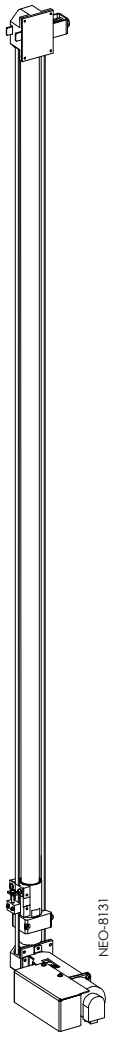
Overland Storage

NEO® 8000e Library Z-Axis Belt Drive Assembly

Remove & Replace Instructions



May 2014
10400594-001

©2014 Overland Storage, Inc. All rights reserved.

Overland®, Overland Data®, Overland Storage®, ARCvault®, DynamicRAID®, LibraryPro®, LoaderXpress®, Multi-SitePAC®, NEO®, NEO Series®, PowerLoader®, Protection OS®, REO®, REO 4000®, REO Series®, Snap Appliance®, Snap Care® (EU only), SnapServer®, StorAssure®, Ultamus®, VR2®, and XchangeNOW® are registered trademarks of Overland Storage, Inc.

GuardianOS™, RAINcloud™, RapidRebuild™, SnapDisk™, SnapEDR™, Snap Enterprise Data Replicator™, SnapExpansion™, SnapSAN™, SnapScale™, SnapServer DX Series™, SnapServer Manager™, and SnapWrite™ are trademarks of Overland Storage, Inc.

All other brand names or trademarks are the property of their respective owners.

The names of companies and individuals used in examples are fictitious and intended to illustrate the use of the software. Any resemblance to actual companies or individuals, whether past or present, is coincidental.

PROPRIETARY NOTICE

All information contained in or disclosed by this document is considered proprietary by Overland Storage. By accepting this material the recipient agrees that this material and the information contained therein are held in confidence and in trust and will not be used, reproduced in whole or in part, nor its contents revealed to others, except to meet the purpose for which it was delivered. It is understood that no right is conveyed to reproduce or have reproduced any item herein disclosed without express permission from Overland Storage.

Overland Storage provides this manual as is, without warranty of any kind, either expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Overland Storage may make improvements or changes in the product(s) or programs described in this manual at any time. These changes will be incorporated in new editions of this publication.

Overland Storage assumes no responsibility for the accuracy, completeness, sufficiency, or usefulness of this manual, nor for any problem that might arise from the use of the information in this manual.

Overland Storage, Inc.
9112 Spectrum Center Blvd.
San Diego, CA 92123
U.S.A.

Tel: 1.877.654.3429 (toll-free U.S.)
Tel: +1.858.571.5555, Option 5 (International)
Fax: +1.858.571.0982 (general)
Fax: +1.858.571.3664 (sales)
www.overlandstorage.com

Preface

This document guides you through the process of removing and replacing either a front or rear Belt Drive Assembly (BDA):

1. Chapter 1 describes preparing the library for a BDA removal.
2. Select the appropriate chapter for removing, and replacing the appropriate BDA:
   - Chapter 2 covers the removal and replacement of the of the front BDA.
   - Chapter 3 covers the removal and replacement of the of the rear BDA.
3. Chapter 4 deals with reassembling the library once the BDA is reinstalled.
4. Chapter 5 addresses the tests that must be run to prepare the library for reactivation.

Documentation

To access the *NEO 8000e User Guide*, visit:

http://docs.overlandstorage.com/neo

Overland Technical Support

For help configuring and using your NEO tape library, email our technical support staff at:

techsupport@overlandstorage.com.

You can get additional technical support information on the Contact Us web page at:

http://docs.overlandstorage.com/support

For a complete list of support times based on your type of coverage, visit our website at:

http://docs.overlandstorage.com/care

Software Updates

The latest release of the NEO 8000e firmware can be obtained from the Downloads and Resources (NEO Series) page at the Overland Storage website:

http://docs.overlandstorage.com/neo

Follow the appropriate instructions to download the **latest** software file. For additional assistance, search at http://support.overlandstorage.com/.

©2014 Overland Storage, Inc.

Conventions

This document exercises several alerts and typographical conventions.

Alerts

Convention	Description & Usage
IMPORTANT	An *Important* note is a type of note that provides information essential to the completion of a task or that can impact the product and its function.
CAUTION	A *Caution* contains information that the user needs to know to avoid damaging or permanently deleting data or causing physical damage to the hardware or system.
WARNING	A *Warning* contains information concerning personal safety. Failure to follow directions in the warning could result in bodily harm or death.
ADVERTISSEMENT	Un Canadien *avertissement* comme celui-ci contient des informations relatives à la sécurité personnelle. Ignorer les instructions dans l'avertissement peut entraîner des lésions corporelles ou la mort.

Typographical Conventions

Convention	Description & Usage
Button_name	Words in this special boldface font indicate the names of command buttons found in the Web Management Interface.
Ctrl-Alt-r	This type of format details the keys you press simultaneously. In this example, hold down the **Ctrl** and **Alt** keys and press the **r** key.
NOTE	A Note indicates neutral or positive information that emphasizes or supplements important points of the main text. A note supplies information that may apply only in special cases, for example, memory limitations or details that apply to specific program versions.
Menu Flow Indicator (**>**)	Words with a greater than sign between them indicate the flow of actions to accomplish a task. For example, **Setup > Passwords > User** indicates that you should press the **Setup** button, then the **Passwords** button, and finally the **User** button to accomplish a task.
Courier Italic	A variable for which you must substitute a value.
Courier Bold	Commands you enter in a command-line interface (CLI).

Information contained in this guide has been reviewed for accuracy, but not for product warranty because of the various environments, operating systems, or settings involved. Information and specifications may change without notice.

Electrostatic Discharge Information

A discharge of static electricity can damage micro-circuitry or static-sensitive devices. To help prevent Electrostatic Discharge (ESD) damage, observe these and other standard ESD precautions:

- Make sure you are always properly grounded.
- Keep the work area free of non-conductive materials.
- Avoid touching pins, leads, or circuitry.

©2014 Overland Storage, Inc.

Library Preparation

Overview

A Z-Axis Belt Drive Assembly (BDA) consists of a pole with belts and pulleys that move one end of the Shuttle Track Assembly vertically inside the library. There are two BDAs in every library (front and rear), each with slightly different overall assemblies. Each BDA has a Housing Assembly at each end of the pole to control the belt movement and tension.

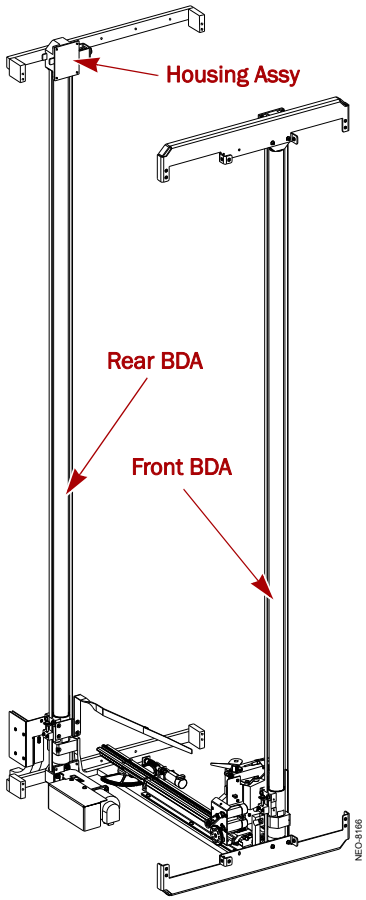


Figure 1-1: Front and Rear BDAs with Shuttle Track Between

This spare kit consists either a front or rear full BDA. Verify you have the correct version before continuing.

IMPORTANT: Overland Storage requires that the BDAs be removed and replaced by an Overland Storage authorized service provider. Improper installation may result in damage which voids existing warranties.

©2014 Overland Storage, Inc.

Unpacking the Retrofit Kit

> **CAUTION:** NEVER handle the BDA with your bare hands. Contamination from the oils on your skin can cause the BDA to stick. Always wear the provided cotton gloves.

Carefully unpack the new components noting how they are packed in the shipping carton. When this procedure is complete, repack the old parts in the same container for shipment back to Overland Storage. New screws are provided to replace the ones removed during this procedure.

Using the appropriate parts list, verify the kit includes all items.

Front BDA Parts List

Qty.	Bag #	Description	Where Used
1	–	Front Z-Axis BDA	NEO library
2	–	Cotton gloves	For handling the BDA
2	1	M3x8mm flathead Phillips screws	FPA bottom trim pieces
2	2	M4x8mm flathead Phillips screws	Top of FPA
6	3	M4x8mm panhead SEMS Phillips screws	4 – top & bottom of Z-Axis; 2 – bottom of FPA
1	4	1/4 x 5/16-inch hex-head shoulder screws	Track assembly bracket
2	5	1/4-inch flat washers	Track assembly bracket
1	–	*NEO 8000 Spare Z-Axis BDA Remove & Replace Instructions*	

Rear BDA Parts List

Qty	Bag #	Description	Where Used
1	–	Rear Z-Axis BDA	NEO library
2	–	Cotton gloves	For handling the BDA
2	1	M3x8mm flathead Phillips screws	FPA bottom trim pieces
9	2	M3x8mm panhead SEMS Phillips screws	4 – top-left access panel; 4 – bottom-left access panel; 1 – drive divider between bays 1 and 2.
4	3	M4x6mm flathead Phillips screws	2 – SPI bracket; 2 – Flex Cable bracket
2	4	M4x8mm flathead Phillips screws	Top of FPA
6	5	M4x8mm panhead SEMS Phillips screws	4 – bay 11 drive plate (if used); 2 – bottom of FPA
4	6	M4x16mm panhead Phillips screws	Top & bottom of Z-Axis
1	7	1/4 x 5/16-inch hex-head shoulder screws	Track assembly bracket
2	8	1/4-inch flat washers	Track assembly bracket
4	9	M4 cup washers	Top & bottom of Z-Axis
3	10	2.8-inch cable ties (1 extra)	Rotary Motor and Optical Sensor cables
4	11	3.9-inch cable ties (2 extra)	Shuttle flex cable
1	12	Metal cable clip	Shuttle flex cable
1	–	*NEO 8000 Spare Z-Axis BDA Remove & Replace Instructions*	

©2014 Overland Storage, Inc.

