ACL 4/52 Automated Tape Library for DLT Cartridges

Facilities Planning and Installation Guide

6211221-06

Ver. 6, Rel. 0

Quantum. | ATL

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FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INDUSTRY CANADA (DIGITAL APPARATUS)
Interference-Causing Equipment Standard
ICES-003 Issue 2

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Reglément sur le matériel brouilleur du Canada.

CISPR-22 WARNING!

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

ACHTUNG!

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmassnahmen verantwortlich ist.

ATTENTION!

Ceci est un produit de classe A. Dans un environment domestique, ce produit peut causer des interférences radioélectriques. Il appartient alors à l'utilisateur de prendre les mesures appropriées.

NOTICE FOR USA AND CANADA ONLY

If shipped to USA, use the UL LISTED power cord specified below for 100-120 V operation. If shipped to Canada, use the CSA CERTIFIED power cord specified below for 100-120V operation.

Plug Cap	Parallel blade with ground pin (NEMA 5-15P configuration)
Cord	Type: SJT, three 16 AWG (1.5 mm^2) or 18 AWG (1.0 mm^2) wires
Length	Maximum 15 feet (4.5m)
Rating	Minimum 10 A, 125 V

ATTENTION

LIRE LA REMARQUE DANS LE MODE D'EMPLOI.

REMARQUE

CETTE REMARQUE NE CONCERNE QUE LES ÉTATS-UNIS ET LE CANADA.

En cas d'envoi aux États-Unis, utiliser le cordon d'alimentation CERTIFIÉ UL et convenant pour 100-120 V.

En cas d'envoi au Canada, utiliser le cordon d'alimentation CERTIFIÉ CSA et convenant pour 100-120 V.

Fiche	Broches parallèles avec une broche de mise à la terre (configuration NEMA 5-15P)
Cordon	Type: SJT, trifilaire 16 AWG (1.5 mm^2) ou 18 AWG (1.0 mm^2)
Longeur	Maximum 15 pieds (4.5m)
Capacité	Minimum 10 A, 125 V

LASER STATEMENT

Class 1 Laser Product

CAUTION: With all panels and enclosures in place, this product is rated as a Class I laser product. The bar code scanner inside this product, however, is a Class II laser. Avoid exposure to the laser light emitted from the bar code scanner. Do not stare into the beam.

CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous exposure.

Laser Klasse 1

VORSICHT: Dieses Produkt Enthdlt Einen Laser Der Kategorie II. Laserstrahlen - Der Strichcode-scanner Gibt Laserstrahlen aus. VERMEIDEN SIE jeden Blickkontakt und direkten kvrperlichen Kontakt mit diesen Strahlen.

VORSICHT: Ein nicht ordnungsgemd_er (siehe hier enthaltene Anweisungen) Einsatz bzw. Dnderungen der Betriebsleistung kvnnen einen gesundheitsgefdhrdenden Kontakt zur Folge haben.

Appareil à Laser de Classe 1

ATTENTION: Ce produit émet de la classe laser II. Rayonnement laser - NE PAS fixer des yeux le rayon. Éviter les expositions - Le rayonnement laser est émis à partir du lecteur optique de code barre.

ATTENTION: L'utilisation de contrôles ou d'ajustements de performance des procédures autres que ceux indiqués ici peut entraîner une exposition dangereuse.

Producto Láser de Clase 1

¡ATENCIÓN! Este producto contiene laser de clase II. Luz de laser - NO mire el rayo. Evite el contacto con la luz: la luz de laser se emite desde el explorador de código de barras.

¡ATENCIÓN! El uso de los controles o ajustes para realizar procedimientos que no son especificados puede provocar una situación peligrosa.

Luokan 1 Laserlaite

ATTENZIONE: Questo prodotto emette una luce laser di Classe II. NON guardare il facsio di luce ed evitare di esporsi alla fonte del laser. Il fascio di luce laser h emesso dal dispositivo di scansione del codice a barre.

ATTENZIONE: L'uso di comandi o regolazioni per eseguire le procedure che non siano quelli specificati in questa documentazione pur causare rischi all 'incolumit' delle persone.

BATTERY STATEMENT

Caution

The Dallas Semiconductor DS1230AB-200 component on the robotic controller board inside this product contains a lithium battery. Lithium is a hazardous material that must be disposed of in accordance with local, state, and federal law.

Forsigtig

Båndbiblioteket indeholder et lithiumbatteri. Dallas Semiconductor DS1230AB-200 på robotkontroltavlen indeholder et lithiumbatteri. Lithium kan anses for at være et sundhedsfarligt materiale. Kassér dette batteri i overensstemmelse med lokale og nationale lovbestemmelser.

Huomautus

Nauhakirjastossa on litiumparisto. Robottiohjainkortin Dallas Semiconductor DS1230AB-200-puolijohteessa on litiumparisto. Litium voidaan luokitella vaaralliseksi aineeksi. Pariston hävittämisessä on noudatettava viranomaisten antamia ohjeita ja määräyksiä.

Attention

La bibliothèque de bande contient une pile au lithium. Le Dallas Semiconductor DS1230AB-200 sur la carte robotic contrôleur contient une pile au lithium. Le lithium peut être considéré comme matériau dangereux. Jeter cette pile conformément aux lois locales, d'état et fédérales.

Achtung!

Die Bandbibliothek enthält eine Lithiumbatterie. Der Halbleiter Dallas Semiconductor DS1230AB-200 auf dem Roboter-Controller enthält eine Lithiumbatterie. Lithium gilt als Schadstoff. Bei der Entsorgung dieser Batterie alle entsprechenden kommunalen, staatlichen und bundesweiten Vorschriften beachten!

Attenzione

La libreria a nastro magnetico contiene una batteria al litio. Il semiconduttore Dallas Semiconductor DS1230AB-200 sulla scheda controller robotic contiene una batteria al litio. Il litio può essere considerato un materiale pericoloso. Eliminare queste batterie in conformità alle normative locali e statali vigenti.

Forsiktig

Kassettbiblioteket inneholder et litiumbatteri. Enheten Dallas Semiconductor DS1230AB-200 på robotkontrollkortet inneholder et litiumbatteri. Litium kan anses som et farlig materiale. Batteriet skal kastes i henhold til lokal og nasjonal lovgivning.

Precaución

La biblioteca de cintas contiene una pila de litio. El semiconductor Dallas Semiconductor DS1230AB-200 en el tablero controlador robotic contiene una pila de litio. El litio puede considerarse como un material peligroso. Deseche esta pila de acuerdo con las leyes municipales, estatales y federales.

Varning!

Magnetbandsbiblioteket innehåller ett litiumbatteri. Dallas Semiconductor DS1230AB-200 på robotstyrkortet innehåller ett litiumbatteri. Litium kan anses vara ett farligt material. Kassera detta batteri i enlighet med lokala och statliga lagar och förordningar.

Contents

Figures

Tables

Preface

Audience

This book is designed to aid field service engineers and other technical users in the initial setup of the tape library system. It begins with a site requirements and continues with unpacking and installation procedures. It also contains basic troubleshooting information.

Purpose

This book describes facility preparation and first-time installation procedures for the Enterprise Tape Library 4/1800. It includes library specifications, installation site requirements, unpacking instructions, and hardware installation and testing procedures.

Document Organization

Following is a brief description of chapter contents.

- Chapter 1, “Installation Requirements,” provides library specifications and the physical requirements for the installation site.
- Chapter 2, “Unpacking the Library,” explains how to unpack and move the ACL 4/52 library to the final installation site.
- Chapter 3, “Installing the Library,” explains how to install the ACL 4/52 library.

Notational Conventions

This manual uses the following conventions:

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

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

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

This manual uses the following:

- Right side of the library — Refers to the right side as you face the component being described.
- Left side of the library — Refers to the left side as you face the component being described.
- *b* — All binary numbers are succeeded by “b.”
- *h* — All hexadecimal numbers are succeeded by “h.”
- Error or attention conditions are represented in parenthesis that translate as follows:

  (SK=S ASC=AA ASCQ=QQ)

  where:

  S — hexadecimal sense key value

  AA — hexadecimal additional sense code

  QQ — hexadecimal additional sense code qualifierer

Related Documents

Documents related to the ACL 4/52 library are shown below:

ACL 4/52 Documentation

Document No.	Document Title	Document Description
6211124	ACL4/52 Diagnostic Software User’s Manual	This manual describes how to install and use the Diagnostic Software Package developed for field service personnel.
6211122	ACL4/52 Operator’s Guide	This guide defines the control functions, operational procedures and end user maintenance procedures for the library.
EK-TH4XX-IM	*DLT 2000 Cartridge Tape Drive Product Manual*	This document describes the DLT™2000 tape drive and provides operating instructions and troubleshooting procedures.

Document No.	Document Title	Document Description
81-108336-01	*DLT 4000 Cartridge Tape Drive Product Manual*	This document describes the DLT™4000 tape drive and provides operating instructions and troubleshooting procedures.
81-60000-01	*DLT 7000 Cartridge Tape Drive Product Manual*	This document describes the DLT™7000 tape drive and provides operating instructions and troubleshooting procedures.

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

ATL company contacts are listed below.

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Visit the ATL Products home page at:

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Europe, Africa, Asia, and Australia `ukhelpdesk@atlp.com`

Chapter 1

Installation Requirements

This chapter describes library specifications and the physical requirements for the installation site.

