

Quantum PX506 and PX510 Unpacking and Installation Instructions

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Introduction

Caution: Do NOT unpack the Quantum PX506 or PX510 unless you are a qualified Quantum field service engineer.

This document explains how to unpack the Quantum PX506 and PX510 libraries and install them in a standard 19 in. rack. Once the library is unpacked and installed, set up the library using the instructions in the *Quantum PX500 Series User's Guide* PN 81-81290.

The Quantum PX506 and PX510 are automated storage and retrieval libraries consisting of:

- up to six tape drives and up to 88 SDLT cartridges or 100 LTO tape cartridges for the PX506 (see [figure 1](#)).
- up to ten tape drives and up to 171 SDLT or 201 LTO tape cartridges for the PX510 (see [figure 2](#)).

Figure 1 Quantum PX506
Library

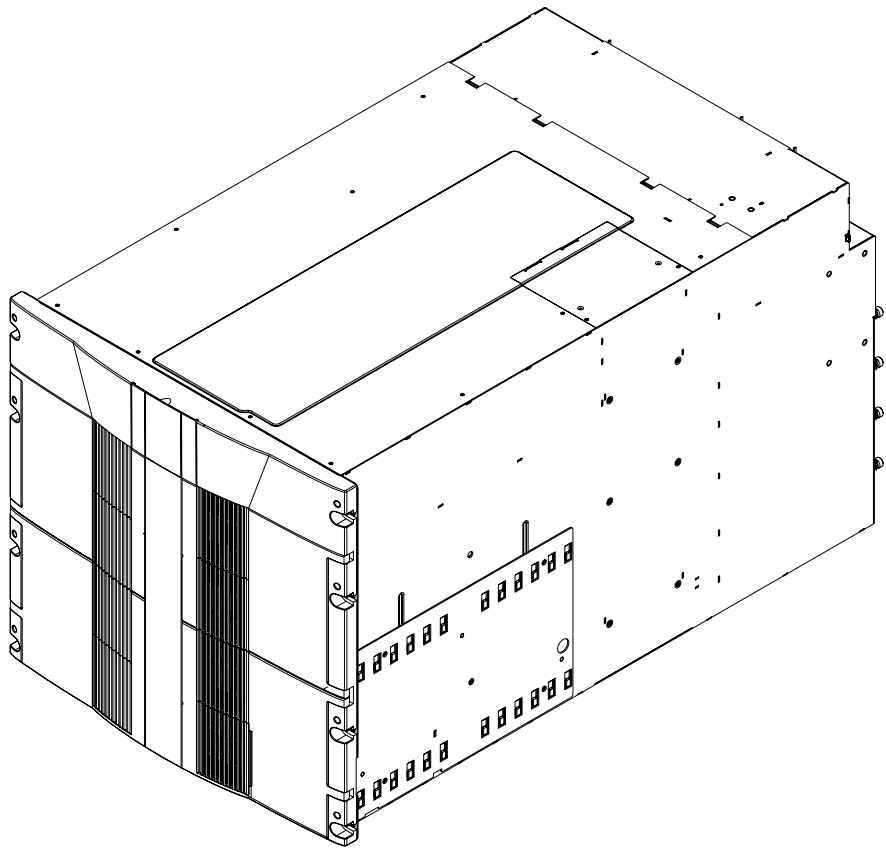
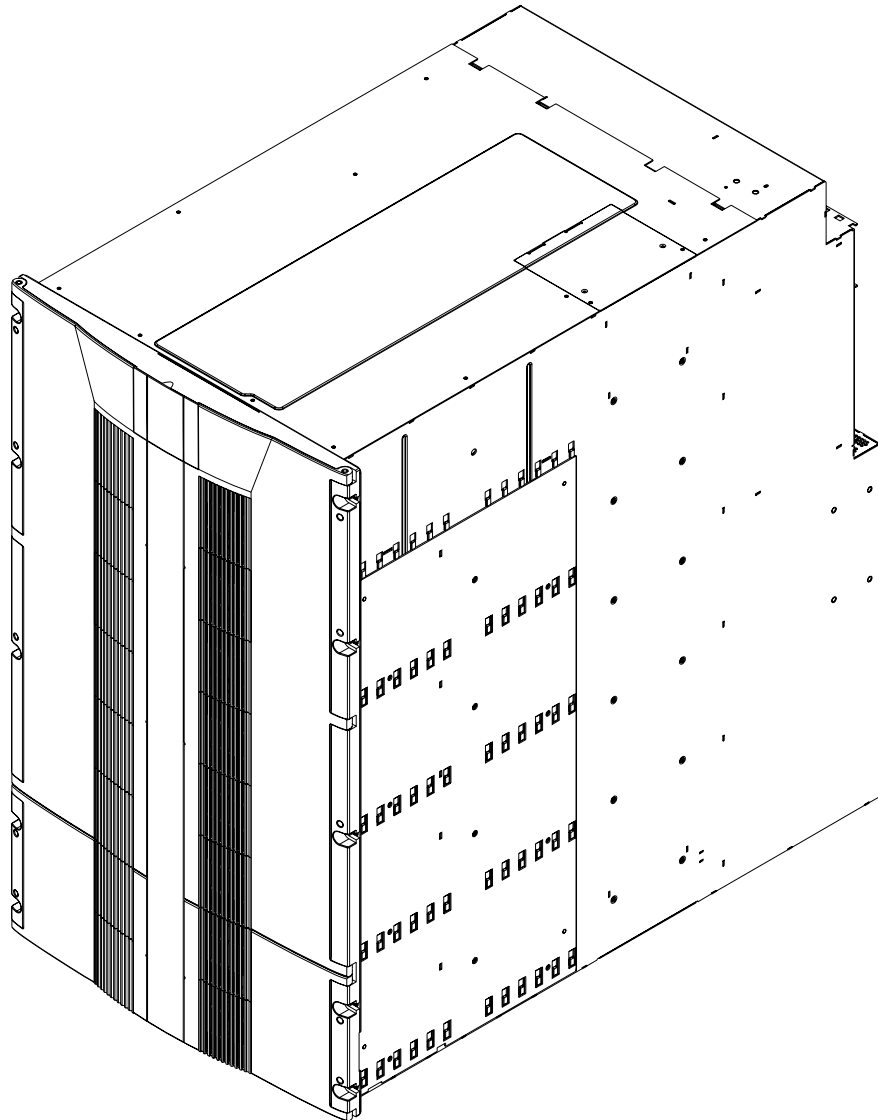


Figure 2 Quantum PX510
Library



Selecting an Installation Location

When choosing an installation site for the PX506 and PX510, consider the following requirements:

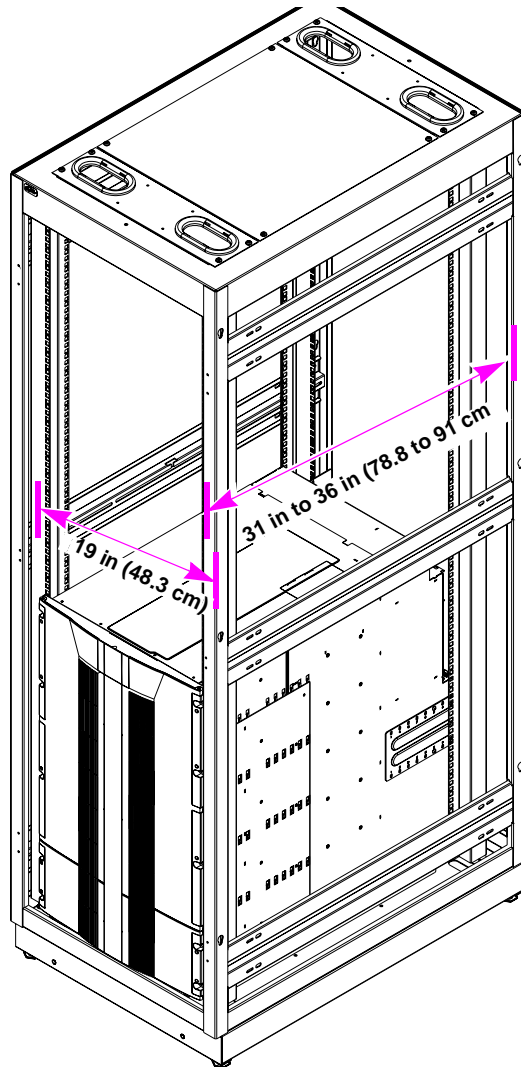
- [Rack Space Requirements](#)
- [Environmental Conditions](#)

Rack Space Requirements

[Figure 3](#) shows the minimum rack space required by both the PX506 and PX510.

- Depth - 31 in (76.2 cm)
- Width - 19 in (48.3 cm)
- Height:
 - PX506 - 17.25 in (44 cm) - 10U per library
 - PX510 - 31.5 in (80 cm) - 18U per library
- Weight:
 - PX506 - 202 lbs. (92 kg) with 6 drives, 4 magazines, and 0 cartridges installed
 - PX510 - 334 lbs. (152 kg) with 10 drives, 10 magazines, and 0 cartridges installed
- Clearance behind library, inside rack - 6 in (15 cm) for serviceability
- Door swing - 3 ft (.91 m)

Figure 3 Rack Space Requirements



PX510 shown

Environmental Conditions

The installation site must have the following environmental conditions:

- Humidity: 20%-80% non-condensing
- Temperature: 15°C-35°C (59°F-95°F)
- Altitude: -984 to 10,000 feet (-300 to 3048 meters)
- PX506 power requirements:
 - Voltage - 88-264 VAC, 47-63 Hz
 - Watts - 325
- PX510 power requirements:
 - Voltage - 88-264 VAC, 47-63 Hz
 - Watts - 500

- Service clearance - 15 in (38 cm) in the front of the library and 12 in (30 cm) in the back of the library

These environmental conditions apply when the PX506 and PX510 libraries are in operation.

Note: For additional PX500 Series specifications (including environmental requirements during shipping and storage), see the *Quantum PX500 Series User's Guide* (PN 81-81290).

Preparing for the Installation

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

- [Providing Necessary Tools and Equipment](#)
- [Taking ESD Precautions](#)

Providing Necessary Tools and Equipment

Provide the following tools for unpacking and installing the PX506 and PX510 libraries:

- #2 PHILLIPS® screwdriver
- Metal pick included in accessory kit
- Wood dowel included in accessory kit
- #1 flat blade screwdriver
- Allen wrench (2.5mm and 3mm) included in accessory kit
- Antistatic wrist strap

Taking ESD Precautions

Some components within the PX506 and PX510 libraries 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.
- Use an antistatic wrist strap (included in the accessory kit).
- Keep static-sensitive parts in their original shipping containers until ready for installation. Look for the ESD sticker to identify static sensitive parts.



- 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

Note: Inspect the outer library packaging for damage. If there is any damage evident on the library packaging, to not continue with the installation and contact Quantum customer support.

This section explains how to unpack both the PX506 and PX510 library components and move them to their final installation location. By following these instructions, you help ensure that the system will continue to be safeguarded after it arrives at the installation site.

Note: Unpack the library as close to the installation location as possible.

Unpack and remove the following components from the packing materials (see [figure 4](#) for PX506 and [figure 5](#) for PX510):

- 1 Remove the accessories kit and set it aside.

Warning: At least two people are required to move the library chassis.

Caution: Lift the library chassis at the sides. Avoid putting the weight of the library chassis on the front bezel.

- 2 With the help of a second person, lift the library chassis up and out of the shipping carton.
- 3 Place the library on a table approximately waist high.