Required Tools

These tools are required for the proper removal and replacement of the BDAs:

- #1 and #2 Phillips screwdrivers (with torque handle, if available)
- #2 stubby Phillips screwdriver
- 5/8-inch open-ended wrench
- 1/8-inch hex key
- 3mm ballhead hex key
- LOCTITE
- Torque Seal
- Flashlight

These tools are required only if you need to level the library:

- 6- or 10-inch Spirit Level (15cm or 25cm)
- 10-inch Adjustable Wrench (260mm)

Prepare the Library for Access

WARNING: This procedure requires the handling of large, heavy, awkward components. Use care when handling these components to prevent personal injury or damage to the components.

AVERTISSEMENT: Cette procédure nécessite la manipulation de grosses et lourdes, des composants difficiles. Faire preuve de prudence lors de la manipulation de ces composants pour éviter des blessures ou des dommages aux composants.

To simplify the replacement of the BDA, remove the Front Panel Assembly (FPA) and other key components to provide easier access or visibility to the inside of the library (Figure 1-2).

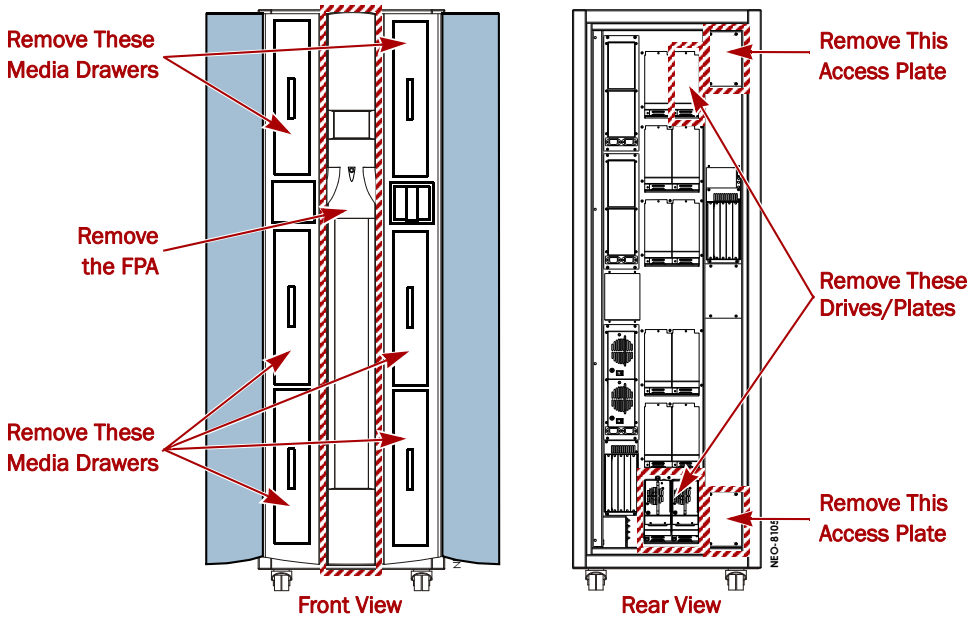


Figure 1-2: Access Plates and Components That Need To Be Removed

©2014 Overland Storage, Inc.

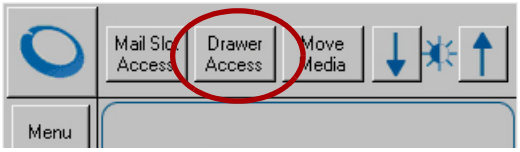
Prepare Media Drawers for Removal

WARNING: Exercise care when removing the media drawers from the library units. Fully-loaded drawers weigh approximately 58 pounds (26.3 kg). Also, when the drawers are removed, the inner rails extend several inches beyond the back of the drawers. Tilting the drawers can result in the tapes falling out. Opening several drawers at once is a tip hazard.

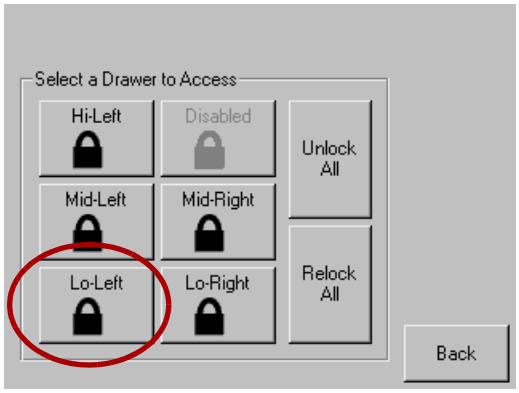
AVERTISSEMENT: Soyez prudent lorsque vous retirez les tiroirs de support des unités de bibliothèque. À pleine charge tiroirs pèsent environ 26,3 kg. En outre, lorsque les tiroirs sont enlevés, les rails intérieurs s'étendent au-delà de quelques centimètres à l'arrière des tiroirs. Inclinant les tiroirs peuvent se traduire par des bandes de tomber. Ouverture de plusieurs tiroirs à la fois un danger pointe.

1. **Label** all the drawers (so they can be returned to their correct positions).
2. Move the **library robotics** to the Home position on the floor:
   a. At the front panel, select **Drawer Access** (and password, if active)**.**

   NOTE: If the library is partitioned, a partition selection options is displayed before the access option screen.



   b. Select the **Lo-Left drawer** to unlock it.



   c. Pull out the **drawer** a couple of inches and then push it all the way back in.
   The drawer automatically relocks.

   d. Press **Back**.
   The library scans the drawer and then the robotics drops to the Home position on the floor with the picker facing the correct direction to continue.

3. At the front panel, select **Drawer Access** (and password, if active) **> Unlock All** to release all the media drawers.

   NOTE: If the library is partitioned, a partition selection options is displayed before the access option screen.

4. Pull **each drawer** out about 2 inches (5cm).

©2014 Overland Storage, Inc.

Power Down the Library

WARNING: Working with a powered NEO 8000e library may cause physical harm and severe damage to the unit's circuitry. Always power down a library before removing components.

AVERTISSEMENT: Travailler avec un moteur NEO 8000e bibliothèque peut causer des dommages physiques et de graves dommages aux circuits de l'appareil. Toujours mettre hors tension avant de retirer une bibliothèque des composants.

1. At the rear, move the library circuit breakers to the **OFF** ("O") position (Figure 1-3).
2. **Remove** and retain the external power cords.

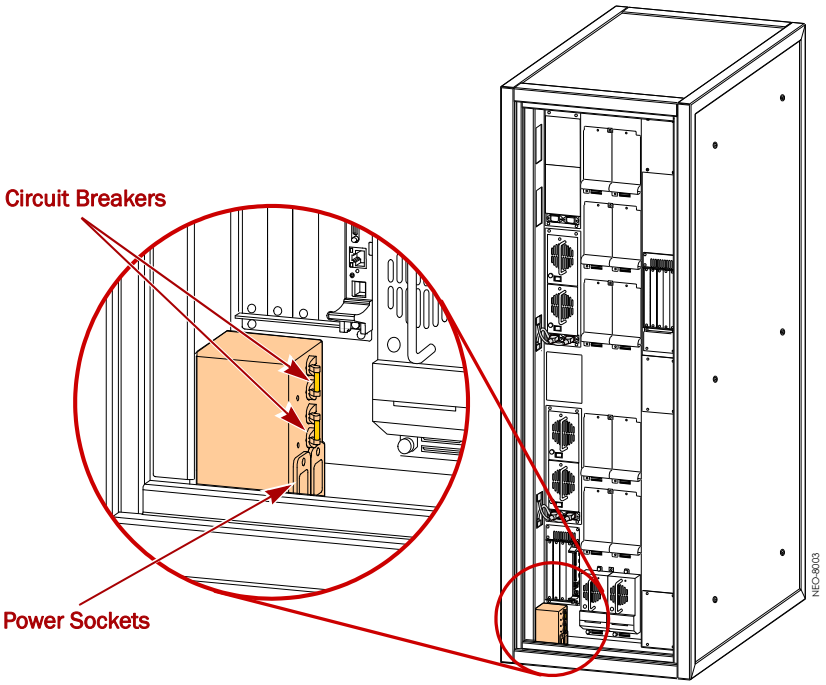


Figure 1-3: Circuit Breaker and Power Cord Locations

IMPORTANT: The shuttle should now be positioned at the front of the track assembly with the track assembly on the bottom. If not, contact Overland Technical Support.

©2014 Overland Storage, Inc.

Remove Media Drawers

1. Remove **each** media drawer:
   a. Pull the **drawer** out until it stops.

   IMPORTANT: If removing tapes to minimize the weight on a partitioned library, be sure to keep them together on a secure surface and labeled so they can be returned to the same drawer.

   b. Press the **drawer release** and slide the drawer out a couple of more inches.
   c. Carefully remove the **drawer** and set it aside.
2. For safety, slide the **rails** back into the unit using the rear release button.

