Spectra T950 Library

Transporter Replacement

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Notices

Part Number

90940121 Revision A

Revision History

Revision	Date	Description
A	August 2012	Initial release.

Contacting Spectra Logic

To Obtain General Information	

Spectra Logic Website: www.spectralogic.com

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Spectra Logic Corporation	Spectra Logic Europe Ltd.
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Spectra Logic Technical Support	

Technical Support Portal: support.spectralogic.com

United States and Canada	**Europe, Middle East, Africa**
Phone:	**Phone:** 44 (0) 870.112.2185
Toll free US and Canada: 1.800.227.4637	**Email:** support@spectralogic.com
International: 1.303.449.0160	**Deutsch sprechende Kunden**
Email: support@spectralogic.com	**Phone:** 49 (0) 6028.9796.507
	Email: spectralogic@stortrec.de

Mexico, Central and South America, Asia, Australia, and New Zealand
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To Obtain Documentation	

Spectra Logic Website: www.spectralogic.com/documents

Contents

Introduction

This guide provides instructions for replacing a transporter in the Spectra T950 library (referred to as "the library").

> ⚠️ **Important**   Do not replace the transporter unless you have been specifically instructed to do so by Spectra Logic Technical Support.

Notes:
- Depending on the ASM service level you purchased, the transporter may not be included in your on-site ASM kit.
- The transporter may vary from what appears in this guide.

The **transporter** moves the media within the library. It is mounted on the vertical axis (VAX) and moves horizontally on the horizontal axis (HAX). The transporter holds the TeraPack magazine as the transporter moves it from one location to another. The **cartridge picking mechanism**, which is part of the transporter, selects an individual cartridge from the magazine and inserts it into a tape drive or removes the cartridge from a tape drive and inserts it into a magazine slot. It can also move a cartridge from one magazine slot to another.
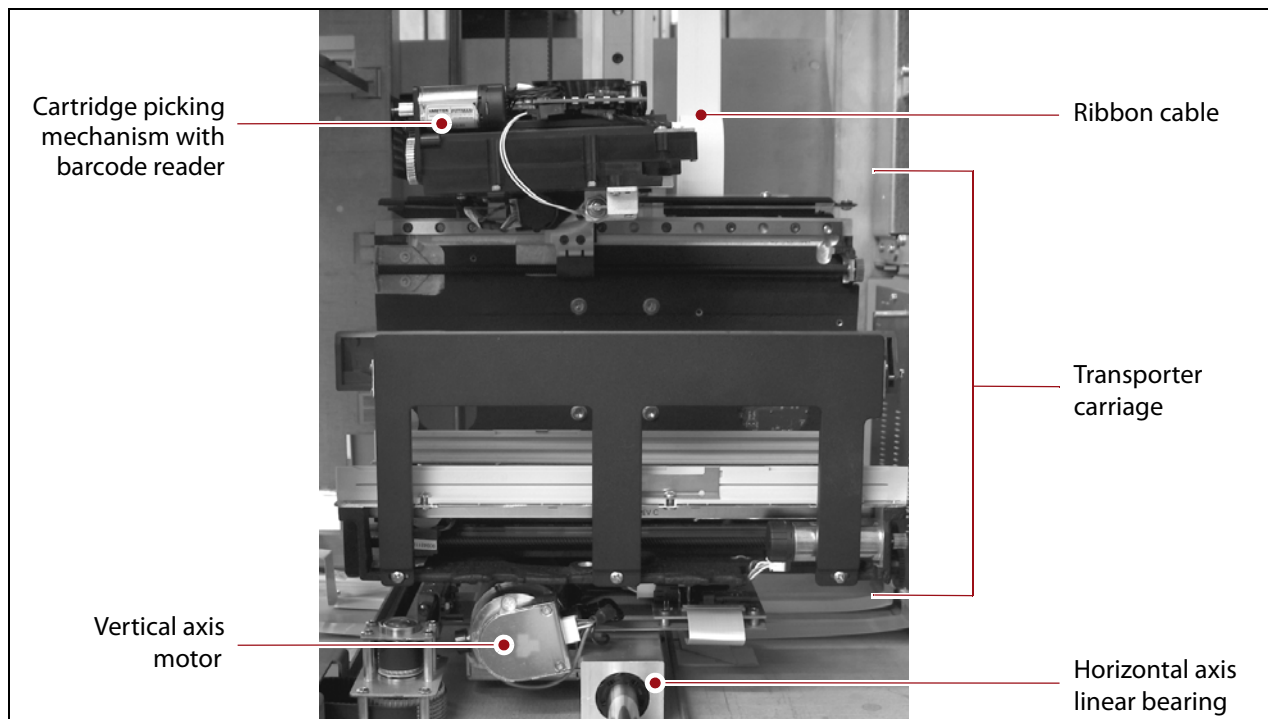

Figure 1 Front view of the transporter components

Prepare for Maintenance

Make sure that you address the requirements in this chapter to prepare for the maintenance procedure.