Figure 4 Unpacking the Libraries (PX506)

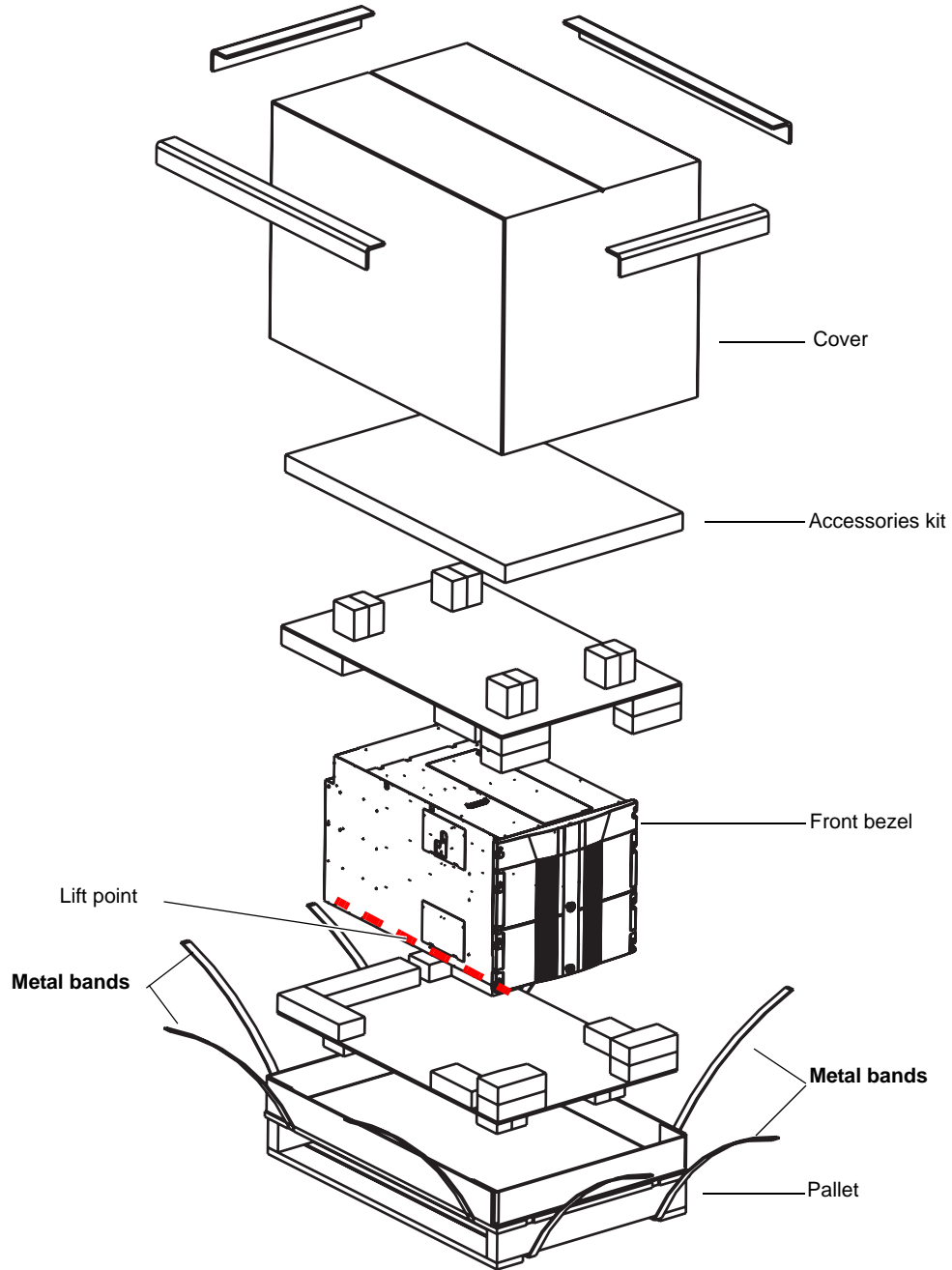
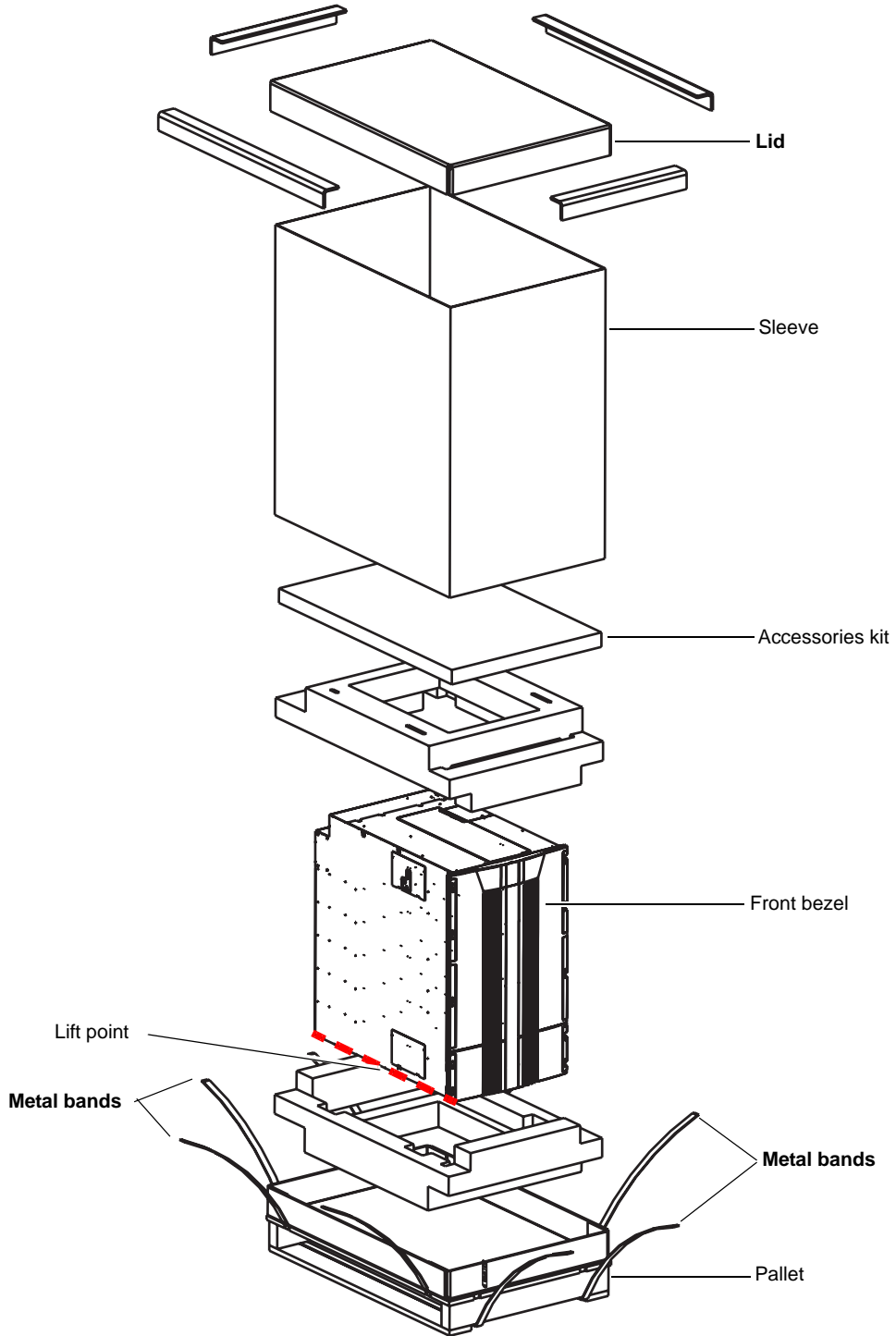


Figure 5 Unpacking the Libraries (PX510)



Removing the Remaining Packing Materials

Now that you have removed the library chassis from its shipping carton, remove the remaining packing materials from the library chassis:

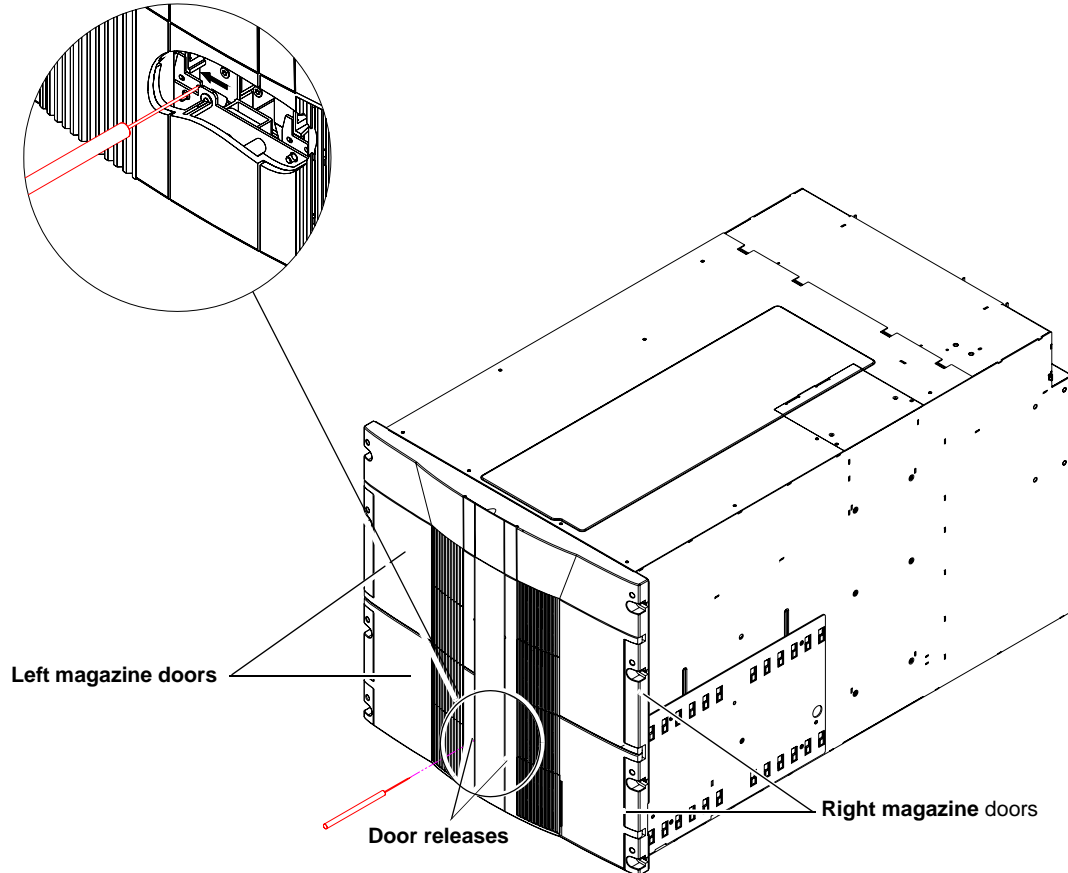
- 1 Put on an antistatic wrist strap and clip it to the antistatic stud on the back of the library (near the power supply).

Caution: Take standard ESD precautions when performing this procedure.

- 2 Remove the antistatic sheet:
 - a Cut the tape strips securing the sheet.
 - b Fold the sheet down.
 - c With the help of a second person, lift the library up off of the antistatic sheet.
 - d Place the library on the table or desk next to the antistatic sheet.
- 3 Insert the metal pick included with the accessory kit into the release holes and move the magazine door release to the left for all magazine doors (see [figure 6](#)).

The magazine access doors open.

Figure 6 Opening the
Right and Left Magazine
Access Doors

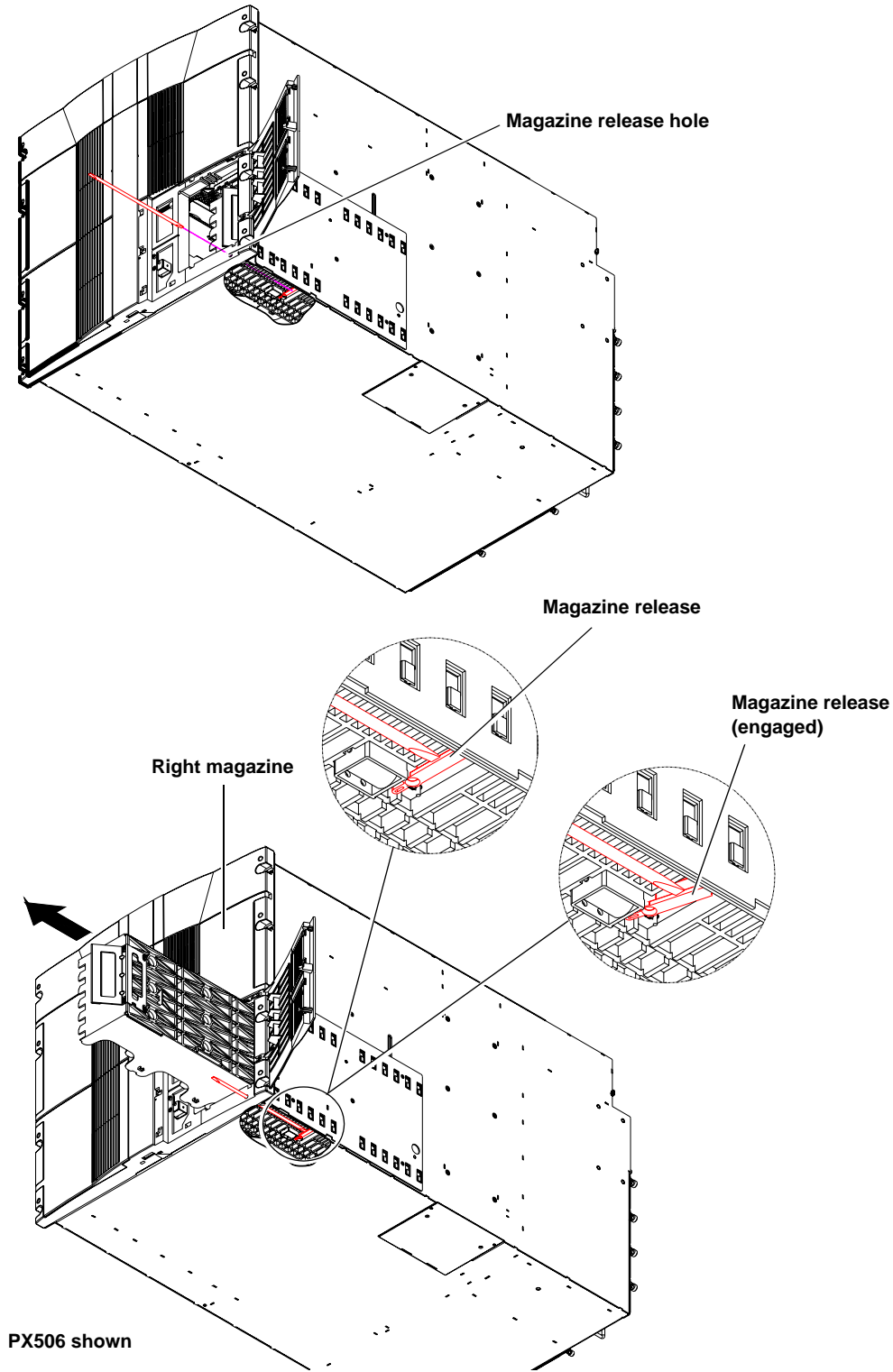


- 4 Insert the wooden dowel that is included in the library accessory kit into the magazine release hole and trip the magazine release to remove the each magazine from the library (see [figure 7](#)). Remove all magazines from a PX506 library and the bottom four magazines (two on each side) from a PX510 library.