Remove Panels for Access

The BDAs are removed through the front of the library. To access the Rear BDA screws, it is also necessary to remove some tape drives and panels from the library rear.

CAUTION: Always follow ESD protocols when working with or around the PWA printed circuit boards.

Front Panel Assembly Removal

1. For the older NEO 8000, remove the **trim pieces** at the drawer opening bottoms:

   NOTE: On the newer NEO 8000e, the bottom FPA screws are located in front of the trim pieces.

   a. At the left bottom rack cover trim piece, remove the **screw** attaching it to the FPA (Figure 1-4).

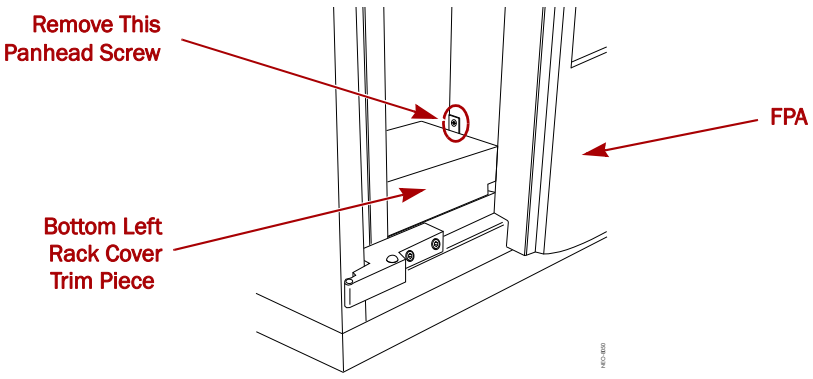


Figure 1-4: Remove the Bottom Left Rack Cover Trim

   b. Push the **trim piece** back and up to remove it.
   c. Repeat Steps a–b for the **right** bottom trim piece.
2. On the back side of the FPA, remove the **J3 connector** at the top of the front panel PWA (Figure 1-5).

©2014 Overland Storage, Inc.

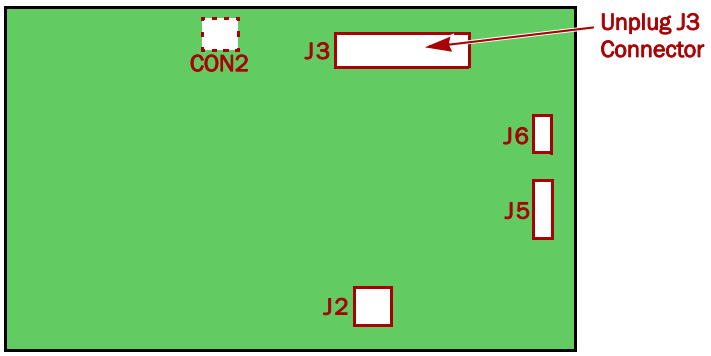


Figure 1-5: Location of the J3 Front Panel PWA Connector (Rear View)

3. Open the **retainer clamps** above the PWA to release the J3 cable from the FPA.
4. At the base of the FPA, remove the **panhead screws** on both sides (Figure 1-6).

IMPORTANT: If you are keeping the old screws as backups, keep the top and bottom sets of screws separate. The FLATHEAD screws must be used at the TOP to prevent interference with the operation of the top drawers.

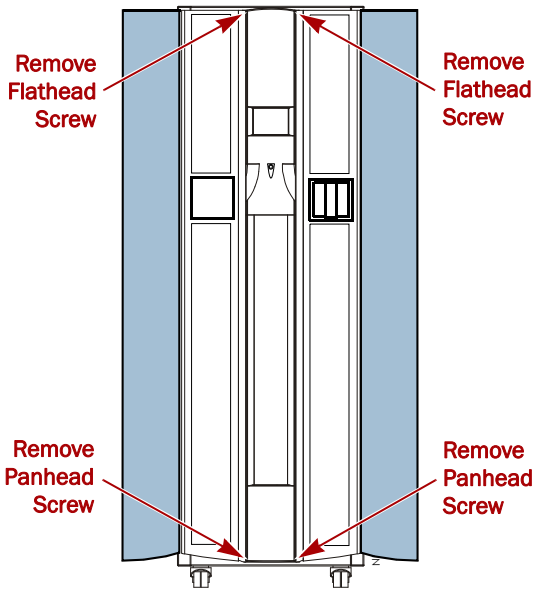


Figure 1-6: Front Panel Assembly Screw Locations

5. Supporting the FPA, remove the **flathead screws** at the top on each side.
6. Carefully remove the **FPA** and set it on a secure surface.

Rear Access Panel Removal (for Rear BDA Only)

1. Facing the rear of the library (Figure 1-7), remove and retain:
   - The **top-right** access panel
   - The **bottom-right** access panel

©2014 Overland Storage, Inc.

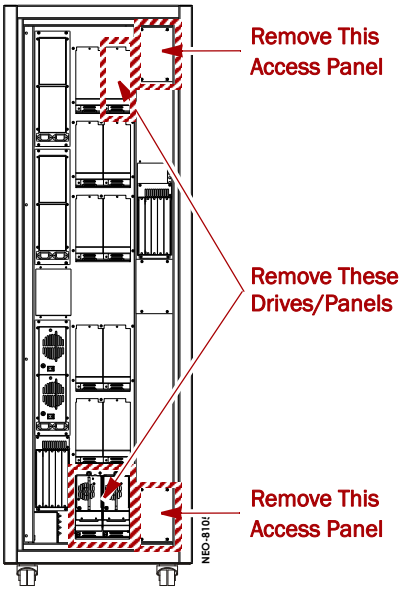


Figure 1-7: Remove Rear Panels or Drives for Rear BDA Replacement

2. Remove the **drives** (or drive panels) for **drive bays 1, 2,** and **11**.
3. Remove the **drive divider** between drive bays **1 and 2**.

Next Step

Depending on which BDA is being retrofitted, proceed to one of these chapters:

- For the Front BDA, complete Chapter 2, "Front BDA Retrofit."
- For the Rear BDA, complete Chapter 3, "Rear BDA Retrofit."

©2014 Overland Storage, Inc.

Chapter 2

Front BDA Retrofit

Each new BDA comes ready to install. This chapter focuses on replacing the front BDA. To replace the rear BDA, go to Chapter 3, "Rear BDA Retrofit."

Remove the Front BDA

1. Put on the supplied **cotton gloves**.

> **IMPORTANT:** Always wear the supplied cotton gloves while working around the BDA to prevent contamination of the guide pole.

2. Disconnect the **BDA drive wiring**:

   a. At the front, remove and retain the **two screws** securing the Drive PWA cover (Figure 2-1).

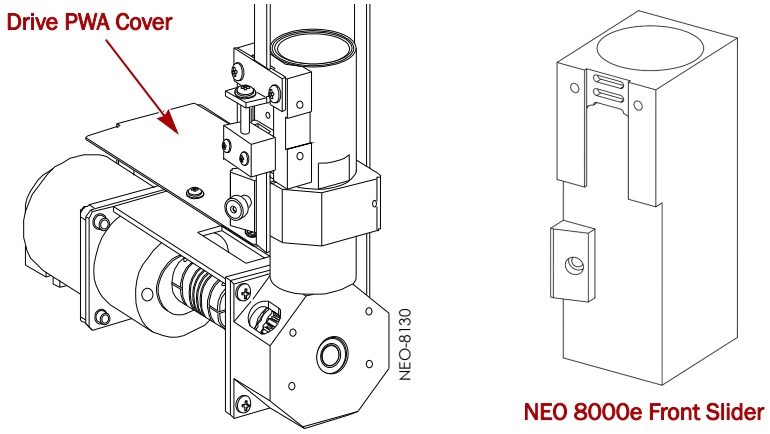


Figure 2-1: Front BDA Drive PWA Location

   b. Unplug the **J2, J3,** and **J4** connectors from the Drive PWA (Figure 2-2).

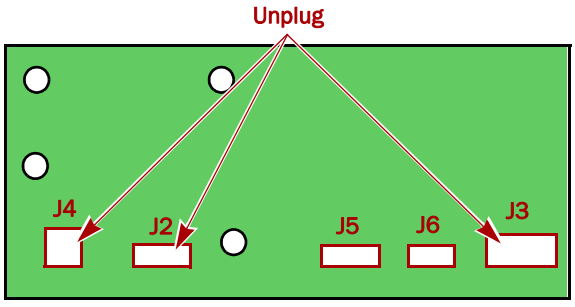


Figure 2-2: Unplug the J2, J3, and J4 Drive PWA Connectors

©2014 Overland Storage, Inc.

c. For protection, loosely reattach the **cover** for the Drive PWA using the retained screws (don't fully tighten).

3. Detach the **track assembly bracket** from the BDA (Figure 2-3).

a. If necessary, push the **shuttle assembly** to the center of the track assembly to provide room.

b. Using the 1/8-inch hex key, remove and discard the **shoulder screw** and **washers**.

c. Set the **track assembly** on the floor of the library.

