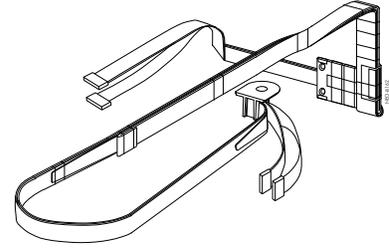


Shuttle Signal/Power Cable

Remove & Replace Instructions



Overview & Notes

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

This document describes how to remove and replace the Shuttle Signal/Power Cable assembly in a NEO 8000 Library. This kit also contains mounting hardware necessary to install this assembly.

CAUTION: Due to the critical importance of this part, it is absolutely imperative that **these instructions be followed exactly.**

If you have any questions or concerns, contact Overland Technical Support:

- 1-877-654-3429 (toll-free U.S. & Canada)
- +44 (0) 118-9898050 (Europe)
- +1 (858) 571-5555 Option 5 (International)

WARNING: The GUI touch screen does not completely shut off NEO SERIES system power. To reduce the risk of electric shock or damage, remove both power cords.

CAUTION: Do not remove any of the gold-colored Kapton tape from the cable or cable assembly. It properly positions the cable during library operation.

Unpacking the Spare

NOTE: Do NOT cut the plastic holding the shuttle cable in place; the same packaging is used to return the old cable.

Carefully unpack and verify that you have all the parts:

- Shuttle Signal/Power Cable assembly (with Spooler top piece propositioned)
- One panhead 4-20x1/2 spooler screw
- Two flathead M4x6 bracket screws
- Two Cable ties
- Clip retainer
- Plastic-coated clamp
- These instructions

A #1 or #2 Phillips screwdriver is also needed (depending on the NEO version). A tube of Loctite 222 (or equivalent product) is also strongly recommended.

Electrostatic Discharge Information

A discharge of static electricity can damage micro-circuitry or static-sensitive devices. To help prevent electrostatic damage, observe the following precautions:

- Transport and store items in static-safe containers.
- Keep electrostatic-sensitive parts in their containers.
- Use properly-grounded tools.
- Make sure you are always properly grounded.
- Keep the work area free of non-conductive materials.
- Avoid touching pins, leads, or circuitry.

Verify Cable Assembly

CAUTION: If the cable is missing the spooler head (Figure 1), **DO NOT USE** it. Contact Overland Technical Support immediately.

Verify you have the correctly assembled part:

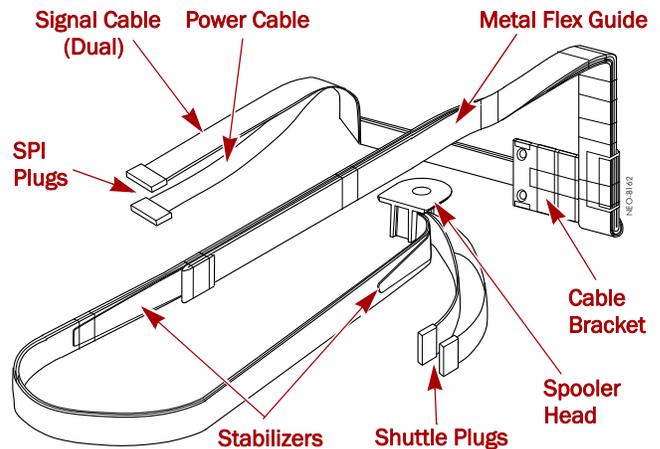


Figure 1. Shuttle Cable Assembly

Preparing the Library

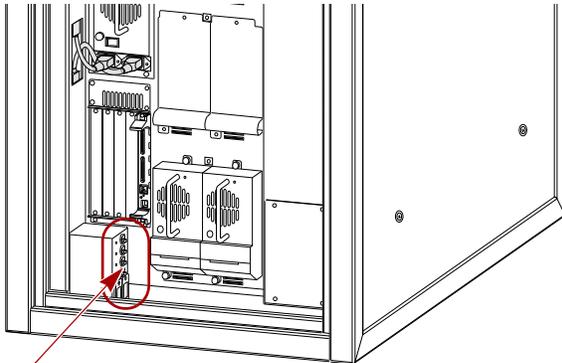
Power Down the Library

1. On the front GUI panel, press **Power** to turn the library OFF.

The shuttle/track assembly moves to the library floor as the unit shuts down.

