Tru-Break™ Retrofit Installation Instructions

DANGER

All apparatus must be de-energized during installation or removal of part(s).

Do not touch or move energized products in the work area.

These instructions do not attempt to provide for every possible contingency.

Failure to follow these instructions will result in damage to the product and serious or fatal injury.

This product should be installed only by competent personnel trained in good safety practices involving high voltage electrical equipment. These instructions are not intended as a substitute for adequate training or experience in such safety practices.

All apparatus must be installed and operated in accordance with individual user, local and national work rules and electrical standards.

If this product is supplied with a protective shipping cover(s), remove this shipping cover(s) and replace with the appropriate HV insulated cap(s) or connector(s) before submerging or energizing the circuit.

Inspect parts for damage, rating and compatibility with mating parts.

Excess distortion of the assembled product may result in its failure.

FOR MORE INFORMATION ON PARTS, INSTALLATION RATINGS AND COMPATIBILITY, CALL THE NEAREST ABB OFFICE.

Limited Warranty:

1. ABB Installation Products Inc. warrants that its products will be free from defects in materials or workmanship for a period of two (2) years, except for tools which are warrantied separately (see warranty accompanying those products). Fisher Pierce® products and Elastimold® Reclosers are warrantied for three years; and Joslyn™ VBT and VBU capacitor switches are warrantied for four years or 40,000 operations whichever occurs first. Upon prompt notification of a warrantied defect, ABB Installation Products Inc. will, at its option, repair or replace the defective product.
2. In no event shall ABB Installation Products Inc. be liable for any consequential, indirect or special damages, nor will ABB Installation Products Inc. be liable for transportation, labor, or other charges arising out of the removal or reinstallation of its products. Liability for breach of warranty is limited to the cost of repair or replacement of the warrantied product only.
3. Misuse, misapplication or modification of ABB Installation Products Inc. products immediately voids all warranties.

   THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE SPECIFICALLY DISCLAIMED.

IMPORTANT

1. Check contents of package to ensure they are complete and undamaged.
2. Check all components to ensure proper fit with cable and/or mating products.
3. Read entire installation instructions before starting.
4. Have all required tools at hand and maintain cleanliness throughout the procedure.

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Tru-Break Retrofit Kit Contents

TBXX-XX-6-R-X-N
(Kits for Switchgear with no motor operator)

- (1) Three Phase Tru-Break Module
- (1) 6 AWG Braided Ground Cable
- (1) Interlock Linkage Kit[2]
- (1) Mounting Clip Kit
  - -(2) Mounting Clips
  - -(2) ¼-20 Nylon Insert Locknut
  - -(2) ¼-28 Hex Head Bolt
- (1) Switchgear Operating Handle for Tru-Break[1]
- (3) Basic Insulating Plug with Cap
- (3) 5/8-11 x 2 ¾" Length Stud
- (1) Tru-Break Operation Instruction Street
- (9) Silicone Grease Packet

TBXX-XX-6-R-X-AC/TBXX-XX-6-R-X-DC
(Kits for Switchgear with motor operator)

- (1) Three Phase Tru-Break Module
- (1) 3' Electronic Lockout Cable
- (1) 6 AWG Braided Ground Cable
- (1) Interlock Linkage Kit[2]
- (1) Mounting Clip Kit
  - -(2) Mounting Clips
  - -(2) ¼-20 Nylon Insert Locknut
  - -(2) ¼-28 Hex Head Bolt
- (1) Switchgear Operating Handle for Tru-Break[1]
- (3) Basic Insulating Plug with Cap
- (3) 5/8-11 x 2 ¾" Length Stud
- (1) Tru-Break Operation Instruction Sheet
- (9) Silicone Grease Packet

[1]Retrofit kits for applications with an MVS and MVI utilize different handles and are NOT interchangeable.

[2]Interlock linkage kit contents vary between applications for MVS or MVI. Contents for each are as follows:

TBXX-XX-6-R-S-X
(Interlock linkage Kit for MVS Retrofit)

- (1) Linkage Bar for MVS
- (2) ½" Diameter, ¾" Long Clevis Pin
- (2) Locking Cotter Pin

TBXX-XX-6-R-I-X
(Interlock linkage Kit for MVI Retrofit)

- (1) Linkage Bar for MVI
- (1) ½" Diameter, ¾" Long Clevis Pin
- (1) ½" Diameter, 1 ¼" Long Clevis Pin
- (2) Locking Cotter Pin
- (1) Spacer
- (1) Washer

Lifting & Handling

Note: The following are general lifting and handling guidelines subject to local standard operating procedures which shall prevail.

Step 1: Screw lifting eye bolts (customer supplied) into lifting provisions. Note: Eye bolt minimum shank length of 2.5” or longer.

Step 2: An additional lifting strap can also be used in the area shown in Figure 1.

Step 3: Ensure strap is taut and free from slack before lifting. Carefully lift unit and remove from crate.