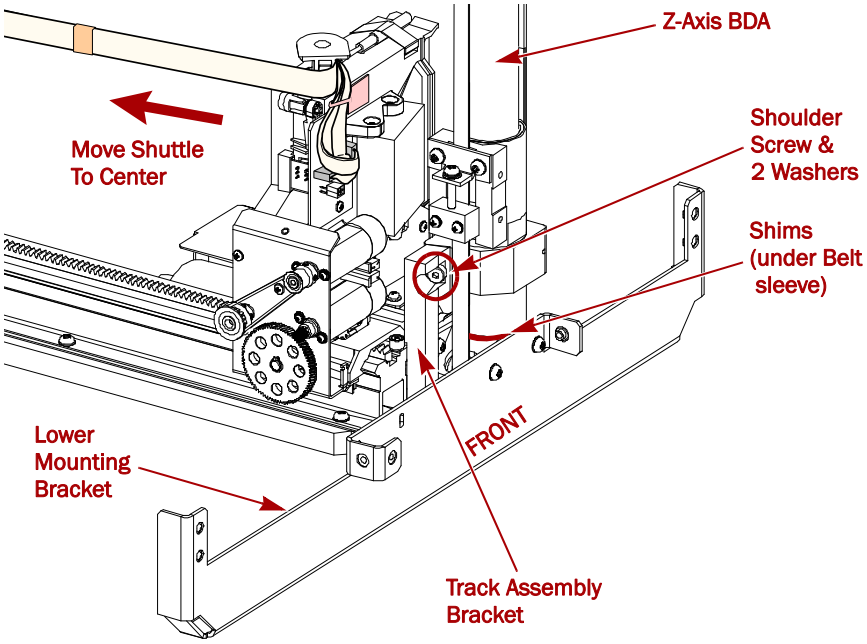


Figure 2-3: Location of Key Items

4. Remove the **two screws** holding the BDA to the **lower** mounting bracket.

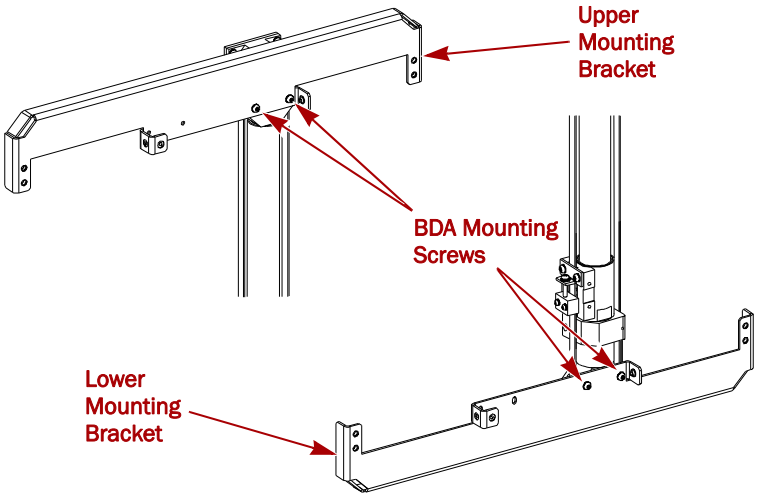


Figure 2-4: UHA and LHA Mounting Screws

5. Supporting the BDA while wearing the gloves, remove the **two screws** from the **upper** mounting bracket.

©2014 Overland Storage, Inc.

6. Remove the BDA by moving the **top** of the BDA to the **left**, and then move the **bottom** slightly to the **right** (to clear the mounting brackets) and then toward the rear.
7. Lay the BDA on a **clean, secure** surface.

Install the New Front BDA

IMPORTANT: Always wear the supplied cotton gloves while working around the BDA to prevent contamination of the guide pole.

1. Holding the top of the BDA to the left and the bottom slightly to the right, **insert the assembly** into the library.
2. Supporting the **BDA**, secure it in the library as follows:

   CAUTION: Use care in installing the new screws that hold the BDA. They are critical to the positioning and alignment of the BDA. DO NOT STRIP THE THREADS!

   a. Use **two new M4x8mm panhead SEMS screws** to loosely (fingertight) reattach it to the **top** mounting bracket.
   b. Use **two new M4x8mm panhead SEMS screws** to loosely (fingertight) reattach the BDA to the **bottom** mounting bracket.
   c. Tighten all **four BDA screws** (9 lbs. torque).
   d. Apply **torque seal** to all four BDA screws.
3. Reattach the **track assembly** to the BDA:
   a. Be sure there are **two 1/4-inch washers** on the new bracket shoulder screw.
   b. Apply **LOCTITE** to the threads of the **new 1/4 x 5/16-inch shoulder screw**.
   c. Using the 1/8-inch hex key and the new screw and washers, reattach the **track assembly bracket** to the BDA (Figure 2-5).

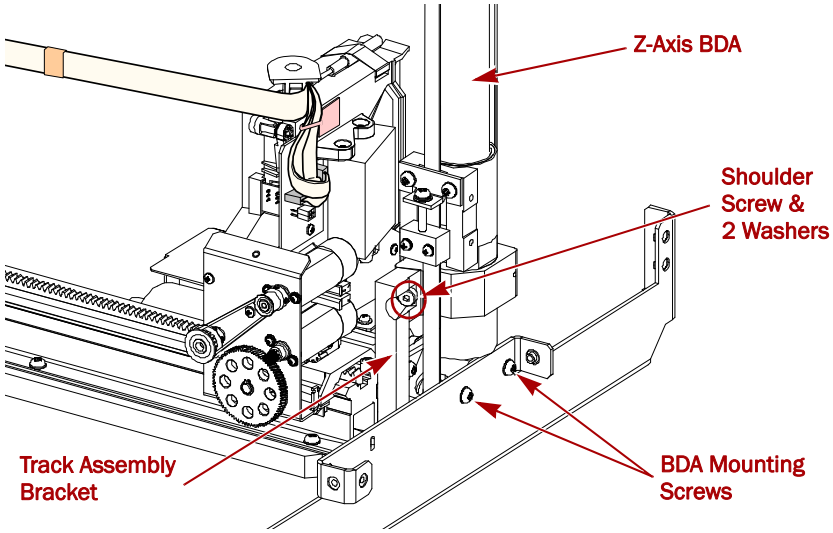


Figure 2-5: Location of the 1/8" Hex Shoulder Screw

4. Attach the Drive PWA **cables** to the new BDA:

©2014 Overland Storage, Inc.

a. Remove and retain the **two screws** on the **Drive PWA cover**, and set it aside.

b. On the Drive PWA, reattach the **J2, J3,** and **J4** cables (Figure 2-6).

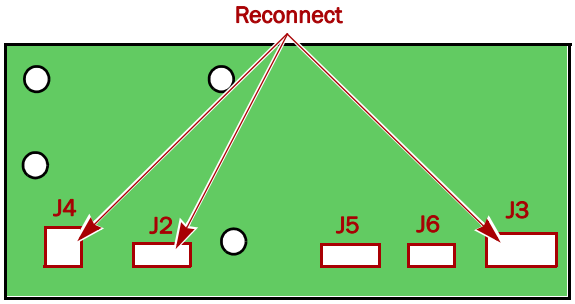


Figure 2-6: Reattach the J2, J3, and J4 Drive PWA Connectors

c. Use the **two retained screws** to reattach the Drive PWA cover.

5. Inspect and, if necessary, very carefully clean the **BDA guide pole** using a clean, dry, lint-free cloth.

To clean the pole, wrap the cloth around the pole (Figure 2-7) and holding the ends together, slide it up and down.

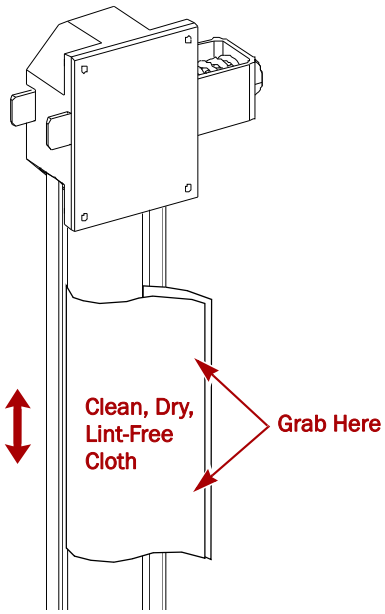


Figure 2-7: Wiping the BDA Pole with Clean, Dry, Lint-Free Cloth

CAUTION: Fingerprints and other contaminants can cause premature failure of the assembly.

Next Step

Proceed to Chapter 4, "Reassemble the Library."

©2014 Overland Storage, Inc.

Chapter 3

Rear BDA Retrofit

Each new BDA comes ready to install. This chapter focuses on replacing the rear BDA. To retrofit the front BDA, go to Chapter 2, "Front BDA Retrofit."

Remove the Rear BDA

The Rotary SPI PWA and Flex Cable Support brackets need to be removed from the rear BDA before it can be replaced (Figure 3-1).

