IS200LE - Loadbreak Elbows

200A, 15kV, 25/28kV & 35kV Small Interface (Interface 7B)

Description

Hubbell Loadbreak Elbows are designed to terminate underground cables and provide a plug-in connection to transformers, switches, and sectionalizing cabinets. Hubbell Loadbreak Elbows mate with the matching class of loadbreak interfaces and meet the requirements of IEEE Standard 386 - latest revision.

- 15 kV class: 200A 8.3 kV and 8.3/ 14.4 kV
- 28 kV class: 200A 16.2 kV and 16.2/28.0 kV
- 35 kV class: 200A 21.1 kV and 21.1/36.6 kV

15kV elbow used as model for instruction sheet figures

Installation Tools

- Insulating Hotstick
- Crimp Tools & Dies
- Hand Tools

Contents of Package

- (1) Elbow Housing
- (1) Compression Connector
- (1) Probe
- (1) Lubricant (DO NOT SUBSTITUTE)
- (1) Instruction Sheet
- (1) Probe Assembly Wrench

NOTES

- Check contents of box to ensure that it is complete and components are NOT damaged.
- A shield adaptor may be required for certain power cables.

Important: Read these instructions thoroughly before operating the system. Be sure that the connectors are rated for their intended energized use. (See Hubbell catalog for selecting the correct mating product.) For additional information, reference Guide for Preparation Techniques of Extruded Dielectric, Shielded Cables Rated 2.5 kV through 46 kV and the Installation of Mating Accessories, Guide for the Application of Separable Insulated Connectors.

⚠ DANGER ⚠

The equipment covered by these instructions should be installed, operated and serviced only by competent personnel familiar with safety practices. This instruction is written for such personnel and is not intended as a substitute for adequate training and experience in safe procedures for this type of equipment. Improper handling can result in death or serious injury, as well as equipment damage.

⚠ DANGER ⚠

Optional Capacitive Test Point- When making voltage measurements, the area of and around the voltage test point must be dry and free of contaminants. The voltage test point is not intended for actual voltage measurements or phasing operations and has no direct connection to the conductor. It uses an impedance capacitance tap and only voltage indicating instruments designed for this application to establish the presence of voltage should be used. A voltage reading will indicate the presence of voltage, but a reading of no voltage is not sufficient to establish a de-energized circuit before touching the connector. Other procedures should be implemented to establish a de-energized circuit.

Failure to comply could result in death or severe personal injury.

⚠ DANGER ⚠

All associated apparatus must be de-energized before performing any installation. Do not touch or move energized product by hand. Be sure that the connectors are rated for the intended application. Failure to comply may result in serious or fatal injury, as well as damage to the product.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to Hubbell Power Systems, Inc.

Cable Preparation

NOTE: These instructions will cover jacketed concentric neutral cable applications so please refer to cutback instructions from shield adapter kits for steps on how to prepare other types of underground power cables.

Step 1 - Train & Remove Jacket

A. Train the cable into the final assembled position per transformer standard practices. Allow sufficient slack in the cable to pull the elbow connector at least one foot away from, and in line with, the center line of the mating part during loadbreak operation. See Figure 1.

B. To provide sufficient length of concentric neutral conductor for grounding after installation, measure 8" down the cable from the centerline of the bushing interface and remove the outer jacket to this distance. Care should be taken not to damage drain wires. Bend neutral wires out of the way. See Figure 2.

Step 2 - Cable Preparation

A. Cut the excess cable off square and even with the center line of the bushing. See Figure 3.

B. Measure 2-1/8" down from the end of the cable and remove shield and insulation to expose bare conductor. Cut squarely making sure not to nick the conductor. See Figure 4.

NOTE: Preassemble probe into lug to verify proper threading before the lug is crimped to the conductor.

C. Use a wire brush to clean the exposed conductor. Place the compression lug on the conductor and rotate to spread inhibitor. Make sure to align flat threaded side with bushing interface. See Figure 5.

D. Crimp the lug to the conductor starting just below the knurled line and rotating successive crimps to prevent bowing. (Refer to crimp chart) See Figure 6.

NOTE: Wipe excess inhibitor at base of lug and smooth any sharp edges on crimps of lug.

E. Measure 6-7/8" down from the end of the lug (see template) and remove cable insulation shield. Cut squarely making sure not to nick the insulation. Bevel the insulation end 1/8". See Figure 7.