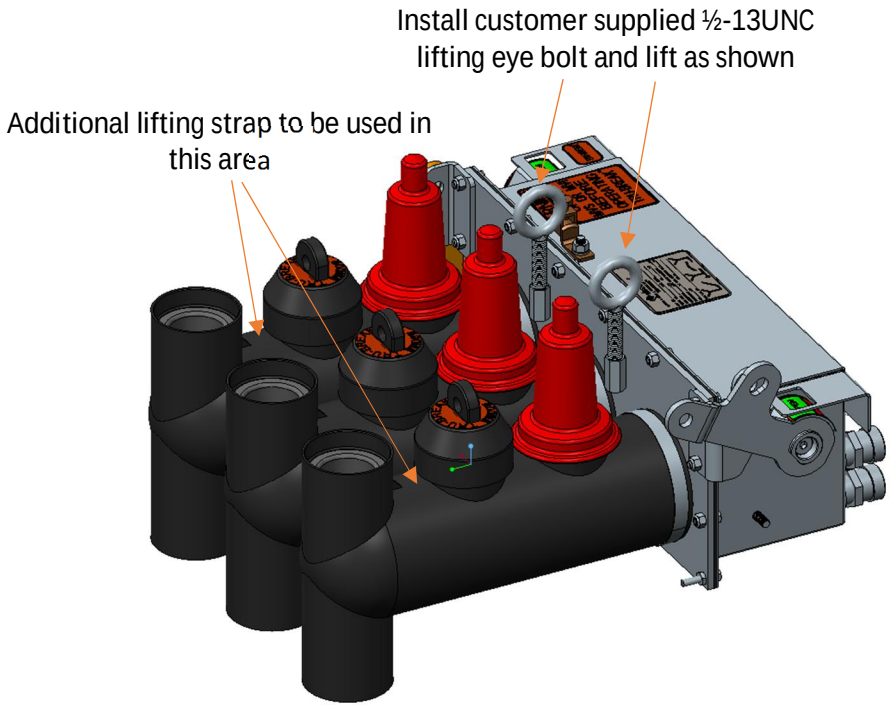


Figure 1 - Lifting of the Tru-Break

Installation of Switchgear Handle:

1. Prepare switchgear to which Tru-Break will be mounted by ensuring switchgear is in the open position. Remove any cable accessories from the 600A interfaces. The switchgear mainbodies should appear as in Figure 2.

2. Remove switchgear handle, remove bolt on MVS and pin on MVI. Retain the bolt or pin for future use. Discard the original MVS or MVI handle, and the position indicator for the MVS. These parts will not be used. Install provided handles as shown in Figures 5, 8, 9, and 10. Install spacer in place of the position indicator. See Figure 11 for the orientation of the Belleville washer for the MVS handle installation. Torque the MVS handle bolt to 16-18 Ft-Lbs.

   Note: Switchgear handle position may look different. See Figures 3, 4, 6, and 7. The new handle will be installed as seen in Figures 5 and 8 if installed on switchgear with or without a motor operator.

Figure 2 - Bare Switchgear Interfaces

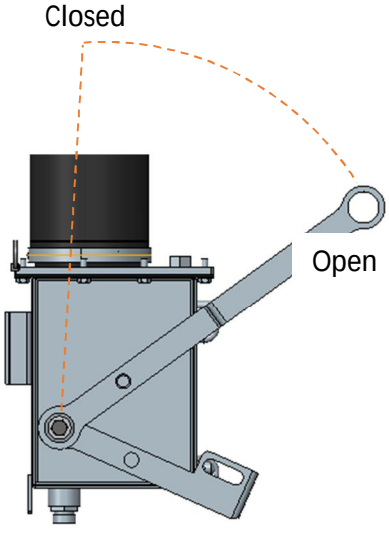


Figure 3 - MVS Original Handle Open Position;

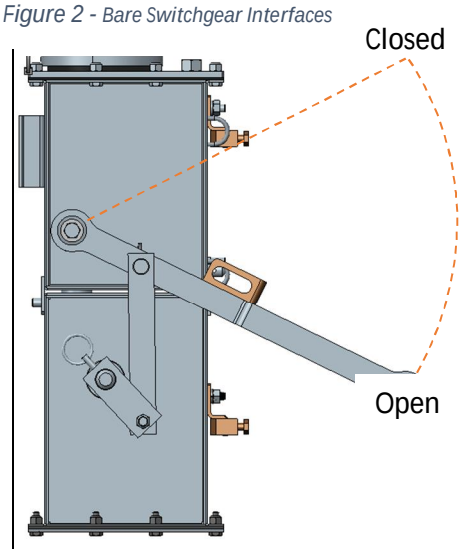


Figure 4 – MVS Original Handle with Motor Open Position;