Library Specifications

The tables in this section provide the mechanical, power, and environmental specifications for the Enterprise library. Use these specifications to help select an appropriate installation site and environment.

Figure 1 Library Mechanical Specifications

Height	44 inches (111.76 cm)
Width	21.5 inches (54.61 cm)
Depth	31.12 inches (79.04 cm)
Weight	361 lbs. (164 kg) with 4 tape drives and 52 DLT cartridges

Figure 2 Library Power Specifications

AC Power Rating	100–120V / 200-240V, 4A / 2A, 50 / 60 Hz
AC Voltage Range	90–132 VAC or 180–264 VAC
Frequency Range	47–63 Hz

Figure 3 Library Environmental Specifications

Temperature:	Storage—Short-Term (<60 Days) Storage—Long-Term (>60 Days) Transport Operating	-40 to 151°F (-40 to 66°C) 41 to 122°F (5 to 50°C) -40 to 151°F (-40 to 66°C) 59 to 90°F (15 to 32°C)
Relative Humidity:	Non-Operating (Storage) Non-Operating (Transport) Operating	95% (Wet bulb temp = 90°F / 32°C) 95% (Wet bulb temp = 115°F / 46°C) 20–80% (Wet bulb temp = 77°F / 25°C)
Altitude:	Short-Term (<60 days in storage) Long-Term (>60 days in storage) Operating	12,000 ft (3,658 km) 12,000 ft (3,658 km) 6,562 ft (2.0 km) @ 76°F Max. & 589 mmHg
Heat Dissipation:	Operating	880 BTU / hr (220 KCal / hr or 260 watts)

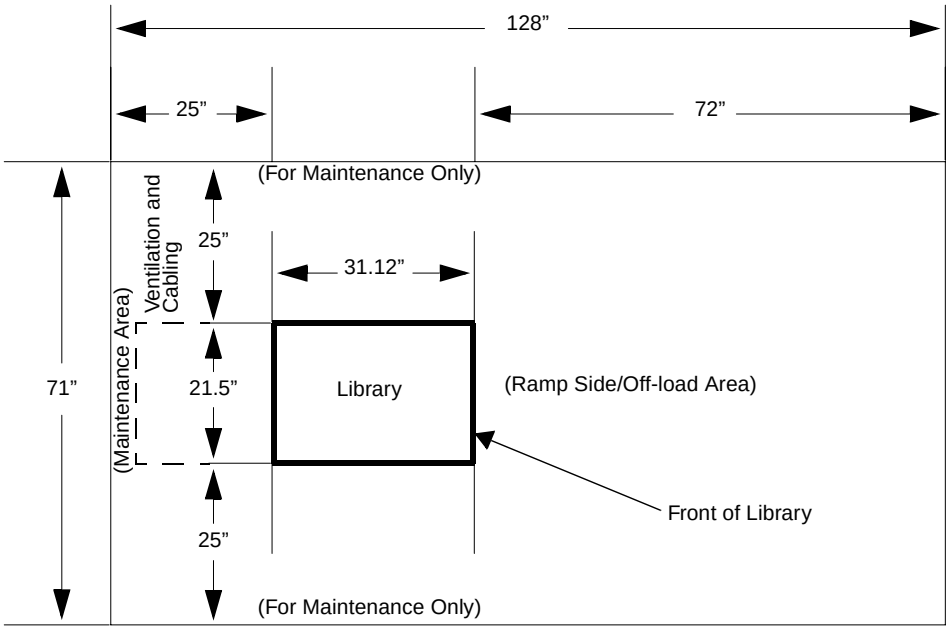
Site Requirements

This section describes the following installation site requirements for the library:

- Floor space
- Floor clearance
- Floor inclination
- Floor strength
- Power
- Grounding

Floor Space

Figure 4 Floor Space Requirements



Floor Clearance

The cabinet has a nominal floor clearance of 0.75 inch (1.9 cm). The library should be placed on a level, uncarpeted floor free of cracks, depressions, and so on.

Floor Inclination

The floor in the installation site must be level to within 0.25 inch over a 6 x 6 foot area.

Floor Strength

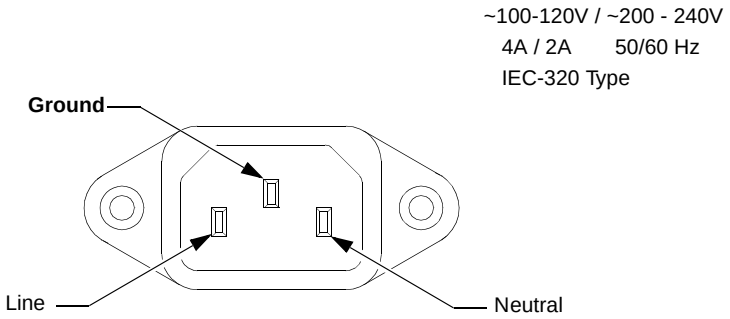
The floor in the installation site must be a standard raised computer floor rated at 250 lb / ft^2. This is sufficient to support a fully loaded Enterprise library.

Power

The library's auto-ranging motor and logic power supplies accept single-phase,
90–264 VAC input power at 47–63 Hz.

The power inlet connector is a IEC-320 connector. For international applications you must replace the power cord set with a harmonized 3x2.0 mm^2 power cord set that is approved by the country where used.

Figure 5 Library's AC Power Receptacle



Grounding

The installation site must provide an earth ground cable for the library.

Chapter 2

Unpacking the Library

This chapter explains how to unpack and move the Enterprise library to the final installation site.

Note: Before following the instructions in this chapter, make sure the site chosen for the library meets the requirements found in Chapter 1.

The procedures listed above must be performed in the order they appear in this document. After completing these procedures, continue the installation by following the instructions in Chapter 3.

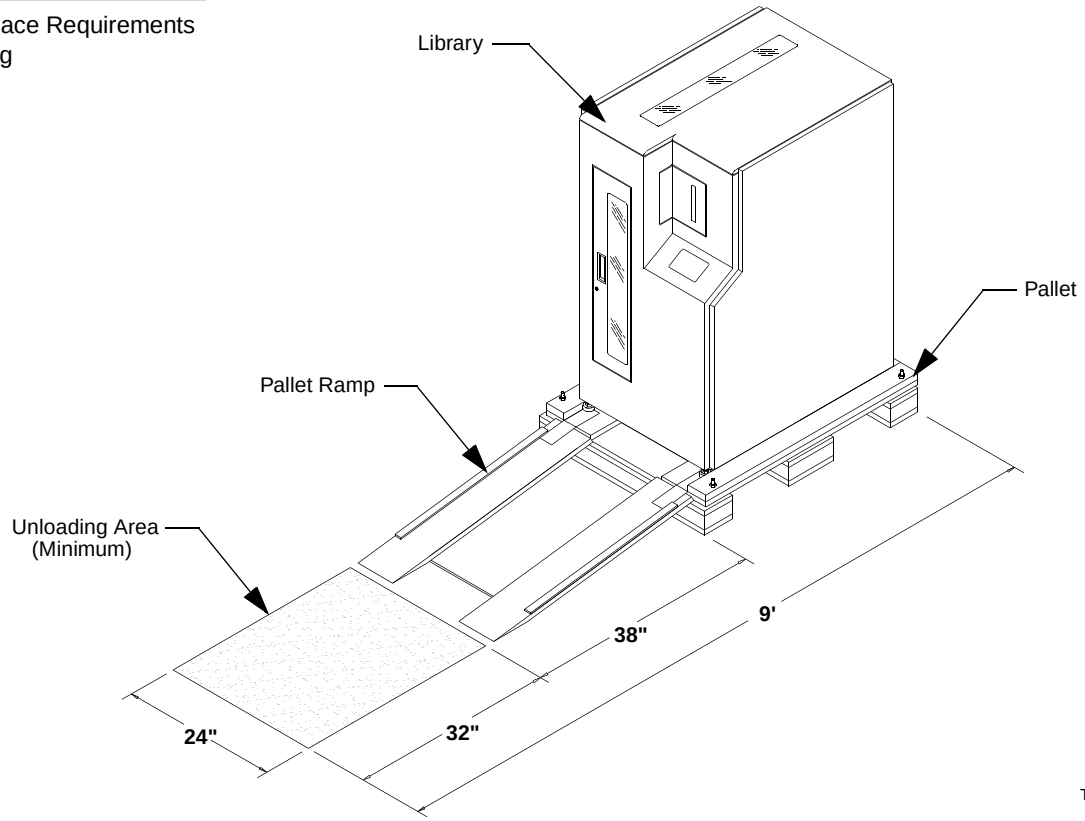
Receiving the Library

Follow these guidelines to properly receive the crated library:

Move the crated library as close to the final installation site as possible.

Allow a minimum of six feet in front of the off-load side of the pallet to ensure that there is enough space to place the ramp used for removing the library

Figure 6 Space Requirements for Unloading



- Inspect the crate and packing materials for any damage that may have occurred during shipment. Report any damage to the shipping company immediately.