NOTE: If the library is non-functional, wait until the shuttle/track assembly drifts to the bottom automatically.

2. At the rear (Figure 2), in the bottom left corner, turn OFF the **circuit breakers**.



Circuit Breakers

Figure 2. Location of Circuit Breakers in Rear

3. Remove and retain all **power cords**.

Provide Access to Z-Axis Assembly



WARNING: To prevent injury due to the weight of a loaded drawer, **DO NOT** fully remove the media drawers. Leave them in the open position.

1. Verify there is access to the library's **left side**.



IMPORTANT: If access through the left panel is not available, this procedure can still be used by accessing the component from the front and rear. Go to the Overland Support FAQ web site to obtain the *NEO 8000 Limited Access Procedure*.

2. Remove and retain the **screws** securing the **left side panel**, and remove the panel.
3. Open the **left door** of the library.
4. From the left side, at the back of the bottom-left media drawer, press the door's **latch release** (Figure 3) and push the **media drawer** forward.

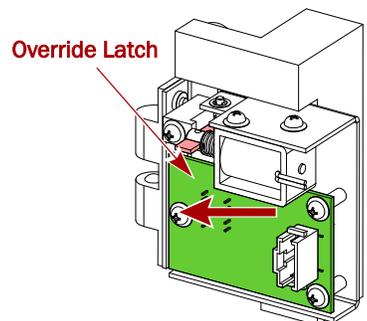


Figure 3. Media Drawer Latch Release, Rear View

5. From the front, pull out the bottom-left **media drawer** until it latches in the open position.
6. Repeat **Steps 4–5** for the **middle-left** media drawer.

Removing the Old Cable Assembly

Disconnecting Rotary SPI Cables

1. At the rear of the library, locate the **Rotary SPI board** (Figure 4).

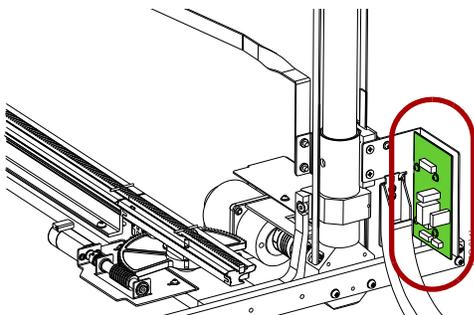


Figure 4. Rotary SPI Board Location (Rear View)

2. Disconnect cables and wiring bundles from the connectors on the PWA (Figure 5 on page 3):
 - Disconnect the **Backplane wire bundle** from **J1** freeing the shuttle cables.
 - Disconnect the **Power wire bundle** from **J2**.
- NOTE:** Move the wiring bundles off to the side.
- Disconnect the **Power cable** from **J3**.
 - Disconnect the **Signal Controller cable** from **J4**.

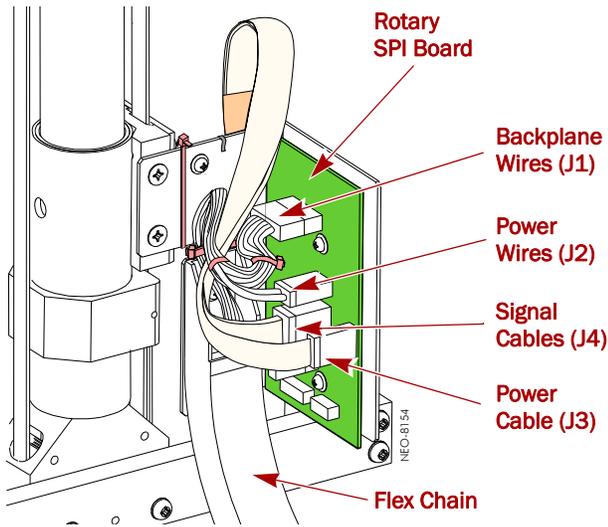


Figure 5. Rotary SPI Board in Rear Z-Axis Assembly (Rear View)

