HAX or VAX Motor Replacement Instructions

Part Number 90940067 Revision B

Revision History

Revision	Date	Description
A	June 2010	Initial release
B	March 2015	Trademark updates

Contacting Spectra Logic

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To Obtain Documentation

HAX or VAX Motor Replacement Instructions

These instructions describe how to replace the HAX (Horizontal Axis) or VAX (Vertical Axis) motor in a Spectra TFinity Library.

PREPARE FOR MAINTENANCE

Make sure you fulfill the prerequisites described in this section and familiarize yourself with all of the required steps before starting.
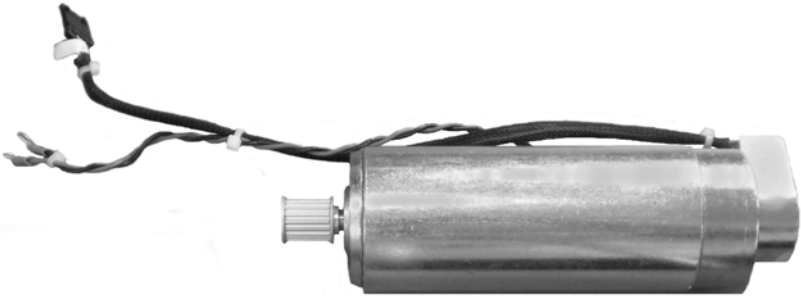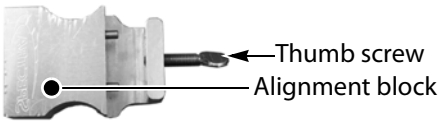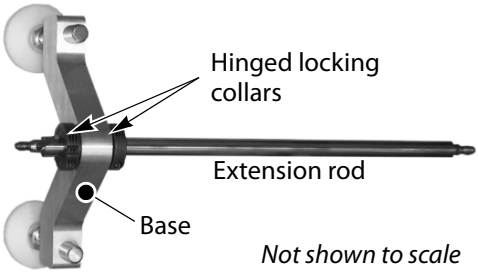
Ensuring ESD Protection

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 electronic components in antistatic bags when not in use.

Gathering Tools and Supplies

You must have the following items to complete this procedure:

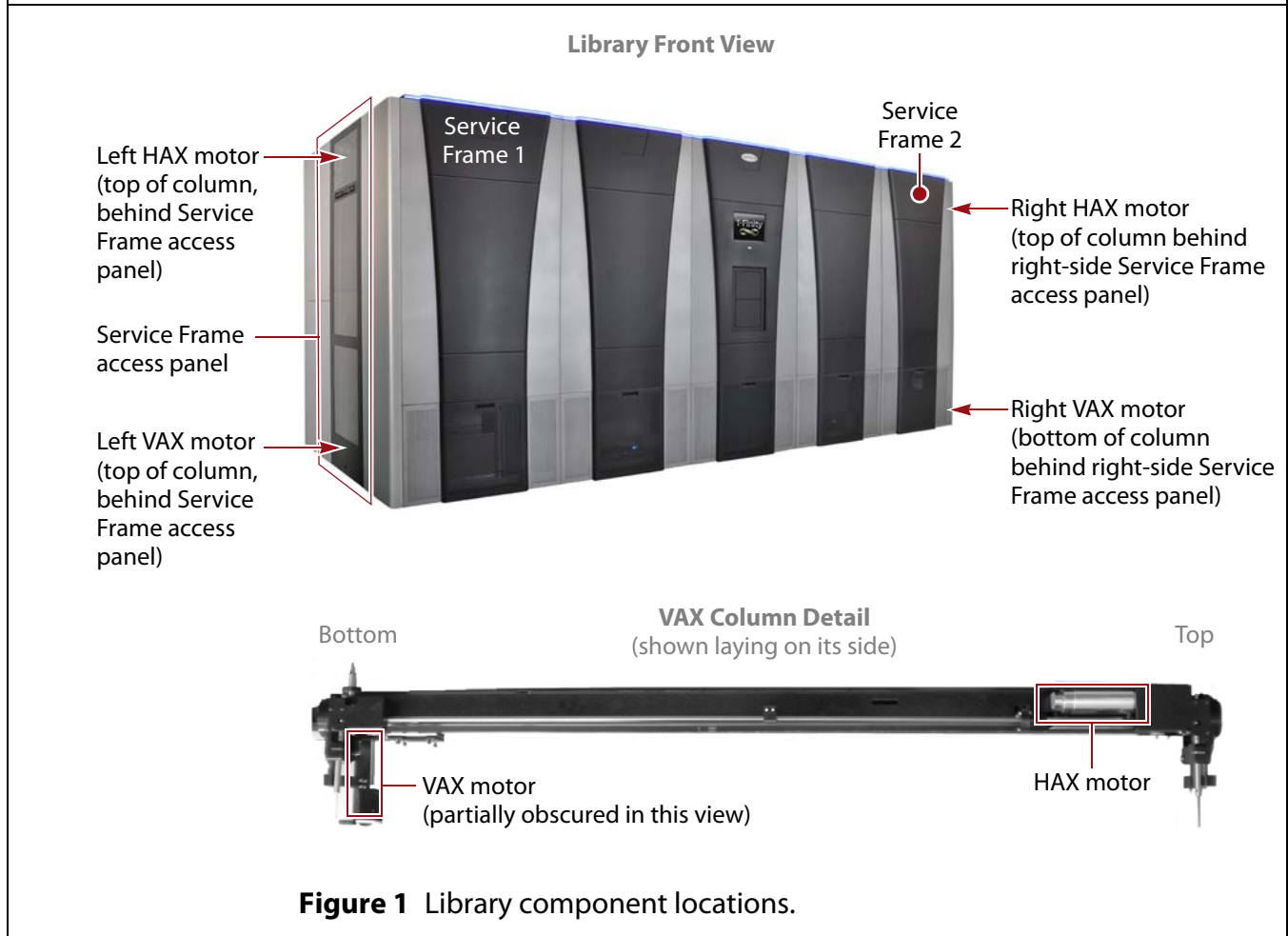| Item	Description	
A Replacement HAX or VAX Motor from Spectra Logic **Note:** The HAX (horizontal axis) and VAX (vertical axis) use the same motor assembly.		

