

KT131011EN

10/13/2015

Instructions for Installation of 67A3349G01
 2-Way Cable Interlock for Mini-Vac VCP-T and
 T-VAC Fixed Circuit Breakers
 NOTE: THIS APPLIES TO THE 25kA VERSION
 ONLY.

 **WARNING**

Breaker must remain in the "OPEN" and "DISCHARGED" condition during the installation of this accessory kit.

This Mechanical Interlock connects 2 circuit breakers so that only 1 can be closed at any time.

Closing one circuit breaker thru a drive cable holds the second circuit breaker in a tripped condition.

Note: Eaton Corp. assumes no responsibility for damage done to circuit breaker or other equipment during field mounting of any accessories.

Contents of Kit #67A3349G01

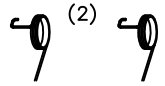
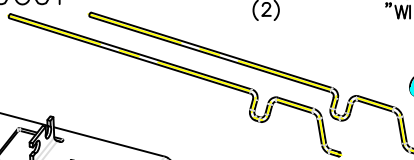
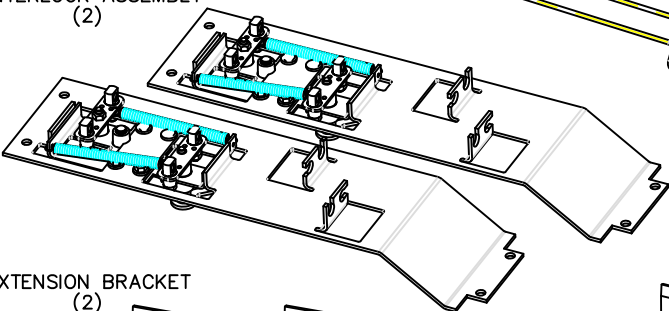
INTERLOCK ASSEMBLY (2)

WIREFORM (2)

TORSION SPRING "WIREFORM RETURN" (2)

TORSION SPRING "TRIP LEVER RETURN" (2)

M6 X 10mm THREAD FORMING SCREW (4)



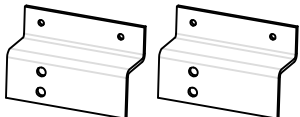
M2.5 SCREW (2)

M2.5 METRIC LOCK WASHER (2)

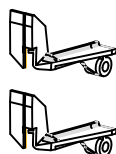
M2.5 METRIC HEX NUT (2)

"L" STOP BRACKET (2)

EXTENSION BRACKET (2)



TRIP LEVER (2)



M5 E-CLIP (2)



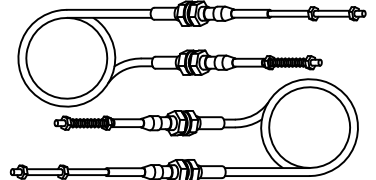
DRIVE ARM (2)



M6 X 35mm CAP HD SCREW (2)



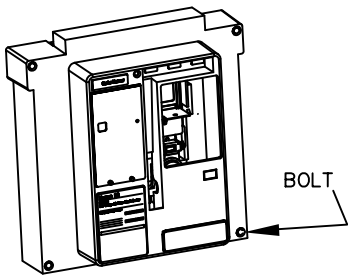
CABLE ASSEMBLY (2) (AVAILABLE IN 5',6',8',10' LENGTHS)



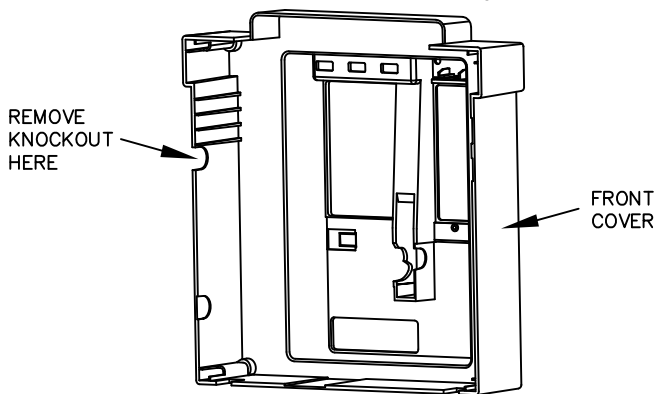
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Step 1: Remove front cover.
Remove front cover of breakers to be interlocked by loosening 4 or 6 cover bolts and holding charge handle down approximately 45°.