3. Remove the metal **retainer clip** holding the shuttle cables to the Rotary SPI bracket (Figure 6).

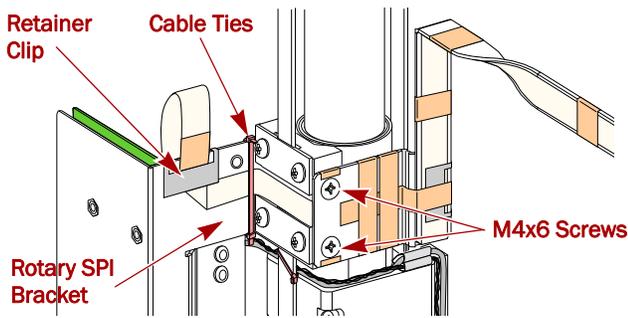


Figure 6. Key Components on Rear Z-Axis Assy. (Front View)

4. Carefully cut the **cable ties** holding the shuttle cables to the Rotary SPI bracket.
5. Remove the two **M4x6 screws** holding the metal flex guide to the rear Z-axis bracket.

Disconnecting Shuttle Cables

1. On the shuttle, locate the Shuttle PWA (Figure 7) and release the shuttle cables:
 - a. If a **cable clamp** is installed, release the clamp.
 - b. Disconnect the **Power cable** from the **J2** connector.
 - c. Disconnect the **Signal Controller cable** from the **J4** connector.

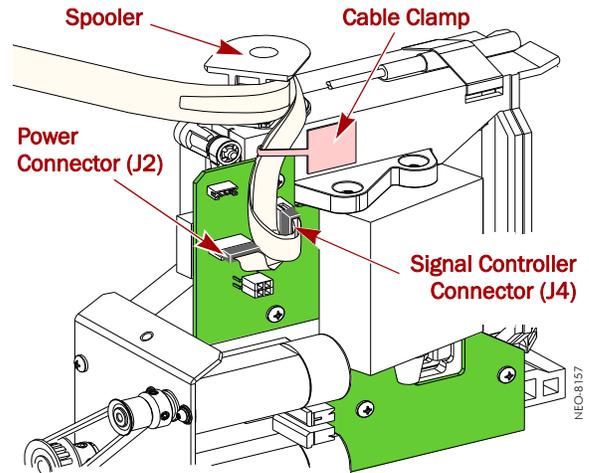


Figure 7. Shuttle PWA and Cables (Front View)

2. Use the Phillips screwdriver, unscrew and detach the **spooler head** leaving the cables attached (Figure 8).

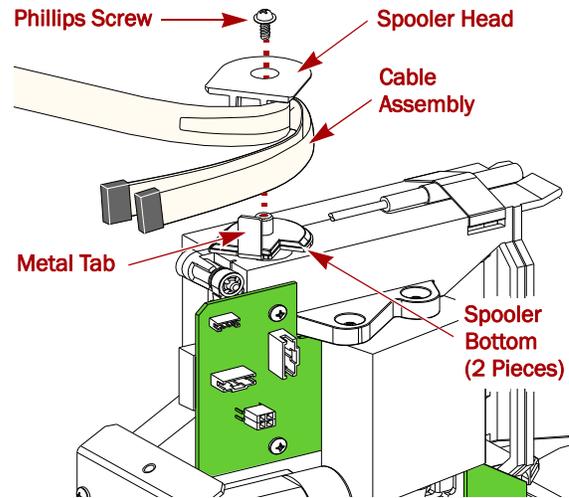


Figure 8. Removing the Cable from the Spooler Head

NOTE: The two lower Spooler components can easily slip off the spindle. Be sure that both the lower components remain in place.

