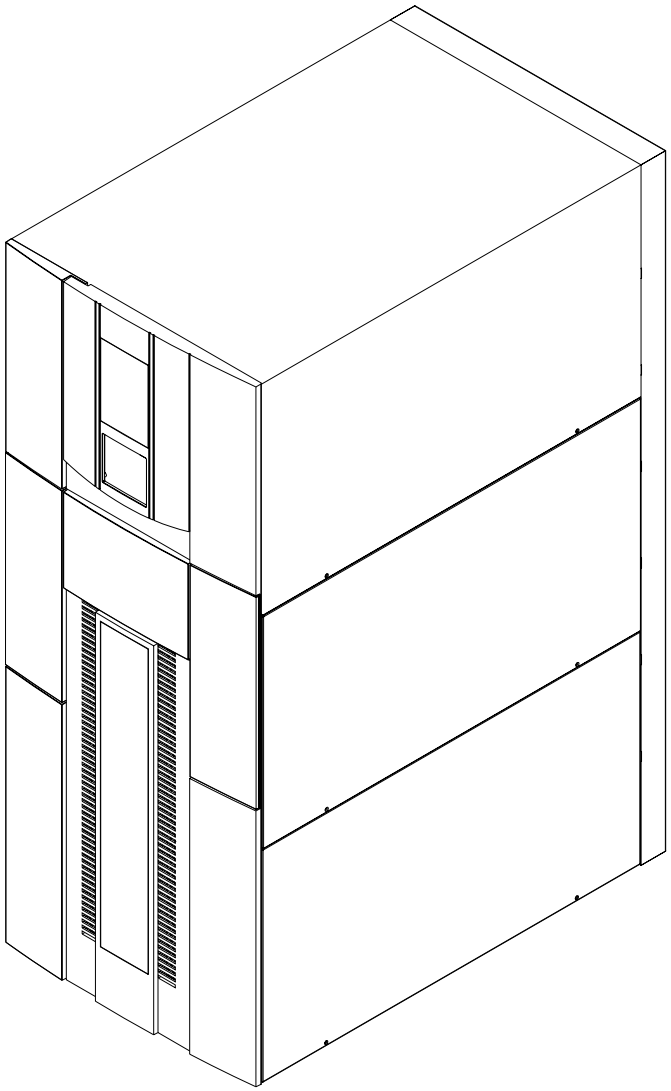
Introduction

The Quantum PX720 is an automated storage and retrieval library consisting of up to 20 tape drives and up to 642 SDLT or 726 LTO tape cartridges bins (figure 1).

This document explains how to unpack the Quantum PX720. Once the library is unpacked and moved to the desired installation location, set up the library using the instructions in the *Quantum PX720 Series User's Guide*.

Caution: Do NOT unpack the Quantum PX720 unless you are a qualified Quantum field service engineer.

Figure 1 Quantum PX720 Library



Selecting an Installation Location

When choosing an installation site for the PX720, consider the following requirements:

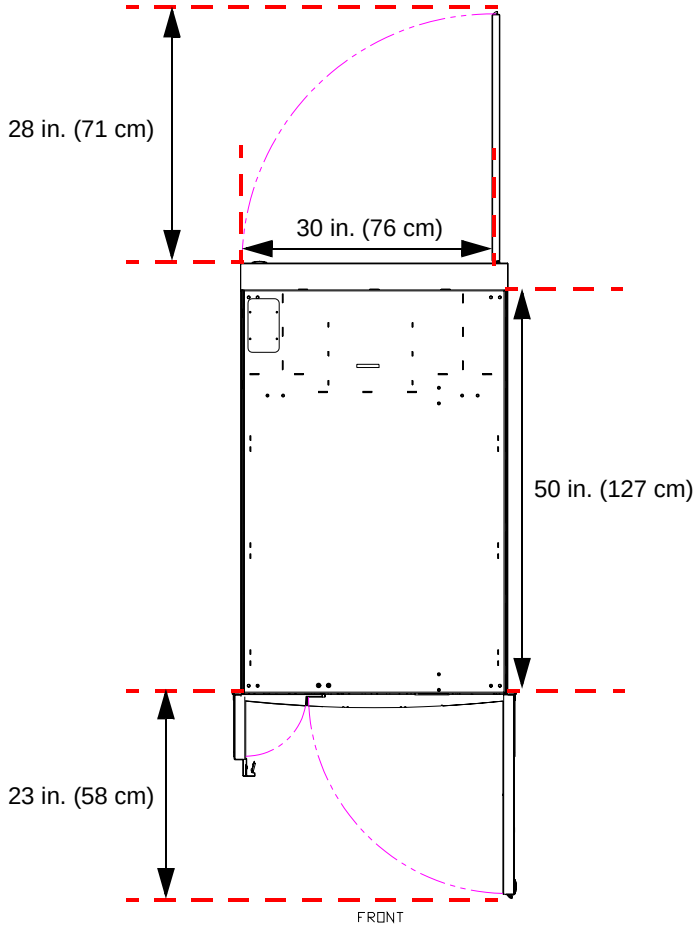
- Floor space
- Floor clearance
- Floor strength and inclination
- Power and grounding
- Environmental conditions

These requirements are also described in the *Quantum PX720 Series User's Guide*.

Floor Space

Figure 2 shows the minimum floor space required by the Quantum PX720.

Figure 2 Floor Space Requirements



Floor Clearance

The library has a floor clearance of 0.75 inch (19 mm). Place the library on a level, uncarpeted floor free of defects.

Floor Strength and Inclination

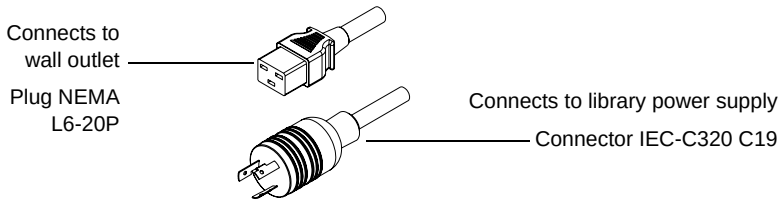
The floor at the installation site must be rated at 250 lb/ft^2 (1221 kg/m^2). This is sufficient to support a fully loaded PX720 library.

The floor must be level to within 0.25 inch (6.4 mm) over a 6-foot-by-6-foot (1.83-meter-by-1.83-meter) area.

Power and Grounding

For the United States and Canada, two UL/CSA certified power cords are furnished. Each uses a 14/3 SJT cord, a L6-20P plug, and an IEC-C320 C19 female connector (see figure 3).

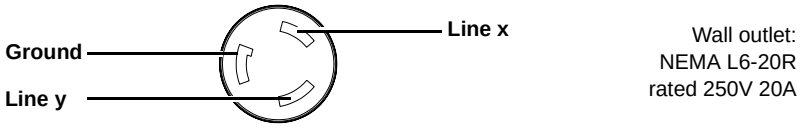
Figure 3 Power Supply Cord



The library is rated 200-240V~, 50-60Hz.

The library power requirements may require modification of the facilities existing power capabilities by a qualified electrician. The required wall outlet for the United States and Canada is rated at 250V 20A (see figure 4).

Figure 4 Wall Outlet



Two dedicated wall outlets and a 20 amp circuit breaker are required to provide power to the PX720 library. Outside North America, replace the supplied power cord with a harmonized 3 x 1.5 mm^2 power cord that is approved by the country where used, and install the appropriate wall outlet. More information on the electrical requirements is provided in the *Quantum PX720 Pre-Installation Site Survey Instructions.*

Caution: The PX720 library must be connected to a grounded electrical outlet.

Environmental Conditions

The installation site must have the following environmental conditions:

- Humidity: 20%-80% non-condensing
- Temperature: 15°C-32°C (59°F-90°F)
- Altitude: sea level to 3048 meters (10,000 feet)

These environmental conditions apply when the library is in operation.

> **Note:** For additional library specifications (including environmental requirements during shipping and storage), see appendix A in the *Quantum PX720 Series User's Guide*.

Preparing for the Installation

Before you begin the installation procedure in this section, make the following preparations as described in these sections:

- Providing necessary tools and equipment for installation
- Taking ESD precautions

Providing Necessary Tools and Equipment

Provide the following tools for unpacking the library:

- #2 PHILLIPS® screwdriver
- Snips for metal bands
- Safety goggles
- 3/8 open-ended wrench or socket
- 3/4 inch open-end wrench (included in accessory kit)
- 3/16 in. Allen® wrench
- 7/16 inch wrench or socket

Provide the following tools for leveling the library:

- Carpenter's level

Taking ESD Precautions

Some components within the PX720 library contain static-sensitive parts. To avoid damaging these parts while performing installation procedures, always 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 antistatic 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 antistatic mat.
- Avoid touching connectors and other components.

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

Unpacking the Library

This section explains how to unpack the library and move it to its final installation location. The PX720 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.

The following are the major steps in this procedure:

Receiving the Library

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

Warning: The Quantum PX720 with 20 tape drives weighs 1350 pounds (612 kg). Two people are required to move and install the library.

Unboxing the Library

To unbox the library:

1 Check the packing list and verify that all components have been received.

> **Note:** If any part is missing or damaged (look for scuffs on the antistatic bag), contact your authorized reseller.

2 Choose the unloading side. The PX720 may be unloaded from only the right side of the pallet.

3 Verify the minimum floor space requirements (see figure 5).

> **Note:** Uncrating the library requires a minimum of 3 feet (91 cm) on all sides. For the side being used for the ramp, uncrating the library requires an additional 7 feet (2.13 m) for a total of 10 feet (3.05 m) on that side. Figure 5 shows the minimum floor space required by the PX720 at its uncrating site. The minimum height required for unpacking the PX720 is 85 inches (2.16 meters). The crate occupies a footprint of 48 x 56 in. (122 x 142 cm).

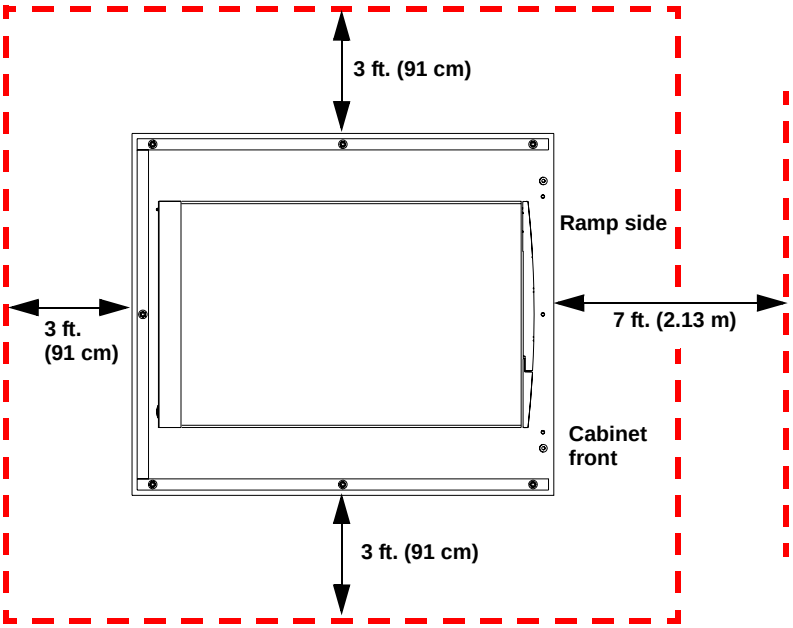
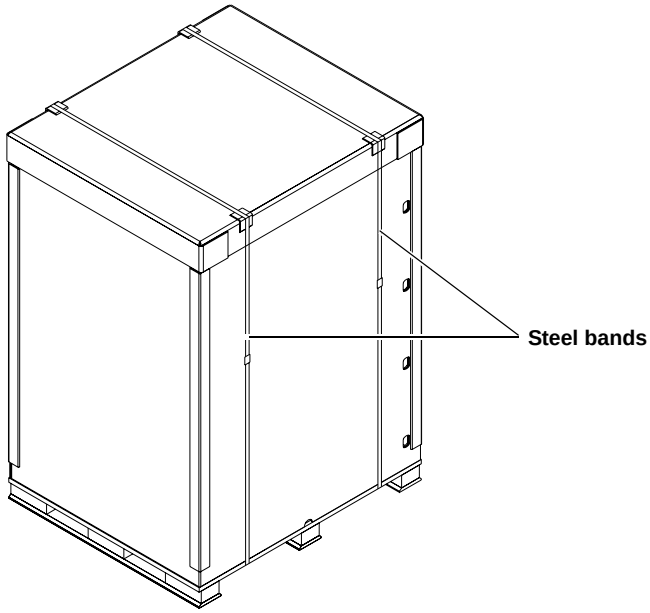


Figure 5 Minimum Floor Space Requirements—Uncrating Site

4 Cut the two steel bands that secure the library and packing material to the pallet (see figure 6).

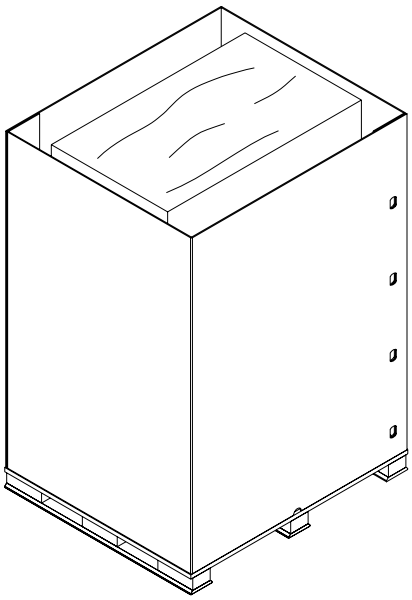
> **Warning:** The steel bands are under tension and will snap away when cut. Wear safety goggles when cutting the steel bands.

