

ATL StackLink™

Installation Instructions

6421009-07 A01

Quantum.

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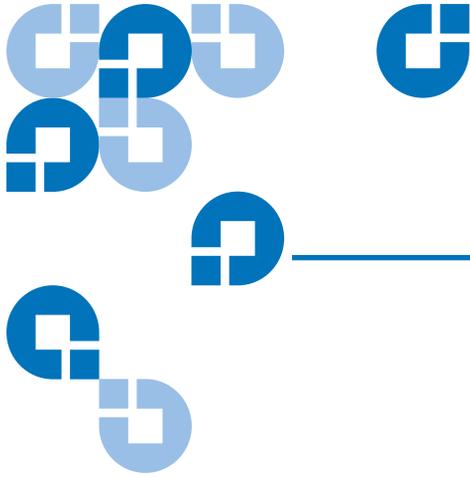
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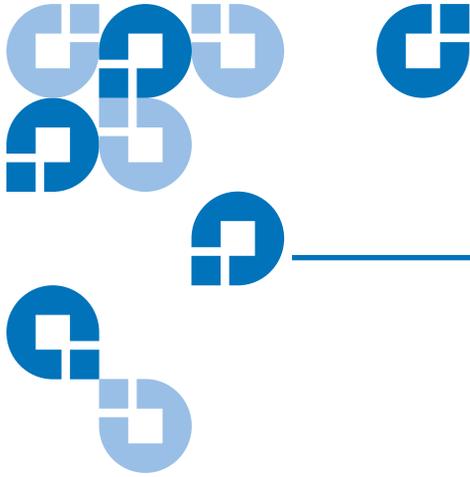
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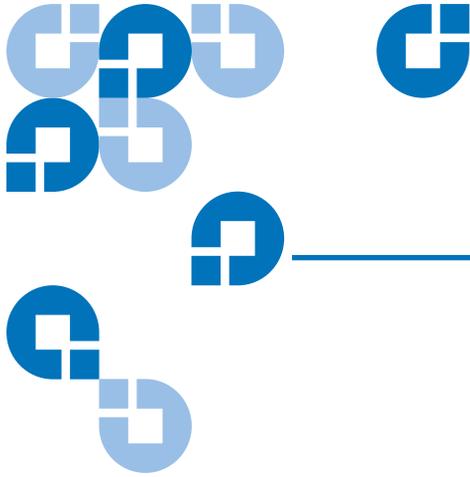
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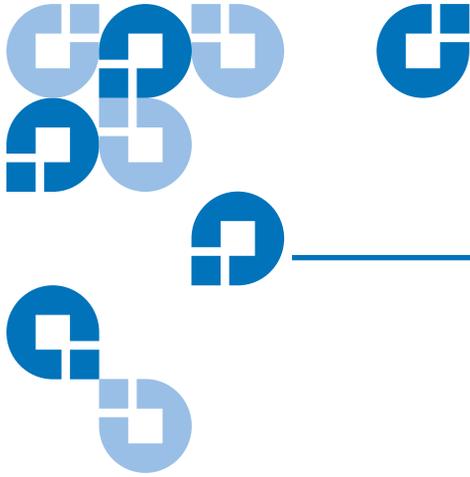
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Preface

This document explains how to install the StackLink™ mechanism. The StackLink provides the physical connection between library modules in a multiple library stack, allowing each of the tape drives in the stack to have access to all of the data cartridges.

Four heights of StackLink can be purchased for use with the ATL M-Series libraries: 10U, 22U, 30U, and 42U.

Audience

This document is written for installers of the StackLink mechanism.

Purpose

This document explains how to install a multiple library stack, including:

- Installing the StackLink mechanism
- Installing the rack mount shelves
- Installing the library modules in the rack
- Installing tape drives in the library modules
- Installing safety blanking panels
- Preparing and inserting tape cartridges
- Cabling the multiple library stack

Document Organization

This document is organized as follows:

- [Chapter 1, Installing the StackLink](#), explains how to install the StackLink mechanism in the rack.
- [Chapter 2, Installing the Rack Mount Shelves](#), explains how to install the rack mount shelves.
- [Chapter 3, Installing the Libraries](#), explains how to install the libraries in the rack, install tape drives in the libraries, install the safety blanking panels, and prepare and insert tape cartridges.
- [Chapter 4, Cabling the Multiple Library Stack](#), explains how to connect the interlibrary (control bus), StackLink, SCSI bus, and power cabling.
- [Chapter 5, Completing the Installation](#), explains how to power up the multiple library stack, disable unused drive bays, configure the library, and test the library robotics.
- [Appendix A, Library Size](#), explains how the library firmware calculates and reports library size.
- [Appendix B, SCSI Element Addressing](#), explains how the library firmware assigns SCSI element addresses.

Notational Conventions

This manual uses the following conventions:

Note: Notes emphasize important information related to the main topic.

Caution: Cautions indicate potential hazards to equipment and are included to prevent damage to equipment.

Warning: Warnings indicate potential hazards to personal safety and are included to prevent injury.

Related Documents

Documents related to the ATL M-Series libraries are shown below.

ATL M-Series Documentation

Doc. No	Title	Description
6421001	<i>ATL M1500 Field Service Manual</i>	This document explains how to service the ATL M1500 library, including: <ul style="list-style-type: none"> • Understanding error codes • Using built-in diagnostic checks to troubleshoot library problems • Replacing field replaceable units (FRUs)
6421002	<i>ATL M1500 Unpacking Instructions</i>	This document explains how to remove the ATL M1500 library from its shipping container.
6421005	<i>ATL M1500 Rack Mount to Desktop Conversion Instructions</i>	This document explains how to convert a rack mounted ATL M1500 library to a desktop unit.
6421007	<i>ATL M1500 Desktop to Rack Mount Conversion Instructions</i>	This document explains how to convert a desktop ATL M1500 library to a rack mount unit.
6421008	<i>ATL M-Series Tape Drive Installation Instructions</i>	This document explains how to install a tape drive in an ATL M-Series library.
6421010	<i>ATL M-Series Software Interface Guide</i>	This document describes the procedures and issues involved in the development of hierarchical mass storage software applications and utilities to communicate with the ATL M-Series libraries.

Doc. No	Title	Description
6421014	<i>ATL M-Series Tape Drive Removal and Replacement Instructions</i>	This document explains how to remove and replace a tape drive in an ATL M-Series library.
6421015	<i>ATL M1500 Chassis Removal and Replacement Instructions</i>	This document explains how to remove, package for shipment, and replace an ATL M1500 library chassis.
6421017	<i>ATL M1500 Chassis Unpacking Instructions</i>	This document explains how to unpack the ATL M1500 library chassis FRU.
6421026	<i>ATL M1500 Spacer Installation Instructions</i>	This document explains how to install spacers on the rack before installing an M1500 library. These spacers are necessary if you are installing a new M1500 library in a rack with older M1500 libraries and a StackLink mechanism.
6421034	<i>ATL M1500 Front Bezel/GUI Assembly Replacement Instructions</i>	This document describes the procedure for replacing the front bezel/ graphical user interface (GUI) assembly in an ATL M1500 library.
6423000	<i>ATL M2500 Unpacking Instructions</i>	This document explains how to remove the ATL M2500 library from its shipping container.
6423001	<i>ATL M-Series Installation Guide</i>	This document explains how to install an ATL M-Series library.
6423002	<i>ATL M-Series User's Guide</i>	This document explains how to operate an ATL M-Series library.

Doc. No	Title	Description
6423003	<i>ATL M2500 Field Service Manual</i>	This document explains how to service the ATL M2500 library, including: <ul style="list-style-type: none"> • Understanding error codes • Using built-in diagnostic checks to troubleshoot library problems • Replacing field replaceable units (FRUs)
6423006	<i>ATL M-Series Library Redundant Power Supply Replacement Instructions</i>	This document explains how to remove and replace a redundant power supply in an ATL M-Series library
6423007	<i>ATL M-Series Library Universal Power Supply Replacement Instructions</i>	This document explains how to remove and replace a universal power supply in an ATL M-Series library.
6423008	<i>ATL M-Series Library System Board PWA Replacement Instructions</i>	This document explains how to remove and replace the system board PWA in an ATL M-Series library.
6423009	<i>ATL M-Series Library SCSI Servo Board and SCSI Adapter Replacement Instructions</i>	This document explains how to remove and replace the SCSI servo board and SCSI adapter in an ATL M-Series library.
6423010	<i>ATL M-Series Library Robotic Hand Removal and Replacement Instructions</i>	This document explains how to remove and replace the robotic hand in an ATL M-Series library.
6423012	<i>ATL M2500 Library GUI Assembly Replacement Instructions</i>	This document explains how to remove and replace the GUI assembly in an ATL M2500 library.

Doc. No	Title	Description
6423034	<i>Quantum ATL M-Series Power Supply Upgrade Instructions</i>	This document explains how to upgrade the power supply in an ATL M-Series library.
6423036	<i>ATL M2500 Rack Mount to Deskside Conversion Instructions</i>	This document explains how to convert a rack mounted ATL M2500 to a deskside library.
6423039	<i>Quantum ATL StackLink FRU Removal and Replacement Instructions</i>	This document explains how to remove and replace the StackLink motor assembly, carriage, counterweight, and umbilical chain.
6423062	<i>Quantum ATL M-Series Drive Brick Replacement Instructions</i>	This document explains how to remove and replace an SDLT 320, SDLT 600, or HP LTO Gen 2 tape drive (without a canister) in an ATL M-Series library.
6423063	<i>Quantum ATL M2500 Bezel/Doors/Winged Window Replacement Instructions</i>	This document explains how to replace the bezel, doors, and window in an ATL M2500 library.

Refer to the appropriate product manuals for information about your tape drive and cartridges.

SCSI-2 Specification

The SCSI-2 communications specification is the proposed American National Standard for information systems, dated March 9, 1990. Copies may be obtained from:

Global Engineering Documents
 15 Inverness Way, East
 Englewood, CO 80112
 (800) 854-7179 or (303) 397-2740

Contacts

Quantum company contacts are listed below.

Quantum Corporate Headquarters

To order documentation on the ATL M-Series libraries or other products contact:

Quantum Corporation
P.O. Box 57100
Irvine, CA 92619-7100
(949) 856-7800
(800) 284-5101

Technical Publications

To comment on existing documentation send e-mail to:

doc-comments@quantum.com

Quantum Home Page

Visit the Quantum home page at:

<http://www.quantum.com>

Customer Support

The Quantum Customer Support Department provides a 24-hour help desk that can be reached at:

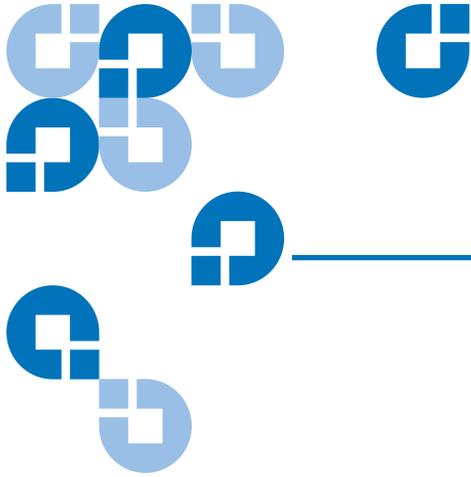
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Chapter 1

Installing the StackLink

The StackLink installation procedure consists of the following steps:

- [Preparing for the StackLink Installation](#)
- [Installing the Top Mounting Tray Assembly](#)
- [Installing the Bottom Mounting Tray Assembly](#)
- [Installing the Carriage/Counterweight Assembly](#)
- [Installing the Motor Assembly](#)
- [Attaching the Shuttle Assembly to the Mounting Tray Assemblies](#)

Preparing for the StackLink Installation

Before starting the StackLink installation procedure:

- Verify that the StackLink kit contains all of the necessary items (see the following section, [StackLink Kit Contents](#)).
- Make sure you have the necessary tools for the installation (see [Required Tools](#)).
- Prepare the rack for the installation (see [Preparing the Rack](#)).

StackLink Kit Contents

[Table 1](#) lists the contents of the StackLink kit. If any items are missing, contact Quantum (see [Customer Support](#) on page xix).

Note: The StackLink kit is shipped in two boxes. Before starting the installation procedure, verify that you received both boxes, and that the boxes contain all of the items listed in [table 1](#).

Table 1 Contents,
StackLink Kit

Part No.	Description	Quantity Provided			
		with 10U StackLink	with 22U StackLink	with 30U StackLink	with 42U StackLink
212406	Front safety blanking panel, 1U	N/A	1	1	1
212407	Front safety blanking panel, 2U	N/A	1	1	1
212502	Rear safety blanking panel, 4U	N/A	3	5	8
212579	Front safety blanking panel, 4U	N/A	3	5	8
214217	Rear safety blanking panel, .5U	N/A	1	1	1
214218	Rear safety blanking panel, 1U	N/A	2	2	2
215941	Front panel, .5U	N/A	1	1	1
6421009	ATL StackLink Installation Instructions	1	1	1	1
214070	StackLink motor cable (2 meter)	N/A	N/A	1	1
214080	StackLink motor cable (1 meter)	N/A	1	N/A	N/A
214090	StackLink motor cable (.6 meter)	1	N/A	N/A	N/A
214370	Top mounting tray assembly	1	1	1	1
214380	Bottom mounting tray assembly	1	1	1	1
214390	Vertical shuttle assembly (10U)	1	N/A	N/A	N/A

Part No.	Description	Quantity Provided			
		with 10U StackLink	with 22U StackLink	with 30U StackLink	with 42U StackLink
214400	Vertical shuttle assembly (22U)	N/A	1	N/A	N/A
214410	Vertical shuttle assembly (42U)	N/A	N/A	N/A	1
214450	Shuttle motor mount assembly	1	1	1	1
215180	Carriage/counterweight assembly	1	1	1	1
217370	Vertical shuttle assembly (30U)	N/A	N/A	1	N/A
AS3642	Library control bus cable (.5 meter)	3	5	7	10
AS3643	Library control bus cable (2 meter)	N/A	1	1	1
AS3667	Library control bus cable (1 meter)	N/A	1	1	2
YS40402	M4 plain washer	6	6	6	6
YS40404	M6 plain washer	16	22	26	32
YS41731	Washer, large	N/A	6	6	6
YS41952	M4 x 12 socket head cap screw	6	6	6	6
YS41964	M4 x 10 socket head cap screw	1	7	11	17
YS42008	M6 caged nut	16	22	26	32
YS42011	M6 x 12 button head screw	16	22	26	32
YS42038	M4 x 10 socket head countersink screw	2	2	2	2

Required Tools

The following tools are required to install the StackLink:

- Flat blade screwdriver
- No. 2 POZIDRIV® screwdriver
- Metric Allen® wrenches, sizes M4 and M6

Preparing the Rack

To prepare the rack for the installation procedure:

- 1 Verify that the distance between the front and rear mounting strips is between 19 inches and 36 inches (483 mm and 914 mm). If this is not the case, adjusting the mounting strips referring to the instructions provided by the rack manufacturer.
- 2 Determine the correct placement of the StackLink in the rack.

Caution: Take rack stability into account when determining where to place the StackLink. If the multiple library stack will be the only equipment in the rack, it is recommended that you install the StackLink at the bottom of the rack.

The bottom mounting tray assembly should be installed at the bottom of the rack.

Note: The bottom mounting tray assembly occupies 1U of rack space unless you are installing 3 ATL M2500 libraries in the rack. In this configuration, the bottom mounting tray assembly is modified to occupy .5U of rack space.

Note: 1U equals 1.75 inches, or 44 millimeters.

The top mounting tray assembly should be installed as follows:

- If you are installing an 10U StackLink, allow 8U of space between the top and bottom mounting tray assemblies.
- If you are installing a 22U StackLink, allow 20U of space between the top and bottom mounting tray assemblies.
- If you are installing a 30U StackLink, allow 28U of space between the top and bottom mounting tray assemblies.
- If you are installing a 42U StackLink *and*:
 - Fewer than 3 ATL M2500 library modules, allow 40U of space between the top and bottom mounting tray assemblies.
 - 3 ATL M2500 library modules, allow 40.5U of space between the top and bottom mounting tray assemblies.

- 3 Use a pencil to mark the correct position of the mounting tray assemblies on the rack rails.
- 4 If the holes in the rack rails are square (untapped), insert caged nuts (PN YS42008) into the holes where the mounting tray assemblies will be installed (see figures 1 and 2).

Note: Install the caged nuts on the back of the rack rails, facing the interior of the rack.

Figure 1 Inserting
Caged Nuts into the
Rack Rails

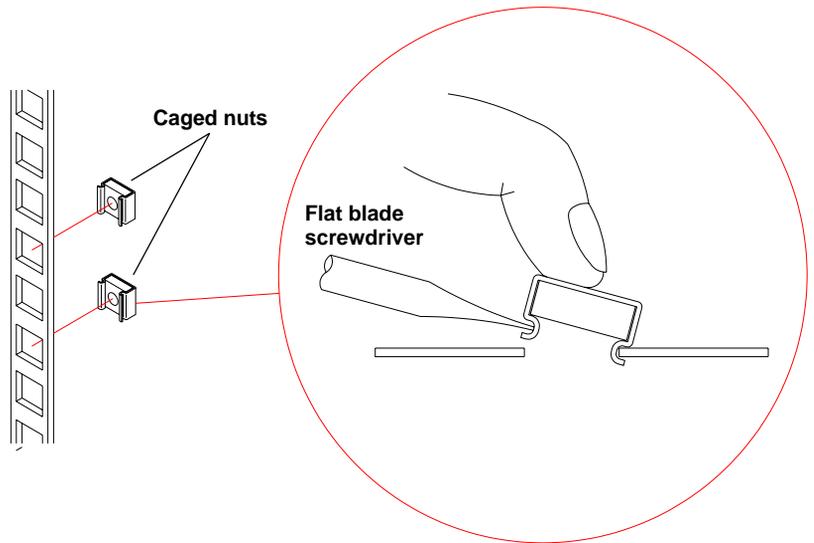
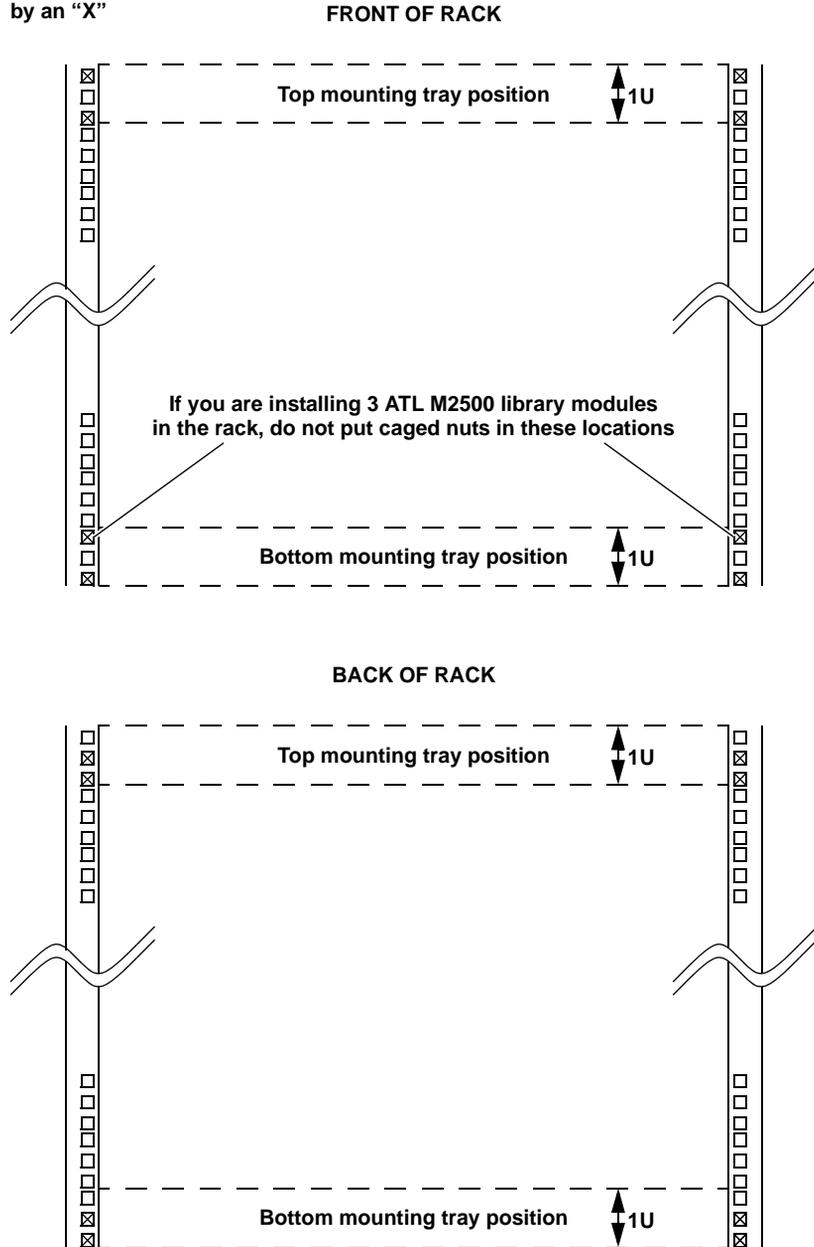


Figure 2 Caged Nut Locations

Install caged nuts in locations marked by an "X"

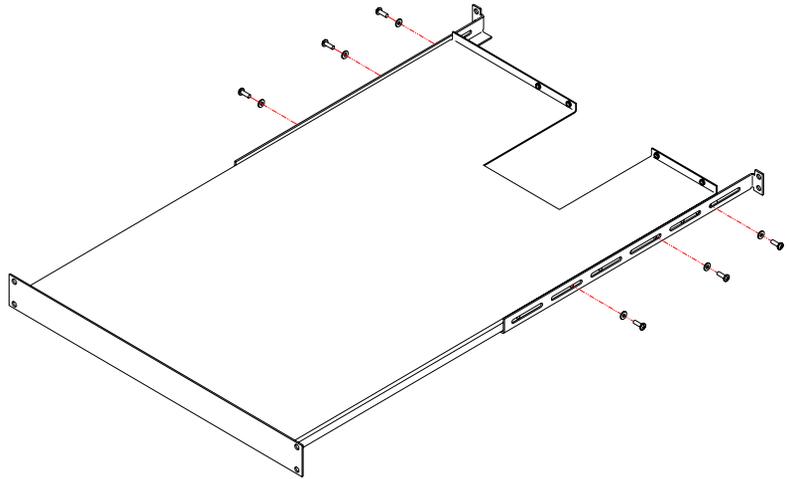


Installing the Top Mounting Tray Assembly

To install the top mounting tray assembly in the rack:

- 1 Remove the six screws and washers securing the rear support arms to the sides of the top mounting tray (see [figure 3](#)).