3. Place the **old shuttle cable assembly** inside the plastic sheet on the center cardboard brace from the packaging and fold the arms down to lock it in place.

NOTE: Use the original box and packaging to return the old shuttle cable.

Installing the New Cable Assembly

CAUTION: The cable assembly in some older NEO libraries may have been routed differently. Follow the instructions below **EXACTLY** to route the new cable.

Attach Assembly to Rear Z-Axis Bracket

1. If available, apply **Loctite 222** (or equivalent) onto the two supplied **M4x6 screws**.
2. Use the two screws to attach the new **cable assembly** to the rear Z-axis bracket (**Figure 9**).

NOTE: The bend in the cable behind the screws is held in place with **Kapton tape**. Leave the bend and tape in place.

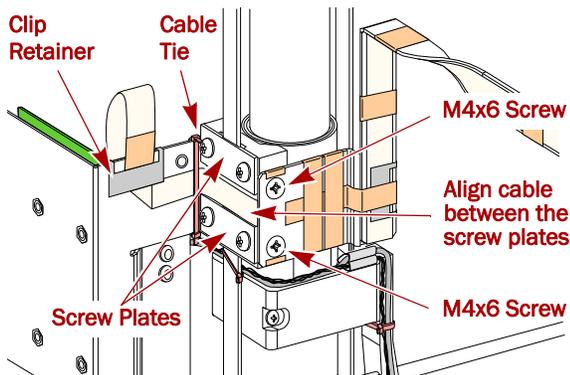


Figure 9. Attach Cable Assembly to Z-Axis Bracket

3. Connect the **two cable ties together** by inserting the end of one into the head of the other just far enough for the teeth to engage.
4. Position the cables between the screw plates (**Figure 9**), and secure it in the corner with a **cable tie** assembly.
5. Secure the cable assembly to the **bracket** (**Figure 9**):
 - a. Position the **cable fold** on the bracket near the SPI board with the cable flat against the bracket.
 - b. Hook the **metal clip retainer** onto the bracket securing the cables to it.
6. In this order with the cables cleanly looped over the bracket (**Figure 10 with steps labeled**), attach the cables to the **Rotary SPI**:
 - a. Connect the **Signal Controller cable** to **J4**.
 - b. Connect the shuttle **Power cable** to **J3**.
 - c. Placing the small **Power wiring** over the shuttle cables to hold them in place, connect it to **J2**.
 - d. Placing the **Backplane wiring** also over the shuttle cables, connect it to **J1**.
 - e. Gently pull the cable **loop** located above the retainer clip on the Rotary SPI bracket **upwards** until the cables are fully inside the wiring bundles with no slack at the connectors.

CAUTION: Verify that the shuttle flex cable does NOT extend beyond the edge of the Flex Chain.