Note: Keep the tool as straight as possible when inserting the wooden dowel into the magazine release hole. You must continue to hold the tool against the magazine release until the magazine is entirely out of the library.

Note: Only the bottom most magazines have a magazine release. All other magazines can be pulled directly from the library without a release mechanism.

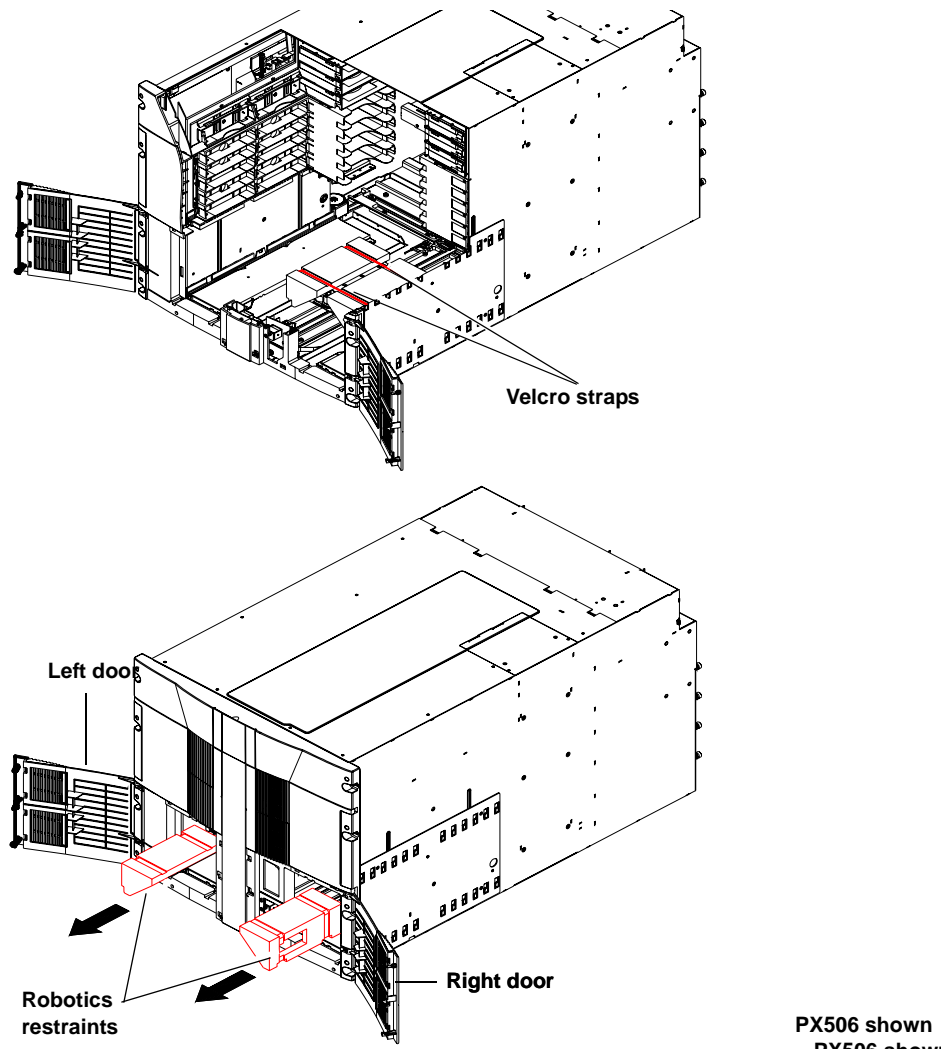
Figure 7 Removing the
Magazines



- 5 To remove the robotics restraints (see [figure 8](#)):
- a Disconnect the two velcro straps securing the robotics restraints to the library chassis.
 - b Pull the straps away from the chassis anchors and remove the straps from the library.
 - c Lift the left robotics restraint slightly up and remove it from the library.
 - d Slide the right robotics restraint to the right until you are clear of the robotics motor and remove the restraint from the library.

Caution: Avoid touching the printed circuit board and ribbon cable connectors on the robotic hand.

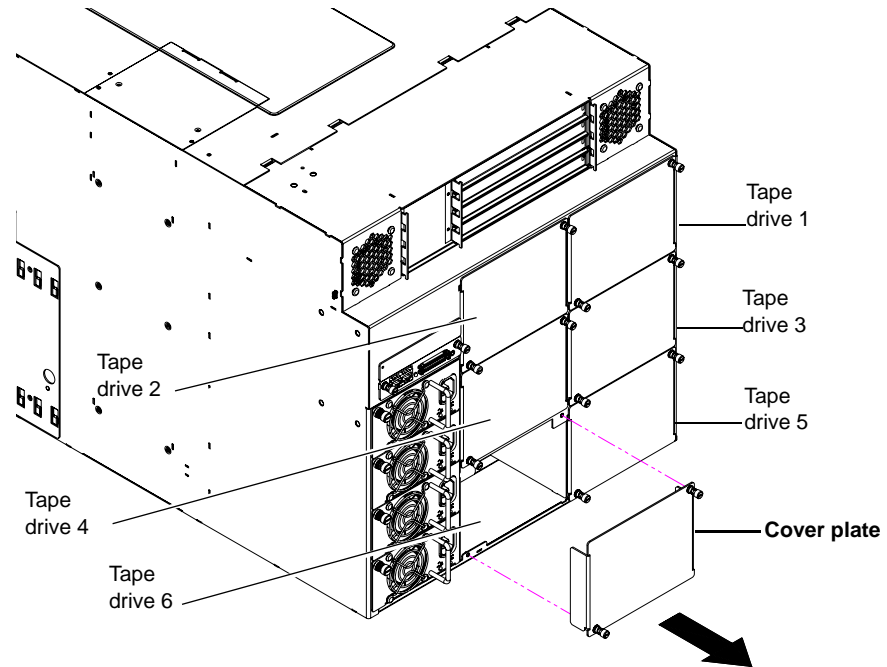
Figure 8 Removing the Robotics Restraints



Note: Save the robotics restraints for later shipping or relocation of the library.

- e Close the front doors.
- 6 Remove the tape drive cover plates by loosening the captive screws securing the plate to the library chassis with a flat blade screwdriver (see [figure 9](#)).

Figure 9 Removing the Tape Drive Cover Plates



Installing the Library

Installing a PX506 and PX510 library in a rack consists of the following steps:

Note: If this is an upgrade to an existing library system or multiple libraries are going to be installed in this rack, see [Installing Additional Libraries](#) on page 35 for information on preparing the library chassis prior to installation.

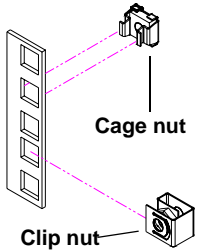
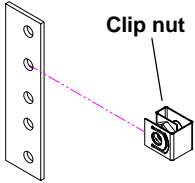
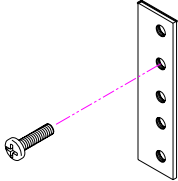
- [Locating the Mounting Position](#)
- [Installing the Library](#)
- [Loading the Tape Cartridges](#)
- [Initial Configuration](#)

Locating the Mounting Position

Both the PX506 and PX510 libraries are designed to fit in a standard 19 inch wide rack.

It is important to the library installation to locate the hole pattern in the rack rails (see [figure 11](#)). The library must be installed at the beginning of the hole pattern. Refer to [table 1](#) for information on common rack hole types.

Table 1 Rack Hole Types

Figure	Description
 <p>The diagram shows a vertical rack rail with four square holes. A 'Cage nut' is shown being inserted into the back of the rail. A 'Clip nut' is shown being clipped onto the side of the rail. Pink dashed lines connect the labels to the respective parts.</p>	<p>Square rack holes are the most common type of rack holes. They can accept either cage nuts which mount from the back of the rail or clip nuts which clip on from the side of the rack rail.</p>
 <p>The diagram shows a vertical rack rail with four circular through holes. A 'Clip nut' is shown being clipped onto the side of the rail. A pink dashed line connects the label to the clip nut.</p>	<p>Through holes require clip nuts to accept mounting hardware.</p>
 <p>The diagram shows a vertical rack rail with four circular threaded holes. A screw is shown being inserted into the top hole. A pink dashed line connects the screw to the hole.</p>	<p>Threaded holes require neither cage or clip nuts to accept mounting hardware.</p>

Note: The rails within the rack have a hole pattern that repeats throughout the rail. X marks the screw positions. Install nut clips (included in the accessory kit) on the rails if necessary.