ESTIMATED TIME TO COMPLETE

Replacing the transporter requires 30 to 45 minutes. This time estimate includes the time required to initialize and test the transporter after the installation is complete.
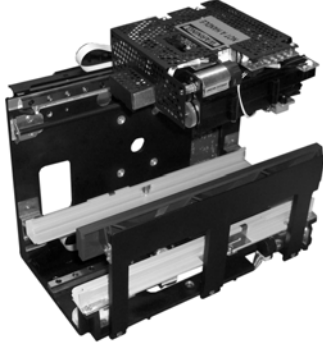
ENSURE ESD PROTECTION

The repair environment for the library must be free of conditions that could cause electrostatic discharge (ESD). To protect the library from ESD, follow these procedures when repairing or testing the library:

- Place a static protection mat on the work surface used while removing and installing library components. Use a 1-megohm resistor to ground the static protection mat.
- Wear a static protection wrist band whenever you handle library components that have been removed from their antistatic bags. Connect this wrist band to the static protection mat or to other suitable ESD grounding.
- Keep all components in anti-static bags when not in use.

GATHER TOOLS AND SUPPLIES

You must have the following supplies and tools to complete this procedure.

Item	Description
Replacement transporter from Spectra Logic	
Tools from the library tool kit	▪ #2 Phillips screwdriver ▪ 1/8-inch Allen wrench or hex screwdriver ▪ 5/32-inch Allen wrench or T-handle hex wrench
Additional tools (optional, but recommended)	▪ A large binder clip ▪ Flashlight or head lamp

DISCONTINUE BACKUPS

Backups cannot run during transporter replacement since the transporter is required to move media to and from the tape drives. Use your backup software to stop any backups running to the library.

TAKE THE TRANSPORTER OFFLINE

1. Log into the library with superuser or administrator privileges.

2. Select **Maintenance ···⟩ Tools ···⟩ Utilities**. The Utilities screen displays.

3. Click **Show Advanced**. The Advanced Utilities Confirmation screen displays.

4. Click **Next**. The Utilities screen refreshes to show the advanced utilities.

5. Scroll down and select **Send Controller Command**.

The screen refreshes to show the details for the Send Controller Command utility.

Figure 2 The Send Controller Command Utilities screen.

6. From the **Select a command to send** drop-down list, select **Prepare Robot For Service [M]**.

7. From the **Select a target controller** drop-down list, select **Motion Control**.

8. Click **Run Utility**.

A progress screen displays. When the operation is complete, a Utility Results screen displays. The transporter is now parked in an accessible position at the right side of the library.

LIBRARY POWER

Because a safety interlock on the side panel automatically turns off the 24 VAC power to the transporter when the panel is removed, it is not necessary to power off the library.

T950 Transporter Replacement

This chapter describes replacing the transporter in the Spectra T950 library.

ACCESS THE TRANSPORTER

1. Remove the window panel.

   a. Use a 1/8-inch Allen wrench or hex screwdriver to remove the screw at the bottom of the window panel.

   b. While holding the panel steady, slide it up to disengage the panel from the hangers on each side of the chassis (three per side).

   c. Lift the panel off of the hangers, out and away from the frame.

2. Set the panel aside.

Figure 3 Remove the screw at the bottom of the window panel.

Figure 4 Slide the panel up to disengage the hangers.

Figure 5 Lift the panel out and away from the frame.

REMOVE THE TRANSPORTER

Note: Refer to Figure 1 on page 4 to identify the transporter carriage and the cartridge picking mechanism referred to in this section.

1. (Optional) Secure the transporter at a comfortable working height.

    a. While supporting the transporter from underneath, move it up the VAX column to a comfortable working height.

    b. Use a large binder clip to pinch the two sides of the VAX belt together, holding the elevated transporter in place.

    Note: The VAX belt is the long belt located on the left side of the VAX column, as viewed from the front of the transporter.
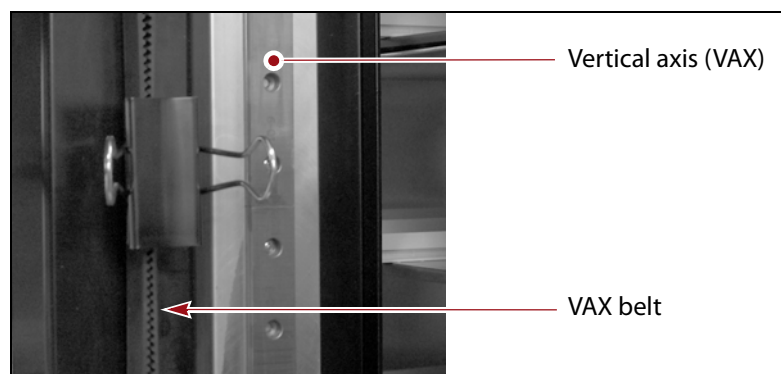
Figure 6 Clamp the VAX belt to hold the transporter.