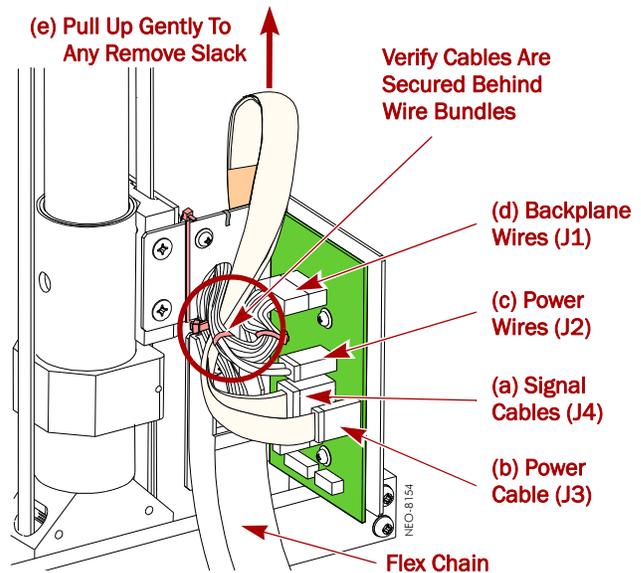


Figure 10. Rotary SPI Shuttle Cable Connections

Attach Spooler Head

1. Verify that the **two bottom spooler pieces** are still on the shuttle spindle.
2. Slide the **spooler head** onto the bottom pieces, aligning the flat side slot with the metal tab (**Figure 8 on page 3**).

CAUTION: Be sure there are no other twists in the cable between the metal guide and the spooler (**Figure 11**). If necessary, slide the shuttle to the front of the track plate to extend the flex cable.

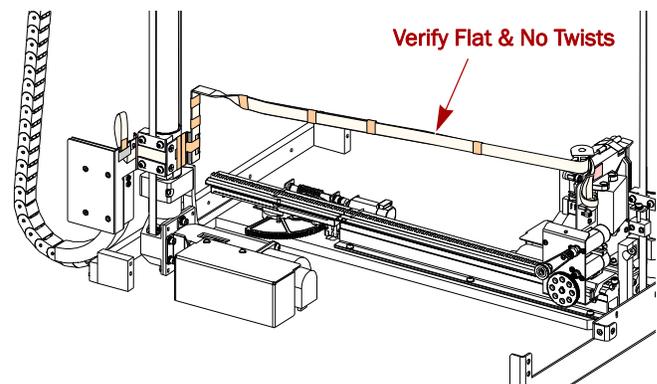


Figure 11. Final Position of Cable Assembly

3. Use the supplied **panhead Phillips screw** to reattach the spooler head to the shuttle spindle.

CAUTION: To prevent damage to the plastic spooler head, do not overtighten the panhead screw.

Connect the Cables to the PWA

Attach the cables from the spooler to the **shuttle PWA** (also see the photo sequence on [page 7](#)):

1. With the **plastic-coated clamp** arm pointing out, attach it to the shuttle just above the bar code reader next to the Shuttle PWA ([Figure 12](#) & [Figure 17](#)).

If an older wire clip is there, remove it first.