Figure 10 PX506 Rail Hole
 Patterns and Mounting
 Positions

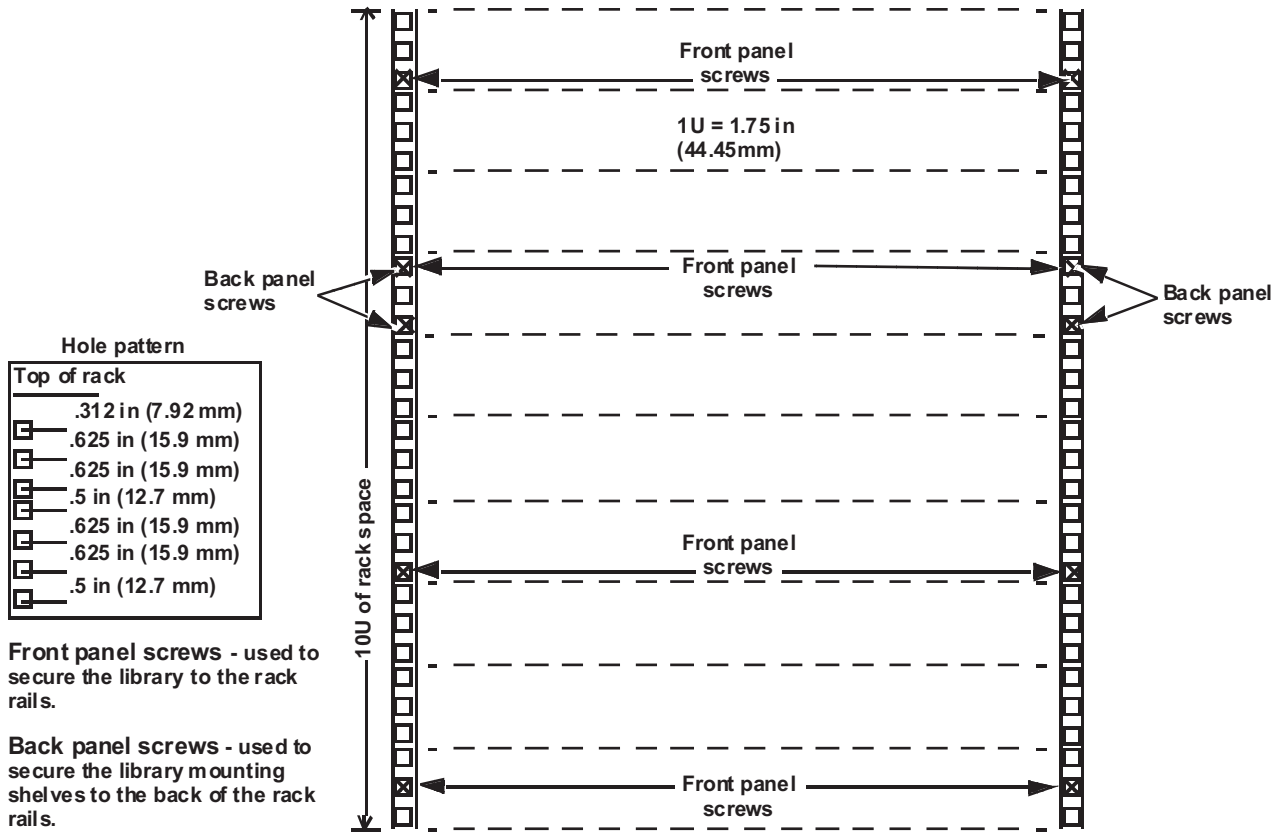
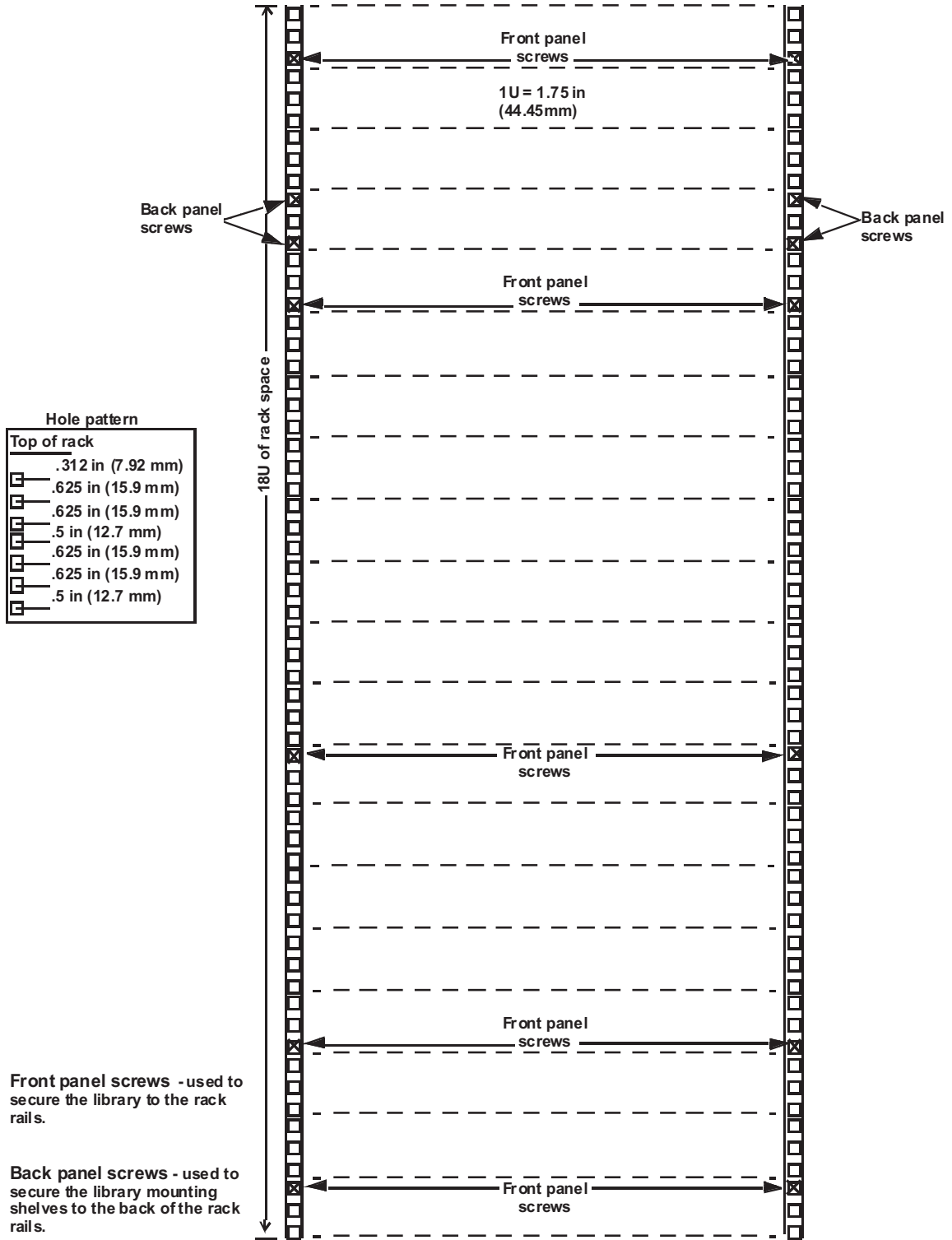


Figure 11 PX510 Rail Hole
 Pattern and Mounting
 Positions



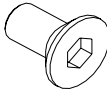
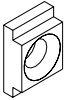
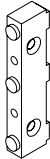
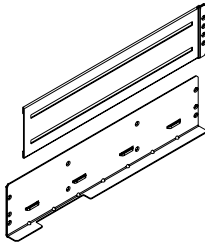
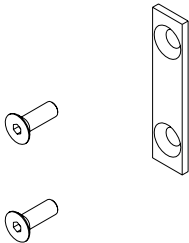
Warning: If the rack is empty at the time of installation, do NOT install the PX506 or PX510 library too high in the rack. The weight of the libraries may cause the rack to become “top heavy” and unstable if installed in the top of an empty rack. If multiple libraries are to be installed in the rack, begin the library installations from the bottom of the rack.

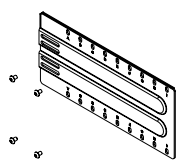
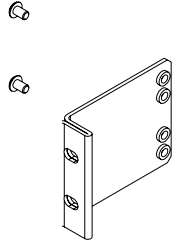
Installing the Library

Installing the PX506 and PX510 libraries consists of the following steps:

- [Installing the Rack Mount Shelves](#)
- [Installing the Library Chassis](#)
- [Cabling the Library](#)

Table 2 Library Mounting Hardware

Qty	Figure	Description
16		Allen head screws (M5 x 10) for shelf assembly
8		T-nuts (M5)
4		Rail adapters (both metric and standard holes are included, 8 total adapters)
2		Right and left support shelves (left shown)
4 sets		Front and back rail mounting hardware (M5 x 12 allen screws and mounting plates)

Qty	Figure	Description
2 sets		Back bracket hardware (M5 x 8 allen screws and mounting plate)
2 sets		Back clamp hardware (M5 x 10 and back clamp)

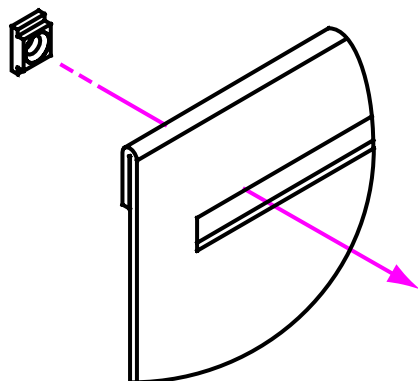
Installing the Rack Mount Shelves

- 1 Assemble the rack mount shelves by (see [figure 13](#)):

Note: The rack mount shelf orientation differs between the right and left shelves to allow the FlexLink system to operate.

- a Loosely attach the adjustable shelves (right and left) with 4 M5 x 10 Allen screws and T-nuts.

Note: T-Nuts must be oriented so they fit in the grooves of the shelves.



- b Attach the appropriate rail adapter to the front and back of the rack mount shelves (right and left) with 4 M5 x 10 Allen screws (each rail adapter is marked with the specific hole type supported, either metric or standard). The rail adapters have arrows indicating the proper orientation (see [figure 12](#)).

Figure 12 Rail Adapter Orientation

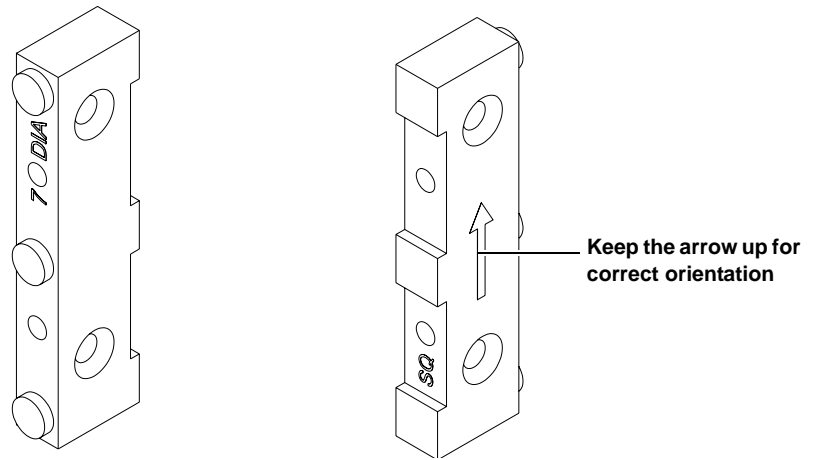
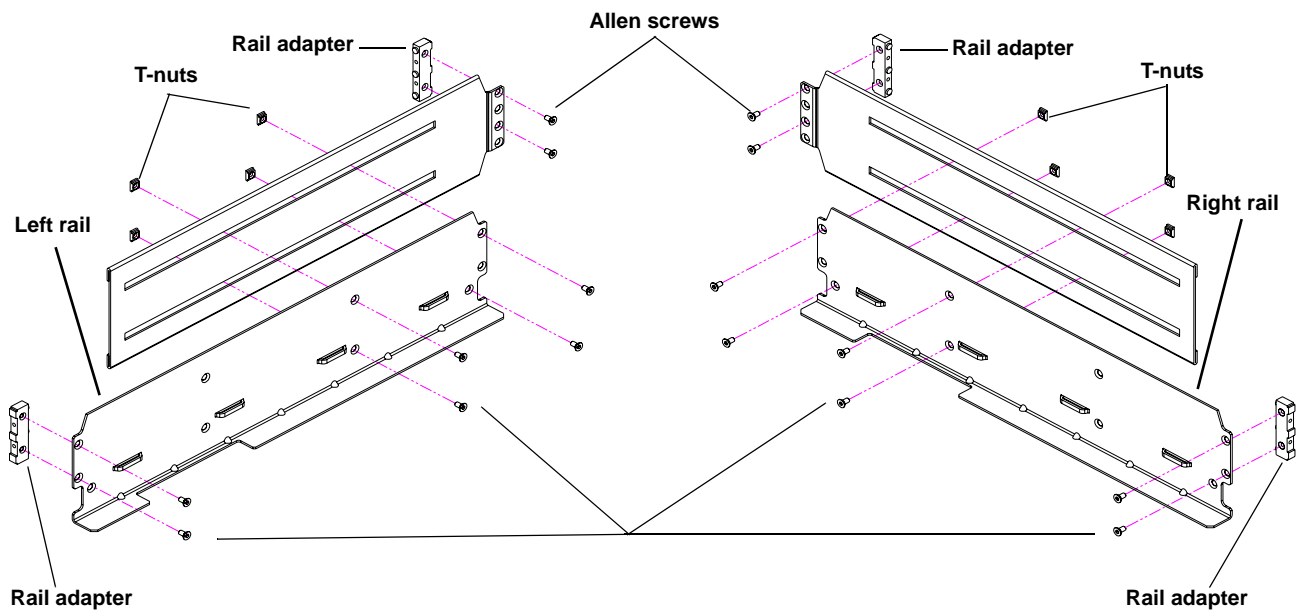