Figure 6 Removing the Steel Bands



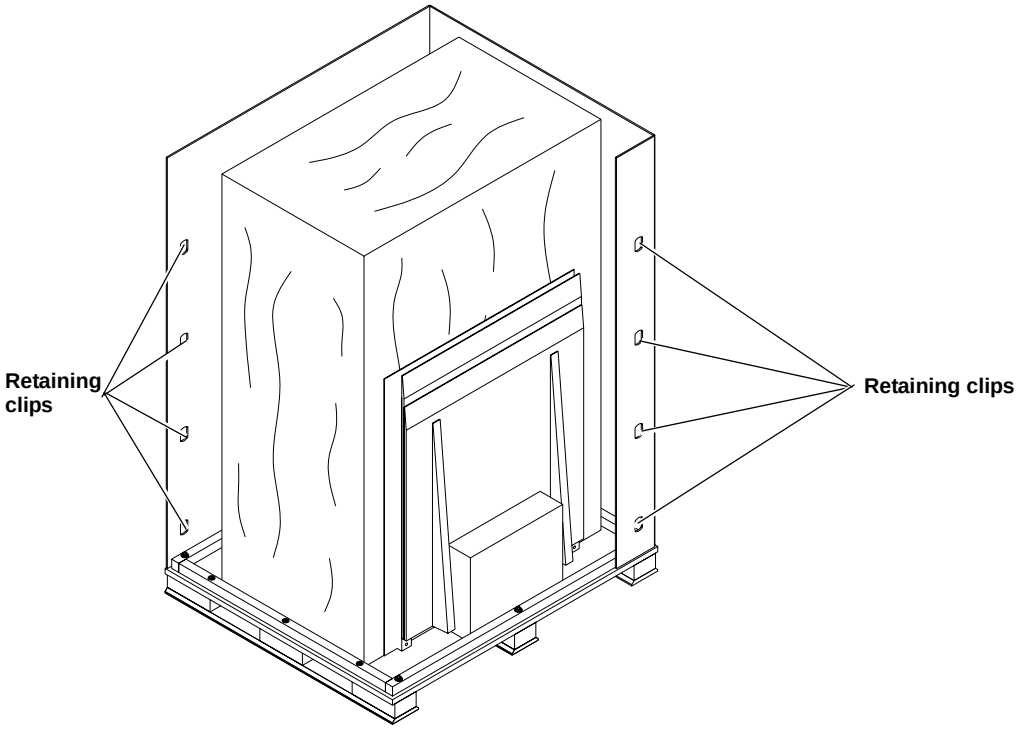
5 Lift the cardboard box top cover straight up and off of the pallet (see figure 7).

Figure 7 Removing the Box Top Cover



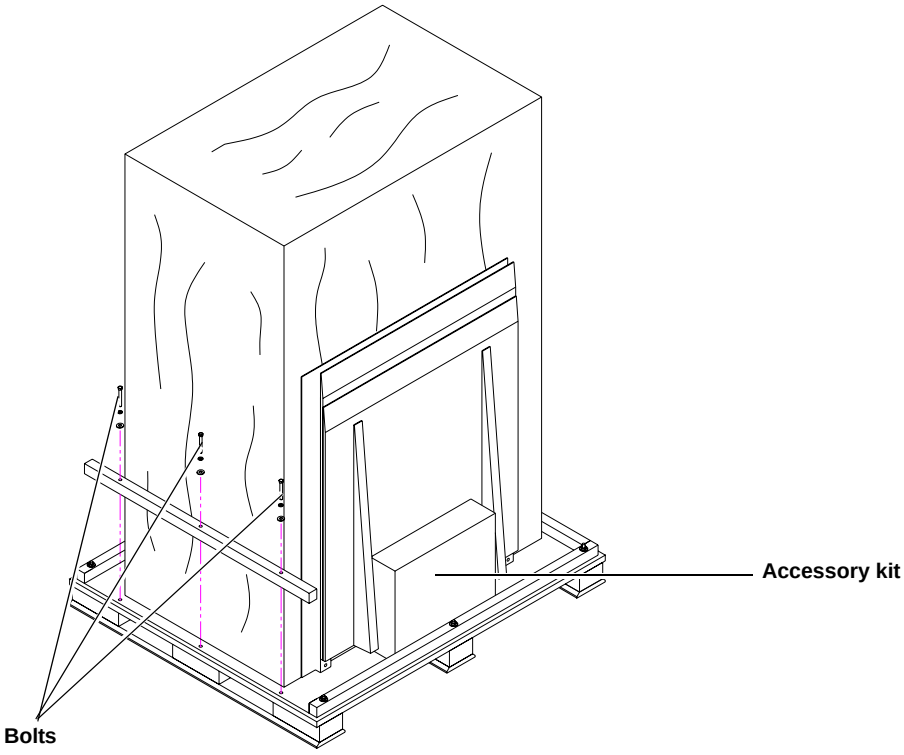
6 Remove the eight cardboard box retaining clips to their open position and unwrap the two pieces of the cardboard box from the library (see figure 8).

Figure 8 Removing the Cardboard Box



7 Remove the 3-3/8 in. hex head bolts, lock washers, and flat washers from the front rail of the pallet and set aside (see figure 9).

Figure 9 Removing the Front Pallet Rail



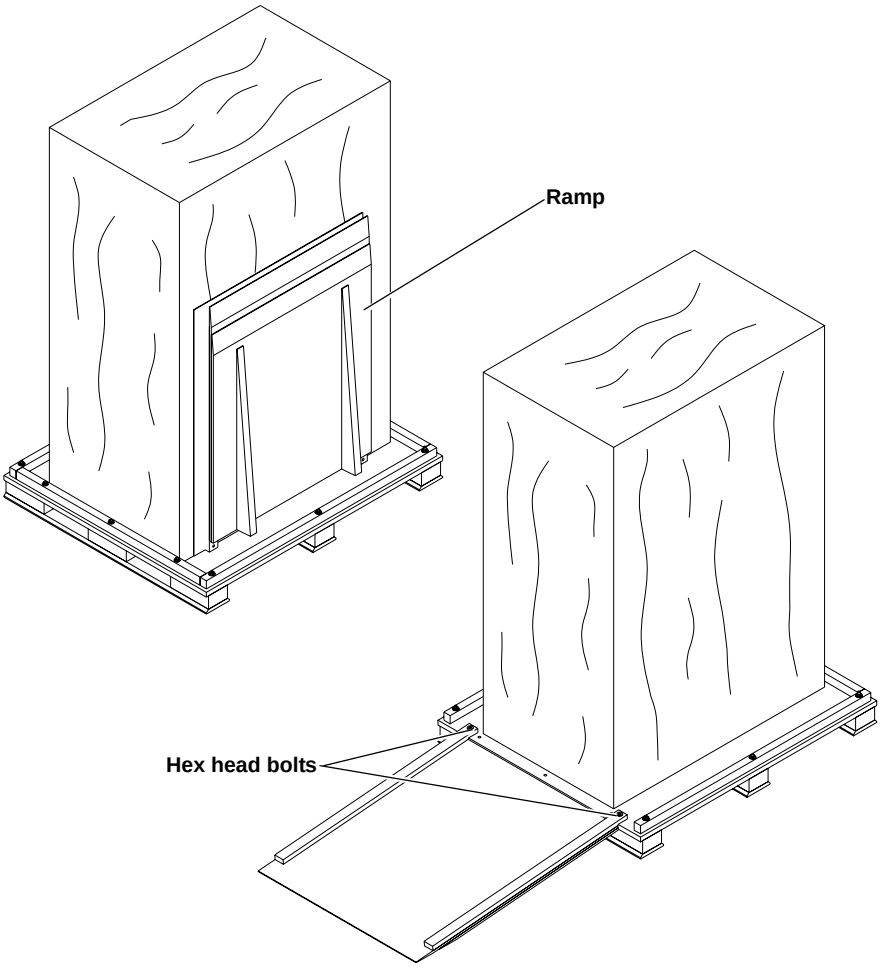
8 Remove the front rail from the pallet.

9 Remove the accessory kit from the pallet and place it at a location to be accessed later.

10 Cut the tape securing the ramp against the library.

11 Use two of the hex 3-3/8 in. hex head bolts, lock washers, and flat washers removed in step 7 to secure the ramp to the pallet (see figure 10).

Figure 10 Lowering the Ramp



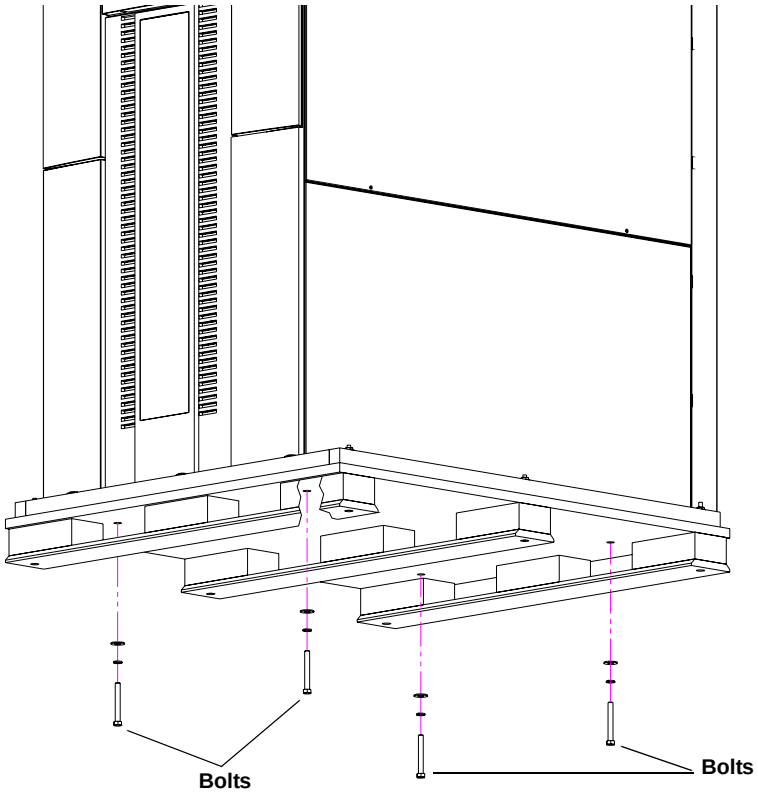
Positioning the Library

To position the library:

1 Map out a route to the installation site (see the *Quantum PX720 Pre-Installation Site Survey Instructions*).

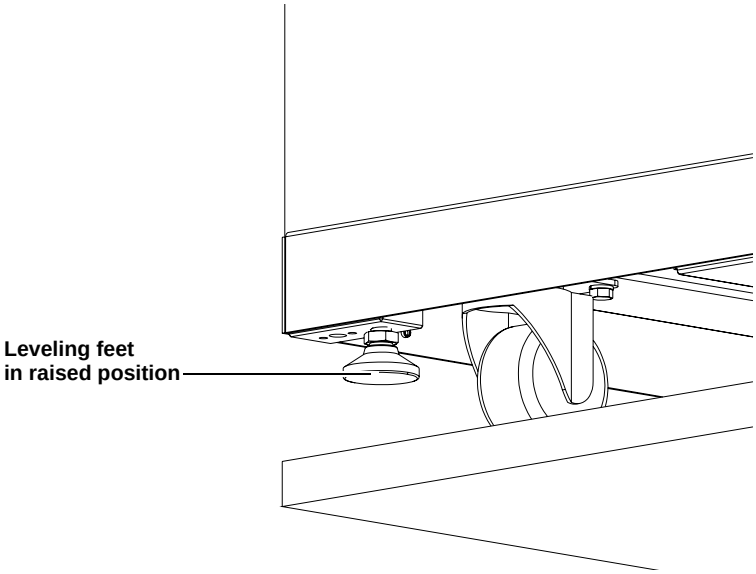
2 Remove the four restraining bolts securing the PX720 to the shipping pallet (see figure 11) using a 3/4 in open-end wrench.

