Spectra T200, T380, and T680 Libraries

Replacing the TAP

Part Number 91010009 Revision C

Revision History

Revision	Date	Description
A	March 2008	Initial release for T200 and T380.
B	December 2011	Update to add T680.
C	April 2015	Updated procedure, updated trademarks.

Contacting Spectra Logic

To Obtain General Information

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To Obtain Documentation

Spectra Logic Website: support.spectralogic.com/documentation

Replacing the TAP in a T200, T380, or T680 Library

These instructions describe how to replace the TeraPack® Access Port (TAP) in a T200, T380, or T680 library. Except where noted, the procedure is identical for all three libraries.

Estimated Time = 45 minutes

PREPARE FOR THE REPLACEMENT

Before beginning this replacement procedure, make sure that you fulfill the prerequisites described in this section and familiarize yourself with all of the sections in this document.

Discontinue Operations Running on the Library

Data transfer operations cannot run during the TAP replacement process.

1. Use your storage management software to stop any data transfer operations running to the library.

2. Use your storage management software to move any cartridges that are currently in drives back to their storage locations.

   If you cannot use your storage management software, then move the cartridges as described in the *Spectra T200, T380, and T680 Libraries User Guide*.

3. Pause or stop library background operations, if they are running. Any tapes currently being scanned are returned to their storage locations.

   Note: The **Stop Discovery** and **Pause PostScan** buttons only display if PostScan or PreScan are currently running.

   a. Select **Maintenance ⋯⋮ Media Lifecycle Management** to display the Media Lifecycle Management Tools screen. Click **Stop Discovery** on the Media Lifecycle Management Tools screen to stop the PreScan operation.

   b. Select **Maintenance ⋯⋮ Media Lifecycle Management** to display the Media Lifecycle Management Tools screen. Click **Pause PostScan** to pause the PostScan operation for one hour.

Gather Materials and Tools

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

Required:

- #2 Phillips screwdriver
- Stubby #1 Phillips screwdriver
- Flatblade screwdriver (optional)
- Replacement TAP door panel *(PN 91018048)*
- Replacement TAP assembly *(PN 91018047)*
- Replacement shelf *(PN 90942140)*
- A modified shelf guide *(PN 91016017)*

⚠️ **Important** You must use all of the parts included in the replacement shipment, even if the parts you remove from the library do not appear to be damaged.

Note: The modified shelf guide provided for this replacement differs from other shelf guides used in the library.
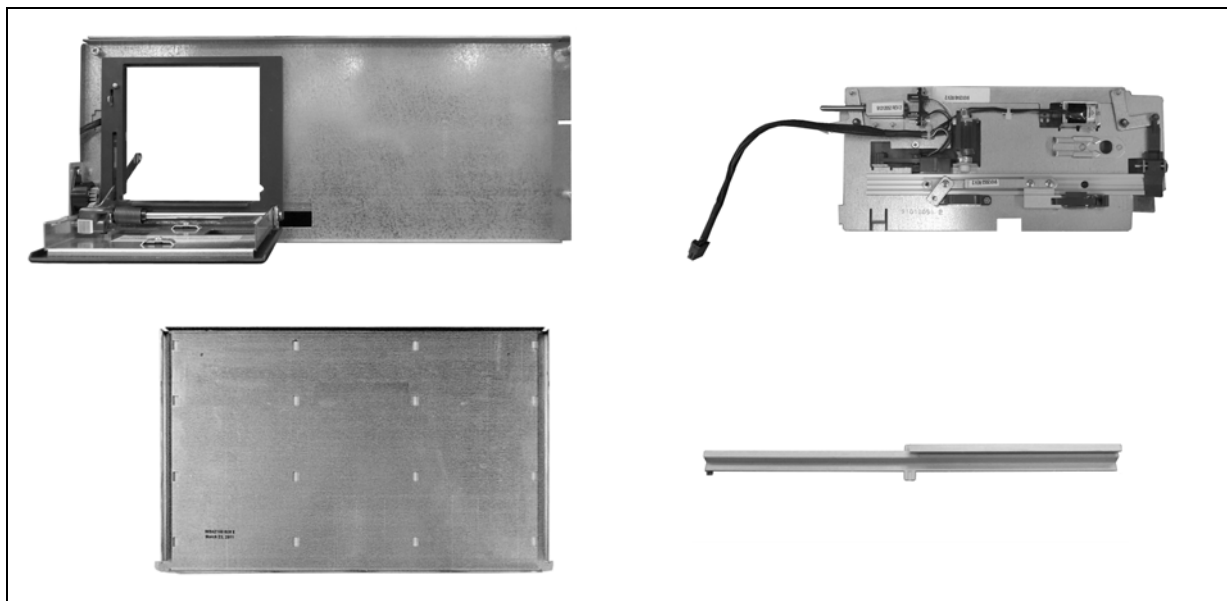
Figure 1 Replacement door, TAP assembly, shelf, and modified shelf guide.

**Recommended**

- An anti-static mat

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 wristband or grounding footstrap whenever you handle library components that have been removed from their anti-static bags. Connect the wristband to the static protection mat or to other suitable ESD grounding.

- Keep all electronic components in anti-static bags when not in use.

Access the Front Panel and Rear Panels

- If your T200 or T380 library is installed in a rack with doors, open the doors to access the library's front and rear panels.

- The T680 is built into a rack; open the doors to access the front and rear panels.


Door handle
(Press in on the lock,
then pull the handle.)

Lock
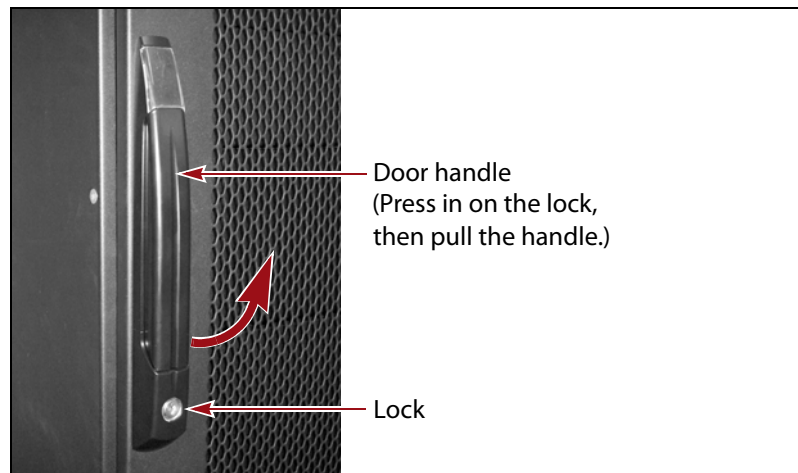
Figure 2 Open the doors of the T680 rack to access the front and rear panels.

Power Off the Library

1. To power off the library, press and hold the front panel power button (Figure 3) for approximately six seconds. At this point, the button's LED will start flashing. The power-off sequence takes approximately one minute while the library allows applications to shut down gracefully.

> **Note:** If the library does not respond to pressing the front panel power button, it is likely that the BlueScale Soft Power option is enabled. Refer to the library's *User Guide* for instructions on powering off the library with the BlueScale Soft Power option enabled.
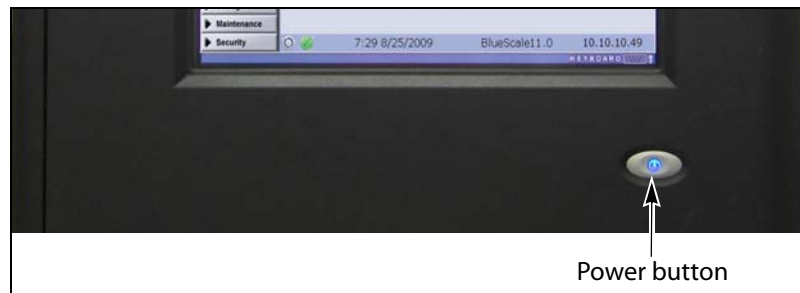

Power button

Figure 3 Press and hold the front panel power button.

2. Set the main power switches on the library back panel to the off position and disconnect the AC power cords.

> **Notes:** ▪ If you have redundant power supplies installed, make sure you turn off both power switches.
>
> ▪ If you have cable locks installed on the power cords, it is easier to disconnect the cords from the AC outlets at the wall.

Main AC switch

AC power cord

Main AC switch
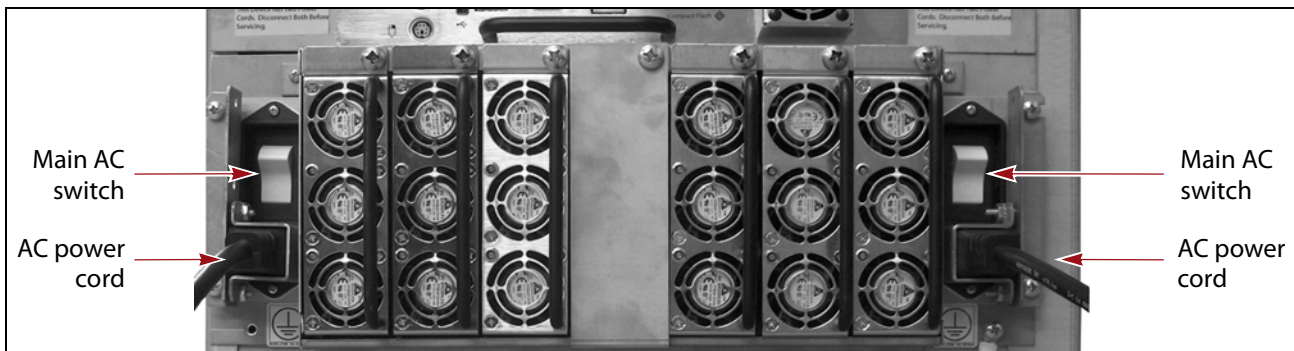
AC power cord

Figure 4 Turn off the library AC power switches and disconnect the power cords.
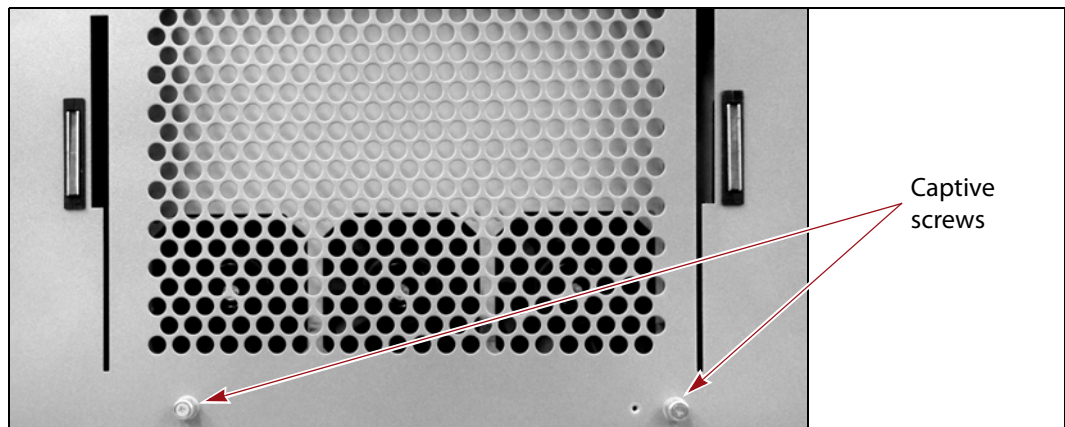
Remove the Front Panel

