

Installation & Operating Instructions

167ELR (without test point)

168ELR (with test point)

Loadbreak Elbow Connectors

CONTENTS: Elbow Connector Housing, Compression Lug, Probe, Probe Wrench, Lubricant (Do Not Substitute), Installation/Operating Instructions.

The 167ELR (without test point) and 168ELR (with test point) are designed to terminate UD cable having concentric neutral and extruded insulation shielding. The elbow provides an operating interface for connecting to an Elastimold 15kV class (8.3kV phase-to-ground and 14.4kV phase-to-phase) 200ampere loadbreak bushing or accessory device with fault close ratings of 10,000 amperes RMS, symmetrical. When other types of UD cable are to be terminated an appropriate Elastimold cable shield or grounding device must be used.

DANGER

All apparatus must be de-energized during installation or removal of part(s) except for test point caps and indicators that can be installed and operated energized.

After installation loadbreak products can be operated energized per operating instructions. All deadbreak connectors must be de-energized before operating.

All apparatus must be installed and operated in accordance with individual user, local, and national work rules. These instructions do not attempt to provide for every possible contingency.

Do not touch or move energized products.

“Loadbreak connectors must be operated with a full insulated “hotstick” type live–line tool.” Consult the company’s safe work practices for the required live–line tool length.

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

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

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

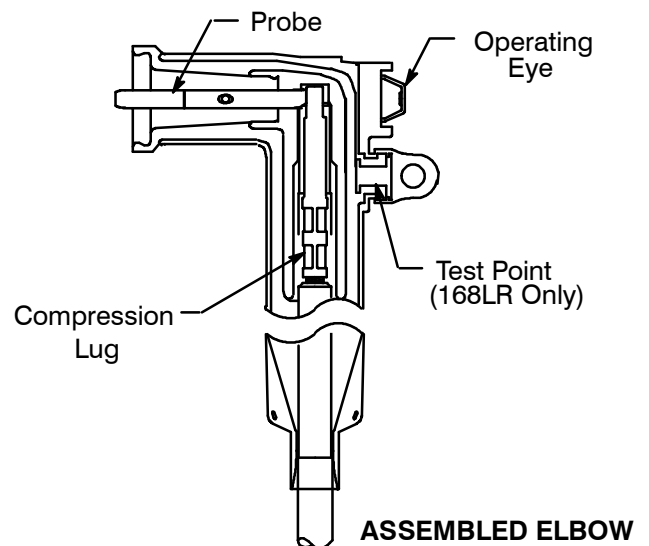
This product should be installed only by competent personnel trained in good safety practices involving high voltage electrical equipment. These instructions are not intended as a substitute for adequate training or experience in such safety practices.

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

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.

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. Check threads by threading probe into compression lug. If resistance is encountered prior to full assembly, check for damage and replace damaged component.
4. Read entire installation instructions before starting.
5. Have all required tools at hand and maintain cleanliness throughout the procedure.



CAUTION: Lubricate test point cap and assemble tightly.

NEW INSTALLATION AND TOTAL REPLACEMENT OF ELBOW HOUSING AND COMPRESSION LUG

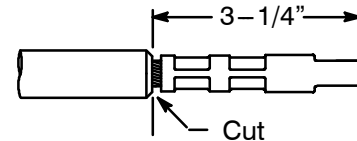
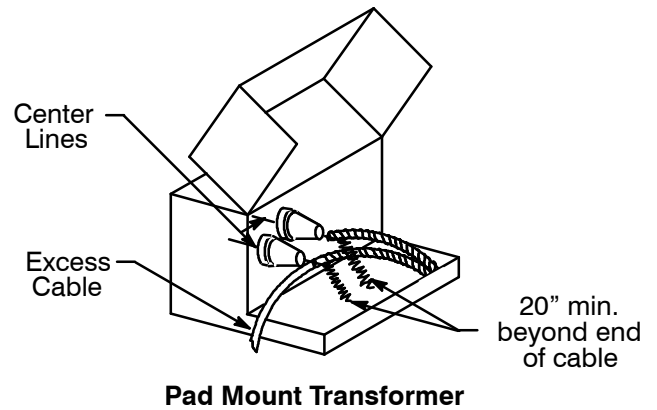
(For elbow housing replacement without changing compression lug see page 3 Steps 1a and 2a)

STEP 1 CABLE TRAINING

- A. Train cable as shown to ease operation.
- B. For **new installation** cut excess cable squarely at center line of bushing.

For **replacement**:

- a. Using pin wrench remove probe from elbow and discard probe.
- b. With a twisting motion, pull the elbow off the cable.
- c. Cut off old compression lug as shown.