Figure 3 Adjusting the Depth of the Top Mounting Tray Assembly



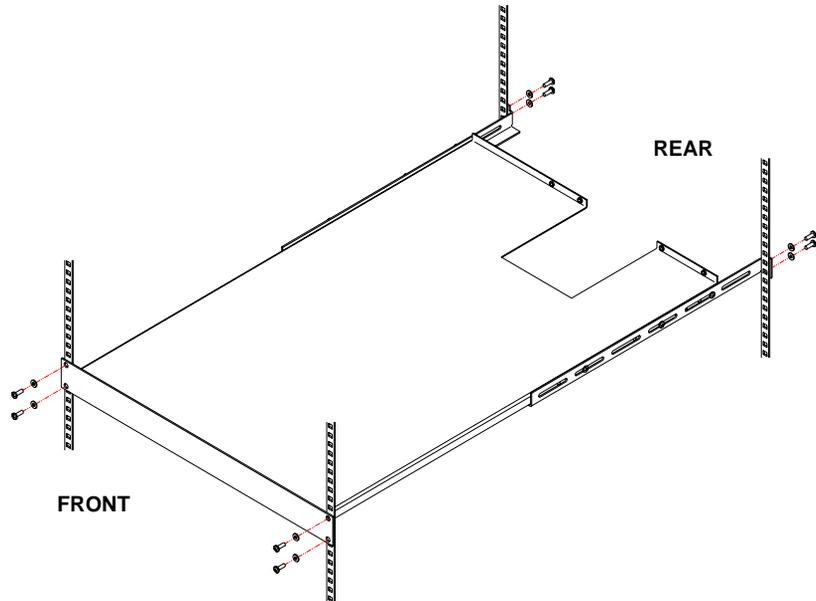
- 2 Adjust the position of the rear support arms on the top mounting tray until the distance between the front and rear flanges is approximately the same as the distance between the front and rear mounting strips in the rack.
- 3 Replace the six screws and washers you removed in [step 1](#) and finger-tighten them. Position the front and rear screws as far apart as the slots allow. Position the third screw approximately in the middle slot.

Note: Do not over-tighten the screws. You need to be able to extend or retract the rear support arms slightly as you install the top mounting tray assembly.

- 4 Position the top mounting tray assembly in the rack, referring to [figure 4](#) for the correct orientation.

Note: Position the front and rear flanges of the top mounting tray assembly outside of the rack rails.

Figure 4 Securing the
Top Mounting Tray
Assembly to the Rack



- 5 Secure the top mounting tray assembly to the rack, using eight screws (PN YS42011) and washers (PN YS40404) provided in the StackLink kit (see [figure 4](#)).

Note: If the rack has widely spaced mounting holes, it may not be possible to use all four screws to secure the rear flanges. If this is the case, one screw per side at the rear is acceptable.

- 6 Fully tighten the six screws and washers securing the rear support arms to the sides of the top mounting tray.

Installing the Bottom Mounting Tray Assembly

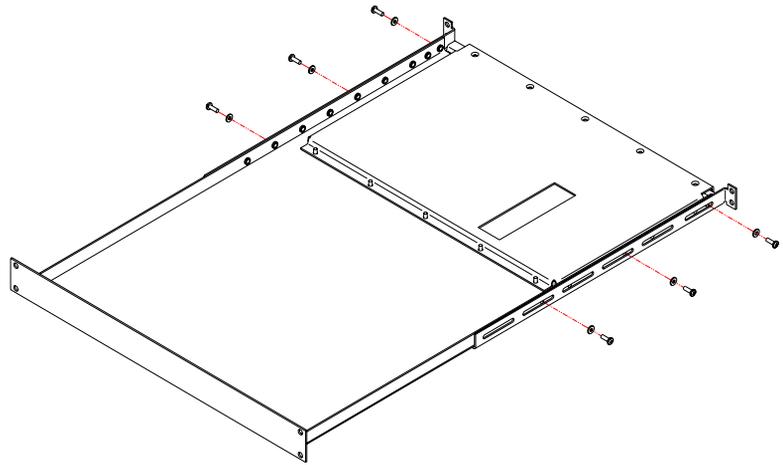
To install the bottom mounting tray assembly in the rack:

- 1 If three ATL M2500 library modules will be installed in the rack, remove the 1U panel from the front of the bottom mounting tray assembly and replace it with the .5U panel provided in the StackLink kit:

Caution: Do not remove this panel if fewer than three ATL M2500 library modules will be installed in the rack.

- a Remove the five nuts securing the 1U panel to the front of the bottom mounting tray assembly.
 - b Position the .5U panel (PN 215941) at the front of the bottom mounting tray assembly and secure it using the five nuts you removed in the previous step.
- 2 Remove the six screws and washers securing the rear support arms to the sides of the bottom mounting tray (see [figure 5](#)).

Figure 5 Adjusting the Depth of the Bottom Mounting Tray Assembly



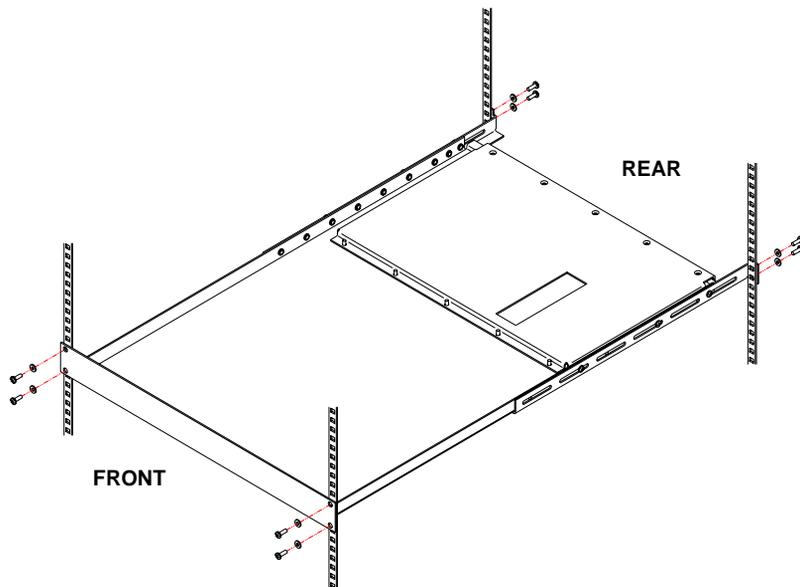
- 3 Adjust the position of the rear support arms on the bottom mounting tray until the distance between the front and rear flanges is approximately the same as the distance between the front and rear mounting strips in the rack.
- 4 Replace the six screws and washers you removed in [step 2](#) and finger-tighten them. Position the front and rear screws as far apart as the slots allow. Position the third screw approximately in the middle slot.

Note: Do not over-tighten the screws. You need to be able to extend or retract the rear support arms slightly as you install the bottom mounting tray assembly.

- 5 Position the bottom mounting tray assembly in the rack, referring to [figure 6](#) for the correct orientation.

Note: Position the front and rear flanges of the bottom mounting tray assembly outside of the rack rails.

Figure 6 Securing the Bottom Mounting Tray Assembly to the Rack



- 6 Secure the bottom mounting tray assembly to the rack, using the screws (PN YS42011) and washers (PN YS40404) provided in the StackLink kit (see [figure 6](#)).

Note: If the rack has widely spaced mounting holes, it may not be possible to use all four screws to secure the rear flanges. If this is the case, one screw per side at the rear is acceptable.

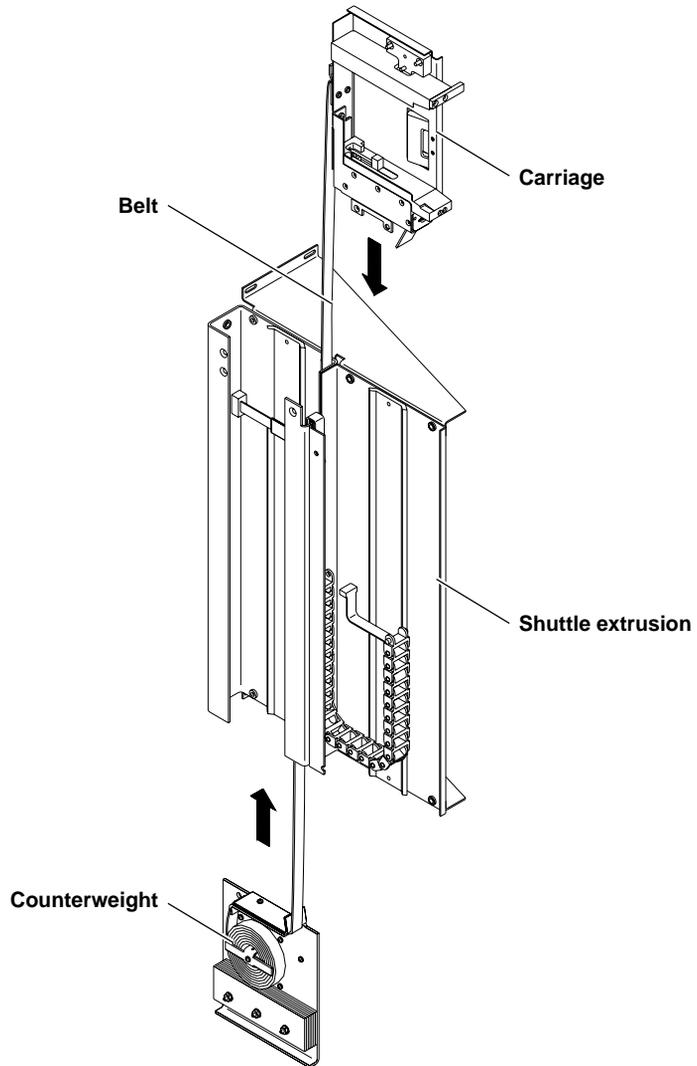
- 7 Fully tighten the six screws and washers securing the rear support arms to the sides of the bottom mounting tray.

Installing the Carriage/Counterweight Assembly

Now that the top and bottom mounting trays are installed, install the carriage/counterweight assembly on the vertical shuttle assembly (see [figure 7](#)):

- 1 Slide the counterweight onto the bottom of the vertical shuttle assembly, engaging the guide wheels of the counterweight with the vertical rails.

Figure 7 Installing the
Carriage/
Counterweight
Assembly

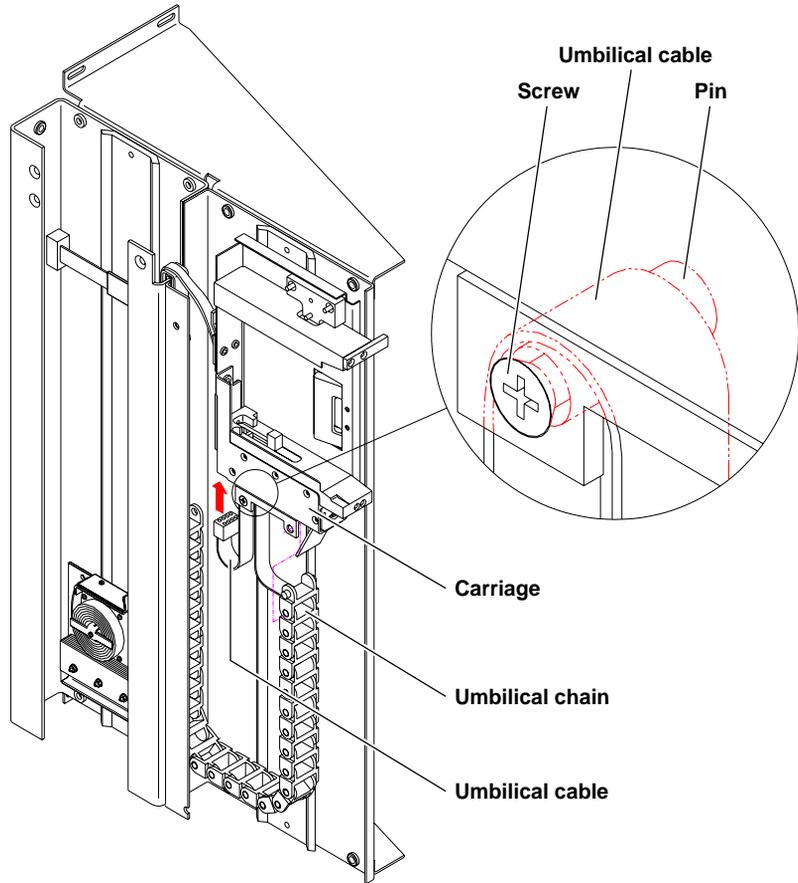


- 2 Route the belt connecting the counterweight and carriage up and over the top of the vertical shuttle assembly, making sure not to twist the belt.
- 3 Slide the carriage onto the top of the vertical shuttle assembly, engaging the guide wheels of the carriage with the vertical rails.
- 4 Secure the umbilical cable to the underside of the carriage (see [figure 8](#)):
 - a Locate the pin on the underside of the carriage.
 - b Slide the umbilical cable underneath the open end of the pin.
 - c Rotate the pin until the umbilical cable is held snugly.
 - d Tighten the screw to secure the pin.

Caution: Do not over-tighten the screw.

- 5 Snap the end of the umbilical chain onto the bottom of the carriage (see [figure 8](#)).
- 6 Connect the end of the umbilical cable to the socket on the carriage connection board (see [figure 8](#)).

Figure 8 Connecting the Umbilical Cable to the Bottom of the Carriage

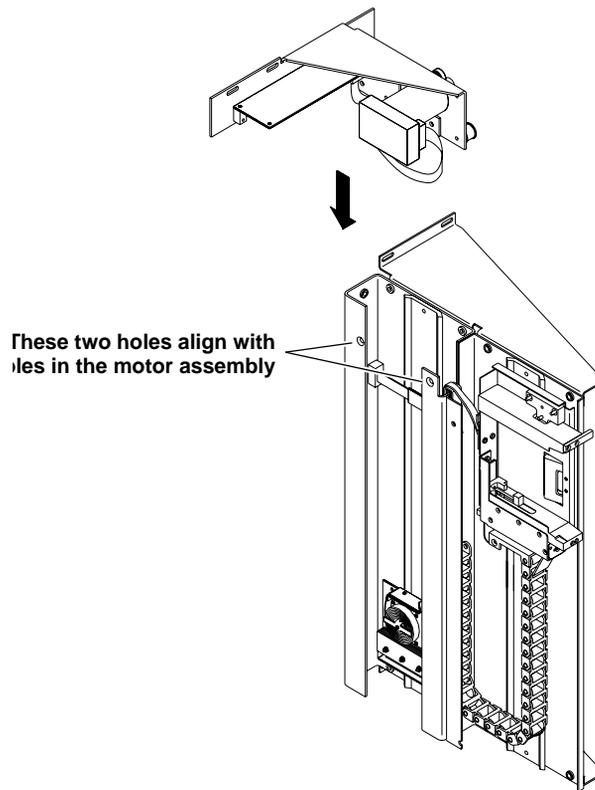


Installing the Motor Assembly

To secure the motor assembly to the vertical shuttle assembly:

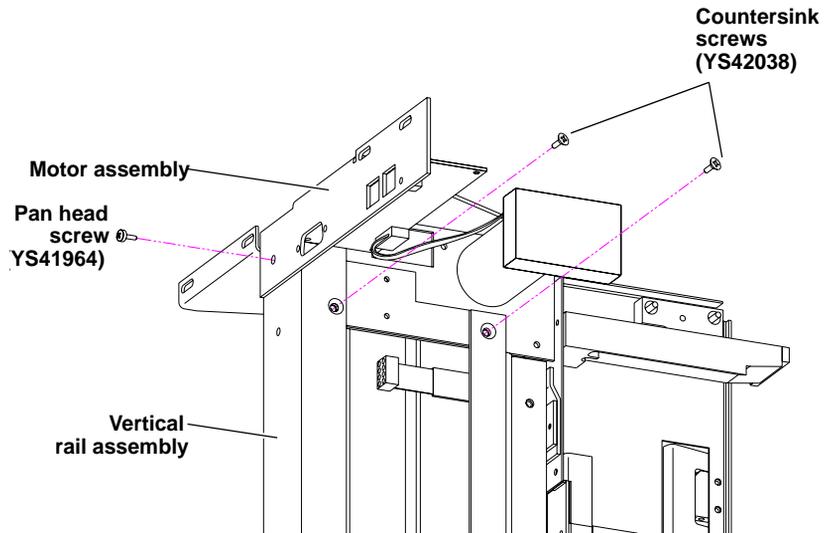
- 1 Insert the bottom of the motor assembly into the top of the vertical shuttle assembly, aligning the two holes in the vertical shuttle assembly with those on the motor assembly (see [figure 9](#)).

Figure 9 Inserting the Motor Assembly into the Vertical Shuttle Assembly



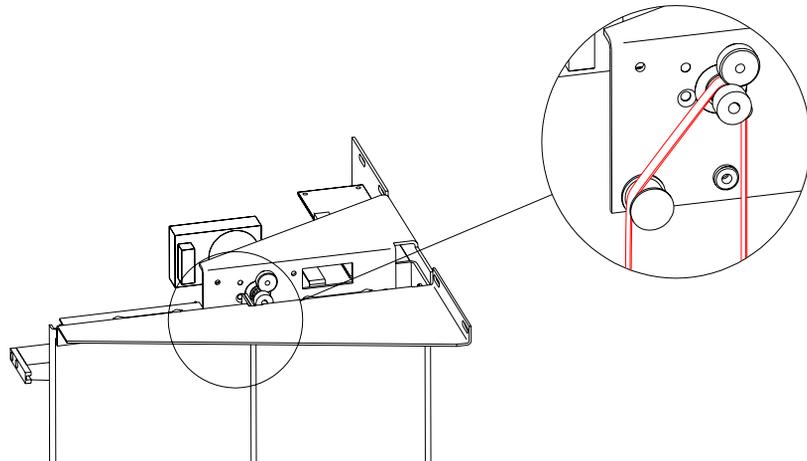
- 2 Secure the motor assembly to the vertical shuttle assembly, using two countersink screws (PN YS42038) and one pan head screw (PN YS41964) (see [figure 10](#)).

Figure 10 Securing the Motor Assembly to the Vertical Shuttle Assembly



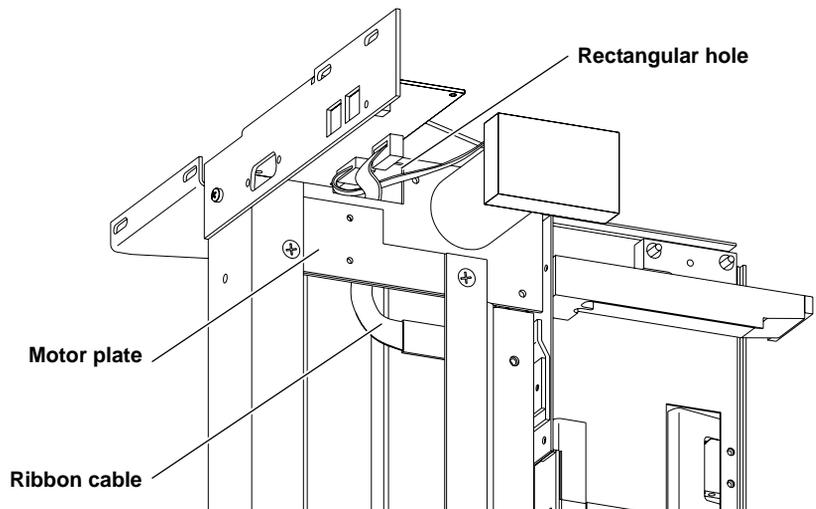
- 3 Route the belt connecting the counterweight and the carriage over the guide roller and past the motor/pulley belt retainer on the motor assembly (see [figure 11](#)).

Figure 11 Routing the Belt



- 4 Connect the ribbon cable from the vertical shuttle assembly to the socket on the control board at the rear of the motor assembly as shown in [figure 12](#):
 - a Route the ribbon cable behind the motor plate.
 - b Insert the ribbon cable connector through the rectangular hole at the top of the motor plate.
 - c Connect the ribbon cable connector to the socket on the control board.

Figure 12 Connecting
the Ribbon Cable



Attaching the Shuttle Assembly to the Mounting Tray Assemblies

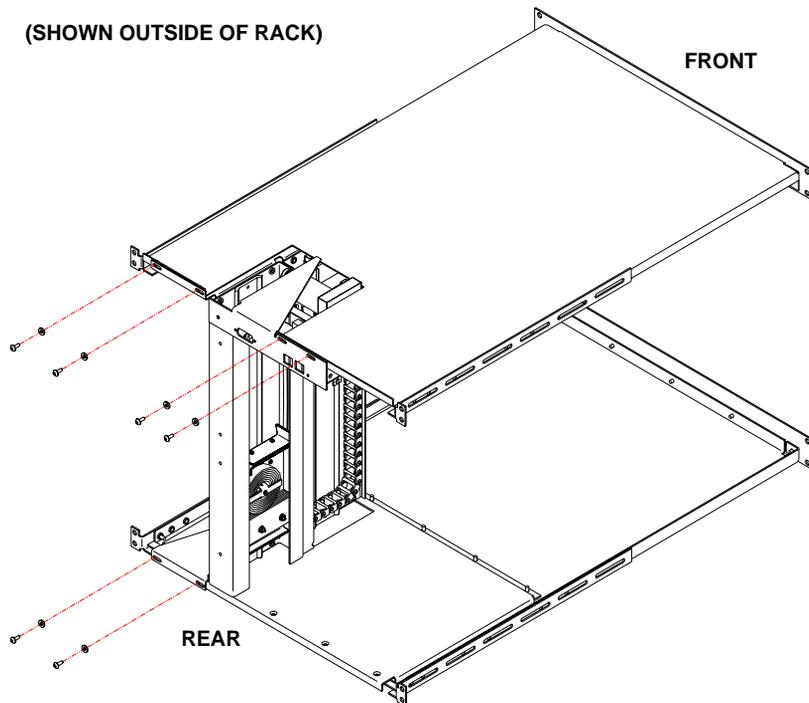
To attach the shuttle assembly to the top and bottom mounting tray assemblies:

- 1 At the rear of the rack, lift the shuttle assembly and position it so the carriage faces forward into the rack.
- 2 Rest the lower end of the shuttle assembly on top of the bottom mounting tray assembly.

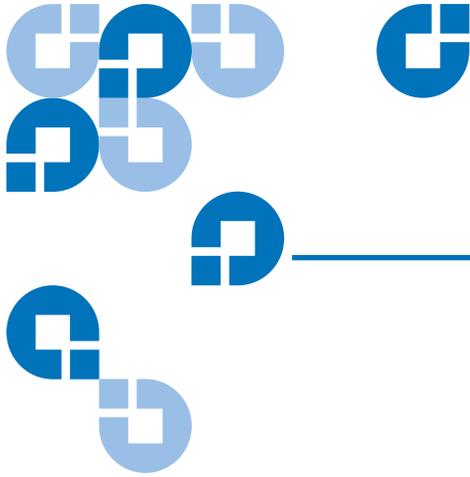
- 3 Ensure that the motor at the top of the shuttle assembly is aligned with the cutout in the top mounting tray assembly.
- 4 Slide the shuttle assembly fully into the rack.
- 5 Secure the shuttle assembly to the upper and lower mounting trays using six screws (PN YS41952) and washers (PN YS40402) provided in the StackLink kit (see [figure 13](#)).

Note: Tighten these screws to finger-tightness only. You will finish securing the StackLink after you have installed libraries in the rack.

Figure 13 Installing the Shuttle Assembly



Now that the StackLink is installed, proceed to the next chapter to install the rack mount shelves.



Chapter 2 Installing the Rack Mount Shelves

This chapter explains how to install the ATL M1500 and ATL M2500 rack mount shelves.