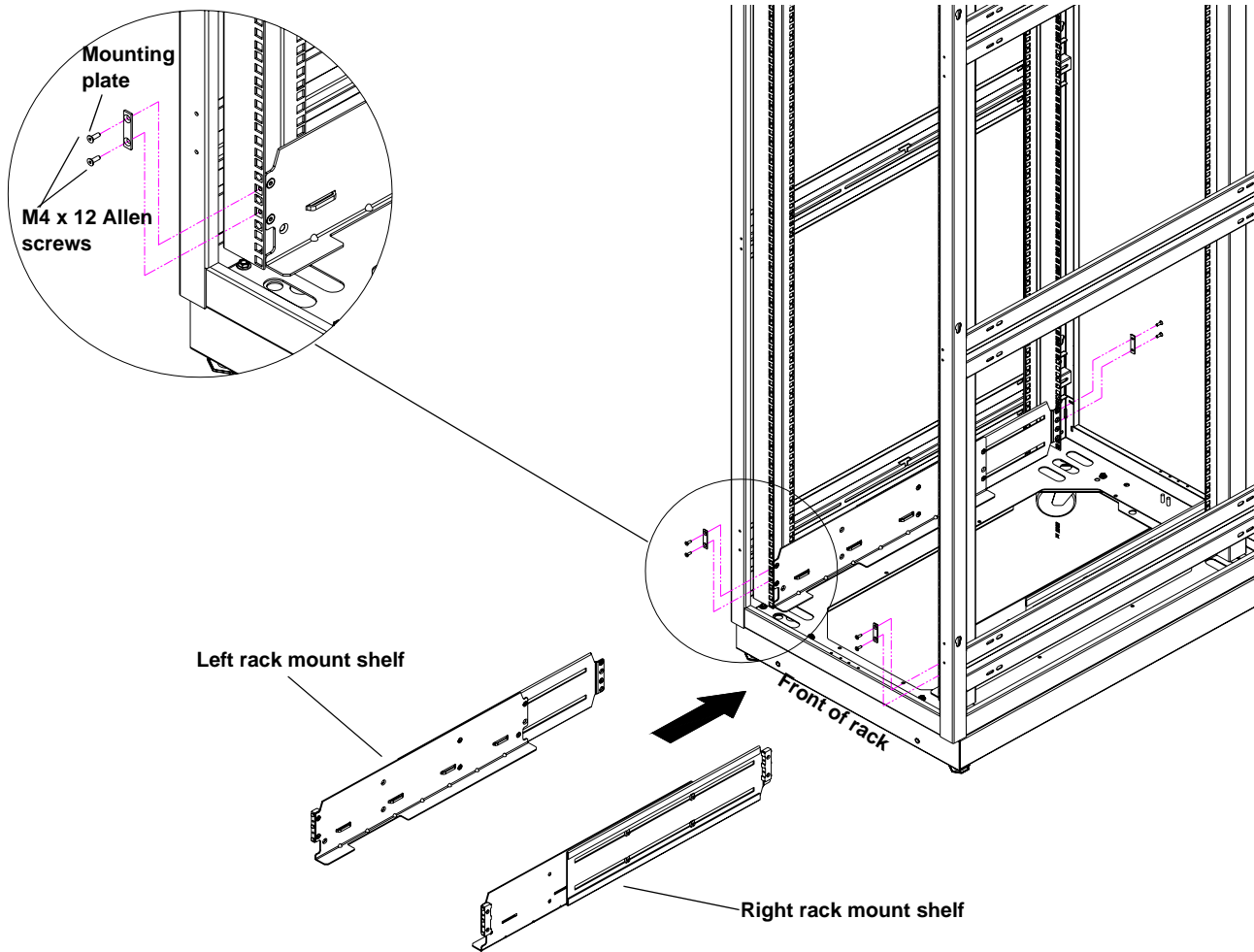
Figure 13 Assembling the Rack Mount Shelves



- 2 Install the left and right rack mount shelves into the rack (the rack mount shelves adjust 27 in. to 36 in.) and secure with a mounting plate and 2 M4 x 12 Allen screws at the front and back of the rack (see [figure 14](#)).

Note: The rack mount shelves must be installed on the inside rack rails.

Figure 14 Installing the
Rack Mount Shelves



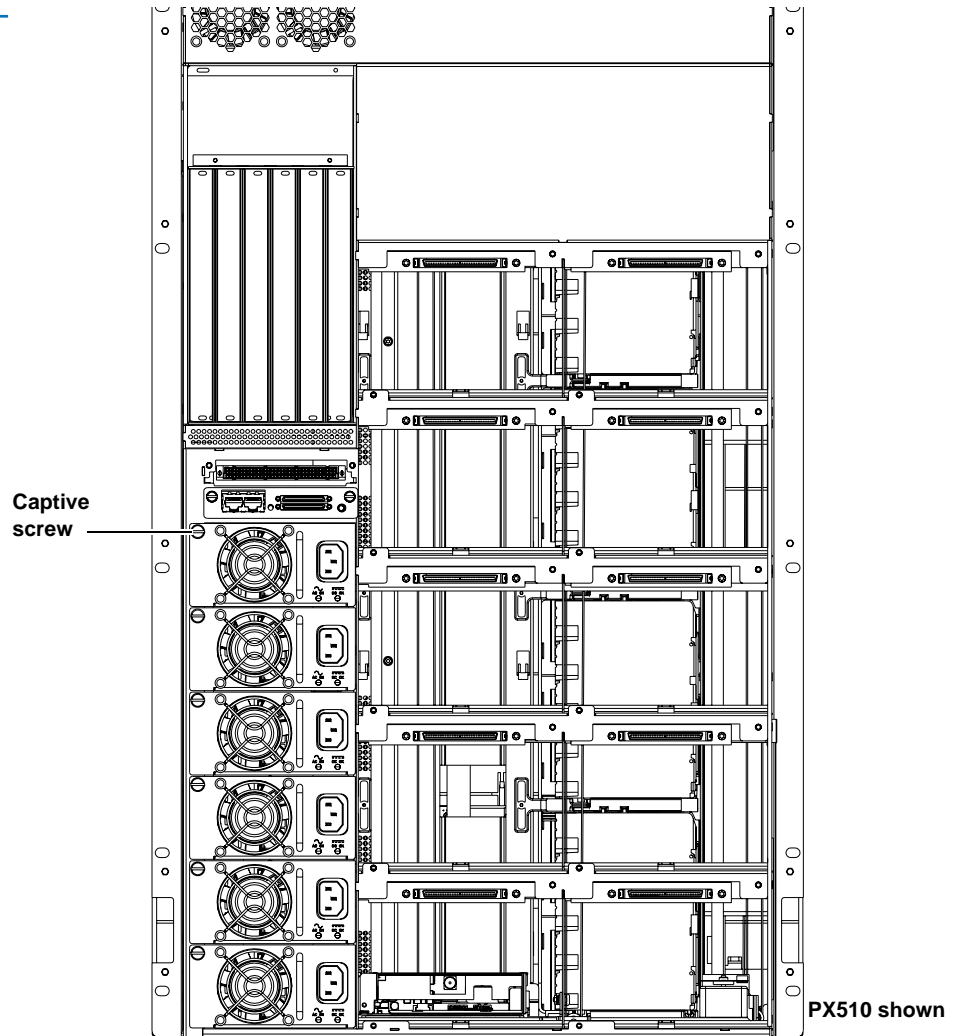
- 3 Once the rack mount shelves are secured to the rack, tighten the Allen screws securing the adjustable shelves together.

Installing the Library Chassis

Warning: The PX506 weighs approximately 78 lbs (35 kg) without power supplies or tape drives. The PX510 weighs approximately 112 lbs (51 kg) without power supplies or tape drives. At least two people are required to lift and install either library.

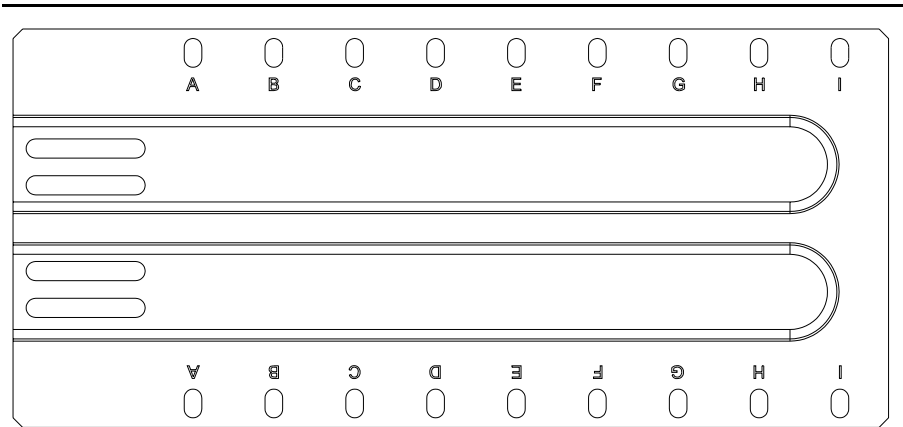
- 1 Remove the power supplies prior to installing the library to reduce the weight. Use a flat blade screwdriver to loosen the captive screws and remove the power supplies (two power supplies in a PX506 and six in a PX510) from the library (see [figure 15](#)).

Figure 15 Removing the
Power Supplies



- 2 The back mounting brackets are lettered (A through I) so the correct mounting position is easily determined. The mounting positions differ depending on the depth of the rack (see [table 3](#)).

Table 3 Back Mounting
 Bracket Orientation



Rack Depth	Mounting Position
> 27 to 28 in.	Use holes A and C
> 28 to 29 in.	Use holes B and D
> 29 to 30 in.	Use holes A and C
> 30 to 31 in.	Use holes B and D
> 31 to 32 in.	Use holes C and E
> 32 to 33 in.	Use holes D and F
> 33 to 34 in.	Use holes E and G
> 34 to 35 in.	Use holes F and H
> 35 to 36 in.	Use holes G and I

Once the location is determined, attach the back brackets to each side of the library with four M5 x 8 Allen screws (see [figure 16](#) for the PX506 and [figure 17](#) for the PX510).

Note: Use the shortest depth number. For example, if the measurement is 34 in., use holes E and G.

Note: If this is a multiple stack configuration, refer to [Installing Additional Libraries](#) on page 35 for information on preparing the library chassis for passing tape cartridges from one unit to another.

Figure 16 Back Mounting
Brackets (PX506)

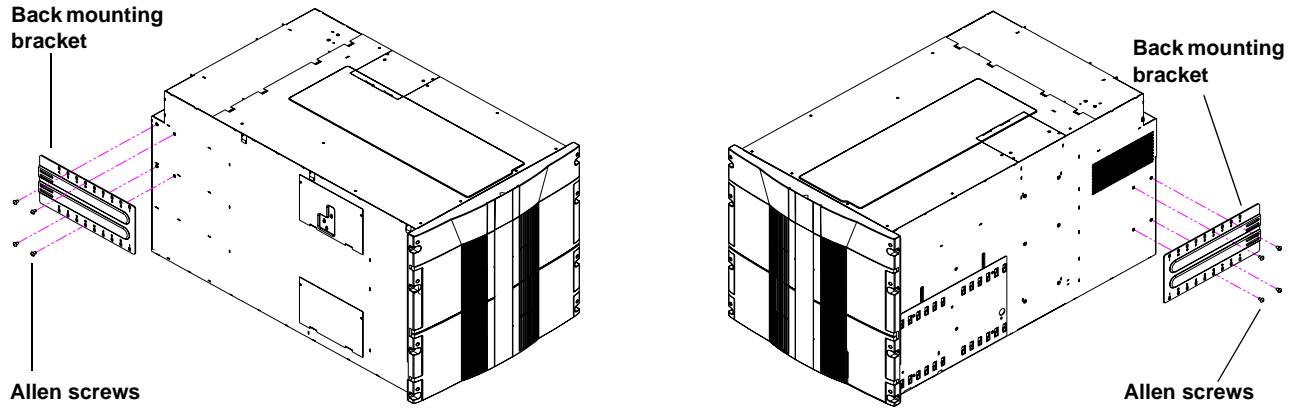
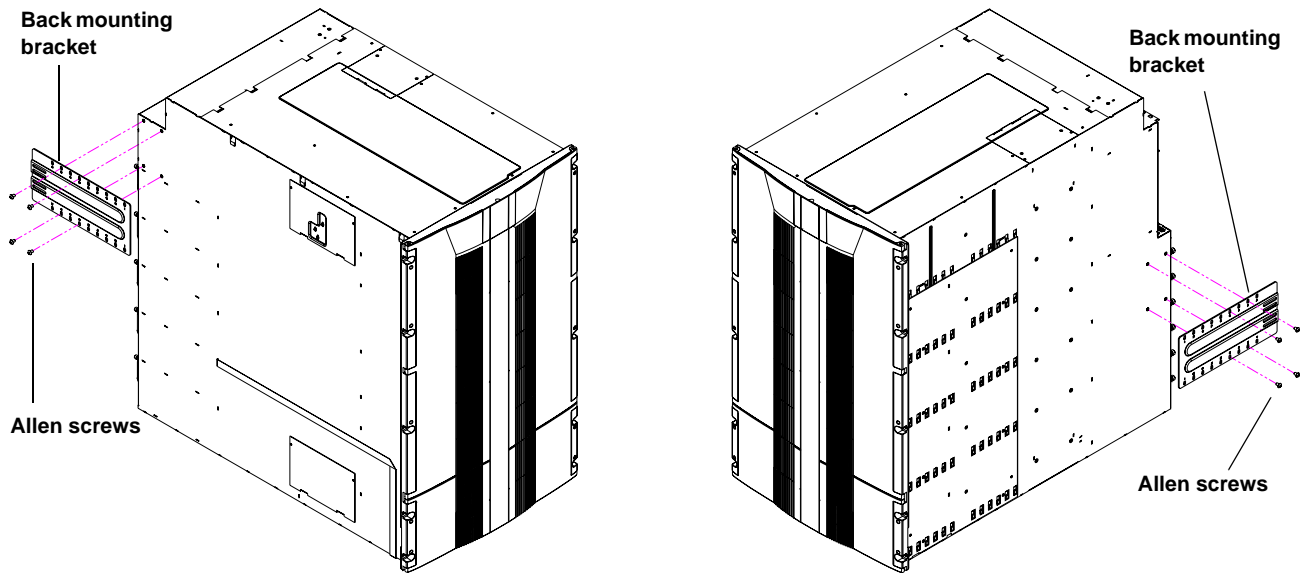


Figure 17 Back Mounting
Brackets (PX510)



- 3 Install the library into the rack as shown and secure with eight PHILLIPS screws for the PX506 and twelve PHILLIPS screws for the PX510 (see [figure 18](#) for the PX506 and [figure 19](#) for the PX510).