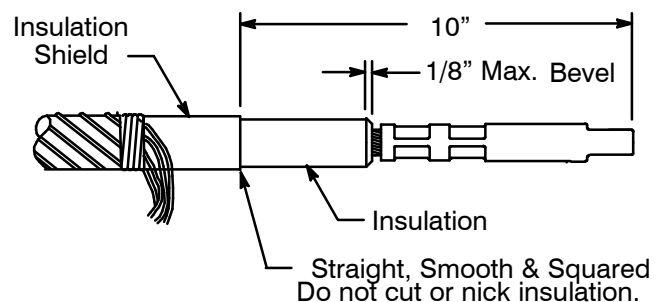
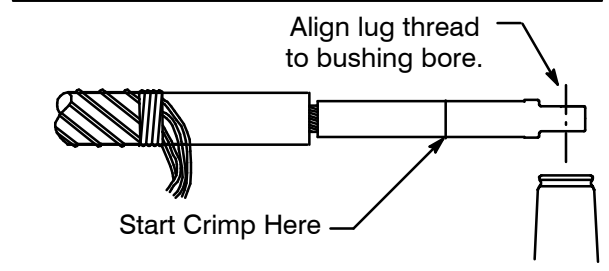
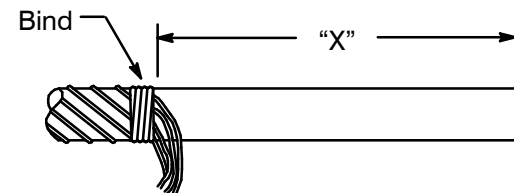


STEP 2 CABLE PREPARATION

- A. Unwrap and bind concentric neutral wires "X" back from end of cable.

Compression Lug	X Dimension
02200XXX	13
02500XXX	13
02509XXX	9-1/2"

- B. Remove shield and insulation from the cable end. Cut squarely taking care not to nick conductor.
- C. Wire brush bare aluminum conductors and immediately install compression lug. Rotate to spread inhibitor. Position compression lug so the CONTACT THREADED HOLE ALIGNS WITH THE BUSHING BORE. (Refer to crimp chart packaged with compression lug for recommended crimp tool information.) Start crimp at the crimp line mark. Rotate 180° each successive crimp. Carefully wipe excessive inhibitor from the outside of the lug and cable.
- D. Remove insulation shield as shown. Bevel insulation end 1/8" max.
- E. Thoroughly clean insulation to remove all traces of conductive residue.

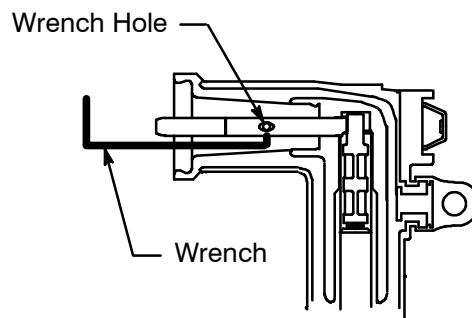


PROCEED TO STEP 3

FOR ELBOW HOUSING REPLACEMENT WITHOUT CHANGING COMPRESSION LUG (for new installation see page 2 Steps 1 and 2)

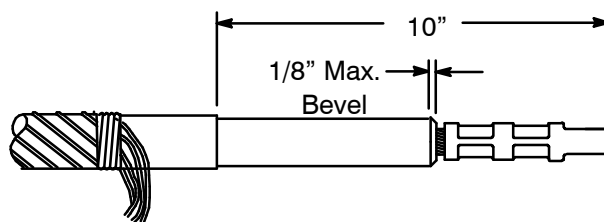
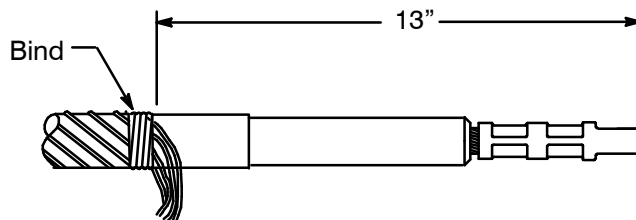
STEP 1a REMOVE ELBOW

- A. Using pin wrench remove probe from elbow and discard probe.
- B. With a twisting motion, pull the elbow off the cable.