Step 2: Remove knockout.
Remove knockout from right side of front cover using pliers to break out U-shaped tab. File excess material from broken edge.



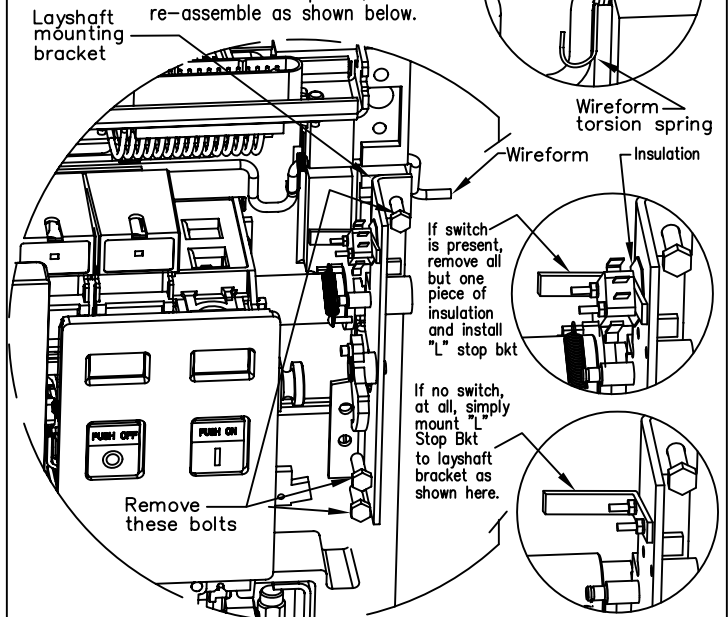
Step 3: Remove Lay Shaft Bracket/Install Wireform and stop bracket:

Remove the lay shaft bracket by removing the three bolts (one on top, two on bottom of bracket). You will need to rotate and remove the plastic bushing/collar in order to remove the layshaft bracket from the housing.

With the lay bracket removed, slide wireform return torsion spring over wireform and insert long straight end of wireform into slot in front of the base housing

Torsion spring should be assembled with hooked end on right leg of "U"-shaped wireform area, and then compressed with straight leg resting in pocket of base housing (see picture). Wireform should run the length of front base housing through slot and will now be flush on left side of breaker.

Wireform stop bracket should be assembled as shown in pictures below. If a microswitch is present, remove the switch and all but one of the insulation pieces, and then re-assemble as shown below.