Items From the Library Tool Kit	▪ A #2 Phillips Screwdriver
	▪ The following Allen wrenches or T-handle hex wrenches:
	  ▪ 3/32-inch
	  ▪ 1/8-inch
	  ▪ 5/32-inch
	  ▪ 7/64-inch
	▪ VAX Column Alignment Blocks [a]
	
	Not shown to scale
		▪ The VAX Column Support Stand
		  This view shows the stand assembled.
		
		Not shown to scale

Supplies	▪ ESD protection gear
	▪ Cardboard, sheet foam, or similar item to support the VAX Column
	▪ A medium binder clip
	▪ A second person to help remove the VAX Column
	▪ Cable tie cutters
		▪ A sturdy work surface that is:
		  ▪ approximately 4 feet x 2 feet (120 cm x 60 cm)
		  ▪ able to support approximately 60 pounds (27 kg)
		▪ A step-stool (to reach the top of the VAX Column)

Referenced Documents	▪ *Spectra TFinity Library Transporter Replacement* ▪ *Spectra TFinity Library VAX Column Replacement and Alignment Instructions* You must be logged in to your Spectra Logic Technical Support portal account to access this document.	

a. Two VAX Column Alignment Blocks are required for this procedure (included in the library tool kit).

Locating the Malfunctioning Component

The library contains two motor assemblies located on the VAX Columns.

Assembly	These motor assemblies are accessible through the...
Left Motors	Left Service Frame access panel (when facing the front of the library).
Right Motors	Right Service Frame access panel (when facing the front of the library).

Note: You must remove the TeraPorter from the library prior to replacing the motors.

Library Front View

Left HAX motor (top of column, behind Service Frame access panel)

Service Frame access panel

Left VAX motor (top of column, behind Service Frame access panel)

Service Frame 1

Service Frame 2

Right HAX motor (top of column behind right-side Service Frame access panel)

Right VAX motor (bottom of column behind right-side Service Frame access panel)

VAX Column Detail
(shown laying on its side)

Bottom

Top

VAX motor (partially obscured in this view)

HAX motor

Figure 1 Library component locations.

Remove the VAX Column

Use the instructions in the *Spectra TFinity Library VAX Column Replacement and Alignment Instructions* and *Spectra TFinity Library Transporter Replacement* to do the following:

- Prepare to remove the VAX column
  - Move the TeraPorter into the service bay, if necessary.
  - Close the service bay safety door
  - Remove the service bay access panel
- Remove the transporter
- Remove the VAX column
  - Install the VAX column support stand
  - Remove the VAX Column

REPLACE THE HAX MOTOR

This section describes how to replace the HAX motor. If you need to replace the VAX motor, skip to .

Removing the HAX Motor

The HAX motor is located at the top of the TeraPorter assembly.

1. Using a #2 Phillips screwdriver, remove the twelve black screws securing the TeraPorter cover. Set the cover and the screws aside.

2. Using a #2 Phillips screwdriver, remove the three black screws securing the HAX motor cover. Set the cover and screws aside.

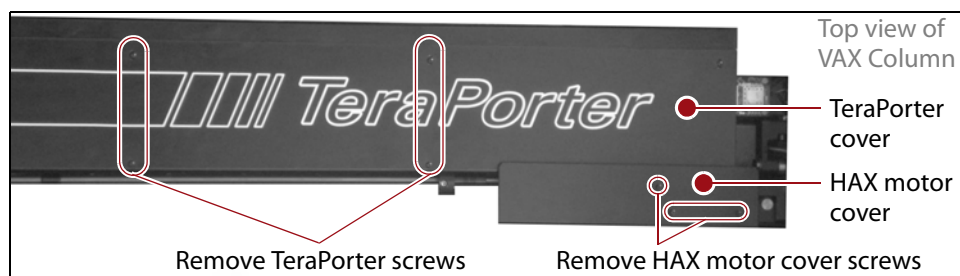**Figure 2** Remove the TeraPorter and HAX motor covers.