Caution: When installing the rack mount shelves, keep in mind that the libraries must be installed contiguously, from the top of the rack downward, with no space between the libraries. Due to the way the library firmware calculates the library size and assigns SCSI element addresses, installing the libraries non-contiguously can cause problems with the backup software.

For example, the top library in a multiple library stack must be installed directly beneath the StackLink upper mounting tray. Each subsequent library must be installed directly beneath the previous library, with no space in between.

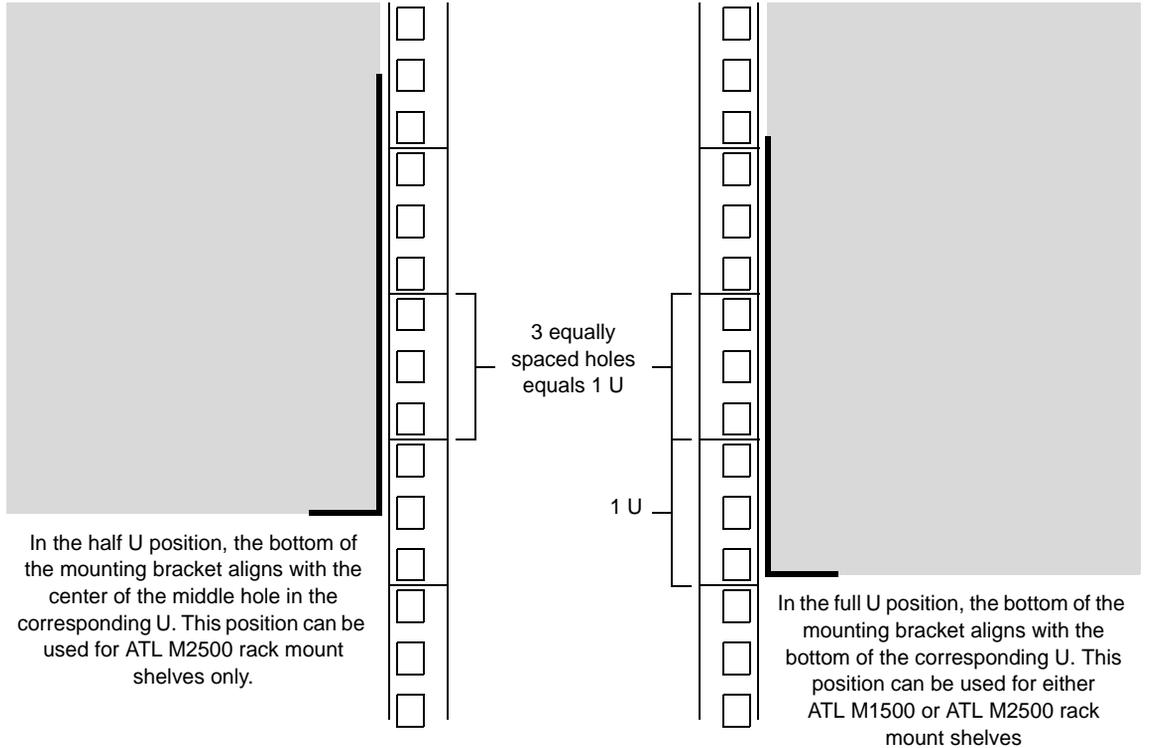
For information about how the library firmware calculates library size and assigns SCSI element addresses, see [appendix A, Library Size](#), on page 89 and [appendix B, SCSI Element Addressing](#), on page 95.

Determining the Position of the Shelves in the Rack

Before starting to install the rack mount shelves:

- 1 Determine the proper position of the shelves in the rack (see [figure 14](#)):
 - Racks are measured in rack mount units. Each unit is called a “U,” and is equal to 1.75 inches (44.45 millimeters). When you look at the rack rails, you will notice that the holes are divided into groups of three, with each group separated by a slightly smaller space. Each group of three equally spaced holes is one U (see [figure 14](#)).
 - An ATL M1500 library uses 4U of vertical space. The ATL M1500 rack mount shelves must be installed in a full U position (the bottom of the rack mount shelf must be aligned with the bottom of a U).
 - An ATL M2500 library uses 13.5U of vertical space. The ATL M2500 rack mount shelves can be installed in either a full U or a half U position (the bottom of the rack mount shelf may be aligned with either the bottom or the middle of a U).
- 2 Mark the desired shelf position on the rack rails.

Figure 14 Example of
Full and Half U
Mounting Positions



Installing the Shelves

The rack mount shelves are intended to accommodate a variety of the most commonly available rack rail configurations. The installation instructions vary depending on the rail configuration you have. To install the rack mount shelves for an:

- ATL M1500 library, refer to the following section, [Installing the ATL M1500 Rack Mount Shelves](#)
- ATL M2500 library, refer to [Installing the ATL M2500 Rack Mount Shelves](#) on page 30

Caution: Read the shelf installation instructions thoroughly. Failure to use the designated inserts, screws, and clamps could result in the library falling from the rack.

Installing the ATL M1500 Rack Mount Shelves

This section explains how to install the ATL M1500 rack mount shelves.

Checking the Contents of the Rack Mount Kit

[Table 2](#) lists the contents of the ATL M1500 Universal Rack Mount Kit. If any items are missing, contact Quantum (see [Customer Support](#) on page xix).

Table 2 Contents,
ATL M1500 Universal
Rack Mount Kit

Part No.	Description	Qty.
213467	Shelf clamp	4
213468	Insert (9 sq)	8
213469	Insert (7 sq)	8
213471	Insert (M6)	8
213472	Insert (M5 or 12-24UNC)	8
213473	Insert (10-32UNF)	8
213474	Insert (1/4" dia)	8
213476	Universal shelf, right	1
213477	Universal shelf, left	1
213478	Shelf extender #1	1
213479	Shelf extender #2	1
YS40403	Plain washer M5	4
YS40403	Plain washer M5	2
YS41720	Button head socket screw 10-24 UNC x 0.5 ins	2
YS41998	Nut, M5 full	4
YS42008	M6 cage nut	2
YS42011	Button head socket screw M6 x 12	2
YS42038	Countersink hex socket screw M4 X 10 LG	4
YS42042	Button head socket screw M5 x 12	2
YS42043	Button head socket screw 10-32 UNC x 0.5 ins	2
YS42044	M5 spire nut	2

Verifying That You Have the Required Tools

The following tools are required to install the rack mount kit:

- 8 mm open end wrench
- 2.5 mm socket driver (preferably ball headed)
- Flat blade screwdriver
- Tape measure

Assembling the Rack Mount Shelves

Each rack mount shelf consist of a rack mount shelf and an extender. To assemble the rack mount shelves:

- 1 Measure the distance between the inside surfaces of the front and rear rack rails, then find the corresponding rack depth in [table 3](#).
- 2 Assemble the left shelf:
 - a Refer to the **Left Shelf/Shelf Extender** column of [table 3](#) to determine which shelf extender to combine with the left universal shelf.
 - b Insert the posts on the left universal shelf through the shelf extender slots identified in the **Left Shelf/Slots** column of [table 3](#).
The slots in the shelf extenders are identified as shown in [figure 16](#).
 - c Use the M5 nuts (PN YS41998) and M5 washers (PN YS40403) provided in the rack mount kit to fasten the left shelf and shelf extender together (see [figure 16](#)).

<p>Note: Tighten the nuts to finger-tightness only. You need to be able to retract and extend the assembled shelves slightly.</p>
--

- 3 Assemble the right shelf in the same manner, referring to the **Right Shelf** column of [table 3](#).

Table 3 Shelf
Assembly Matrix

Rack Depth (between flanges)	Left Shelf		Right Shelf	
	Shelf Extender	Slots	Shelf Extender	Slots
24.50 in. - 26.75 in. (620 mm - 680 mm)	#2	A & B	#1	A & B
26.75 in. - 29.125 in. (680 mm - 740 mm)	#1	B & C	#2	A & B
29.125 in. - 31.50 in. (740 mm - 800 mm)	#2	B & C	#1	B & C
31.50 in. - 33.875 in. (800 mm - 860 mm)	#1	C & D	#2	B & C
33.875 in. - 36.25 in. (860 mm - 920 mm)	#2	C & D	#1	C & D

Figure 15 Identifying
the Shelf Extender
Slots

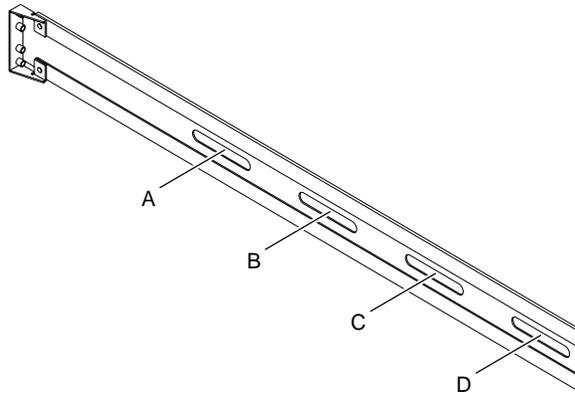
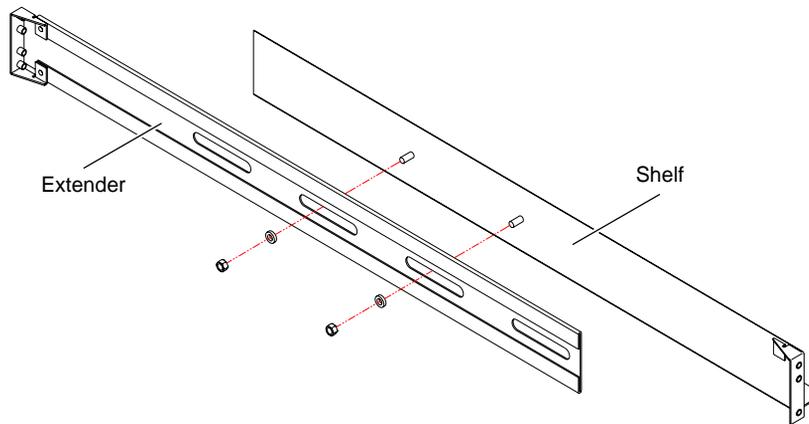


Figure 16 Attaching
the Shelves to the
Extenders



Installing the Rack Mount Shelves

To install the rack mount shelves:

- 1 From the six sizes of inserts provided in the rack mount kit, select the insert type that best fits the holes in your rack rails. The insert part numbers are:
 - 213468 (for rails with 9 mm square holes)
 - 213469 (for rails with 7 mm diameter unthreaded holes)
 - 213471 (for rails with M6 threaded holes)
 - 213472 (for rails with 12-24 UNC or M5 threaded holes)
 - 213473 (for rails with 10-32 UNF threaded holes)
 - 213474 (for rails with 1/4 in. diameter unthreaded holes)

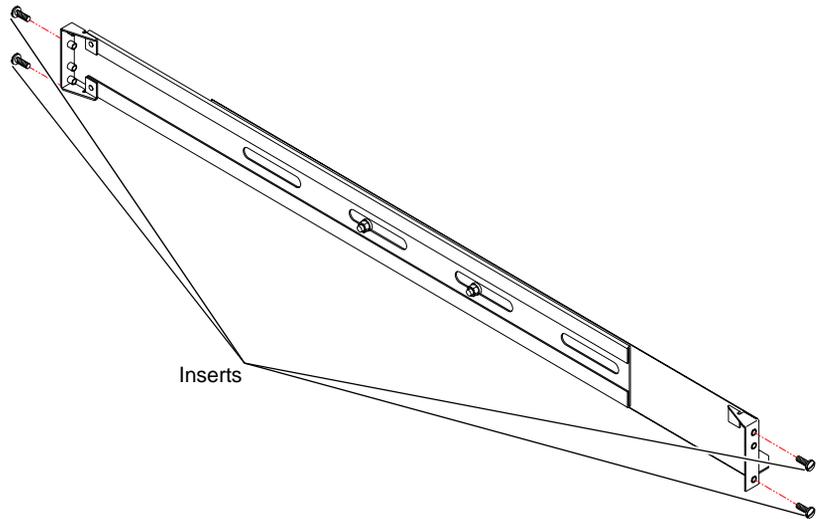
The heads of the inserts (not the threads) should fit into the rack rail holes smoothly and with very little play.

- 2 Once you have selected the inserts you will use, set the remaining inserts aside. You do not need them for this installation.

- 3 Screw the inserts into the two outer holes on each end of the assembled shelves (see [figure 17](#)).

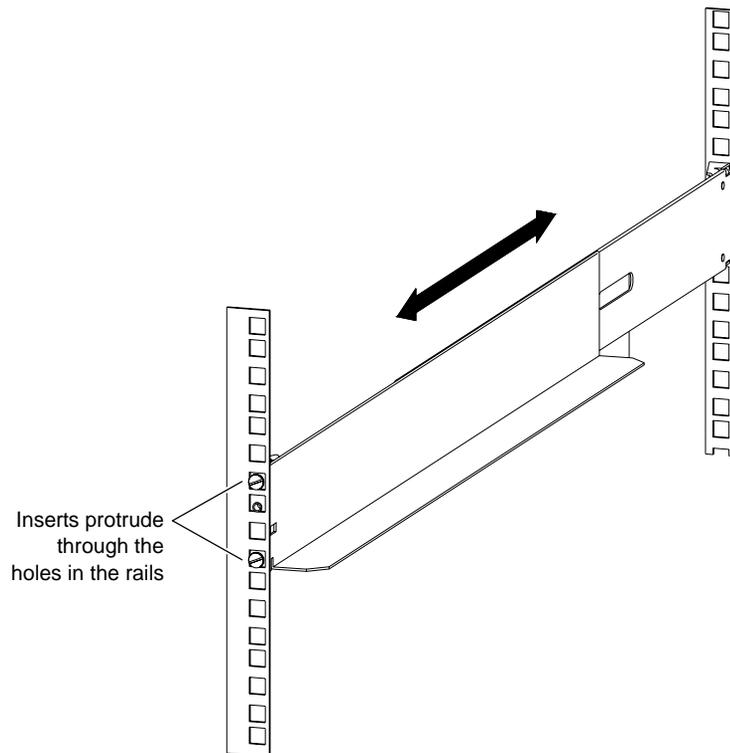
Note: Some of the inserts have either no head or a head that has a smaller diameter than the thread; these need to be left protruding by about 1/8 in. (3 mm). The inserts with heads should be tightened fully.

Figure 17 Installing the Inserts in the Shelves



- 4 Install the left shelf (see [figure 18](#)):
 - a With the shelf slightly retracted, position the shelf in the rack at the desired mounting height.
 - b Expand the shelf so that the inserts on each end of the shelf protrude into the holes in the rack rails and hold the shelf in place.
- 5 Repeat the above steps to install the right shelf.

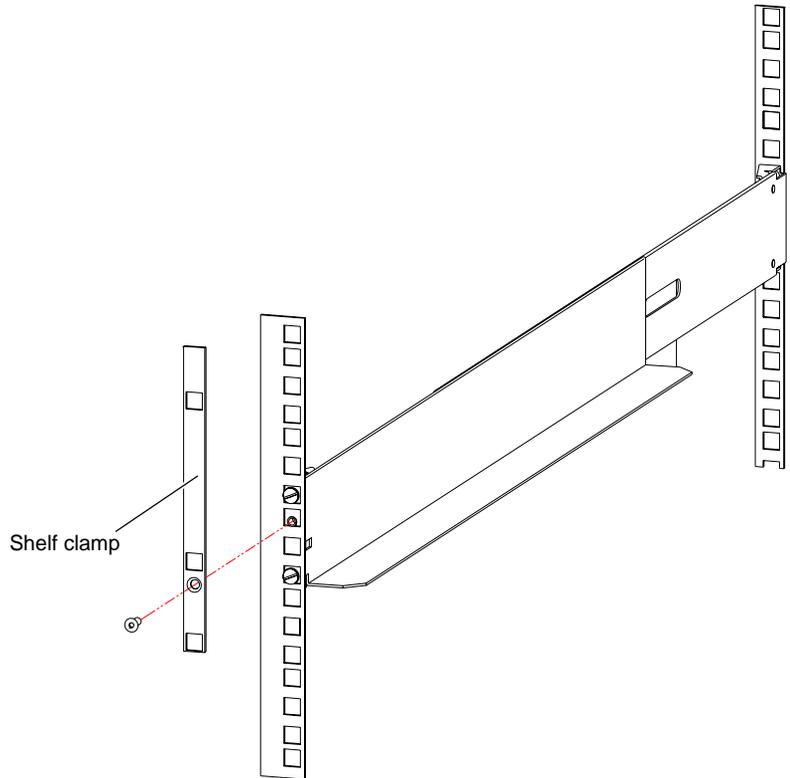
Figure 18 Installing the Shelf in the Rack



- 6 Secure the shelves (see [figure 19](#)):
 - a Position a shelf clamp (PN 213467) on the front left rack rail.
The bottom of the shelf clamp should be flush with the bottom of the shelf.
 - b Secure the shelf clamp to the rack rail using an M4 countersink screw (PN YS42038).

- c Repeat these steps to install shelf clamps at the front and back of each shelf.
- d Tighten the nuts securing the shelves to the shelf extenders.

Figure 19 Securing the Shelf Clamp to the Rail



Once you have installed all the rack mount shelves, proceed to the next chapter, [Installing the Libraries](#).

Note: The universal rack mount kit contains screws and nuts for many different types of rack. You will have many of these screws and nuts left over after installing the rack mount shelves and library.

Installing the ATL M2500 Rack Mount Shelves

This section explains how to install the ATL M2500 rack mount shelves.

Checking the Contents of the Rack Mount Kit

[Table 4](#) lists the contents of the ATL M2500 Universal Rack Mount Kit. If any items are missing, contact Quantum (see [Customer Support](#) on page xix).

Table 4 Contents,
ATL M2500 Universal
Rack Mount Kit

Part No.	Description	Qty.
213468	Insert (9 sq)	12
213469	Insert (7 sq)	12
213471	Insert (M6)	12
213473	Insert (10-32 UNF, 12-24 UNC, or M5)	12
213474	Insert (1/4 inch diameter)	12
215812	Front shelf clamp	4
217405	Clamp strip	2
215197/02	Universal shelf, right	1
215198/02	Universal shelf, left	1
215199/01	Shelf extender, long #1	1
215200/01	Shelf extender, long #2	1
215201/01	Rear shelf clamp	2
YS40403	Plain washer M5	8
YS41998	Nut, M5 full	8
YS42064	Countersink hex socket screw M4 x 12 LG	12

Verifying That You Have the Required Tools

The following tools are required to install the rack mount kit:

- 8 mm open end wrench
- 2.5 mm socket driver (preferably ball headed)
- Flat blade screwdriver
- Tape measure

Assembling the Rack Mount Shelves

To assemble the rack mount shelves:

- 1 Measure the distance between the inside surfaces of the front and rear rack rails, then find the corresponding rack depth in [table 5](#).
- 2 Assemble the left shelf:
 - a Refer to the **Left Shelf/Shelf Extender** column of [table 5](#) to determine which shelf extender to combine with the left universal shelf.
 - b Insert the posts on the left universal shelf through the shelf extender slots identified in the **Left Shelf/Slots** column of [table 5](#).
The slots in the shelf extenders are identified as shown in [figure 20](#).
 - c Use the M5 nuts (PN 41998) and M5 washers (PN YS40403) provided in the rack mount kit to fasten the left shelf and shelf extender together (see [figure 21](#)).

Note: Tighten the nuts to finger-tightness only; you need to be able to retract and extend the assembled shelves slightly.

- 3 Assemble the right shelf in the same manner, referring to the **Right Shelf** column of [table 5](#).

Table 5 Shelf
Assembly Matrix

Rack Depth (between flanges)	Left Shelf		Right Shelf	
	Shelf Extender	Slots	Shelf Extender	Slots
24.25 in. to 26.75 in. (617 mm to 680 mm)	Long #2	A & B	Long #1	A & B
26.75 in. to 29.125 in. (680 mm to 740 mm)	Long #1	B & C	Long #2	A & B
29.125 in. to 31.5 in. (740 mm to 800 mm)	Long #2	B & C	Long #1	B & C
31.5 in. to 33.875 in. (800 mm to 860 mm)	Long #1	C & D	Long #2	B & C
33.875 in. to 36.25 in. (860 mm to 920 mm)	Long #2	C & D	Long #1	C & D

Figure 20 Identifying
the Shelf Extender
Slots

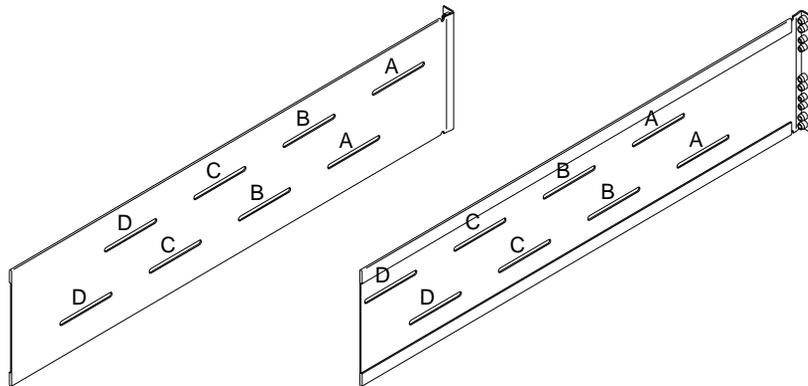
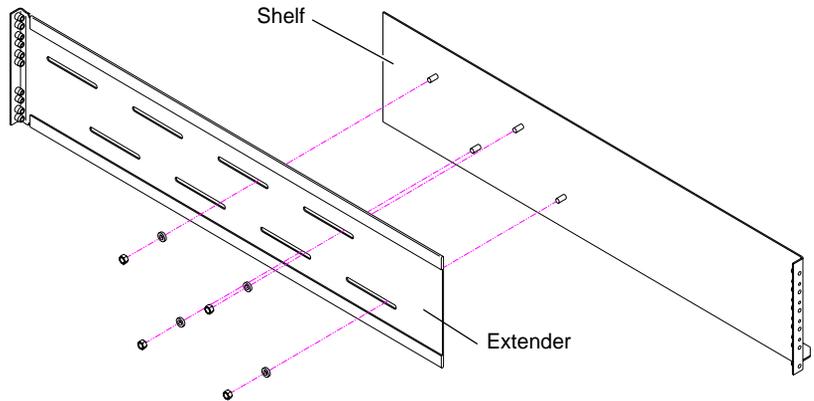


Figure 21 Attaching the Shelves to the Extenders



Installing the Shelves in a Half U Position

To install the rack mount shelves in a half U position:

Note: The top and bottom libraries in a 3-high ATL M2500 stack are mounted in a half U position.