1. From the front of the library, pull firmly outward on the top edge of the filter cover panel to release the magnetic latches and rotate the top of the cover out from the front panel.
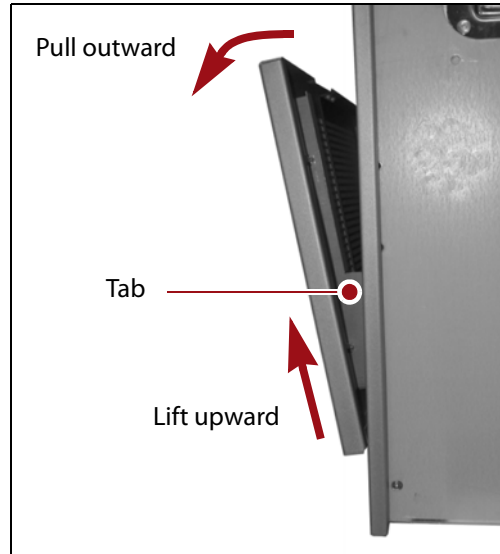
Figure 5 Open the filter cover panel.

2. Lift the cover upward to disengage the tabs on each side of the cover from the slots in the front of the library.

3. Remove the cover and set it aside.

4. Using your fingers or a #2 Phillips screwdriver, loosen the two captive screws securing the bottom of the library front panel to the chassis.


Figure 6 Loosen the front panel's captive screws.

5. Lift the front panel outward and away from the chassis to disengage the two nuts on the back of the front panel from the holes on either side of the chassis. Set the cover aside.

⚠ **Warning**	Some library components are heavy and could be awkward to handle. Use caution and proper equipment or two people to move these.

Chassis

Alignment nut on back side of front panel
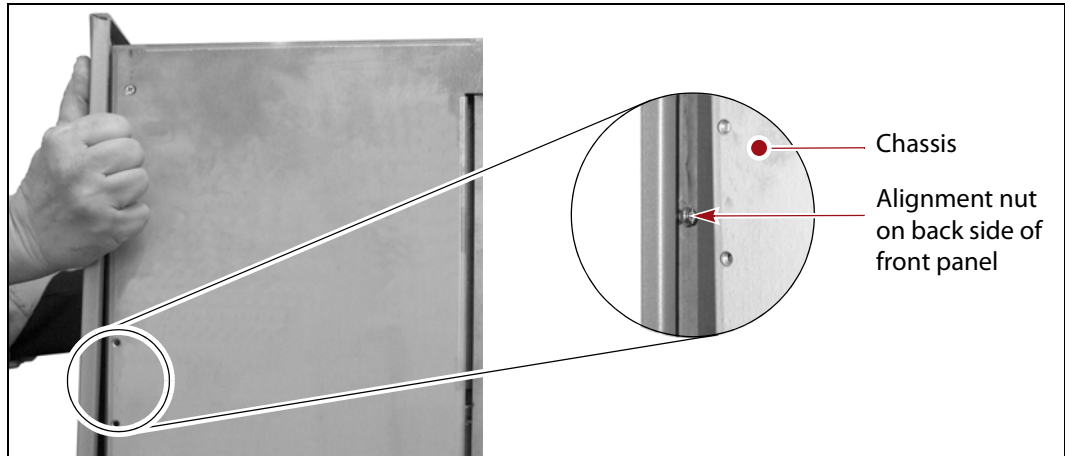
Figure 7 Remove the front panel (T380 shown).

Identify the Failed TAP (T680 Only)

If you have a T680 library, work with Spectra Logic Technical Support to understand which TAP requires replacement. TAP 1 is above TAP 2 on the library front panel.
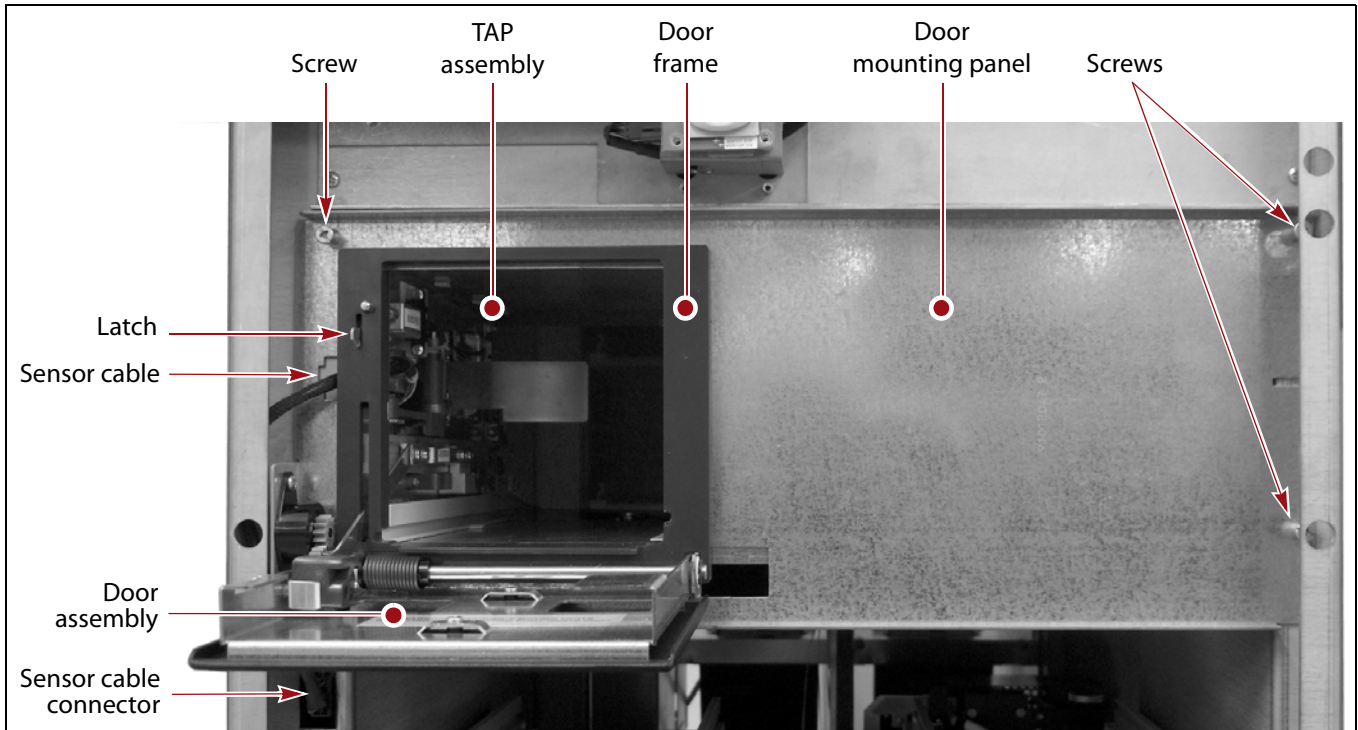
**Note:** For the T200 and T380, the single TAP is identified as TAP 1.

Component Locations

Figure 8 and Figure 9 show the locations of the major components referred to in this replacement procedure.

Note: One additional screw is located just above the sensor cable connector on the left side of the Door mounting panel.

Figure 8 TAP components (front panel removed, T380 shown).
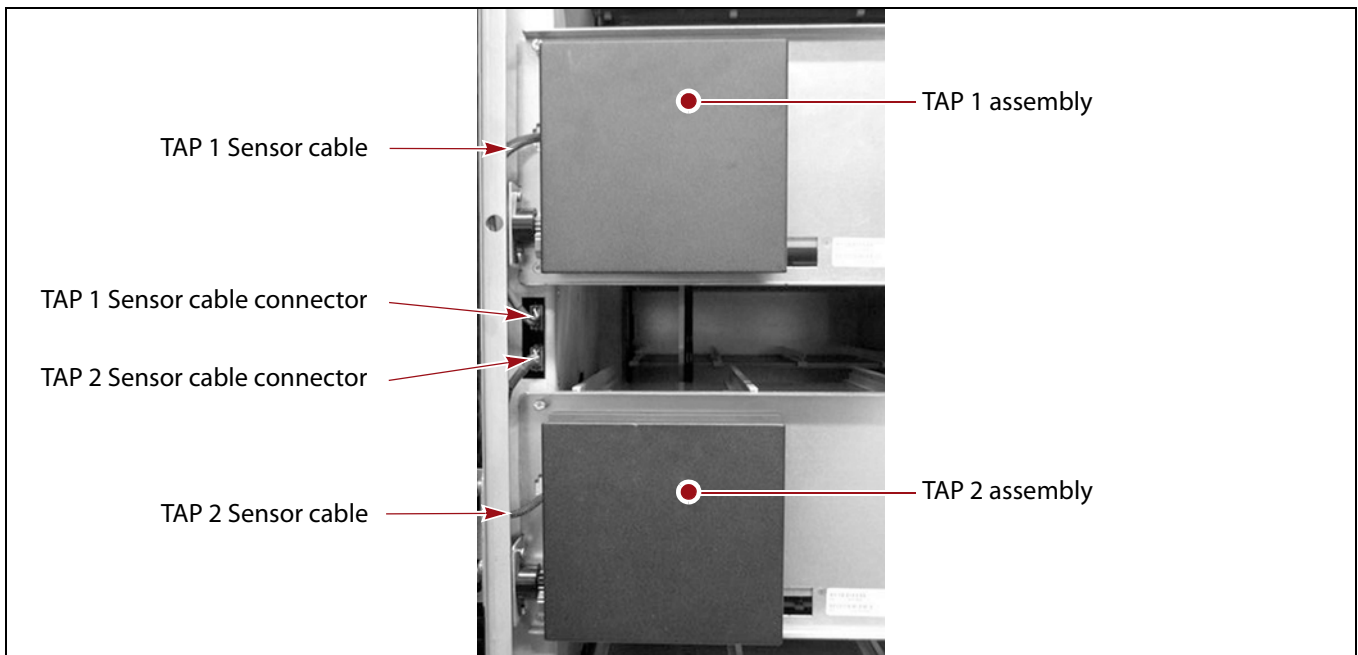
Figure 9 T680 only: TAP 1 and TAP 2 components (front panel removed).

