



# Cold Shrink Splicing Kit QS2001B

## Instructions

**IEEE Std. 404**  
15 kV Class  
150 kV BIL



### Cable Range Requirements

Kit Number	Cable Insulation O.D. Range	Conductor Size Range
QS2001B	1.00" to 1.35" (25,4 mm to 34,3 mm)	350 - 500 kcmil* (185 - 240 mm <sup>2</sup> )

\* This kit can be used on smaller cables with a cable insulation O.D. range of 0.64" (16,3 mm) to .99 (25,3 mm) and conductor size from 2AWG to 250kcmil (35 to 250 mm<sup>2</sup>), provided the QS2000B-A Cold Shrink Adapter is installed after cables are prepared.



## 3M™ Cold Shrink Splicing Kit QS2001B

78-8126-5897-5-B

### **CAUTION**

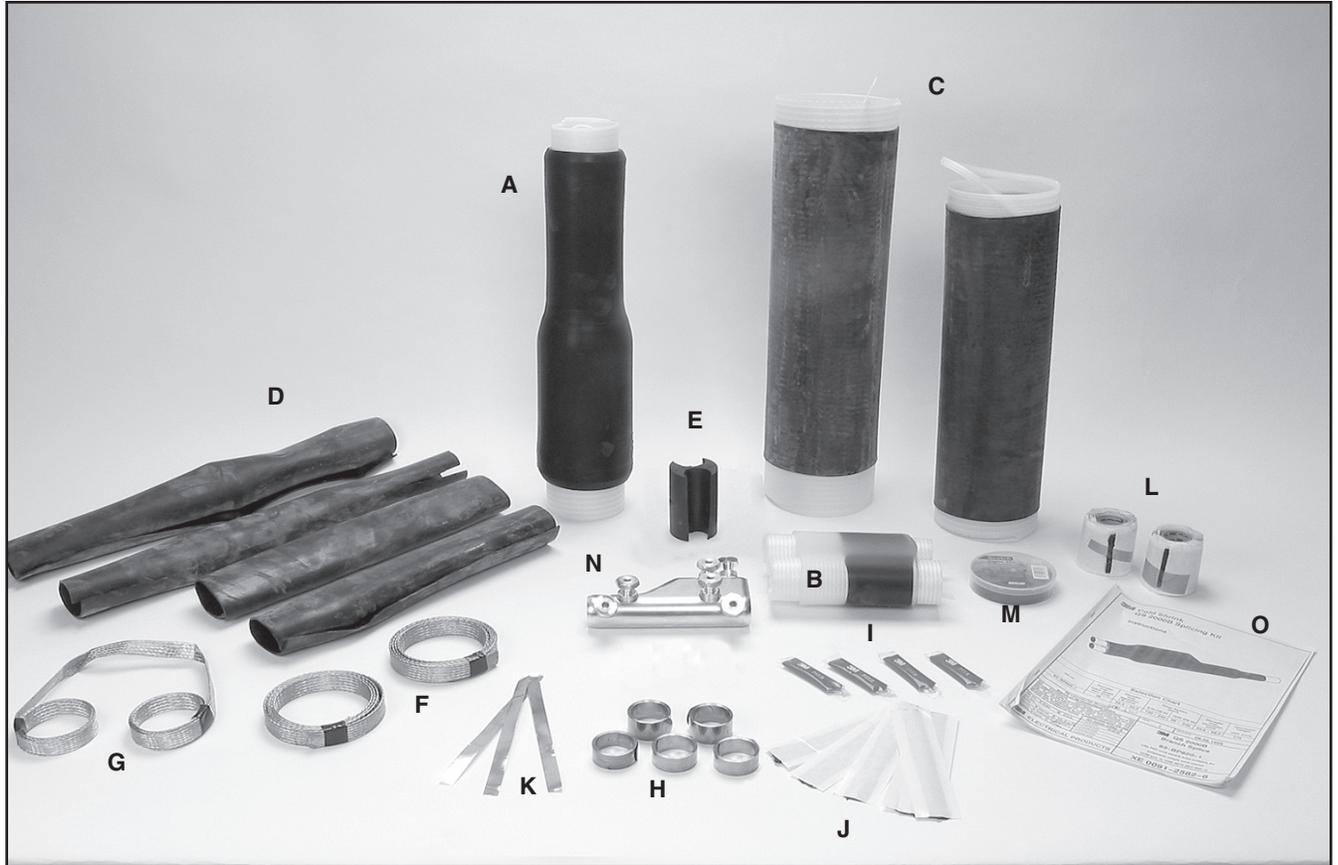
Working around energized high-voltage systems may cause serious injury or death. Installation should be performed by personnel familiar with good safety practice in handling high-voltage electrical equipment. De-energize and ground all electrical systems before installing product.

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## Kit Contents

- A. Cold Shrink Silicone Rubber Splice Body (1)
  - B. Cold Shrink Silicone Rubber Stress Control (1)
  - C. Cold Shrink Jacketing Tubes (2)
  - D. Conductive Rubber Neutral Pads (2 long & 2 short)
  - E. Rubber Sealing Adapters (1)
  - F. Splice Shielding Braids (2)
  - G. U-shaped Ground Strap (1)
  - H. Constant Force Springs (5)
  - I. Red Compound Tubes (non-silicone grease) (4)
  - J. Mastic Sealing Strips, 6" length (6)
  - K. Copper Tape Strips (3)
  - L. Rubber Mastic Tape Rolls (2)
  - M. Vinyl Tape Roll (1)
  - N. Set Screw Connector
  - O. Instruction Booklet (1)
- Not Pictured:**  
CC-3 Cable Cleaner Pads (1)

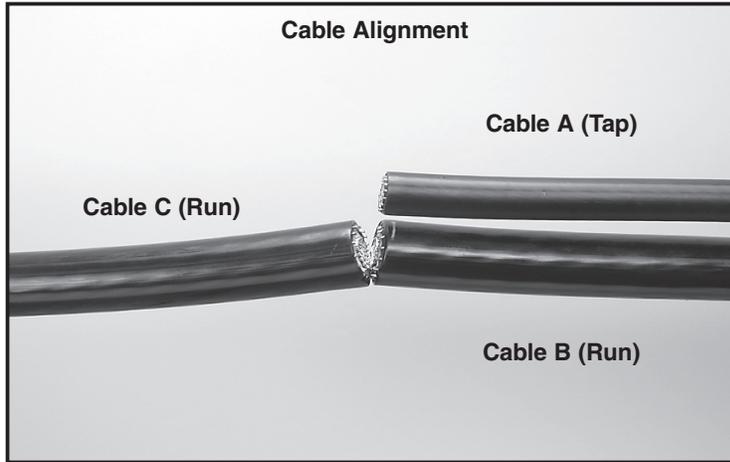


# QS2000B Branch Splice Instructions

*Note: Cables that have a primary cable insulation O.D. between 0.64" (16,3mm) and 1.00" (25,4mm) must have the QS2000B Cold Shrink Adapter Kit installed on the cable before continuing this installation.*