1 From the six sizes of inserts provided in the rack mount kit, select the insert type that best fits the holes in your rack rails. The insert part numbers are:

- 213468 (for rails with 9 mm square holes)
- 213469 (for rails with 7 mm diameter unthreaded holes)
- 213471 (for rails with M6 threaded holes)
- 213473 (for rails with 10-32 UNF, 12-24 UNC, or M5 threaded holes)
- 213474 (for rails with 1/4 inch diameter unthreaded holes)

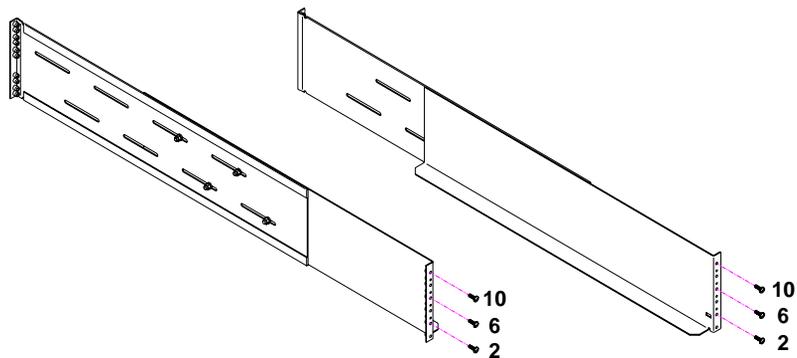
The heads of the inserts (not the threads) should fit into the holes in the rack rails smoothly and with very little play.

2 Once you have selected the inserts you will use, set the remaining inserts aside. You do not need them for this installation.

- 3 Screw three inserts into the front flange of each rack mount shelf in positions 2, 6, and 10 (counting from the bottom up, with 1 being the lowest hole) (see [figure 22](#)).

Note: Some of the inserts have either no head or a head that has a smaller diameter than the thread; these need to be left protruding by about 1/8 in. (3 mm). The inserts with heads should be tightened fully.

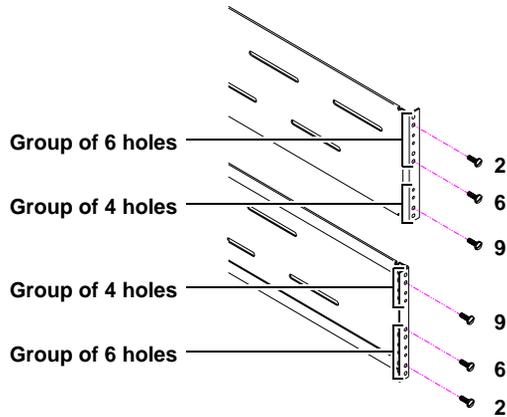
Figure 22 Installing Inserts at the Front of the Shelves



- 4 Screw three inserts into the rear flange of each rack mount shelf in the positions shown in [figure 23](#). If the shelves are oriented so the group of six holes is at the bottom and the group of four holes is at the top, the inserts go into holes 2, 6, and 9 (counting from the bottom up, with 1 being the lowest hole).

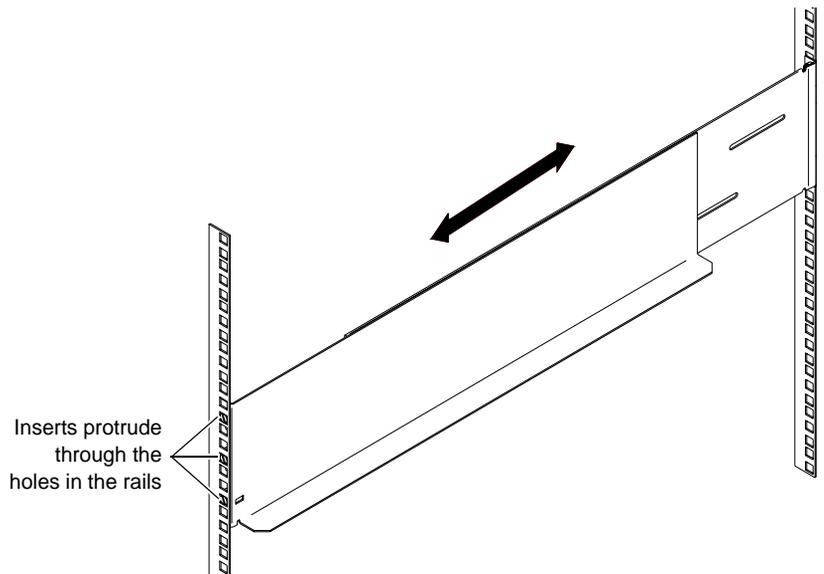
Note: Some of the inserts have either no head or a head that has a smaller diameter than the thread; these need to be left protruding by about 1/8 in. (3 mm). The inserts with heads should be tightened fully.

Figure 23 Installing Inserts at the Rear of the Shelves



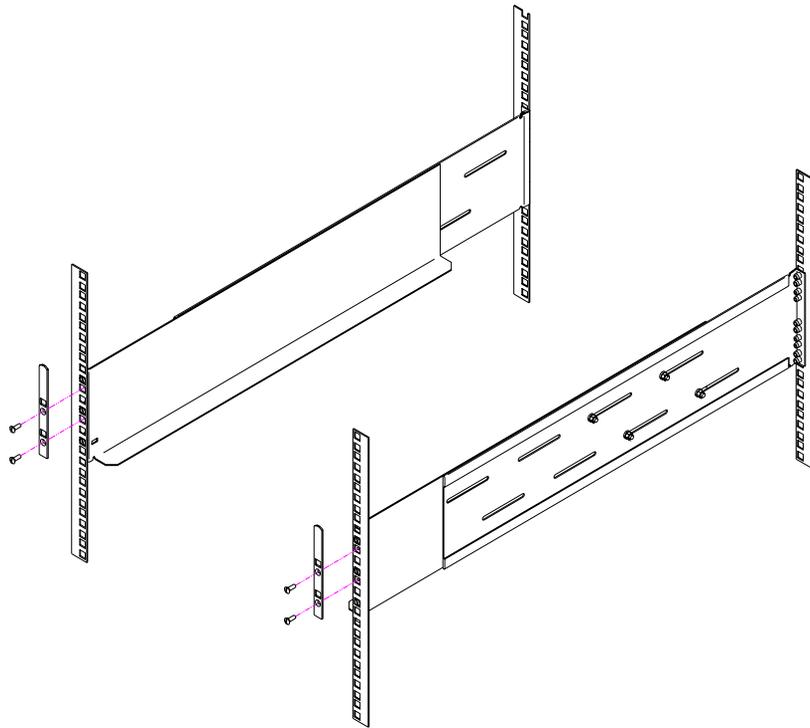
- 5 Install the shelves (see [figure 24](#)):
 - a With the shelf slightly retracted, position the shelf in the rack at the desired mounting height.
 - b Expand the shelf so that the inserts on each end of the shelf protrude into the holes in the rack rails and hold the shelf in place.
 - c Repeat these steps to install the remaining shelf.

Figure 24 Installing the Shelves



- 6 Install the front shelf clamps (see [figure 25](#)):
 - a Position a front shelf clamp (PN 215812) on the front left rack rail. The square holes in the front shelf clamp should be aligned with the upper two inserts in the front shelf flange.
 - b Secure the front shelf clamp to the rack rail using two M4 countersink screws (PN YS42064).
 - c Repeat these steps to install a front shelf clamp on the front right rack rail.

Figure 25 Installing the Front Shelf Clamps

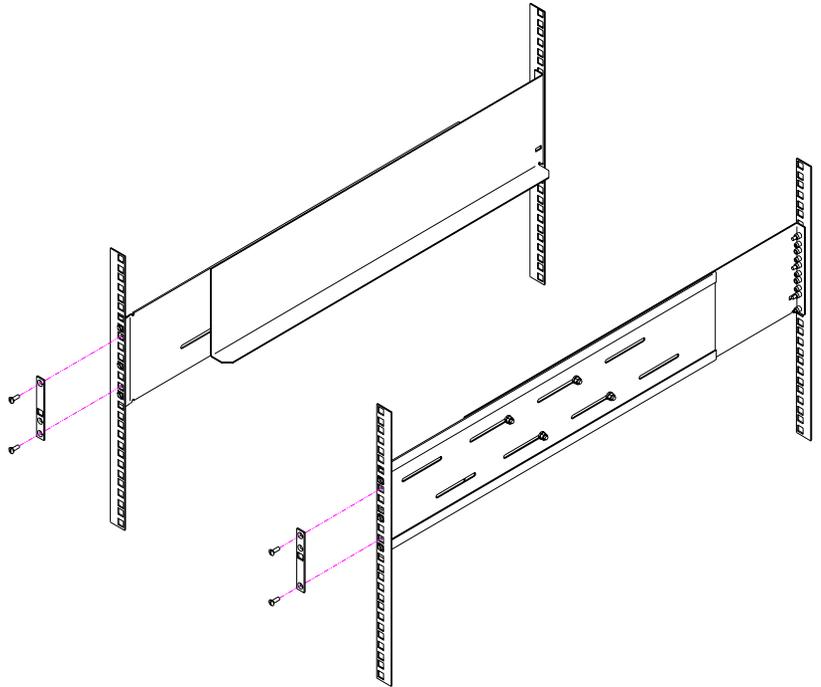


- 7 Install the rear shelf clamps (see [figure 26](#)):
 - a Position a rear shelf clamp (PN 215201/01) on the rear left rack rail, aligning the square hole with the middle insert in the shelf flange.

- b Verify that two of the round holes line up with holes in the rack mount shelf. If two of the holes do not line up, rotate the clamp 180 degrees.
- c Secure the rear shelf clamp to the shelf using two M4 countersink screws (PN YS42064).
- d Repeat these steps to install a rear shelf clamp on the rear right rack rail.

Note: The left and right rear shelf clamps will be oriented differently from one another.

Figure 26 Installing the Rear Shelf Clamps

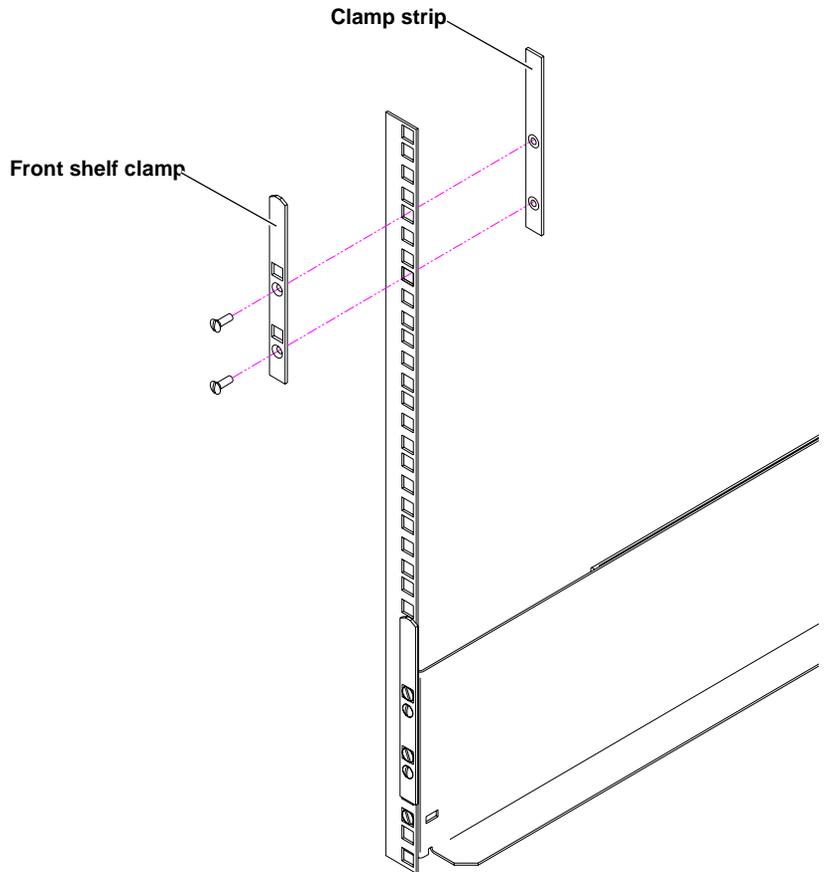


- 8** Install the clamp strips (see [figure 27](#)):
- a** Position a front shelf clamp (PN 215812) at the front of the front left rack rail, with the bottom of the clamp approximately 15.5 inches (394 millimeters) above the bottom of the rack mount shelf.

Caution: The top of the front shelf clamp must be no more than 22.75 in. (580 mm) above the bottom of the rack mount shelf.

- b** Position a clamp strip (PN 217405) behind the front left rack rail, aligning it with the front shelf clamp.
- c** Insert a screw (PN YS42064) through the upper hole in the front shelf clamp, through the rack rail, and into the upper hole in the clamp strip.
- d** Insert a screw (PN YS42064) through the bottom hole in the front shelf clamp, through the rack rail, and into the bottom hole in the clamp strip.
- e** Repeat steps [8a](#) through [8d](#) to install the front shelf clamp and clamp strip on the right rack rail.

Figure 27 Installing
the Clamp Strips



- 9 Tighten the nuts securing the shelves to the shelf extenders.

Once you have installed all the rack mount shelves, proceed to the next chapter, [Installing the Libraries](#) on page 47.

Note: The universal rack mount kit contains screws and nuts for many different types of rack. You will have many of these screws and nuts left over after installing the rack mount shelves and library.

Installing the Shelves in a Full U Position

To install the rack mount shelves in a full U position:

Note: The middle library in a 3-high ATL M2500 stack is mounted in a full U position.

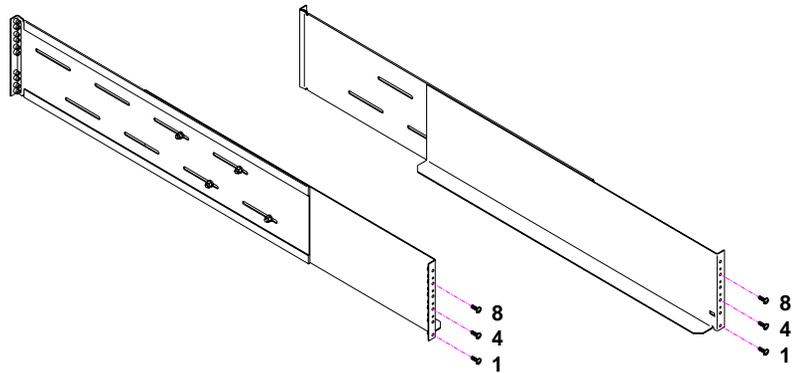
- 1 From the six sizes of inserts provided in the rack mount kit, select the appropriate inserts for your rack. The insert part numbers are:
 - 213468 (for rails with 9 mm square holes)
 - 213469 (for rails with 7 mm diameter unthreaded holes)
 - 213471 (for rails with M6 threaded holes)
 - 213473 (for rails with 10-32 UNF, 12-24 UNC, or M5 threaded holes)
 - 213474 (for rails with 1/4 inch diameter unthreaded holes)

The heads of the inserts (not the threads) should fit into the holes in the rack rails smoothly and with very little play.

- 2 Screw three inserts into the front flange of each rack mount shelf in positions 1, 4, and 8 (counting from the bottom up, with 1 being the lowest hole) (see [figure 22](#)).

Note: Some of the inserts have either no head or a head that has a smaller diameter than the thread; these need to be left protruding by about 1/8 in. (3 mm). The inserts with heads should be tightened fully.

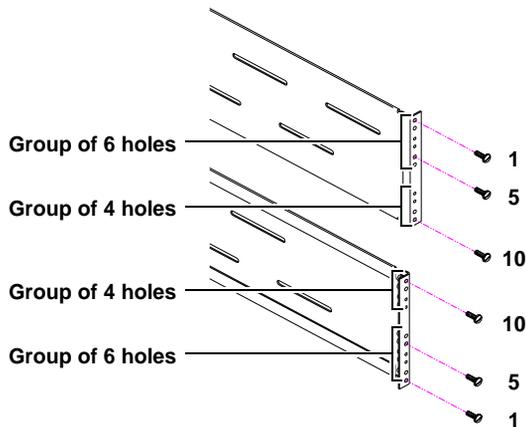
Figure 28 Installing Inserts at the Front of the Shelves



- 3 Screw three inserts into the rear flange of each rack mount shelf in the positions shown in [figure 29](#). If the shelves are oriented so the group of six holes is at the bottom and the group of four holes is at the top, the inserts go into holes 1, 5, and 10 (counting from the bottom up, with 1 being the lowest hole).

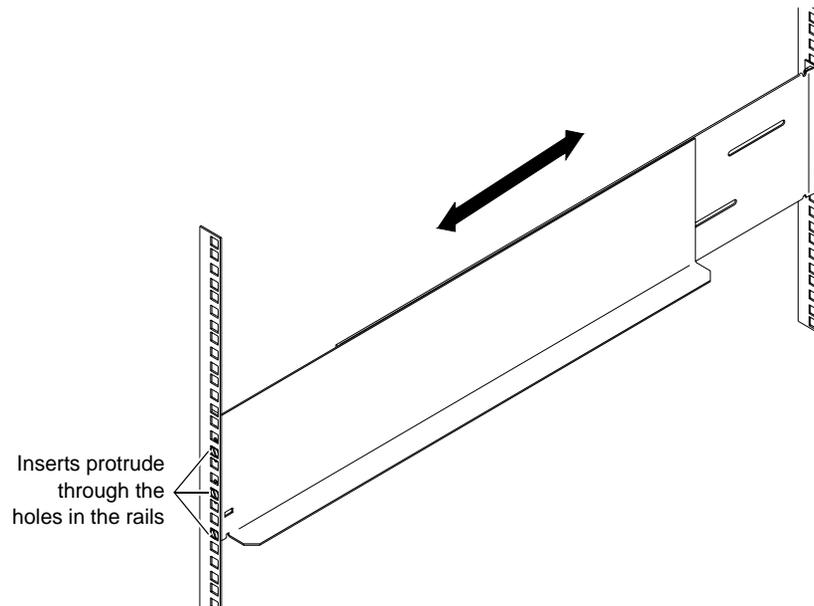
Note: Some of the inserts have either no head or a head that has a smaller diameter than the thread; these need to be left protruding by about 1/8 in. (3 mm). The inserts with heads should be tightened fully.

Figure 29 Installing Inserts at the Rear of the Shelves



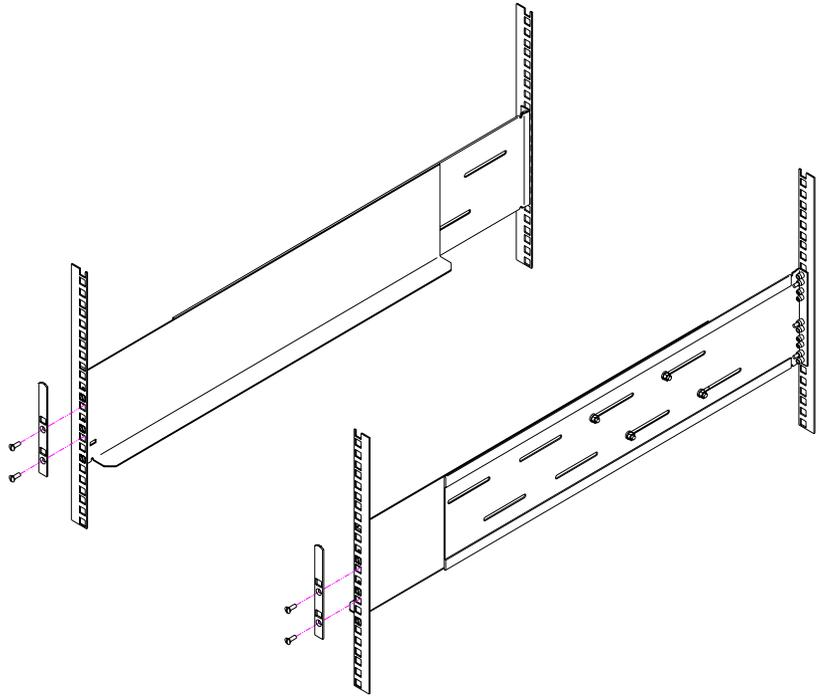
- 4 Install the shelves (see [figure 30](#)):
 - a With the shelf slightly retracted, position the shelf in the rack at the desired mounting height.
 - b Expand the shelf so that the inserts on each end of the shelf protrude into the holes in the rack rails and hold the shelf in place.
 - c Repeat these steps to install the remaining shelf.

Figure 30 Installing the Shelves



- 5 Install the front shelf clamps (see [figure 31](#)):
 - a Position a front shelf clamp (PN 215812) on the front left rack rail. The square holes in the front shelf clamp should be aligned with the upper two inserts in the front shelf flange.
 - b Secure the front shelf clamp to the rack rail using two M4 countersink screws (PN YS42064).
 - c Repeat these steps to install a front shelf clamp on the front right rack rail.

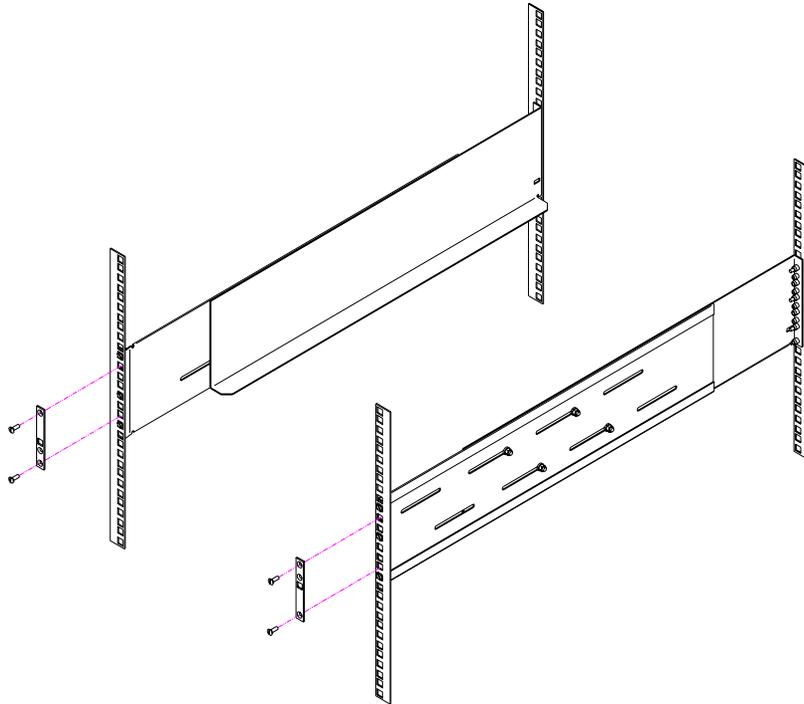
Figure 31 Installing
the Front Shelf
Clamps



- 6 Install the rear shelf clamps (see [figure 32](#)):
 - a Position a rear shelf clamp (PN 215201/01) on the rear left rack rail, aligning the square hole with the middle insert in the shelf flange.
 - b Verify that two of the round holes line up with holes in the rack mount shelf. If two of the holes do not line up, rotate the clamp 180 degrees.
 - c Secure the rear shelf clamp to the shelf using two M4 countersink screws (PN YS42064).
 - d Repeat these steps to install a rear shelf clamp on the rear right rack rail.

Note: The left and right rear shelf clamps will be oriented differently from one another.