REMOVE THE TAP

Use the steps in the following sections to remove the faulty TAP from the library.

Disconnect the TAP Cable

1. Locate the sensor cable connector on the left side of the chassis, see Figure 8 or Figure 9 on page 9.

   Note: For the T680, the TAP 1 sensor cable attaches to the top connector. The TAP 2 sensor cable attaches to the bottom connector.

2. With the TAP door closed, use one finger to press inward on the locking tab on the left side of the connector, as shown in Figure 10, while rotating the blade of a flatblade screwdriver against the right side of the connector to pull the connector away from the mating connector.

   Alternatively, firmly grasp the edges of the connector on the TAP cable and wiggle it free of the mating connector.

⚠️ **Caution** Be careful not to pull the cable wires out of the connector.

Captive screw

Disconnected sensor cable
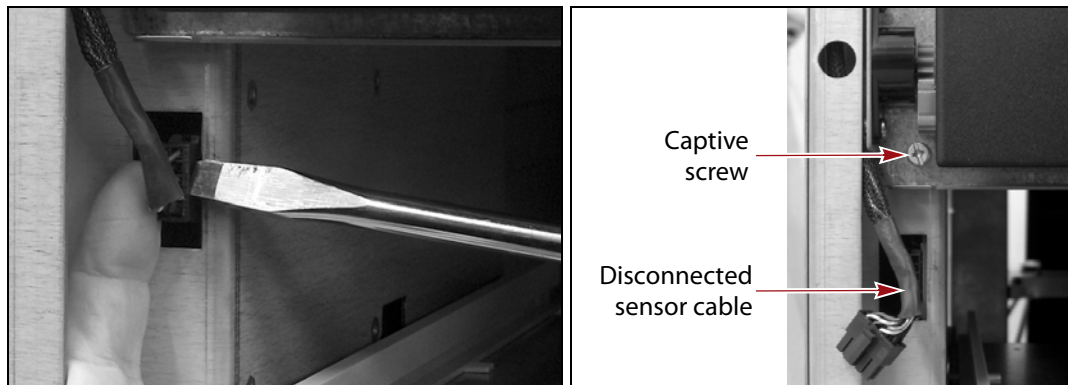
Figure 10 Disconnect the sensor cable (T380 shown).

3. Using a #2 Phillips screwdriver, loosen the captive screw located just above the disconnected cable (see Figure 10).

4. Using your finger or a flathead screwdriver, reach over the top edge of the TAP door and lift upward on the door latch to release it and open the door.
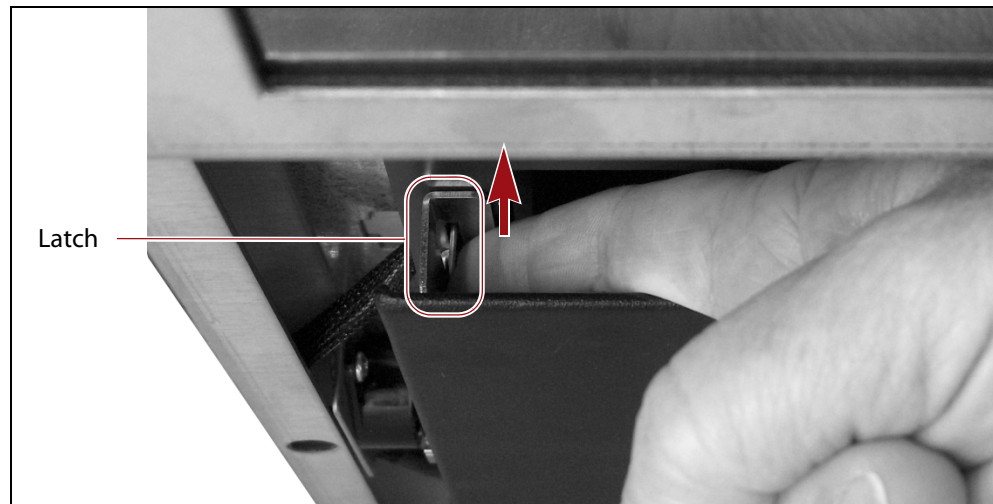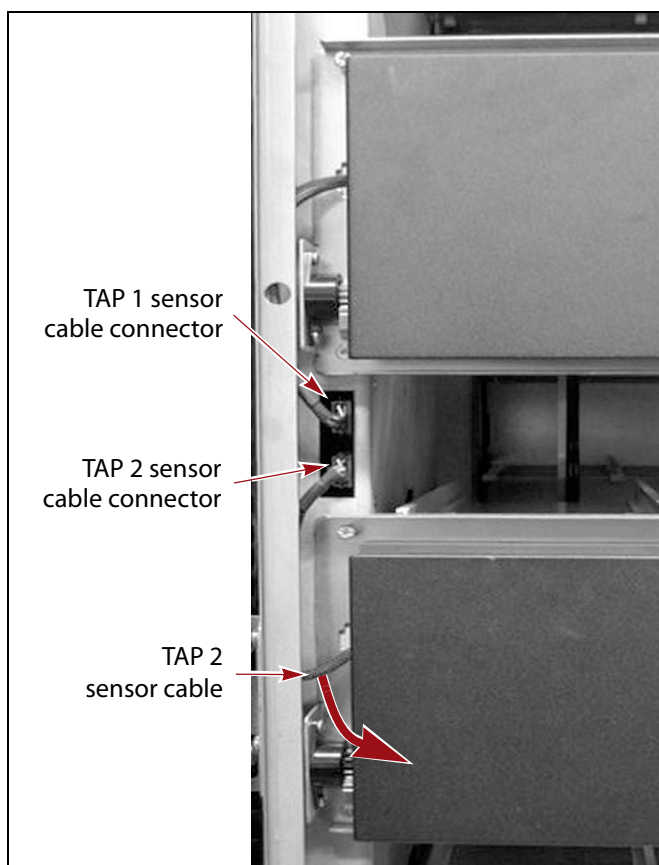

Figure 11 Release the door latch.

5. Carefully pull the free end of the sensor cable out of the way.

- **T200, T380, and TAP 1 in the T680**—Guide the cable through the channel behind the damping gear assembly:
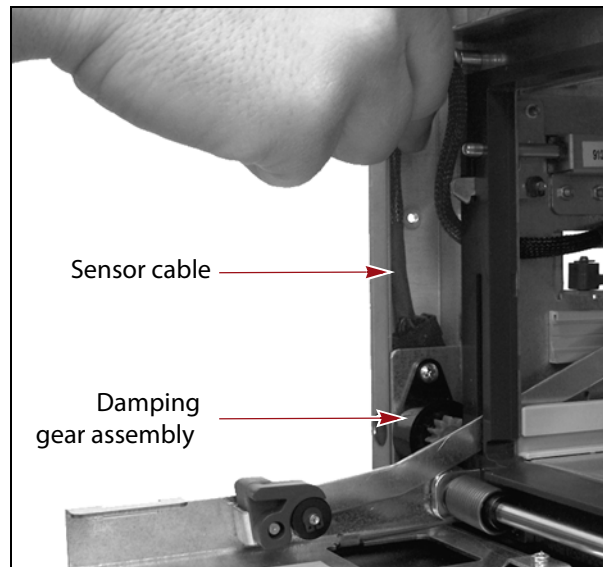
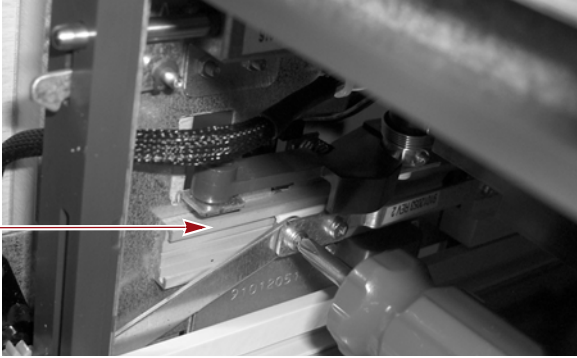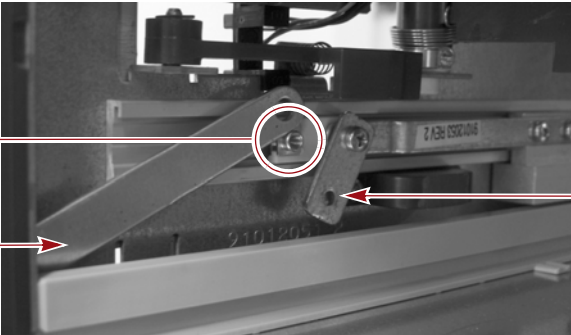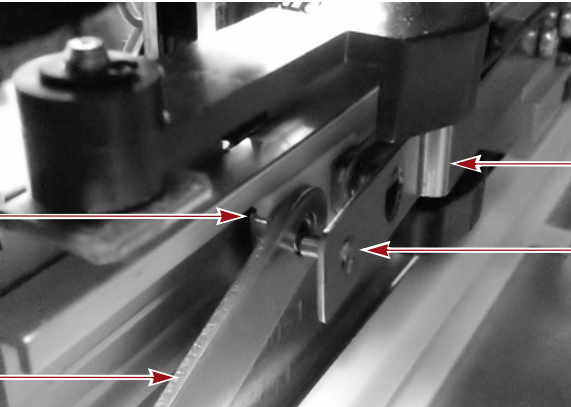**Figure 12** Pull sensor cable upward.