Figure 11 Removing the Restraining Bolts



3 Raise the leveling feet (see figure 12).

Figure 12 Raising the Leveling Feet

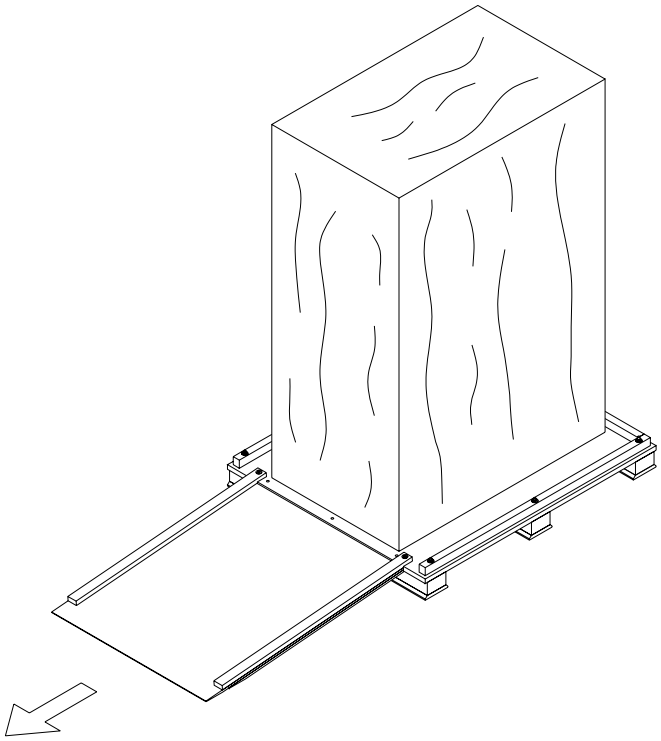


4 Inspect the library for any damage that may have occurred during shipment.

5 Carefully roll the library down the ramp (see figure 13).

Warning: The Quantum PX720 with 20 tape drives weighs 1350 pounds (612 kg). Two people are required to move and install the library.

Figure 13 Rolling the Library Down the Ramp



6 Guide the library to its final installation site.

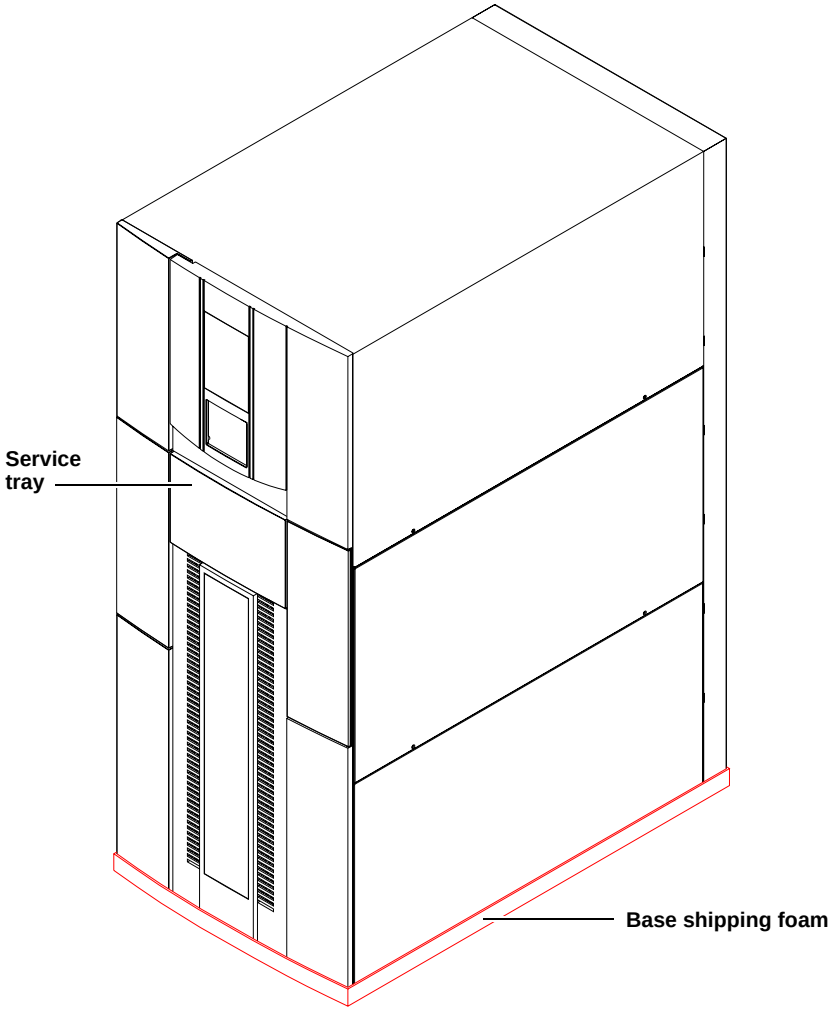
7 After the library is in its final position, remove the antistatic bag covering the library.

Unpacking the Library

To unpack the library:

1 Remove the base shipping foam covering the bottom edge of the library (see figure 14).

Figure 14 Removing the Base Shipping Foam



2 Unlock and open the library doors (front and back):

Note:	The front door lock is located behind the service tray.

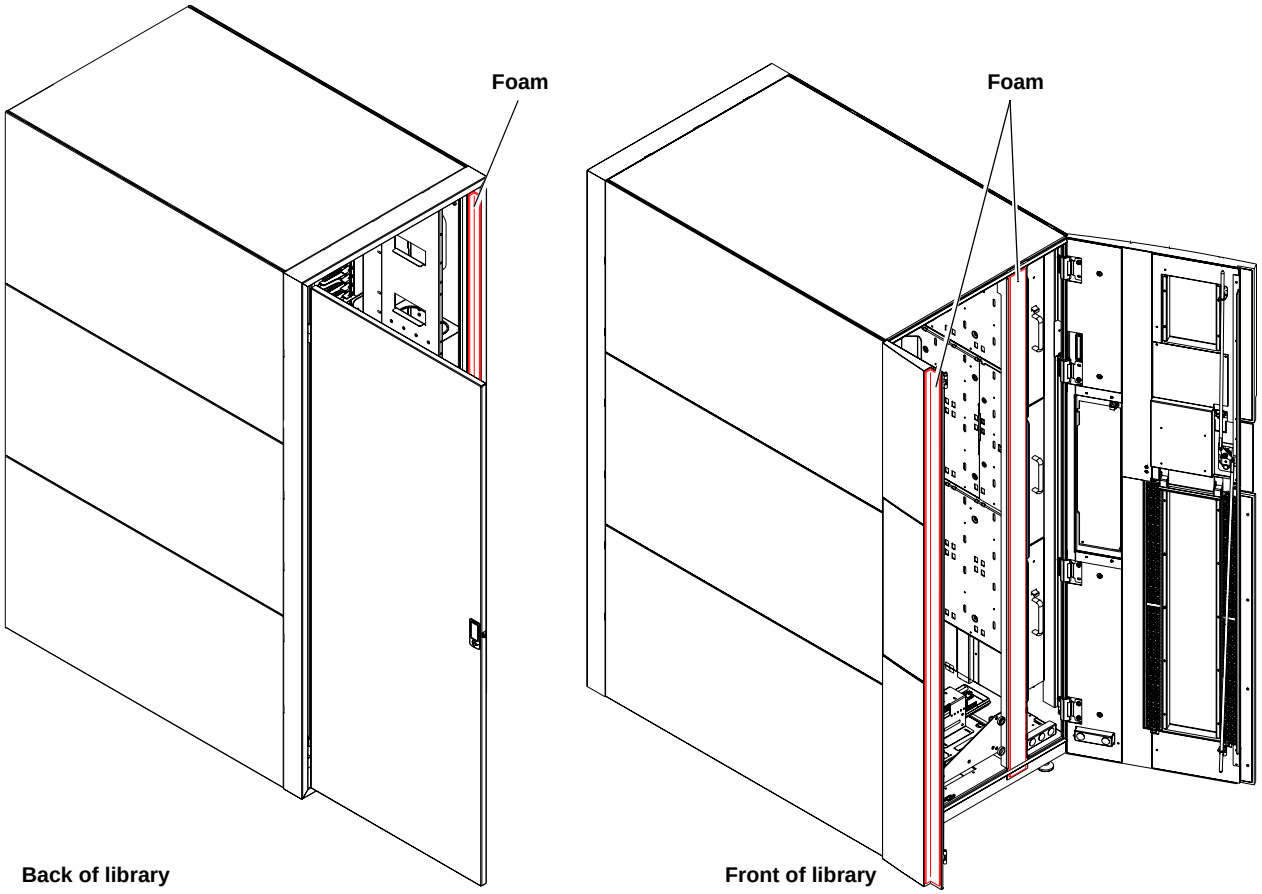
a Using the key from the accessories kit, unlock each door.

b Lift each door handle straight up and then turn the handle to unlatch each door.

c Gently pull on each door handle to open the door.

3 From the front of the library, remove the foam from the Y-axis cover plate, from the left front door, and also from the back door frame and discard (see figure 15).

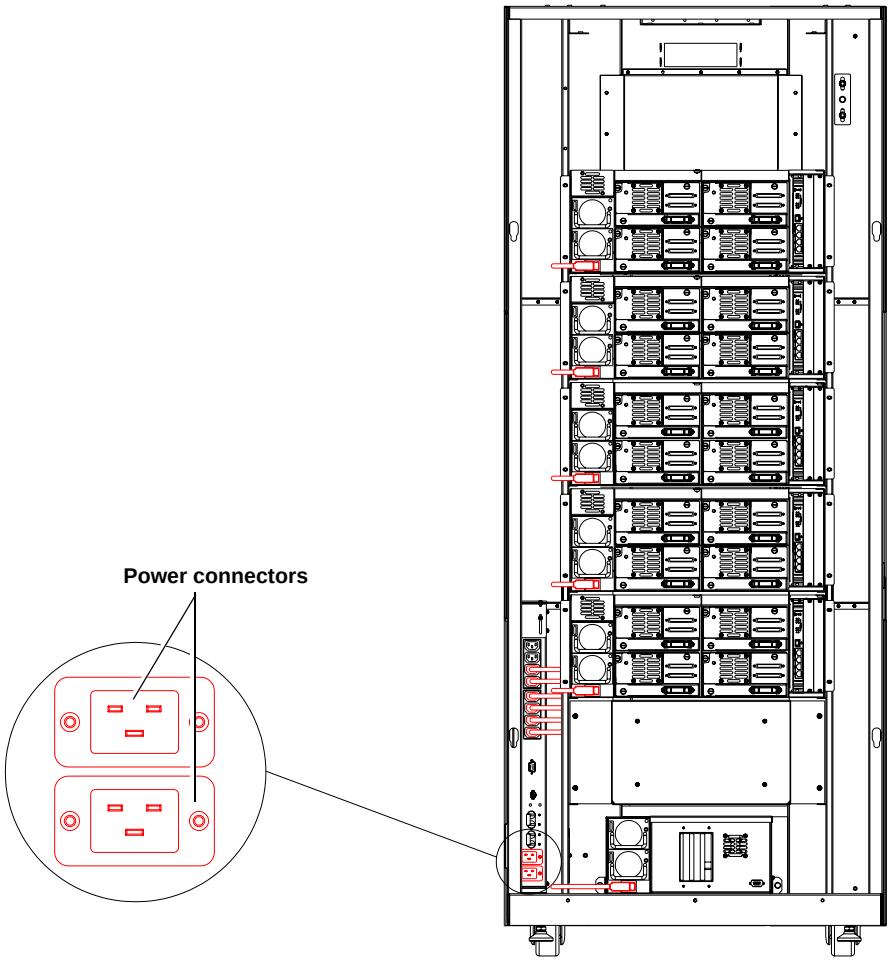
Figure 15 Removing the Shipping Foam



4 Using the power cables from the accessory kit, connect the library to a grounded power source (see figure 16).

Note:	Do not turn on the library.