NOTE: *Refer to seal kit instructions if seal kit is used.*

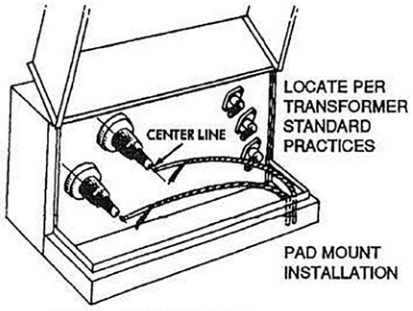


Fig. 1 - Train Cables

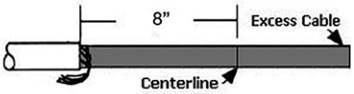


Fig. 2 - Jacket & Neutral Prep

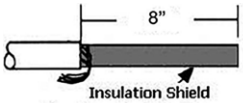


Fig. 3 - Cut Cable

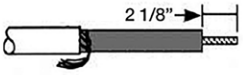


Fig. 4 - Expose Conductor

Fig. 5 - Align Lug

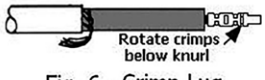


Fig. 6 - Crimp Lug

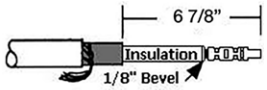
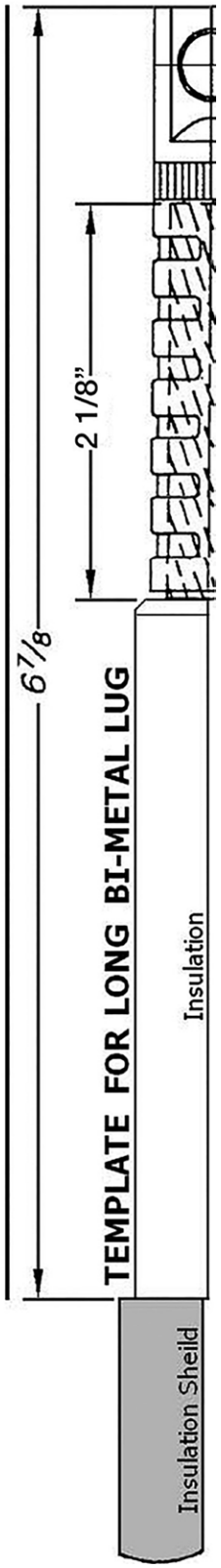


Fig. 7 - Remove Semicon



Installation

Step 1 - Assemble Elbow and Seal Kit

A. Clean and lubricate cable insulation and cable entrance of elbow making sure that each are free of contaminants. Use supplied lubricant as other lubricants can be harmful to products. DO NOT SUBSTITUTE.

B. Slide the elbow onto the cable, the final seating of the elbow should align elbow and threaded portion of lug. Wipe off excess lubricant that may form at bottom of elbow. See Figure 8.

C. Hand thread the probe into the lug to avoid cross threading. Once the probe has been properly started, use the supplied wrench to fully tighten probe into the lug. The probe will be fully mated when the wrench permanently deforms at approximately 110 to 120 inch-/lbs of torqueforce. See Figure 9

NOTE: Use care to keep the probe clean of dirt and grime during installation.

NOTE: When using a premium Sure-Break™ kit, with insulated probe to prevent partial vacuum induced flashovers, a thin layer of supplied lubricant applied to the 1/2" probe outside diameter in the area indicated in Figure 9 will aid in probe installation.

NOTE: If a Probelok®lug is used the probe will appear to become tight before it is fully seated. At this time the wrench must be used to complete the insertion of the probe into the lug. The normal "thread-in" force of the Probelok"' lug averages 40 to 50 inch-/lbs of torqueforce. Continue tightening with the wrench until the wrench permanently deforms.

NOTE: If other tightening tools are used, they should produce a torque exceeding a minimum recommended 110 inch-/lbs of torqueforce.

D. Attach a #14 AWG copper wire (or equivalent) to the drain wire tab of the elbow. Twist the wire at least two turns. Attach the free end to system ground. See Figure 10.

E. Twist neutral wires into a braid and connect to ground with appropriate connector. Make sure to provide sufficient slack in ground braid for elbow operation. See Figure 10.