- **TAP 2 in the T680 only**—Carefully lift the TAP 2 sensor out of the channel along the left edge of the chassis.

Figure 13 Lift the TAP 2 sensor cable out of the channel on the left side of the chassis.

Remove the Door Assembly from the TAP Assembly

1. Detach the coupler and lever arm that secure the TAP door to the TAP assembly. The method you use depends on how the coupler is attached to the TAP assembly.

If the coupler is attached by a….	Then…
Screw	1. Use a stubby #1 Phillips screwdriver to remove the screw securing the door lever arm to the TAP assembly. Lever arm 2. Lift the coupler off of the PEM nut on the TAP assembly and then rotate it downward. 3. Disengage the end of the lever arm from the PEM nut on the TAP assembly. PEM nut — Coupler Lever arm
Stud	1. Gently pry the coupler toward the inside of the TAP to pull the coupler stud free from the TAP rail slider. 2. Disengage the end of the lever arm from the PEM nut on the TAP assembly. Coupler TAP rail slider — Coupler stud Lever arm

2. Using a #2 Phillips screwdriver, loosen the three remaining captive screws that secure the door mounting panel to the chassis (see Figure 8 on page 9).

    Note: The two screws on the right side of the panel are accessed through circular cutouts in the chassis frame.

3. Rotate the left side of the door mounting panel away from the chassis.

    Note: You may need to lift the door latch slightly and guide it through the cutout in the door frame.
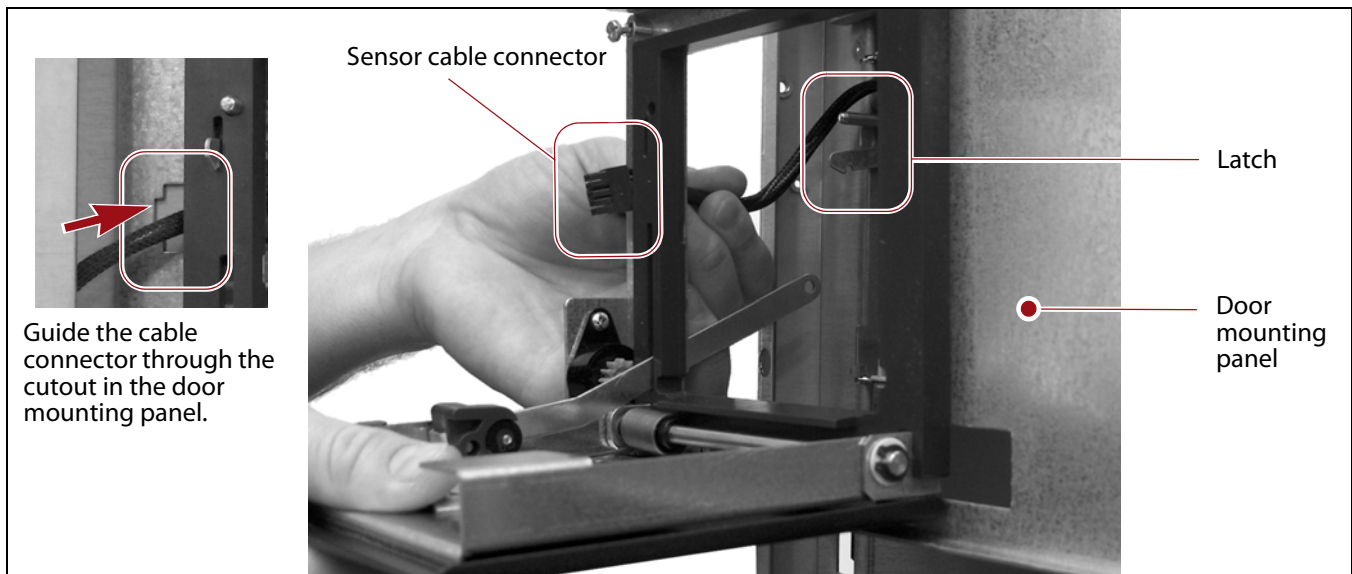
Figure 14 Remove the TAP door assembly.

4. While supporting the left side of the door mounting panel, carefully guide the sensor cable connector through the cutout in the panel, as shown in Figure 14.

5. Lift the door mounting panel away from the chassis and set it aside for return to Spectra Logic.

6. By hand, remove any TeraPack magazines in the chambers to the right of the TAP mechanism, and set them aside. You will re-import these magazines at the end of the procedure.

TAP assembly

Remove TeraPack magazines
in these chambers
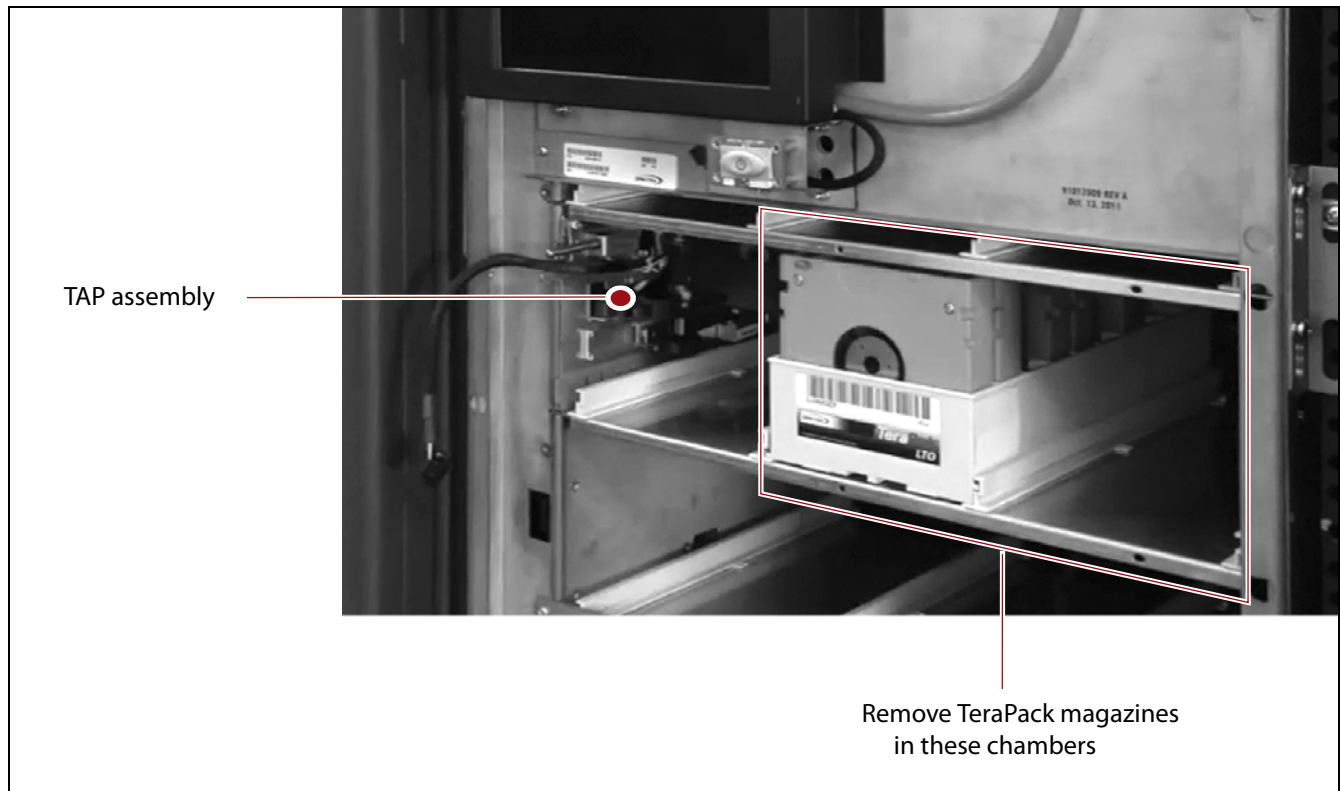
Figure 15 Remove magazines to the right of the TAP assembly.

Remove the TAP Assembly

1. Using your fingers, pull the tab on the locking clip toward you to disengage the clip from the mounting screw.
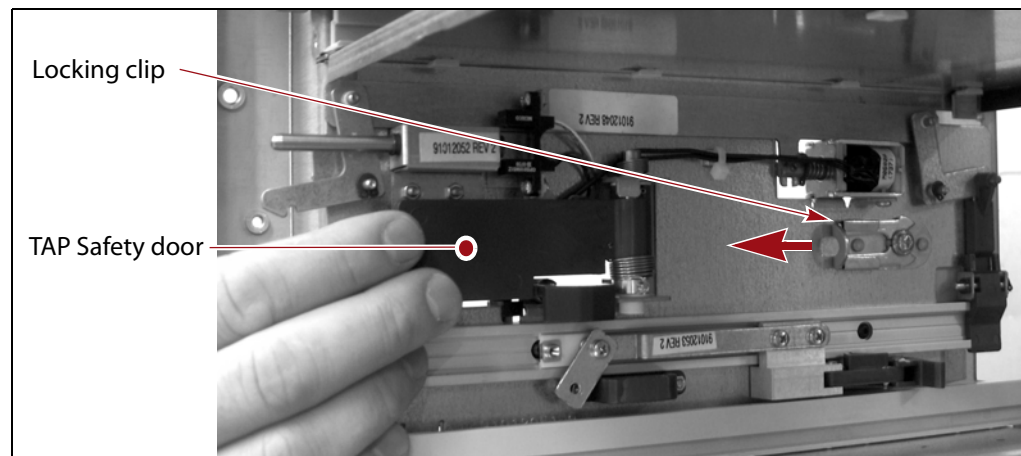
    Note: Depending on when your library was manufactured, the TAP assembly may look different than the image below. If the failed TAP assembly has a black safety door, rotate the door toward the front of the library, then reach into the TAP.