Warning: The PX506 weighs approximately 78 lbs (35 kg) without power supplies or tape drives. The PX510 weighs approximately 112 lbs (51 kg) without power supplies or tape drives. At least two people are required to lift and install either library.

Figure 18 Installing the Library into the Rack

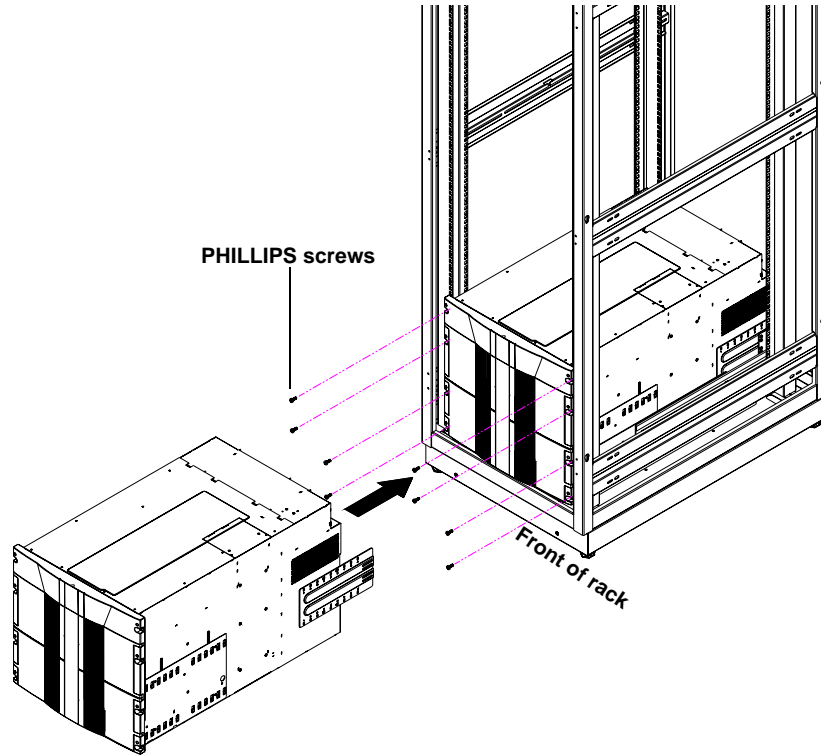
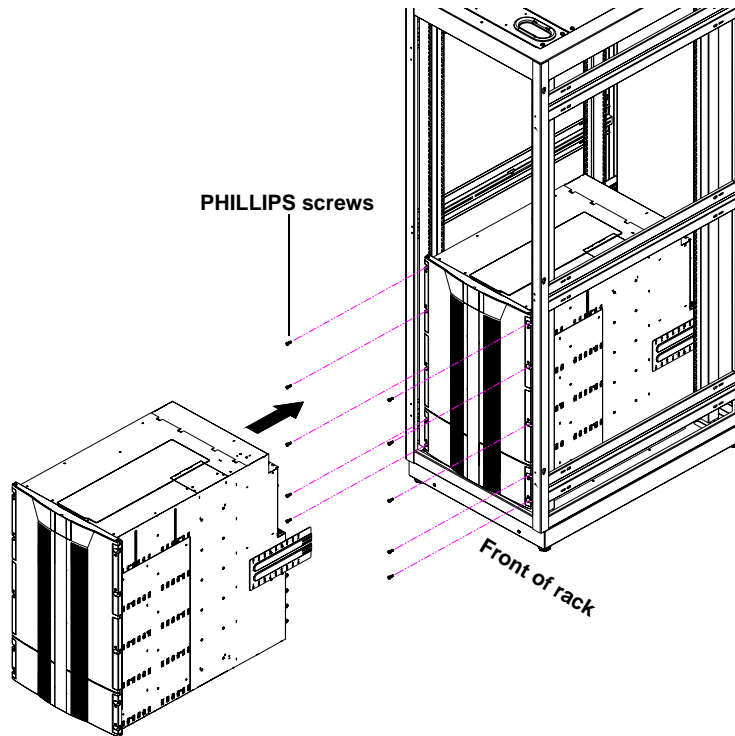


Figure 19 Installing the Library into the Rack

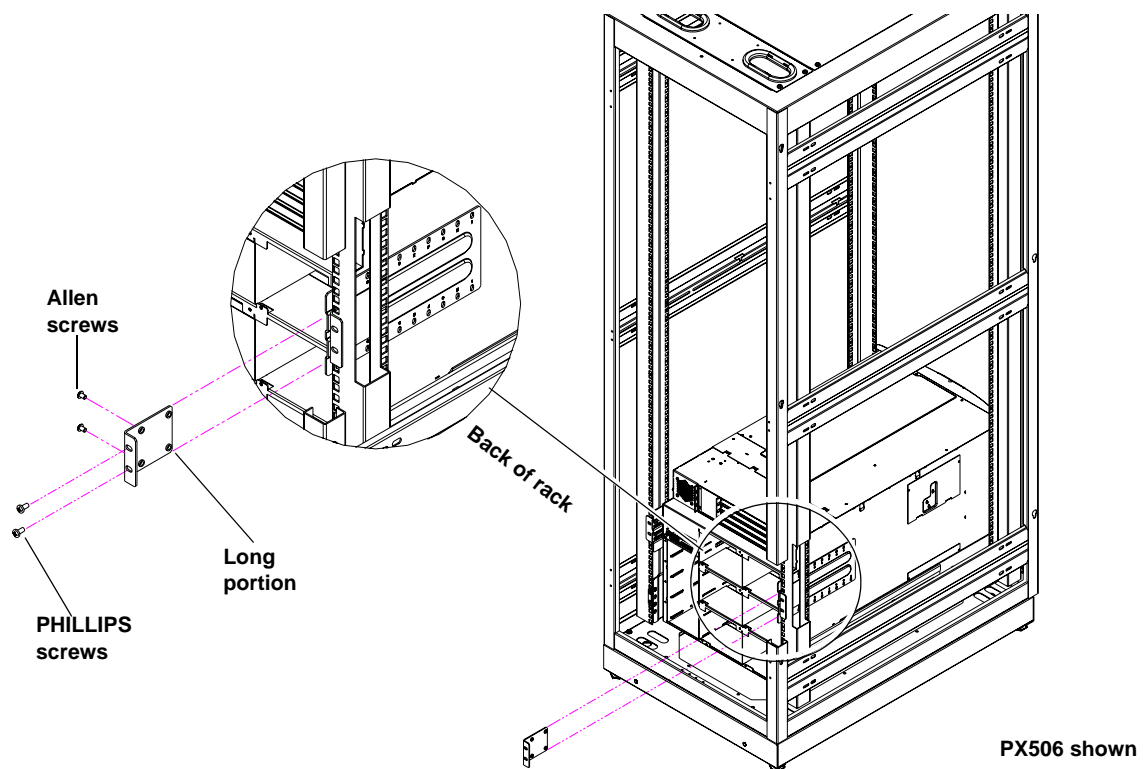


- 4 Secure the back of the library to the rack with two mounting clamps and two Allen screws on each clamp. The mounting clamps are oriented differently depending on the depth of the rack (see [figure 20](#)).

Note: If the rack depth is 27 to 30 in., the long portion of the clamp is mounted to the back. If the rack depth is 30 to 36 in., the long portion is mounted to the front.

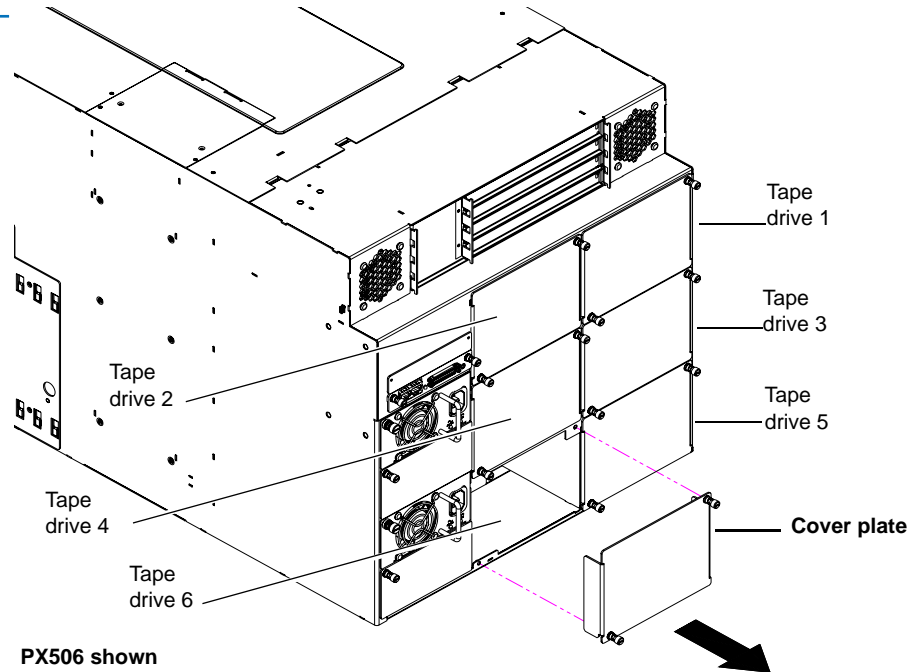
- 5 Secure the mounting clamps to the rack rails with two PHILLIPS screws on each side (see [figure 20](#)).

Figure 20 Securing the Back of the Library



- 6 Install the power supplies previously removed. Tighten the captive screws with a flat blade screw driver.
- 7 To install the tape drives into the library:
 - a Remove the tape drive cover plates by loosening the captive screws securing the plate to the library chassis with a flat blade screwdriver (see [figure 21](#)).

Figure 21 Removing the
Tape Drive Cover Plates



- b Insert the tape drive into the drive bay slowly until the connectors are seated. Refer to [figure 22](#) and [figure 23](#) for drive bay numbering.