Figure 32 Installing
the Rear Shelf Clamps



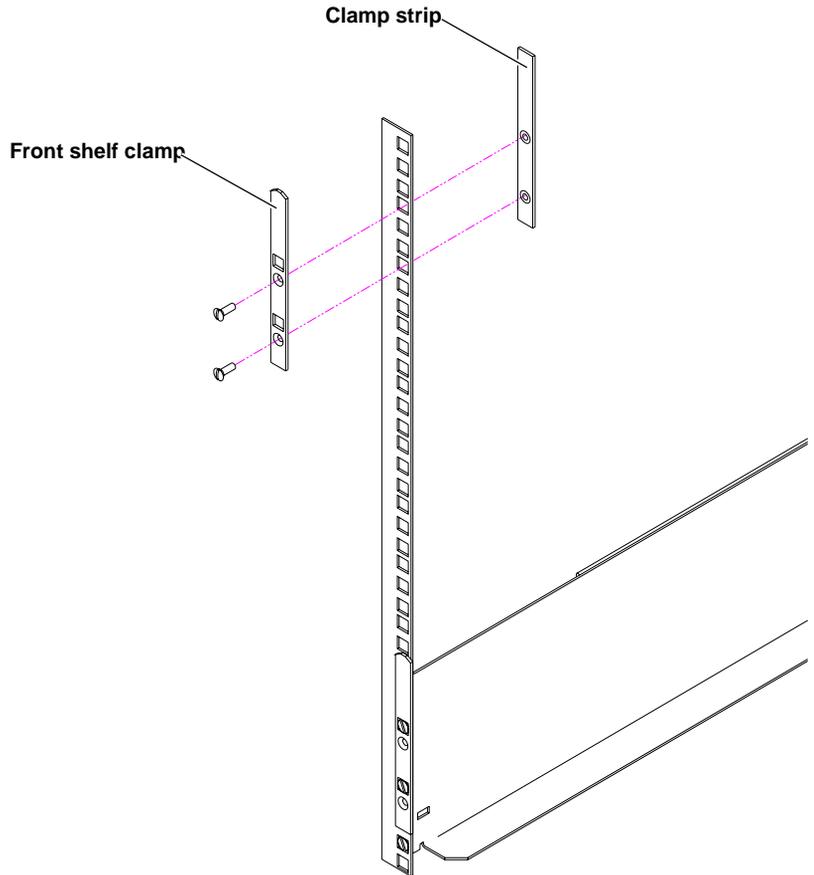
- 7 Install the clamp strips (see [figure 33](#)):
 - a Position a front shelf clamp (PN 215812) at the front of the front left rack rail, with the bottom of the clamp approximately 15.5 inches (394 millimeters) above the bottom of the rack mount shelf.

Caution: The top of the front shelf clamp must be no more than 22.75 in. (580 mm) above the bottom of the rack mount shelf.

- b Position a clamp strip (PN 217405) behind the front left rack rail, aligning it with the shelf clamp.
 - c Insert a screw (PN YS42064) through the upper hole in the front shelf clamp, through the rack rail, and into the upper hole in the clamp strip.
 - d Insert a screw (PN YS42064) through the bottom hole in the front shelf clamp, through the rack rail, and into the bottom hole in the clamp strip.

- e Repeat steps [7a](#) through [7d](#) to install the front shelf clamp and clamp strip on the right rack rail.

Figure 33 Installing the Clamp Strips

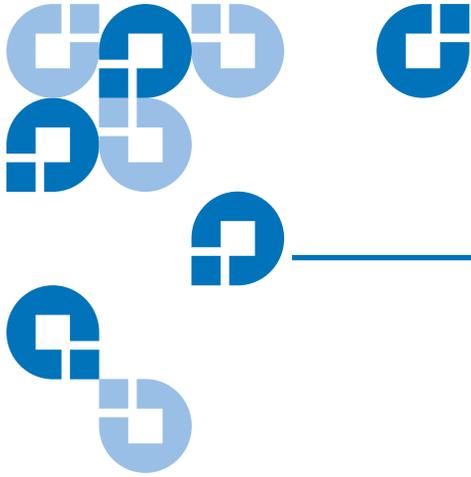


- 8 Tighten the nuts securing the shelves to the shelf extenders.

Once you have installed all the rack mount shelves, proceed to the next chapter, [Installing the Libraries](#).

Note: The universal rack mount kit contains screws and nuts for many different types of rack. You will have many of these screws and nuts left over after installing the rack mount shelves and library.

Chapter 2 Installing the Rack Mount Shelves
Installing the Shelves



Chapter 3

Installing the Libraries

This chapter explains how to install the libraries, including:

- [Installing the Libraries in the Rack](#)
- [Installing Tape Drives in the Libraries](#)
- [Installing the Safety Blanking Panels](#)
- [Preparing and Inserting Tape Cartridges](#)

Installing the Libraries in the Rack

To install the libraries:

Warning: The ATL M1500 library weighs approximately 54 lbs (24.5 kg). The ATL M2500 library weighs approximately 152 lbs. (69 kg). At least two people are required to lift and install these libraries.

- 1 Unpack the library modules, referring to the *ATL M1500 Library Unpacking Instructions* (PN 6421002) and the *ATL M2500 Library Unpacking Instructions* (PN 6423000).

Caution: Make sure to remove the StackLink cover plate from each library.

- 2 Verify that the rack mount shelves are level and securely fastened to the rack.
- 3 With the help of another person, lift the library module onto the rack mount shelves.

Caution: When sliding the library into the rack, be very careful not to abrade or disconnect the ribbon cable that connects the vertical shuttle assembly to the control board on the motor assembly. See [figure 12](#) for the location of this cable.

- 4 Slide the library all the way into the rack.
- 5 Press the buttons next to the magazine access doors and open the doors.
- 6 Locate the access holes behind the left magazine access doors (see [figures 34](#) and [35](#)). These holes provide access to the rack mount clamp screws.

Figure 34 Rack Mount
Clamp Screw Access
Holes, ATL M1500

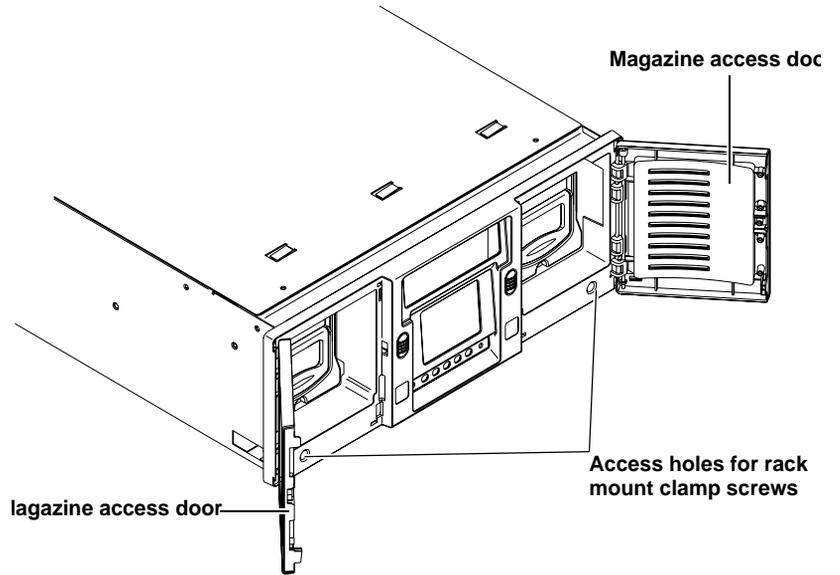
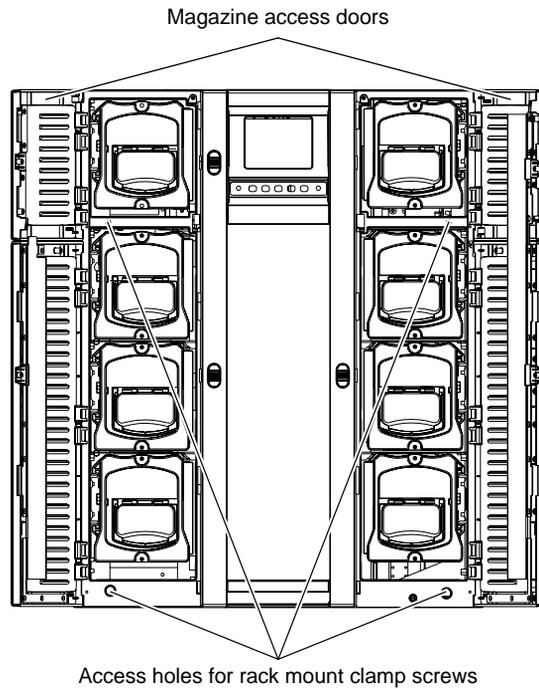


Figure 35 Rack Mount
Clamp Screw Access
Holes, ATL M2500



- 7 Insert a no. 2 POZIDRIV screwdriver into one of the holes and turn the rack mount clamp screw clockwise to tighten it fully.

Caution: Do not overtighten the rack mount clamp screw. When the screw begins to feel tight, turn it an additional quarter turn and then stop.

As you tighten this screw, a lever protrudes from the side of the library and presses against the back side of the rack rail.

- 8 Tighten the remaining rack mount clamp screw (or screws) in the same manner.
- 9 Close the magazine access doors.
- 10 Repeat steps [3](#) through [9](#) to install any additional library modules.
- 11 After all the libraries are installed, fully tighten the StackLink vertical shuttle assembly (see [figure 13](#)).

Installing Tape Drives in the Libraries

This section explains how to install tape drives in the library. You will need the following tools for this procedure:

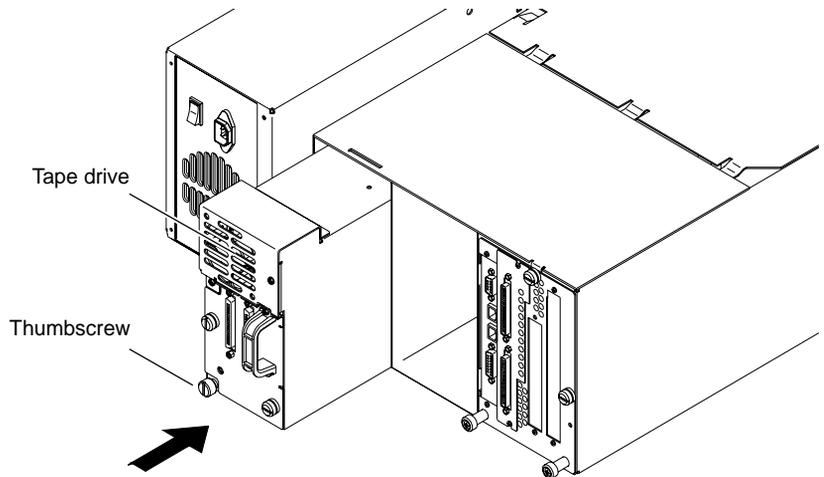
- TORX® T-20 screwdriver
- TORX T-8 screwdriver (if you are installing a drive in drive bays 3 through 6 of an ATL M2500)
- Flat blade screwdriver

Installing Tape Drives in an ATL M1500

To install tape drives in an ATL M1500:

- 1 At the back of the library, use a TORX T-20 screwdriver to remove the cover plate protecting the drive bay in which you will install the tape drive.
- 2 Insert the tape drive into the drive bay slowly until the connectors are seated (see [figure 36](#)).
- 3 Tighten the tape drive thumbscrew using a flat blade screwdriver.
- 4 Repeat steps [1](#) through [3](#) to install another tape drive, if desired.

Figure 36 Installing a Tape Drive in an ATL M1500 Library



Installing Tape Drives in an ATL M2500

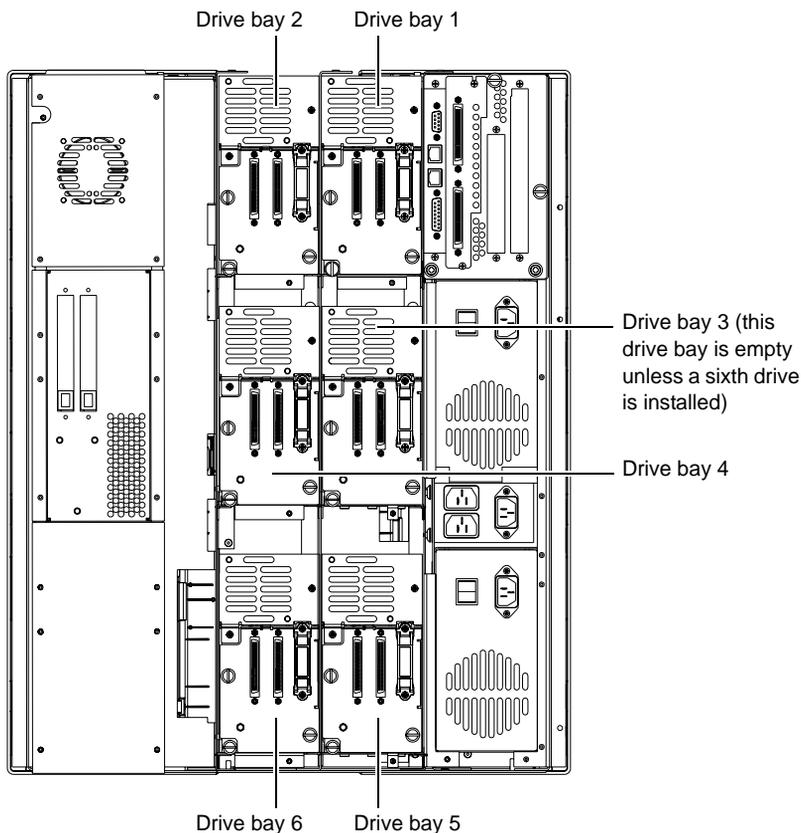
To install tape drives in an ATL M2500:

- 1 At the back of the library, use a TORX T-20 screwdriver to remove the cover plate protecting the drive bay in which you will install the tape drive.

Note: The cover plates for drive bays 3 through 6 also have a TORX T-8 screw that must be removed to access the drive bay.

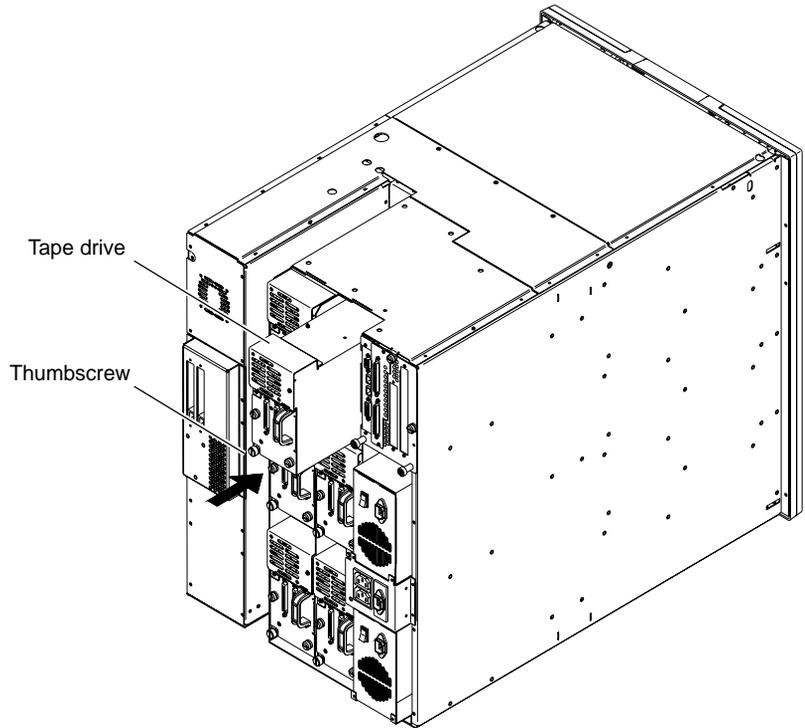
Note: Populate the drive bays in the following order: drive bay 1, drive bay 2, drive bay 4, drive bay 5, drive bay 6, drive bay 3 (see [figure 37](#)). Drive bay 3 is used only if six drives are installed in the library.

Figure 37 Drive Bay Numbering, ATL M2500



- 2 Insert the tape drive into the drive bay slowly until the connectors are seated (see [figure 38](#)).

Figure 38 Installing a
Tape Drive in an
ATL M2500 Library



- 3 Tighten the tape drive thumbscrew using a flat blade screwdriver.
- 4 Install the appropriate cover plate in the space above the drive.

Note: Two cover plates were provided with the tape drive. The smaller plate (215982) is used with tape drives on the middle level of the library; the larger plate (215981) is used with tape drives on the bottom level of the library.

- 5 Repeat steps [1](#) through [3](#) to install any additional tape drives.

Caution: Do not install a drive in drive bay 3. This drive bay is used only if a sixth drive is installed.

Caution: Do not attempt to install a sixth drive in the ATL M2500. This procedure requires specialized software tools available only to Quantum-authorized field service personnel. If a sixth drive is desired, please call one of the following numbers to arrange for a professional installation.

North America: 800-284-5101 or 949-725-2100

Europe: +44 1256 848748

Asia/Pacific: +61 (7) 3839 0988

Installing the Safety Blanking Panels

Install safety blanking panels over all empty locations in the multiple library stack:

Note: The safety blanking panels are designed to prevent personal injury or damage to the StackLink mechanism.

- 1 If the holes in the rack rails are square (untapped), insert caged nuts into the holes where the front safety blanking panels will be installed.
- 2 To cover a 4U gap:
 - a Install a 4U front safety blanking panel (PN 212579) at the front of the rack, securing the panel with two screws (PN YS42011) and washers (PN YS40404).
 - b Install a 4U rear safety blanking panel (PN 212502) at the back of the rack, securing the panel with two screws (PN YS41964).

- 3** To cover a 2U gap:
 - a** Install the 2U front safety blanking panel (PN 212407) at the front of the rack, securing the panel with two screws (PN YS42011) and washers (PN YS40404).
 - b** Install the two 1U rear safety blanking panels (PN 214218) at the back of the rack, securing each panel with two screws (PN YS41964) and washers (PN YS41731). Overlap the panels to cover the 2U gap.
- 4** To cover a 1U gap:
 - a** Install the 1U front safety blanking panel (PN 212406) at the front of the rack, securing the panel with two screws (PN YS42011) and washers (PN YS40404).
 - b** Install a 1U rear safety blanking panel (PN 214218) at the back of the rack, securing the panel with two screws (PN YS41964) and washers (PN YS41731).
- 5** To cover a .5U gap:
 - a** Install the .5U front panel (PN 215941) at the front of the rack, securing the panel with two screws (PN YS42011) and washers (PN YS40404).
 - b** Install the .5U rear safety blanking panel (PN 214217) at the back of the rack, securing the panel with two screws (PN YS41964) and washers (PN YS41731).

Preparing and Inserting Tape Cartridges

This section explains how to insert tape cartridges into the ATL M1500 and ATL M2500 libraries. This procedure consists of the following steps:

- Labeling the tape cartridges
- Setting the write-protect switch
- Placing cartridges in the library

Labeling Tape Cartridges

Attaching a bar code label to each cartridge enables the library to identify tape cartridges quickly, speeding the inventory process.

Note: The ATL M1500 and ATL M2500 libraries are capable of reading most common bar code formats.

Bar Code Label Requirements

Bar code labels must meet the requirements of the latest revision of the ANSI MH10.8M standard, and should use industry standard Code 39 (3 of 9 code).

The basic requirements are listed in [table 6](#).

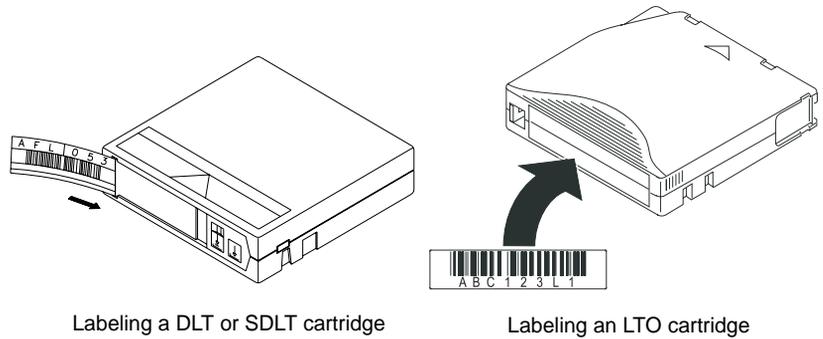
Table 6 Bar Code Label Requirements

Label size	2.2 x 0.82 inches (5.59 x 2.08 cm)
Quiet zone	0.25 inches (6.4 mm) minimum
Character height	0.3 inches (7.6 mm)
Bar code characters	one start character, one to six alphanumeric characters, one stop character
Ratio of wide to narrow element	2.5:1 minimum

Applying the Labels

- 1 Label the tape cartridges (see [figure 39](#)):
 - DLT and SDLT cartridges use non-adhesive labels that slide into a slot at the front of the cartridge. Ensure that the label is fully inserted into the cartridge label slot.
 - LTO cartridges use adhesive labels that adhere to the front of the cartridge.

Figure 39 Labeling
Tape Cartridges



- 2 Use the same method to apply a cleaning cartridge label to the cleaning cartridge.

Cleaning cartridge labels are black and white, and their numbers start with the letters CLN.

Setting the Write-Protect Switch

The write-protect switch (see [figure 40](#)) controls whether the tape cartridge is write-protected or write-enabled:

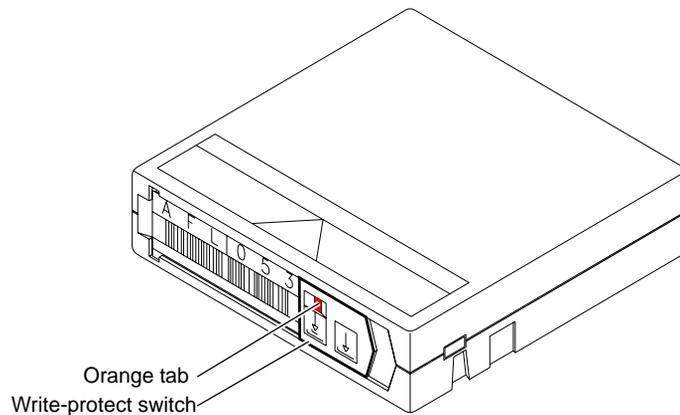
- Write-protecting a cartridge protects the data it contains from being erased or overwritten. Typically you use this setting when removing the cartridges for storage outside the library.
- Write-enabling a cartridge allows new data to be written to the cartridge or existing data to be modified or erased. This is the setting that cartridges are typically set to when they are inside the library.

Setting the Write-Protect Switch (DLT and SDLT Cartridges)

To write-protect a DLT or SDLT cartridge, move the write-protect switch to the left. An orange tab is visible behind the switch (see [figure 40](#)).

To write-enable a DLT or SDLT cartridge, move the write-protect switch to the right. The orange tab is not visible when the cartridge is write-enabled.

Figure 40 Setting the Write-Protect Switch (DLT and SDLT Cartridges)

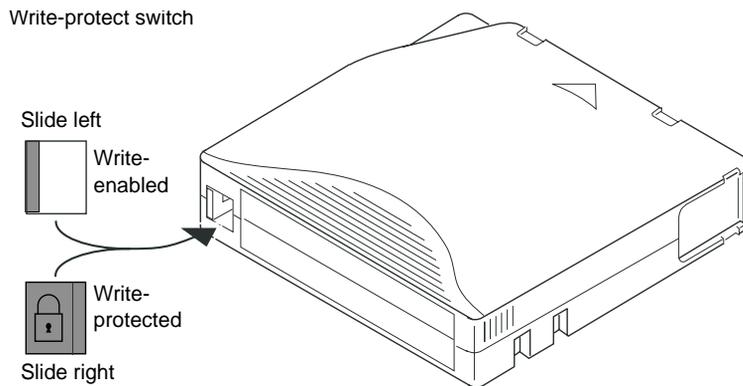


Setting the Write-Protect Switch (LTO Cartridges)

To write-protect an LTO cartridge, move the write-protect switch to the right (see [figure 41](#)).