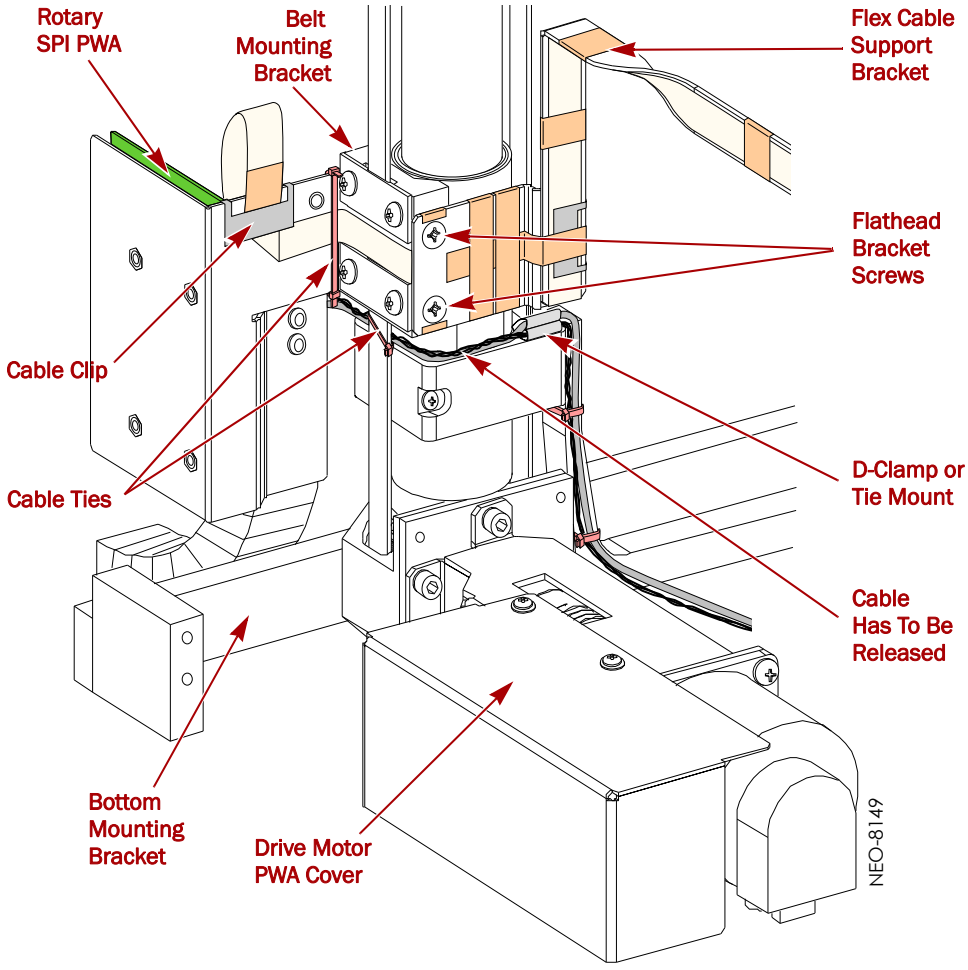


Figure 3-1: Base of Rear BDA and Connected Components

©2014 Overland Storage, Inc.

1. Put on the supplied **cotton gloves**.

> **IMPORTANT:** Always wear the supplied cotton gloves while working around the BDA to prevent contamination of the guide pole.

2. Disconnect the **BDA drive**:
   a. At the rear, remove and retain the **two screws** on the rear Drive PWA cover.
   b. Unplug the **J2, J3,** and **J4** connectors from the Drive PWA (Figure 3-2).

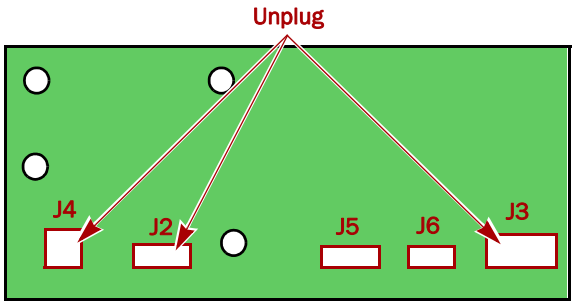


Figure 3-2: Unplug the J2, J3, and J4 Drive PWA Connectors

   c. Reattach the **cover** the Drive PWA using the retained screws.

3. Disconnect all **BDA cabling**:
   a. At the rear of the BDA base, unplug the **J3**, **J4**, **J6**, and **J7** connectors from the Rotary SPI PWA (Figure 3-3).

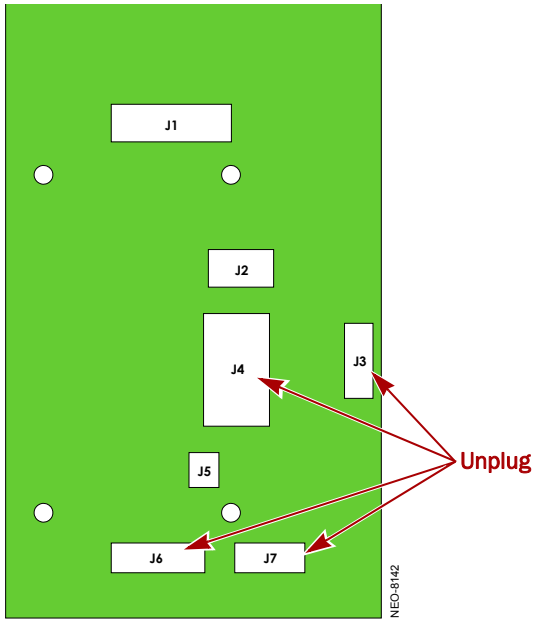


Figure 3-3: Location of the Rotary SPI PWA Connectors

©2014 Overland Storage, Inc.

b. Remove the **cable clip** and cut the **two cable ties** holding the Shuttle Signal cable to the Rotary SPI PWA mounting bracket.

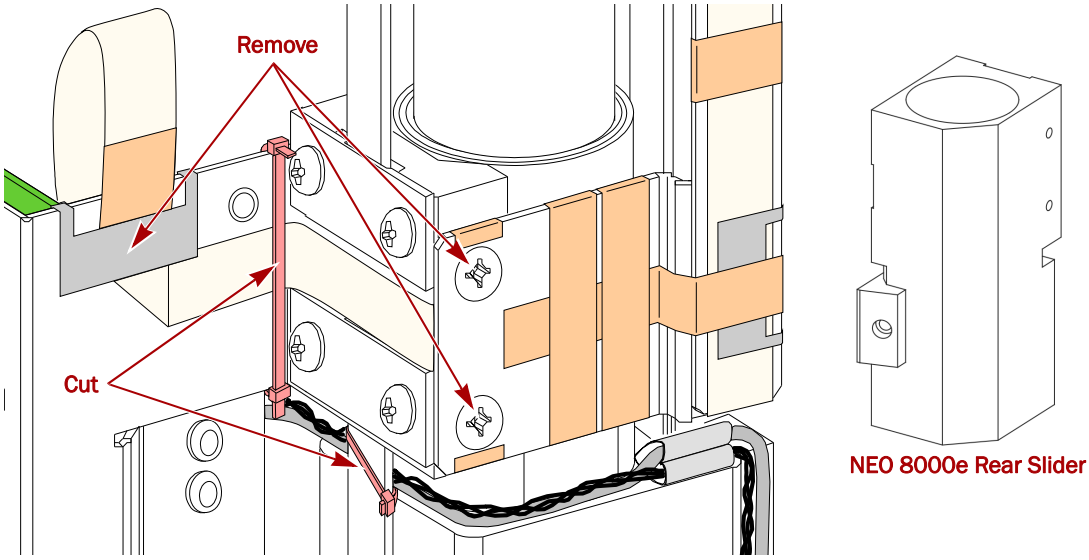


Figure 3-4: Clip, Cable Ties, and Screws to be Removed

c. From the front, remove the **two screws** holding the Flex Cable Support bracket to the Shuttle Mount Assembly (SMA).

CAUTION: Carefully lay the bracket and cables down on the bottom of the library. DO NOT BEND the flex cable.

d. From the rear, remove the **two screws** holding the Rotary SPI PWA mounting bracket to the SMA.

Lay the bracket and cables down on the bottom of the library.

e. Carefully remove the **Rotary Motor and Optical Sensor cables** from under the SMA and move them to the front removing them from the D-clamp or cutting the cable tie from the mount.

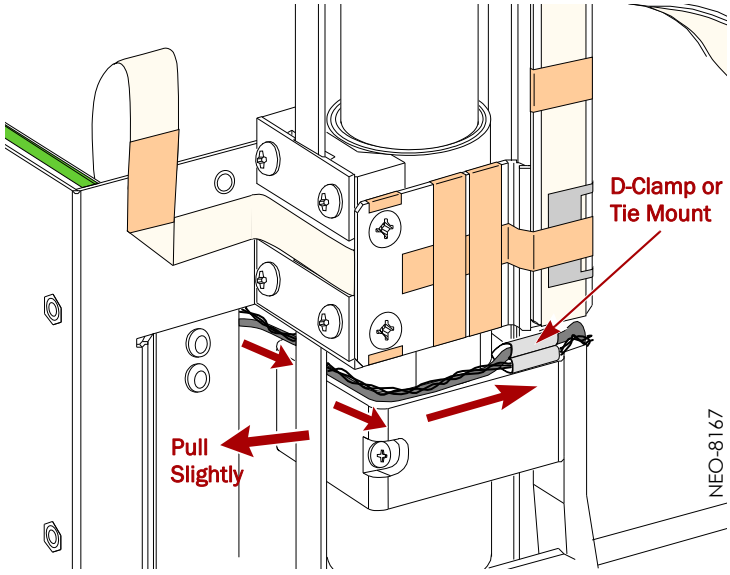


Figure 3-5: Remove the Rotary Motor Cable and Optical Sensor Cable

©2014 Overland Storage, Inc.

4. Detach the **track assembly bracket** from the BDA (Figure 3-6).
   a. If necessary, push the **shuttle assembly** to the center of the track assembly to provide room.
   b. Using the 1/8-inch hex key, remove and discard the **shoulder screw** and **washers**.
   c. Set the **track assembly** on the floor of the library.