3. Disconnect the two cables:

   a. Cut the cable tie securing the two cables.

   b. Disconnect the connector by pressing in on the retaining clip, then pulling the connector gently outward.

c. Use a #2 Phillips screwdriver to remove the two Phillips screws. Set the screws aside.
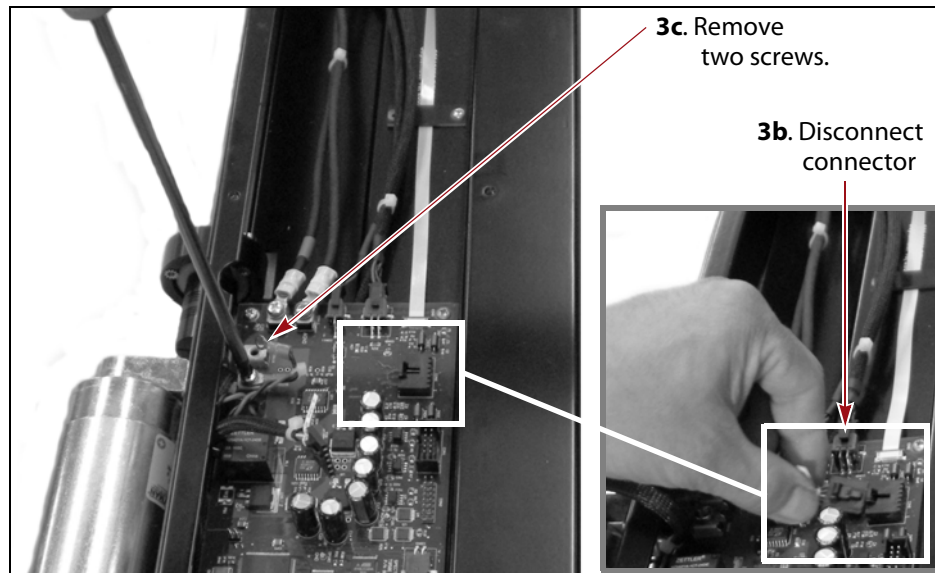

3c. Remove two screws.

3b. Disconnect connector

Figure 3 HAX motor connectors.

4. Use a #2 Phillips screwdriver to remove the three screws securing the motor.

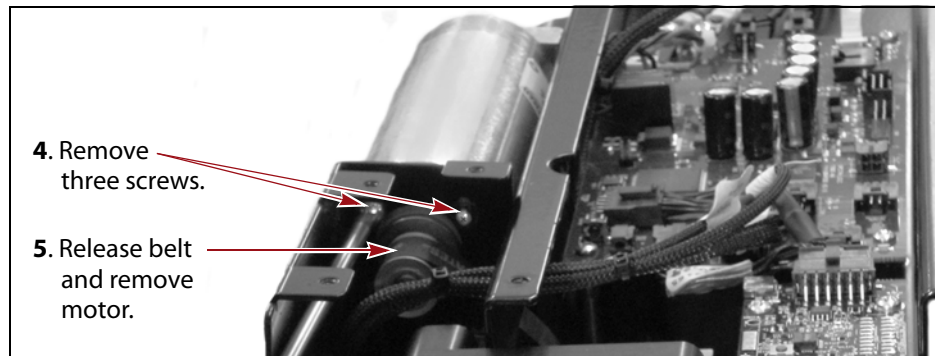**4**. Remove three screws.

5. Release belt and remove motor.

Figure 4 HAX motor screws and belt.

Note: Make sure that you do not lose or damage the tensioning spring when you remove the motor.
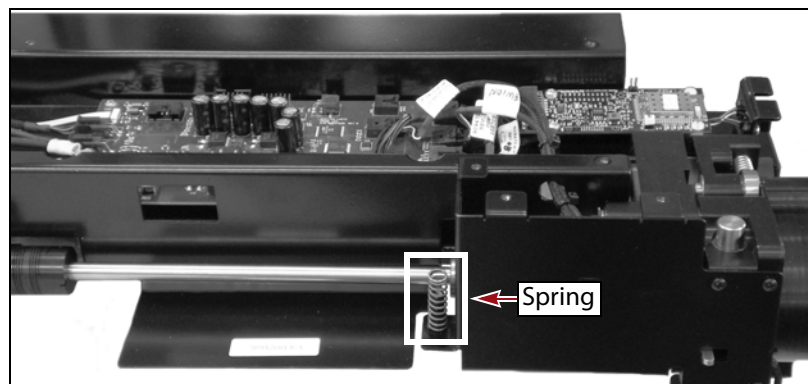

Spring

Figure 5 HAX motor tensioning spring.

5. Remove the motor:

   a. Tilt the motor slightly to release its belt.

   b. Feed the cables out of the opening.