To write-enable an LTO cartridge, move the write-protect switch to the left.

Figure 41 Setting the Write-Protect Switch (LTO Cartridges)



Placing Cartridges in the Library

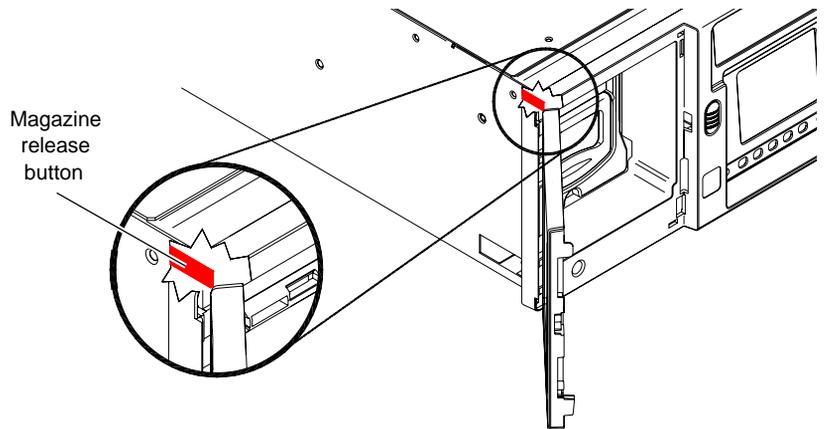
This section explains how to place tape cartridges in the library.

Placing Tape Cartridges in an ATL M1500 Library

To place tape cartridges in an ATL M1500 library:

- 1 Remove the left magazine:
 - a Press the button next the left magazine access door and open the door.
 - b Grasping the handle at the front of the left magazine, pull it forward until it stops.
 - c Using a slender object such as a pen, press and hold the magazine release button (see [figure 42](#)).
 - d Pull the left magazine the rest of the way out of the library.

Figure 42 Magazine
Release Button

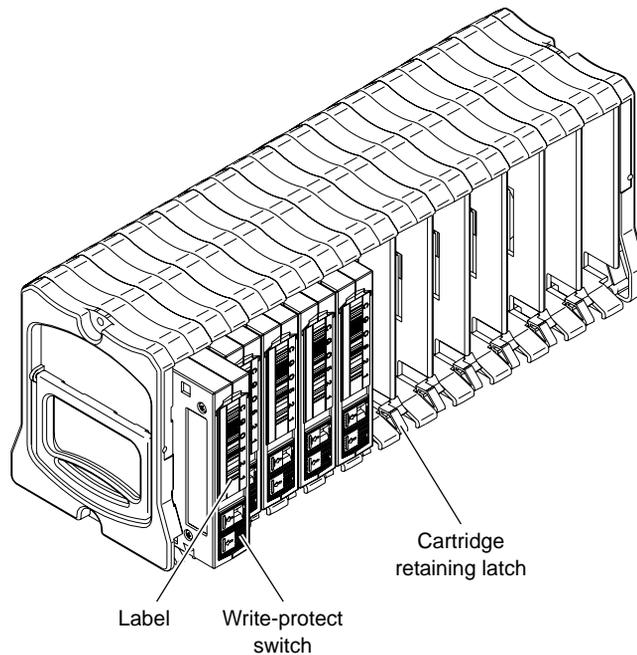


- 2 Remove the right magazine:
 - a Press the button next the right magazine access door and open the door.
 - b Grasping the handle at the front of the right magazine, pull it forward and out of the library.

- 3 Insert the cleaning cartridge into the fixed slot behind the left magazine, orienting it with the label facing outward and the write-protect switch:
 - Down, if it is a DLT or SDLT cartridge
 - Up, if it is an LTO cartridge
- 4 Insert cartridges into each of the magazine slots:
 - a Orient the cartridges as described in [step 3](#).
 - b Push each cartridge into a slot until the cartridge retaining latch clicks to hold the cartridge in place.

Caution: The magazines are designed so that you cannot insert cartridges incorrectly. Do not try to force the cartridges into the slots.

Figure 43 Inserting
DLT Cartridges into a
Magazine



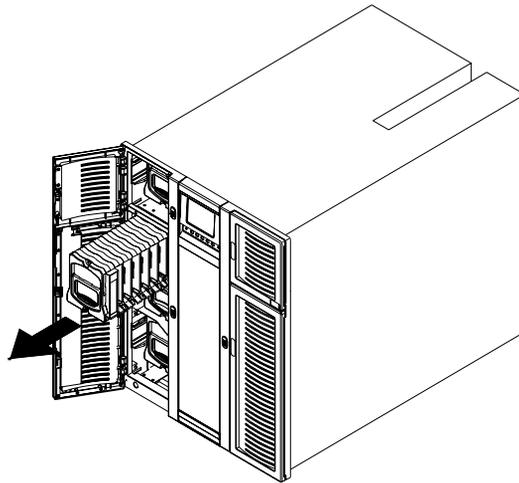
- 5 Insert the magazines into the library, sliding them back until they click into place.
- 6 Close the magazine access doors.

Placing Tape Cartridges in an ATL M2500 Library

To place tape cartridges in an ATL M2500 library:

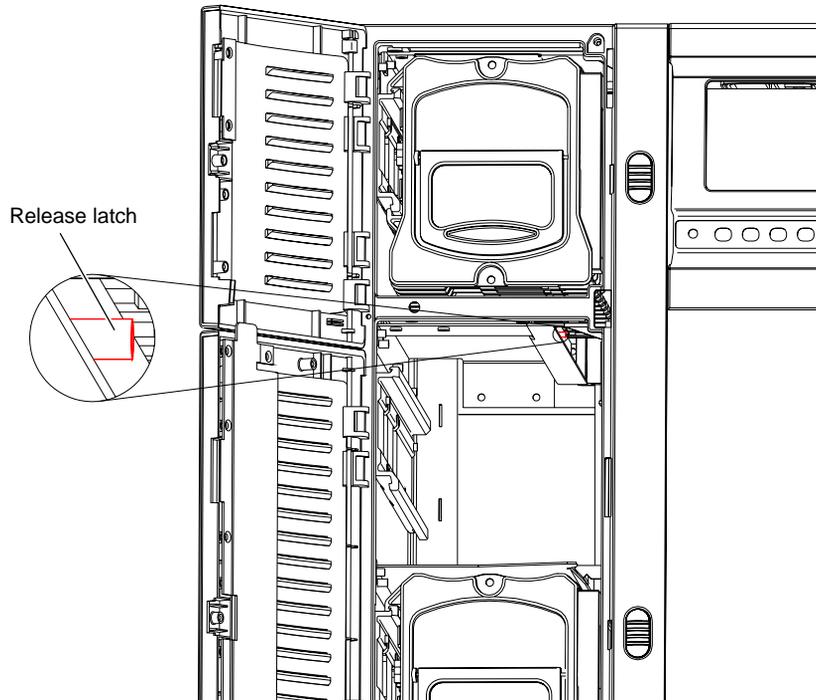
- 1** Press the buttons next to the magazine access doors.
The magazine access doors open.
- 2** Remove the level 1 left magazine:
 - a** Grasping the handle at the front of the level 1 left magazine, pull it forward until it stops.
 - b** If the magazine stops after the first slot, perform steps [2c](#) through [2e](#) to release it.
 - c** Remove the level 2 left magazine (see [figure 44](#)).

Figure 44 Removing the Level 2 Left Magazine



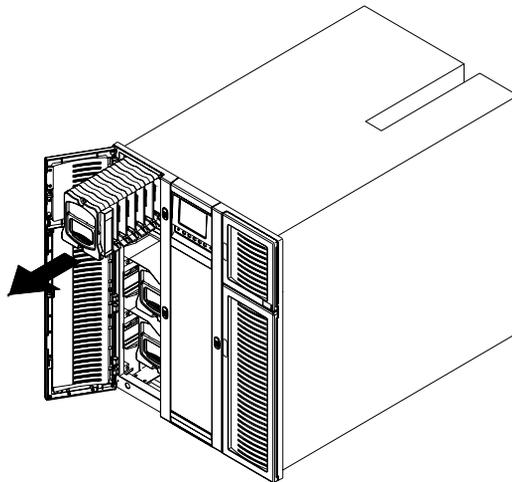
- d** Reach into the library underneath the level 1 left magazine and pull down on the release latch (see [figure 45](#)).

Figure 45 Release
Latch



- e While holding the release latch, pull the level 1 left magazine forward and out of the library (see [figure 46](#)).

Figure 46 Removing
the Level 1 Left
Magazine



- 3 Remove each remaining magazine by grasping the handle at the front of the magazine and sliding it forward and out of the library.
- 4 Insert cleaning cartridges into the fixed slots.

Note: There is one fixed slot behind each left magazine.

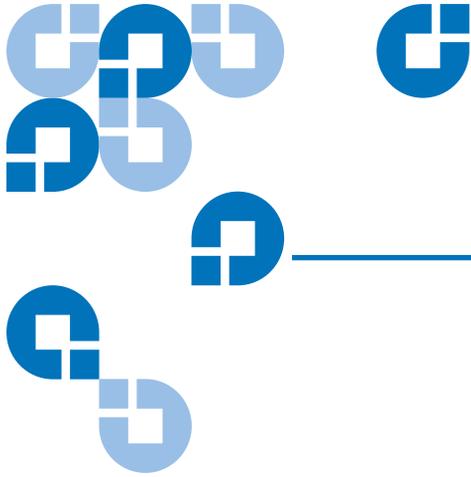
Orient the cartridges with the label facing outward and the write-protect switch:

- Down, if it is a DLT or SDLT cartridge
 - Up, if it is an LTO cartridge
- 5 Insert cartridges into each of the magazine slots (see [figure 43](#)):
 - a Orient the cartridges as described in [step 4](#).
 - b Push each cartridge into a slot until the cartridge retaining latch clicks to hold the cartridge in place.

Caution: The magazines are designed so that you cannot insert cartridges incorrectly. Do not force the cartridges into the slots.

- 6 Insert the magazines into the library, sliding them back until they click into place.
- 7 Close the magazine access doors.

Chapter 3 Installing the Libraries
Preparing and Inserting Tape Cartridges



Chapter 4 Cabling the Multiple Library Stack

The library cabling procedure consists of the following steps:

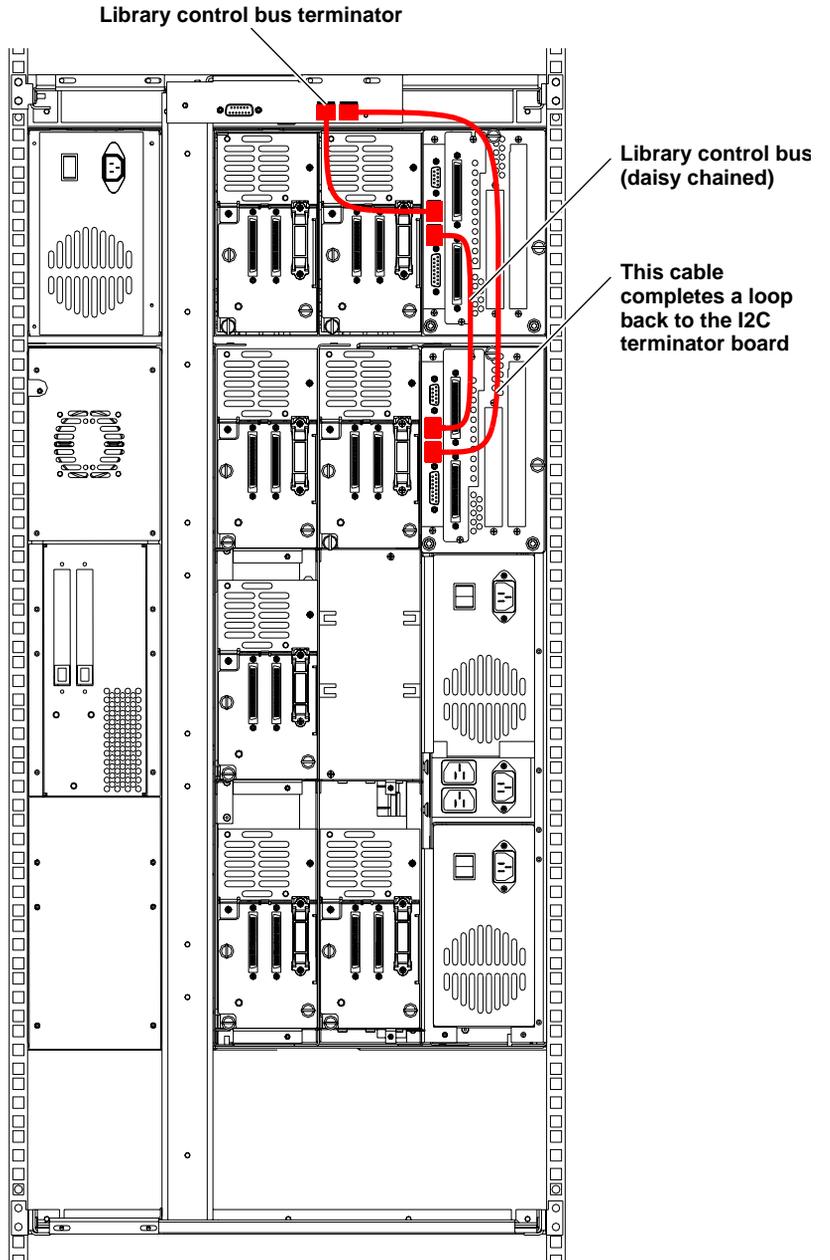
- [Interlibrary \(Control Bus\) Cabling](#)
- [StackLink Motor Connection](#)
- [SCSI Bus Cabling](#)
- [Power Cabling](#)

Interlibrary (Control Bus) Cabling

The intelligent control bus allows the individual library modules in the rack to communicate. To connect this bus:

- 1** Connect the top library module in the rack to the terminator on the front of the motor assembly, using one of the library control bus cables provided.
- 2** Daisy chain the control bus as shown in [figure 47](#), using the library control bus cables provided.
- 3** Connect the bottom library module in the rack to the I²C terminator board, using one of the library control bus cables provided.

Figure 47 Library
Control and StackLink
Power Cabling

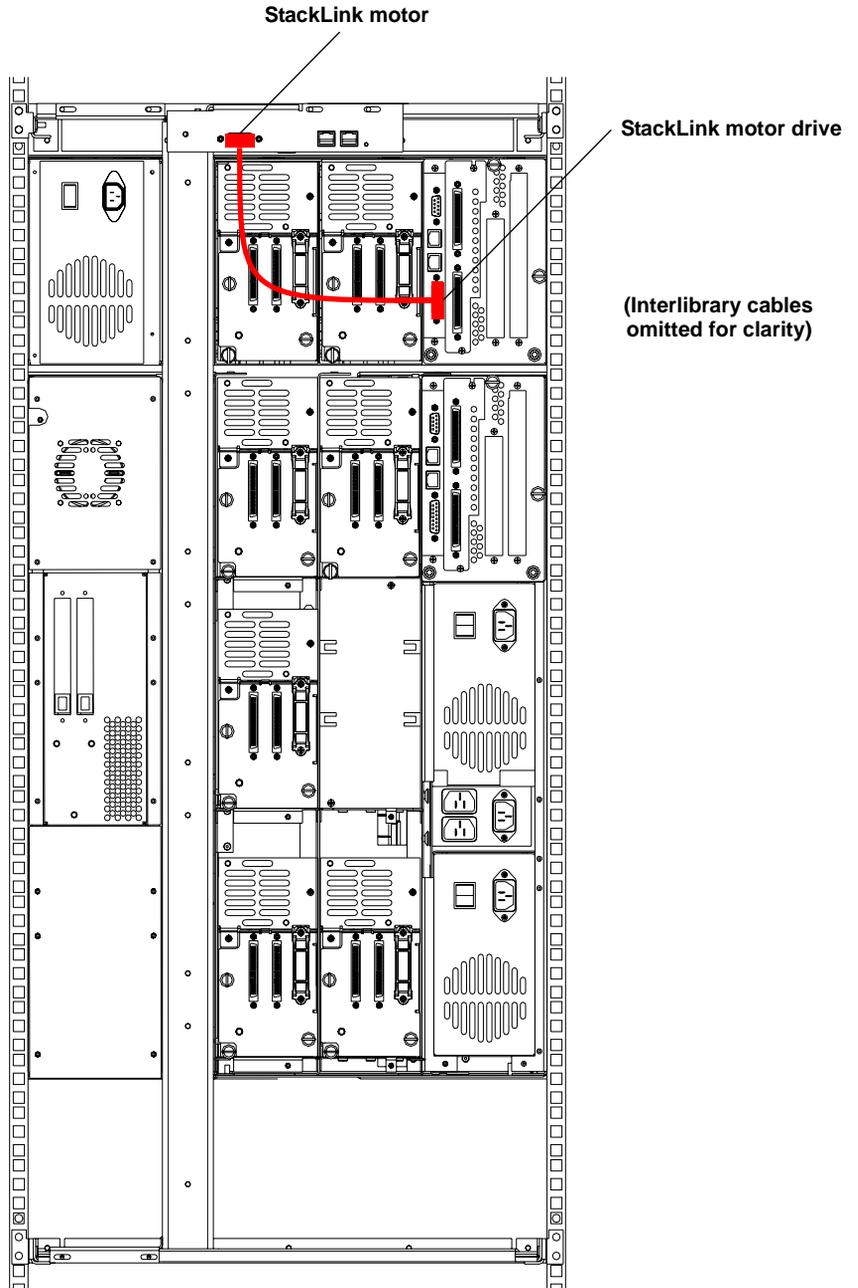


StackLink Motor Connection

Once you have completed the interlibrary cabling, connect the StackLink motor cable (PN 214090/01, PN 214080/01, or PN 214070/01) from the StackLink motor to the StackLink motor drive on any of the library modules (see [figure 48](#)).

Note: The library module that is connected to the StackLink motor becomes the GUI master.

Figure 48 StackLink
Motor Connection



SCSI Bus Cabling

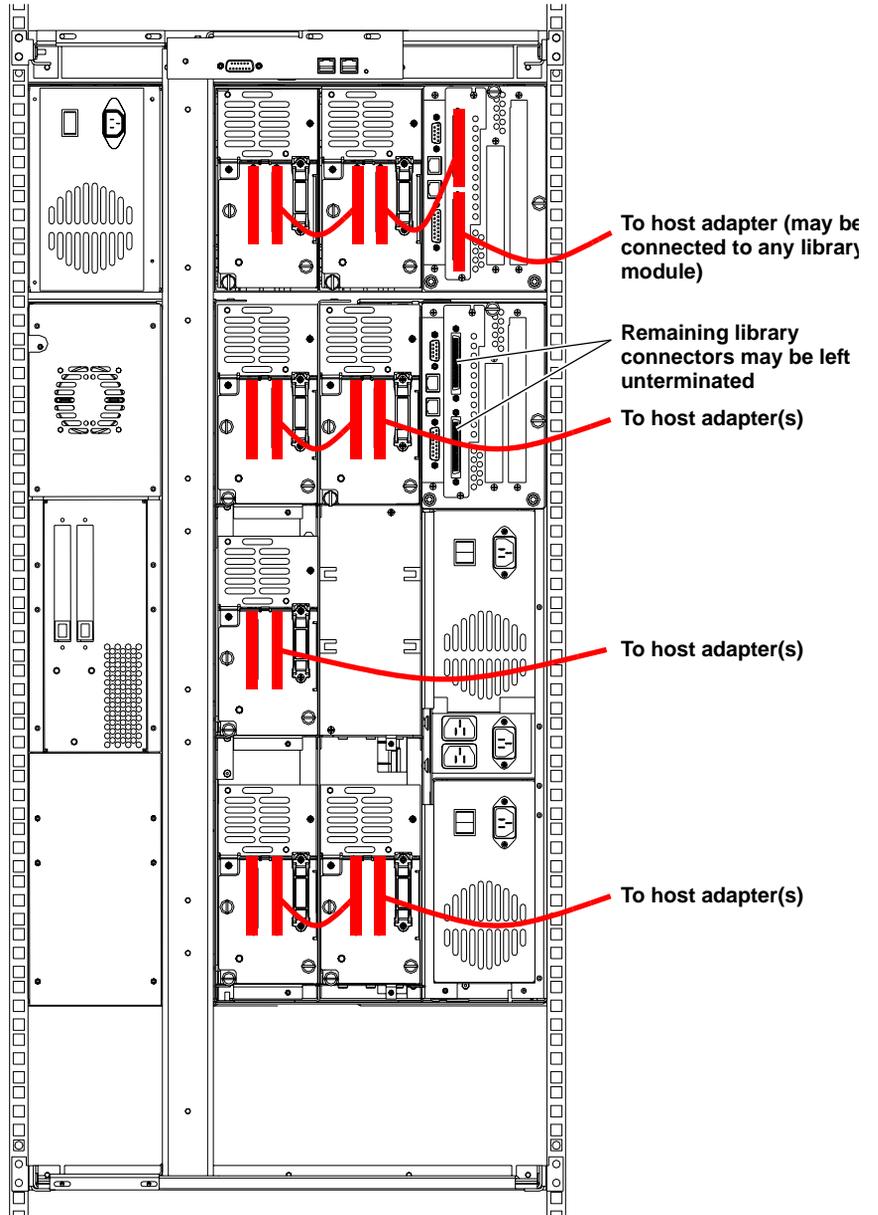
Install the SCSI cabling, referring to [figure 49, SCSI Cabling Guidelines](#), and [Terminator Power](#).

Note: Notice that the host computer is connected to the robotics connector on only one of the library modules. This library module is called the SCSI master.

Figure 49 Typical SCSI Bus Connections

The number of drives per bus is determined by the data transfer performance of the host and drives.

(Interlibrary and StackLink cabling omitted for clarity)



SCSI Cabling Guidelines

Refer to these SCSI cabling guidelines when completing the SCSI cabling:

- Each device on the SCSI bus must have a unique SCSI ID. The default settings for an ATL M1500 library are: library robotics = 0, tape drive 1 = 1, tape drive 2 = 2. The default settings for an ATL M2500 library are: library robotics = 0, tape drive 1 = 1, tape drive 2 = 2, tape drive 3 = 3, tape drive 4 = 4, tape drive 5 = 15, tape drive 6 = 14.
- Terminator must be provided at each end of the SCSI bus (see [Terminator Power](#)).
- Do not mix low voltage differential (LVD) and high voltage differential (HVD) SCSI devices on the same bus. Ensure that the host adapters match the devices on the bus.
- All SCSI cables must be shielded or double shielded to meet EMI specifications.
- The maximum total SCSI bus length for an LVD SCSI bus is 40 feet (12 meters).
- The maximum total SCSI bus length for an HVD SCSI bus is 82 feet (25 meters).

Terminator Power

External terminators must be installed at the end of each SCSI bus. Power for the terminator must be supplied by at least one device on the SCSI bus.

In the factory default configuration, the library robotics supplies terminator power. You can turn this terminator power off using the **Terminator Power** option on the GUI **Configuration** screen.