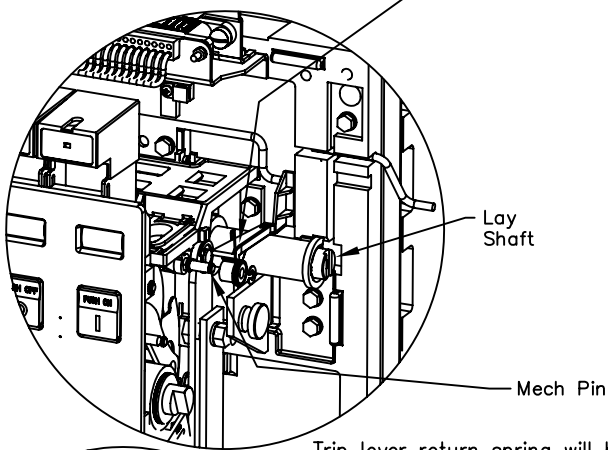


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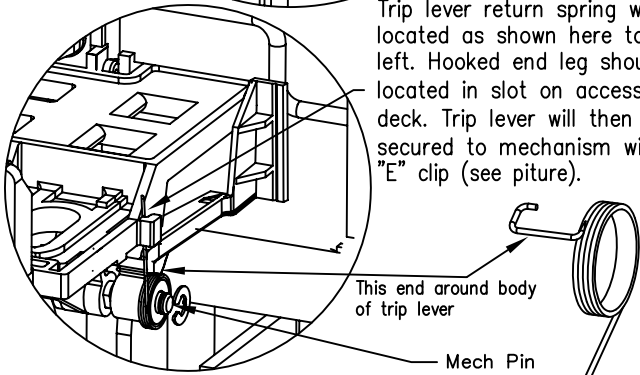
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Step 4:

Install Wireform Trip Lever:
 Assemble a "trip lever return" spring (torsion spring) to trip lever as shown below before securing to mechanism. Trip lever will slide onto mech pin while resting on top of layshaft, with flat front of lever positioned directly in front of "U" shaped area on wireform. See bottom picture for finalizing the trip lever to mechanism.

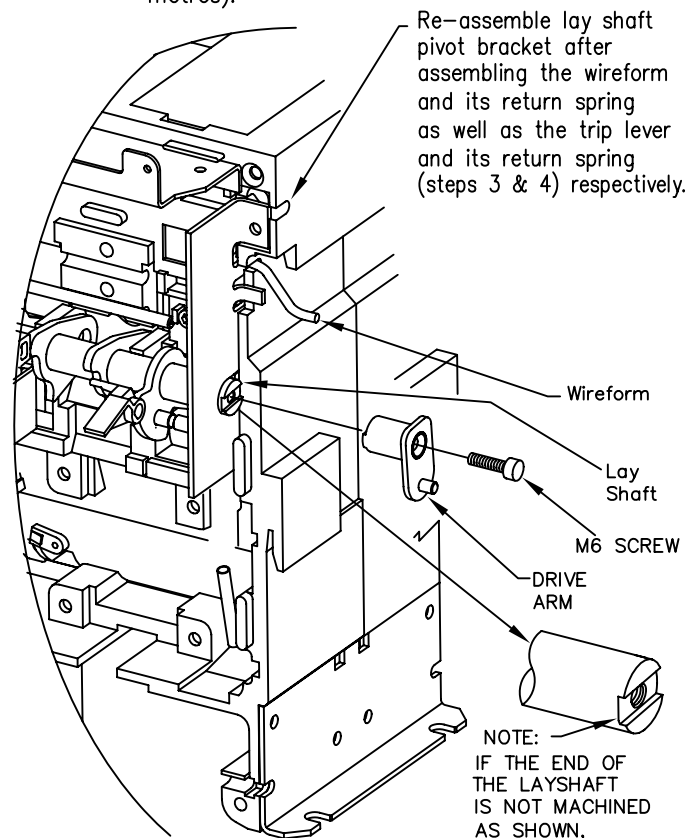


Trip lever return spring will be located as shown here to the left. Hooked end leg should be located in slot on accessory deck. Trip lever will then be secured to mechanism with "E" clip (see picture).



Step 5: Install drive arm

Install drive arm on right end of layshaft – with drive arm lever extending downward as shown – using the M6 x 40mm flat head screw provided. Torque the screw to 65–85 inch-pounds (7.3–9.6 newton-metres).



Re-assemble lay shaft pivot bracket after assembling the wireform and its return spring as well as the trip lever and its return spring (steps 3 & 4) respectively.