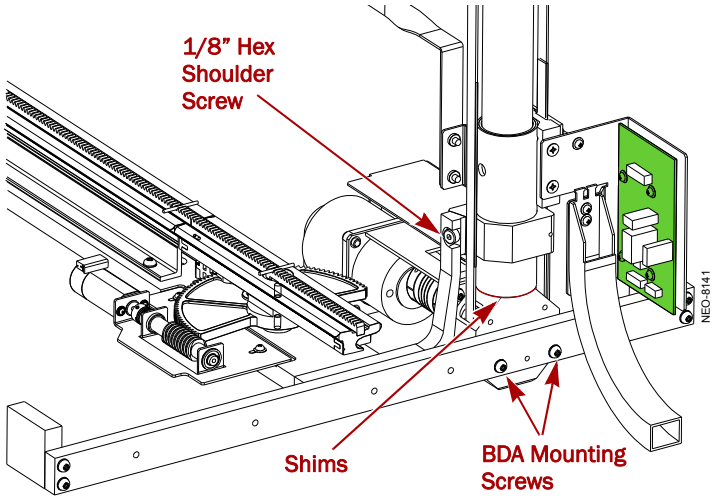


Figure 3-6: Rear View of Rear BDA and Track Assembly

5. From the rear, remove the **two screws** holding the BDA to the **bottom** mounting bracket.
6. Supporting the BDA while wearing cotton gloves, remove the **top two screws** from the **upper** mounting bracket.
7. Tilting the BDA to clear all the internal components, carefully remove the **BDA assembly** from the library.
8. Lay the BDA on a **clean, secure** surface.

Install the New Rear BDA

IMPORTANT: Always wear the supplied cotton gloves while working around the BDA to prevent contamination of the guide pole.

1. From the front, loosen by one turn, each of the **front screws** holding the top cross bracket (Figure 3-7) to the vertical braces.

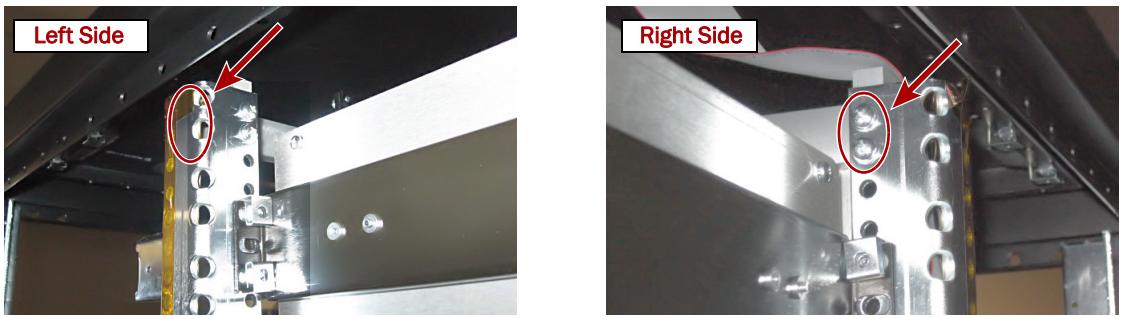


Figure 3-7: Front Top Cross Bracket Screw Locations

©2014 Overland Storage, Inc.

2. Then loosen by one turn each the **rear four screws** along the cross bracket back side (Figure 3-8) that hold the power supply frame.

   You may have to remove the drive or plate in bay 12 to access these screws.

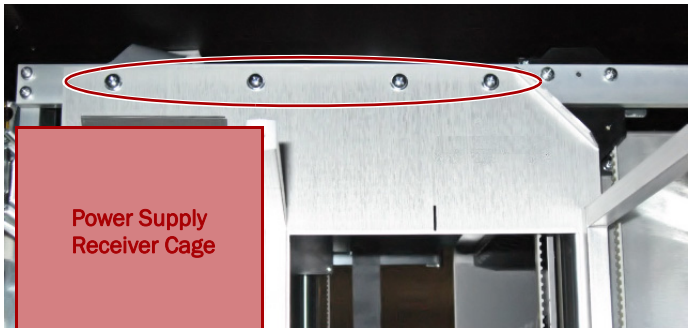


Figure 3-8: Rear Top Cross Bracket Screw Locations

3. Tilting the BDA to clear all the internal components, carefully insert the **rear BDA** into the library.
4. Supporting the **BDA**, secure it in the library as follows:

> CAUTION: Use care in installing the new screws that hold the BDA. They are critical to the positioning and alignment of the BDA. DO NOT STRIP THE THREADS!

   a. Use **two new M4x16mm panhead screws** with **M4 cup washers** to loosely (fingertight) reattach it to the **top** mounting bracket.

      If needed, insert a screw into the mounting bracket and move the BDA up to it.

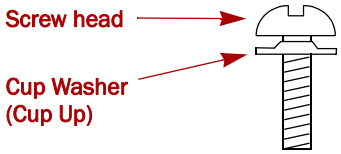


Figure 3-9: Rear BDA Screw and Cup Washer Assembly (Cup Up)

   b. Use **two new M4x16mm panhead screws** with **M4 cup washers** to loosely (fingertight) reattach the BDA to the **bottom** mounting bracket.

   c. Tighten all **four BDA screws** (9 lbs. torque).

   d. Apply **torque seal** to all four BDA screws.

5. Retighten the **eight screws** holding the top of the cross bracket that were loosened earlier.
6. Reattach the **track assembly**:

   a. Be sure there are **two 1/4-inch washers** on the new bracket shoulder screw.

   b. Apply **LOCTITE** to the threads of the **new 1/4 x 5/16-inch shoulder screw**.

©2014 Overland Storage, Inc.

c. Using the 1/8-inch hex key and the new screw and washers, reattach the **track assembly bracket** to the BDA (Figure 3-10).

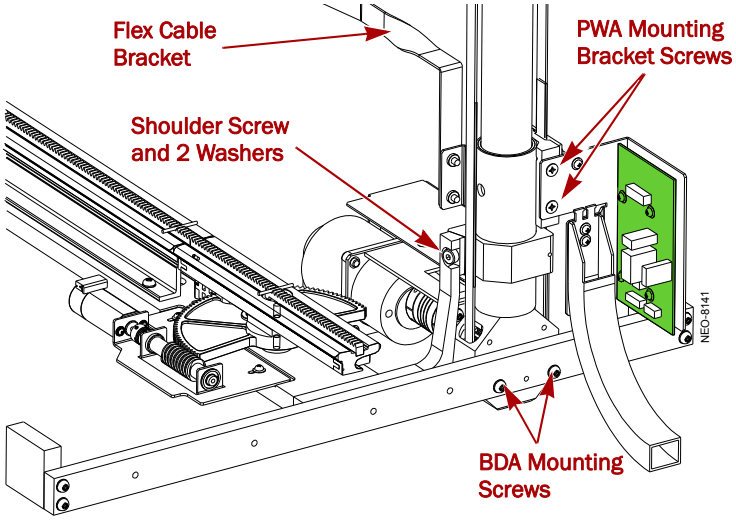


Figure 3-10: Reinstall Track Assembly to New Rear BDA

d. From the rear, use the **two new M4x6mm flathead screws** to reattach the Rotary SPI PWA mounting bracket to the SMA.

e. From the front, use the **two new M4x6mm flathead screws** to reattach the Flex Cable support bracket to the SMA.

CAUTION: Verify that the Flex cable is straight and correctly wrapped about the shuttle spooler before securing it to the bracket (Figure 3-11).

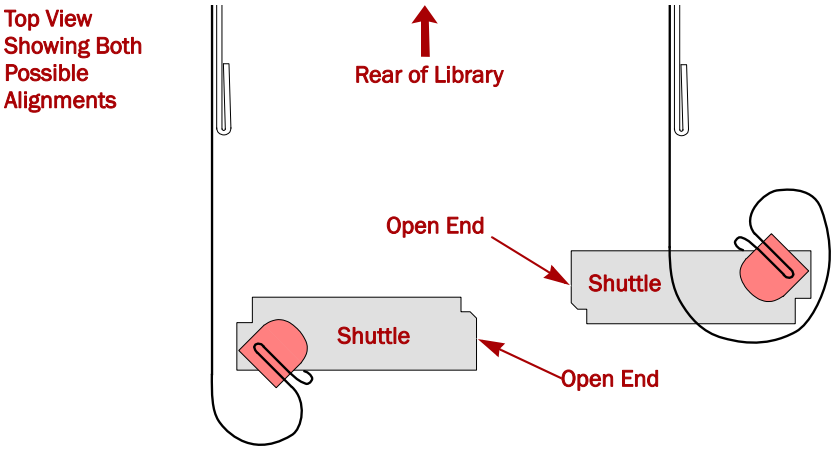


Figure 3-11: Verify Flex Cable Wrapped Correctly Around Shuttle Spooler

7. Reattach the **cables**:

a. Carefully route the **Rotary Motor and Optical Sensor cables** under the SMA and to the rear under the belt.

b. Using a **new 2.8" cable tie** to attach them to the tie mount on the new BDA.

©2014 Overland Storage, Inc.

c. Loop a **new 2.8" cable tie** around the belt pulley cable (where it attaches to the SMA) and **Rotary Motor and Optical Sensor** cables (Figure 3-12).