6. Set the motor aside.

Installing the HAX Motor

Follow these steps to install the replacement HAX motor:

1. Remove the replacement motor from its packaging.

2. Insert the cables into the opening shown in this figure.

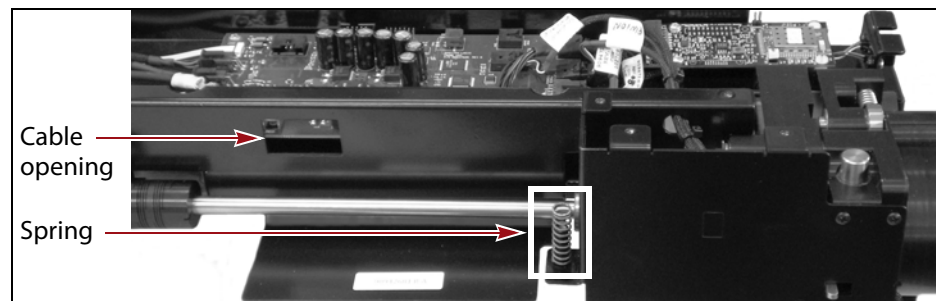**Figure 6** HAX motor cable opening.

3. Position the motor on top of the spring with the motor gear inserted into its opening (see Figure 7) and the threaded holes aligned with the openings in the VAX Column.

4. Check the position of calibration spring to make sure that it sits straight under the motor.
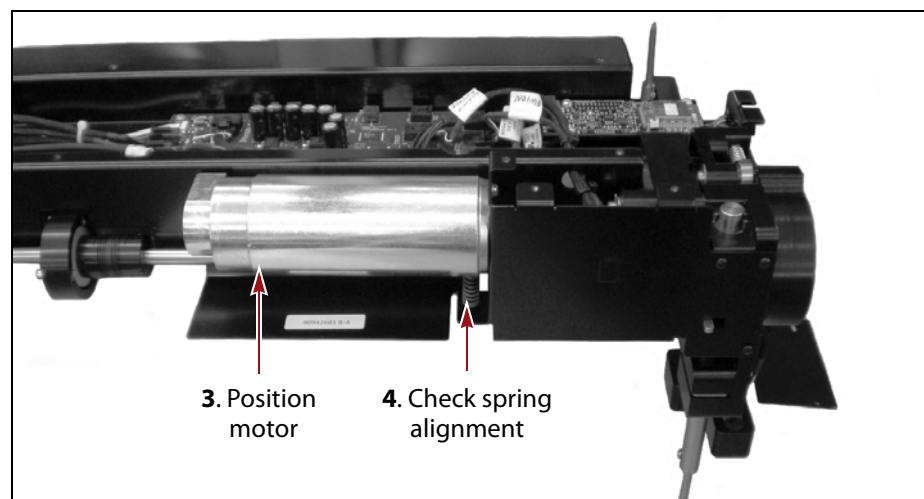

Figure 7 HAX motor spring alignment.

5. *Loosely* attach the three motor screws.

6. Reattach two cables:
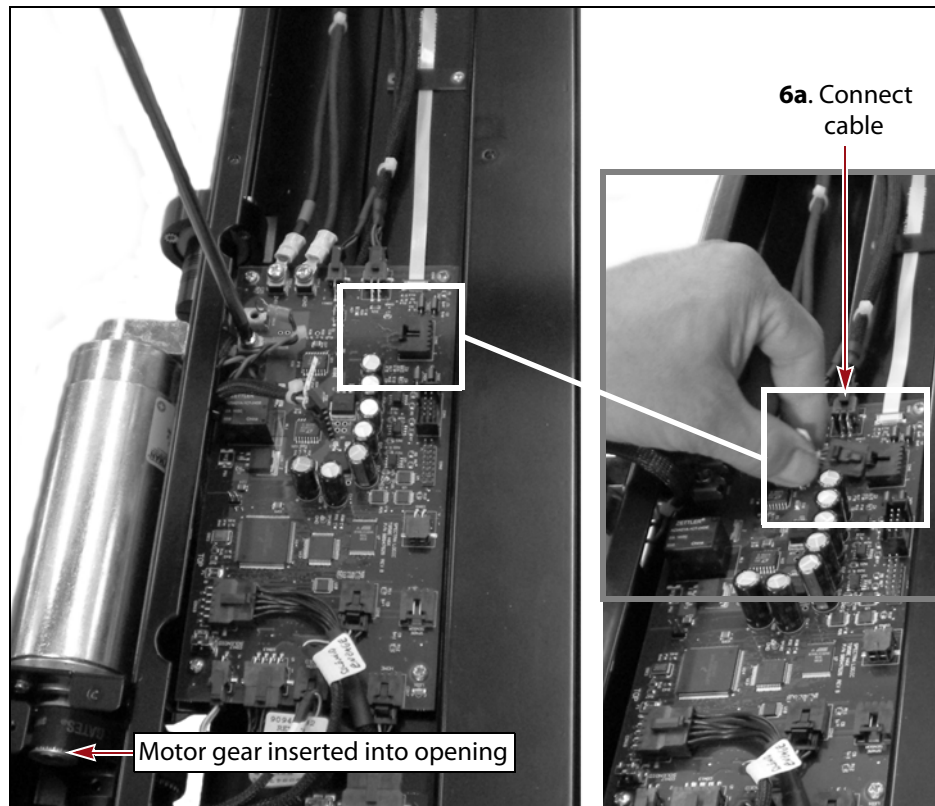
  a. Gently insert the connector into its receptacle.

Figure 8 HAX motor connectors.