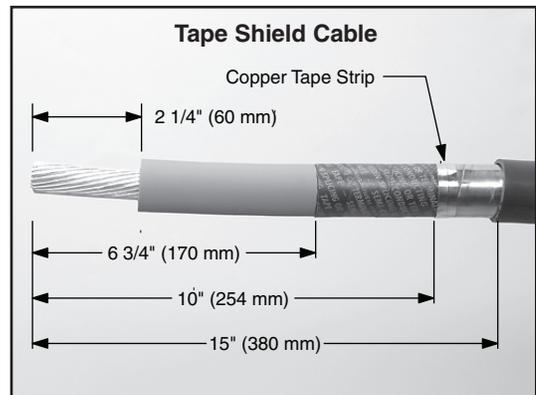
## A. Prepare Cables

1. Position cables as shown below.

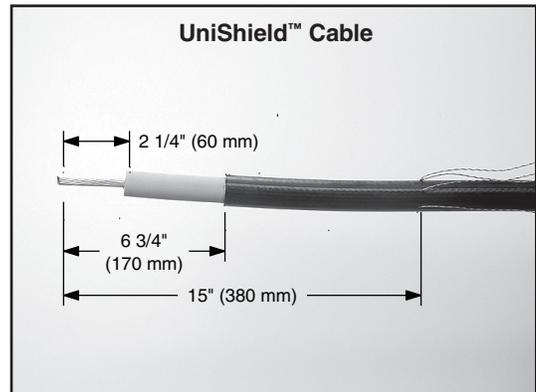


2. Prepare cables according to standard procedures. Cutback dimensions are shown below for each cable type.

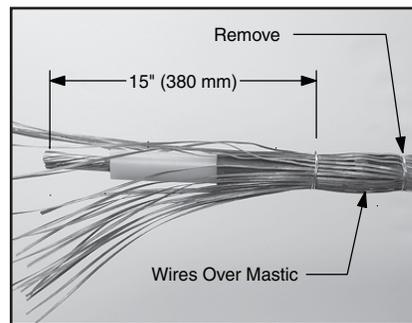
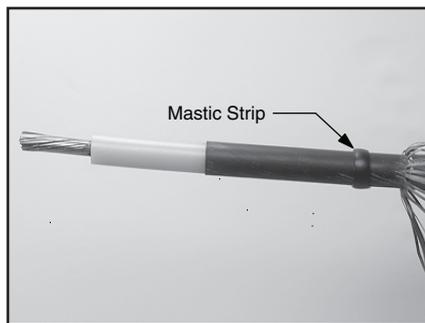
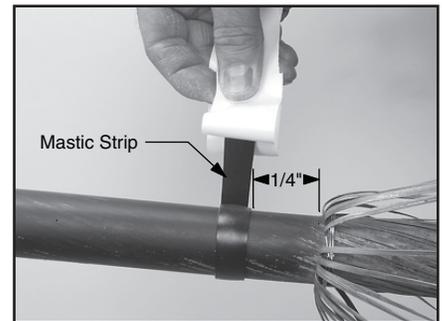
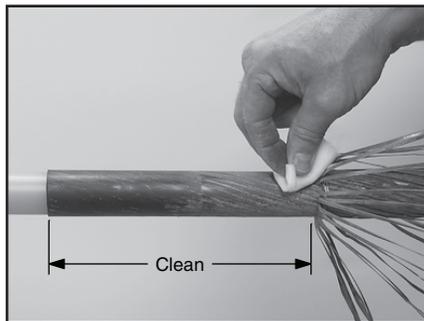
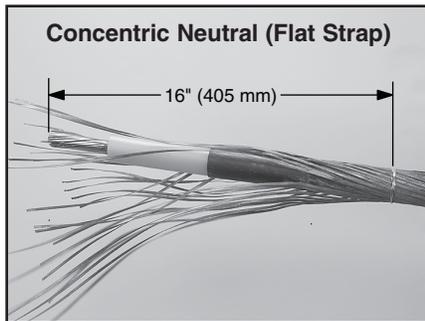
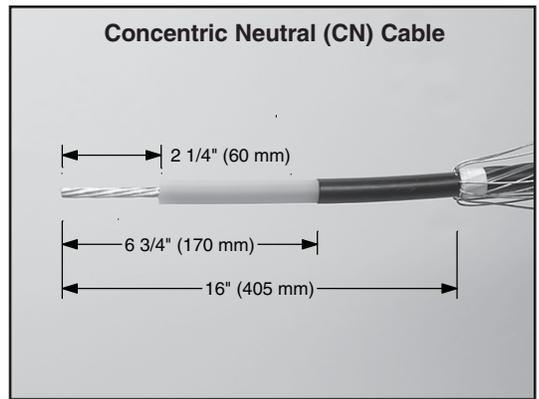
**For Tape Shield and Longitudinally Corrugated cables:** Secure/cover each shield end with a copper tape strip.



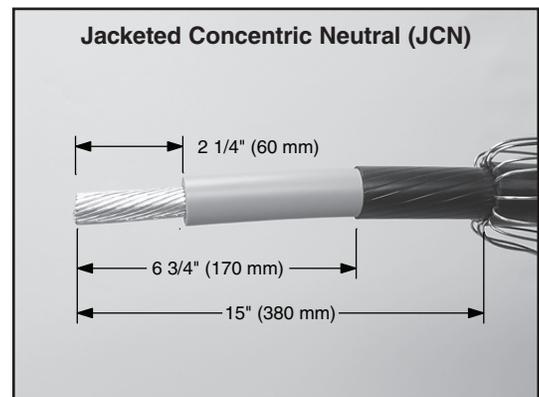
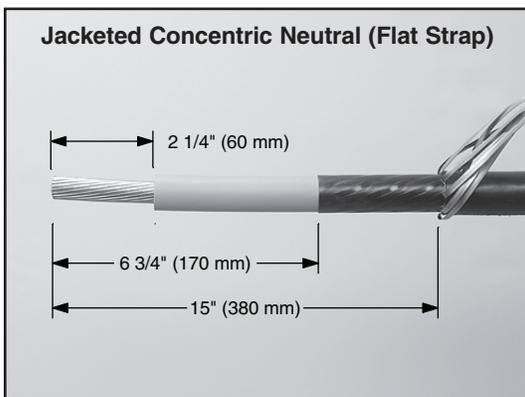
**For Unishield® cables:** Pull drain wires through semi-conductive jacket to 15". Do not cut wires.



**For CN or Flat Strap CN cable:** Bind neutral wires to cable semi-con at binder cutback dimension of 16" from the end of the conductor. Lift neutral wires and clean cable semi-con from binder to cable end, if necessary. Wrap one 6" mastic sealing strip around each cable semi-con (under neutral wires) close to the 16" binding wire. Return neutral wires over cable wire pushing them into the sealing mastic. Bind neutral wires to cable semi-con at 15" from the end of the conductor and remove 16" binder.



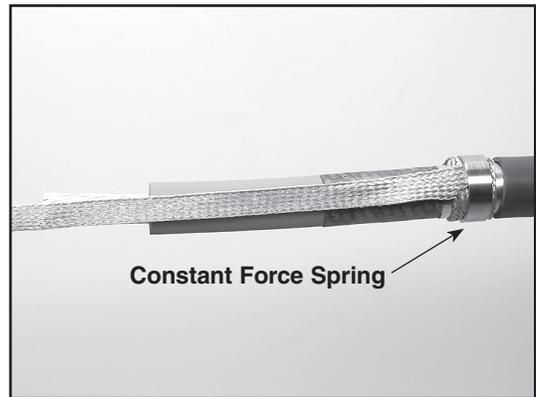
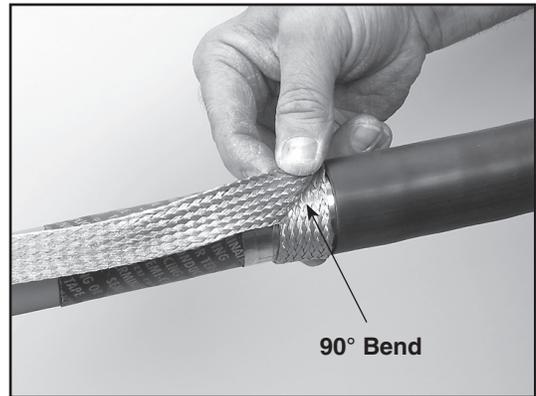
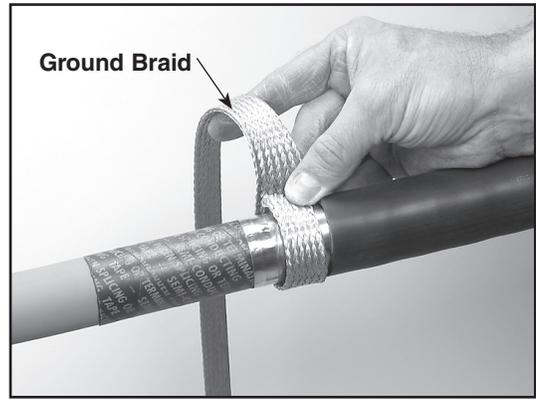
**For JCN or Wire Shield cables:** Do not cut neutral or drain wires. On Cable C only, carefully bend wires back over the cable jacket. Press them against the cable jacket and temporarily secure with vinyl tape.