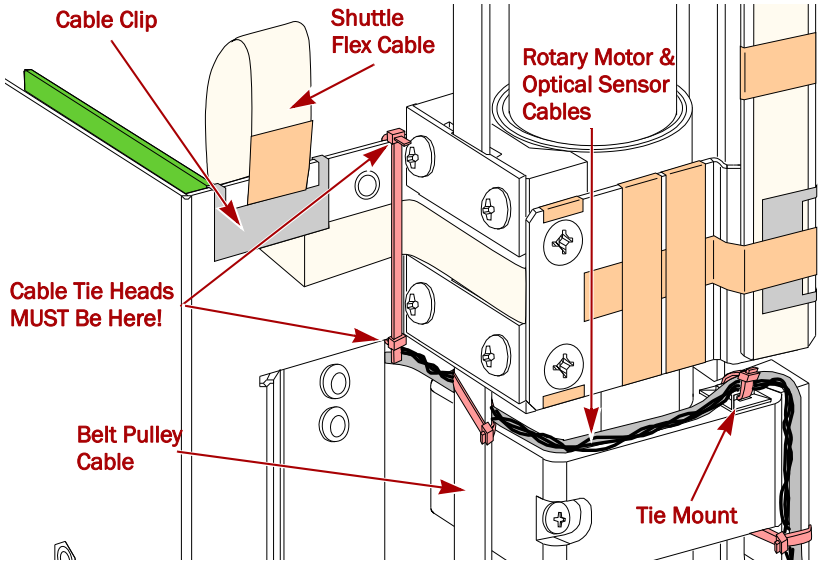


Figure 3-12: Securing the Cables with New Cable Ties

d. Loop a **new cable tie assembly (two 3.9" ties)** around the Shuttle Signal cable and the SMA to secure the cable.

IMPORTANT: For the Shuttle Signal cable, stick one 3.9" cable tie in the head of the other tie until it just connects. Position the head of one tie at the top and the other tie at the bottom. Insert the second tie into the other head. Keeping the heads in position so that the Shuttle Signal cable is flush against the bracket, tighten the ties.

e. Reposition the **Shuttle Flex cable** on the front of the Rotary SPI PWA mounting bracket and reattach it using the **new cable clip**.

©2014 Overland Storage, Inc.

8. With the Flex cables cleanly looped over the bracket, attach the cables to the **Rotary SPI** (Figure 3-13):

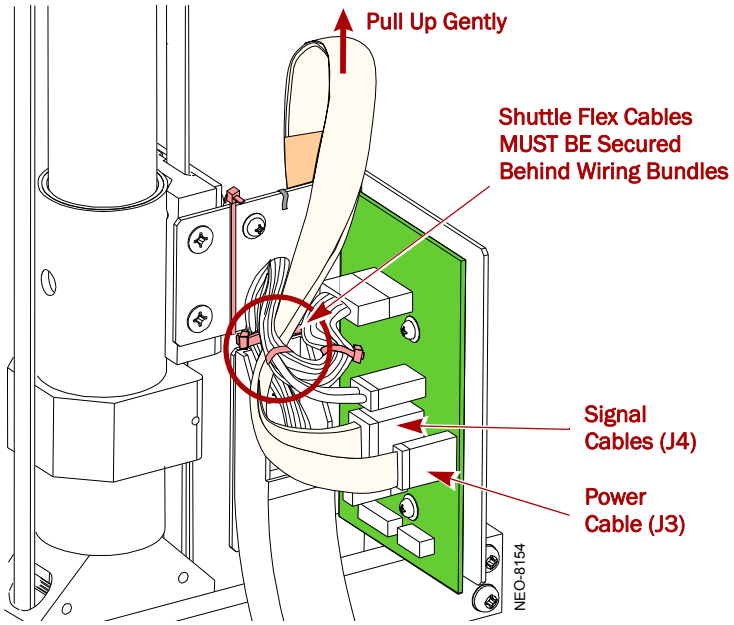


Figure 3-13: Reattach Cables to Rotary SPI PWA

   a. Run the Shuttle Flex cables **behind the Power wiring** to hold them in place.
   b. Connect the **Signal Controller cable** to **J4**.
   c. Connect the shuttle **Power cable** to **J3**.
   d. Gently pull the cable **loop** up until the cables are fully inside the wiring bundles.

9. Reattach the **J6** and **J7** connectors to the appropriate sockets.

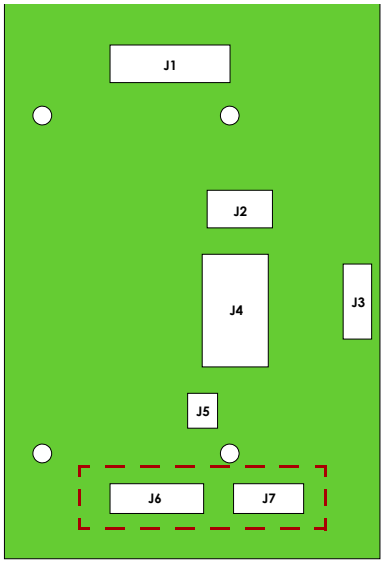


Figure 3-14: Reattach J6 and J7 Cables

10. Reattach the Drive PWA **cables** to the new BDA:

   a. Remove and retain the **two screws** on the **Drive PWA cover**, and set it aside.

©2014 Overland Storage, Inc.

b. On the Drive PWA, reattach the **J2, J3,** and **J4** cables (Figure 3-15).

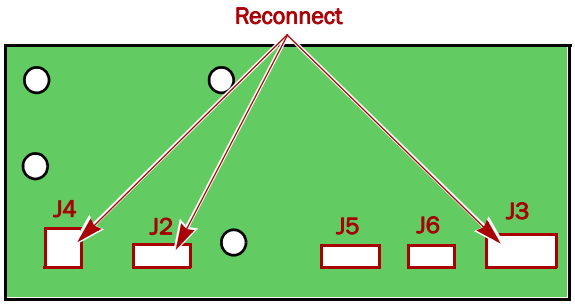


Figure 3-15: Reattach the J2, J3, and J4 Drive PWA Connectors

c. Use the **two retained screws** to reattach the Drive PWA cover.

11. Inspect and clean, if necessary, the **BDA guide pole** very carefully using a clean, dry, lint-free cloth.

To clean the pole, wrap the cloth around the pole (Figure 3-16 on page 3-25) and holding the ends together, slide it up and down.

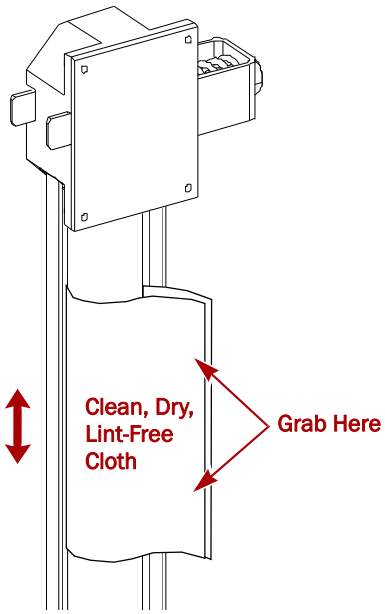


Figure 3-16: Wiping the BDA Pole with Clean, Dry, Lint-Free Cloth

CAUTION: Fingerprints and other contaminants can cause premature failure of the assembly.

Next Step

Proceed to Chapter 4, "Reassemble the Library."

©2014 Overland Storage, Inc.

©2014 Overland Storage, Inc.

Reassemble the Library

Once the retrofitted BDA is back in place, you are ready to reassemble the library.

Reinstall the Library Panels and Components

You need to reinstall all the components removed to provide easier access.

Rear Access Panels (Rear BDA Only)

1. Reinstall the **top-left** access panel using **four new M3x8mm flathead SEMS screws.**
2. Reinstall the **bottom-left** access panel using **four new M3x8mm flathead SEMS screws.**
3. Reinstall the **top drive (or plate)** using **four new M4x8mm panhead SEMS screws**.
4. Reinstall the **drive divider** between drive bays 1 and 2 using **one new M3x8mm panhead SEMS screws**.
5. Reinstall drives (or drive panels) for **drive bays 1, 2,** and **11**. Reconnect any cables previously removed (Figure 4-1).

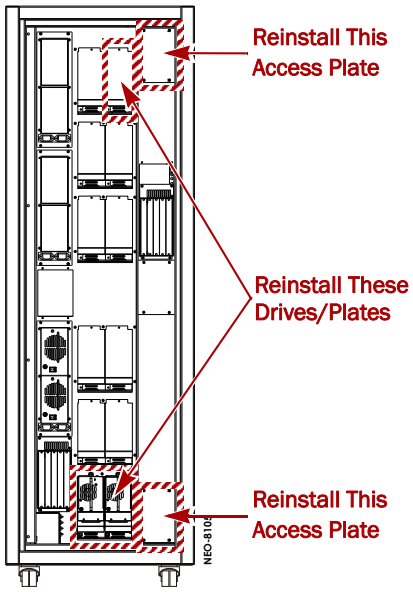


Figure 4-1: Reinstall Rear Panels or Drives

©2014 Overland Storage, Inc.

Front Panel Assembly

1. Supporting the FPA next to its normal position, reattach the **J3 connector** at the top of the front panel PWA.
2. Insert the **J3 cable** back into the retainers on the back side of FPA.
3. Supporting the FPA in its normal position, use **two new M4x8mm flathead screws** at the top on each side to reattach the FPA.

   NOTE: Only use the flathead screws when fastening the top of the FPA to the library to prevent interference with the operation of the drawers.

4. At the base of the FPA, use **two new M4x8mm panhead SEMS screws** on each side to secure the FPA.
5. For the older NEO 8000, reattach the bottom trim pieces:
   a. At the bottom from the inside, push the **left cover** trim piece forward and down to reinsert it.
   b. Use **one new M3x8mm panhead screw** to reattach the trim piece to the FPA.
   c. Repeat Steps a–b for the **right cover** trim piece using a **new M3x8mm panhead screw**.
6. Reach inside at the top of the FPA and move the **J3 cable behind** the BDA top tensioner to keep it out of the way of the robotics.