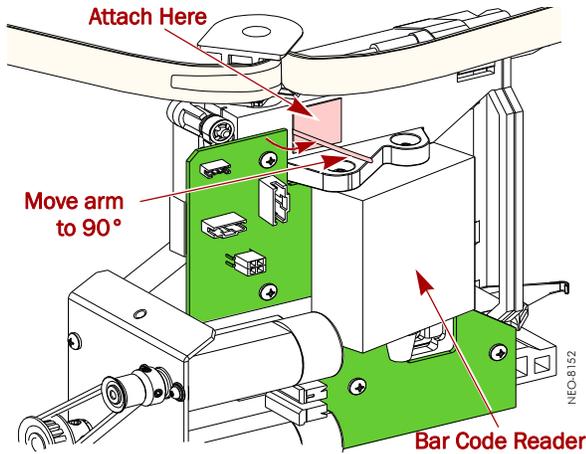


Figure 12. Attach the Clamp

2. Loop and connect the **signal controller cable** to **J4** ([Figure 13](#) & [Figure 18](#)).

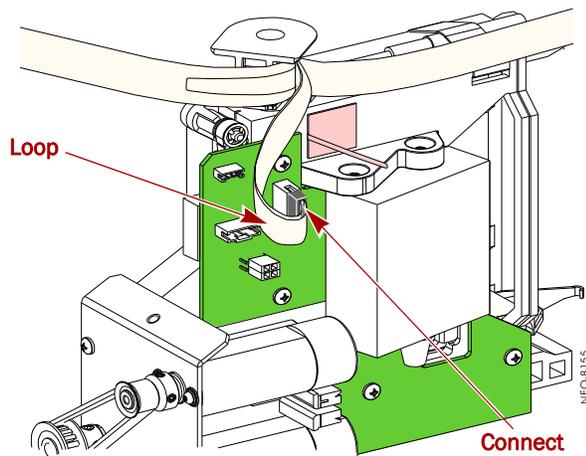


Figure 13. Connect the Signal Controller Cable

3. Connect the **shuttle power cable** to **J2**:

- a. With the **Power cable** flat against the Signal cable, insert the Power cable through the Signal cable loop ([Figure 19](#)).
- b. Loop the **Power cable** upwards.
- c. Carefully, without bending the cable, insert the **Power connector** into **J2** ([Figure 14](#) & [Figure 20](#)).
- d. Verify the following:
 - The **first bend** on the Power cable is near the top of the Signal plug.
 - The Power cable is tilted at a **45° angle** inside the Signal cable loop with the high side next to the Signal plug,
 - There is **no bend in the cable** where the plug enters the Power connector.

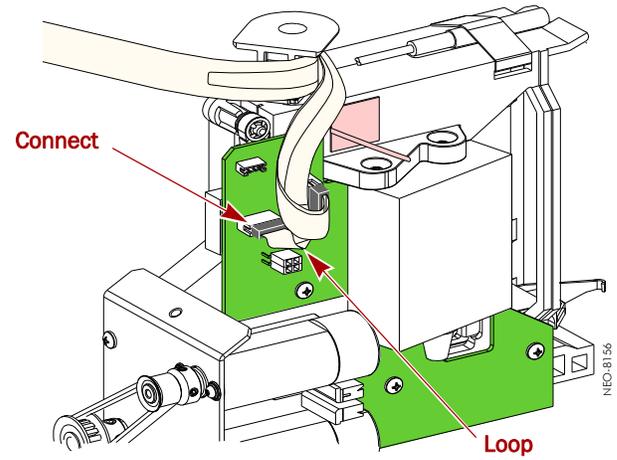


Figure 14. Connect the Power Cable

4. Bend the **clamp** around both cables ([Figure 15](#) & [Figure 21](#)):
 - a. Gather **both cables** together next to the clamp so that they are aligned.
 - b. Prebend the clamp 60° about 1/3 down the shaft.
 - c. Fold the clamp over the cables and finish bending the top third around the cables.
 - d. Position the clamp above the PWA and press it against the shuttle front.

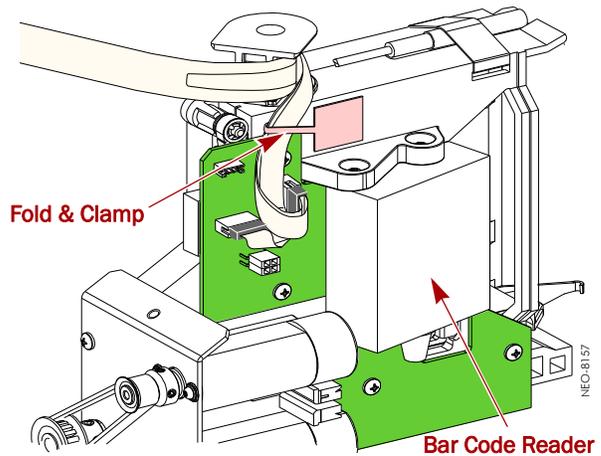


Figure 15. Connecting the Cable to the Shuttle PWA

5. Pull gently on the cables between the clamp and the spooler until the **cable loops** are flush with the bar code reader ([Figure 16](#) & [Figure 22](#)).

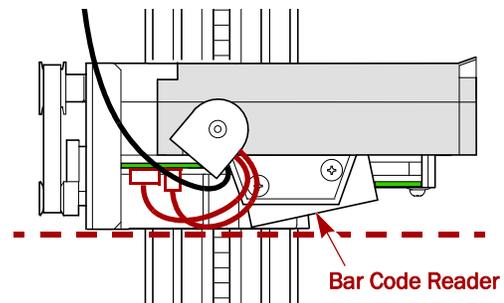


Figure 16. Flex Cable Must NOT Extend Beyond Reader

Power On and Test the Library

After you install the shuttle cable assembly, verify the installation and test the library.