## B. Prepare Cable A & B Shield Connection Areas

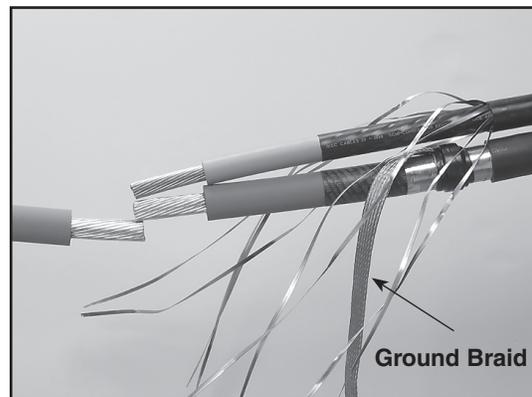
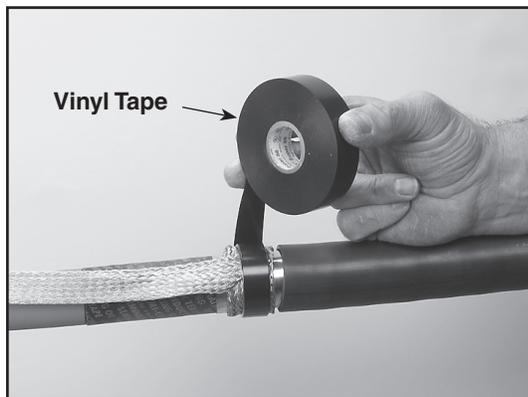
### For A&B Cables with Tape or LC Shield

1. Starting approximately 1/2" (13 mm) from the end of the metallic shield, position end of ground braid on cable metallic shield and wrap ground braid around cable one complete wrap.
2. Bend the braid at a right angle toward the exposed cable conductor.
3. Secure the ground braid to the metallic shield using a constant force spring.



4. Cover with 2 layers of vinyl tape. The other end of the braid will be connected in a later step.

*Note: Cable A is shown as JCN in this instance. For tape shield cable A same steps would apply.*

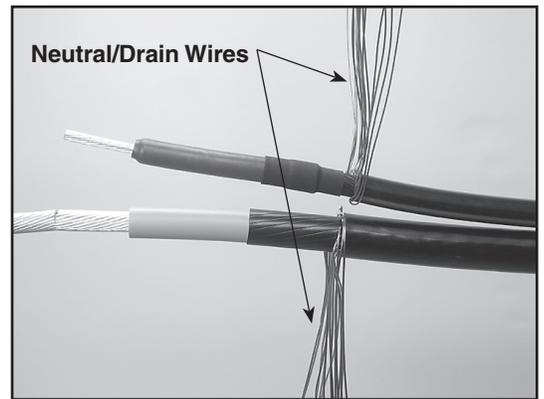


## For Neutral/Wire Shielded A&B Cables

1. Position neutral/drain wires as shown. Use rounded bends to avoid wire breakage due to excessive bending.

**Tape\LC Shield run cable:** Follow steps in Section C.

**Concentric Neutral\Wire Shield or UniShield run cable:** Follow steps in Section D.

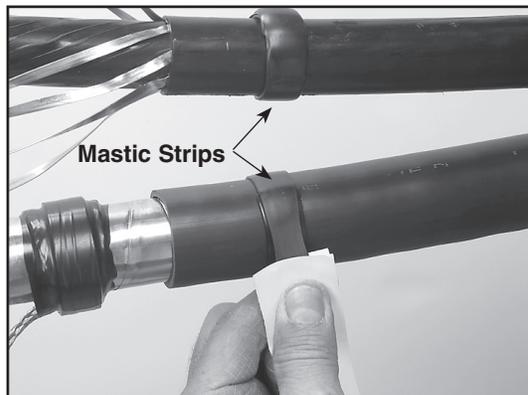


## C. Steps showing a Tape Shield (Run) to Tape Shield or Concentric Neutral/Wire/UniShield (Tap)

*Note: Maintain Cable A & B conductor end alignment through connector installation.*

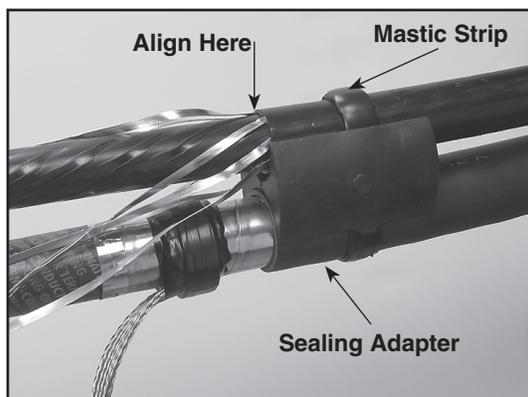
### 1.0 Install Cable A & B Sealing Adapter

- 1.1 Wrap a mastic strip around each cable jacket (over previously applied mastic if CN cable), about 1 1/2" (38-mm) from end of jacket. Cover mastic on each cable with one wrap of vinyl tape (Do not half lap side to side).



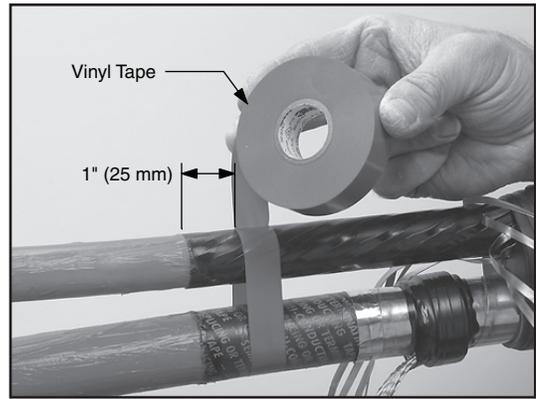
- 1.2 While maintaining alignment of the conductor ends, place the sealing adapter between the cables. Position one end of the adapter near the edge of the cable jacket or CN binding wire.
- 1.3 Wrap one roll of slightly stretched rubber mastic over the sealing adapter.

*Note: For alignment purposes remaining cable jackets can be taped together.*



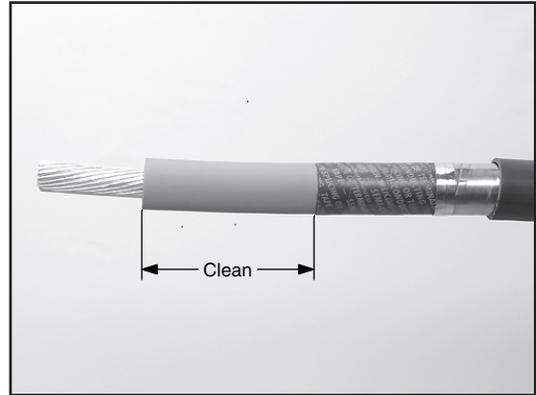
## 2.0 Install Cold Shrink Silicone Stress Control

2.1 Wrap a marker tape around both cables 1" (25,4 mm) from edge of cable semi-con.



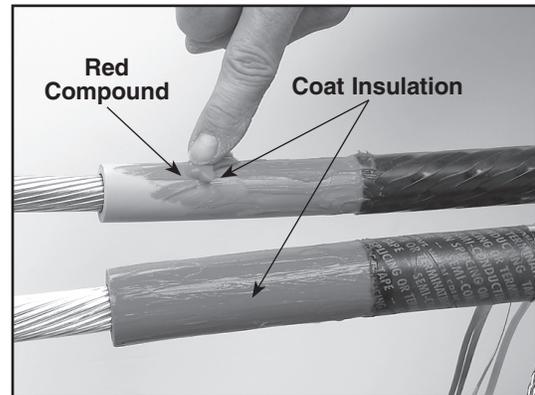
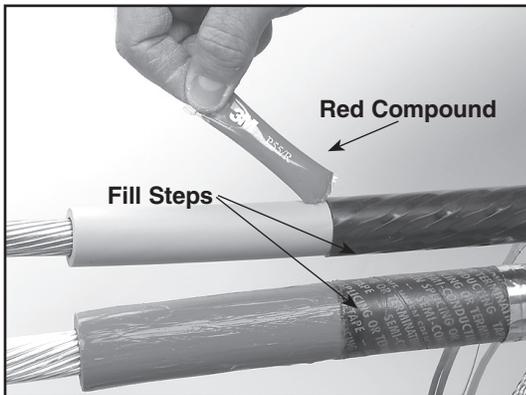
2.2 Clean cables using standard practice:

- a. Do not use solvent or abrasive on cable semi-conductive insulation shield.
- b. If abrasive must be used, do not reduce cable insulation diameter below 1.00" (25,4 mm) specified for the splice.