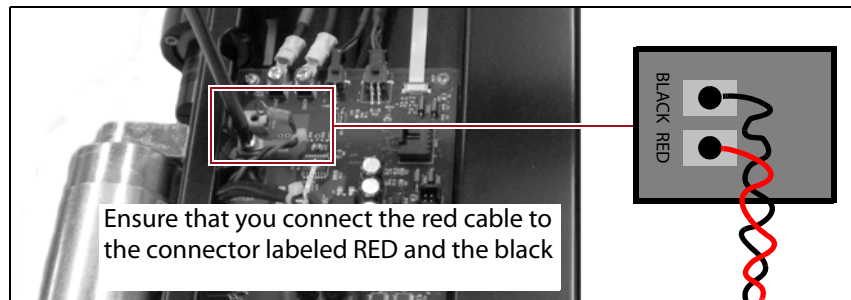 **b.** Use a #2 Phillips screwdriver to replace the two Phillips screws that you removed earlier.

Figure 9 Connect the HAX motor wires.

    c. Bundle the two cables with a cable tie and carefully tuck them under the edge of the VAX Column, as shown here.

6c. Bundle, attach cable tie, and tuck under edge.

Figure 10 Arrange the wries under the edge of the VAX column.

7. Replace the motor belt:

    a. Pull the motor against spring to allow the belt to feed over the gear.

    b. Attach the belt to the motor.

    c. Allow the motor to self-tension on the spring.

8. Fully tighten the three motor screws.

Completing the HAX Motor Replacement

1. Ensure that the cables are correctly connected and fully seated.

2. Replace the HAX motor cover:

    a. Ensure that cables are out of the way.

    b. Replace the cover with the three black screws that you removed earlier.

3. Orient and install the TeraPorter cover using the twelve screws that you removed earlier.

4. Continue with .

REPLACE THE VAX MOTOR

This section describes how to replace the VAX motor. If you need to replace the HAX motor, go to Replace the HAX Motor on page 6.

Removing the VAX Motor

The VAX motor is located at the bottom of the TeraPorter assembly. Follow these steps to remove the VAX motor assembly:

1. Using a #2 Phillips screwdriver, remove the twelve black screws securing the TeraPorter cover. Set the cover and the screws aside.
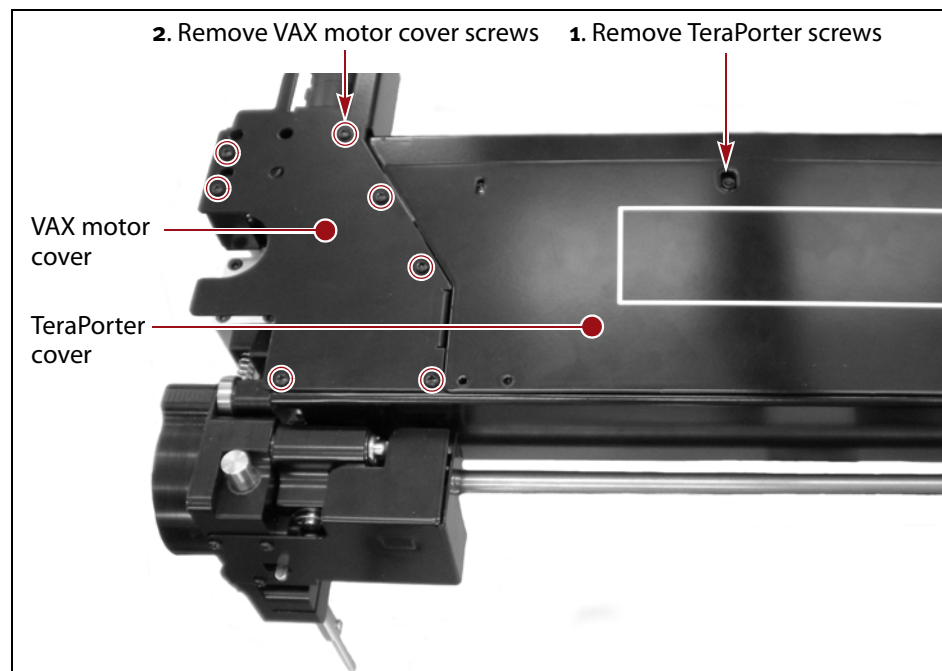

Figure 11 TeraPorter and VAX motor cover.

2. Using a #2 Phillips screwdriver, remove the seven black screws securing the VAX motor cover. Set the cover and screws aside (see Figure 11).

3. Disconnect the cables.

    a. Cut the cable tie securing the cables.

    b. Disconnect the connector by pressing in on the retaining clip, then pulling the connector gently outward.