Examine Cable Assembly



CAUTION: Due to the high-speed movement of this assembly, it is critical that none of the cables stick out in a way that may cause them to come into contact with stationary items.

1. Visually examine and manually move the cable assembly to verify that the **cables** do not catch on anything as the shuttle assembly or track moves.
 - The cables at the Rotary SPI should not extend past the flex chain.
 - The cables at the shuttle should not extend past the edge of the bar code reader ([Figure 16 on page 5](#)).
2. At the rear, check the **Z-axis** cable alignment, the loop in the cable, and the metal clip retainer.
3. Make sure the cable assembly **metal flex guide and bracket** shape was not altered during installation.



CAUTION: The metal flex guide should be parallel to the side of the library. Verify that the shuttle doesn't hit the guide as it moves up and down the track.

Power On Self Test (POST)

1. Close the **media drawers**.
2. Shut the **front left door**.
3. Plug the **power cords** back in.
4. Turn on the **circuit breakers**.

NOTE: If the bar code reader is not detected, recheck the cable connections and reapply power to the unit.

5. Observe the **POST process** to verify the installation:



WARNING: Use extreme caution in making the observations listed. The robotics move very quickly.

- Watch the **shuttle assembly** and **track** movement.
- Make sure that nothing interferes with the **cable assembly** through its full range of motion.

NOTE: If problems occur, contact *Overland Technical Support*.

6. Using the retained screws, reattach the **left panel** to the library.



IMPORTANT: If following the *NEO 8000 Limited Access Procedure*, this is the point to reinstall the library panels and components previously removed.

Return Removed Parts to Overland

1. Place the **removed parts** in the replacement parts box you saved.
2. Follow **directions** included with the box for returning parts to Overland Storage.

Additional Help

You can get additional technical support on the Internet at <http://support.overlandstorage.com>, or call 1-877-654-3429 (toll-free U.S. & Canada), +44 (0) 118-9898050 (Europe), or +1 (858) 571-5555 Option 5 (International).