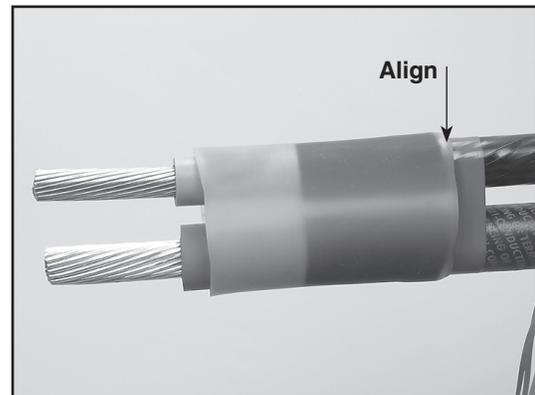
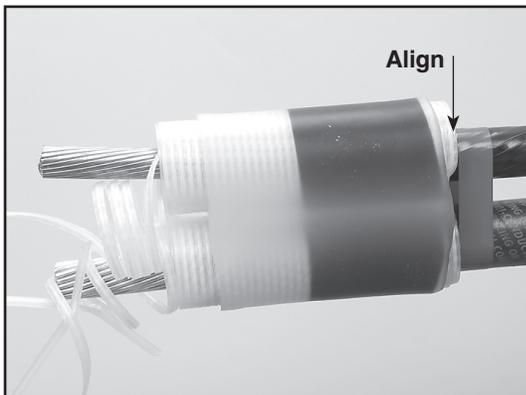


2.3 Apply red compound on clean insulation of both cables, making certain to fill in the edge of the cable semi-con.

**Do not use silicone grease.**

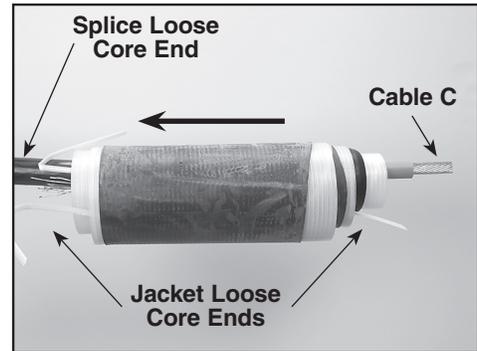
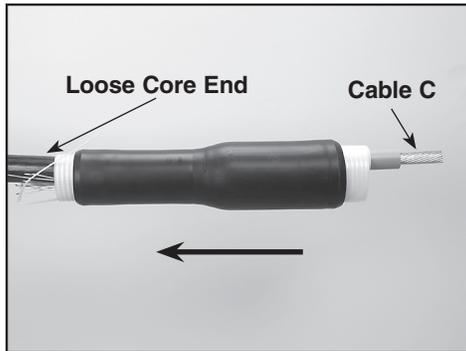


2.4 Position the Cold Shrink Silicone Rubber Stress Control on the cables, black end first. Install by aligning the end (not the core) with the edge of the marker tape, pull and unwind the cores in a counter-clockwise direction.



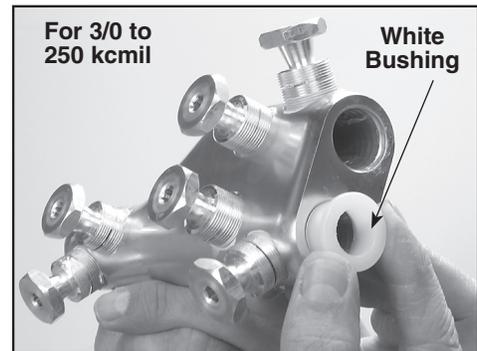
### 3.0 Install Splice

- 3.1 Park the stacked Cold Shrink Jacket Tubes and Cold Shrink Splice Body on cable C (single cable), with the splice body loose core end (or small end) first.

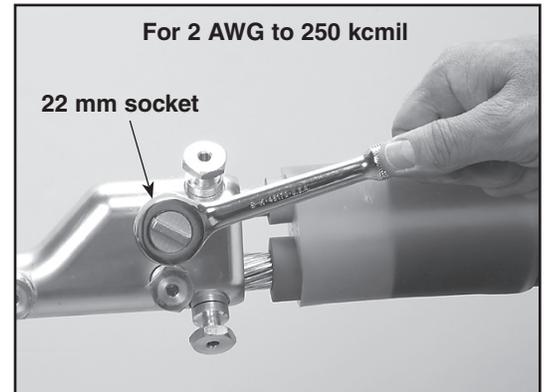


- 3.2 Install the connector. Tighten each pair of screws per the conductor size shown below.

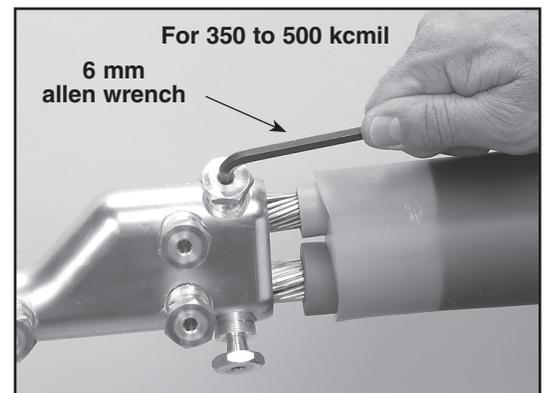
**For 2 AWG to 250 kcmil:** Place the plastic bushing in to the matching connector hole. Use the Black plastic bushing for 2 AWG to 2/0 AWG. Use the White plastic bushing for 3/0 AWG to 250 kcmil. Conductors must be fully inserted into the connector.



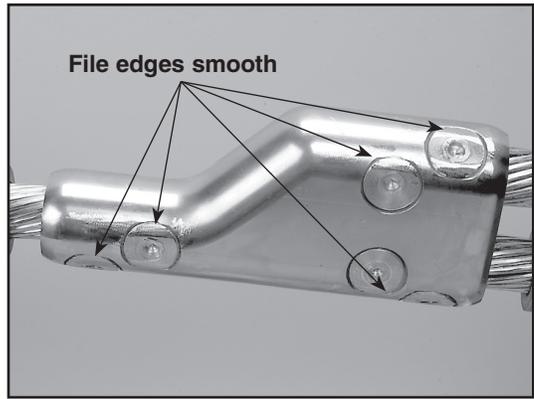
Using a 22 mm socket, hand tighten the hex bolt until screw head shears off.



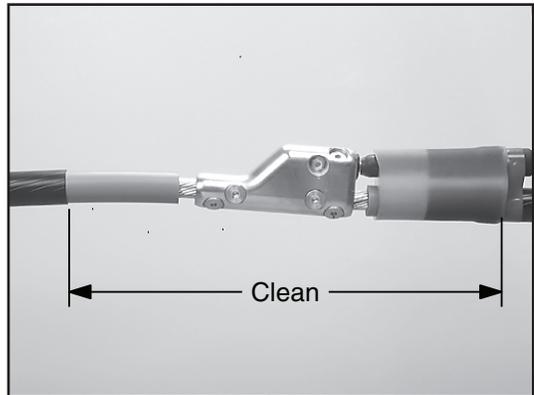
**For 350–500 kcmil conductors:** Use a 6 mm Allen key wrench (fully inserted) to tighten. Conductors must be fully inserted into the connector. Hand tighten each screw until screw head shears off.