Figure 16 Library Power Connections



5 Remove the internal library frame restraints by (see figure 17):

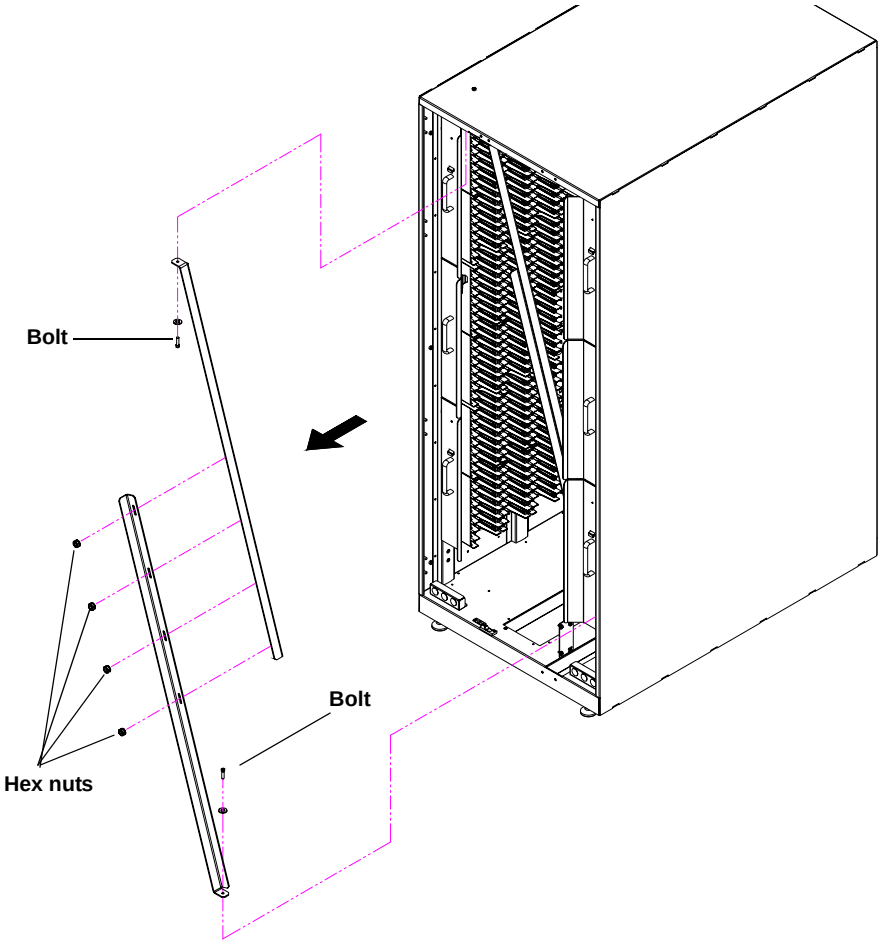
a Removing four 1/4 in. hex nuts securing the two pieces of the restraint with a 7/16 in. wrench or socket.

b Removing the two Allen head screws securing the restraint to the top and bottom of the library frame with a 3/16 in. Allen wrench.

c Collapse the internal frame restraints and store with the shipping materials (see Storing the Shipping Materials on page 22).

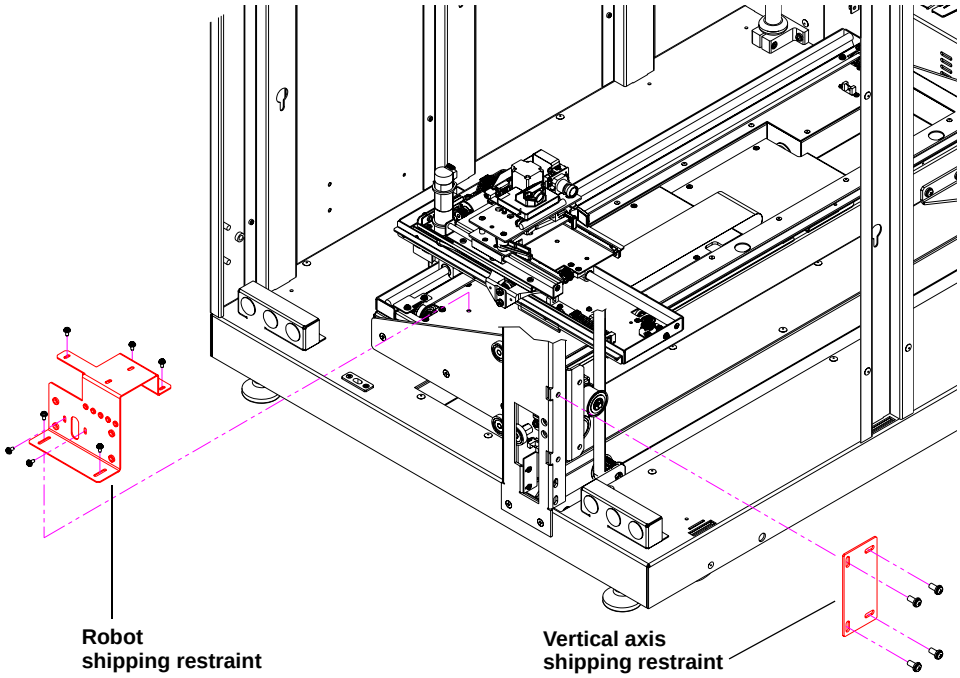
Note: Do NOT discard the internal frame restraints or other shipping materials. These materials may be needed to ship the library at a later time.

Figure 17 Removing the Internal Library Frame Restraint



6 From the front of the library, remove the two shipping restraints (vertical has 4 screws and robot has 7 screws) securing the robot with a PHILLIPS screwdriver (see figure 18).

Figure 18 Removing the Robot Shipping Restraints

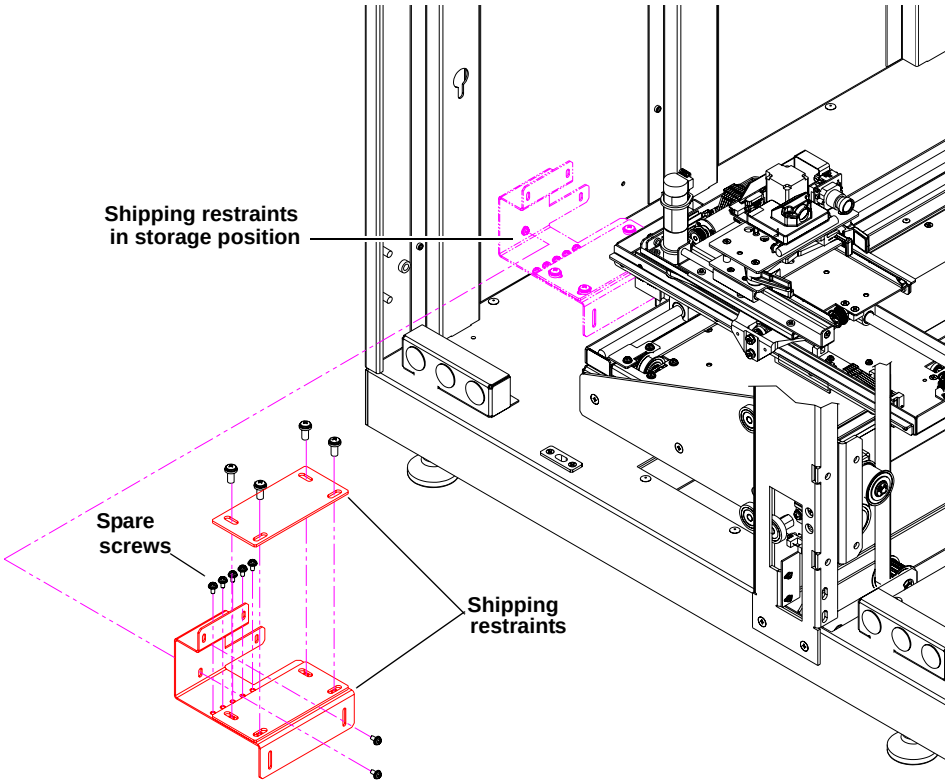


7 Use the screws removed in step 6, to attach the vertical axis shipping restraint to the robot shipping restraint (see figure 19).

8 Store the five spare screws in the robot shipping restraint as shown in figure 19.

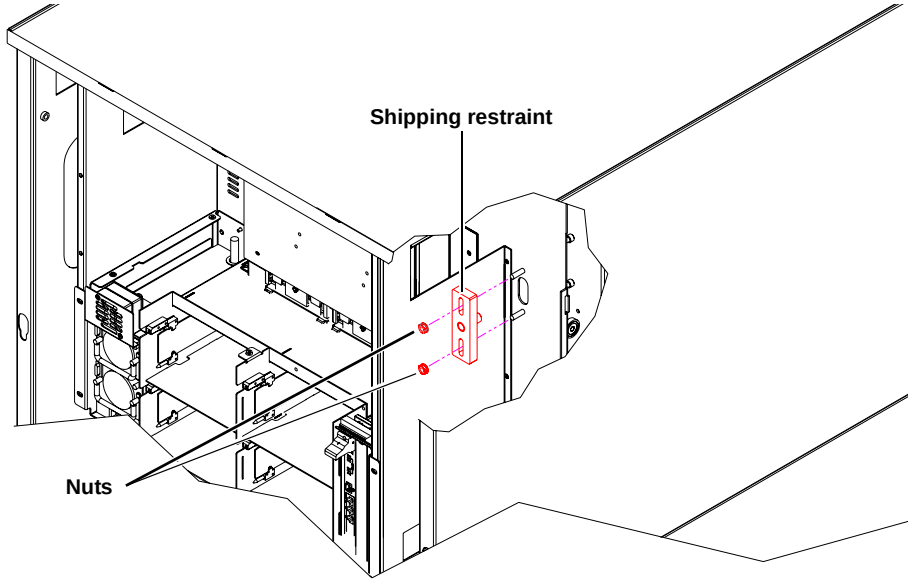
9 Using the remaining two screws, secure the shipping restraints in the library as shown in figure 19.

Figure 19 Storing the Shipping Restraints



10 From the back of the library, remove the two nuts securing the counter weight shipping restraint to the back wall with a 7/16 inch wrench (see figure 20).

Figure 20 Removing the Counter Weight Shipping Restraint



11 Reverse the counter weight shipping restraint and reinstall on the back wall of the library using the two nuts previously removed in step 10 (see figure 21).

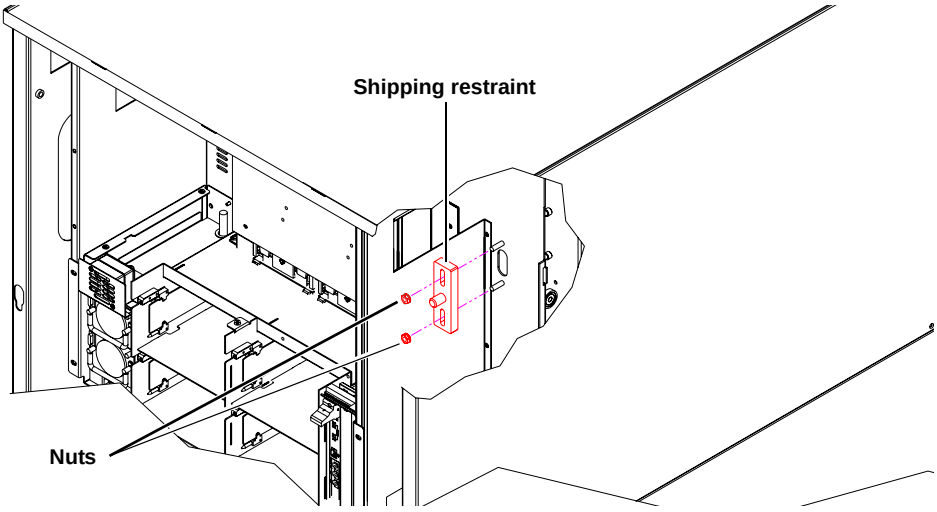


Figure 21 Storing the Counter Weight Shipping Restraint

12 Remove the six panel shipping restraints (three on each side) with a 7/16 in. wrench or socket (see figure 22).

Note: To access the lower panel restraints, you must manually trip the load port latching mechanism to release the load port. The load port latching mechanism is located between the load port and the outer skin of the panel (see below). Using the tip of a screw driver, lift the latch up to release the load port.