Pictorial of Shuttle Cable Connection Steps



Figure 17. Secure Plastic-Coated Clamp to Shuttle

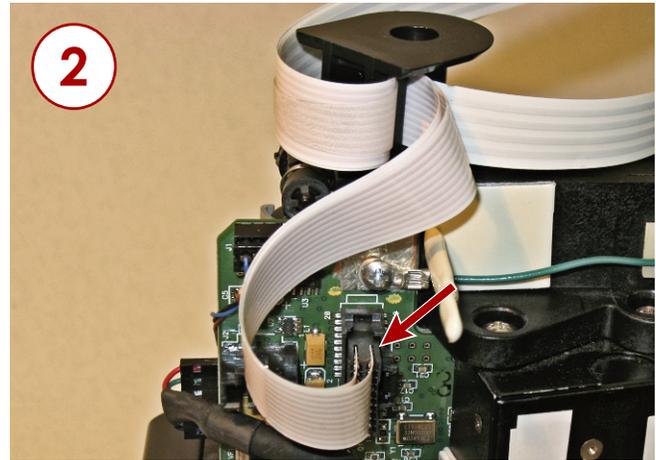


Figure 18. Loop & Insert Signal Controller Cable Into J4

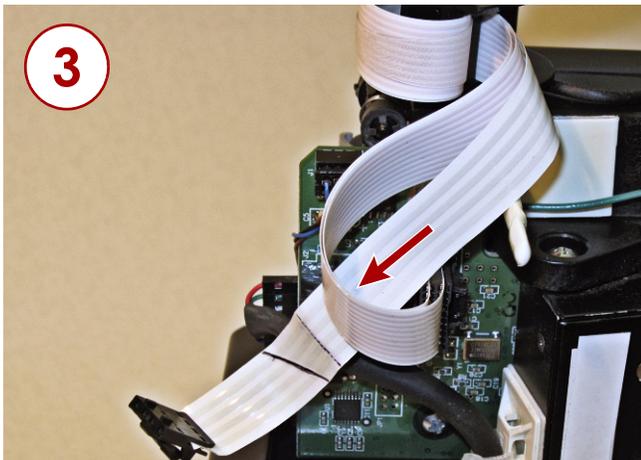


Figure 19. Insert Power Cable Through Signal Cable Loop

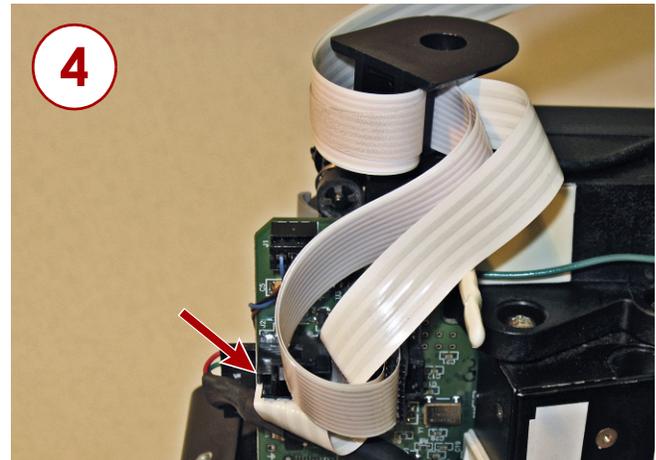


Figure 20. Loop & Insert Power Cable Into J2

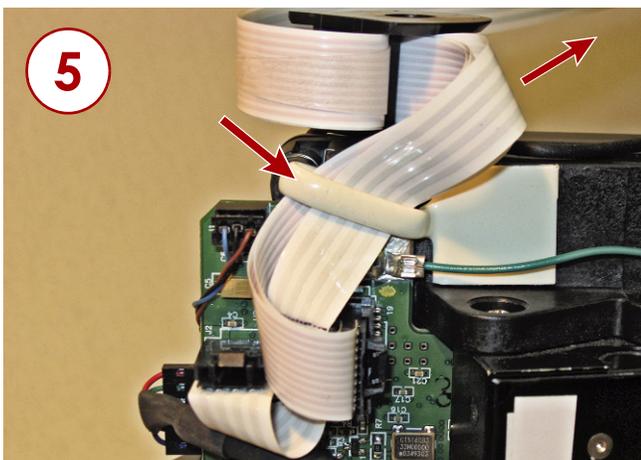


Figure 21. Fold & Press Clamp Arm Around Cables; Pull Excess

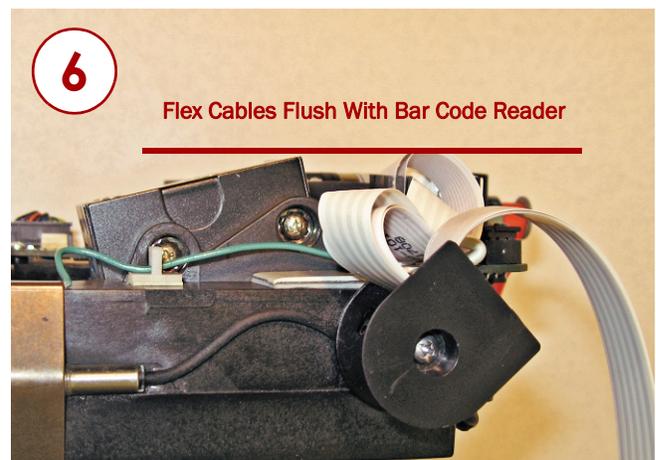


Figure 22. Cables Flush with Bar Code Reader