STEP 2a CABLE PREPARATION

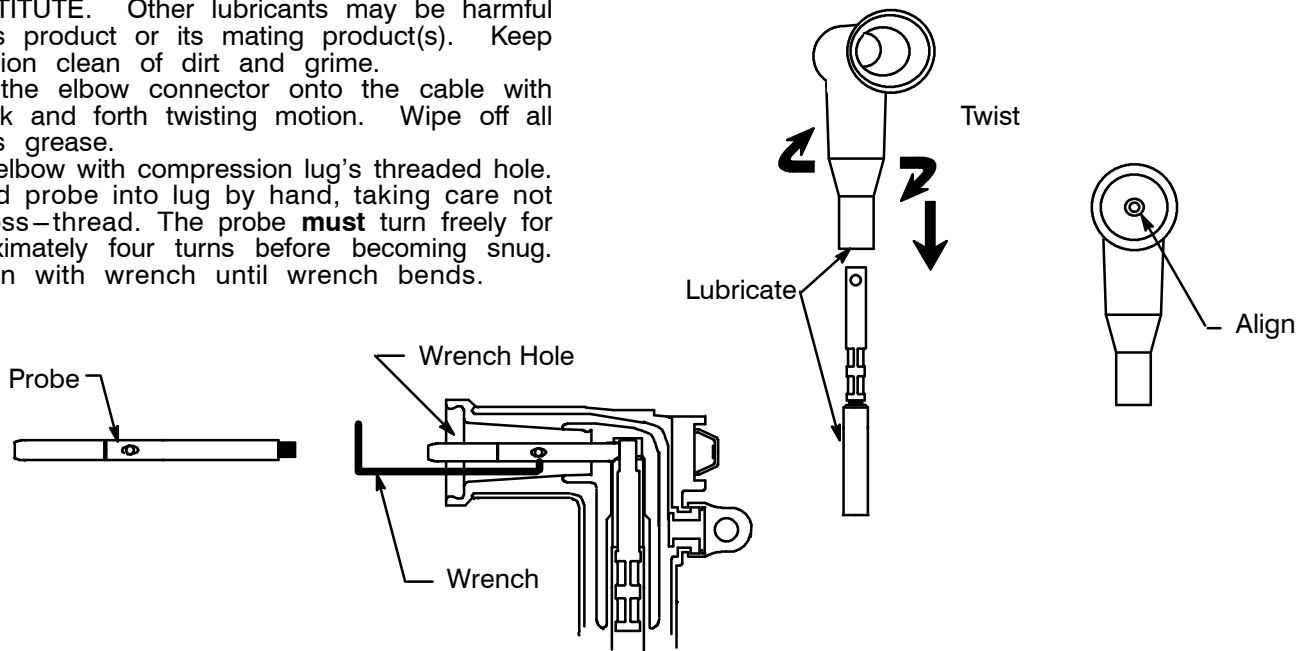
- A. Unwrap and bind concentric neutral wires 13" back from end of connector.
- B. Remove insulation shield as shown.
- C. Bevel the insulation end 1/8" max.
- D. Thoroughly clean insulation to remove all traces of conductive residue.



PROCEED TO STEP 3

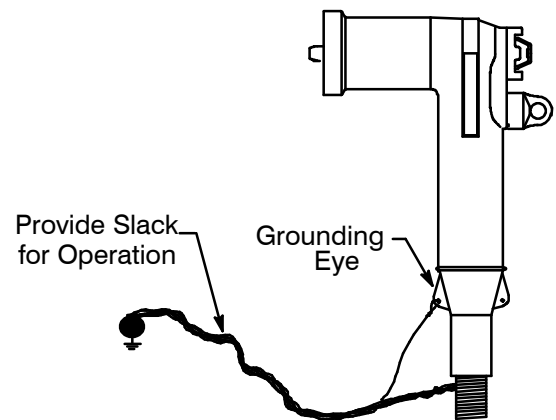
STEP 3 ELBOW ASSEMBLY

- Lubricate the cable insulation and inside the elbow housing with the lubricant supplied. **DO NOT SUBSTITUTE.** Other lubricants may be harmful to this product or its mating product(s). Keep insulation clean of dirt and grime.
- Slide the elbow connector onto the cable with a back and forth twisting motion. Wipe off all excess grease.
- Align elbow with compression lug's threaded hole.
- Thread probe into lug by hand, taking care not to cross-thread. The probe **must** turn freely for approximately four turns before becoming snug. Tighten with wrench until wrench bends.



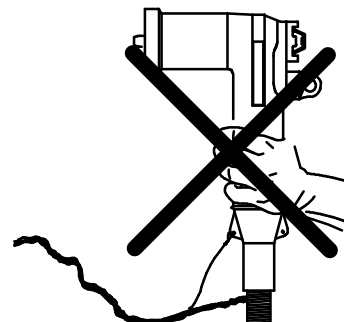
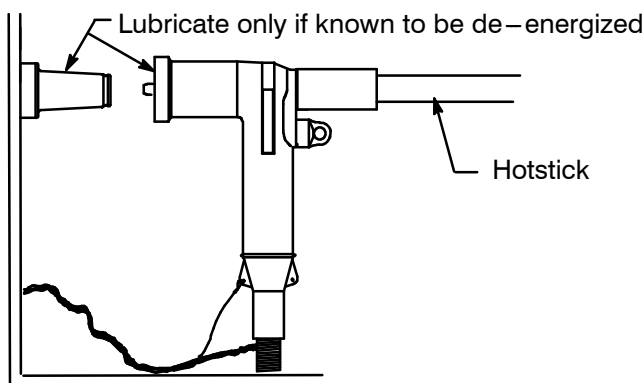
STEP 4 CONCENTRIC NEUTRAL CONNECTION

- Using a separate copper wire (No. 14 AWG / 2.5mm) or equivalent, insert one end through the grounding eye on the elbow. Twist tight taking care not to damage the eye.
- Twist all neutral wires and wire from grounding eye and connect to ground using appropriate connector. Provide adequate slack in wires for elbow operation.