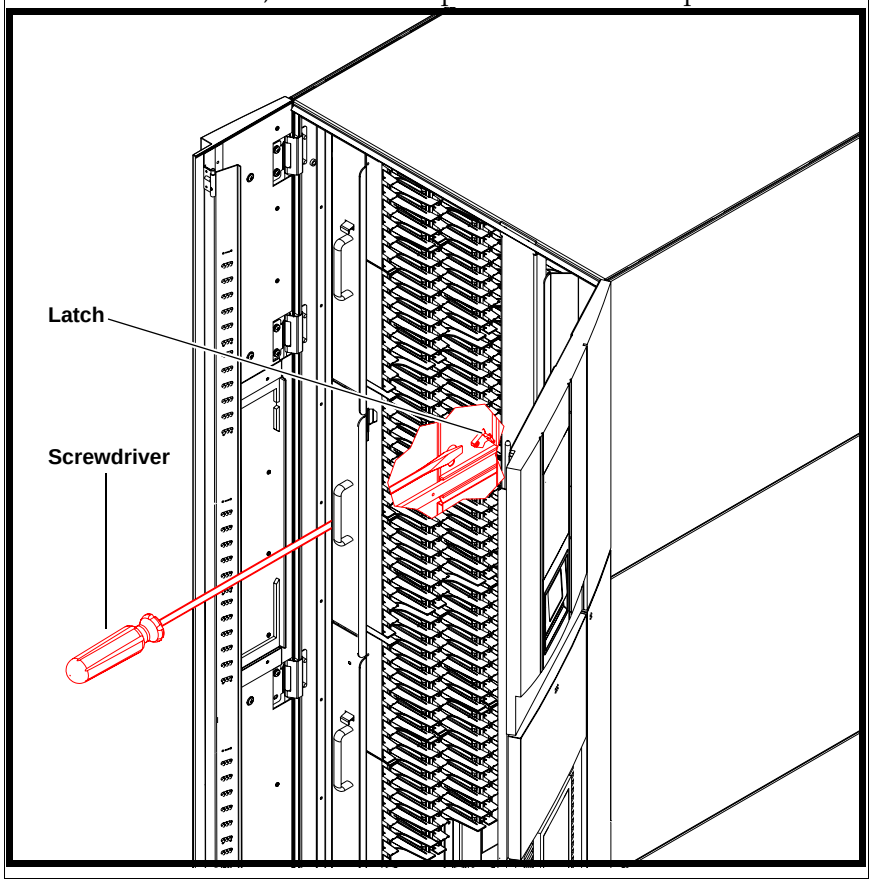
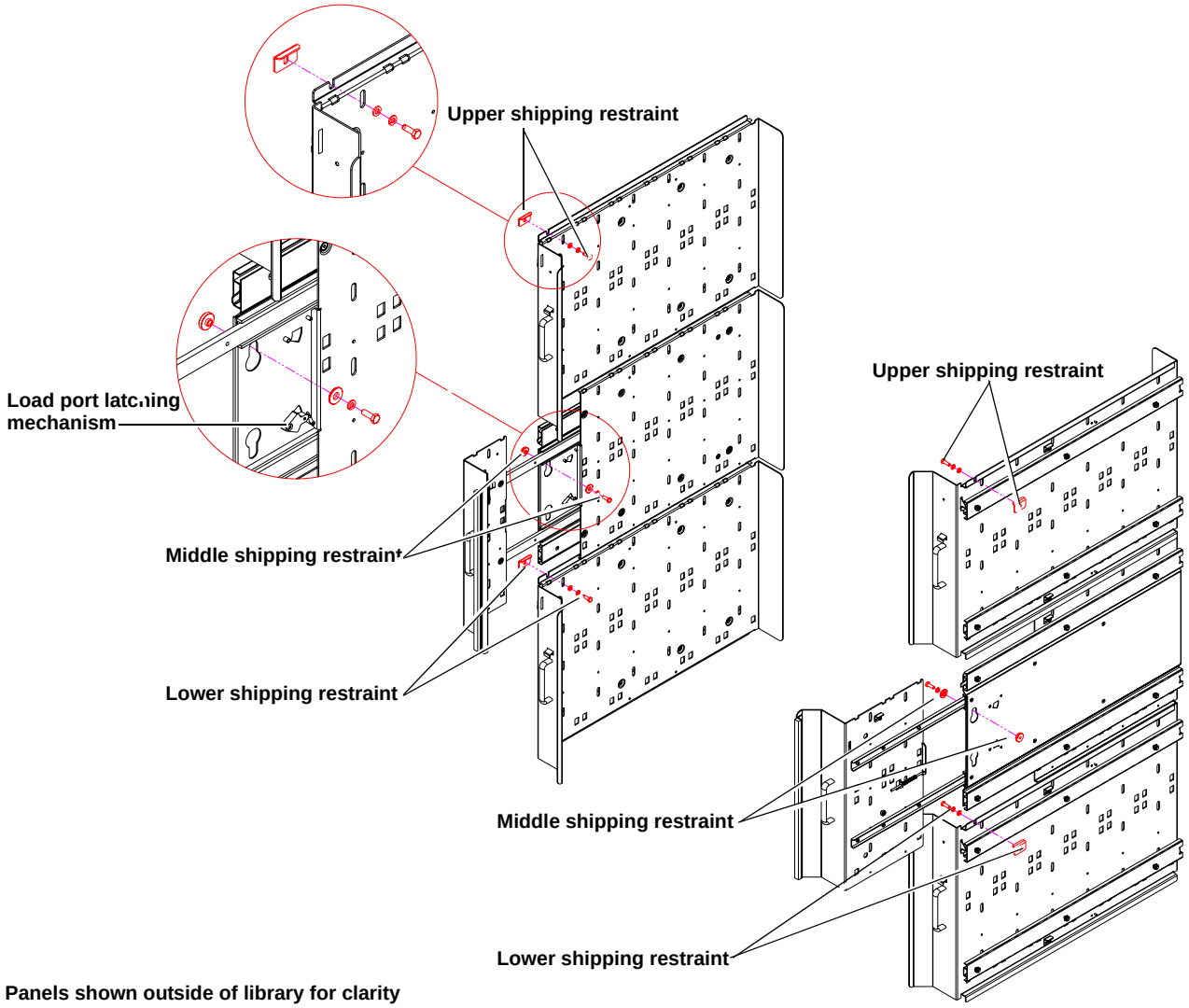
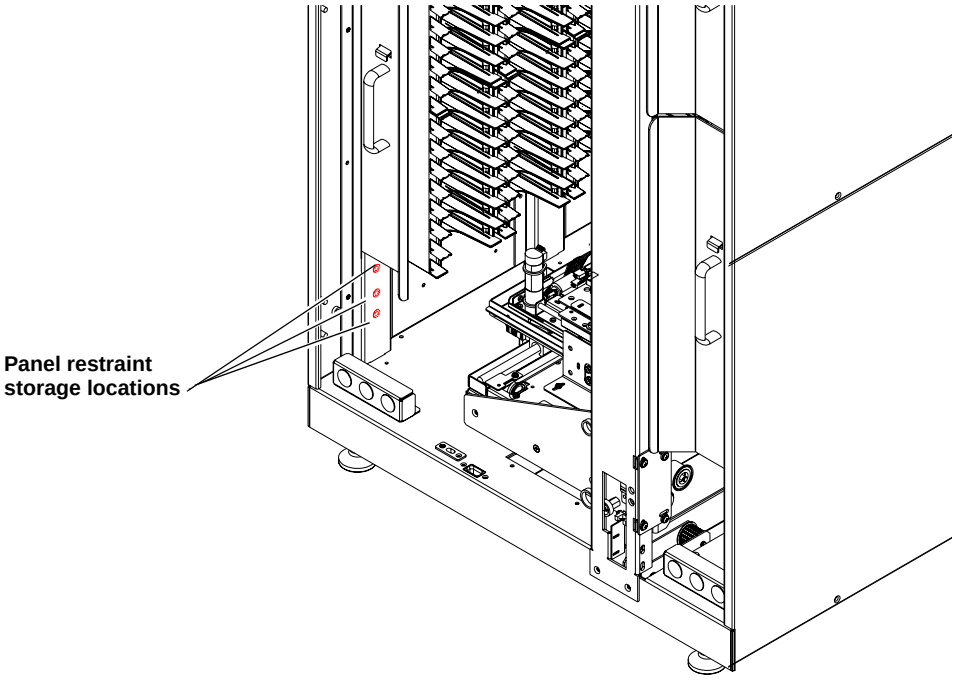


Figure 22 Removing the Panel Shipping Restraints



13 Store the panel shipping restraint hardware (three sets on each side) on the lower cabinet frame as shown in figure 23.

Figure 23 Panel Shipping Restraints Storage Locations



Left storage position shown

Storing the Shipping Materials

To store the shipping and packaging materials for future use:

1. Detach the ramp and place on top of the pallet.
2. Fold the shipping bag.
3. Place the shipping bag, foam cap, screws, internal library frame restraint, and other packaging materials on the pallet.
4. Collapse the cardboard box.
5. Place the cardboard box on top of the packaging materials on the pallet.
6. Secure the pallet, packaging materials, and cardboard box for future use.

Leveling the Library

To level the library:

1. Rotate each foot of the library until it makes contact with the floor.
2. Rotate each foot an additional 1/4 turn with the open-end wrench 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 which side of the library is low.
   - **b** Adjust the leveling foot on the low side of the library by rotating the leveling foot with the open-end wrench.

5 Repeat step 4 until the front is level.

6 Repeat step 3 and step 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 step 3 and step 4 until all four top edges of the library are level.

The unpacking is complete.

Installing the Quantum PX720 Library

Installing the Quantum PX720 library consists of the following steps:

- Cabling the Quantum PX720
  - Connecting the Cluster Controller Ethernet Cables
  - Cabling a SCSI PX720 Library
  - Cabling a Fibre Channel PX720 Library
- Loading the Tape Cartridges
- Initial Configuration

Cabling the Quantum PX720

After the Quantum PX720 is in its final location, the tape drives and robotics controller must be connected to the backup host system(s). The cluster controllers must also be connected with Ethernet cables. The PX720 supports both SCSI and Fibre Channel host interfaces.

Refer to the appropriate section for your PX720 installation:

- Connecting the Cluster Controller Ethernet Cables
- Cabling a SCSI PX720 Library
- Cabling a Fibre Channel PX720 Library

Connecting the Cluster Controller Ethernet Cables

To connect the Cluster Controller Ethernet cables:

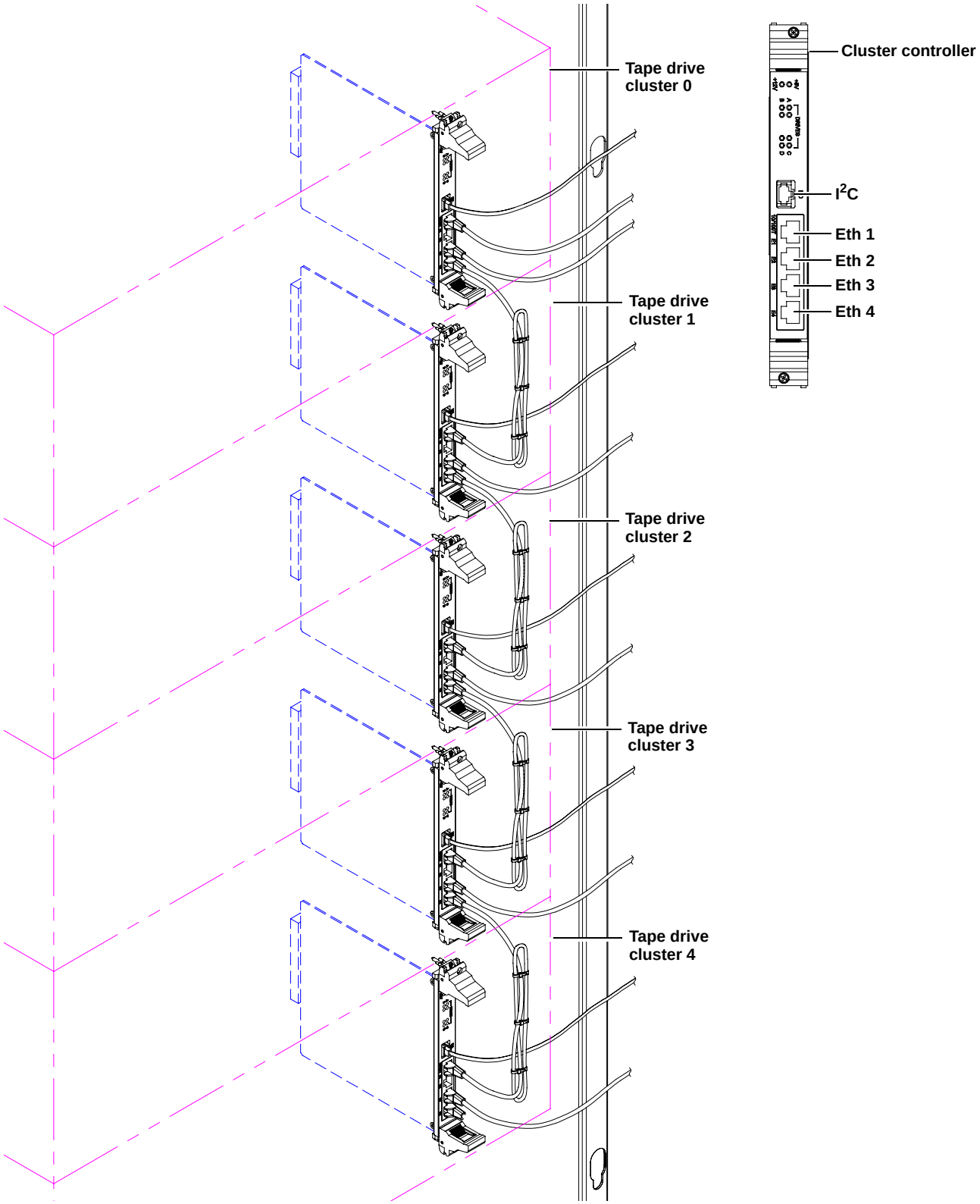
1 Open the back door of the Quantum PX720 to gain access to the tape drive cluster controllers (see figure 25 on page 26).