2. To improve access to the ribbon cable connector on the transporter, grasp the front edge of the cartridge picking mechanism and gently rotate the cartridge picking mechanism clockwise 90° so that it is in a vertical position.

Figure 7 Rotate the cartridge picking mechanism to vertical.

3. Locate the ribbon cable connected to the printed circuit board mounted on the back of the transporter carriage (see Figure 7).

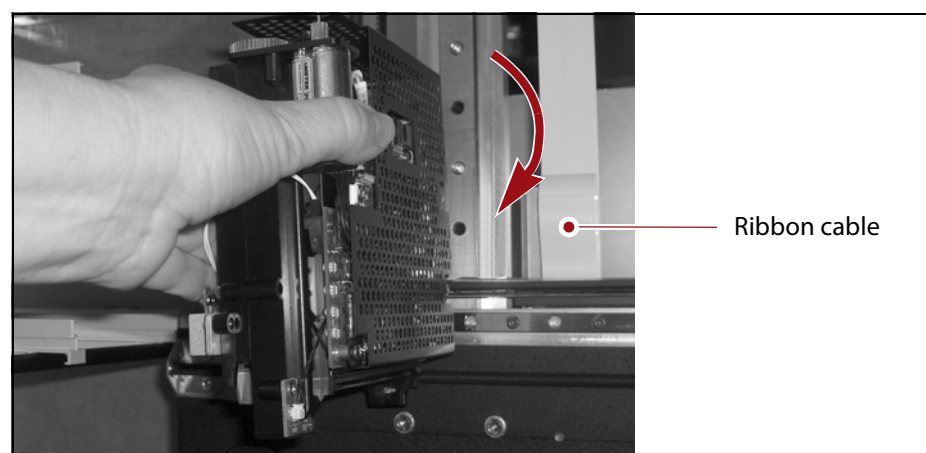**4.** Reach around the back of the cable and pinch inward on the ribbon cable release tab, then pull **gently** upward on the connector to disconnect the cable from the printed circuit board.

⚠️ **Caution** Do not pull the cable out of the connector without releasing the locking tab. Pinch inward on the locking tab to release the cable so that it can be disconnected from the printed circuit board.

Ribbon cable and connector (viewed from back of transporter)

Pinch inward on the connector release tab

Printed circuit board edge connector
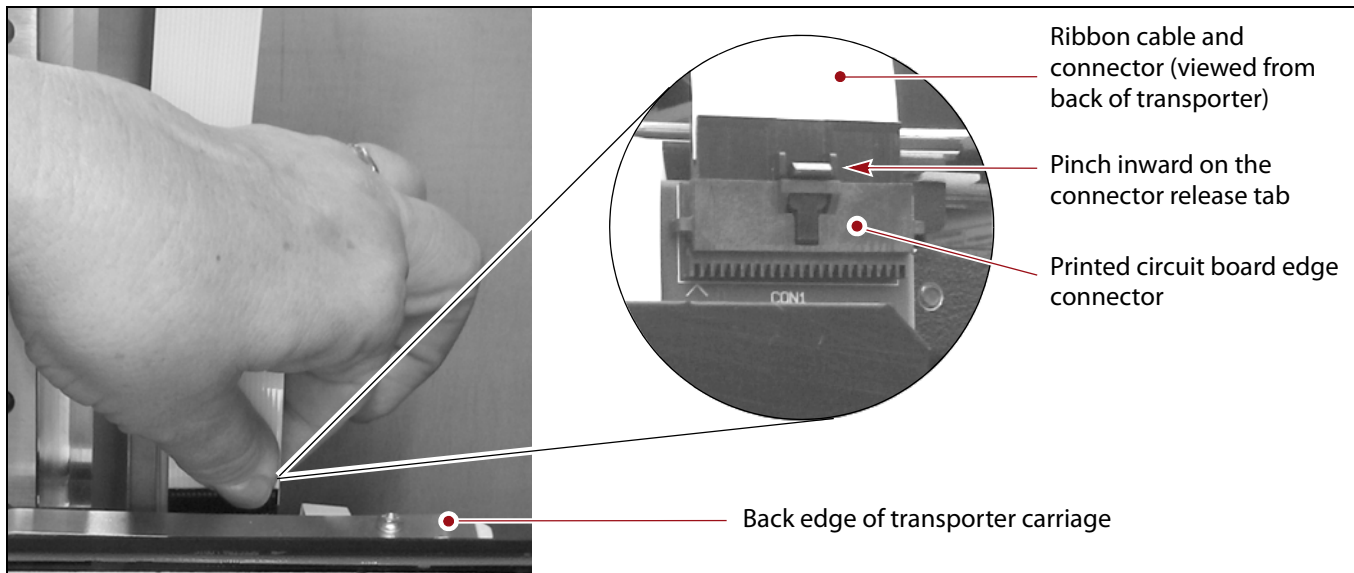
Back edge of transporter carriage