Power Cabling

The library power cabling differs depending on whether the library module is an ATL M1500 or ATL M2500:

- To connect an ATL M1500 library to AC power, see [Connecting an ATL M1500 Library to AC Power](#).
- To connect an ATL M2500 library to AC power, see [Connecting an ATL M1500 Library to AC Power](#).

**Connecting an
ATL M1500 Library
to AC Power**

To connect an ATL M1500 library to AC power:

- 1 Referring to [table 7](#), select appropriate AC distribution unit(s) for your library configuration and input voltage.

Warning: AC distribution units (power strips) must be certified for safety by an agency acceptable to the country of use. For use in the United States and Canada, distribution units must be UL listed and CSA certified. For use in Europe, distribution units must be CE marked. National certifications for other countries depend on local requirements.

- 2 Connect the power cable (provided in the accessories kit) to the power inlet on the back of the library (see [figure 50](#)) and to the AC distribution unit.

Figure 50 Power Inlet

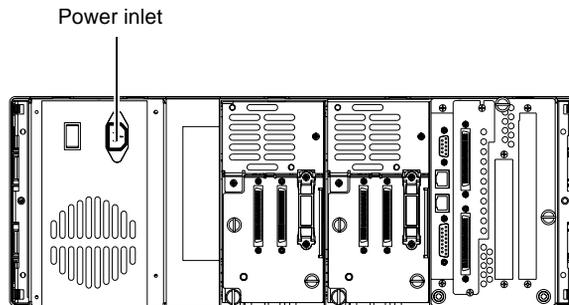


Table 7 ATL M1500
AC Distribution
Requirements

# of Library Modules	Distribution Unit Requirements	
	200-240V 50-60Hz supply voltage (Europe & international, etc.)	100-120V 50-60Hz supply voltage (USA, Canada, Japan, etc.)
1-5	Connect libraries to one AC distribution unit rated minimum 10A, minimum 1.00mm ² <HAR> cord with minimum 10A plug. Must be 3 wire grounding plug and wall outlet.	Connect libraries to one UL Listed AC distribution unit rated 15A or 20A, with a minimum 14AWG 3 wire cord, and a 15A or 20A plug. Must be 3 wire grounding plug and wall outlet.
6-9	<p>Select one of the following options:</p> <ul style="list-style-type: none"> • Connect no more than 5 libraries to each of two AC distribution units rated minimum 10A, minimum 1.00mm² <HAR> cord with minimum 10A plug. Must be 3 wire grounding plug and wall outlet. The AC distribution units must be plugged into separate outlets served by separate circuit breakers or fuses. • Connect all libraries to one AC distribution unit rated minimum 10A, minimum 1.00mm² <HAR> 3 wire cord with 3 wire IEC60309 rated 16A. Must be 3 wire grounding plug and wall outlet and have a ground warning label. • Connect all libraries to one AC distribution unit rated minimum 10A, minimum 1.00 mm² <HAR> 3 wire cord permanently wired to the electrical supply. Must be connected with a 3 wire cable and have a ground warning label. 	<p>Select one of the following options:</p> <ul style="list-style-type: none"> • Connect no more than 5 libraries to each of two AC distribution units rated 15A or 20A, with a minimum 14AWG 3 wire cord, and a 15A or 20A plug. Must be 3 wire grounding plug and wall outlet. The AC distribution units must be plugged into separate outlets served by separate circuit breakers or fuses. • Connect all libraries to one AC distribution unit rated 20A, with a minimum 14AWG 3 wire cord, with a 20A plug. Must be 3 wire grounding plug and wall outlet. • Connect all libraries to one AC distribution unit rated minimum 20A, with a minimum 14AWG 3 wire cord, permanently wired to the electrical supply.

# of Library Modules	Distribution Unit Requirements	
	200-240V 50-60Hz supply voltage (Europe & international, etc.)	100-120V 50-60Hz supply voltage (USA, Canada, Japan, etc.)
10	Same requirements as 6-9 above.	Same requirements as 6-9 above, but the AC power distribution unit must also have a ground warning label.

Connecting an ATL M2500 Library to AC Power

To connect an ATL M2500 library to AC power:

- 1 Referring to [table 8](#), select appropriate AC distribution unit(s) for your library configuration and input voltage.

Warning: AC distribution units (power strips) must be certified for safety by an agency acceptable to the country of use. For use in the United States and Canada, distribution units must be UL listed and CSA certified. For use in Europe, distribution units must be CE marked. National certifications for other countries depend on local requirements.

- 2 Using one of the short AC power cables provided in the accessory kit, connect the top power supply to the AC distribution panel on the back of the library (see [figure 51](#)).
- 3 Using the remaining short AC power cable, connect the bottom power supply to the AC distribution panel (see [figure 51](#)).
- 4 Connect the power cable (provided in the accessories kit) to the power inlet on the back of the library (see [figure 51](#)) and to the wall outlet or AC distribution unit.

Figure 51 Power Inlet

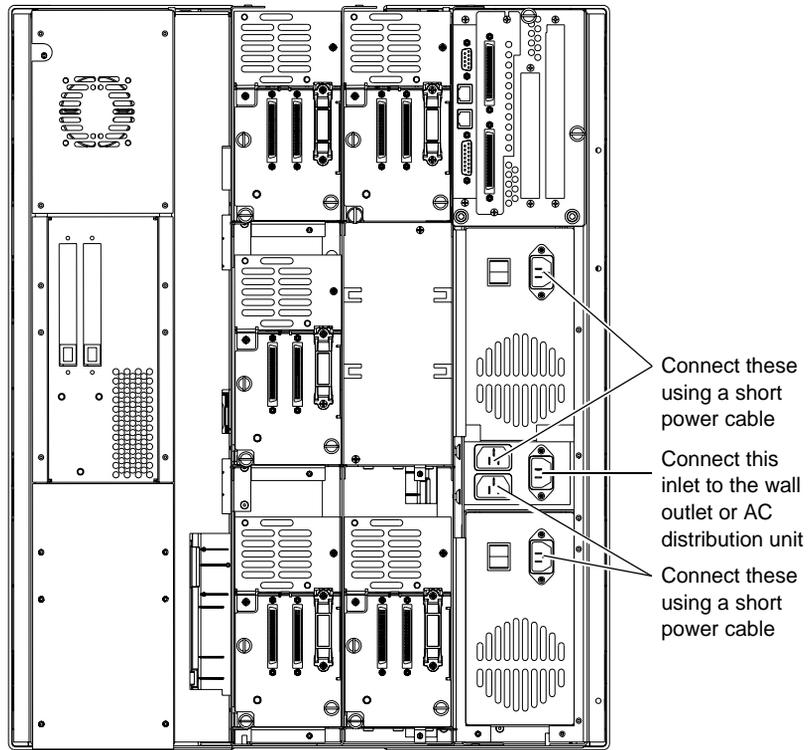
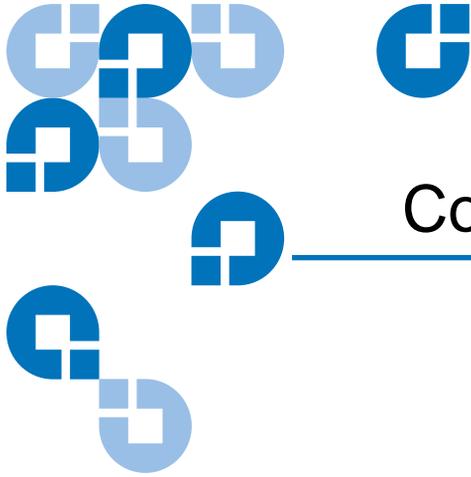


Table 8 ATL M2500
AC Distribution Unit
Requirements

# of Library Modules	Distribution Unit Requirements	
	200-240V 50-60Hz supply voltage (Europe & international, etc.)	100-120V 50-60Hz supply voltage (USA, Canada, Japan, etc.)
1	Connect the library to an AC wall outlet rated minimum 10A, minimum 1.00mm ² <HAR> cord with minimum 10A plug. Must be three wire grounding plug and wall outlet.	Connect the library to one UL listed AC distribution unit rated 15A or 20A, with a minimum 14AWG 3 wire cord, and a 15A or 20A plug. Must be three wire grounding plug and wall outlet.

# of Library Modules	Distribution Unit Requirements	
	200-240V 50-60Hz supply voltage (Europe & international, etc.)	100-120V 50-60Hz supply voltage (USA, Canada, Japan, etc.)
2	Connect both libraries to one AC distribution unit rated minimum 10A, minimum 1.00mm ² <HAR> cord with minimum 10A plug. Must be three wire grounding plug and wall outlet.	Connect both libraries to one UL listed AC distribution unit rated 15A or 20A, with a minimum 14AWG 3 wire cord, and a 15A or 20A plug. Must be three wire grounding plug and wall outlet.
3	Connect all libraries to one AC distribution unit rated minimum 10A, minimum 1.00mm ² <HAR> cord with minimum 10A plug. Must be three wire grounding plug and wall outlet.	Connect all libraries to one UL listed AC distribution unit rated 15A or 20A, with a minimum 14AWG 3 wire cord, and a 15A or 20A plug. Must be three wire grounding plug and wall outlet.



Completing the Installation

To complete the StackLink installation:

- Power up the multiple library stack
- Disable unused drive bays
- Configure the library
- Test the library robotics

Powering Up the Library

To power up the multiple library stack, press the power switch (or switches) on the back panel of each library module (see [figure 52](#) and [figure 53](#)).

Caution: Power up all the library modules in reasonably quick succession; a long delay in powering up the entire multiple library stack could interfere with library initialization.

Caution: To minimize the effects of inrush current, always turn on the library modules using these library power switches instead of using the power switches that may be on the AC distribution unit.

Figure 52 Power Switch, ATL M1500

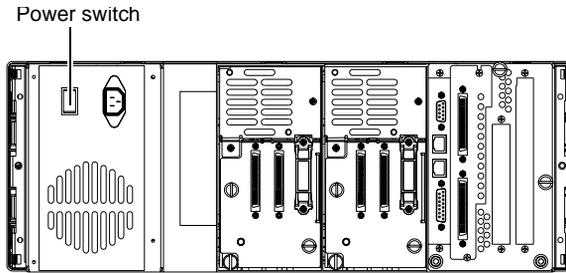
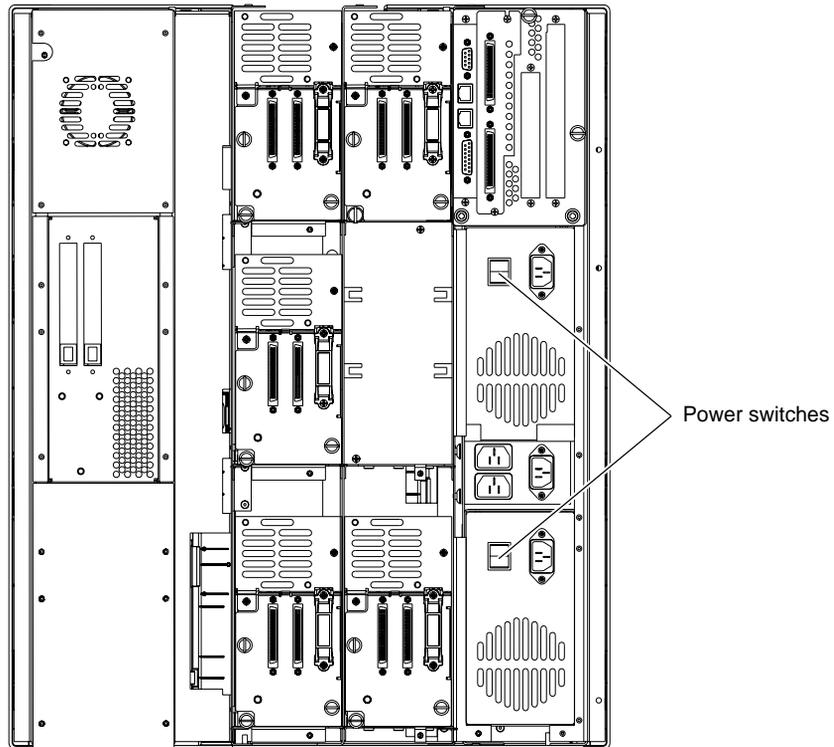
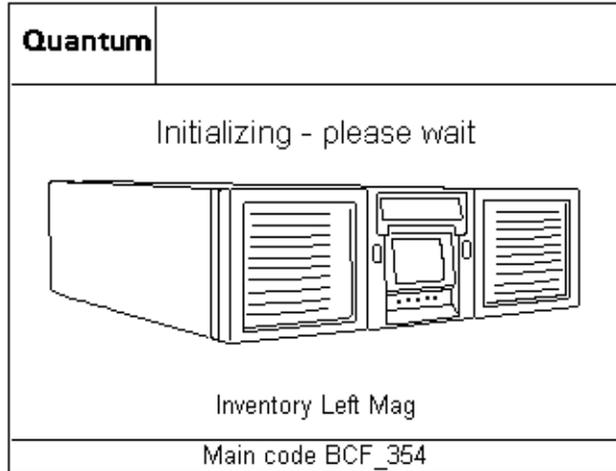


Figure 53 Power Switches, ATL M2500



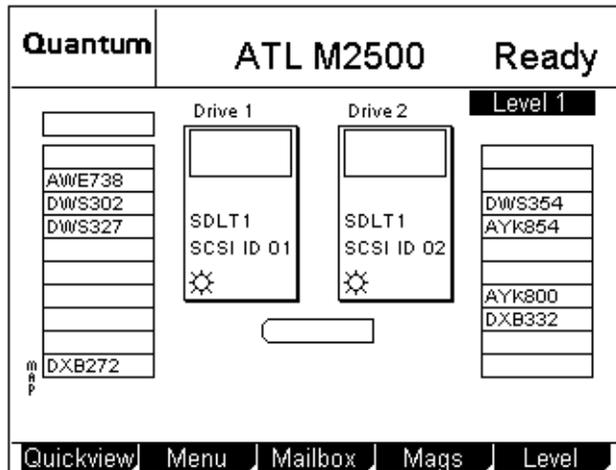
The GUI displays a welcome screen (see [figure 54](#)) and the library runs a power-on self-test (POST).

Figure 54 Welcome Screen, ATL M2500



When the POST is complete, the GUI displays the main screen (see [figure 55](#)).

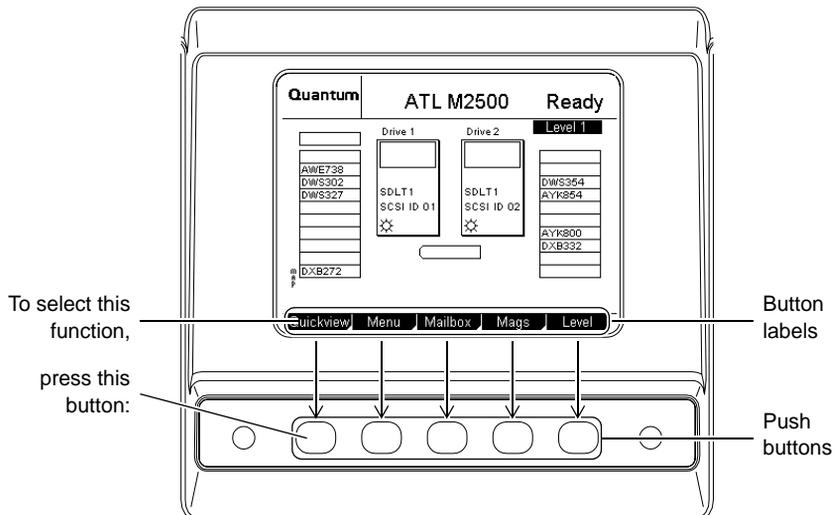
Figure 55 Main Screen, ATL M2500



At the bottom of each GUI screen are up to five button labels. These labels indicate the functions of the five push buttons below the GUI. To select a

function, press the push button directly below the button label on the GUI screen (see [figure 56](#)).

Figure 56 Using the GUI Buttons



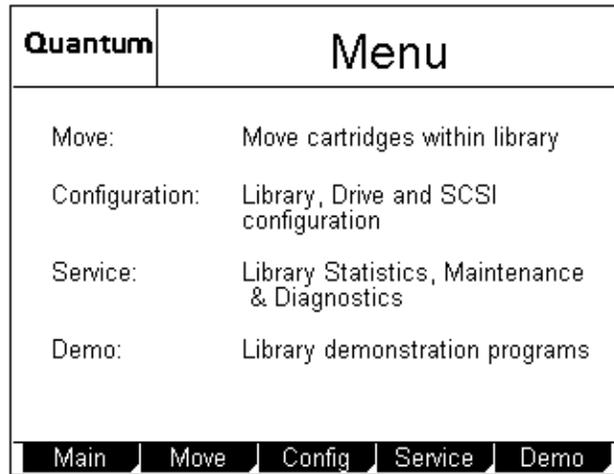
Disabling Unused Drive Bays

To complete the library installation, disable any unused drive bays as follows:

- 1 On the main screen of the library module that contains the unused drive bay, press **Menu**.

The GUI displays the **Menu** screen (see [figure 57](#)).

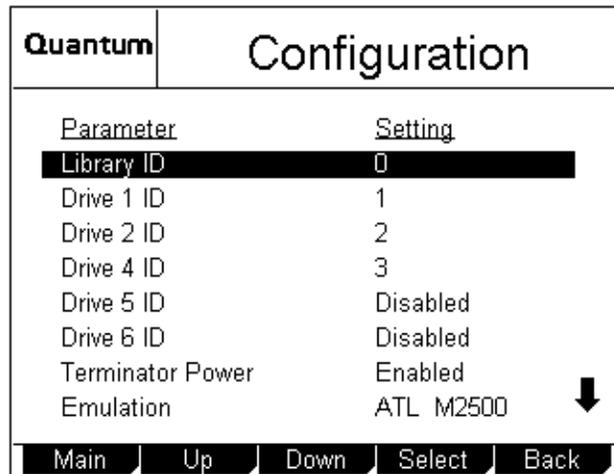
Figure 57 Menu Screen



2 Press **Config**.

The GUI displays the **Configuration** screen (see [figure 58](#)).

Figure 58 Configuration Screen



3 Press the **Up** or **Down** buttons until the drive ID for the unused drive bay is highlighted.

4 Press **Select**.

- 5 Press the **Down** button until the Disabled setting is selected.

Caution: Set the drive SCSI ID to Disabled only if there is no drive installed in the drive bay.

- 6 Press **Select**.
- 7 Repeat steps [3](#) through [6](#) to disable any other unused drive bays in this library module.
- 8 Press **Main** to return to the main screen.

Caution: If you do not return to the main screen after changing this setting, your change will not be saved to NVRAM.

Note: You must reboot the library before this setting will take effect.

- 9 Repeat steps [1](#) through [8](#) to disable any unused drive bays in other library modules.
- 10 Turn all of the libraries in the multiple library stack off and then back on again.

Configuring the Library

Library configuration works somewhat differently in a multiple library than it does in a single library module.

Note: The library must be power cycled before any configuration changes will take effect.

SCSI Import/ Export Elements

To configure SCSI import/export elements using the **Import/Export** option, you must use the GUI on the GUI master. See the *ATL M-Series Library User's Guide* (PN 6423002) for more information about this option.

Note: The GUI master is the library module that is connected to the StackLink motor (see [figure 48](#) on page 69).

Caution: Although the **Import/Export** option appears on the GUIs of all of the library modules, it is only functional on the GUI master.

Tape Drive SCSI IDs

To set tape drive SCSI IDs, use the GUI on the library module that contains the tape drives you wish to affect. For example, the addresses of tape drives installed in library level 2 should be set from the GUI on library level 2.

Library SCSI Settings

The SCSI host can be connected to any of the library modules. The SCSI settings for the multiple library stack (SCSI ID, emulation mode, etc.) are determined by the settings of the library module that is connected to the host (the SCSI master).

If you change the SCSI settings from the defaults, it is recommended that you change all library modules to the same settings.

Testing the Library Robotics

To complete the installation, run the **Demo 5** program to verify that the StackLink robotics are working correctly:

- 1 Select a library module on which to initiate the test.
- 2 Load a single data cartridge into the top left magazine of the selected library module.

Leave all other slots in the multiple library stack empty.

- 3 On the GUI main screen of the selected library module, press **Menu**.

The GUI displays the **Menu** screen (see [figure 59](#)).

Figure 59 Menu Screen

Quantum	Menu
Move:	Move cartridges within library
Configuration:	Library, Drive and SCSI configuration
Service:	Library Statistics, Maintenance & Diagnostics
Demo:	Library demonstration programs

Main Move Config Service Demo

- 4 Press **Demo**.

The GUI displays the **Demo Programs** screen (see [figure 60](#)).

Figure 60 Demo Programs Screen

Quantum		Demo Programs	
Test	Description		
Confidence Test			
Demo 1	Move Cart, Random Selection		
Demo 2	Move Cart, Sequential Selection		
Demo 3	Same slot, Random Selection		
Demo 4	Stack Move - Disabled		
Demo 5	Stack Move - Disabled		
Demo 6	Move to Location, Random Sel		

Main Up Down Select Back

5 Press the **Up** or **Down** buttons to select **Demo 5**.

6 Press **Select**.

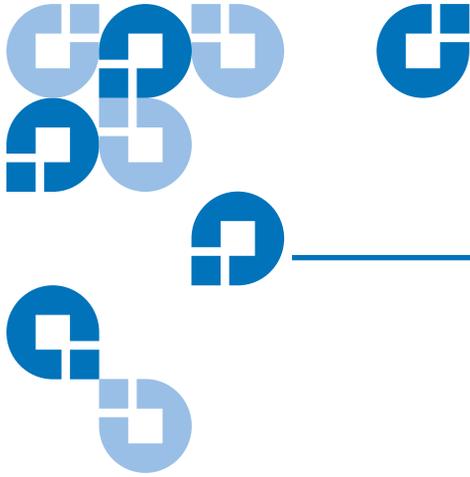
The **Demo 5** program starts. The program moves the data cartridge randomly between levels until you stop the program. It is recommended that you allow the program to run for five times the number of levels in the library; for example, a ten level stack should be run for at least 50 cycles.

7 Ensure that all levels are accessed by observing the cartridges moving from level to level. If not, re-check the interlibrary cabling.

8 When the program has run successfully for the recommended number of cycles, press **Stop** to end the program.

The GUI stops when the current cycle is completed.

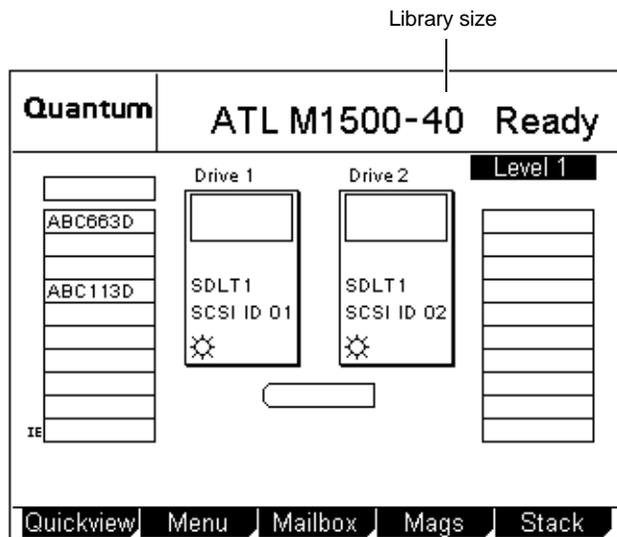
The StackLink installation is now complete.