Unpacking the Library

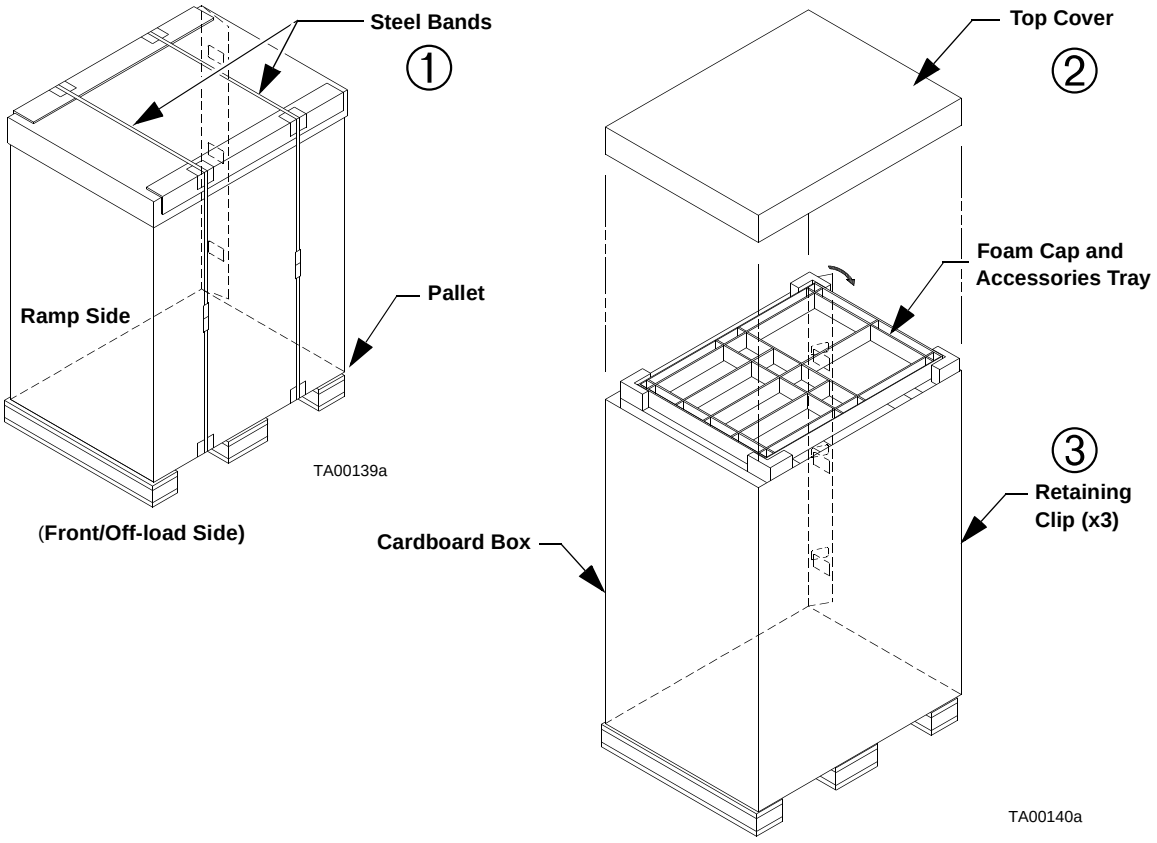
Caution: Use care when cutting the steel bands that secure the library and packing materials to the pallet. These bands are under tension and may snap when cut.

1 Cut the steel bands that secure the library and packing material to the pallet (see figure 7).

2 Lift the cardboard top cover off the pallet.

3 From the back of the container (opposite the ramp side), pull the three cardboard retaining clips to their open position, and unwrap the cardboard box from the library

Figure 7 Removing the Box from the Pallet



4 Lift the foam cap and accessories tray off the library (see figure 8).

5 Remove the stop block located underneath the library.

6 Slide out the two pallet ramp sections located underneath the library and secure them to the pallet using the Velcro straps.

7 Carefully cut the shipping bag vertically along the heat-seal seam.

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

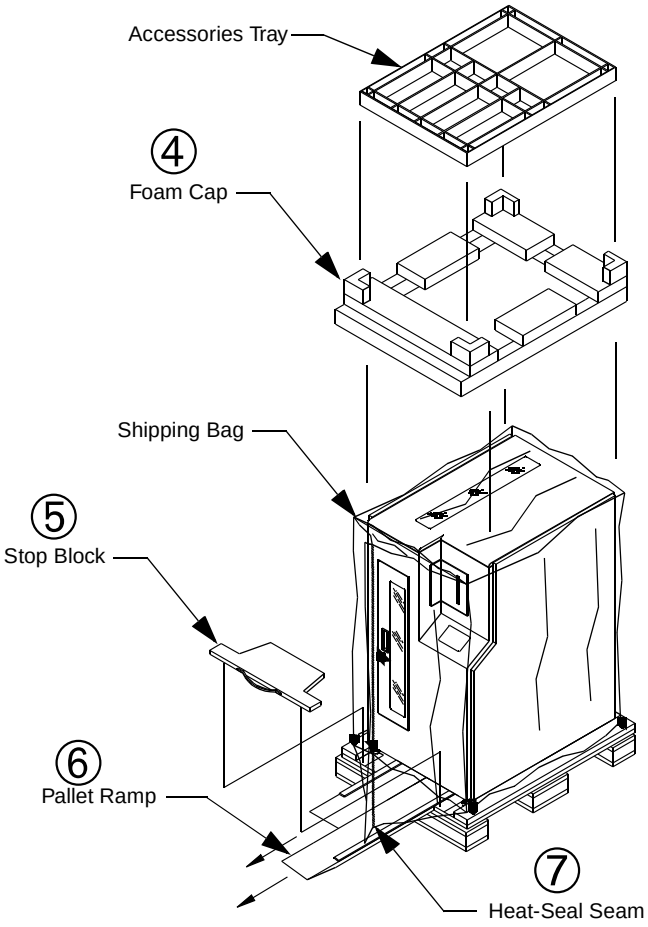


Figure 8 Unpacking the Library

Removing the Library from the Pallet

Caution: The library weighs approximately 335 pounds. It is recommended that at least two individuals perform the following procedure.

To remove the library from the pallet:

1 Verify that all leveling feet (located on the underside of the library at each corner of the cabinet) at in the up position.

If they are not, rotate each foot clockwise until it is fully retracted.

2 Guide the library out of the shipping bag and down the ramp (see figure 9).

If two persons are available to do this, one should be positioned at the front of the library to guide it down the ramp while another is positioned at the back of the library to push the library forward.

Note: If you are the only person available to perform this procedure, position yourself in front of the library so you can pull it forward onto the ramp and carefully guide it to the floor. The two-person procedure is recommended.

3 Save the shipping bag for future use.

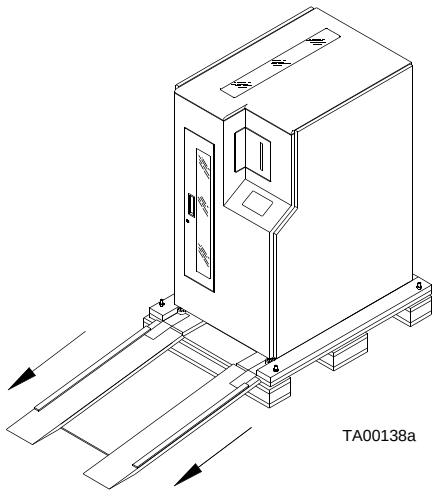


Figure 9 Rolling the Library Off the Pallet

Moving the Library to the Installation Site

Caution: The library weighs approximately 335 pounds. It is recommended that at least two individuals perform the following procedure.

To move the library to the installation site:

1 Prepare the path to the installation site.

The library has a nominal floor clearance of 0.75 inch (1.9 cm). Use plastic or rubber mats to roll the library over carpeting, floor cracks and depressions, or door jambs.

2 Verify that all leveling feet are fully retracted (in the up position).

If they are not, rotate each of the feet clockwise until fully retracted.

3 Roll the library to the final installation site.

Any side of the library can be used to push the library but the preferred side to push from is the front of the library.

Caution: When pushing from the front, be careful not to push on the following nonstructural parts: load port door, control panel, front door, or the front door handle.

Removing Internal Packing and Inserting Tape Cartridges

Once the library is in the final installation site, you must remove internal packing materials and install any available tape cartridges as explained in this section. The following are major steps in this procedure:

- Removing the left cosmetic panel
- Removing tie-wraps
- Removing foam blocks
- Inserting tape cartridges
- Reinstalling the cosmetic panels