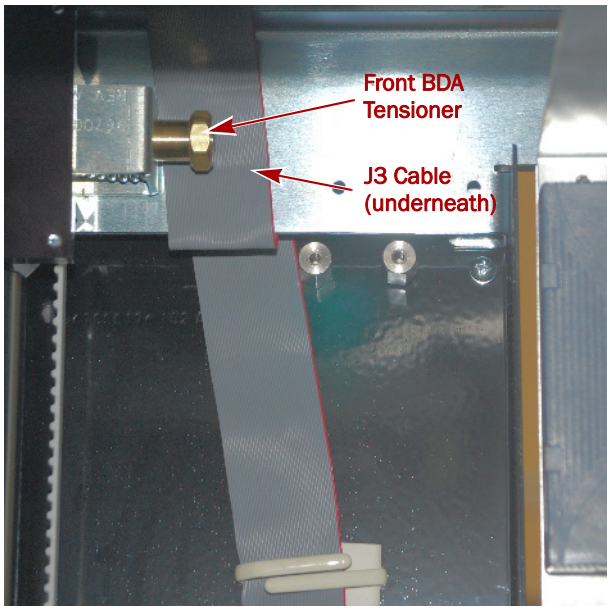


Figure 4-2: Position the J3 Cable Behind the Tensioner

©2014 Overland Storage, Inc.

Media Drawers

NOTE: Verify that the tape media is flush in the drawers before pushing them into the library.

For **each** drawer:

1. Extend the **rails** for the appropriate drawer and move the **bearings** to the front.
2. Using the label, reinsert the **drawer** onto the rails.
3. Slide the drawer **80%** into the library and back out to check it.
4. Push the **drawer** all the way in until it locks.

Next Step

Proceed to Chapter 5, "Verify the Library Operation."

©2014 Overland Storage, Inc.

©2014 Overland Storage, Inc.

Verify the Library Operation

Once the library is completely reassembled, you need to verify that everything functions.

Power On the Library System

1. **Reattach** all the power cords.
2. Set the library circuit breakers to the **ON** ("|") position.
   The library automatically powers on and completes a POST.

Test the Library

To confirm the library is ready for operation, a series of tests must be preformed. If any test fails, contact Overland Technical Support.

Calibration Test

NOTE: The library uses Calibration Fiducial labels to accurately locate reference points on the Drawer Assemblies, the Fixed Drawer Assembly and the Mail Slot Track Assembly.

Calibration Fiducial Label locations:

- Two on the drive bay bulkhead
- Two on each Drawer
- Two on the Fixed Slots
- Two on the Mail Slot track

NEO 8000e libraries uses the picker to touch these fiducial label posts during a calibration routine to establish the reference points it needs.

1. Cartridges in the immediate area of the Fiducial labels must be removed to avoid any interference when touching or reading the labels:
   - Remove the cartridges in the first five and last five slots in rows two and three in **each drawer** that has cartridges.

©2014 Overland Storage, Inc.

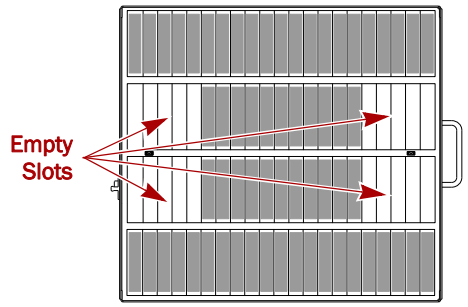


Figure 5-1: Empty These 20 Slots in All Drawers

- In addition, for the **middle-left drawer**, remove the first five and last five cartridges in the top row.

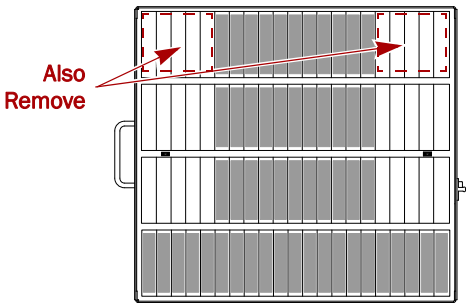


Figure 5-2: Empty These 10 Slots of the Top Row of the Middle-Left Drawer

- Also, for the **middle-right drawer**, remove all the cartridges in the top row.

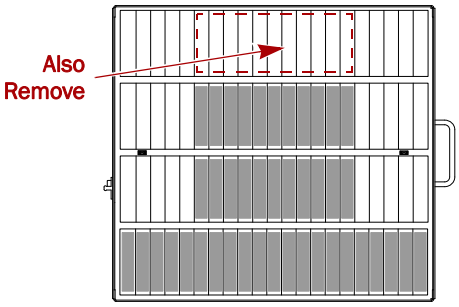


Figure 5-3: Empty the Top Row of the Middle-Right Drawer

- Remove the cartridges in the first five and last five slots in the **Fixed Slots**.
- Remove the **Mail Slot Magazine**.

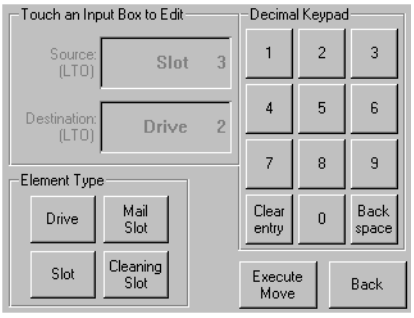
2. At the default front panel menu, press **Maintenance > Calibrate Robot**.
3. Leave all elements **checked** for a full calibration of all drawers and magazines. Test requires 30-35 minutes to complete.

Relearn Tape Drive Locations

To prevent the backup software from timing out, it is necessary to have the library learn the bays where all the tape drives are located.

1. At the front panel, press **Move Media**.

©2014 Overland Storage, Inc.



2. Move a tape to a drive:
   a. Select a tape in a slot as the **Source**.
   b. Select a tape drive as the **Destination**.
   c. Press **Execute Move**.
3. Reverse the process to **move the tape** back to its slot.
4. Repeat Steps 2–3 for the **remaining drives** in the library.

Friction Diagnostic

Use the Friction Diagnostic from the front panel to validate the functionality of the new assemblies. This tests the new BDA and creates new key access settings in NVRAM.

1. Verify that **5 or more cartridges** are available from an enabled drawer or Mail Slot.
2. Move **one cartridge** to a drive and back:
   a. Press **Move Media**.
   b. Select a **slot** with a tape as the Source and a **drive** as the Destination.
   c. Press **Execute Move**.
   d. Select the same **drive** as the Source and the same **slot** as the Destination.
   e. Press **Execute Move**.

©2014 Overland Storage, Inc.

3. Select **Menu > Diagnostics > Friction Diagnostic> Start** (Figure 5-4).

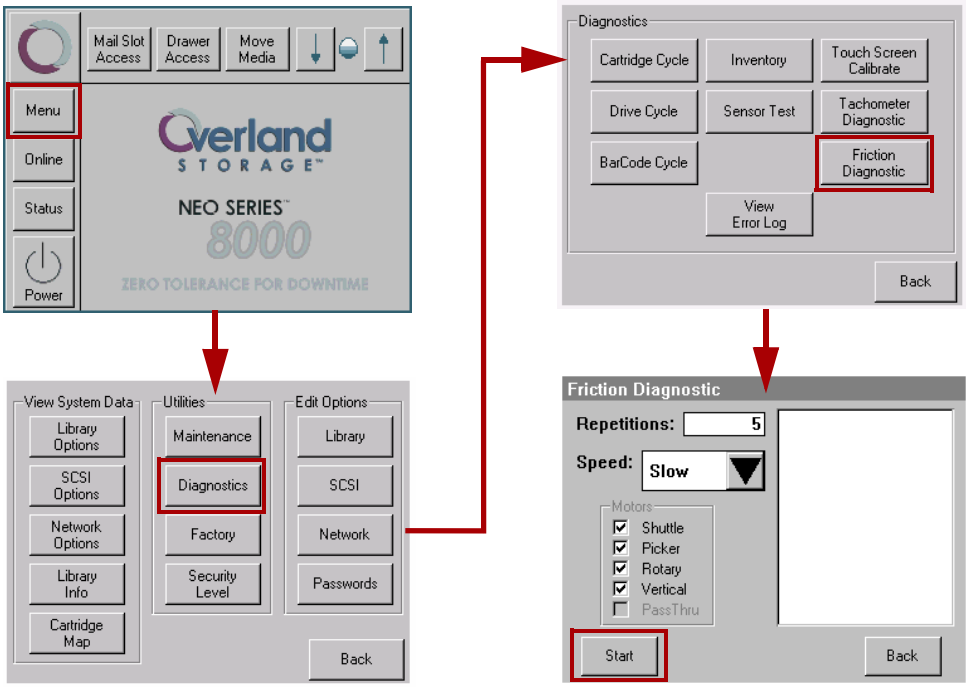


Figure 5-4: Starting the Cartridge Cycle Test

4. Allow the test to run for at least **5 repetitions**.

IMPORTANT: If the test fails, contact Overland Storage Technical Support.

5. Cycle the power to save the **new NVRAM settings**.

Daisy Chain Test

Select **Menu > Diagnostics > Daisy Chain > Start** to test fetching and stowing of tape cartridges.

The test takes at least **4 hours**.

Reactivate the Library

You are now ready to put the library back online and enable the backup software to access it. At the front panel, press **Offline**. The button name changes to Online.

©2014 Overland Storage, Inc.