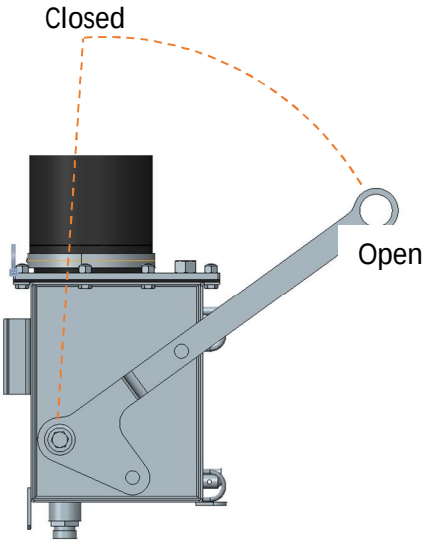


Figure 5 - MVS New Handle for Tru-Break

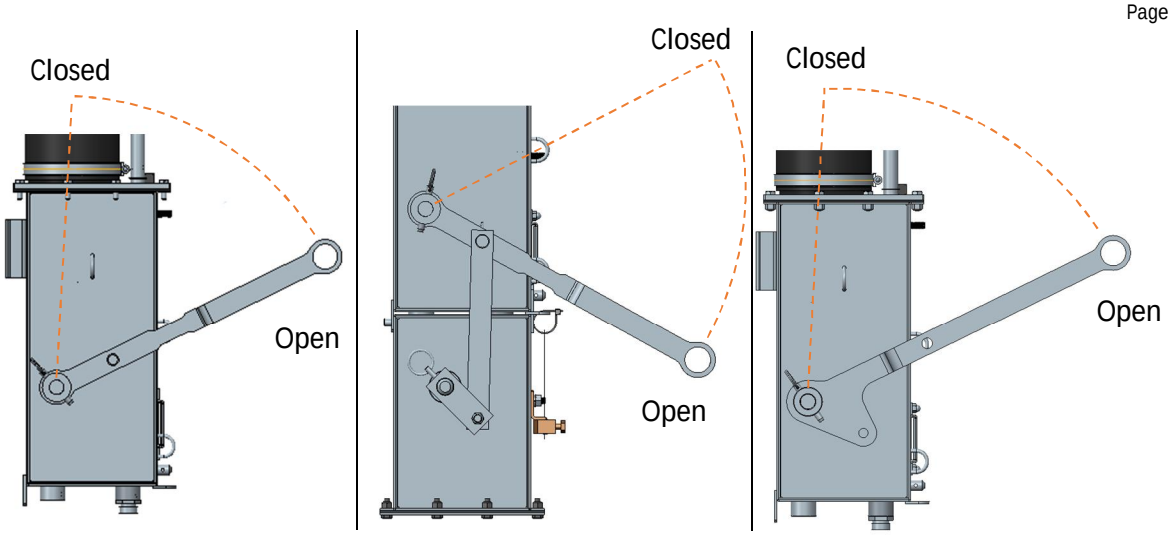


Figure 6 - MVI Original Handle Open Position; Figure 7 – MVI Original Handle with Motor Open Position; Figure 8 – MVI New Handle for Tru-Break

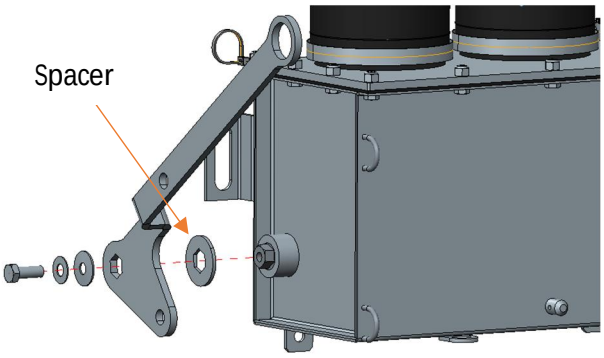


Figure 9 - MVS Handle Installation

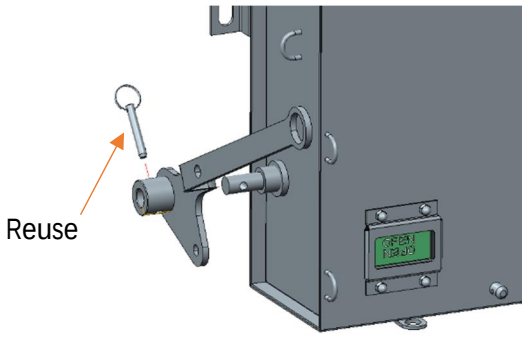


Figure 10 - MVI Handle Installation

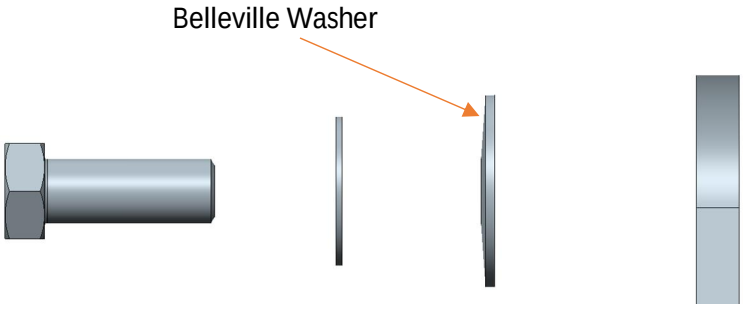


Figure 11 - MVS Handle Hardware

Installation of Tru-Break to Switchgear:

1. Loosen ground lug on existing switchgear. Insert provided ground cable and tighten ground lug. See Figure 12 for ground lug location.

2. Thread the provided studs into the switchgear interfaces about 3 turns to aid in mounting the Tru-Break to the switchgear. Clean interfaces and apply provided silicone grease to the interfaces of the switchgear and the female interfaces of the Tru-Break.

Note: Do not substitute silicone grease. Other lubricants may be harmful to the products. Be sure to keep surfaces of elbow and mating parts clean.