Figure 22 PX506 Tape
Drive Numbering

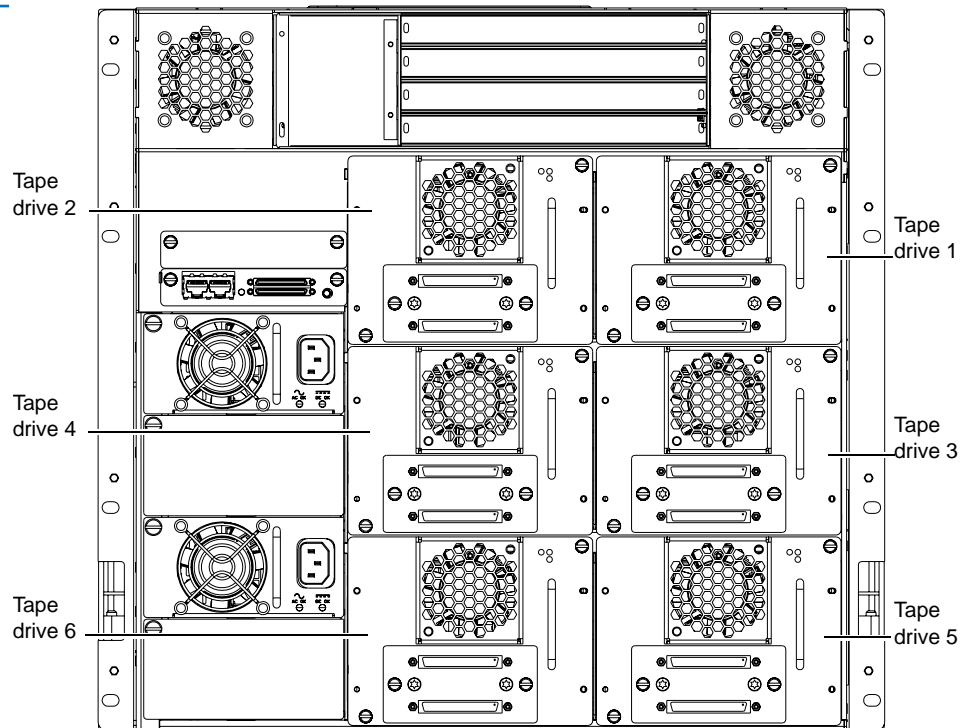
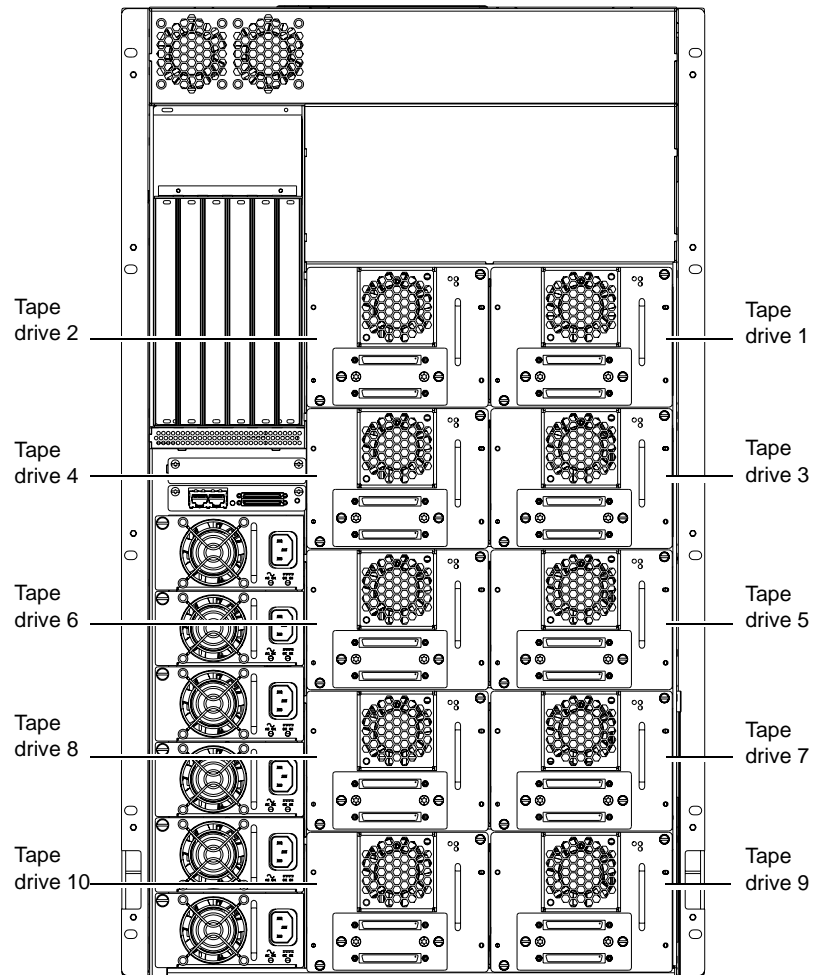


Figure 23 PX510 Tape
Drive Numbering



- c Tighten the tape drive thumbscrews using a flat blade screwdriver.
- d Repeat these steps to install another tape drive in a different location, if desired.

The library chassis is installed in the rack.

Cabling the Library

- 1 Connect the SCSI cables and jumpers as shown in the following figures:

Note: For Fibre Channel bridge installation and cabling instructions, refer to the *Quantum FC1202 Installation Instructions* (PN 81-81371).

- [PX506 Cabling Configuration \(SCSI\)](#)

- [PX510 Cabling Configuration \(SCSI\)](#)

Note: Quantum ships sufficient SCSI cables and terminators with the libraries to set up two-drives per SCSI bus. One tape drive per SCSI bus may be necessary for optimum performance. Refer to your tape drive documentation.

Note: SCSI cable lengths should not exceed 82 feet (25 meters) between the host and library.

Figure 24 PX506 Cabling Configuration (SCSI)

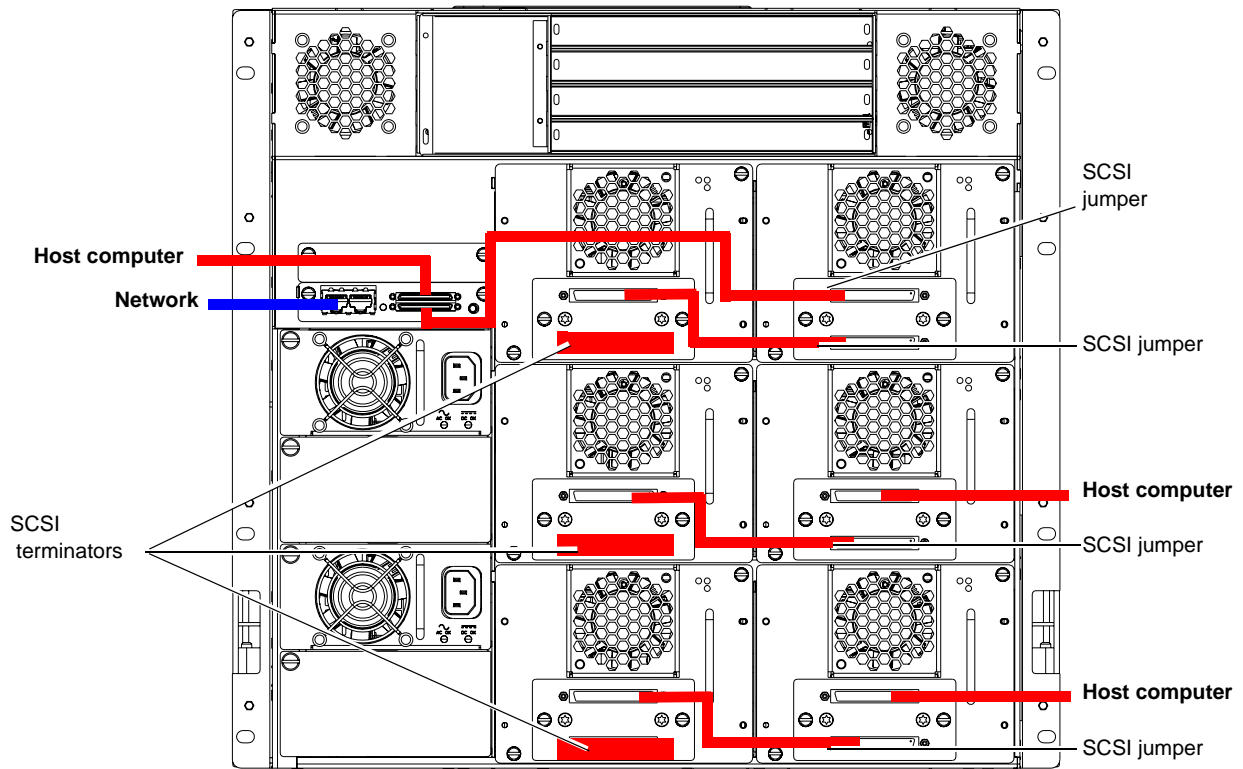
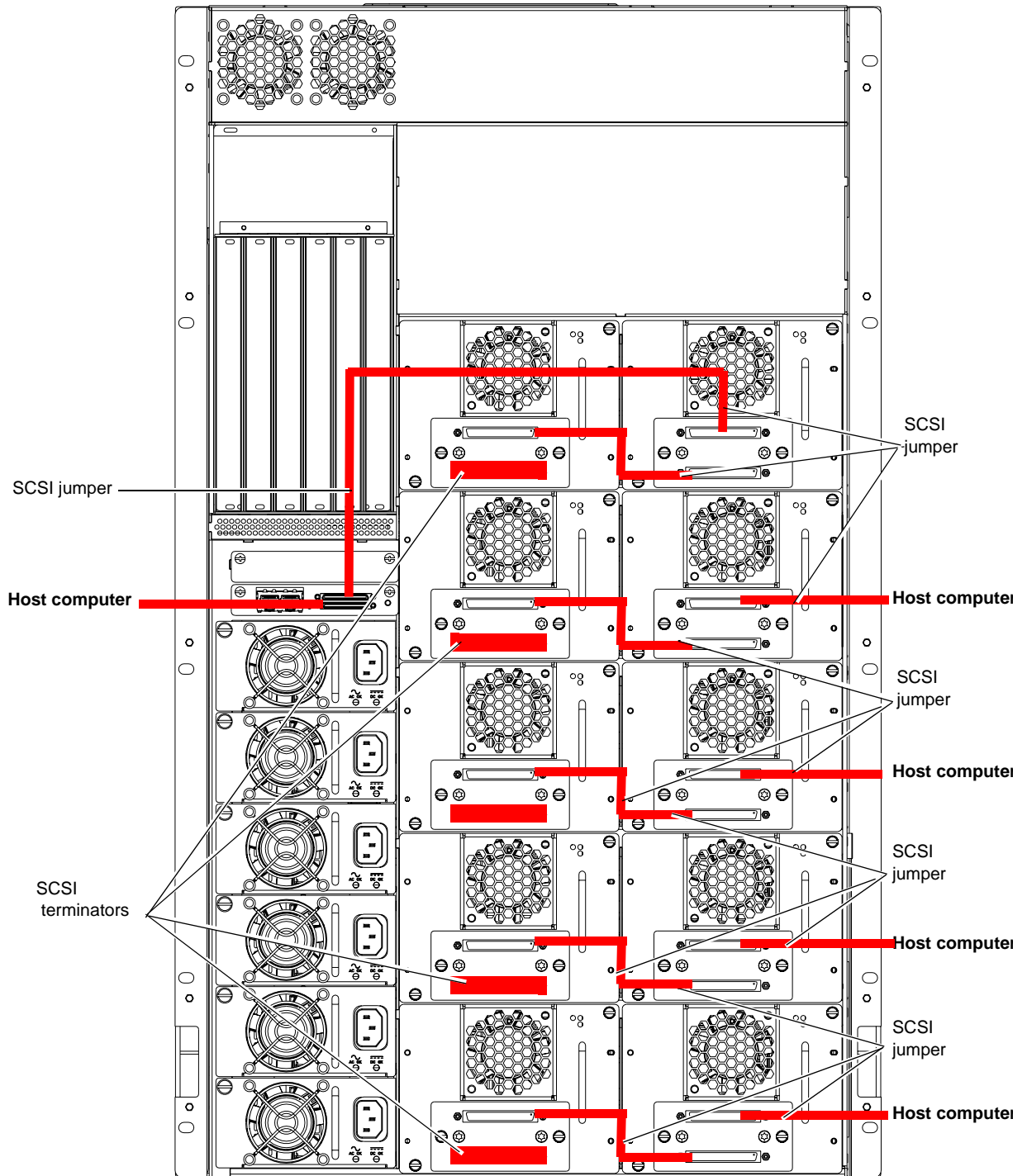


Figure 25 PX510 Cabling Configuration (SCSI)



2 Connect one end of an AC power cable to each installed power supply and to a wall outlet.

Loading the Tape Cartridges

Before operating the library, load the appropriate tape cartridges (LTO and/or SDLT) into the library starting with the left-hand magazines (refer to the *Quantum PX500 Series User's Guide* PN 81-8290 for more information on tape cartridges).

Initial Configuration

Initially configuring the library consists of the following steps:

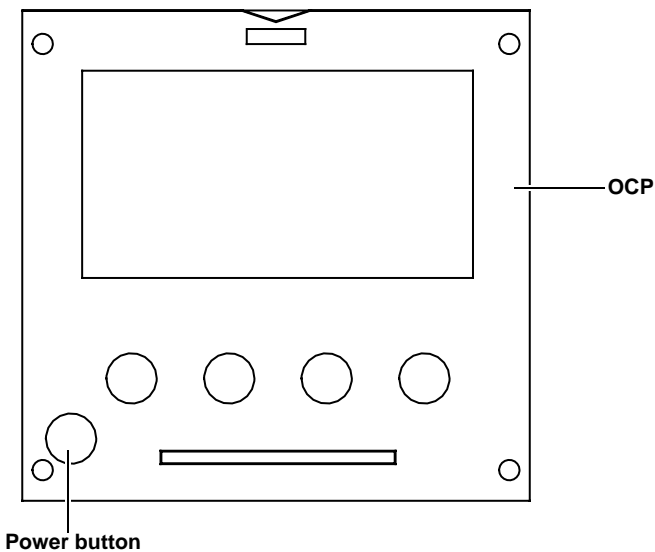
- [Turning on the Library](#)
- [Setting the Library Options](#)
- [Setting the Date and Time](#)
- [Setting Network Information](#)

Turning on the Library

To turn on the library:

- 1 Verify that:
 - Power cables are firmly in place
 - All doors are closed
- 2 Push the power button located behind the OCP cover (see [figure 26](#)).

Figure 26 Turning On the Library



During the power up sequence, the library performs an inventory. The power up sequence can take several minutes.

Setting the Library Options

To set the library options:

- 1 Press **Setup** from the **Home** screen. The OCP displays the **Setup** screen (see [figure 27](#)):

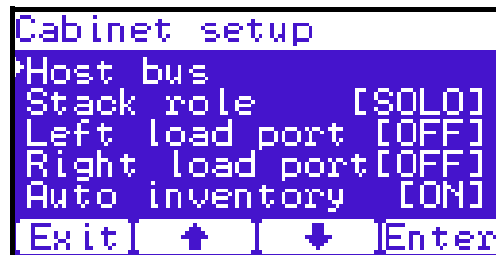
Figure 27 Setup Screen



- 2 From the **Setup** screen, use the up and down arrows to highlight **Cabinet** and press **Enter**.