c. Use a #2 Phillips screwdriver to remove the two screws securing the red and black connectors. Set the screws aside.
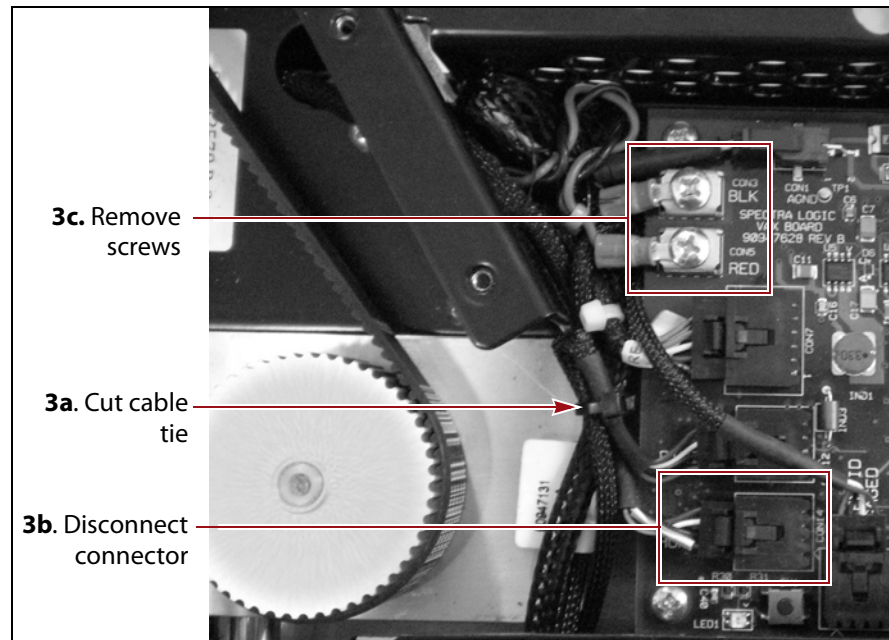

3c. Remove screws

3a. Cut cable tie

3b. Disconnect connector

Figure 12 VAX motor connectors.

4. Using a #2 Phillips screwdriver, remove the four screws securing the motor. Set the screws aside.

5. Remove the motor:

   a. Tilt the motor slightly to release the belt.

   b. Feed the cables out of the opening.

5b. Feed cables out through opening.

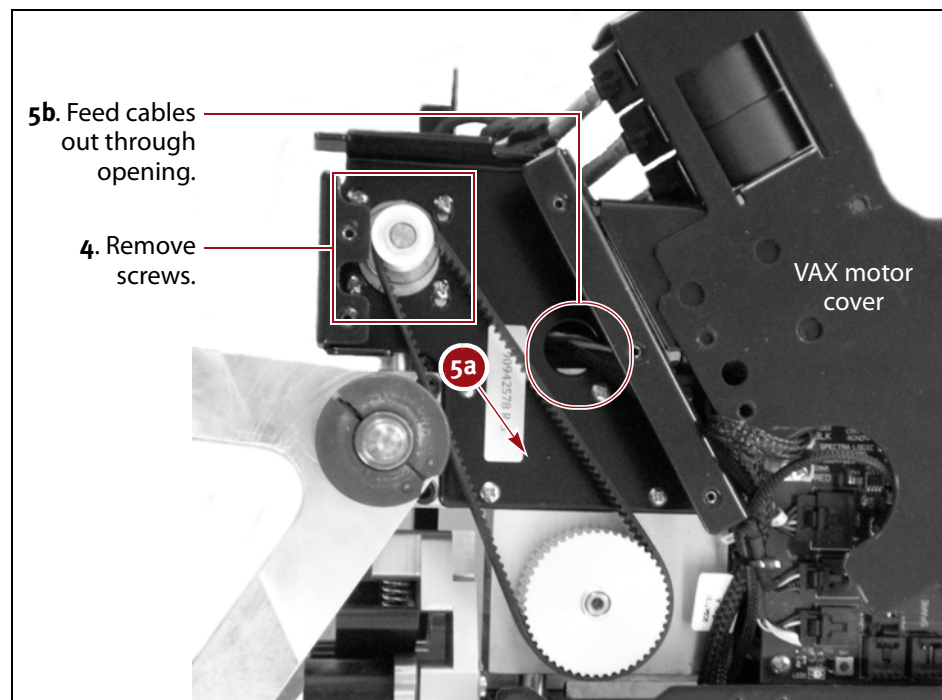**4**. Remove screws.

5a

VAX motor cover

Figure 13 VAX motor screws.

Note: Make sure that you do not lose or damage the tensioning spring when you remove the motor.
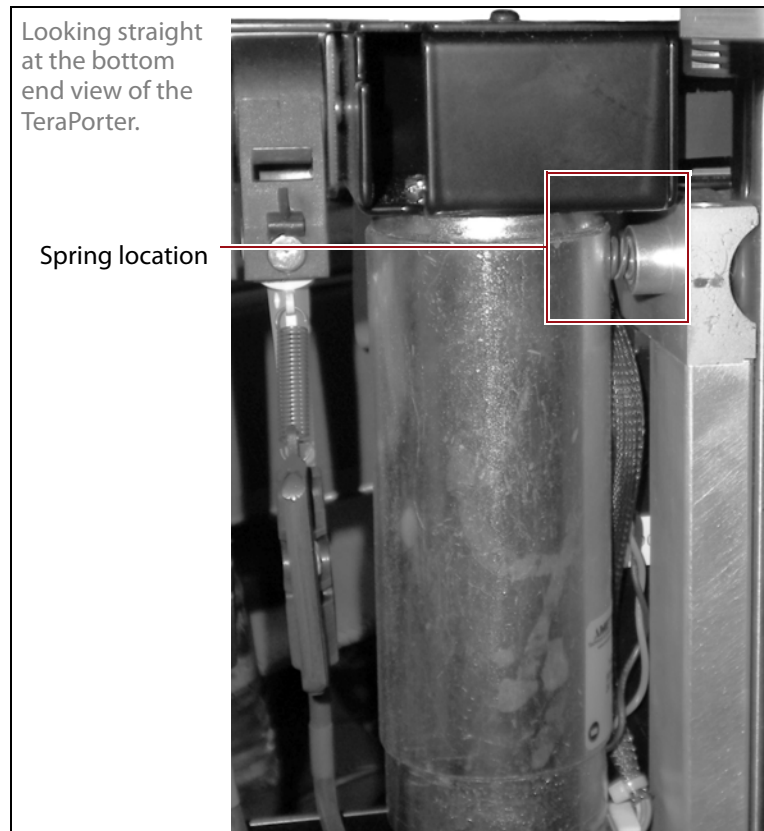