3. Lift the Tru-Break module and install onto the switchgear in the orientation shown in Figure 12.

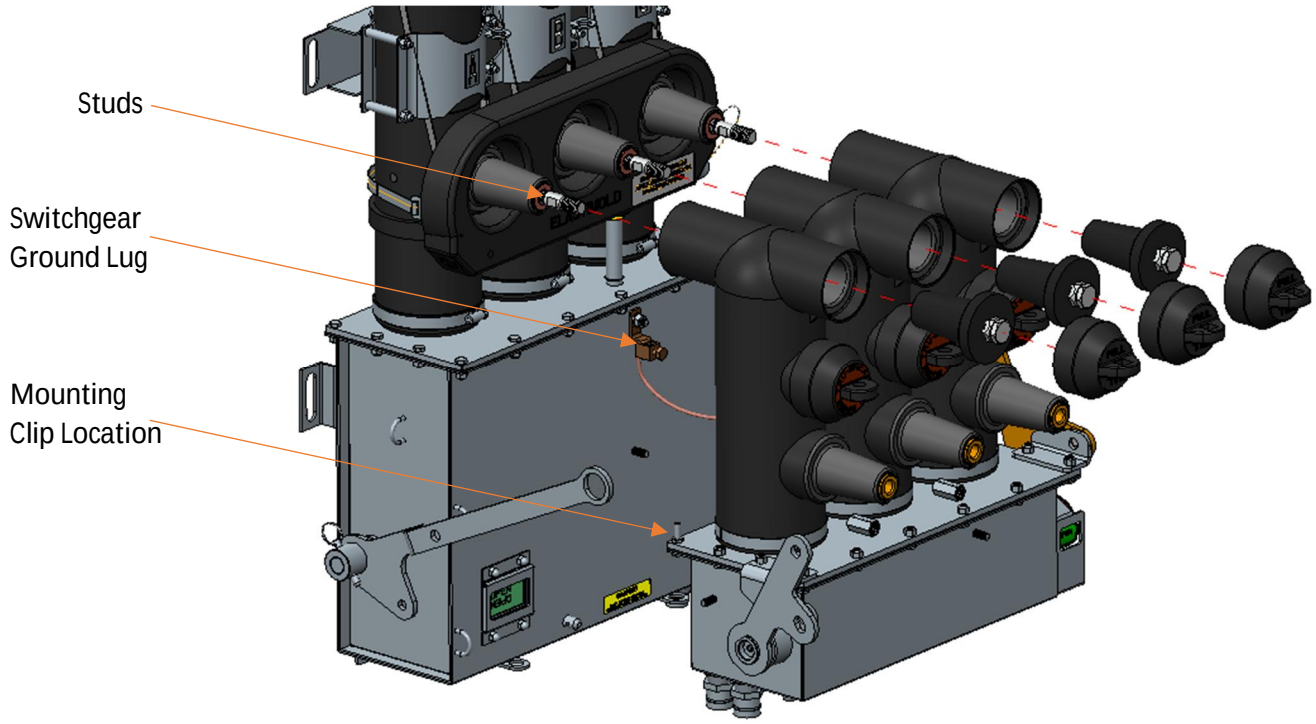


Figure 12 - Tru-Break Mounting to Switchgear

4. Install Basic Insulating Plugs (BIPS) by hand. Using torque wrench, torque to 50-60 Ft-Lbs. Install voltage detection caps onto BIPS. Refer to BIP instruction sheet for further detail.

5. Feed ground cable through the Tru-Break mainbodies as shown in Figure 13 and insert the cable into the ground lug on the Tru-Break and tighten.