Figure 16 Disengage the locking clip.

2. Carefully rotate the top edge of the TAP assembly toward the right, as shown in Figure 17.

3. Lift the assembly up slightly to disengage the mounting tab on the bottom edge of the assembly from the slot in the chassis wall. Lift the assembly out of the chassis.
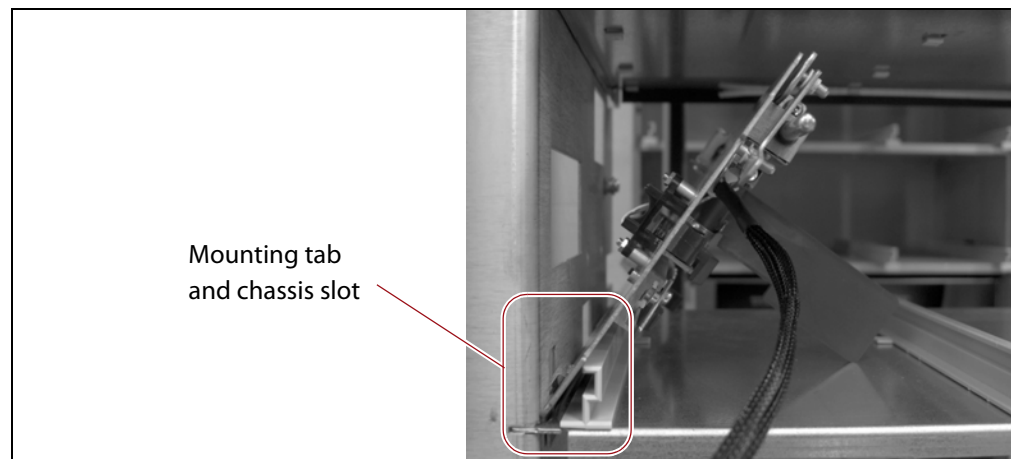
Figure 17 Remove the TAP assembly.

4. Set the malfunctioning TAP assembly aside for return to Spectra Logic.

Remove the Chamber Shelf

1. Remove the chamber shelf immediately below the TAP area.

    c. Remove the four shelf guides from the shelf, and save them to install on the replacement shelf

    Note: You will only reinstall three of the original four shelf guides.
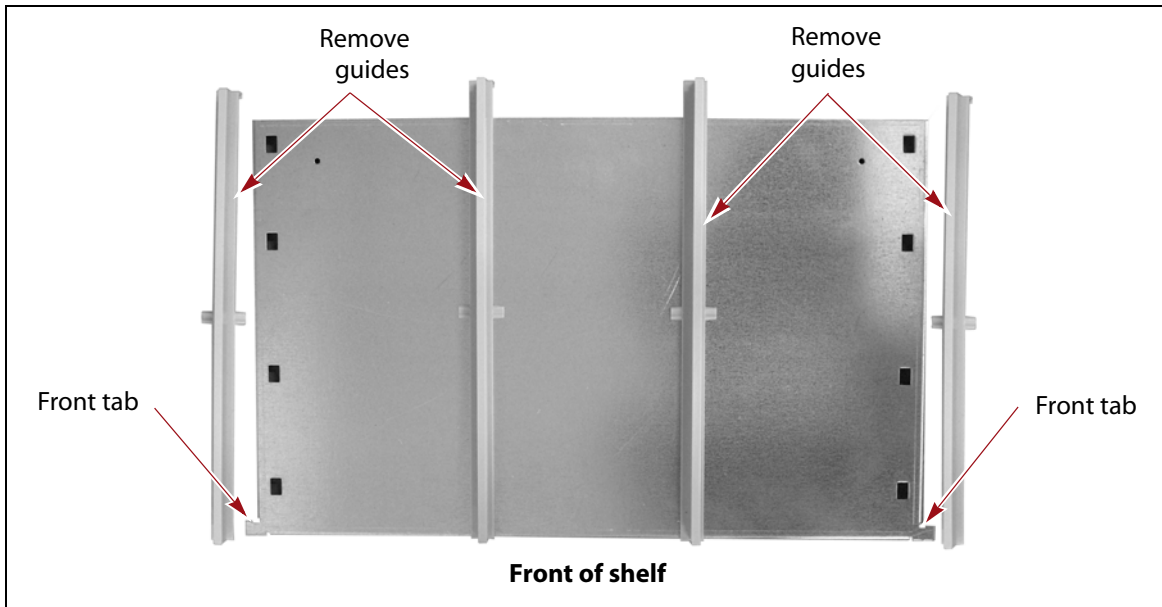
Figure 18 Removing the guides from the shelf.

    d. Grasp the front edge of the shelf with both hands and pull it toward you to disengage it from the slots in the front of the chassis and the rear mounting tabs. Angle the left side of the shelf slightly upward and slide it out of the chassis.

    e. Discard the shelf in accordance with your company guidelines.

Install the Replacement Shelf

1. Install the replacement shelf. Orient the back of the shelf toward the inside of the library with the left edge angled slightly upward so that the right front tab clears the front edge of the chassis.

2. Slide the shelf into the chassis so that the top, rear edges fit into the slots in the rear mounting tabs. The front tabs fit into the chassis' front slots.

⚠️ **Caution** Make sure that the top, rear edge of the shelf fits into the slots in both of the mounting tabs. Incorrectly installing a shelf will cause motion failures.
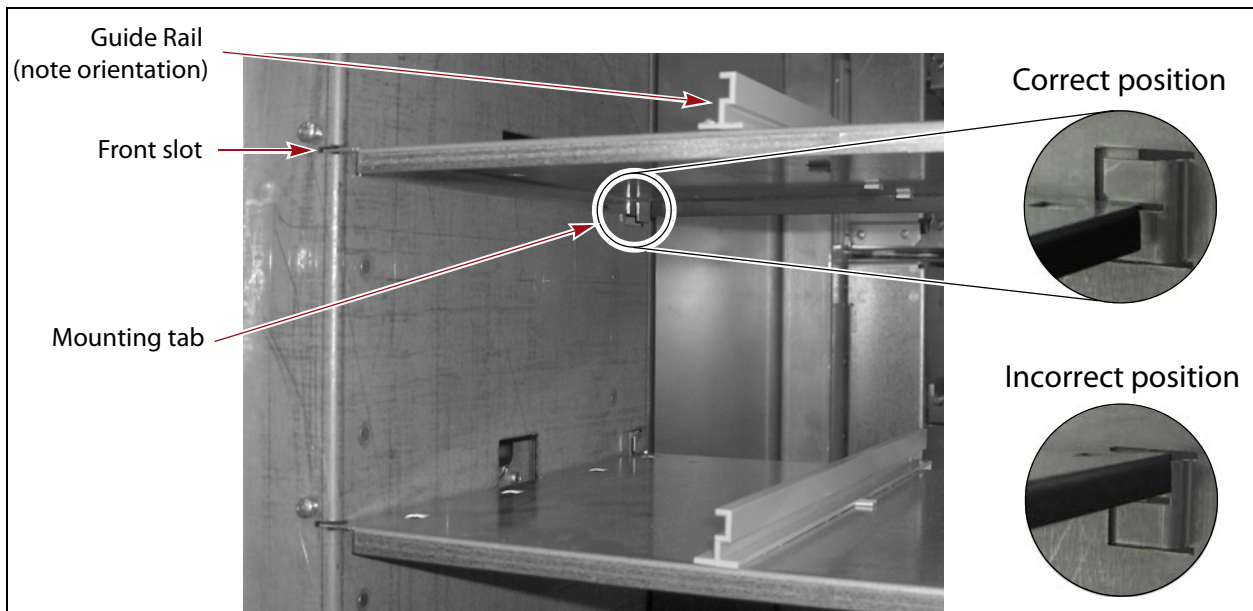
Figure 19 Install the chamber shelf, correctly positioning it in the rear mounting tabs.

f. Install three of the four shelf guides you removed, starting on the right side of the shelf, and working toward the left.

Tabs on the bottom edge of each guide fit into cutouts in the shelf. Make sure that the guides are oriented correctly.
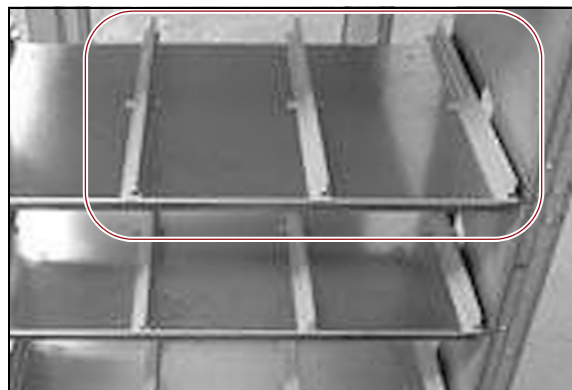
Figure 20 Reinstall three shelf guides

g. Install the modified shelf guide that came with the replacement kit in the left end of the shelf, with the notched end toward the inside of the library.

Figure 21 Install the modified shelf guide.