Figure 8 Disconnect the ribbon cable from the printed circuit board on the back of the transporter.

5. Gently rotate the cartridge picking mechanism counterclockwise, back to its horizontal position.

6. Depending on the type of screw present, use either a #2 Phillips screwdriver or a 5/32-inch T-handle hex wrench to remove the four screws that secure the transporter to its mounting bracket.

⚠ **Caution** Be careful not to drop the screws into the transporter or onto any of the internal components.

> **Note:** Insert the screwdriver through the openings in the side of the transporter to reach the bottom two screws.
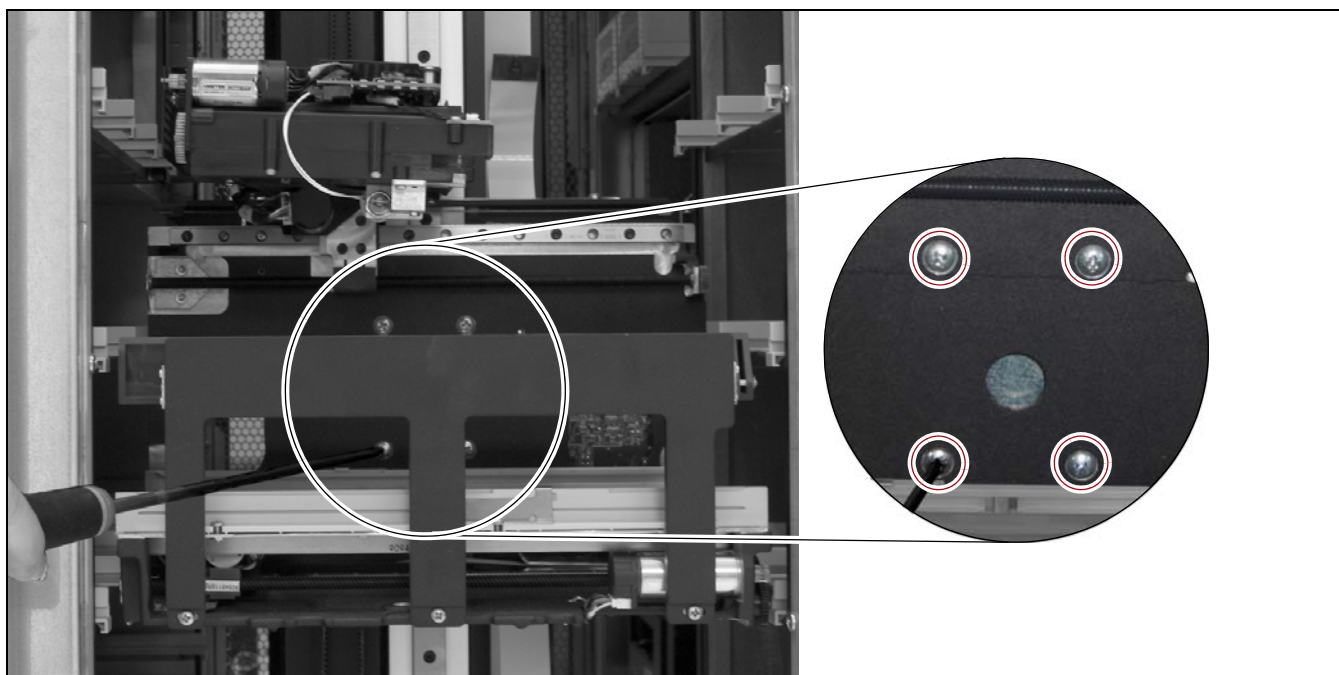

Figure 9 Remove the screws securing the transporter to the mounting bracket on the VAX column.

7. With one hand supporting the weight of the transporter from underneath and the other hand grasping the front of the transporter to stabilize it, rotate the base of the transporter slightly outward and then lift the transporter upward to disengage it from the mounting bracket.

⚠️ **Caution** Do not use the cartridge picking mechanism or the front of the transporter as a handle. They are not designed to support the weight of the transporter.