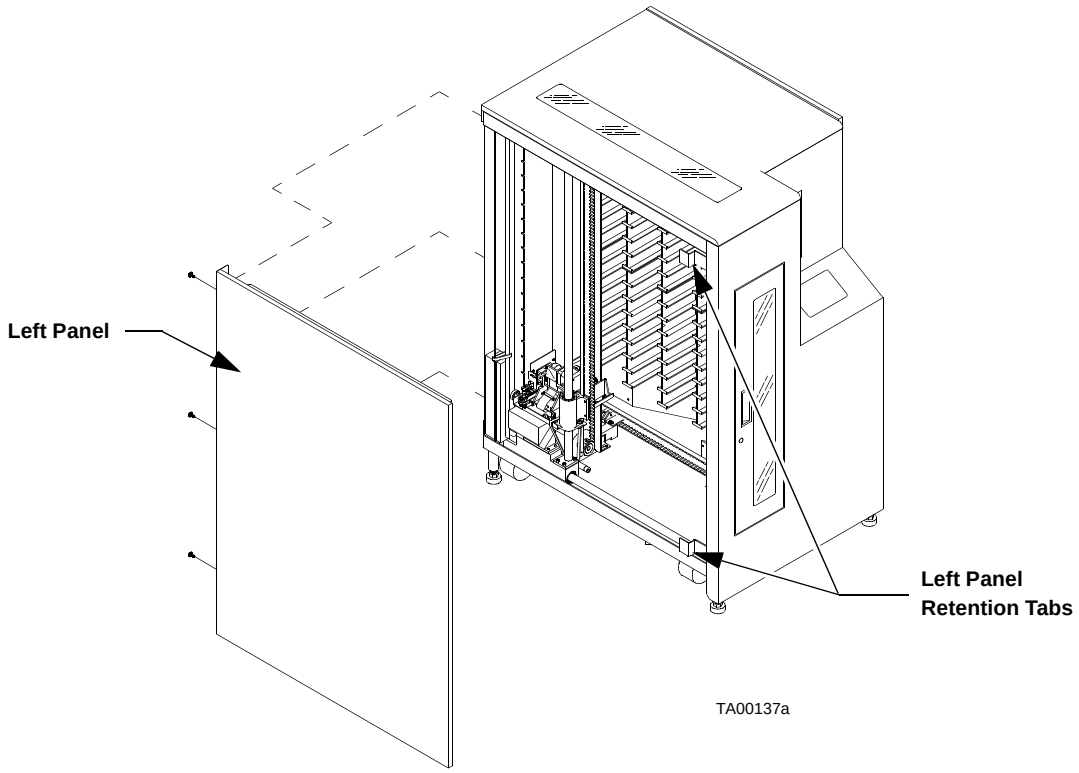
Caution: Make sure the library is at its final installation site before removing the internal packing materials. Damage to the equipment may occur if the library is moved without the internal packing materials in place.

Removing the Left Cosmetic Panel

To remove the left cosmetic panel:

1. At the back of the library, remove the three screws that secure the left panel to the library frame (see figure 10).
2. Pull the panel toward the back of the library to disengage the retention tabs on the left side of the library frame and then take the panel away from the library frame.
3. Set the left panel and the screws aside.

Figure 10 Removing the Left Panel



Removing the Tie-Wraps

To remove the tie-wraps:

Note: Do not cut the tie-wraps; they must be reused when packaging the library for reshipment.

1 Use an antistatic wrist strap and take any other available antistatic precautions.

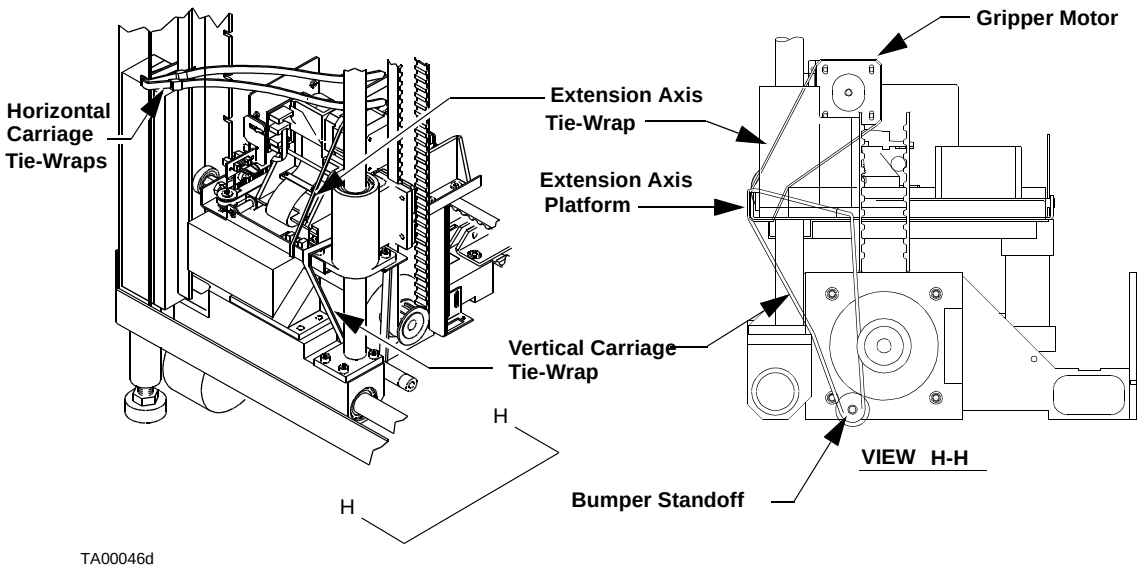
2 Using figure 11, locate tie-wraps securing the horizontal carriage, the vertical carriage, and extension axis.

3 To remove each tie-wrap, push on the release tab near the tie-wrap buckle and then slide the end of the tie wrap out of the buckle.

Repeat this step until you have removed all three tie-wraps.

4 Save all tie-wraps for future use.

Figure 11 Removing Tie-Wraps

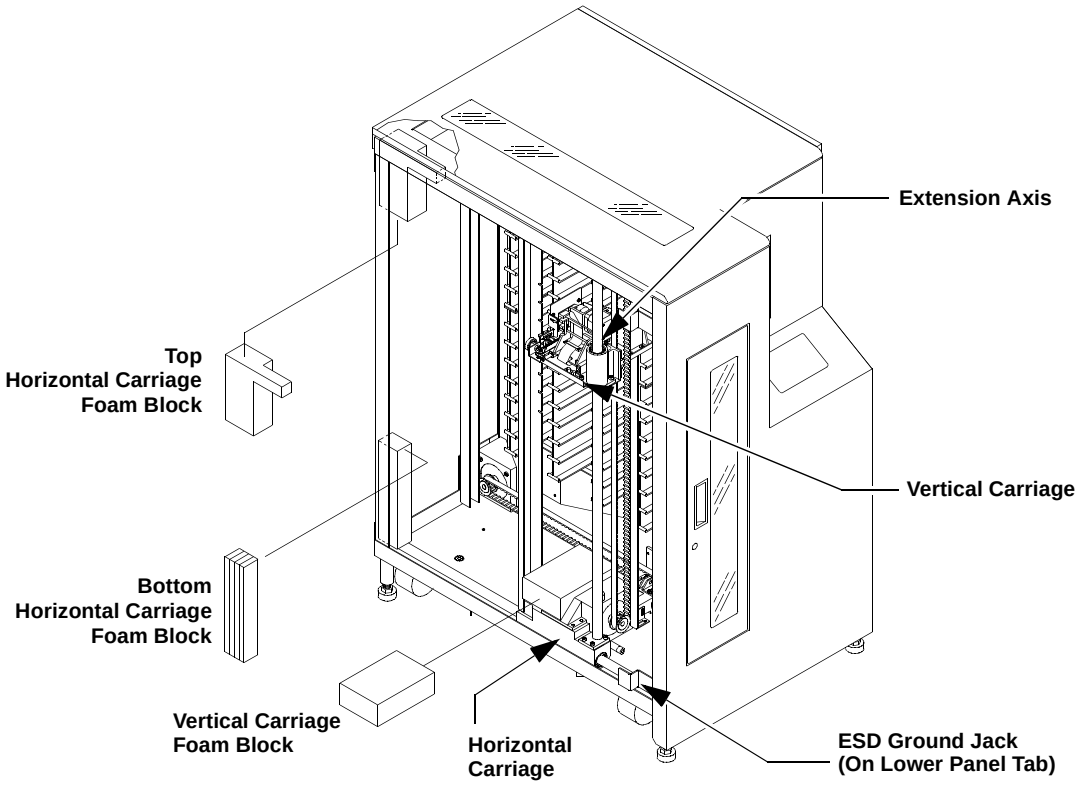


Removing the Foam Blocks

To remove the foam blocks:

1. Use an antistatic wrist band and take any other available antistatic precautions.
2. Gently slide the horizontal carriage toward the front of the library.
3. Remove the top and bottom horizontal carriage foam blocks.
4. Gently raise the vertical carriage and remove the vertical carriage foam block.
5. Save all the blocks for future use.

Figure 12 Removing the Foam Blocks

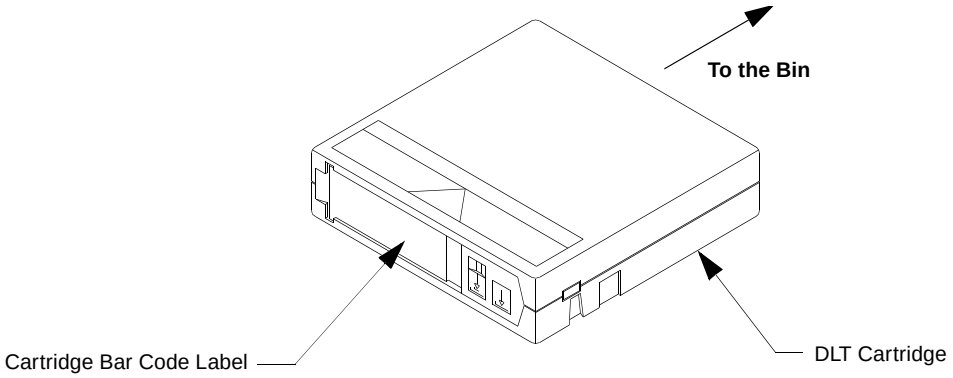


To Load Available Tape Cartridges

If the customer has tape cartridges available for loading at this time, it is best to do this while the side panel is removed. You can insert up to 48 cartridges directly into empty bins in the fixed storage array.