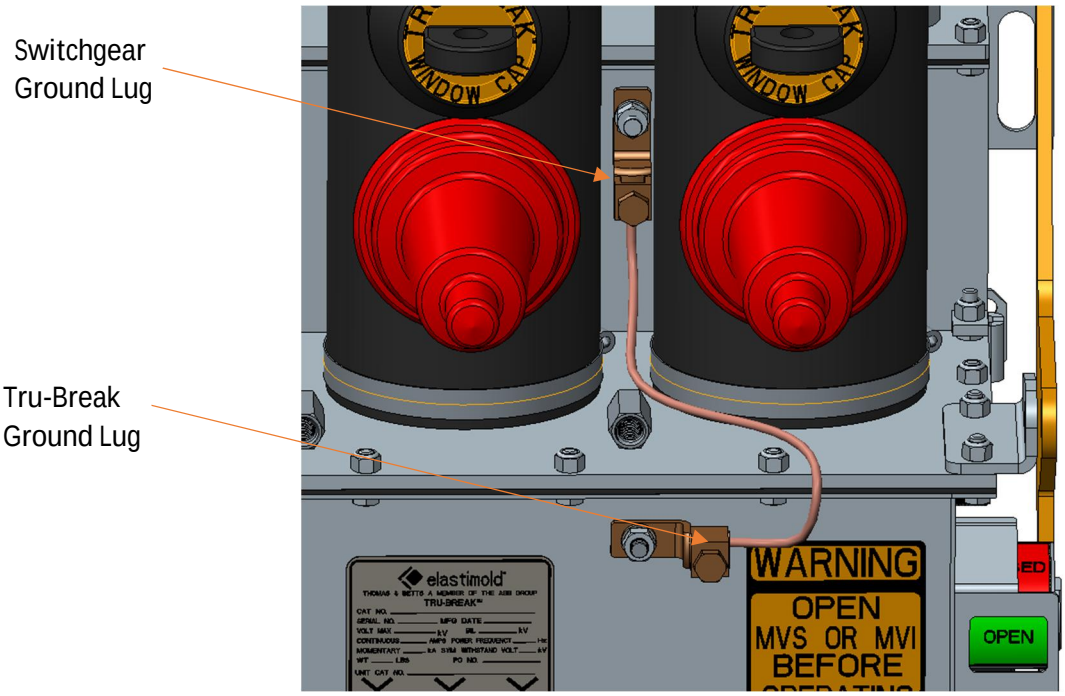
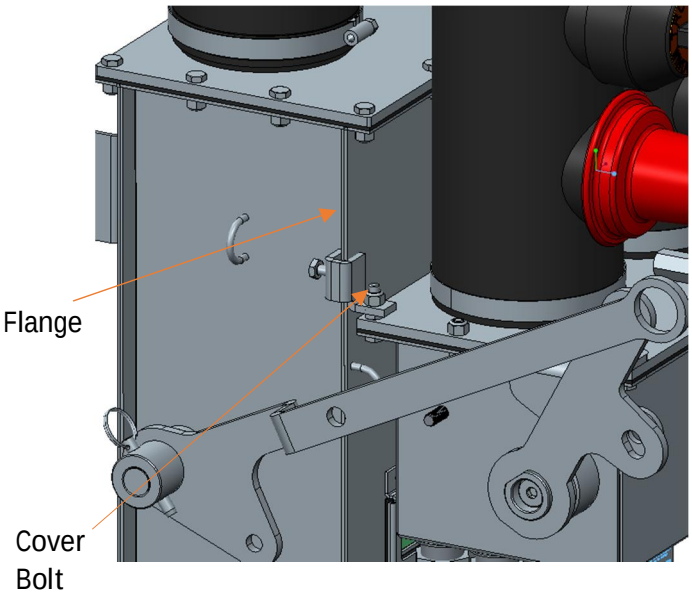
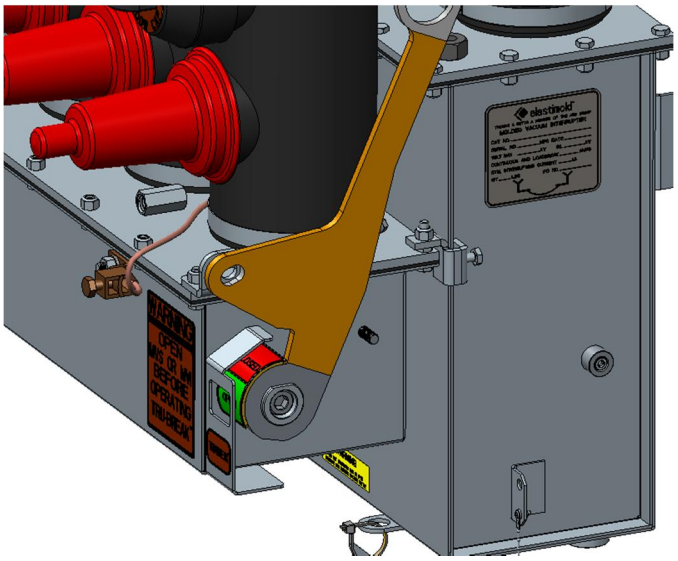


Figure 13 - Ground Cable Routing

Installation of Mounting Clip Kit:

1. Place “U”-shaped part of mounting clip over flange of switchgear cover, slide the clip down onto the Tru-Break cover bolt as shown. Torque the nylon insert locknuts to 50-75 In-Lbs. Install ¼-28 bolts where shown and torque to 75-85 In-Lbs. See Figures 14-16.