3.3 Using a file, smooth all sharp screw edges.

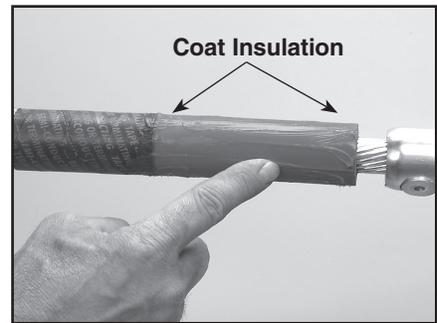
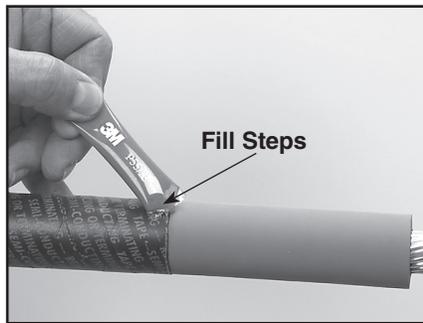
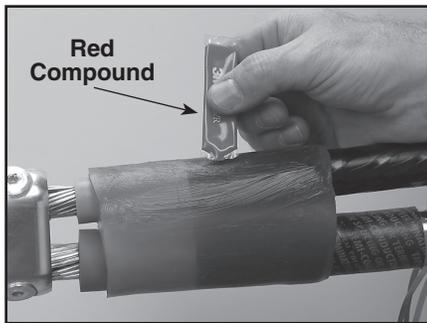


3.4 Clean Cable C insulation, surface of Cold Shrink Silicone Rubber Stress Control and the connector, if necessary before continuing.



3.5 Apply red compound on Cold Shrink Silicone Rubber Stress Control and Cable C insulation, making certain to fill in the edge of the cable semi-con.

**Do not use silicone grease.**

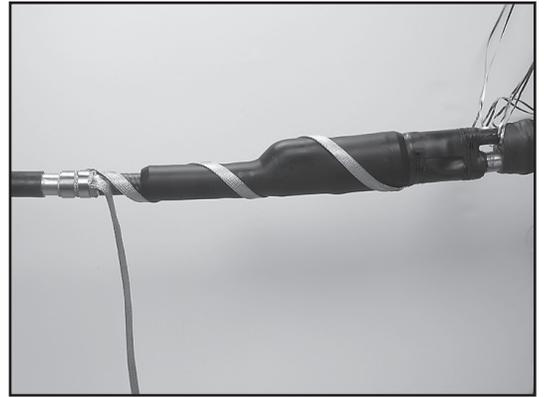


3.6 Position the splice body over the connector and Cold Shrink Silicone Rubber Stress Control. Install the splice body by slowly pulling and unwinding the core in a counter-clockwise direction, until 1/4" (6 mm) of the body has shrunk on to the Cold Shrink Silicone Rubber Stress Control. Slide the body until its end aligns with the end of the Cold Shrink Silicone Rubber Stress Control, as shown. Continue removing core to complete splice body installation.

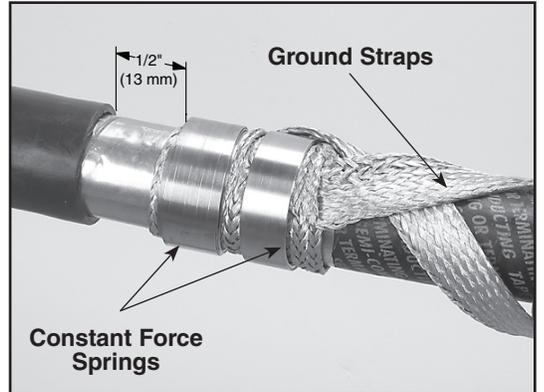


#### 4.0 Connect Shielding/Neutrals

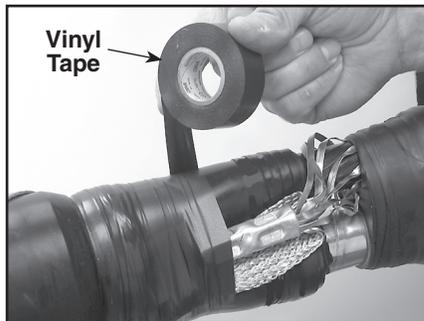
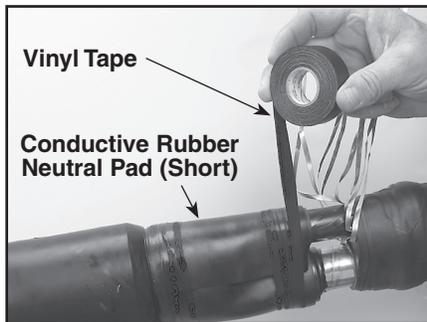
4.1 Spiral wrap the ground braid, attached to the metallic shield earlier, around the splice body across to Cable-C.



4.2 Secure each ground strap(s) to the other cable. Starting approximately 1/2" (13 mm) from the end of the metallic shield, position end of ground braid on cable metallic shield and wrap ground braid around metallic shield one complete wrap. Secure with a constant force spring.



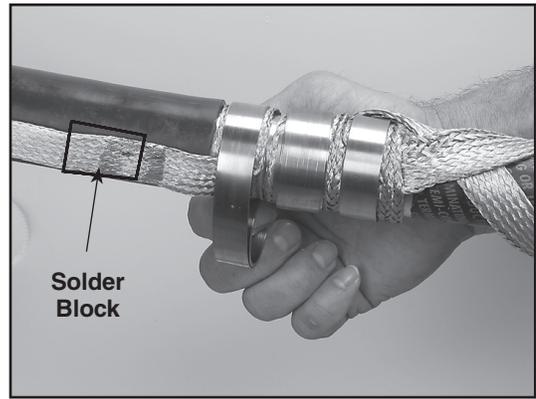
4.3 For connections to Concentric Neutral/Wire Shielded Cables, see below or Section D, Step 4.0 for more details.



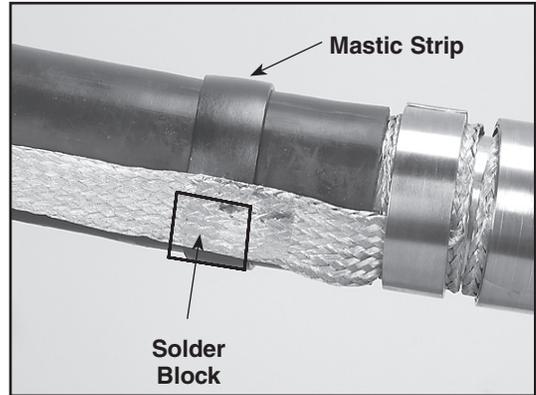
## 5.0 Grounding (Optional)