Figure 10 Lift the transporter off its mounting bracket.

8. Lift the transporter out of the library and set it aside for return to Spectra Logic.

⚠️ **Caution** Be careful not to bump the VAX column, VAX motor, or the components mounted on the floor of the chassis.

INSTALL THE NEW TRANSPORTER

Use the following steps to install the new transporter.

1. If necessary, reposition the cartridge picking mechanism on the new transporter so that it is in its horizontal position.

2. Identify the mounting hooks on the back of the new transporter as well as the slots in the bracket on the VAX column where the hooks rest.
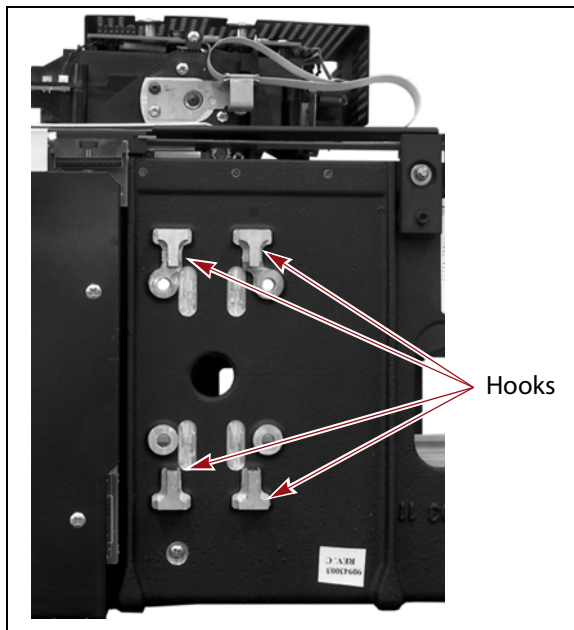

Figure 11 The transporter mounting hooks (viewed from the back of the transporter).
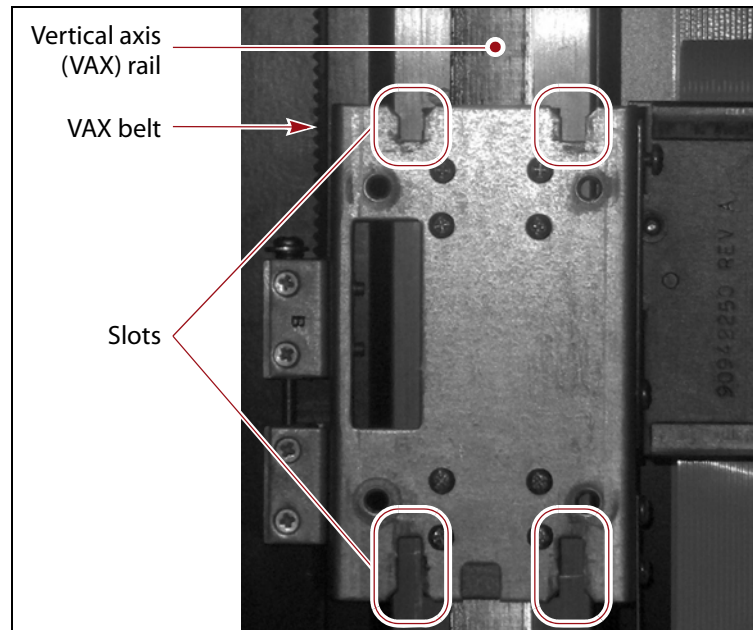
Figure 12 The mounting bracket slots on the VAX column.

3. Mount the transporter.

   a. With one hand supporting the weight of the transporter from underneath and your other hand grasping the front of the transporter to stabilize it, orient the transporter with the mounting hooks toward the mounting bracket on the VAX column.

⚠️ **Caution**   Do not use the cartridge picking mechanism or the front of the transporter as a handle. They are not designed to support the weight of the transporter.

b. Lift the transporter into the library and slide the mounting hooks on the back of the transporter into the slots on the mounting bracket on the VAX column (refer to Figure 11 and Figure 12 on page 13 for the location of the hooks and slots).

⚠️ **Caution**   Be careful not to bump the VAX column, VAX motor, or the components on the PC card mounted in the bottom front of the chassis.

Figure 13 Lift the transporter into the library and onto the mounting bracket.

c. While stabilizing the transporter with one hand, gently pull the bottom of the transporter away from the VAX column to confirm that the transporter mounting hooks are securely seated in the slots on the mounting bracket.

⚠️ **Important**   If the bottom of the transporter pulls away from the VAX column, carefully disengage the transporter hooks from the mounting bracket and then repeat Step b.

d. Depending on the type of screw used to secure the transporter, use either a #2 Phillips screwdriver or a 5/32-inch T-handle hex wrench to loosely install the four screws that secure the transporter to its mounting bracket.