Library Size

The firmware reports the library size on the main screen (see [figure 61](#)).

Figure 61 Main Screen



The library size reflects the approximate number of cartridge slots in the multiple library stack. This number is calculated using the following formula:

$$\text{Library size} = L \times C$$

Where:

- L = the number of levels between the top of the StackLink and the lowest library module installed

An ATL M1500 has one level of magazines and so is counted as 1 level. An ATL M2500 has four levels of magazines and so is counted as 4 levels.

If there is a gap between the top of the StackLink and the lowest library module installed that is large enough to fit an ATL M1500, the firmware determines the maximum number of levels that would fit into the gap, and adds that number of levels to the total.

Note: The method of analyzing the number of levels of the gap varies, depending on whether the multiple library stack contains an ATL M2500 (see [Library Size in Mixed Stacks](#) on page 92).

- C = the number of cartridge slots in each level

In DLT and SDLT libraries, one level is considered to contain 20 cartridge slots (2 magazines with 10 cartridge slots per magazine).

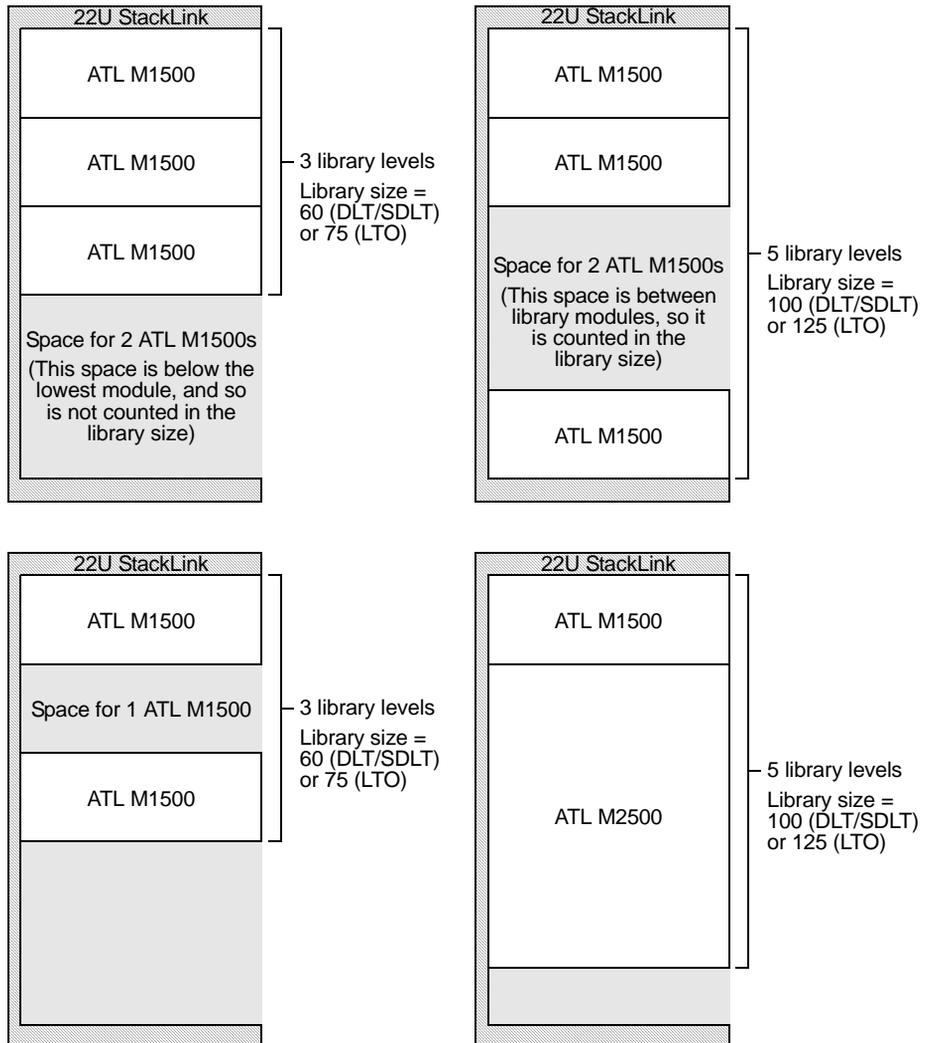
In LTO libraries, one level is considered to contain 25 cartridge slots (2 magazines with 12 cartridge slots per magazine, and 1 fixed slot).

Note: The fixed slot is not included in the calculation of cartridge slots for DLT and SDLT libraries. This is so the library size will calculate to a round number.

Library Size Calculation Examples

[Figure 62](#) provides some examples of how the library size is calculated.

Figure 62 Library Size
Calculation Examples



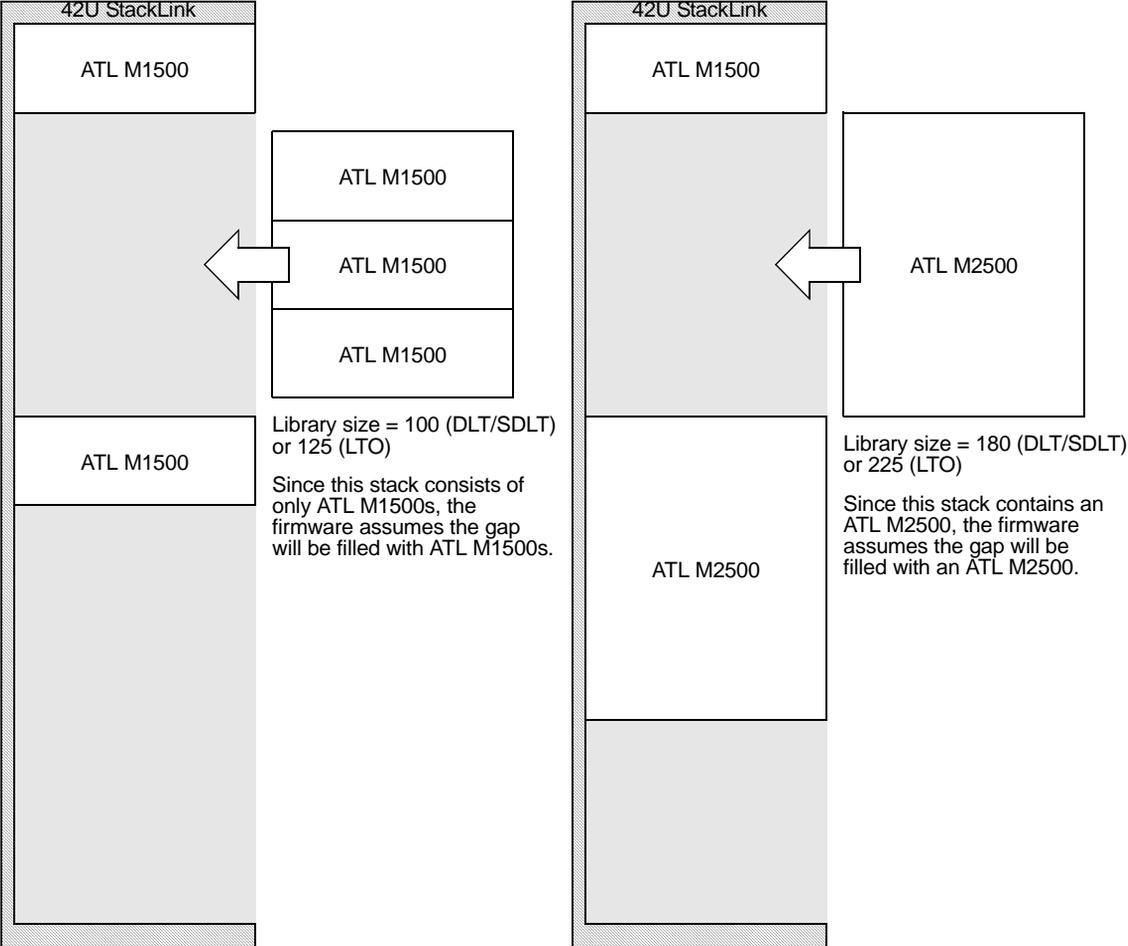
Library Size in Mixed Stacks

An ATL M2500 requires slightly less rack height (13.5U) than four ATL M1500s (16U). A gap between library modules that is large enough for an ATL M2500 will only accommodate three ATL M1500s. This means that the gap can be filled with either 4 library levels (an ATL M2500) or with 3 library levels (3 ATL M1500s).

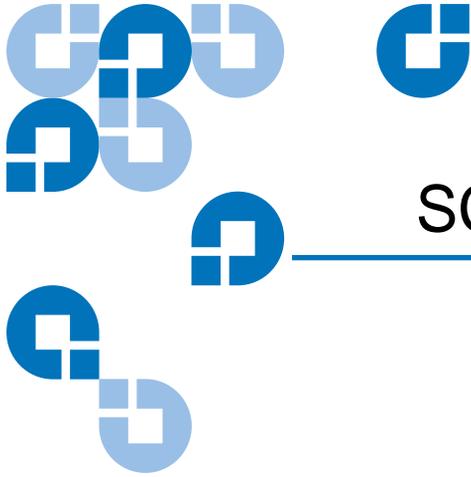
In multiple library stacks containing only ATL M1500s, the firmware assumes that any gaps will be filled with ATL M1500s. Thus a gap large enough for an ATL M2500 will be treated as space for three ATL M1500s and will be counted as 3 library levels, not 4 (see [figure 63](#)).

In multiple library stacks containing one or more ATL M2500s, the firmware assumes that a gap large enough for an ATL M2500 will be filled with an ATL M2500. Thus the gap will be treated as space for 1 ATL M2500 and will be counted as 4 library levels (see [figure 63](#)).

Figure 63 Library Size
Calculation,
ATL M1500 Stack vs.
Mixed Stack



Appendix A Library Size
Library Size in Mixed Stacks



SCSI Element Addressing

Overview

In M-Series libraries, SCSI element addressing follows this basic scheme:

- Drives are assigned consecutive addresses, starting at 80h. If a drive bay is disabled, it is not assigned a SCSI element address.
- Data elements are assigned consecutive addresses, starting at C0h.
- Import/export elements are assigned consecutive addresses, starting at B0h.

Table 9 SCSI
Element Addressing,
Stand-alone
ATL M1500

Element	Address		Element Type
	DLT/SDLT	LTO	
Drive 1	80h		Drive
Drive 2	81h		Drive
Left magazine	C0h-C9h	C0h-CBh	Data
Right magazine	CAh-D3h	CCh-D7h	Data
Fixed slot	D4h	D8h	Data

Table 10 SCSI
Element Addressing,
Stand-alone
ATL M2500

Element	Address				Element Type
	DLT/SDLT		LTO		
	5-drive Library	6-drive Library	5-drive Library	6-drive Library	
Drive 1	80h	80h	80h	80h	Drive
Drive 2	81h	81h	81h	81h	Drive
Drive 3	N/A*	82h	N/A*	82h	Drive
Drive 4	82h	83h	82h	83h	Drive
Drive 5	83h	84h	83h	84h	Drive
Drive 6	84h	85h	84h	85h	Drive
Level 1 left magazine	C0h-C9h		C0h-CBh		Data
Level 1 right magazine	CAh-D3h		CCh-D7h		Data
Level 2 left magazine	D4h-DDh		D8h-E3h		Data
Level 2 right magazine	DEh-E7h		E4h-EFh		Data

Element	Address				Element Type
	DLT/SDLT		LTO		
	5-drive Library	6-drive Library	5-drive Library	6-drive Library	
Level 3 left magazine [†]	E8h-F1h		F0h-FBh		Data
Level 3 right magazine	F2h-FBh		FCh-107h		Data
Level 4 left magazine	FCh-105h		108h-113h		Data
Level 4 right magazine	106h-10Fh		114h-11F		Data
Level 1 fixed slot	110h		120h		Data
Level 2 fixed slot	111h		121h		Data
Level 3 fixed slot [‡]	112h		122h		Data
Level 4 fixed slot	113h		123h		Data

* In a 5-drive ATL M2500, the level 2 left drive bay is disabled, and therefore is not assigned a SCSI element address.

† In a 6-drive ATL M2500, the level 3 left magazine is not installed; however, it is still assigned the appropriate number of SCSI element addresses.

‡ In a 6-drive ATL M2500, the level 3 fixed slot is not installed; however, it is still assigned a SCSI element address.

Option Settings and Their Effect on SCSI Element Addressing

SCSI element addressing is affected by the settings of the **Auto Clean** and **Import/Export** options, which are set using the GUI **Configuration** menu.

Auto-Clean Option

When **Auto-Clean** is set to:

- Enabled, the fixed slots are treated as cleaning slots and are not assigned SCSI element addresses
- Disabled, the fixed slots are treated as data elements and are assigned SCSI element addresses

Note: The element addresses for the magazine slots are not affected by the **Auto-Clean** setting.

Note: In multiple library stacks the **Auto-Clean** option can be enabled or disabled on each individual library module (i.e. enabled on some and disabled on others). If **Auto-Clean** is enabled on any module in the stack, all modules will perform auto-cleaning. Modules with **Auto-Clean** disabled will use the tape from the module with **Auto-Clean** enabled to perform drive cleans.

Import/Export Option

When the **Import/Export** option is set to:

- None or MAP, all magazine slots are treated as data elements and are assigned consecutive addresses starting at C0h (see [table 9](#) and [table 10](#)).
- 1-slot, the first slot of the left magazine (ATL M1500) or level 1 left magazine (ATL M2500) is given the import/export element address B0h. The remaining slots in the magazine are then numbered from C0h (see [table 11](#) and [table 12](#)).
- 10-slot (or 12-slot, for an LTO library), all the slots of the left magazine (ATL M1500) or the level 1 left magazine (ATL M2500) are used as import/export slots. The slots are given consecutive SCSI

element addresses starting at B0h. The remaining slots are numbered consecutively, starting with the first slot of the right magazine (ATL M1500) or level 1 right magazine (ATL M2500), which is given the SCSI address C0h (see [table 13](#) and [table 14](#)).

Table 11 ATL M1500,
Import/Export Option
Set to 1-Slot

Element	Address		Element Type
	DLT/SDLT	LTO	
Drive 1	80h		Drive
Drive 2	81h		Drive
Left magazine, slot 1	B0h		Import/export
Left magazine, slot 2 and up	C0h-C8h	C0h-CAh	Data
Right magazine	C9h-D2h	CBh-D6h	Data
Fixed slot	D3h	D7h	Data

Table 12 Element
Addressing,
ATL M2500, Import/
Export Option Set to
1-Slot

Element	Address				Element Type
	DLT/SDLT		LTO		
	5-drive Library	6-drive Library	5-drive Library	6-drive Library	
Drive 1	80h				Drive
Drive 2	81h				Drive
Drive 3	N/A*	82h	N/A*	82h	Drive
Drive 4	82h	83h	82h	83h	Drive
Drive 5	83h	84h	83h	84h	Drive
Drive 6	84h	85h	84h	85h	Drive
Level 1 left magazine, slot 1	B0h				Import/export

Element	Address				Element Type
	DLT/SDLT		LTO		
	5-drive Library	6-drive Library	5-drive Library	6-drive Library	
Level 2 left magazine, slot 2 and up	C0h-C8h		C0h-CAh		Data
Level 1 right magazine	C9h-D2h		CBh-D6h		Data
Level 2 left magazine	D3h-DCh		D7h-E2h		Data
Level 2 right magazine	DDh-E6h		E3h-EEh		Data
Level 3 left magazine [†]	E7h-F0h		EFh-FAh		Data
Level 3 right m magazine	F1h-FAh		FBh-106h		Data
Level 4 left magazine	FBh-104h		107h-112h		Data
Level 4 right magazine	105h-10Eh		113h-11Eh		Data
Level 1 fixed slot	10Fh		11Fh		Data
Level 2 fixed slot	110h		120h		Data
Level 3 fixed slot [‡]	111h		121h		Data
Level 4 fixed slot	112h		122h		Data

* In a 5-drive ATL M2500, the level 2 left drive bay is disabled, and therefore is not assigned a SCSI element address.

† In a 6-drive ATL M2500, the level 3 left magazine is not installed; however, it is still assigned the appropriate number of SCSI element addresses.

‡ In a 6-drive ATL M2500, the level 3 fixed slot is not installed; however, it is still assigned a SCSI element address.

Table 13 Element Addressing, ATL M1500, Import/Export Option Set to 10-Slot (or 12-Slot for LTO)

Element	Address		Element Type
	DLT/SDLT	LTO	
Drive 1	80h		Drive
Drive 2	81h		Drive
Left magazine	B0h-B9h	B0h-BBh	Import/export
Right magazine	C0h-C9h	C0h-CBh	Data
Fixed slot	CAh	CCh	Data

Table 14 Element Addressing, ATL M2500, Import/Export Option Set to 10-Slot (or 12-Slot for LTO)

Element	Address				Element Type
	DLT/SDLT		LTO		
	5-drive Library	6-drive Library	5-drive Library	6-drive Library	
Drive 1	80h				Drive
Drive 2	81h				Drive
Drive 3	N/A*	82h	N/A*	82h	Drive
Drive 4	82h	83h	82h	83h	Drive
Drive 5	83h	84h	83h	84h	Drive
Drive 6	84h	85h	84h	85h	Drive
Level 1 left magazine	B0h-B9h		B0h-BBh		Import/export
Level 1 right magazine	C0h-C9h		C0h-CBh		Data
Level 2 left magazine	CAh-D3h		CCh-D7h		Data

Appendix B SCSI Element Addressing
Option Settings and Their Effect on SCSI Element Addressing

Element	Address				Element Type
	DLT/SDLT		LTO		
	5-drive Library	6-drive Library	5-drive Library	6-drive Library	
Level 2 right magazine	D4h-DDh		D8h-E3h		Data
Level 3 left magazine [†]	DEh-E7h		E4h-EFh		Data
Level 3 right magazine	E8h-F1h		F0h-FBh		Data
Level 4 left magazine	F2h-FBh		FCh-107h		Data
Level 4 right magazine	FCh-105h		108h-113h		Data
Level 1 fixed slot	106h		114h		Data
Level 2 fixed slot	107h		115h		Data
Level 3 fixed slot [‡]	108h		116h		Data
Level 4 fixed slot	109h		117h		Data

* In a 5-drive ATL M2500, the level 2 left drive bay is disabled, and therefore is not assigned a SCSI element address.

† In a 6-drive ATL M2500, the level 3 left magazine is not installed; however, it is still assigned the appropriate number of SCSI element addresses.

‡ In a 6-drive ATL M2500, the level 3 fixed slot is not installed; however, it is still assigned a SCSI element address.

SCSI Element Addressing in Multiple Library Stacks

In multiple library stacks, SCSI element addresses are assigned starting at the top of the stack and proceeding downward through the library modules.

Any gaps between the top of the StackLink and the bottom library module in the stack that are large enough for a library are assigned the appropriate number of element addresses, even though there is no library installed.

Drive bays are assigned SCSI element addresses unless they are disabled. Disabling a drive bay removes the drive from the element address map.

The import/export function is active only on the library module to which the StackLink motor is connected. The data element addresses on either side of the import/export slots are consecutive.

Table 15 Element Addressing, Multiple Library Stack

Libraries in Stack (from Top to Bottom)	Element	Address		Element Type
		DLT	LTO	
ATL M1500	Drive 1	80h		Drive
	Drive 2	81h		Drive
	Left magazine	C0h-C9h	C0h-CBh	Data
	Right magazine	CAh-D3h	CCh-D7h	Data
	Fixed slot	12Fh	144h	Data
ATL M1500 with Import/Export option set to 10-Slot (or 12-Slot for LTO)	Drive 1	82h		Drive
	Drive 2	83h		Drive
	Left magazine	B0h-B9h	B0h-BBh	Import/export
	Right magazine	D4h-DDh	D8h-E3h	Data
	Fixed slot	130h	145h	Data

Libraries in Stack (from Top to Bottom)	Element	Address		Element Type
		DLT	LTO	
ATL M2500 (5-drive configuration)	Drive 1	84h		Drive
	Drive 2	85h		Drive
	Drive 3	Disabled*		N/A
	Drive 4	86h		Drive
	Drive 5	87h		Drive
	Drive 6	88h		Drive
	Level 1 left magazine	DEh-E7h	E4h-EFh	Data
	Level 1 right magazine	E8h-F1h	F0h-FBh	Data
	Level 2 left magazine	F2h-FBh	FCh-107h	Data
	Level 2 right magazine	FCh-105h	108h-113h	Data
	Level 3 left magazine	106h-109h	114h-11Fh	Data
	Level 3 right magazine	110h-119h	120h-12Bh	Data
	Level 4 left magazine	11Ah-123h	12Ch-137h	Data
	Level 4 right magazine	124h-12Eh	138h-143h	Data
	Fixed slot	N/A	N/A	Cleaning (Auto-Clean enabled)
	Fixed slot	N/A	N/A	Cleaning (Auto-Clean enabled)
	Fixed slot	N/A	N/A	Cleaning (Auto-Clean enabled)
	Fixed slot	N/A	N/A	Cleaning (Auto-Clean enabled)

* In a 5-drive ATL M2500, the level 2 left drive bay is disabled, and therefore is not assigned a SCSI element address.

Table 16 Element Addressing, Multiple Library Stack

Libraries in Stack (from Top to Bottom)	Element	Address		Element Type
		DLT	LTO	
ATL M1500 with Import/Export option set to 10-Slot (or 12-Slot for LTO)	Drive 1	80h		Drive
	Drive 2	81h		Drive
	Left magazine	B0h-B9h	B0h-BBh	Import/export
	Right magazine	C0h-C9h	C0h-CBh	Data
	Fixed slot	N/A	N/A	Cleaning (Auto-Clean enabled)
1 Level Gap*	Drive 1	82h		Drive
	Drive 2	83h		Drive
	Left magazine	CAh-D3h	CCh-D7h	Data
	Right magazine	D4h-DDh	D8h-E3h	Data
	Fixed slot	12Eh	144h	Data

Libraries in Stack (from Top to Bottom)	Element	Address		Element Type
		DLT	LTO	
ATL M2500 (5-drive configuration)	Drive 1	84h		Drive
	Drive 2	85h		Drive
	Drive 3	Disabled [†]		N/A
	Drive 4	86h		Drive
	Drive 5	87h		Drive
	Drive 6	88h		Drive
	Level 1 left magazine	DEh-E7h	E4h-EFh	Data
	Level 1 right magazine	E8h-F1h	F0h-FBh	Data
	Level 2 left magazine	F2h-FBh	FCh-107h	Data
	Level 2 right magazine	FCh-105h	108h-113h	Data
	Level 3 left magazine	106h-10Fh	114h-11Fh	Data
	Level 3 right magazine	110h-119h	120h-12Bh	Data
	Level 4 left magazine	11Ah-123h	12Ch-137h	Data
	Level 4 right magazine	124h-12Dh	138h-143h	Data
	Level 1 fixed slot	12Fh	145h	Data
	Level 2 fixed slot	130h	146h	Data
	Level 3 fixed slot	131h	147h	Data
	Level 4 fixed slot	132h	148h	Data

* Although there is no library installed in this location, SCSI element addresses are assigned.

† In a 5-drive ATL M2500, the level 2 left drive bay is disabled, and therefore is not assigned a SCSI element address.