**Note:** Use these instructions if circuit grounding is required at this location.

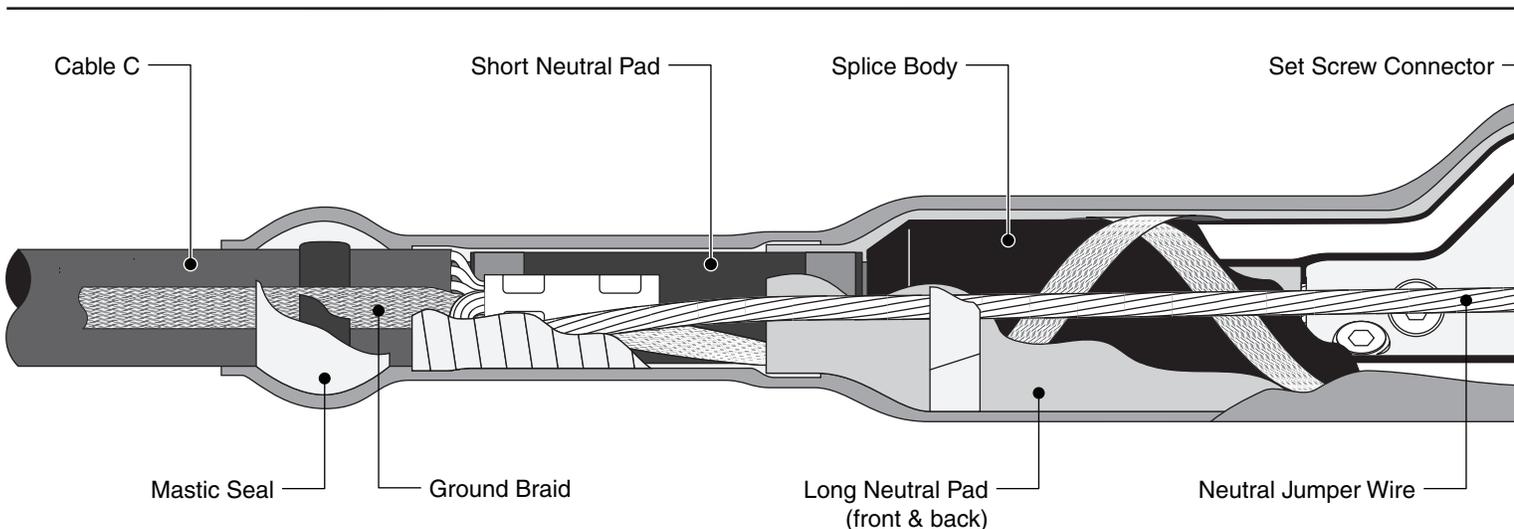
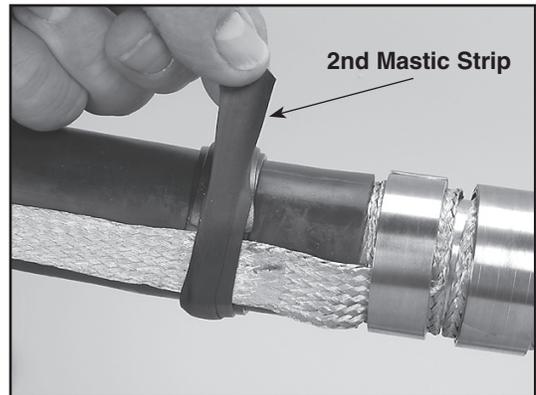
5.1 On Cable C side, wrap the U-shaped ground strap around the metallic shield with tails extending over the cable jacket. Secure strap to shield using a constant force spring.



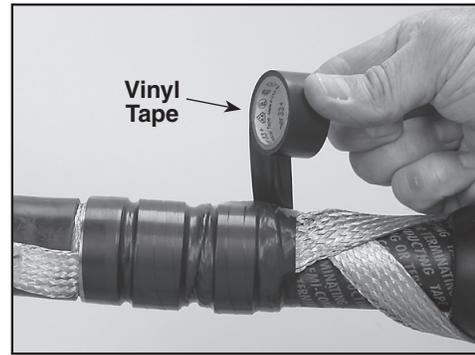
5.2 Locate the solder blocks on the ground strap. Wrap a 6" (152 mm) mastic sealing strip around the cable jacket under the solder blocks. If the solder blocks overlap, a piece mastic must be placed between the solder blocks.



5.3 Wrap another 6" (152 mm) mastic sealing strip over the solder blocks and first mastic strip.

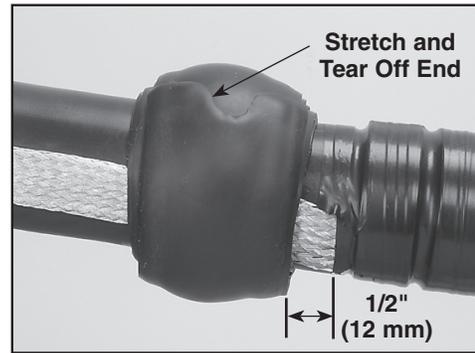
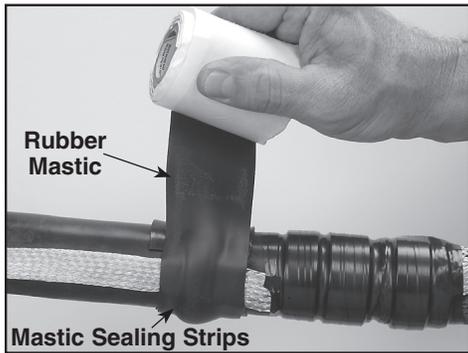


- 5.4 Wrap 2 half-lapped layers of stretched vinyl tape over all of the constant force springs.

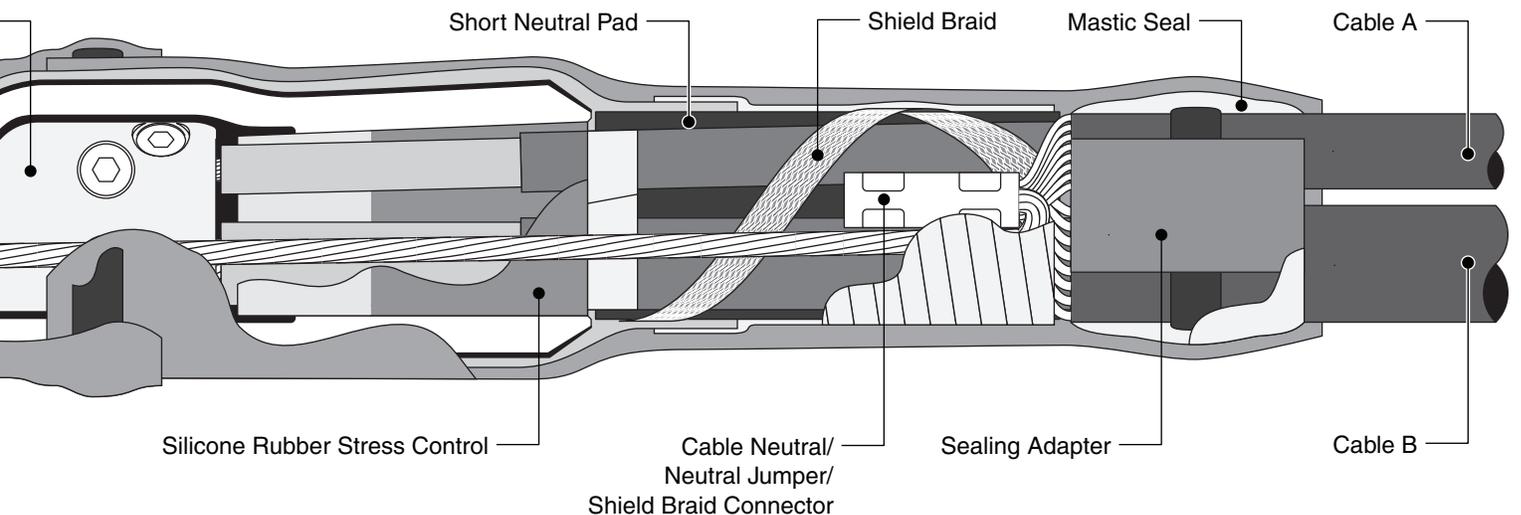
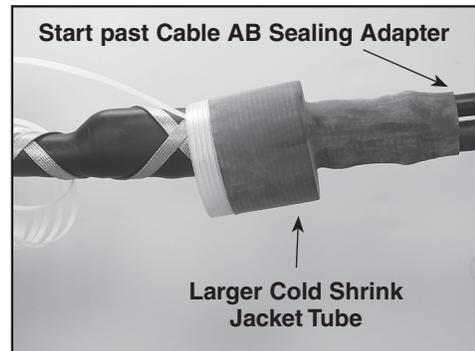