⚠️ **Caution**   Be careful not to drop the screws into the transporter or onto any of the internal components.

e. Partially tighten the top two screws until the top of the transporter is flush against the mounting bracket.

f. Fully tighten the four screws in an "X" pattern. For example, tighten the top right screw, the bottom left screw, then tighten the bottom right screw and finally, the top left screw.

Note: To reach the bottom two screws, insert the screwdriver through the openings in the side of the transporter.
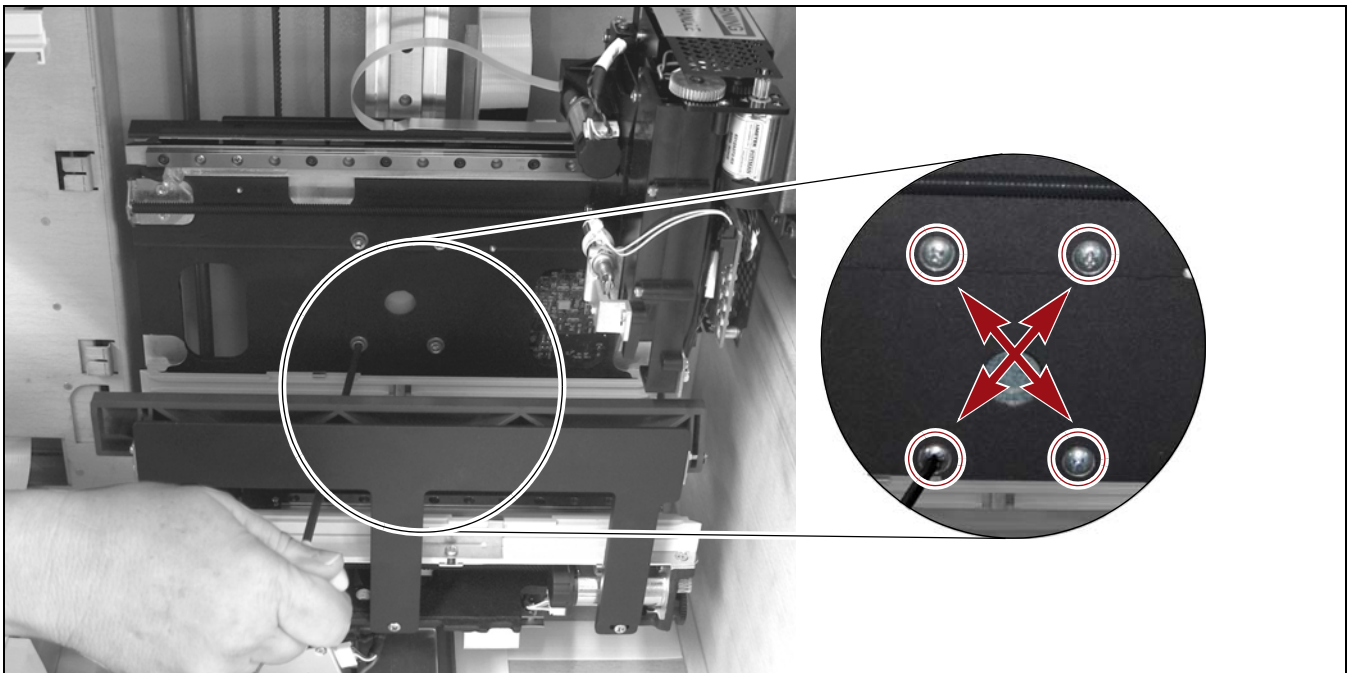

Figure 14 Install the screws securing the transporter to the mounting bracket on the VAX column.

4. To improve access to the ribbon cable connector on the transporter, grasp the front edge of the cartridge picking mechanism and gently rotate the cartridge picking mechanism clockwise 90° so that it is in a vertical position (see Figure 7 on page 9).