2 Refer to table 1 and figure 24 for the tape drive cluster Ethernet connections.

Table 1 Cluster Controller Ethernet Connections

Tape Drive Cluster	Cluster Controller Ethernet Connections
Tape Drive Cluster 0	Eth1 - to internal network from the cabinet controller
	Eth2 - not used
	Eth3 - to first FC470 if present
	Eth4 - to tape drive cluster 1; Eth1
Tape Drive Cluster 1	Eth1 - to tape drive cluster 0; Eth4
	Eth2 - not used
	Eth3 - to second FC470 if present
	Eth4 - to tape drive cluster 2; Eth1
Tape Drive Cluster 2	Eth1 - to tape drive cluster 1; Eth 4
	Eth2 - not used
	Eth3 - to third FC470 if present
	Eth4 - to tape drive cluster 3; Eth1
Tape Drive Cluster 3	Eth1 - to tape drive cluster 2; Eth4
	Eth2 - not used
	Eth3 - to fourth FC470 if present
	Eth4 - to tape drive cluster 4; Eth1
Tape Drive Cluster 4	Eth1 - to tape drive cluster 3; Eth4
	Eth2 - not used
	Eth3 - to fifth FC470 if present
	Eth4 - not used

Figure 24 Cluster Controller Ethernet Connections

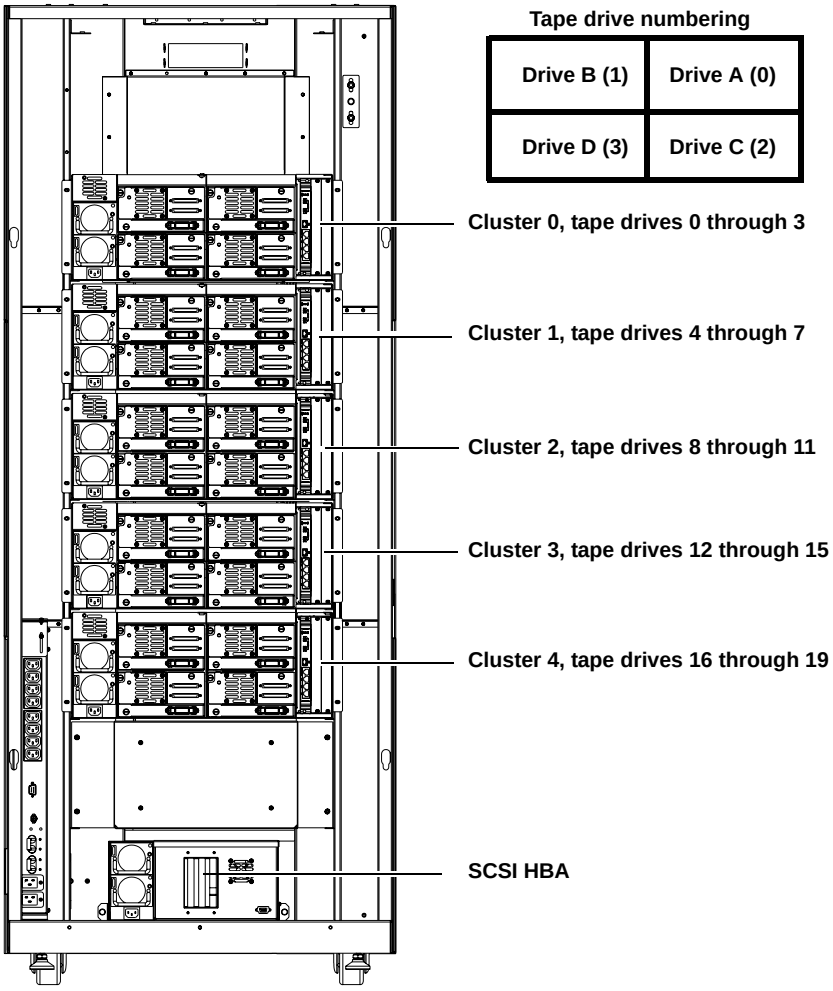


Cabling a SCSI PX720 Library

To cable a SCSI Quantum PX720:

1 Open the back door of the Quantum PX720 to gain access to the tape drives and robotics controller (see figure 25).

Figure 25 Tape Drives and Robotics Controller



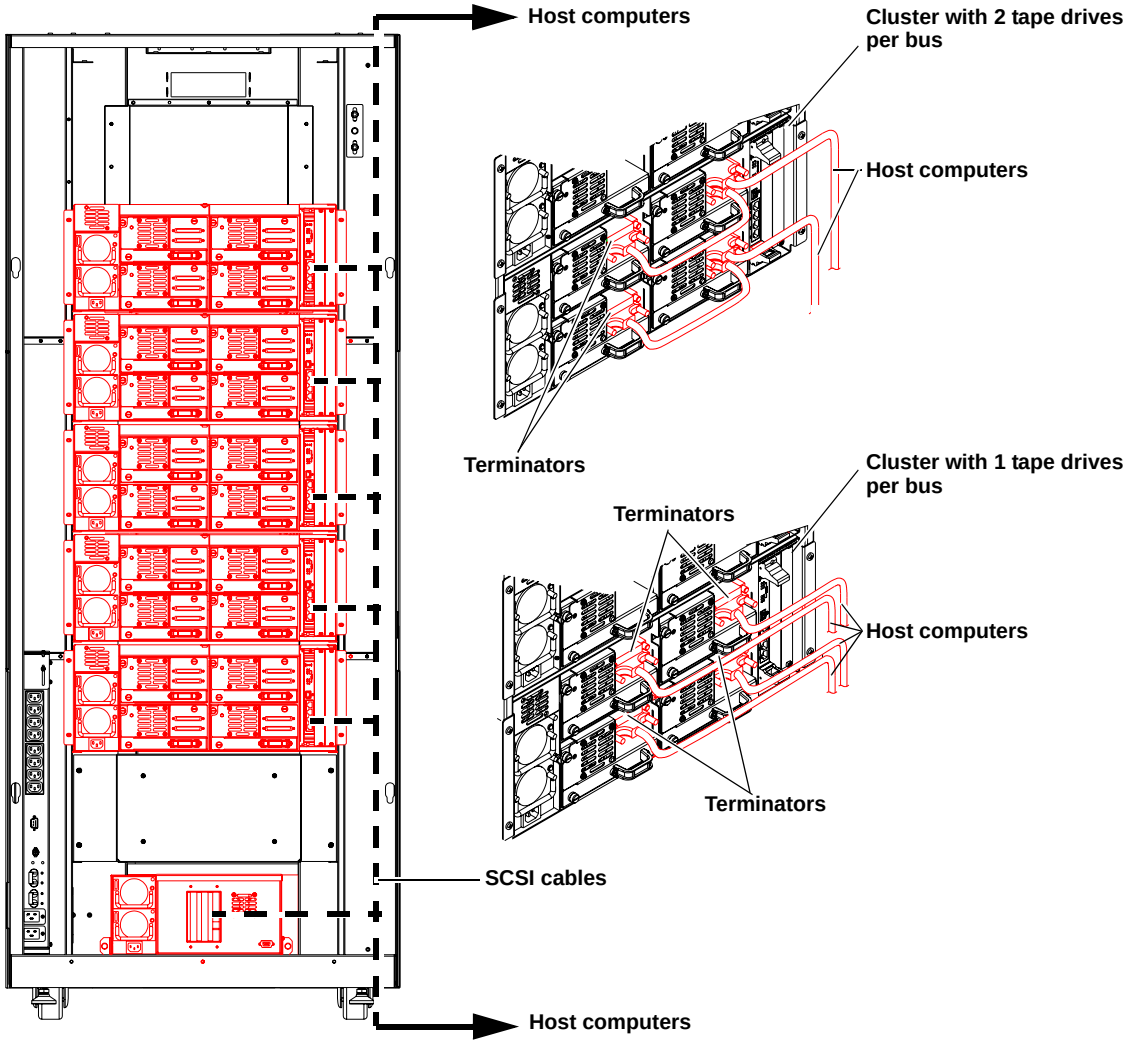
2 Route a SCSI cable up through the base of the library on the right-hand side and connect the host computer to the robotics controller (see figure 25).

> **Note:** It is also possible to connect the SCSI robotics controller along with the first drive in cluster 0.

3 Connect the host computers to the tape drives by routing SCSI cables up through the base of the library and along the right-hand side of the cabinet (see figure 26).

> **Tech Tip:** Start cabling with drive cluster 0 at the top of the library and work down.

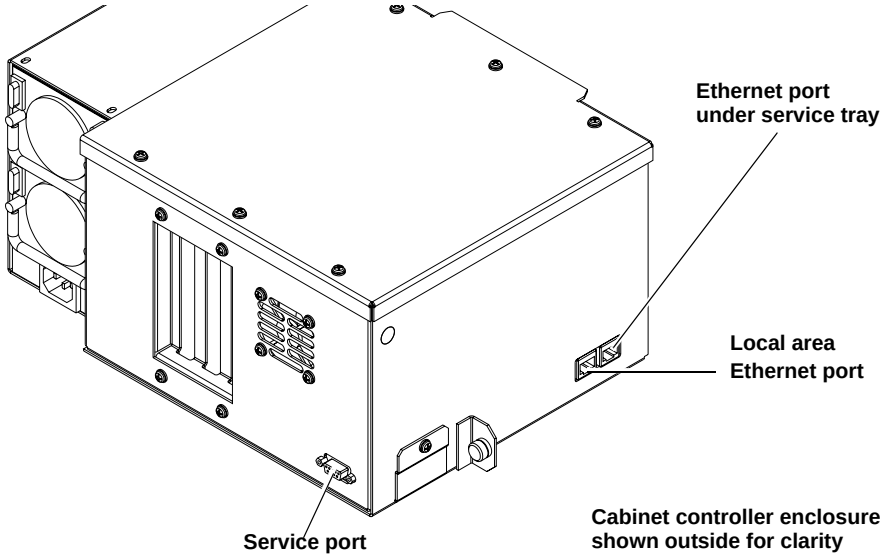
Figure 26 Connecting the Tape Drives



> **Note:** Make sure that all SCSI cables droop down slightly to ensure that the back door closes.

4 Route an Ethernet cable up through the base of the library and connect the front Ethernet port located on the right side of the cabinet controller to the local network (see figure 27).

Figure 27 Connecting the Library to the Local Area Network



5 Close the back door.

Cabling a Fibre Channel PX720 Library

Use the following procedure to connect the SCSI jumper cables, terminators, and Ethernet cables to the tape drive cluster(s) and FC470(s).

- SCSI connectors 0 through 3 on the first FC470 are used to connect to tape drives 0 through 3 and the library SCSI HBA.
- SCSI connectors 0 through 3 on the second FC470 are used to connect to tape drives 4 through 7, if present.
- SCSI connectors 0 through 3 on the third FC470 are used to connect tape drives 8 through 11.
- SCSI connectors 0 through 3 on the fourth FC470 are used to connect tape drives 12 through 15.
- SCSI connectors 0 through 3 on the fifth FC470 are used to connect tape drives 16 through 19.