Figures 14 and 15 - Tru-Break Mounting Clips

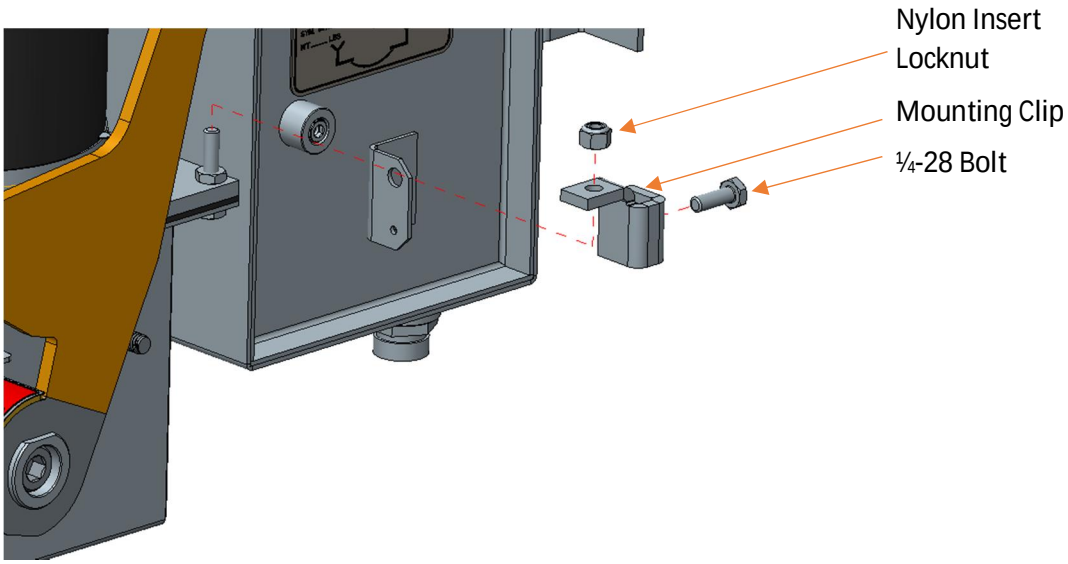
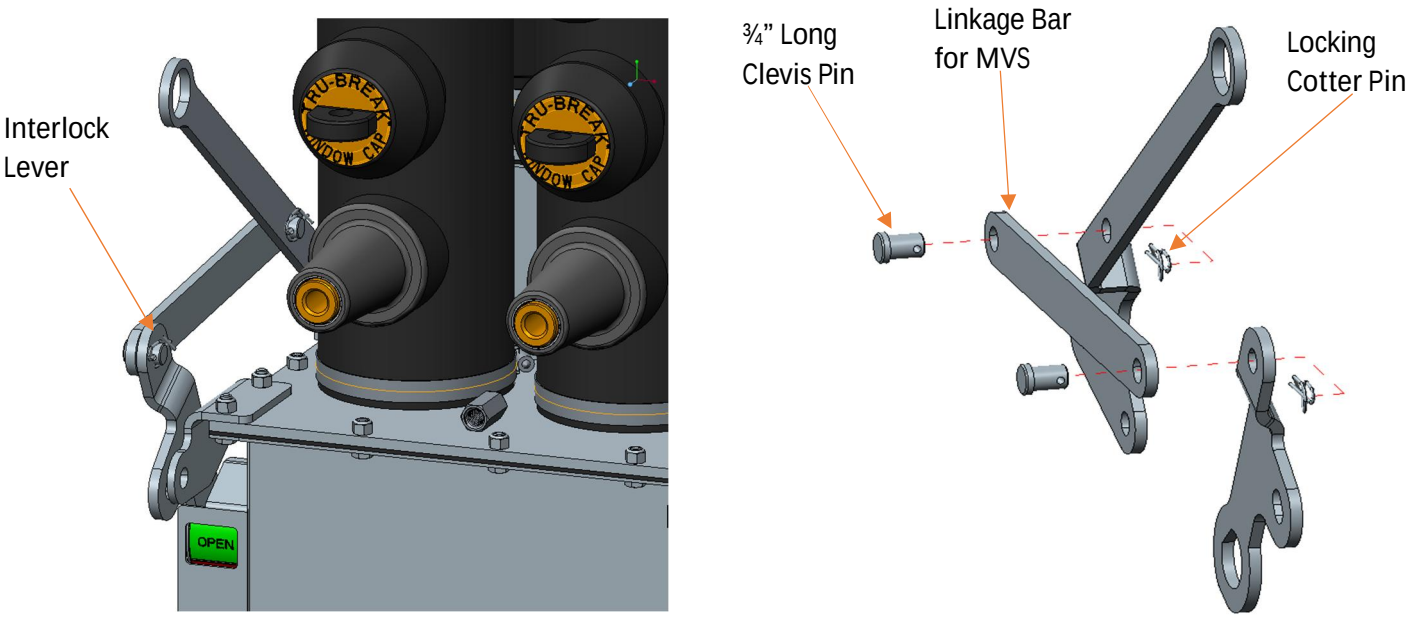


Figure 16 - Mounting Clip Exploded View

Installation of Linkage Kit:

1. Rotate Tru-Break interlock lever towards the front of the cover as shown and install provided linkage kit. Note: depending on the mating switchgear, an appropriate kit will be provided. Figures 17 and 18 depict an MVS installation. Figures 19 and 20 depict an MVI installation.