## 6.0 Install Jacket

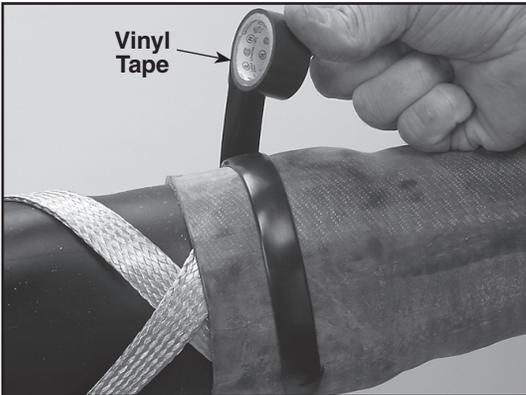
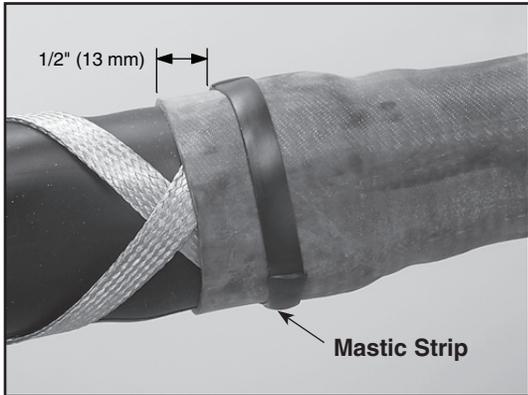
- 6.1 Wrap a roll of rubber mastic tape around the Jacket of Cable C, approximately 1/2" (12 mm) from jacket end (tacky side toward cable). For CN cable types, wrap tape over mastic applied during cable prep (Step A, 2). If ground strap was applied, apply tape over mastic sealing strips. Stretch and tear off last inch or two of rubber mastic tape.



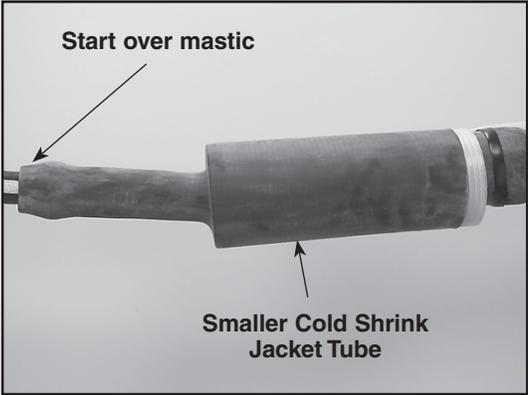
- 6.2 Install Larger Cold Shrink Jacketing Tube starting on the Cable A&B side. Cover the rubber mastic seal and unwind toward the splice body, slowly pulling and unwinding the core counterclockwise.



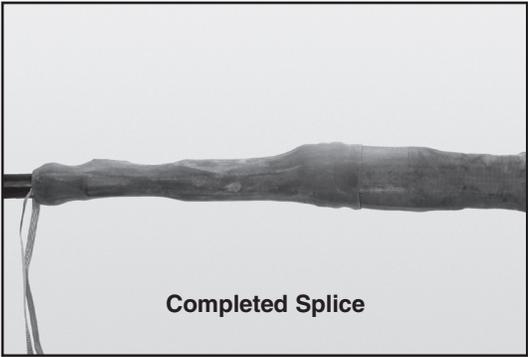
- 6.3 Wrap a mastic strip around the jacket tube approximately 1/2" (12mm) from the end of the jacket tube and cover with a single wrap of vinyl tape.



- 6.4 Install Small Cold Shrink Jacketing Tube starting on the Cable C side. Cover the rubber mastic seal and unwind toward the other jacket tube, slowly pulling and unwinding the core counterclockwise.



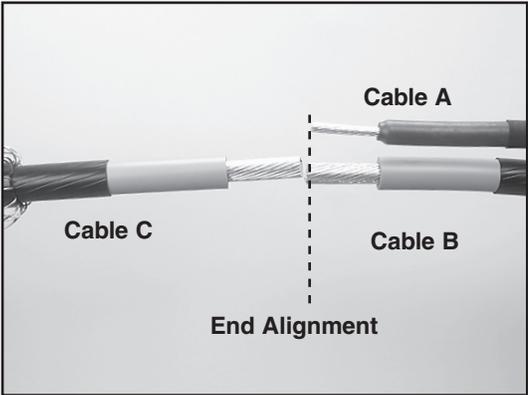
- 6.5 If grounded, connect ground straps to system ground.
- 6.6 Completed Splice.



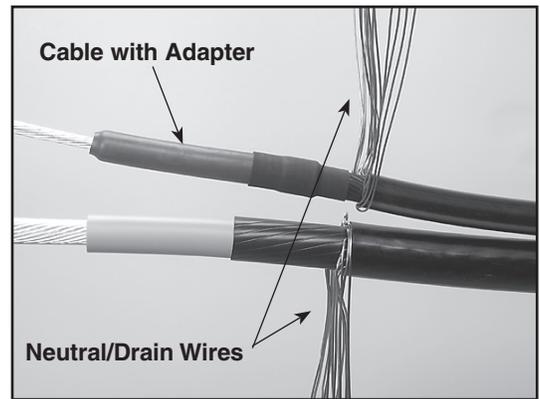
**D. Steps showing JCN, CN, Unishield™, or Wire cables (run & tap)**

**1.0 Install Cable A & B Sealing Adapter**

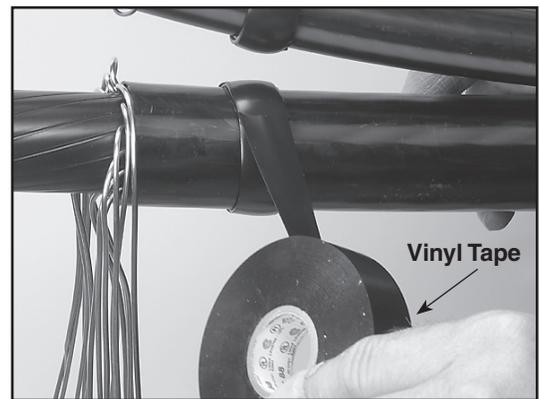
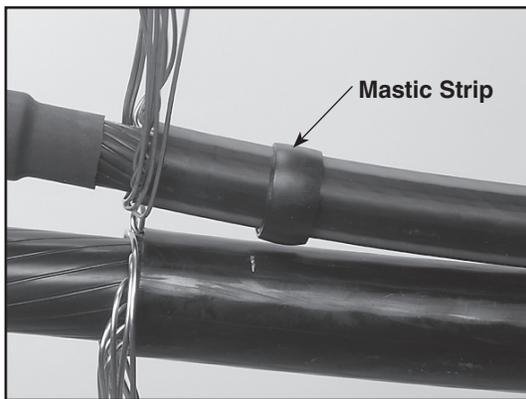
*Note: Maintain Cable A & B conductor end alignment through connector installation.*



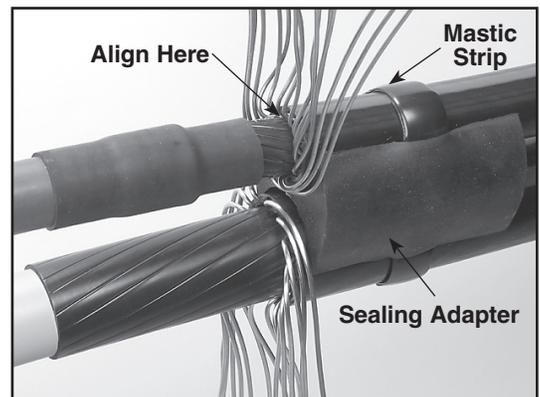
- 1.1 Position neutral/drain wires as shown. Use rounded bends to avoid wire breakage due to excessive bending.



- 1.2 Wrap a mastic strip around each cable jacket (over previously applied mastic if CN cable), about 1 1/2" (38 mm) from end of jacket. Cover mastic on each cable with one wrap of vinyl tape (Do not half lap side to side).