5. Plug the ribbon cable into the edge connector on the printed circuit board mounted on the back of the transporter. You will hear an audible click as the connector snaps into place.
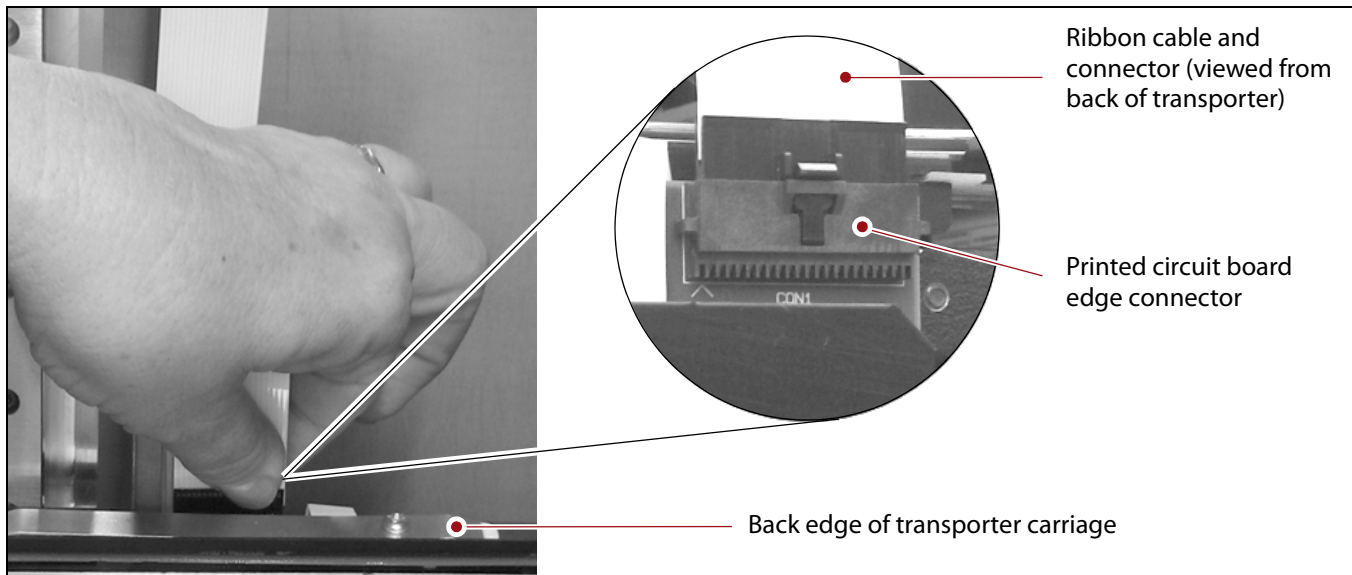

Ribbon cable and connector (viewed from back of transporter)

Printed circuit board edge connector

Back edge of transporter carriage

Figure 15 Connect the ribbon cable to the printed circuit board on the back of the transporter.

6. If you rotated the cartridge picker mechanism to its vertical position, gently rotate it counterclockwise, back to its horizontal position.

7. While supporting the transporter from underneath, remove the binder clip on the VAX belt, if present, and allow the transporter to move to its resting position.

COMPLETE THE REPLACEMENT

After you finish installing the new transporter, follow the steps in the following sections to complete the replacement process.

Install the Side Access Panel

1. Lift the panel and position the openings on the back of the panel on the hooks located along the sides of the opening in the end of the frame.

2. While holding the panel steady with one hand, slide the panel down into place.

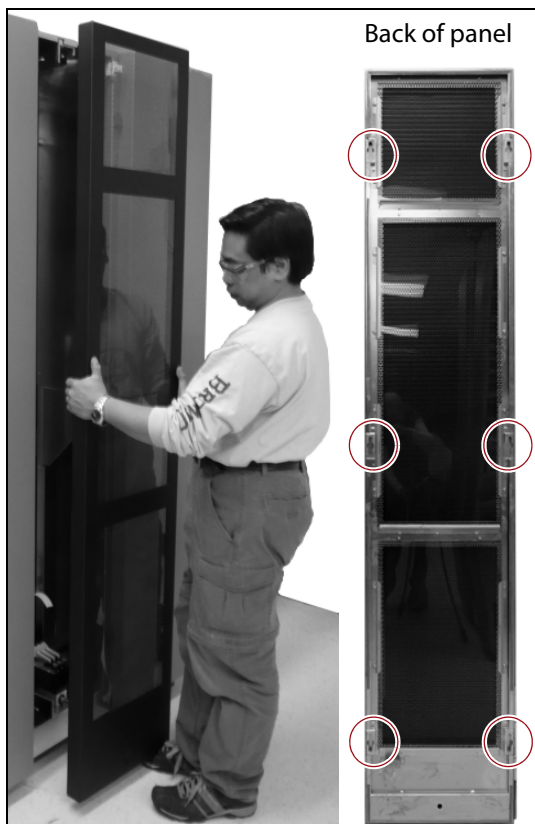3. Use a 1/8-inch Allen wrench or hex screwdriver to install the screw at the bottom of the side panel.

Back of panel

Figure 16 Lift the panel onto the hooks on the sides of the opening.