Secure the SCSI cables from the FC470(s) to the card cage in the cable clamp located on the right-hand side of the card cage. After you have completed the SCSI connections from the FC470 bridges to the tape drives, close the back access door on the library.

To cable a FC470 bridge to the tape drive cluster(s):

1 To connect the SCSI cables from the FC470 to the tape drives, see table 2 and figure 28.

2 Route an Ethernet cable up through the base of the library and connect the front Ethernet port located on the right side of the cabinet controller to the local network (see figure 27).

3 Connect an Ethernet cable from each tape drive cluster (E3) to it's corresponding FC470.

4 The SCSI, Ethernet, and Fibre Channel cables must be routed and stacked in the right-hand clamps correctly so the back door will close. Route the cables down through the cable channel on the right-hand side of the library. Refer to figure 29 and figure 30 for cable diagrams illustrating the correct cable placement.

Caution: Use care when handling the fibre optic cables. Do not crimp or bend the cables.

Table 2 Cabling a FC470 Bridge to the Tape Drives

Tape Drive Connection	FC470 Connections/ Tape Drive Termination
Tape drive 0, upper port	Port 0 on first FC470
Tape drive 0, lower port	Library SCSI HBA
Tape drive 1, upper port	Port 1 on first FC470
Tape drive 1, lower port	Terminator
Tape drive 2, upper port	Port 2 on first FC470
Tape drive 2, lower port	Terminator
Tape drive 3, upper port	Port 3 on first FC470
Tape drive 3, lower port	Terminator
Tape drive 4, upper port	Port 0 on second FC470
Tape drive 4, lower port	Terminator
Tape drive 5, upper port	Port 1 on second FC470
Tape drive 5, lower port	Terminator
Tape drive 6, upper port	Port 2 on second FC470
Tape drive 6, lower port	Terminator
Tape drive 7, upper port	Port 3 on second FC470
Tape drive 7, lower port	Terminator
Tape drive 8, upper port	Port 0 on third FC470
Tape drive 8, lower port	Terminator
Tape drive 9, upper port	Port 1 on third FC470
Tape drive 9, lower port	Terminator

Tape Drive Connection	FC470 Connections/ Tape Drive Termination
Tape drive 10, upper port	Port 2 on third FC470
Tape drive 10, lower port	Terminator
Tape drive 11, upper port	Port 3 on third FC470
Tape drive 11, lower port	Terminator
Tape drive 12, upper port	Port 0 on fourth FC470
Tape drive 12, lower port	Terminator
Tape drive 13, upper port	Port 1 on fourth FC470
Tape drive 13, lower port	Terminator
Tape drive 14, upper port	Port 2 on fourth FC470
Tape drive 14, lower port	Terminator
Tape drive 15, upper port	Port 3 on fourth FC470
Tape drive 15, lower port	Terminator
Tape drive 16, upper port	Port 0 on fifth FC470
Tape drive 16, lower port	Terminator
Tape drive 17, upper port	Port 1 on fifth FC470
Tape drive 17, lower port	Terminator
Tape drive 18, upper port	Port 2 on fifth FC470
Tape drive 18, lower port	Terminator
Tape drive 19, upper port	Port 3 on fifth FC470
Tape drive 19, lower port	Terminator

Figure 28 PX720 Interconnect (20 drives)

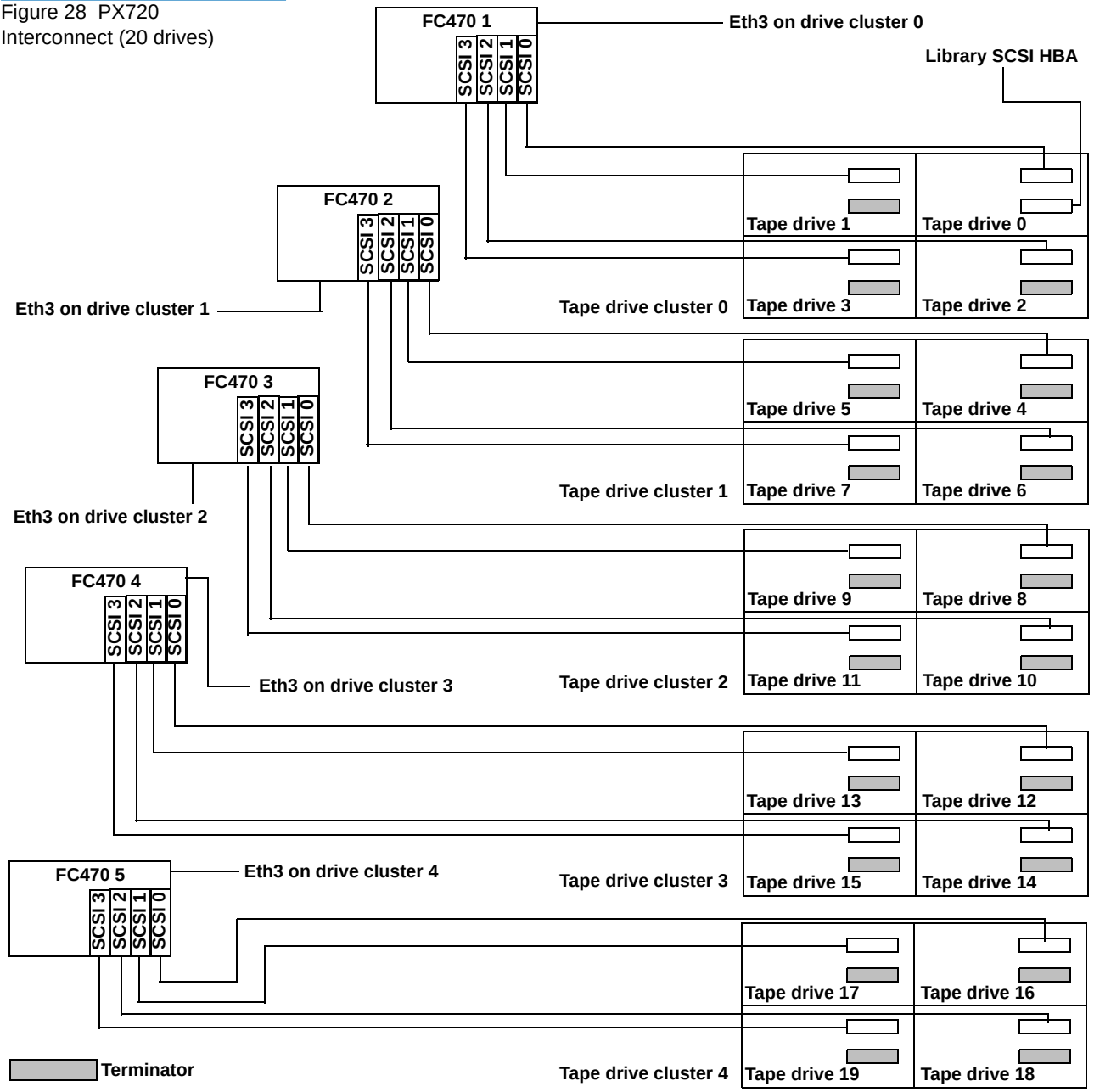


Figure 29 Securing the SCSI, Ethernet, and Fibre Channel Cables

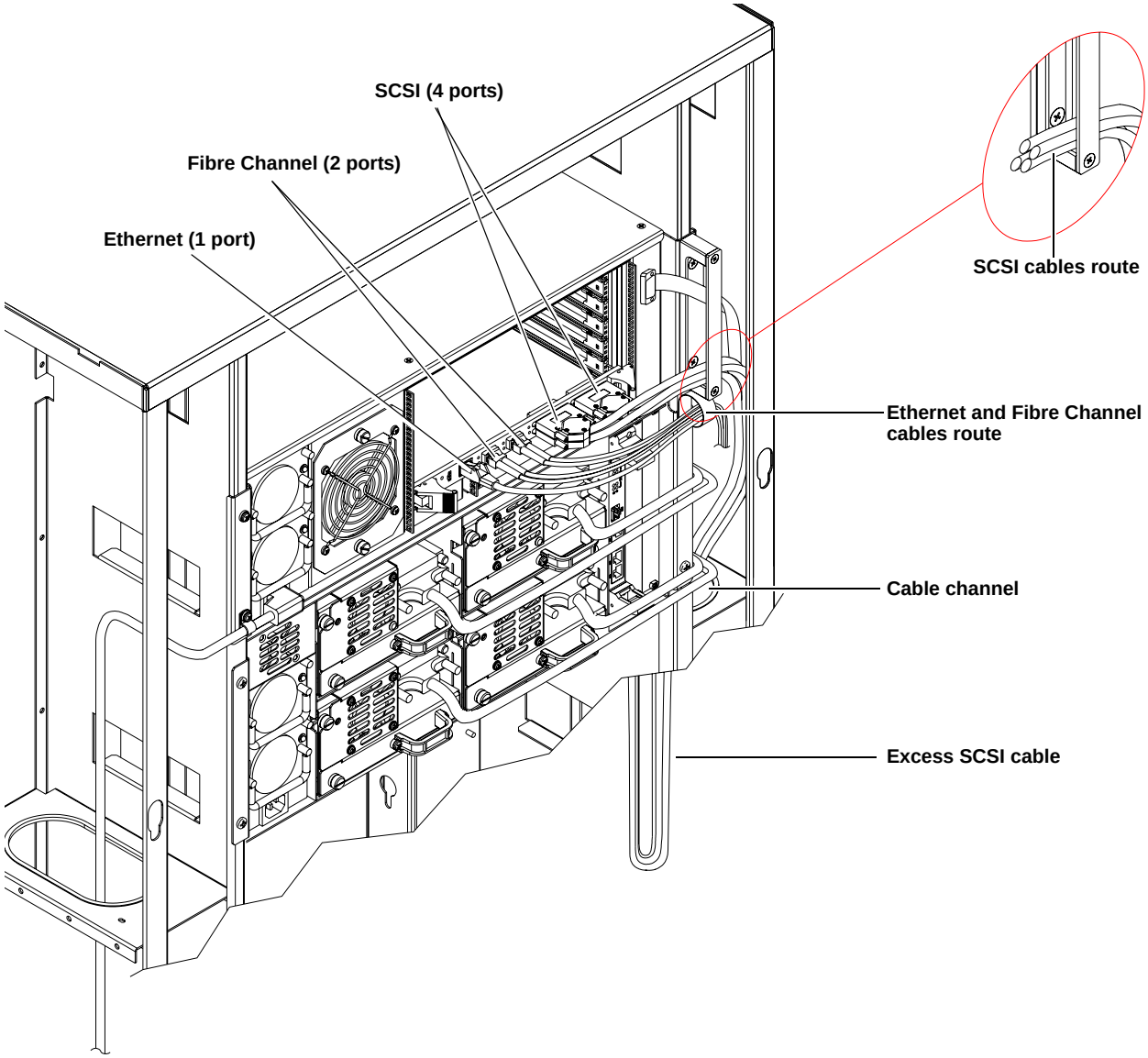
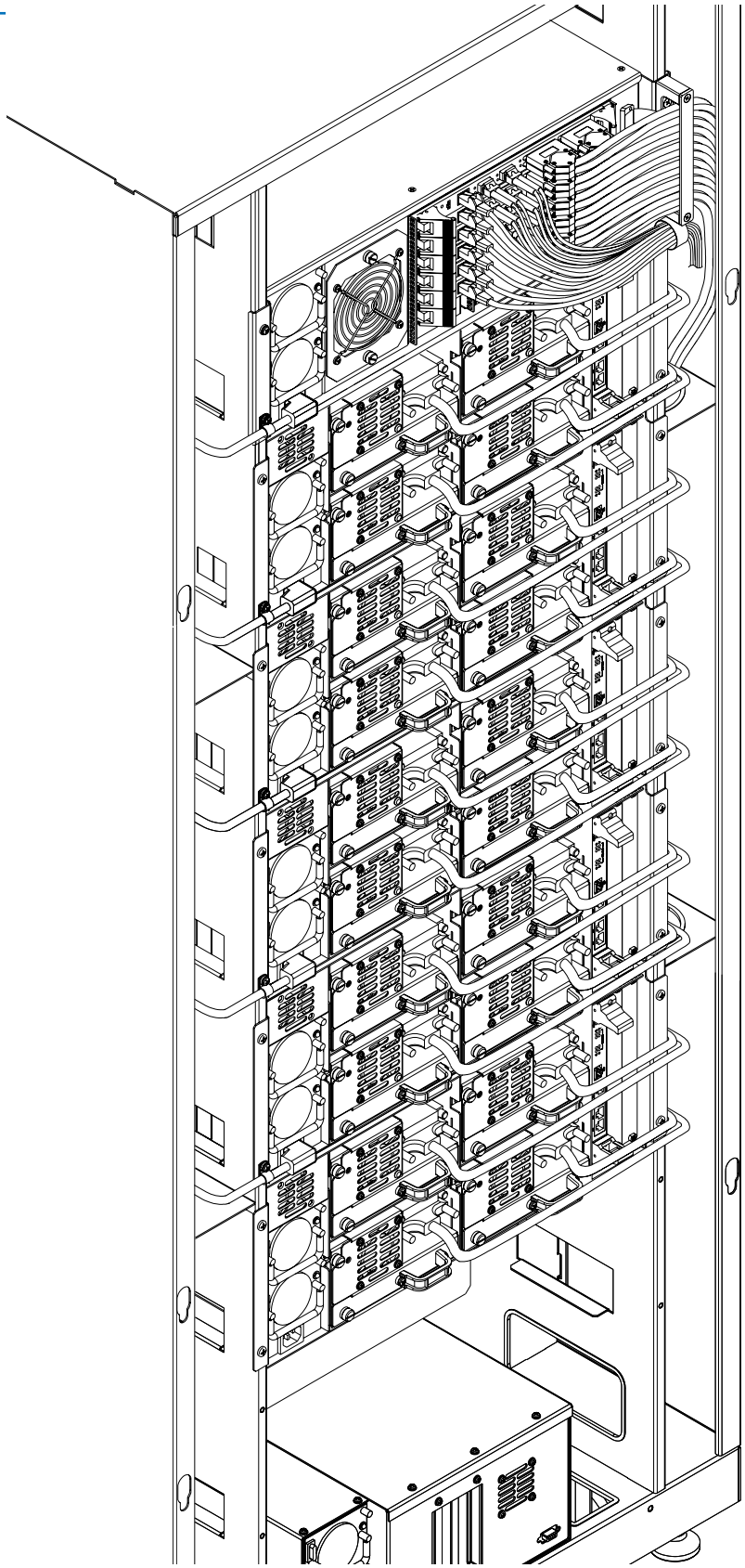