Figure 13 shows how cartridges should be oriented before insertion into a bin.

Figure 13 Tape Cartridge Orentation



Do not be concerned if the customer does not have all the cartridges needed to fill the library. Additional cartridges can be added after installation using the load port. For more information about this procedure, refer to the *Enterprise Tape Library 4/1800 Operator's Guide.*

Note: Whenever possible, try to fill the library completely with properly labeled tape cartridges. A full library of labeled cartridges takes much less time to inventory than a partially filled library or a library filled with unlabeled cartridges.

Reinstalling the Left Cosmetic Panel

To reinstall the left cosmetic panel:

1. Rest the top lip of the left panel on top of the library frame.
2. Push the panel toward the front of the library and insert the frame buckles into the retention tabs.
3. At the back of the library, insert the tighten the three screws that secure the left panel to the back of the library frame.

Storing the Packing Materials

After unpacking the library and removing internal packing materials, you should store all materials for future use. Follow this procedure:

1 Raise the ramp and rest it on top of the pallet.

2 Collapse the cardboard box.

3 Store the box, foam cap, pallet, and all packing materials for future use.

Packing the Library for Shipment

If it becomes necessary to ship the library, you must repack it in its original shipping materials as explained in this section. The following are the main steps in this procedure:

- Removing power from the library
- Removing the left cosmetic panel
- Unloading the library
- Installing the internal packing materials
- Replacing the cosmetic panels
- Moving the library onto the shipping pallet
- Securing the library to the pallet

Removing Power from the Library

To remove power from the library:

1. If necessary, unload and eject any tapes in the tape drives.
2. Turn off the library by setting the power switch to the O (off) position.
3. Disconnect all SCSI cables from the back of the library.

   Leave the power cord connected.

Caution: Do not disconnect the power cord from the library or the grounded power source until instructed to do so. While plugged in, the power cord grounds the library chassis and helps to prevent electrostatic discharge (ESD) damage.

Removing the Left Cosmetic Panel

To remove the left cosmetic panel:

1. At the back of the library, remove the three screws that secure the left side panel to the library frame.
2. Pull the panel toward the back of the library (to disengage the retention tabs) and then move the panel from the library frame (see figure 10 on page 12).

   Carefully set the left panel aside.

Unloading the Library

To unload the library:

1 Remove all tapes from the fixed storage bins.

To do this, grasp the exposed end of each tape and lift it out of the bin.

2 Remove any tapes in the load port bins.

Load port bins are accessible from inside the library. To remove a tape from the load port, grasp the exposed end and lift it out.

3 Remove any ejected tapes from the tape drives.

4 If you ejected any tapes prior to turning off the library, they may be in the drive slots. Remove each tape carefully from the drive; make sure the tape is completely unloaded (not buckled to the take-up leader) before completely removing it.

5 For more information, refer to the *ACL 4/52 Operator's Guide*.

Installing the Internal Packing Materials

To install the packing materials:

1 Install the foam blocks as shown in figure 12 on page 14 and explained below:

a Gently raise the vertical carriage and place the vertical carriage foam block into position. Lower the vertical carriage onto the foam block.

b Install both the top and bottom horizontal carriage foam blocks.

c Gently slide the horizontal carriage toward the back of the library and against the horizontal carriage foam blocks.

2 Install four tie-wraps to secure the extension axis, the vertical carriage, and the horizontal carriage as shown in figure 11 on page 13 and explained below:

a Route the two horizontal carriage tie-wraps through the notch on the vertical rail and secure them through the notch on the frame.

b Route the extension axis tie-wrap around and back up through the extension axis platform and secure it around the gripper motor.

Note: Do not route the tie-wrap over the gripper motor power cable.

c Route the vertical axis tie-wrap under the bumper standoff and secure it around the extension axis platform.

Reinstalling the Left Cosmetic Panel

To reinstall the left cosmetic panel:

1. Rest the top lip of the left side panel on the library frame.
2. Push the panel toward the front of the library and insert the frame buckles into the retention tabs.
3. At the back of the library, insert and tighten the three screws to secure the left side panel to the back of the library frame.
4. Unplug the power cord from the library and the power source.

Moving the Library onto the Shipping Pallet

To move the library onto the shipping pallet:

1. Raise the library's leveling feet by rotating each foot clockwise until fully retracted.
2. Position the pallet to load the library and secure the two ramp sections to the pallet using the Velcro strips.
3. Unfold the shipping bag and align the white tape to the pallet where the library casters will roll onto the pallet.
4. Roll the library onto the pallet and into the shipping bag.
5. Observe all cautions and guidelines in "Moving the Library to the Installation Site" on page 10.
6. Seal the shipping bag by folding the seam over and taping the edge.
7. Disconnect the ramp sections from the pallet and slide them underneath the library.
8. Install the stop block in front of the library front casters and secure it to the Velcro fasteners.

Securing the Library to the Pallet

To secure the library to the pallet:

1. Place all accessories (cables, manuals, installation hardware, and so forth) in the accessories tray.

   You must provide separate shipping container for the tape cartridges.
2. Place the accessories tray and foam cap on top of the library (see figure 7 on page 7).
3. Wrap the cardboard box around the library and secure it using the cardboard retaining clips.
4. Place the cardboard top cover securely over the cardboard box.
5. Install steel bands to secure the library and packing material to the pallet.

6 It is recommended that the steel bands be tightened to approximately 200 pounds of tension.

7 Label the library for shipment.

Chapter 3

Installing the Library

This chapter explains how to install the ACL 4/52 library using the following procedures:

To ensure a problem-free installation, these procedures should be followed in order. The on-site system administrator should also be present during these procedures.

Gathering Required Tools

Make sure you have the tools listed in table 1 before beginning this installation.

Table 1 Required Tools

Quantity	Description
1	#2 Phillips screwdriver
1	Wire cutters
1	Carpenter’s level
1	$1^{3}/_{8}$-inch open-ended wrench
1	Digital voltmeter (DVM)
1	Antistatic wristband

Leveling the Library

Completing this task requires leveling one side of the library at a time, moving in a clockwise direction from the front to the right side. To do this:

1 Move the library into its final position for installation.

   Make sure you leave enough floor space around the library for removing cosmetic panels, attaching cables, opening the front door, and so on. For minimum floor space dimensions, refer to figure 4 on page 3.

2 Lower each foot of the library until it makes contact with the floor.

Caution: When adjusting the feet for leveling purposes, do not raise any foot so high that excess weight is transferred to any single caster.

3 Starting at the front of the library and moving from foot to foot in a clockwise direction, rotate each foot clockwise so the corresponding caster is raised approximately 1/4 inch off the floor.

4 Place the carpenter's level on top of the front edge of the library.

5 Check the gauge on the level. If the front of the library is level, proceed to step 6. If it is not level:

   a Determine the tilt of the library and adjust the appropriate foot with the wrench, checking the gauge each time any foot is rotated 1/4 turn.

   b Repeat step 5 until the front is level.

6 Repeat steps 4 and 5 to level the left side, the back side, and the right side of the library.

7 Check each side again as follows:

   a Starting at the front of the library, place the level on top of each edge (front, left, back, and right) and check the gauge.

   b Make any minor adjustments necessary to the feet to make the side level.

8 Repeat step 7 until all four sides are level.

Setting Up and Testing the Library

The following procedures verify the proper operation of the ACL 4/52 library:

- Turning on the library
- Setting SCSI addresses
- Configuring library options
- Running a system test
- Performing an inventory

Turning On the Library

To turn on the library:

1 Verify the following:

- Actuators move freely in the horizontal and vertical directions
- All doors are closed
- All cosmetic panels are attached
- Power switch in the O (off) position

Caution: Using a digital voltmeter (DVM), verify that the facility power is
90-132VAC or 180-264 VAC @ 47-63Hz before connecting the AC power cord.

2 Connect the AC power cord to the rear panel and facility power.

3 On the rear panel, set the power switch to the "|" (on) position.

4 After several seconds, verify that the control panel displays library status.

Setting SCSI Addresses

After power is applied to the library, you need to set library and tape drive SCSI addresses. Setting SCSI addresses require operator- or service-level security clearance at the library control panel.

Configuring Library Options

In addition, you may want to change the default configuration (in bold) of these options:

- Library power-up state (**online**/offline)

- Auto clean (**enable** / disable)
- Retries (**enable** / disable)
- Exabyte emulation (enable / **disable**)
- Read barcode labels (**yes** / no)
- Auto inventory (**yes** / no)
- Auto load (**enable** / disable)

These procedures require operator- or service-level security clearance at the library control panel. For a description of these procedures, refer to the *ACL 4/52 Operator's Guide.*

Performing a System Test

The system test checks out the functionality of all library components. To run the system test, you must have Service-level access at the control panel.

Performing an Inventory

The inventory command identifies tape cartridges by reading their bar code labels and writes their location to nonvolatile RAM. To run the inventory command, you must have either Operator- or Service-level access at the control panel.

For more information about this command, refer to the *ACL 4/52 Operator's Guide.*

Connecting the Host Computer

This section explains how to connect the library to the Sun system acting as host computer. The library is shipped with the internal cabling configured for one host SCSI connection (single-wire).

Note: To support a SCSI configuration other than single-wire, the library's internal SCSI cabling must be changed. Additional SCSI cables are provided in the library accessories kit. The accessories kit also includes SCSI cables and terminator for connecting the library to the host computer.