Figures 17 & 18 - (Left) MVS Linkage Installed (Right) MVS Linkage Exploded

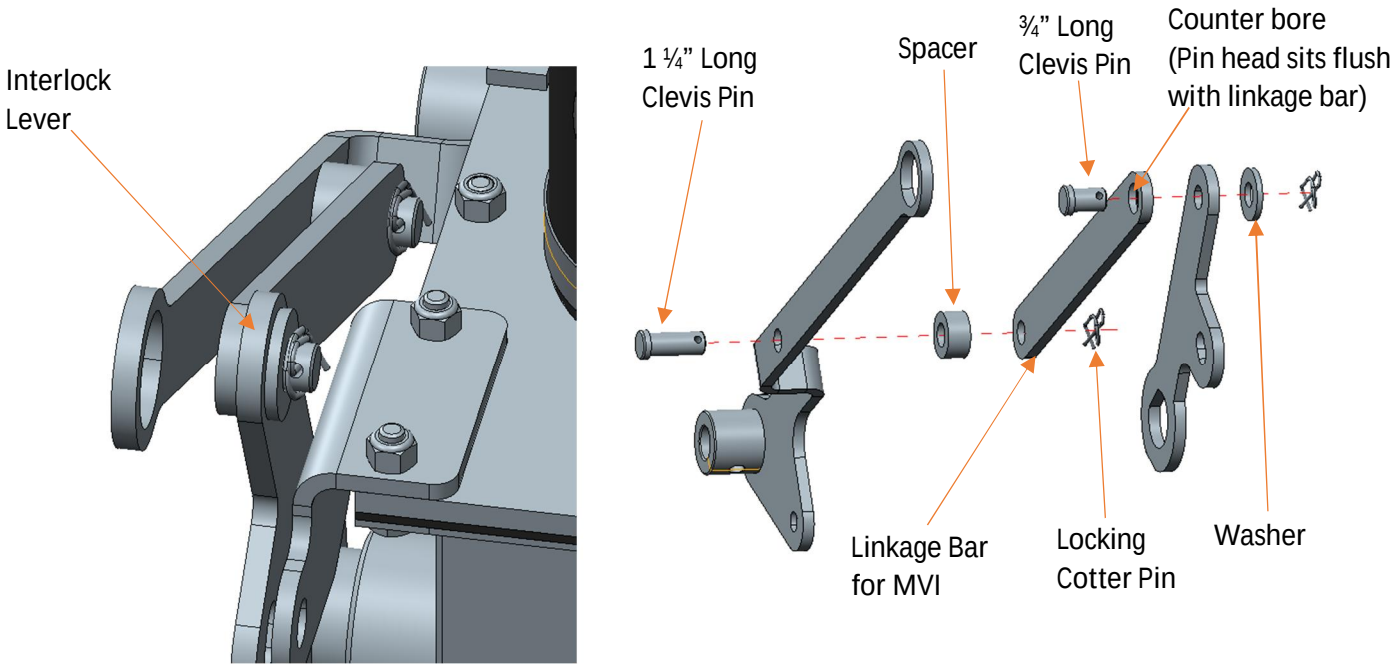


Figure 19 & 20 - (Left) MVI Linkage Installed (Right) MVI Linkage Exploded

Installation of Motor Operator Cables and Linkage (If Applicable):

1. If mating switchgear is outfitted with a motor operator, remove 12 pin cable from the motor box and install onto the Tru-Break 12 pin female receptacle. Install provided 3' electronic lockout cable from the Tru-Break male receptacle to the motor box receptacle. See Figures 21 and 22.