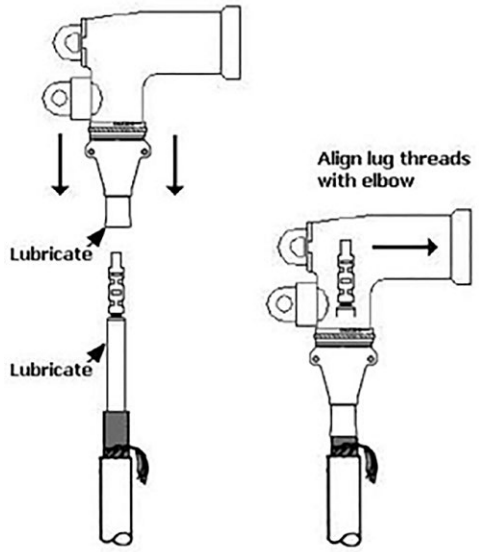


Fig. 8 - Lubricate, Install, & Align Elbow

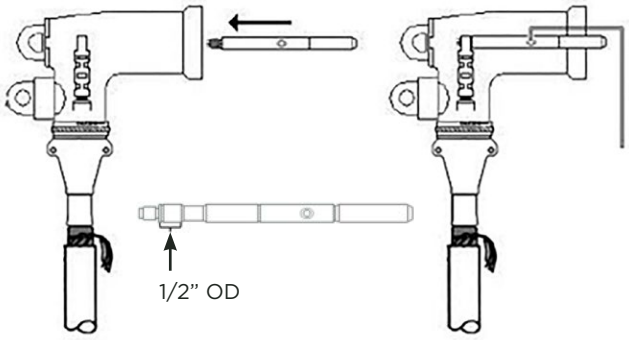


Fig. 9 - Assemble & torque probe with wrench

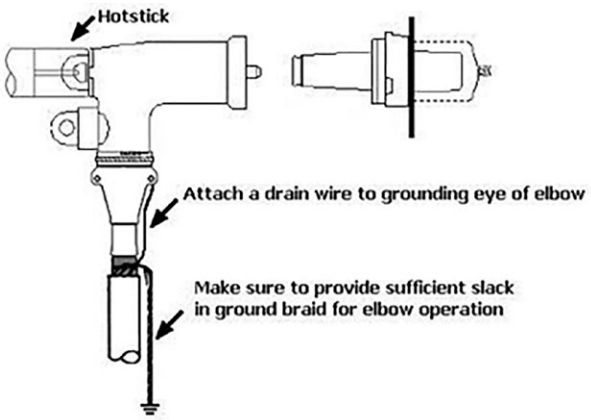


Fig. 10 - Ground Elbow

Loadmake / Loadbreak

> ⚠ **DANGER** ⚠
>
> The Operator should always use personal protective equipment as designated by internal company standards or safe operating practices.
>
> Do not connect two different phases of a multiple-phase system. Make sure both ends of the loop are the same phase before closing a single-phase loop.

NOTE: Operating area should have stable footing and be free of obstructions so that the operator can have full control of the loadbreak elbow during and immediately after operation.

Do not close elbow in on known faults.

Loadmake

1. The mating part must be prepared for loadmake operation following applicable instructions for the device.
2. Use an appropriate length hotstick tool for all operations. Attach the tool to the loadbreak elbow operating eye and tighten firmly. Avoid any off-axis operation.
3. Place the loadbreak elbow receptacle area over the mating part interface and insert the probe tip (white arc follower) into the mating part chamber until the first slight resistance is felt (1 to 2 inches). Immediately thrust forward with a firm, quick motion to lock the elbow on the mating part. Test for proper locking by gently pulling on the elbow to ensure a secure connection. If the elbow has not made a proper connection, pull elbow from mating part and repeat this step until the connectors are properly locked.

Loadbreak

1. Use an appropriate length hotstick tool for all operations. Attach the tool to the loadbreak elbow operating eye and tighten firmly. Avoid any off-axis operation.
2. Twist the hotstick tool clockwise until the loadbreak elbow rotates slightly on the bushing. Then pull the loadbreak elbow straight away from the mating part with a firm, quick motion until it is clear of any ground planes.

Recommended crimp tools and dies for Hubbell 200A elbow bi-metal connectors

Part Number	Dia. (Inch)	CU or Al Conductor Size (AWG or KCMIL)		EEi	CSA	Anderson		Burndy		Kearney		HOMAC		T&B	ALCOA/ BB
		Stranded or Compress	Solid or Compact			VC6FT VC6FBPT VC63 VC6350	VC6350SN VC6350BP VC6350	MD6	HYDL	0	HYDL	UTS	HYDL	HYDR TBM15 TBM14M 13100A	HYDL
200LUGB1	0.625”	#6	#4	SA	22 (2)”	(2)	(5)	BG Nose (6) 5/8-1 (6) 620 (3)	UBG (3) U243 (2) U27RT (3)	5/8 Nose (6) 5/8-1 (6) 620 (3)	9/16 (4) 572 (2)	TU (3)	52 (2)	50 (3)	B24EA (1)
200LUGB2		#3/#4	#2/#3												
200LUGB3		#2	#1												
200LUGB4		#1	1/0												
200LUGB5		1/0	2/0												
200LUGB6		2/0	3/0												
200LOGB7	0.750”	3/0	4/0	I0A		(2)	(5)	747 (3)	747 (3)		747 (3)	TV (3)	66 (2)	60 (2)	B39EA (1)
200LUGB8		4/0	250												

() indicates minimum number of crimps without overlapping indents

*** indicates overlap crimp indent*

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