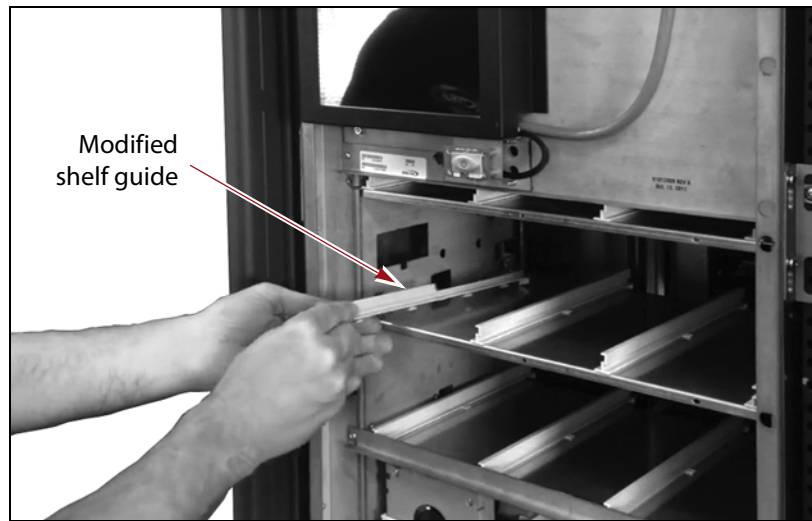| ⚠ **Important**	Do not re-insert any of the TeraPack magazines at this time. They are imported through the TAP at the end of the procedure.

INSTALL THE REPLACEMENT TAP

1. Orient the TAP assembly with the locking clip to the right and the door latch toward the front.

2. Angle the top edge of the TAP assembly toward the right and slide it into the chassis so that the bottom edge fits between the chassis wall and the guide rail on the shelf, as shown in Figure 22 on page 20.

⚠ **Caution**	Be careful not to dislodge the guide rail.

3. Position the mounting tab on the bottom edge of the TAP assembly so that it fits into the cutout on the left wall of the chassis.

> **Note:** The modified shelf guide is missing in the photo below to better show the mounting tab and chassis slot.
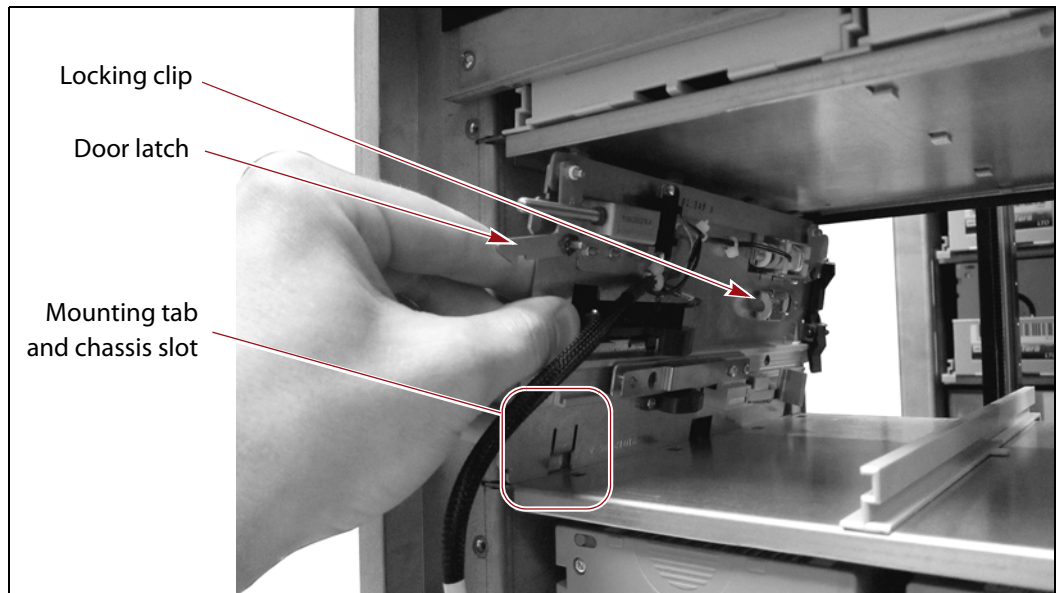
Figure 22 Install the TAP assembly.

4. Rotate the top edge of the TAP assembly to the left until the assembly fits vertically flush against the chassis wall.

> **Note:** You may need to press down on the door latch in order to fit the TAP assembly under the shelf above it.

5. Make sure the TAP assembly is flush against the chassis wall. There should be no visible gap between the TAP assembly and the chassis wall.
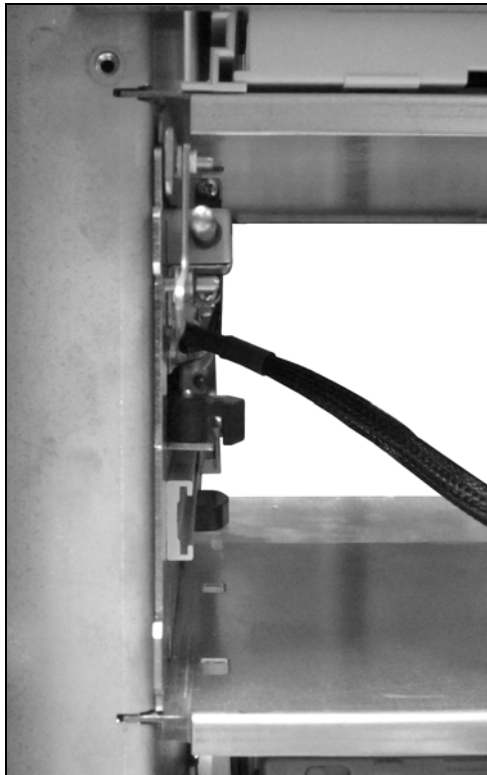
Figure 23 Correct installation.
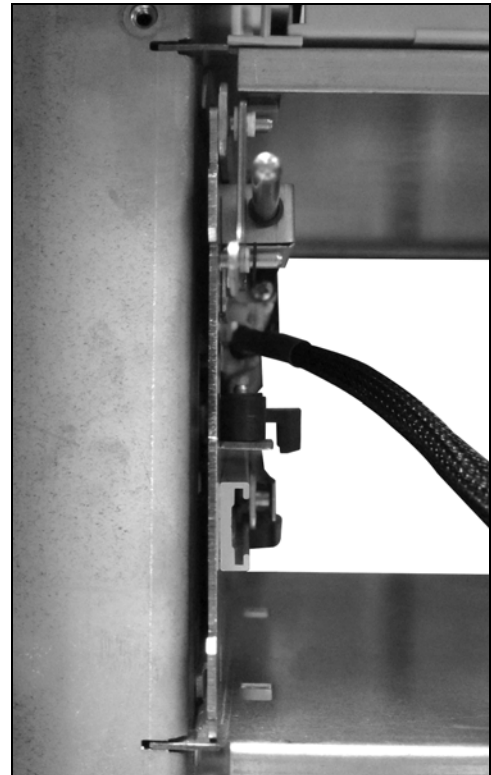
Figure 24 Incorrect installation.

6. Reach into the library and push the locking clip toward the back so that it engages the mounting screw and secures the TAP assembly to the chassis wall.

   Note: Pull back slightly on the locking clip to confirm that it is fully seated under the mounting screw.
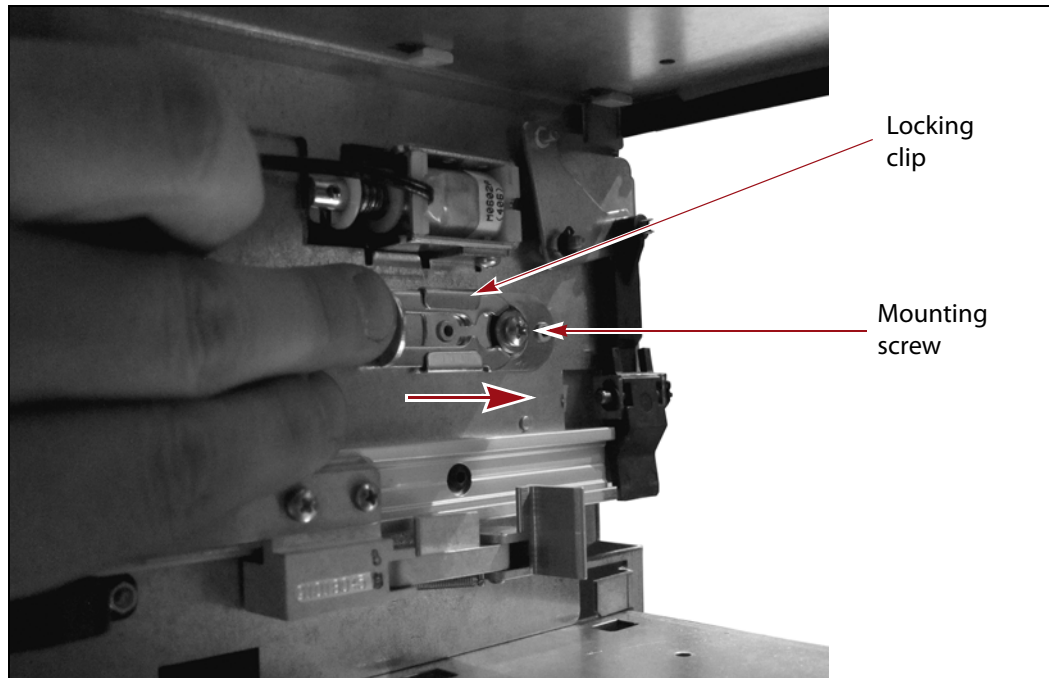
Figure 25 Secure the TAP assembly to the chassis wall.

Install the Door Assembly

1. Orient the door mounting panel with the door to the left. Position the right edge of the panel under the right-side edge of the chassis, so that the slot in the panel fits over the alignment pin in the chassis.

2. While supporting the left side of the mounting panel with one hand, carefully guide the sensor cable connector through the cutout in the left side of the door mounting panel, as shown in Figure 26.