Figure 30 FC470 Cable Connections Maximum Drive Configuration



Refer to the *Quantum PX720 FC470 Upgrade Instructions* (PN 6444614) for instructions on configuring the FC470 Fibre Channel bridge.

Loading the Tape Cartridges

Before operating the library, load the appropriate tape cartridges (LTO or SDLT) into the library starting with the left-hand panels (refer to the *Quantum PX720 User's Guide* PN 6444601 for more information on tape cartridges).

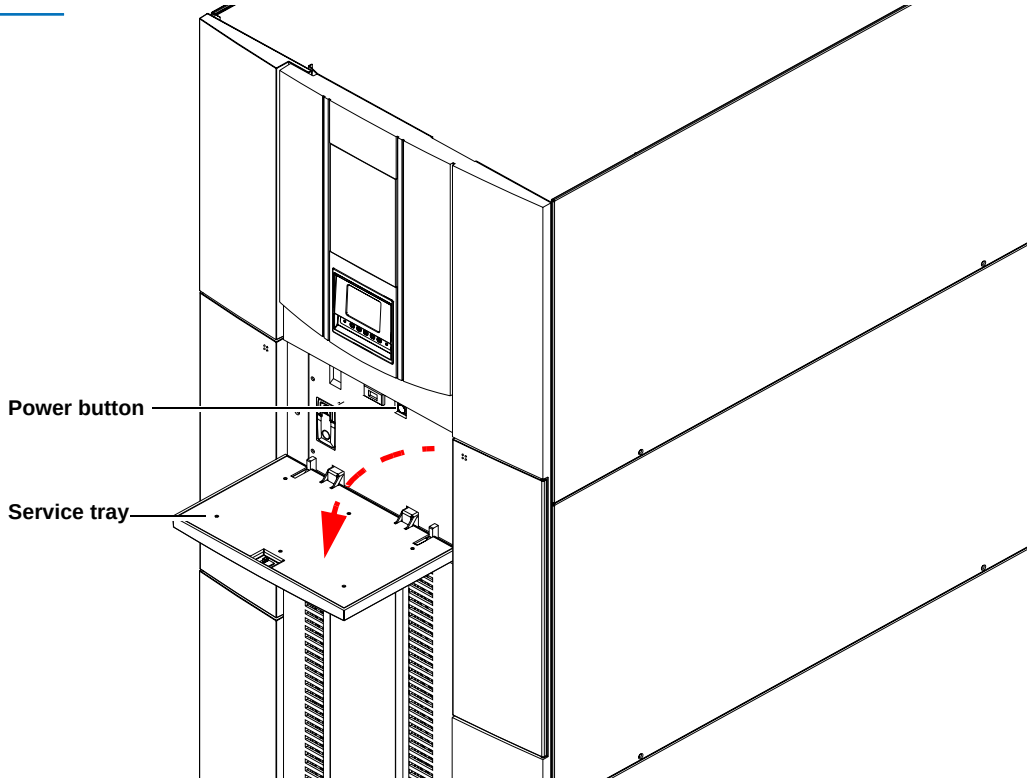
Initial Configuration

The Quantum PX720 must be initially configured with an IP address before the remote management software is available.

To configure the Quantum PX720 IP address:

1. Press on the top of the service tray to tip it down and press the power button to turn on the library (see figure 31).

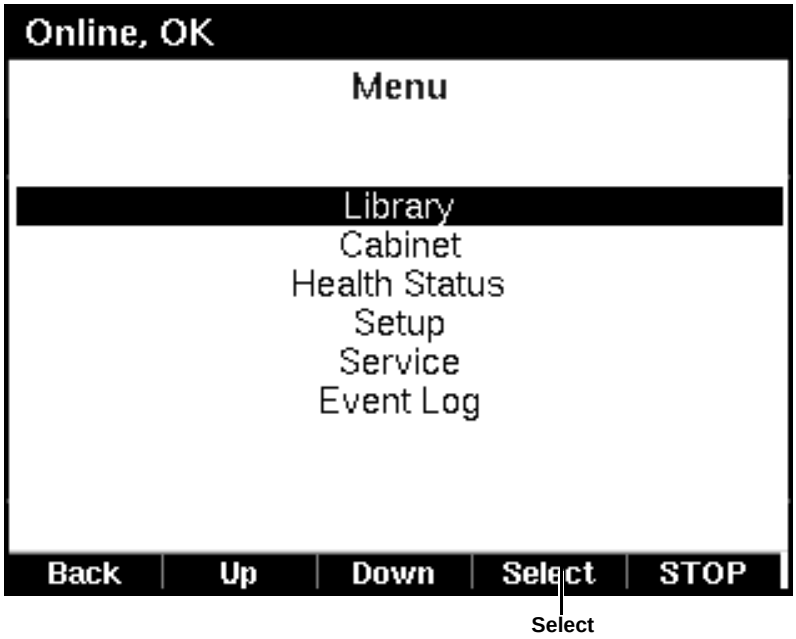
Figure 31 Turning on the Library



2. When the library completes the boot up sequence and the OCP is active, press **Menu** from the **Home** screen.

   The OCP displays the **Menu** screen (see figure 32):

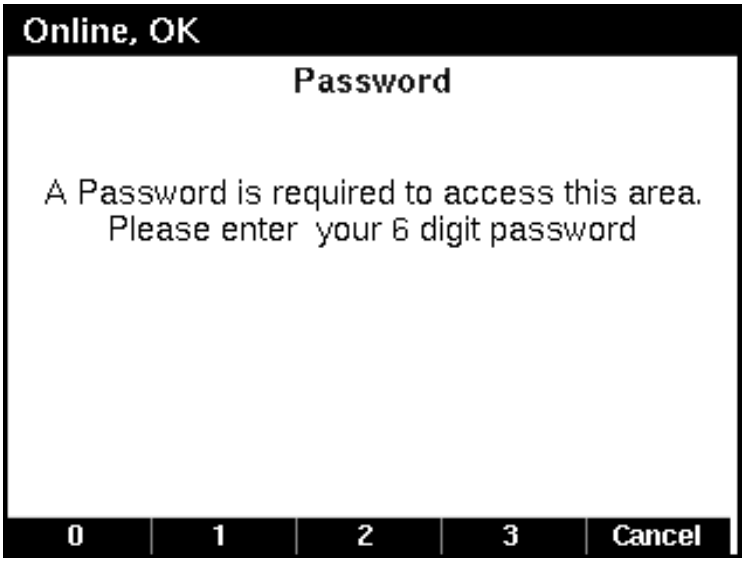
Figure 32 Menu Screen



3 From the **Menu** screen, use the up and down arrows to highlight **Setup** and press **Select**.

4 The library prompts you for your password (see figure 33).

Figure 33 Password Screen



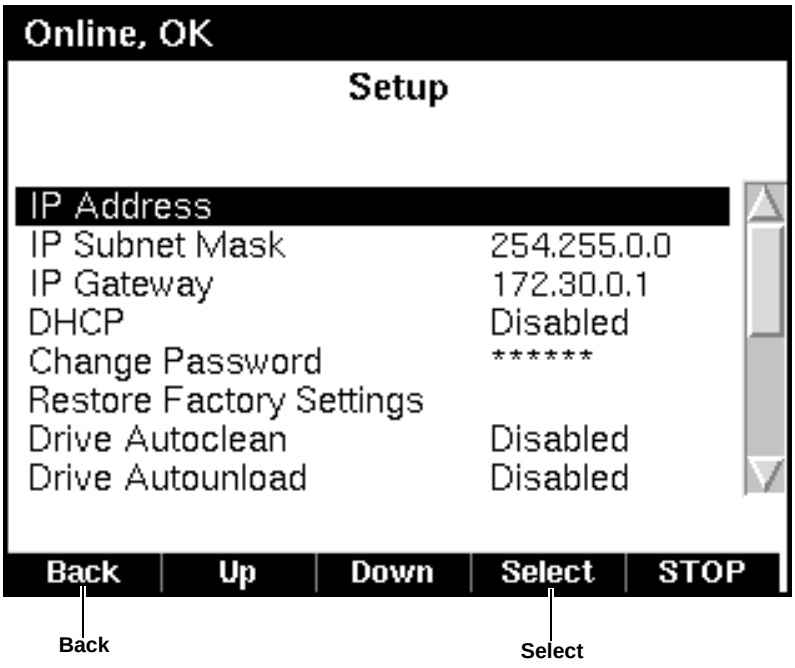
5 Enter the 6 digit password.

The password is accepted after the sixth digit is entered.

Note:	The default password is 001122.

The **Setup** screen displays (see figure 34):

Figure 34 Setup Screen



The **Setup** screen displays the following information:

- IP Address (requires cabinet reboot)
- IP Subnet Mask
- IP Gateway
- DHCP (default enabled)
- Change Password
- Restore Factory Settings
- Drive Autoclean
- Configured Drives
- Configured Slots
- Left Load Port (16)
- Right Load Port (32)
- Service Mode

6 To edit the setup information, use the up and down arrows to highlight the section and press **Select**.

- To set the IP address, subnet mask, and gateway, use the up and down arrows to select the appropriate number and press **Select** to accept.
- To enable/disable DHCP, use the up and down arrows to toggle between enable/disable. Press **Select** to accept the setting. If your library is not connected to a network which uses a DHCP server to assign IP addresses, disable this function.

- To change the password, use the up and down arrows to select Change Password and press **Select**. To change the password, enter a 6-digit password using the numbers provided on the OCP. Press **Select** to accept the new password. When prompted, re-enter the password to confirm.
- To enable autoclean, use the up and down arrows to select Autoclean and press **Select**.
- To enable the left load port, use the up and down arrows to select Left Load Port (16) and press **Select**.
- To enable the right load port, use the up and down arrows to select Right Load Port (32) and press **Select**.

7. When you are finished viewing/editing the setup information, press **Back** twice to return to the **Home** screen.
8. From the **Home** screen, press **Ops** to enter the operations screen.
9. Before the network information can become active, the cabinet must reboot. To reboot the cabinet, use the up and down arrows to highlight the cabinet and press **Select**.
10. Use the up and down arrows to select the reboot option and press **Select**.

    The library reboots.