To perform this procedure:

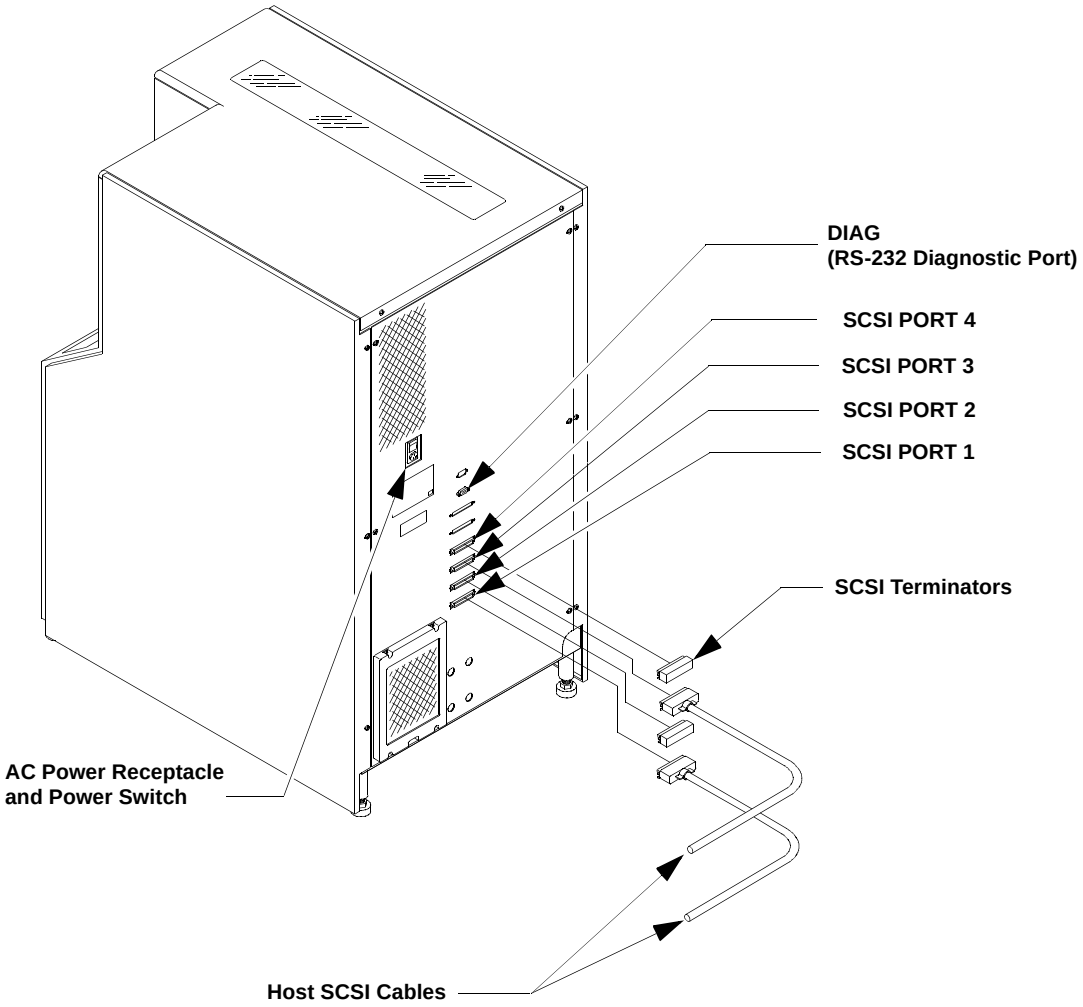
1. Turn off the library as follows:
   a. Press the STANDBY button on the control panel. Make sure that "System Offline" appears in the display and the STANDBY indicator is on.
   b. Press the STOP button on the control panel. Make sure that the STOP indicator is on.
   c. At the back panel, set the power switch to the O (off) position.
2. Turn off all SCSI devices that will be connected to the same SCSI bus as the library.

Note: The library uses differential (Diff) SCSI connections. If your host adapter is single-ended (SE) SCSI, you must use an SE-to-Diff converter for proper SCSI communication.

3. Connect a SCSI cable from the host computer's SCSI adapter to SCSI PORT 1 on the back panel of the library (figure 14 on page 27).
4. Install the SCSI jumper cable between SCSI PORT 2 and SCSI PORT 3 on the back panel of the library.
5. Install the SCSI terminator to SCSI PORT 4 on the back panel of the library.

Note: Refer to the Sun Booklet for information on how to configure the Sun system, to determine and set SCSI IDs, and to apply power to the system.

Figure 14 Cabling the Library



Appendix A

SCSI Cabling Options

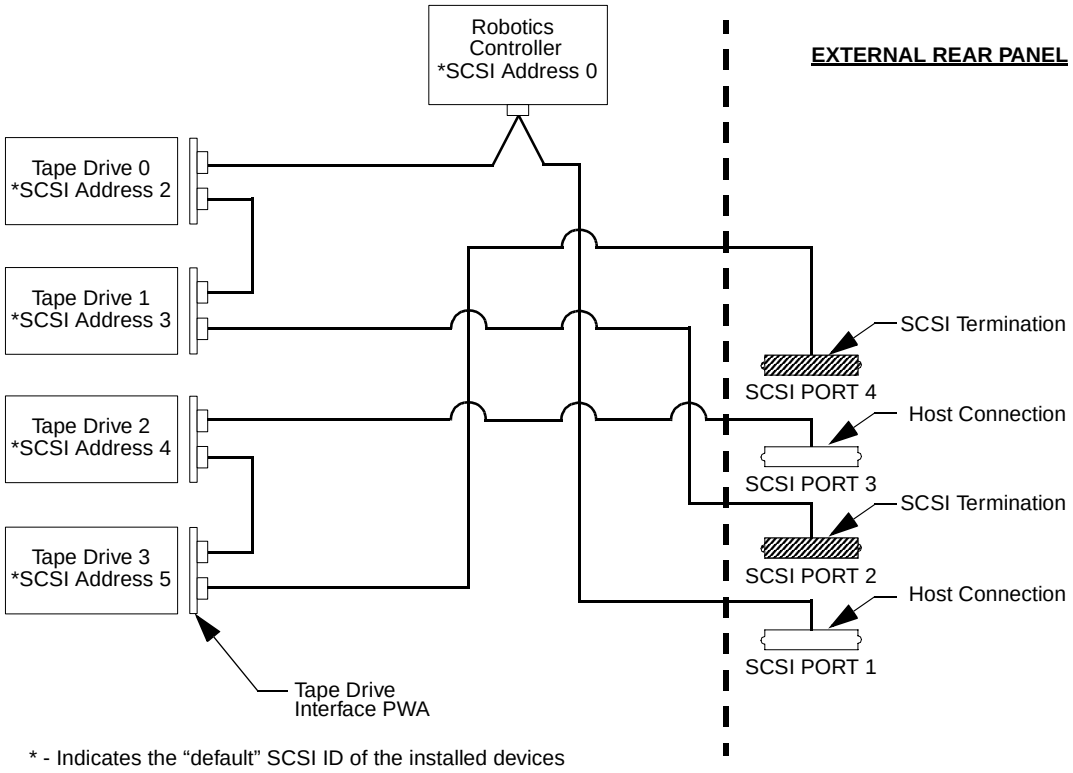
This appendix describes the SCSI cabling options of the Enterprise 4/1800 tape library. The following SCSI devices are included in communications between the host computer and library:

- Host computer
- Library robotics
- Tape drive 0
- Tape drive 1
- Tape drive 2
- Tape drive 3

SCSI Configurations

In default configuration, internal single-wire SCSI cabling connects the robotics controller and all of the SCSI devices on a single SCSI bus from the host controller. Figure 15 shows this default configuration.

Figure 15 Single Wire SCSI Configuration (Default)



The SCSI configuration of the tape drives and library can be changed according to your needs by using the cable provided in the accessories kit shipped with each library unit.

Appendix B

Supplemental Installation Procedures

The procedures contained in this appendix are provided for the Field Service Engineer's convenience during the installation of the library. If there are additional tasks that you are asked to perform by the customer's System Administrator, refer to *Document No 6211222, ACL 4/52 Operator's Guide*.

The following procedures are contained in this appendix:

- Defining the library power-up state
- Enabling / disabling the auto-clean option
- Enabling / disabling the auto-load feature
- Loading the library with cartridges (through the load port)
- Performing an inventory
- Turning the interior light on / off

Note: The following procedures require familiarity of the library menu mode.

Defining the Library Power-Up State

You have the option of defining the starting condition of the library, either On-line or standby (Off-line), after power-up, self-tests and initialization has occurred. The default is On-line. You can change it by using the Power-Up State sub-menu as follows:

1. Press and release the Control Panel STANDBY button and verify that the SDA shows System Off-line.
2. Press and release the SELECT button to enter the Menu Mode.
3. Verify that the following is displayed in the SDA:

   ```
   Menu:
     Configuration..
   ```

4. Press and release the SELECT button to choose the Configuration menu.
5. Verify that the following is displayed in the SDA:

   ```
   Menu: Configurati
     Inquiry
   ```

6. Use the ↓ button to bypass the SCSI Address menu and verify that the following is displayed in the SDA:

   ```
   Menu: Configurati
     Power-Up State
   ```

7. Press and release the SELECT button to choose the Power-Up State menu and verify that the following is displayed in the SDA:

   ```
   Menu: Power-Up
     On-Line<
   ```

Note: *System On-line* is the default. If you want to change the power-up state to standby mode (*System Off-line*), proceed to Step 8. Otherwise, exit the menu mode.