Figure 26 Route the sensor cable through the door mounting panel cutout.
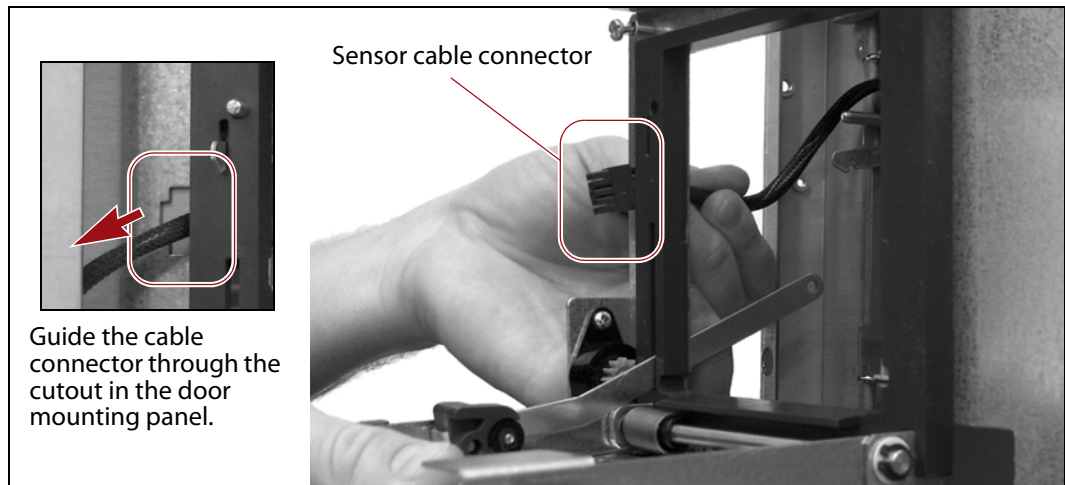
3. Rotate the left side of the door mounting panel back until it fits flush against the chassis.
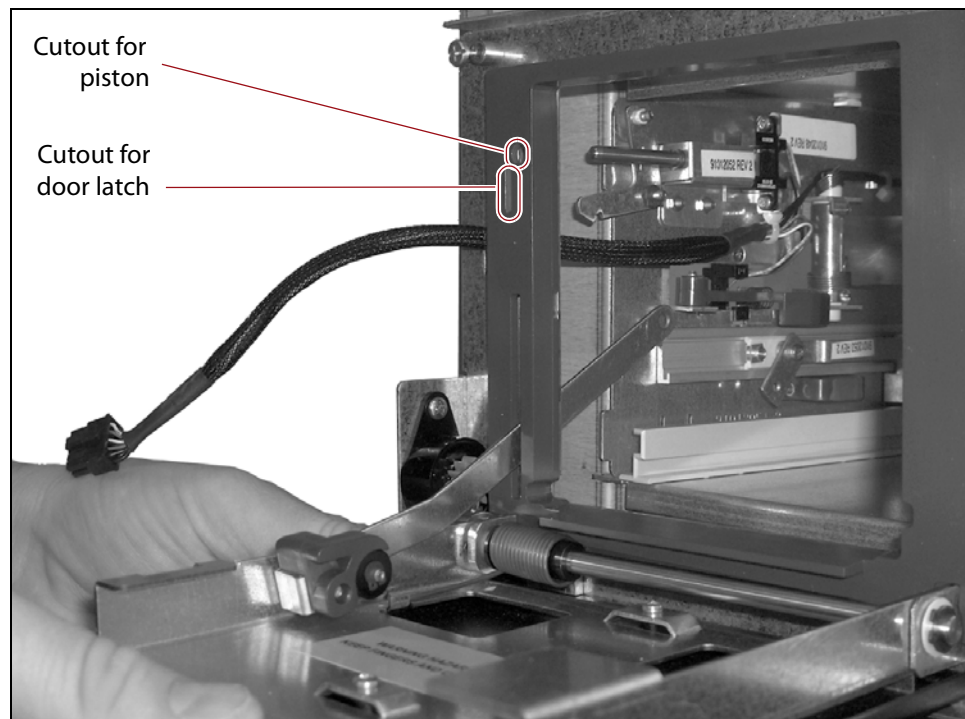
Figure 27 Install the door mounting panel.

Notes: ▪ Make sure that the door latch and release piston fit into the cutouts in the door frame.

▪ You may need to lift the door latch slightly and guide it through the cutout in the door frame.

▪ Press in on the piston and verify it moves freely.

4. Using a #2 Phillips screwdriver, tighten the four captive screws (see Figure 8 on page 9) to secure the door mounting panel to the chassis.

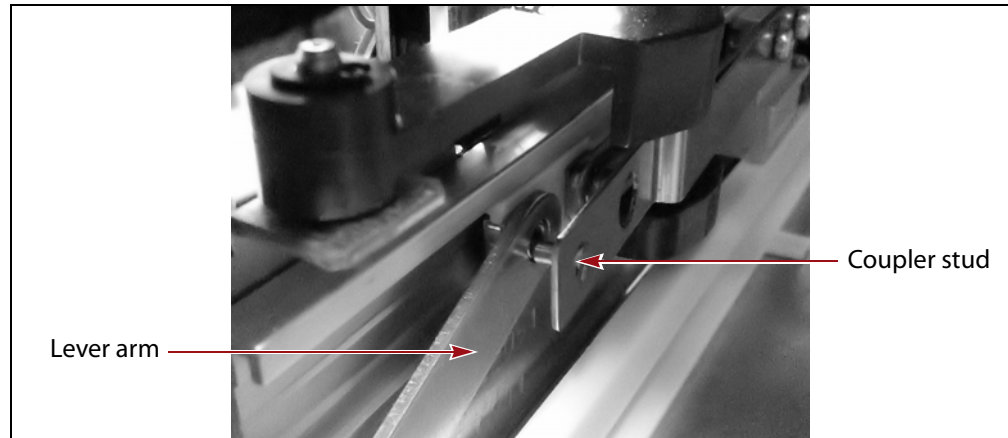   **Note:** The two screws on the right side of the panel are accessed through circular cutouts in the chassis frame.

5. Inside the TAP, insert the coupler stud through the lever arm and into the PEM nut on the TAP assembly.

Figure 28 Insert the stud through the lever arm and into the PEM nut.

6. Press inward on the stud until it engages the PEM nut. You may need to lift the TAP door slightly for the stud to slide through the hole on the lever arm and into the PEM nut on the TAP assembly.

7. Lift the TAP door to close it. An audible click indicates that the latch engaged.

Reconnect the TAP Cable

1. Route the free end of the sensor cable to its connector.

   - **T200, T380, and TAP 1 in the T680**—Guide the cable down through the channel behind the damping gear assembly.
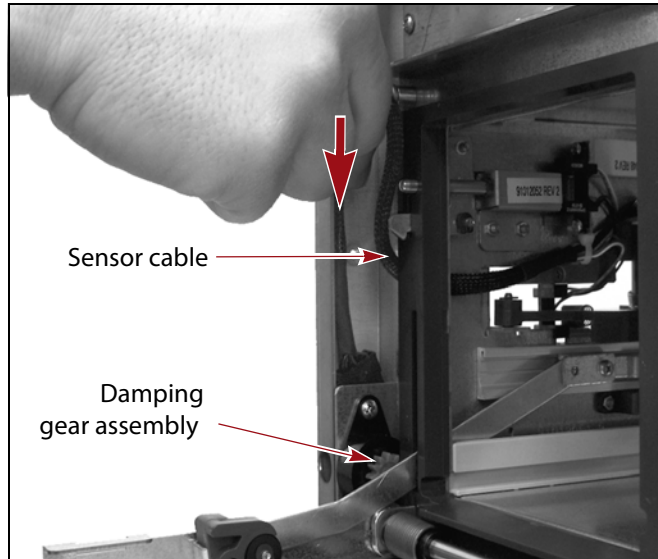
   Figure 29 Route the TAP 1 sensor cable down behind the damping gear assembly.

   - **TAP 2 in the T680**—Route the cable upward along the channel in the left side of the chassis.
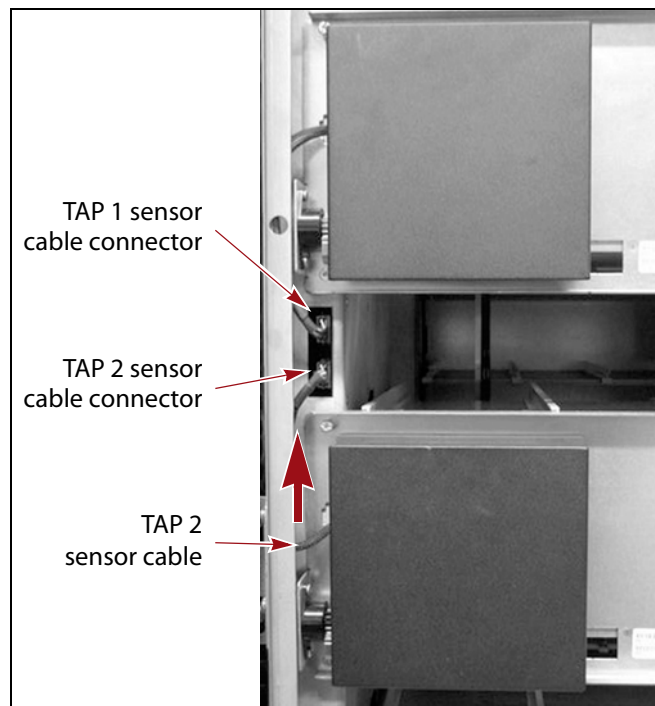
   Figure 30 Route the TAP 2 sensor cable up along the channel on the left side of the chassis.

2. Make sure that the cable fits snugly against the left side of the chassis.

⚠️ **Caution** Failure to fit the cable snugly against the left side of the chassis will cause it to interfere with the operation of the TAP door.

- Pull outward on the cable where it comes through the cutout on the left side of the door frame until it fits snugly against the left side of the chassis behind the TAP door frame and does not protrude out past the edge of the TAP door.