Figure 14 HAX motor tensioning spring.

6. Set the motor aside.

Installing the VAX Motor

Follow these steps to install the VAX motor:

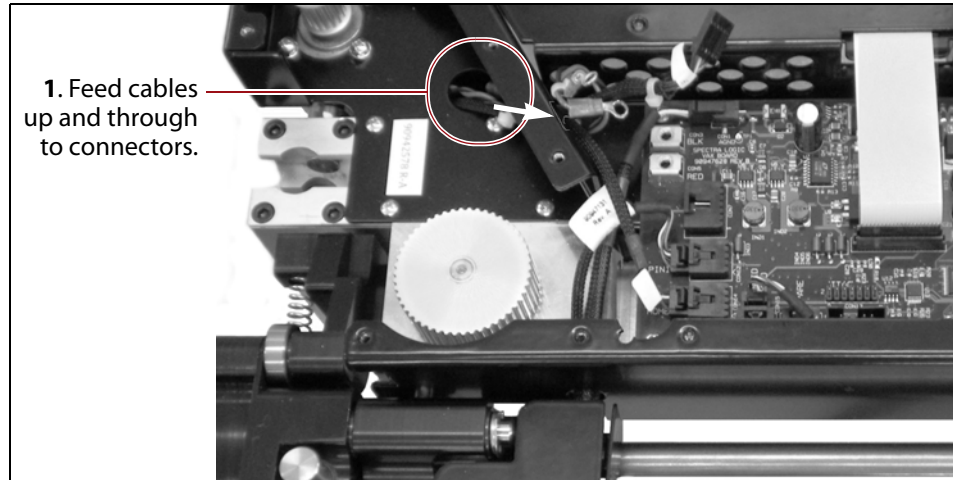1. Feed the motor cables into the round opening, then route them through to their connectors.

1. Feed cables up and through to connectors.

Figure 15 VAX motor cable routing.

2. Position the motor against the spring with the motor gear inserted into its opening and the threaded holes aligned with the openings in the VAX Column.

   Note: Check the position of tensioning spring to make sure that it sits straight under the motor. See Figure 14 on page 13

3. *Loosely* attach the four motor screws.

4. Reattach two cables:

   a. Gently insert the connector into its receptacle.

   b. Use a #2 Phillips screwdriver to replace the two Phillips screws that you removed earlier.

c. Bundle the two cables with a cable tie and carefully tuck them along the edge of the controller board, as shown here.
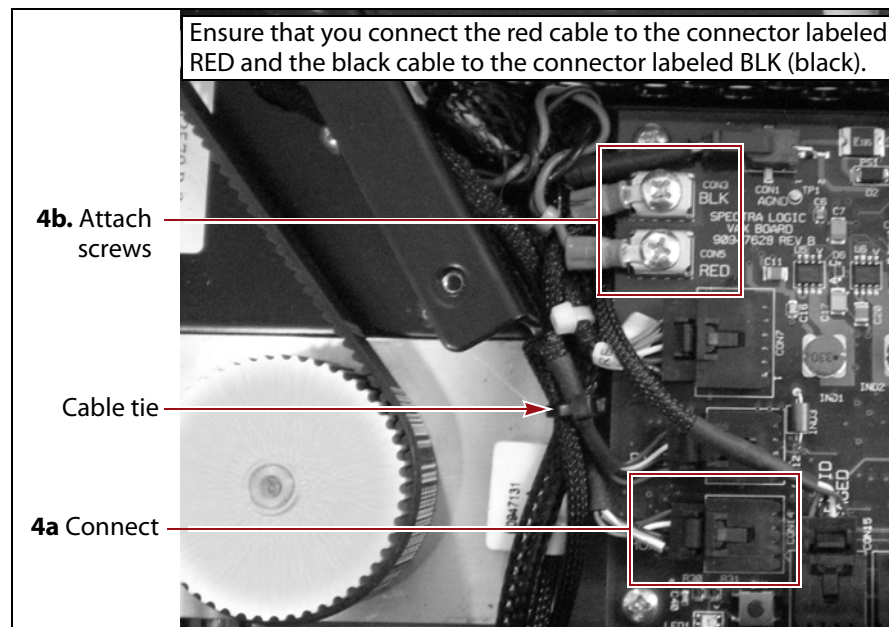

Figure 16 VAX motor connectors.