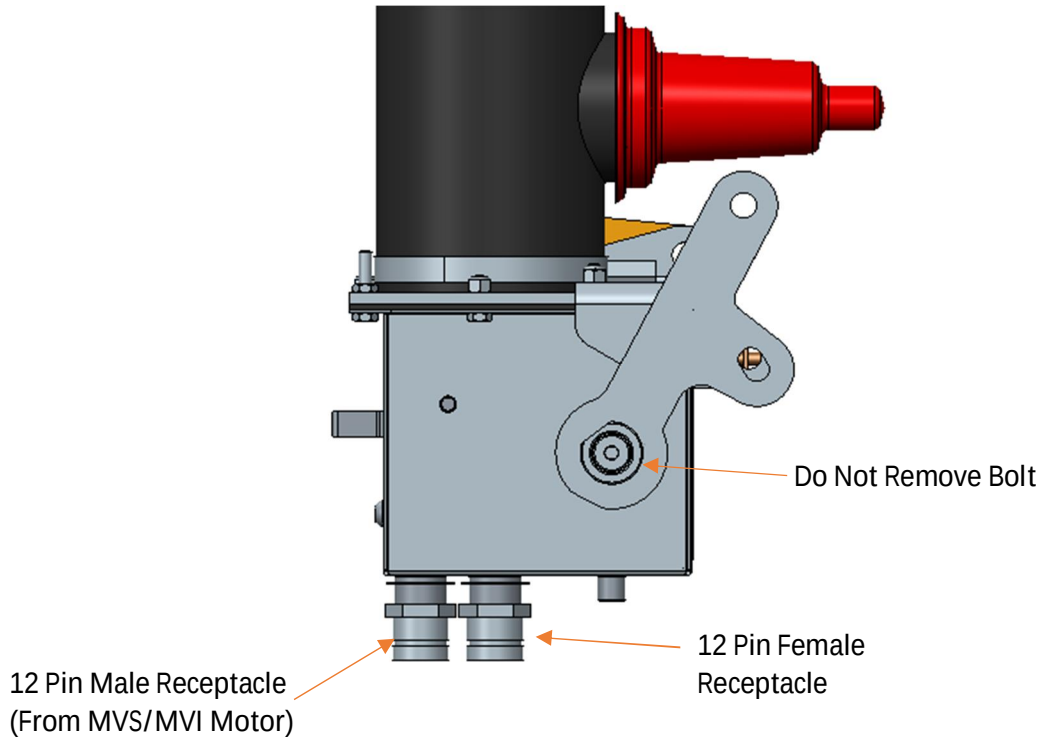


Figure 21 - Tru-Break 12 Pin Receptacles

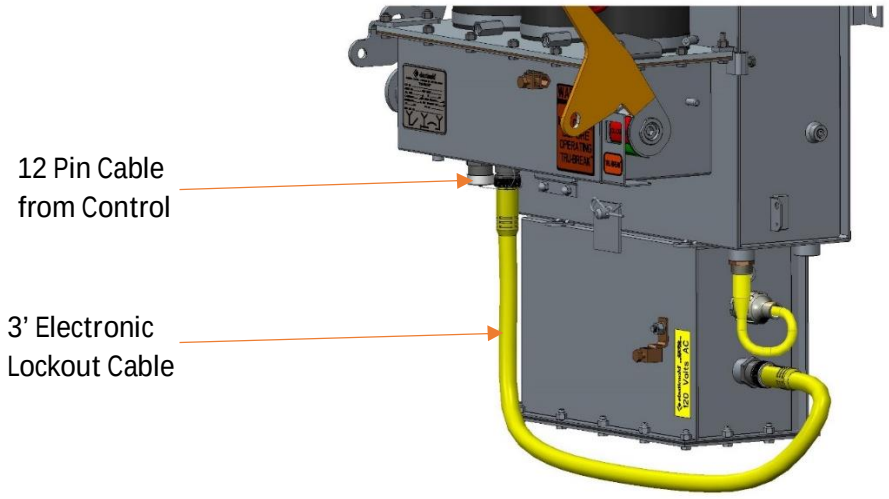


Figure 22 – 12 Pin Electronic Lockout Cable from Tru-Break to Switchgear

2. Reinstall motor linkage to the new switchgear handle. See Figures 23 and 24.

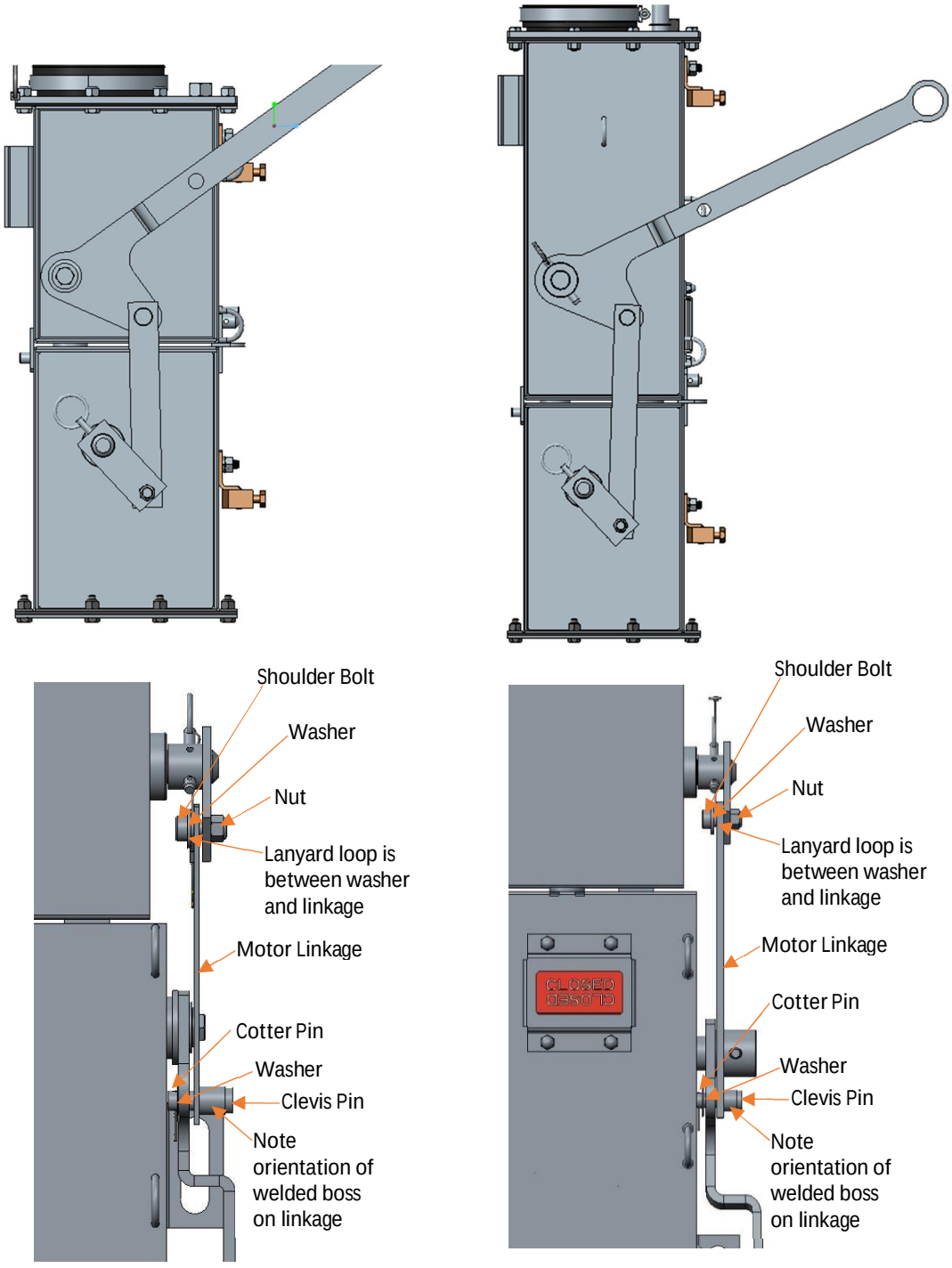


Figure 23 & 24 – (Left) Motor Linkage Attached to New MVS Handle. (Right) Motor Linkage Attached to New MVI Handle

3. Re-install any cable accessories that were previously installed on the switchgear to the Tru-Break interfaces.

Test Interlock Operation

Test the interlock system between the Tru-Break and the swtichgear to confirm that the interlock is functioning properly.

1. While the switchgear is in the open position the Tru-Break handle should be operable between the open and closed positions.
2. Move the Tru-Break to the open position. The switchgear handle cannot be placed into the closed position if the Tru-Break is in the open position.
3. Move the Tru-Break to the closed position. Move the switchgear to the closed position. The Tru-Break handle should now not be able to move to the open position.

Test Interlock Operation (If Switchgear is Outfitted with Motor Operator)

Test the interlock system between the Tru-Break and the switchgear if a motor operator is installed to confirm that the interlock is functioning properly.

1. While the switchgear is in the open position the Tru-Break handle should be operable between the open and closed positions.
2. Move the Tru-Break to the open position. The motor operator should not move the MVS or MVI motor due to the electrical interlock. When using an Elastimold® motor operator control under this condition, the open and closed lights will flash continuously on the control and must be reset by powering down the control.
3. Move the Tru-Break to the closed position. Move the switchgear to the closed position using the motor operator. The Tru-Break handle should not be able to move to the open position.