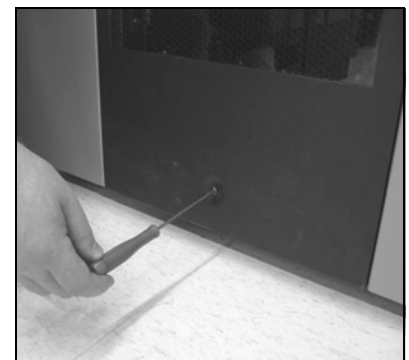**Figure 17** Slide the panel down into place.

Figure 18 Install the screw to secure the panel.

Test the New Transporter

Perform the following test to confirm that the new transporter is functioning properly. The test takes approximately 10 minutes.

1. Log into the library with superuser or administrator privileges.

2. Select **Maintenance ⋯⁝ Diagnostics**. The Diagnostics screen displays.

3. Select **All Motion Basic Tests**. The screen refreshes to display information about the selected diagnostic.
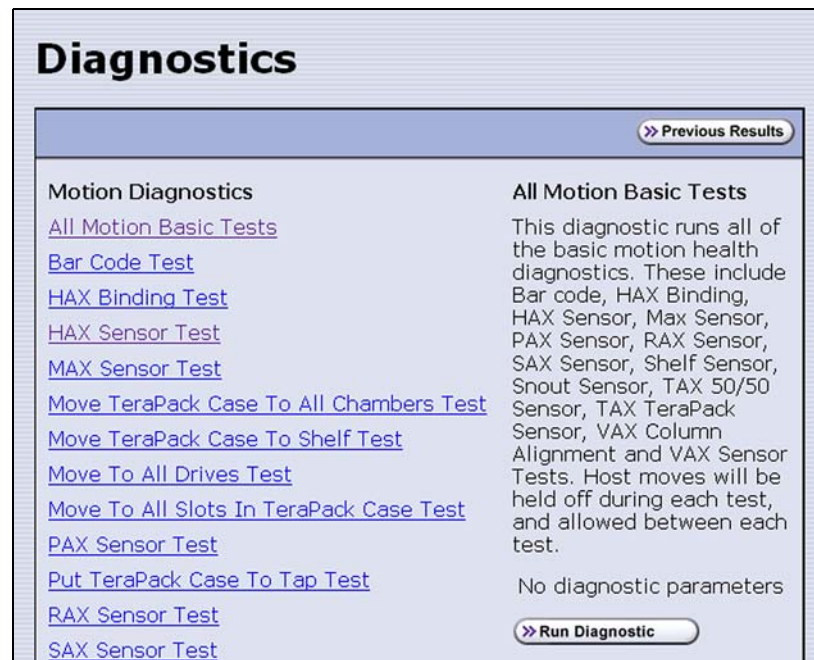

Figure 19 The All Motion Basic Tests Diagnostics screen.

4. Click **Run Diagnostic**. Progress screens display as each test is run.

5. When all of the tests are complete, the Diagnostic Results screen displays. Each of the individual tests run by the diagnostic has a report of Success, Warning, or Fail.

    ▪ If all of the tests results are Success, skip to Resume Library Operations on page 19.

- If a test result is either Warning or Fail, proceed to Step 6.

Figure 20 The Diagnostics Results detail screen for All Motion Basic Tests.

6. Click **Detail** on the Diagnostic Results screen to view detailed result information.

7. Follow any instructions provided on the results screen to resolve the issues encountered by the tests.

8. Repeat the **All Basic Motion Tests** described in this section.

9. If any of the tests still do not complete successfully, copy the information on the Diagnostic Results detail screen to a text file and contact Spectra Logic Technical Support for assistance (see Contacting Spectra Logic on page 2).

RESUME LIBRARY OPERATIONS

After testing the transporter, complete the steps in the following sections to resume library operations.

Restart Backups

Use your backup software to restart any backup processes running on the library.

Return the Old Transporter to Spectra Logic

Package and return the old transporter to Spectra Logic as described in Contacting Spectra Logic on page 2.

Return the Component

After you complete the replacement procedure, use the information in this section when returning the defective component to Spectra Logic.

Return Guidelines

Unless Spectra Logic Technical Support informs you otherwise, return the defective component to Spectra Logic as described in the following section. If Spectra Logic Technical Support informs you that the component does not need to be returned, dispose of it in the manner appropriate for your company guidelines.

Return Procedure

Pack the defective component using ALL of the packaging that the replacement part arrived in (including any anti-static bags or foam inserts).

⚠ **Caution**   Severe damage can occur if the component is not packaged correctly, and you may be invoiced if it is received with damage due to improper or insufficient packaging.

Use the return label and instructions that were included with the replacement part when preparing to ship the defective component. If you cannot locate these, contact Spectra Logic for another copy (see Contacting Spectra Logic on page 2). The return label and RMA printed on it are used to associate the returned part with your account. To avoid being invoiced for failure to return the part, do not ship the part back without the RMA return label.