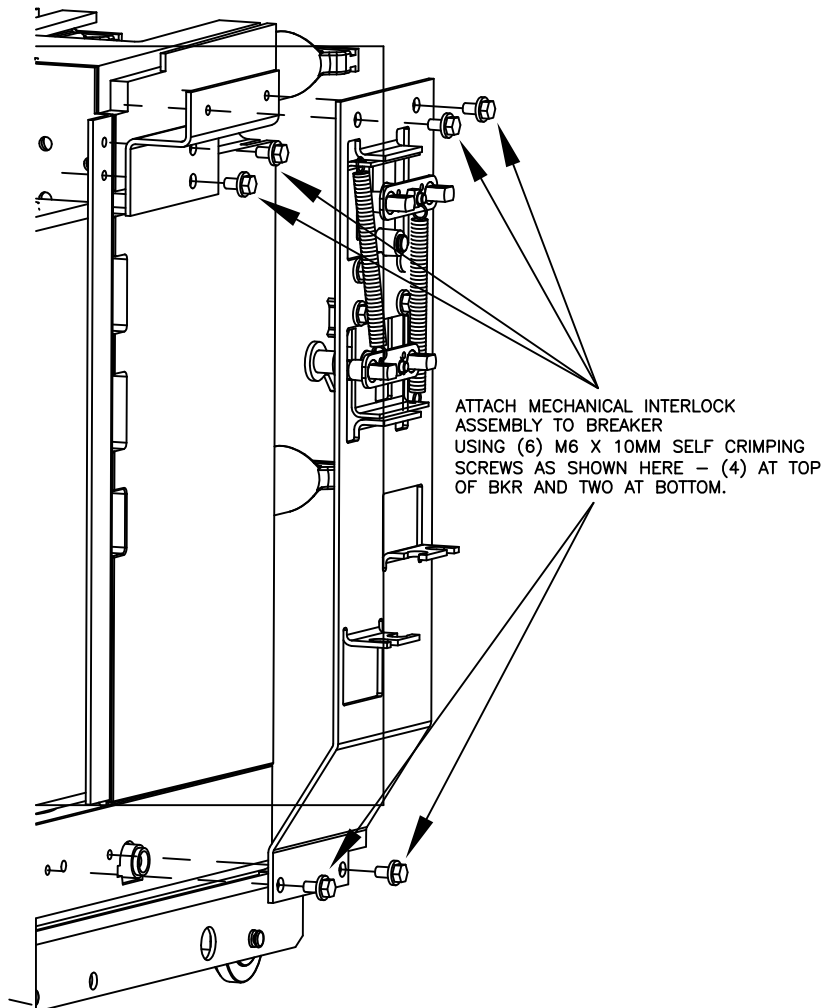
NOTE:
 IF THE END OF THE LAYSHAFT IS NOT MACHINED AS SHOWN, CONTACT YOUR EATON REPRESENTATIVE.

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Step 6:
Assemble to right side of breakers.



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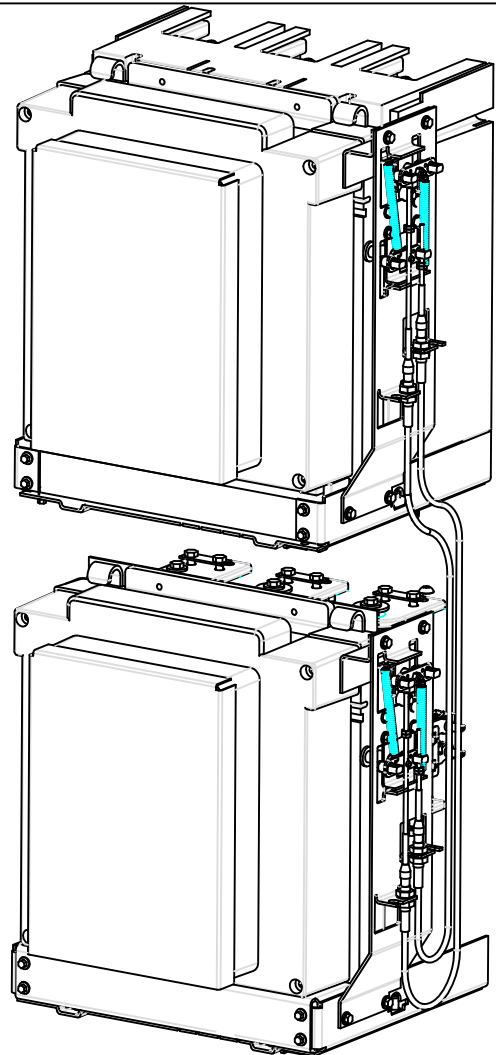
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Step 7: Routing Cables

Before installing cables, check to be sure that all cables move freely in cable sheath.