The **Cabinet** screen displays (see [figure 28](#)):

Figure 28 Library Options Screen



- 3 The **Stack role** screen allows you to configure the library as a “Master” or “Slave” in a multiple library stack. The library is configured “Stand alone” by default. If this is a multiple library stack, use the up and down arrows to highlight **Stack role** and press **Enter** and the OCP displays the following information about the library:

Table 4 Setting Up the Cabinet

Cabinet Options	Description
Host bus	Sets the SCSI ID for both the library and tape drives.
Stack role	Assigns the library stack role as Master, Slave, or Stand alone. There can be only one Master library in a multiple stack. Once configured as a slave, all library OCP functions can be controlled via the Master library OCP. The library model number will also change to PX500S indicating a stacked library configuration. The library model number is available from the home screen on the Master library OCP.
Left load port	Enables or disables the left load port
Right load port	Enables or disables the right load port
Auto inventory	Enables or disables the auto inventory function. When enabled, the library automatically inventories the library contents when going "On-line".

Setting the Date and Time

To set the date and time:

- 1 From the **Setup** screen, use the up and down arrows to highlight **Date and Time** and press **Enter**.

The **Date and Time** screen displays (see [figure 29](#)):

Figure 29 Date and Time Screen



The **Date and Time** screen displays the following information about the library:

- 2 Use the up and down arrows to view or edit the date and time information. Press **Enter** to accept the new settings.
- 3 When you are finished viewing/editing the date and time information, press **Exit** to return to the **Setup** screen.

Setting Network Information

To view or edit the network information:

- 1 From the **Setup** screen, use the up and down arrows to highlight **Network** and press **Enter**.

The **Network** screen displays (see [figure 29](#)):

Figure 30 Network Screen



The **Network** screen allows you to view or edit the following network settings:

- DHCP
 - IP address
 - Subnet mask
 - Default gateway
- 2 Use the up and down arrows to select the network setting you wish to view or edit and press **Enter**.

When you are finished viewing/editing the network information, press **Back** to return to the **Setup** screen. The library is initially configured and ready for use. Refer to the *PX500 Series User's Guide* (PN 81-81290) for information on diagnostic tests.

Note: Close the service call and register the installation with Quantum customer support.

Installing Additional Libraries

The PX506 and PX510 library modules can be used as stand-alone libraries, or combined with other PX500 Series library modules in a standard 19-inch rack to form a larger library system (called a multiple library stack). The multiple library stack appears as a single large capacity library to the host and can pass cartridges through the library.

Installing additional libraries and configuring for a multiple library stack consists of the following steps:

- [Removing the FlexLink Covers](#)

- [Installing the Libraries](#)
- [Configuring the Libraries in a Multiple Stack](#)

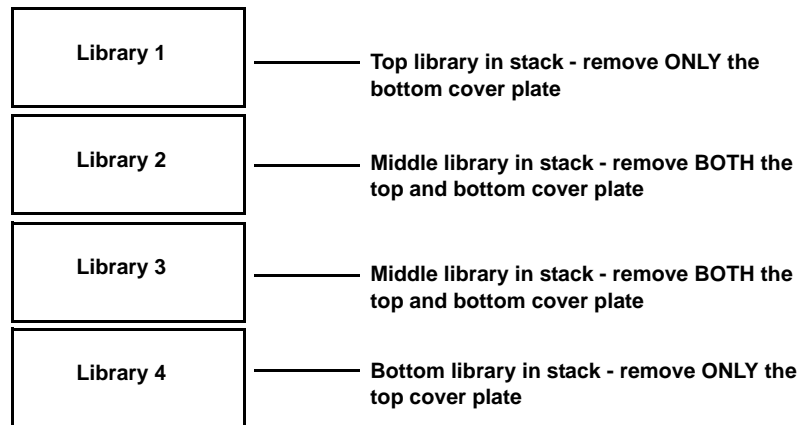
Removing the FlexLink Covers

The FlexLink covers must be removed prior to library installation so tape cartridges can pass between library chassis.

To remove the FlexLink covers:

- 1 The library modules have pass-through cover plates located on the top and bottom of the chassis. Depending on the location of the library in the stack, one or both of the cover plates are removed from the chassis (see [figure 31](#)).

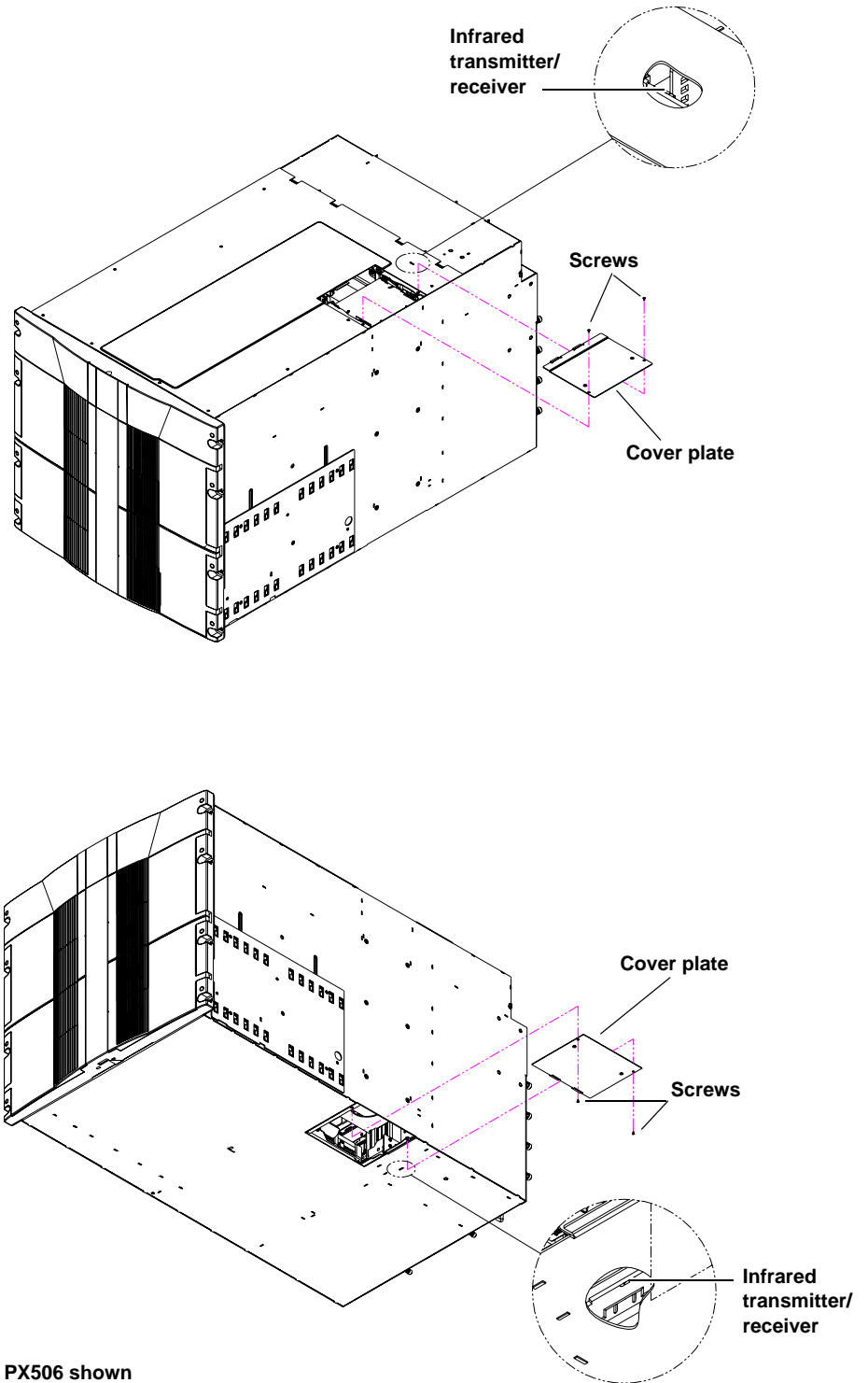
Figure 31 Identifying the Cover Plates for Removal



- 2 After you have identified the cover plates to remove, use a #2 PHILLIPS screwdriver to remove the two screws that secure the cover plate to the library chassis (see [figure 32](#)).

Note: The cover plate location is the same on both the PX506 and PX510 libraries.

Figure 32 Removing the
Pass-through Cover Plates



The cover plates are removed.

Installing the Alignment Hardware

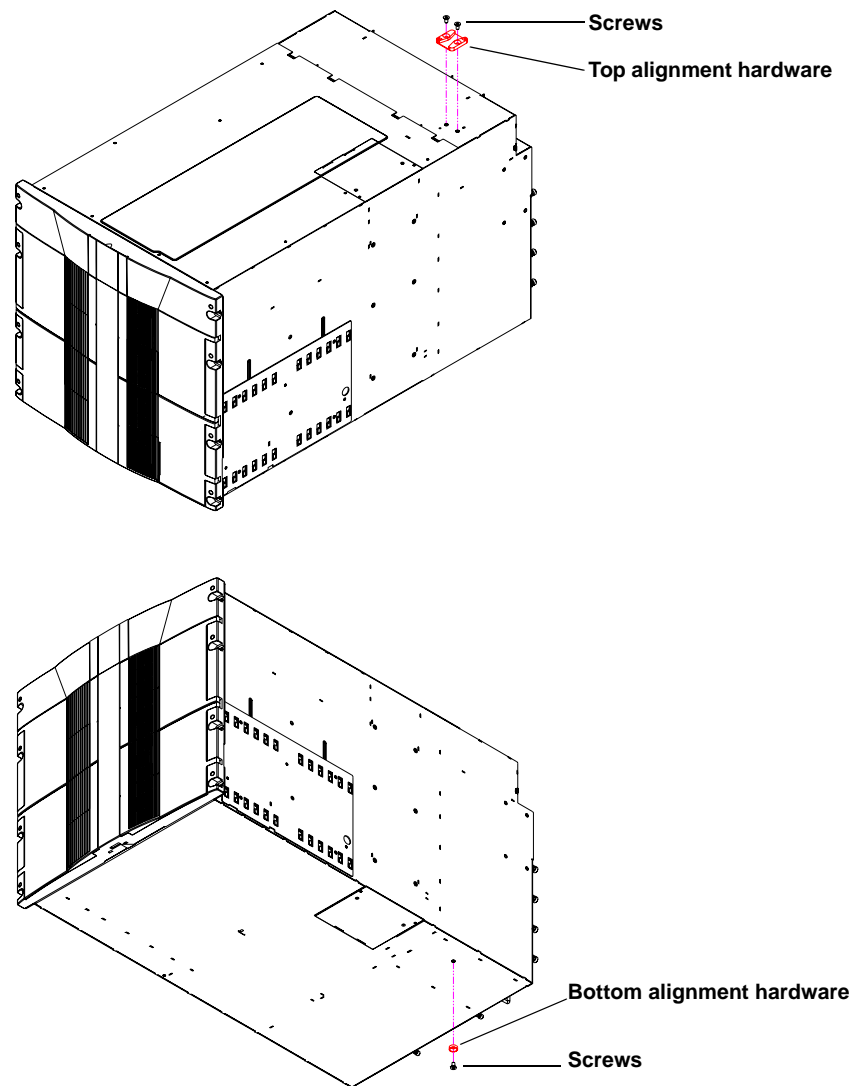
The alignment hardware is installed on the top and bottom of the libraries in a multiple stack to allow the FlexLink bays to align correctly.

Install the following alignment hardware (see [figure 33](#)):

- 1 Install the top alignment hardware with two PHILLIPS screws.
- 2 Install the bottom alignment hardware with one PHILLIPS screw.

Note: Install only the bottom alignment hardware on the top library in the stack and the top alignment hardware on the bottom library in the stack.

Figure 33 Installing the Alignment Hardware



The libraries are prepared for installation in a multiple stack.

Installing the Libraries

Refer to [Installing the Library](#) on page 15 for information on installing the library chassis into the rack. The libraries must be stacked without space between units.

Configuring the Libraries in a Multiple Stack

The libraries initialize by default in a “Stand Alone” configuration. The libraries must be set to either a “Master” or “Slave” configuration through the OCP so the libraries recognize the other units in the stack.

To configure the libraries in a multiple stack:

- 1 Select one of the libraries in the stack to be the “Master” library. This library can occupy any position in the stack.
- 2 Refer to [Setting the Library Options](#) on page 33 for information on setting the library’s stack role.