8. Use the ↓ button to bypass the On-Line option and verify that the following is displayed in the SDA:

   ```
   Menu: Power-Up
     Standby
   ```

9. With the desired option displayed on Line #2, press and release the SELECT button.

10 Press and release the ↑ or ↓ button to clear the resulting display from the command.

11 Press and release the ↑ or ↓ button and the SELECT button simultaneously, and verify that System On-line or System Off-Line is displayed in the SDA.

Enabling/Disabling the Auto-Clean Option

The automatic drive cleaning feature has two modes of drive cleaning support: Host Initiated and Fully Automatic.

In *Host Initiated Cleaning Mode*, drive cleaning is enabled by your System Administrator at the host computer. Although the library unit will internally track cleaning tape cartridge movement and use, the library unit provides no cleaning support in this mode. The host is responsible for all cleaning functions such as detecting when a drive requires cleaning, tracking and selecting cleaning tape cartridges, initiating media movement of the cleaning tape cartridge to the drive and determining when a cleaning tape cartridge has been "used up."

Drive cleaning in the *Fully Automatic Cleaning Mode* is also enabled by your System Administrator at the host computer. However, in this mode, the library unit monitors each drive's status to determine when a drive requires cleaning and initiates action when that determination is made. In this case, the library unit selects an available cleaning tape cartridge, handles media movement of the cleaning tape cartridge to and from the drive and supervises the cleaning operation in the drive. The library unit tracks cleaning tape cartridges within the library, monitors cleaning tape cartridge use and determines when a cleaning tape cartridge has been "used up." A "used up" cleaning tape cartridge is exported from the library to the load port under control of the library.

The library is shipped with automatic drive cleaning disabled. If you want this feature enabled, you can use the Auto Clean sub-menu as follows.

1. Press and release the Control Panel STANDBY button and verify that the SDA shows System Off-line.
2. Press and release the SELECT button to enter the Menu Mode.
3. Verify that the following is displayed in the SDA:

   ```
   Menu:
     Configuration..
   ```

4. Press and release the SELECT button to choose the Configuration menu.
5. Verify that the following is displayed in the SDA:

   ```
   Menu: Configurati
     Inquiry
   ```

6 Press the ↓ button four (4) times to bypass the Inquiry, SCSI Address, Power-Up State, and Num of Drives menus. Then verify that the following is displayed in the SDA:

```
Menu: Configurati
  Auto Clean..
```

7 With Auto Clean displayed on Line #2 of the SDA, press and release the SELECT button and verify that the following is displayed in the SDA:

```
Menu: Auto Clean
  Enabled
```

Note: "Disabled" is the default. If you want to change the automatic cleaning state to "Enabled," proceed to Step 8. Otherwise, exit the Menu Mode.

8 With the desired option displayed on Line #2, press and release the SELECT button.

9 Press and release the ↑ or ↓ button to clear the resulting display from the command.

10 Press and release the ↑ or ↓ button and the SELECT button simultaneously, and verify that System On-line or System Off-Line is displayed in the SDA.

Enabling/Disabling the Auto-Load Feature

This feature of the ACL 4/52 library enables the operator to load cartridges into the fixed storage array (FSA) without any intervention from the host controller. When this feature is Enabled, the library will automatically find bins in the FSA for cartridges that are placed in the load port. If no bin locations are available in the FSA, the cartridges will be left in the load port bin and an error message will be displayed on the control panel SDA.

The default configuration for this feature is Disabled. To enable this feature on the library, perform the following procedures:

1. Press and release the Control Panel STANDBY button and verify that the SDA shows System Off-line.
2. Press and release the SELECT button to enter the Menu Mode.
3. Verify that the following is displayed in the SDA:

   ```
   Menu:
     Configuration..
   ```

4. Press and release the SELECT button to choose the Configuration menu.
5. Verify that the following is displayed in the SDA:

   ```
   Menu: Configurati
     Inquiry
   ```

6. Press the ↓ button six (6) times to bypass the Inquiry, SCSI Address, Power-Up State, Num of Drives, Auto Clean and Retries menus. Then verify that the following is displayed in the SDA:

   ```
   Menu: Configurati
     Auto Load..
   ```

7. With Auto Load displayed on Line #2 of the SDA, press and release the SELECT button and verify that the following is displayed in the SDA:

   ```
   Menu: Auto Load
     Disabled
   ```

Note: "Disabled" is the default state for the auto-load option. If you want to change this feature to "**Enabled**," proceed to Step 8. Otherwise, exit the menu mode.

8 Use the ↓ button to bypass the Disabled option and verify that the following is displayed in the SDA:

```
Menu: Auto Load
  Enabled
```

9 With the desired option displayed on Line #2, press and release the SELECT button.

10 Press and release the ↑ or ↓ button to clear the resulting display from the command.

11 Press and release the ↑ or ↓ button and the SELECT button simultaneously, and verify that System On-line or System Off-Line is displayed in the SDA.

Cartridge/Tape Drive Compatibility

The ACL 4/52 library is capable of supporting the DLT 2000, DLT 4000, and DLT 7000 tape drives. The library is also capable of supporting the CompacTape III and CompacTape IV cartridges, which are dark gray and black, respectively. When loading the library with cartridges, observe the compatibility of cartridges and tape drives as defined in table 2.

Table 2 Cartridge/Tape Drive Compatibility

Cartridge Type	DLT 2000 Tape Drive	DLT 4000 Tape Drive	DLT 7000 Tape Drive
CompacTape III Cartridge	Compatible	Compatible	Compatible
CompacTape IV Cartridge	Not Compatible	Compatible	Compatible

Caution: DO NOT USE CompacTape I, CompacTape II or CompacTape IIIXT tape cartridges in this library.

Loading the Library with Cartridges

Note: The "Auto-Load" feature must be "Enabled" before performing this procedure. If this feature is not currently Enabled, refer to "Enabling / Disabling the Auto-Load Feature" on page 36.

Caution: Examine all cartridges before loading them into the library or tape drive. Look for label stock or other foreign material that may be clinging to the cartridges.

1. With the SDA displaying System On-line, press and release the load port OPEN button and verify that the indicator begins blinking. (After several seconds, the load port door will automatically open.)

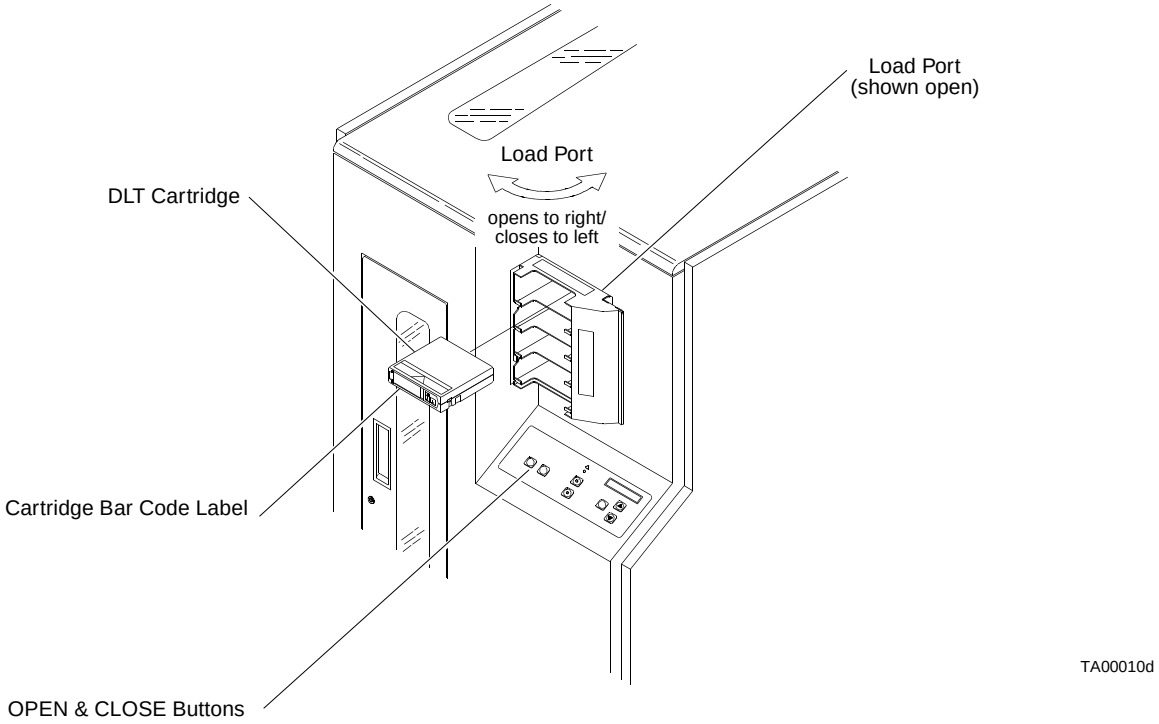
Warning: Mechanical hazards could be exposed when the load port is partially open or closed. Do not attempt to insert hands or fingers into the load port opening at any time.

2. With the load port door open, place up to four cartridges in the available load port bins.
3. Press and release the load port CLOSE button.

Warning: The load port door is LOCKED in the "open" position. You must press and release the CLOSE button before attempting to close the load port door.