STEP 5 CONNECT ELBOW AND BUSHING PLUG

- Lubricate the receptacle portion of the elbow connector and the mating bushing with the lubricant supplied. **LUBRICATE ONLY IF THE TRANSFORMER AND ELBOW ARE KNOWN TO BE DE-ENERGIZED.**
- Operate per following instructions. **DO NOT OPERATE BY HAND.**



OPERATING INSTRUCTIONS

Before Loadmake or Loadbreak Operation:

Area must be clear of obstructions or contaminants that would interfere with the operation of the connector. This position should allow you to establish firm footing and enable you to grasp the hotstick tool securely, maintaining positive control over the movement of the loadbreak connector before, during and directly after the operating sequence. Because of the control, speed and force required to engage or disengage the elbow, certain operating positions are more advantageous than others. If there is some question as to proper operating position, it is recommended that the connectors be operated de-energized. Do not connect two different phases of a multiple-phase system. Before closing a single-phase loop, make certain both ends of the loop are the same phase.

LOADMAKE OPERATION

Loadbreak connectors must be operated with a full insulated "hotstick" type live-line tool. Consult the company's safe work practices for the required live-line tool length.

1. Area must be clear of obstructions or contaminants that would interfere with the operation of the connector.
2. In preparing bushing for elbow connector, remove insulated cap by attaching hotstick tool to the insulated cap pulling eye, and following the instructions for this accessory, remove from bushing.
3. Securely fasten a hotstick to the loadbreak connector pulling eye.
4. After establishing firm footing and positive control of the elbow connector, withdraw the elbow from the accessory device on the apparatus parking stand with a fast, straight, firm motion being careful not to place the elbow connector near a ground plane.

Check appropriate accessory device operating instructions to be sure that the device is rated for energized operation.

5. Place the elbow connector receptacle area over the bushing plug, inserting the elbow male contact (arc follower portion) into the bushing until the first slight resistance is felt. Resistance is felt when the arc follower portion of the male contact first meets the female contact of the bushing (at this point the contacts are approximately 2" apart).

DO NOT HOLD IN THIS POSITION BUT IMMEDIATELY PUSH THE ELBOW HOME WITH A FAST, FIRM, STRAIGHT MOTION, which will engage the internal lock on the elbow and bushing interface.

Apply sufficient force to engage the internal lock on the elbow connector and bushing interface.

Fault Close

1. **It is not recommended that operations be made on known faults.**
2. If a fault is experienced, both the elbow connector and the bushing must be replaced.

LOADBREAK OPERATION

1. Place desired accessory device on apparatus parking stand.
Refer to appropriate operating instructions for accessory device to be used. Be certain it is rated for energized operation.
2. Firmly tighten a hotstick to the loadbreak connector pulling eye.
3. Without exerting any pulling force, slightly rotate the connector clockwise in order to break surface friction prior to disconnection.
4. Withdraw the connector from the bushing with a fast, firm, straight motion, being careful not to place the connector near a ground plane.
5. Place connector on appropriate accessory device, following the operating instructions for that accessory.

VOLTAGE TEST

ELASTIMOLD connectors equipped with an integral capacitance test point can be used to establish whether or not the circuit is energized. When using the test point, complete the following steps:

1. Remove test point cap with a hotstick. When removing cap, **PEEL OFF AT AN ANGLE** rather than pulling directly in line with the test point assembly.
2. **WARNING:** THE VOLTAGE TEST POINT IS A CAPACITANCE DEVICE, IT IS NOT DIRECTLY CONNECTED TO THE CONDUCTOR. Do not use conventional voltage measuring equipment. Follow the manufacturer's directions for the meter that is used. Test with a suitable sensing device, made for use with separable connectors manufactured with capacitive test points, to determine if cable is energized. Contamination, moisture, dirt, etc. around the test point or use of the wrong measuring equipment can provide a false "no voltage" indication on an energized elbow. To prevent serious or fatal injury treat the elbow as energized until the "no voltage" test point indication is confirmed by other means.
3. After voltage detection has been made, clean and lubricate the inside surface of the cap with silicone grease and replace it on the test point.

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