Route the cables from one breaker to the other in such a fashion that there are no sharp bends in the cable sheath and the total number of bends are minimized; the minimum allowable cable bend radius is 4 inches. Later, after completing the installation and adjustment of the cables, attach the cable sheath to the structure at a suitable number of points along the cable run, being careful not to compress the cable sheath.

The use of plastic wire clamps or wire ties will minimize the likelihood of binding the cable.

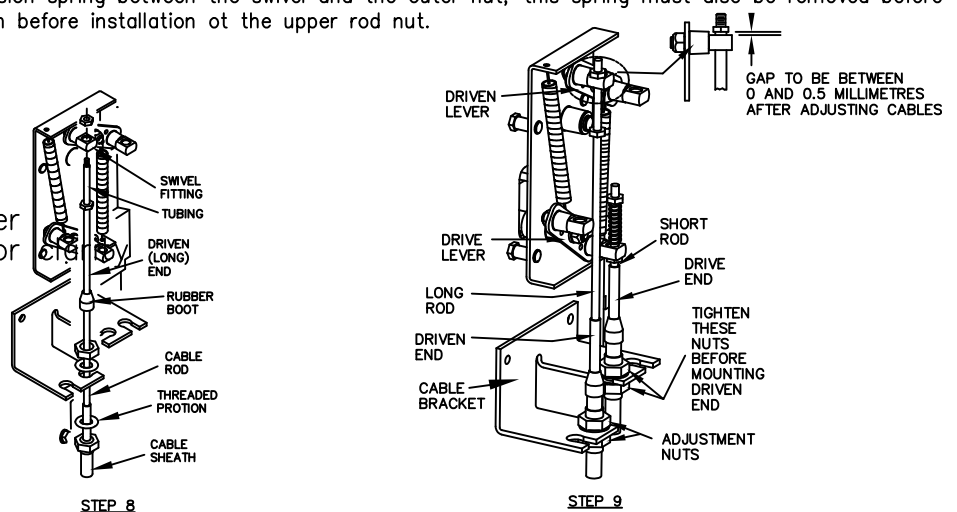


Step 8: Attaching Cables to Interlock Assembly.

The attachment of the driven (long rod) end of the cable is illustrated below. Remove nut and spacer tube from the end of the rod. Slide the rubber boot toward the tip of the rod. Unthread the outer bulkhead nut and slide the nut and lockwasher toward the tip. Insert the threaded end of the rod into the swivel fitting while simultaneously sliding the smaller diameter portion of the bulkhead fitting into the slot in the mounting plate. Raise the cable assembly until the threaded portion of the bulkhead fitting enters the slotted hole and fasten the bulkhead washer and nut finger tight; adjust the two bulkhead nuts so that the fitting is approximately centered on the cable mounting bracket and hand tighten nuts. Slide the rubber boot back into place over the end of the bulkhead fitting. Replace tube spacer and upper nut on the rod end. The lower nut should be shouldered against the end of the thread and the upper nut tightened against the spacer tube; while holding lower nut, torque upper nut to 30 to 40 inch pounds (3.3 to 4.5 Nm).

Repeat the above steps to attach the other end of the cables to the other breaker interlock assembly. The only difference is that the drive (short) rod uses a compression spring between the swivel and the outer nut; this spring must also be removed before installation and replaced as shown before installation of the upper rod nut.

Note:
Cell framing and breaker
omitted from picture for

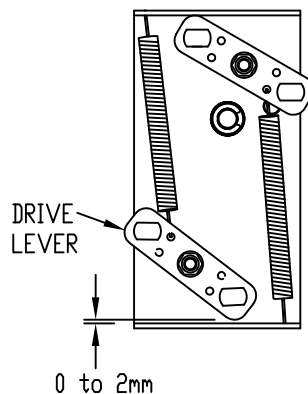
**Step 9:** Adjusting the cables.