- **T200, T380, and TAP 1 in the T680**—Pull downward on the free end of the cable after guiding it behind the damping gear assembly to ensure that it fits flat in the channel behind the assembly.
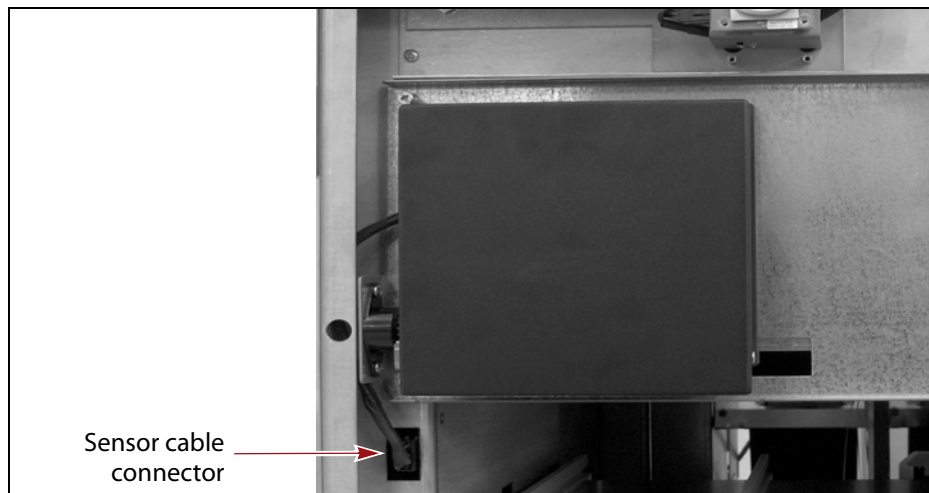
- **TAP 2 in the T680**—Make sure that the cable fits into the channel along the left edge of the chassis.

3. Orient the TAP cable connector with the locking tab to the left and plug it into the connector next to the TAP door.

Sensor cable connector

Figure 31 Connect the sensor cable.

Notes: ▪ The connector is keyed and only fits one way. Do not force it.

▪ **T680**—Connect the TAP 1 cable to the top connector. Connect the TAP 2 cable to the bottom connector.

4. Package the malfunctioning TAP for shipment to Spectra Logic as described in Return the Component on page 31.

COMPLETE THE REPLACEMENT

After you finish installing the new TAP, follow the steps in this section to complete the installation.

Install the Front Panel

1. Grasp the left and right edges of the front panel and lift it into position on the front of the chassis.

   a. Align the cutouts for the touch screen and the TAP with the front of the library.

   b. Insert the alignment pin on the bottom edge of the front panel into the corresponding hole in the bottom edge of the chassis.

   c. Fit the alignment pin on the top edge of the panel and the two nuts extending from the back of the front panel into the corresponding holes on the top and side edges of the chassis.

2. Make sure that the power button fits into the cutout in the front panel and that the front panel is flush against the front of the chassis.

⚠️ **Warning**   Some library components are heavy and could be awkward to handle. Use caution and proper equipment or two people to move these.
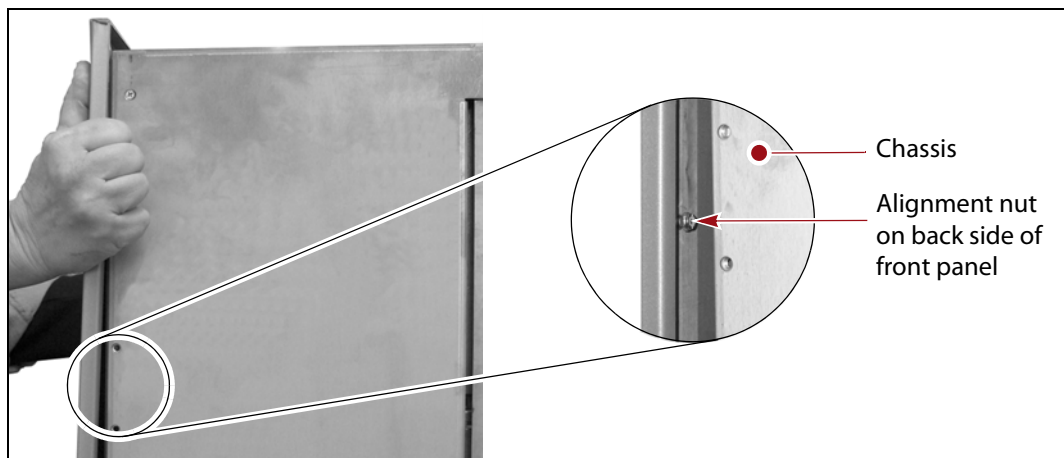
Figure 32 Install the front panel on the chassis.

3. Using your fingers or a #2 Phillips screwdriver, tighten the two knurled screws on the bottom of the library front cover, securing it to the chassis.

Positioning Slots

Knurled screws
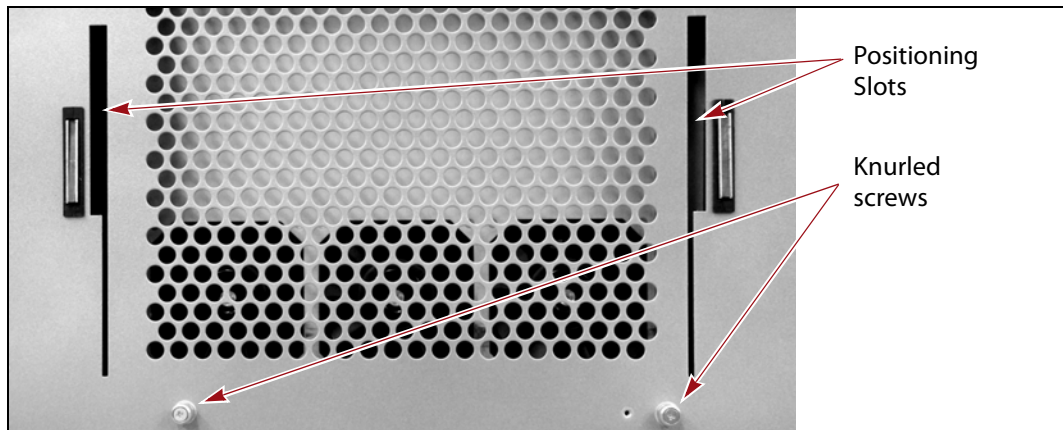
Figure 33 Tighten the front panel screws.

4. Position the tabs on the back of the filter cover over the slots in the front cover, as shown in Figure 33.

5. Engage the tabs with the slots in the front of the library, then slide the cover downward, as shown in Figure 34. Push the upper edge of the cover toward the front panel until the magnets secure it to the front panel.

Push inward

Tab

Slide downward
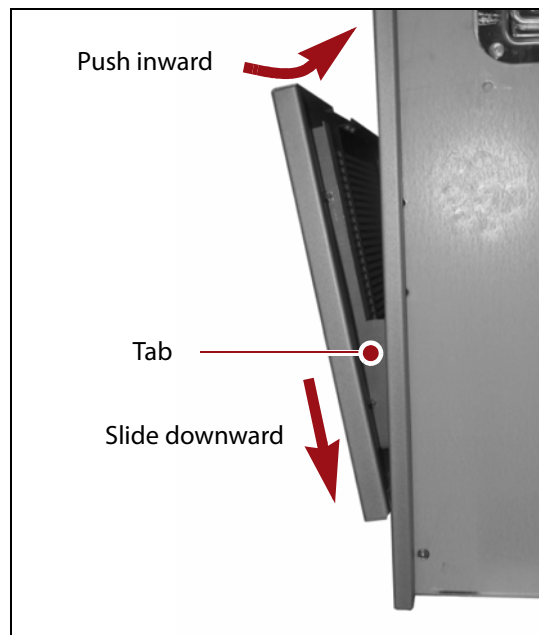
Figure 34 Install the filter cover.

Power On the Library

1. Connect the power cables to the library.

2. Set the main power switch on the library back panel to the on position (see Figure 4 on page 6). If you have a 2N redundant power configuration, turn on both power switches.

3. Press and hold the front panel power button for two to three seconds until the button's LED illuminates (see Figure 3 on page 6).

    Wait while the library completes its power-on sequence, which takes about five minutes (depending on the library configuration). During the power-on sequence, the library initializes all of its installed components.

4. Close the rack doors, if applicable.

Verify Magazine Barcodes

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 a list of advanced utilities.

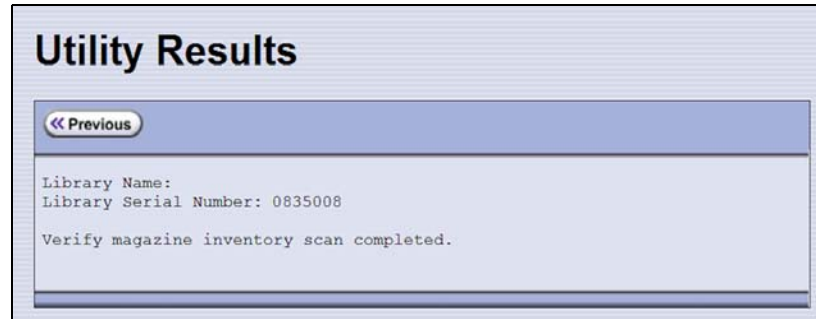5. Scroll down and select **Verify Magazine Barcodes**.

    The screen refreshes to show the details for the Verify Magazine Barcodes utility.

Figure 35 The Verify Magazine Barcodes Utility screen.

6. Click **Run Utility**. A progress screen displays while the utility runs.

7. When the operation is complete, the Utility Results screen displays.

Figure 36 The Utility Results screen.

Re-import Magazines and Update Inventory

If you removed magazines from the front of the library during the replacement procedure, re-import them using the library user interface and TAP. Refer to the *Spectra T200, T380, and T680 Libraries User Guide* for instructions, or contact Spectra Logic Technical Support for assistance.

This operation doubles as a test to verify that the replacement TAP is working correctly. If you replaced a TAP in the Spectra T680 library, make sure that you use the TAP you replaced to perform the import operation.

If you did not remove any magazines during the replacement procedure, use the BlueScale Import/Export screen on the library front panel to export a TeraPack magazine out of the library and then import it back into the library to confirm that the new TAP is functioning properly. Refer to the *Spectra T200, T380, and T680 Libraries User Guide* for instructions.

After you finish importing the magazines, update the software management system inventory.

Restart File Operations

Use your storage management software to restart any data storage processes that you stopped.

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 this 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's guidelines.

Return Procedure

Pack the defective component using ALL of the packaging material shipped with the replacement part (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.