4. When the CLOSE Indicator (LED at the upper left corner of CLOSE button) is steadily lit, push the Load Port door closed. (The library will lock the door.)
5. Repeat Steps 1 through 4 until you have loaded a maximum of 48 DLT™ cartridges into the library.

Figure A-1: Loading Cartridges Through the Load Port



Performing an Inventory

This feature allows you to perform an inventory of the cartridges contained in the library. The inventory information is then written to nonvolatile RAM. To perform this function, use the Inventory sub-menu as follows:

6 Press and release the Control Panel STANDBY button and verify that the SDA shows System Off-line.

7 Press and release the SELECT button to enter the Menu Mode.

8 Verify that the following is displayed in the SDA:

```
Menu:
  Configuration..
```

9 Press the ↓ button five (5) times to bypass the Configuration, Drive Control, Calibration, System Test and Robot Control menus. Then verify that the following is displayed in the SDA:

```
Menu:
  Diagnostics..
```

10 Press and release the SELECT button to choose the Diagnostics menu and verify that the following is displayed in the SDA:

```
Menu: Diagnostics
  Home All
```

11 Press the ↓ button five (5) times to bypass the Home All, Selftest All, Status Actuator, Status Sensor and Move Actuator sub-menus. Then verify that the following is displayed in the SDA:

```
Menu: Diagnostics
    Inventory
```

12 With Inventory displayed on Line #2, press and release the SELECT button.

Note: With a full library, the inventory process will take less than three minutes if all of the cartridges are properly bar code labeled. The actual inventory time can take longer if the library is not completely full or if any of the cartridges are not properly labeled. When the library is full of unlabeled cartridges the inventory process will take over twenty-seven minutes to complete.

13 When the SDA displays the status of the inventory command as shown below, the inventory is complete.

```
Menu:Inventory
SUCCESS
```

14 Press and release the ↑ or ↓ button to clear the resulting display from the command.

15 Press and release the ↑ or ↓ button and the SELECT button simultaneously, and verify that System On-line or System Off-Line is displayed in the SDA.

Turning the Interior Light On/Off

Note: The Interior light bulb is not operator replaceable. Notify your Field Service Engineer to replace the bulb.

The library is normally shipped with the interior light set to the “On” position. Use the following procedure to turn the interior light “On” or “Off .”

Refer to Figure -2.

1. Press the control panel STANDBY button and verify that “System Off-line” is displayed in the SDA.
2. Press the control panel STOP button.

Warning: To prevent injury from moving components, always press the control panel *STOP* button before opening the front door.

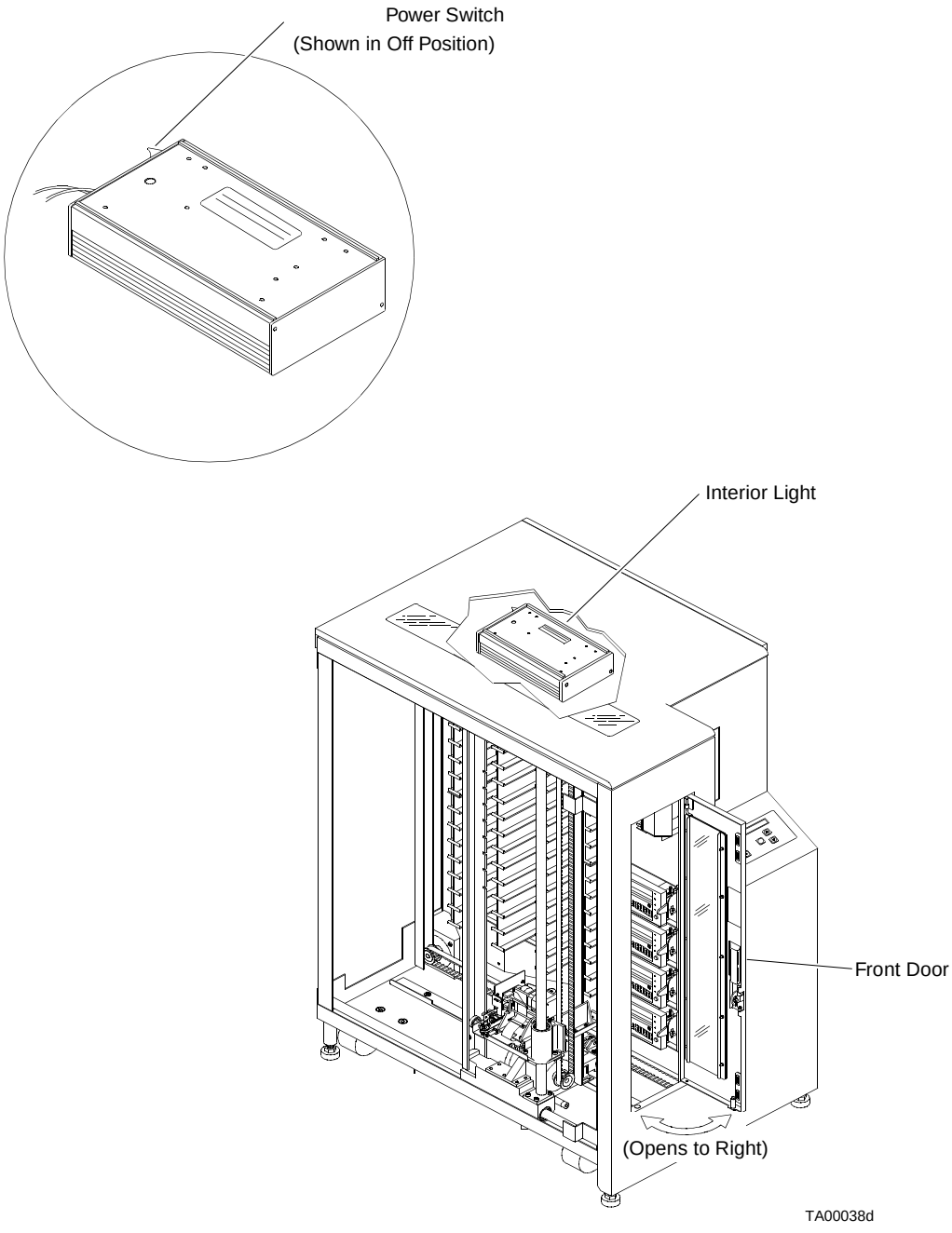
3. Using a 5/32” hex wrench, unlatch the front door.
4. Open the library front door.

Note: The front door is the only access for manually turning the interior light On or Off.

Note: Reach through the front door and set the light switch (located on the far side of the light) to the desired position.

5. Close and latch the library front door.
6. Press (to release) the control panel STOP button.
7. Press (to release) the control panel STANDBY button and verify that the library completes the initialization sequence, and “System On-line” is displayed in the SDA.

Figure A-2: Turning the Interior Light On/Off



Glossary

A

actuators Robotic components that move inside the library to manipulate cartridges. These include the gripper, extension axis, vertical and horizontal axes.

automated tape library A robotic storage and retrieval system for DLT tape cartridges.

B

bar code label The identification label on DLT tape cartridges.

bar code scanner A device that is mounted on the extension axis that reads the cartridge bar code labels.

C

calibration The software measurements and configuration required for successful operation of the library.

CHM Cartridge handling mechanism

control panel The panel on the front of the library that contains the status display area, as well as indicators and control buttons.

D

DLT Digital linear tape

E

EIA/TIA-574 A serial communications cabling and protocol standard for nine pin connectors, sometimes referred to as RS-232. The diagnostic port (DIAG), on the rear of the library, uses this protocol.

extension axis assembly Mounted onto the vertical axis, the extension axis assembly consists of the gripper assembly and the horizontal axis on which the gripper assembly is mounted.

extension axis belt The drive belt connecting the extension motor/gearbox to the gripper.

F

FCC Class A Standard established by the U.S. Federal Communications Commission governing electromagnetic emissions.

FSA Fixed storage array. This is a 3-column by 16-row fixture mounted inside the library. Its purpose is to store up to 48 cartridges in the library.

FSE Field service engineer

G

gripper assembly The assembly that mounts on the extension axis and grips cartridges, referred to as the gripper.

H

horizontal belt The drive belt connecting the horizontal motor to the horizontal axis assembly.

host Host computer

host computer The computer that issues SCSI commands to control the library robotics.

L

Load Port The operator accessible component of the library that allows up to four cartridges to be import/export loaded and unloaded into/from the library.

N

NVRAM Nonvolatile RAM

O

offline Not ready for communications with a host. This mode is required for configuration, diagnostic, and maintenance operations.

online Ready for communications with a host.

P

PC Personal computer

pick The act of removing a cartridge from one location in preparation for placing it in another location.

place The act of placing a cartridge in a location after it has been picked from another location.

PROM Programmable read-only memory

R

RAM Random access memory

rear panel The rear cosmetic panel of the library that contains the AC power switch, AC power receptacle and connectors for attaching external cabling to the library.

S

SCSI Small computer system interface. A communications standard for attaching peripheral equipment to computers.

T

tape drive The mechanism that reads and writes data from and to a tape cartridge.

U

UL Underwriters Laboratories

V

vertical belt The drive belt connecting the vertical motor to the vertical axis assembly.

vertical carriage assembly The crossbar and linear bearings mounted on the vertical rails and all components mounted on the crossbar.

Index

R

S

T

U