Adjustment of the cables is done with the bulkhead mounting nuts; the two nuts on the rod ends should not be moved. The adjustment is performed with both breakers OPEN. Begin by adjusting all cable bulkhead mounting nuts (both ends) so that the mounting bracket is approximately in the center of the threaded section of the bulkhead fitting; this gives room for adjustment in either direction. Finger tighten all bulkhead nuts in this position. Perform initial adjustments on the driven (long rod) end of the cable. There should be a small (0 to 0.5mm) clearance between the outer rod nut and the face of the swivel on which it pulls. If there is too much clearance, adjust both bulkheads nuts to retract the cable sheath; if there is no clearance, advance the cable sheath in the same way. If additional adjustment length is required, the bulkhead nuts on the other end of the cable can also be used. When the proper clearance is attained on the driven end, tighten the cable bulkhead nuts on both ends to a torque of 100 to 120 inch lbs (11 to 13 Nm).

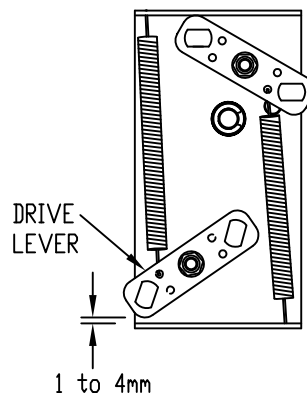
Step 10: Check Function of Lever Assemblies

Check adjustment of drive (lower) lever. With the breaker OPEN, the gap between the lower right hand corner of the drive lever and the mounting bracket flange should be from zero to 2mm (see fig.1). Now CLOSE the breaker; the drive lever should rotate approximately 60 degrees counter-clockwise. There should be a minimum gap of 1mm and a maximum gap of 4mm between the lower left hand corner of the lever and the mounting bracket flange (see fig.2). If either of these gaps are out of specification the installation should not continue. Consult Cutler-Hammer for additional instructions.

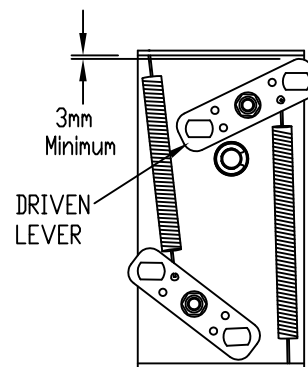
Check adjustment of the driven lever and tripper bar. The upper left hand corner of the driven lever should be held in contact with the mounting bracket flange by the return spring, and the inner arm that operates the tripper bar should protrude a few mm beyond the right edge of the mounting bracket. With the breaker closed, grasp and slowly rotate the driven (upper) lever counter-clockwise. At about 30 degrees of rotation (with the lever approximately horizontal) the breaker should trip. If the breaker doesn't trip before the upper right hand corner of the driven lever is within 3 mm of the mounting bracket flange (see fig.3) the driven lever and/or trip lever are out of specification. Do not continue installation; consult Cutler-Hammer for additional instructions.



BREAKER OPEN
figure 1



BREAKER CLOSED
figure 2



BREAKER OPEN
figure 3

Step 11: Test completed assembly.

- a. CHARGE and CLOSE breaker A; inspect the driven lever on breaker B; it should be rotated against its stop (the mounting bracket). CHARGE breaker B and attempt to CLOSE it; it should not respond to the CLOSE attempt (no noise, no spring discharge, no contact motion). If breaker does not respond as indicated, review steps 7 thru 10. Additional adjustment may be required at the cable mounting brackets.
- b. OPEN breaker A; The interlock should release. CLOSE breaker B; verify that it closes with the OPEN/CLOSED indicator. Breaker A should now be held in the open condition. Repeat the above checks on breaker B (lever position, attempt to CLOSE).
- c. The mechanical interlock is now properly installed and adjusted.