5. Position the motor with its gear in the opening and the threaded holes aligned with the holes in the VAX column.

6. Replace the motor belt, small end first:

   a. Pull the motor against spring to allow the belt to feed over the gear.

   b. Place the belt over the large gear, as shown here.

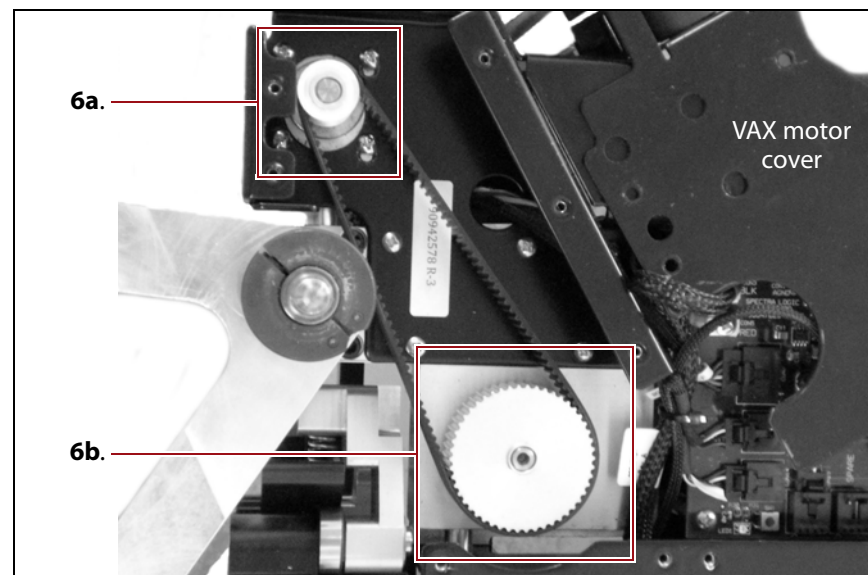   **c.** Allow the motor to self-tension on the spring.

Figure 17 Replace the motor belt.

7. Fully tighten the four motor screws.

Completing the VAX Motor Replacement

1. Ensure that the cables are correctly connected and fully seated.

2. Replace the VAX motor cover:

   a. Ensure that cables are out of the way.

   b. Ensure that the cover sits inside of the VAX Column Support Stand, as shown in Figure 18 on page 16.

   c. Use a #2 Phillips screwdriver to replace the seven black screws that you removed earlier.
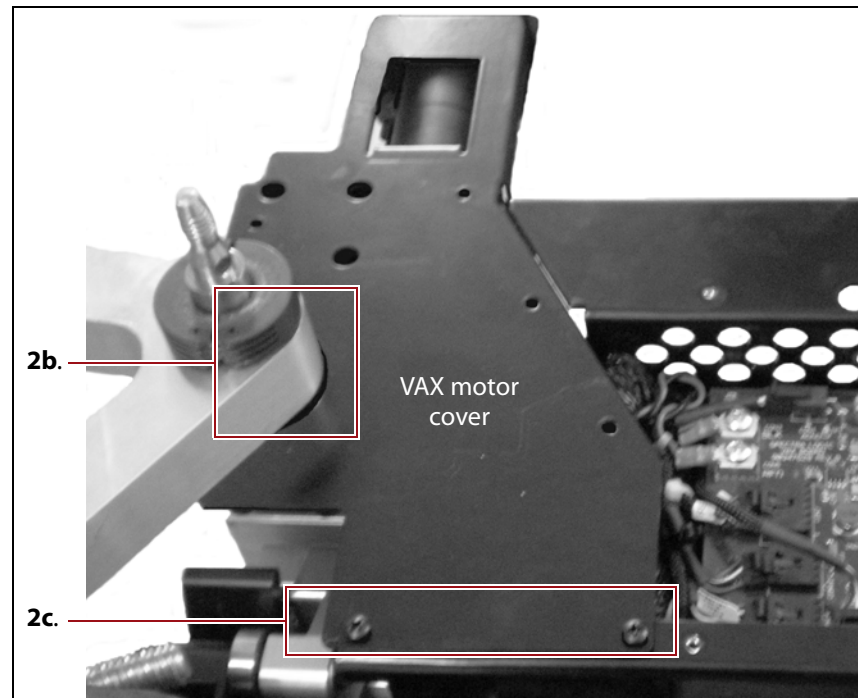

Figure 18 VAX motor cover installation.

3. Orient and install the TeraPorter cover using the twelve screws that you removed earlier.

4. Continue with Complete the Procedure on page 17.

COMPLETE THE PROCEDURE

Use the instructions in the *Spectra TFinity Library VAX Column Replacement and Alignment Instructions* and *Spectra TFinity Library Transporter Replacement* to do the following:

- Prepare the VAX column to be reinstalled
- Install the VAX column
- Align the VAX column
- Remove the VAX column support stand
- Install the transporter
- Install the service bay access panel
- Open the service bay safety door

RETURN THE COMPONENT

Return Guidelines

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

Return Procedures

After you complete the replacement procedure, return the defective component using ALL the packaging that the replacement component 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 component when preparing to ship the replacement part. 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.