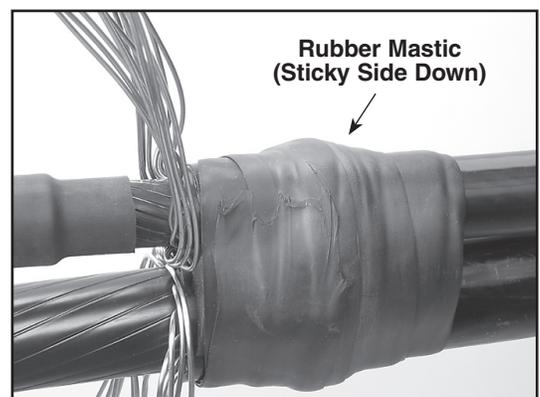


- 1.3 While maintaining alignment of the conductor ends, place the sealing adapter between the cables. Position one end of the adapter near the edge of cable jacket or CN binding wires.



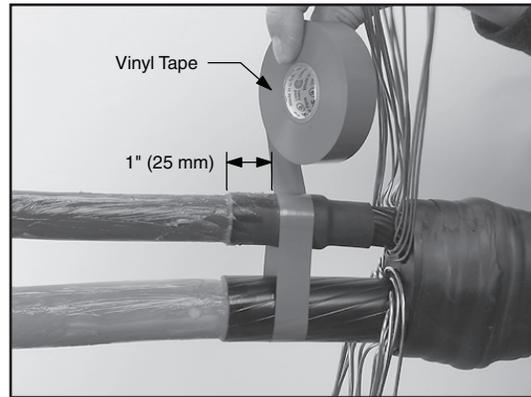
- 1.4 Wrap one roll of slightly stretched rubber mastic over the sealing adapter.

**Note:** For alignment purposes remaining cable jackets can be taped together.

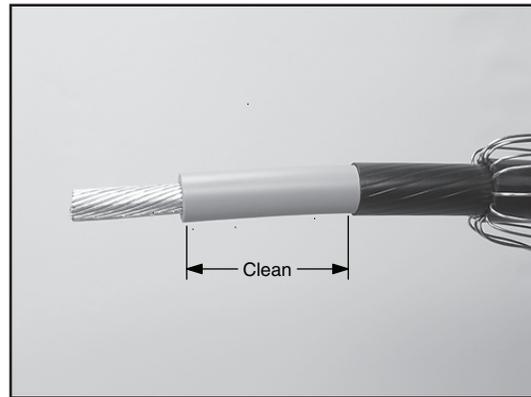


## 2.0 Install Cold Shrink Silicone Stress Control

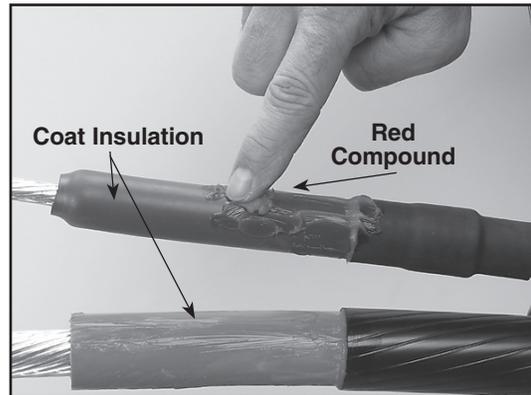
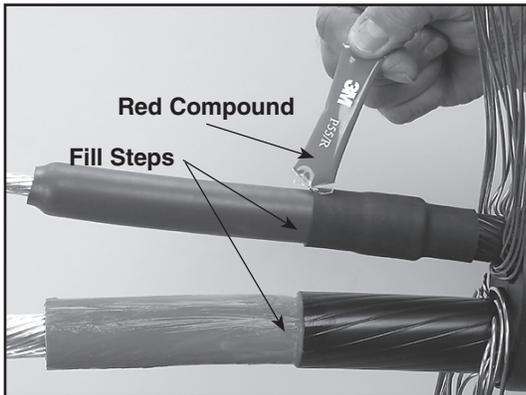
2.1 Wrap a marker tape around both cables 1" (25,4mm) from edge of cable semi-con.



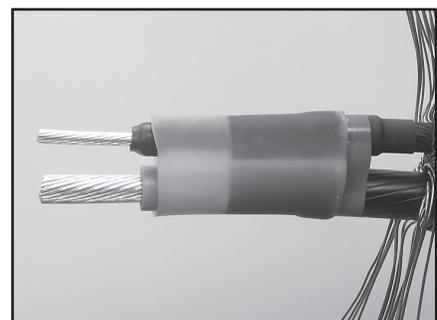
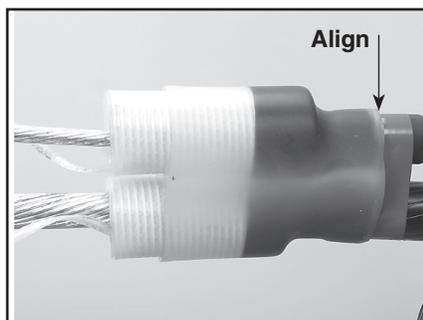
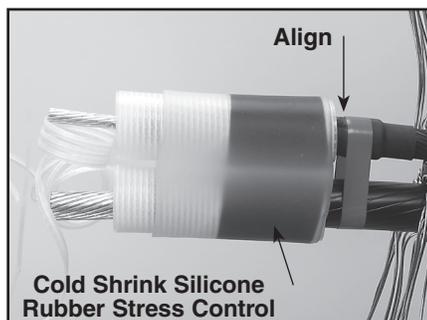
2.2 Clean cables using standard practice:  
a. Do not use solvent or abrasive on cable semi-conductive insulation shield.  
b. If abrasive must be used, do not reduce cable insulation diameter below 1.00" (25,4 mm) specified for the splice.



2.3 Apply red compound on clean insulation of both cables, making certain to fill in the edge of the cable semi-con. **Do not use silicone grease.**

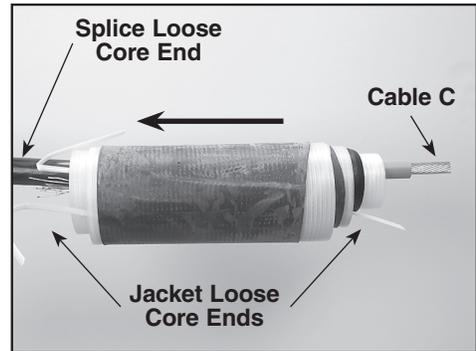
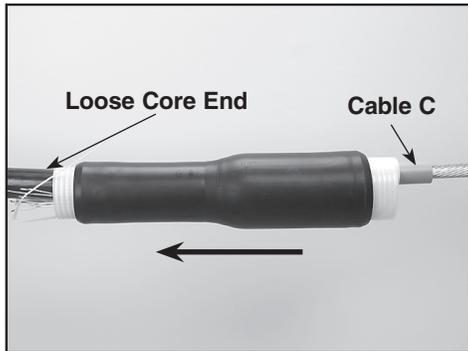


2.4 Position the Cold Shrink Silicone Rubber Stress Control on the cables, black end first. Install by aligning the end (not the core) with the edge of the marker tape, pull and unwind the cores in a counter-clockwise direction.



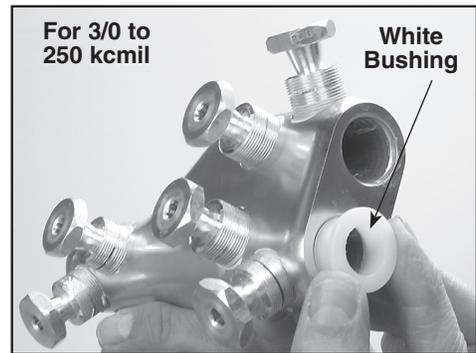
### 3.0 Install Splice

- 3.1 Park the stacked Cold Shrink Jacket Tubes and Cold Shrink Splice Body on cable C (single cable), with the splice body loose core end (or small end) first.

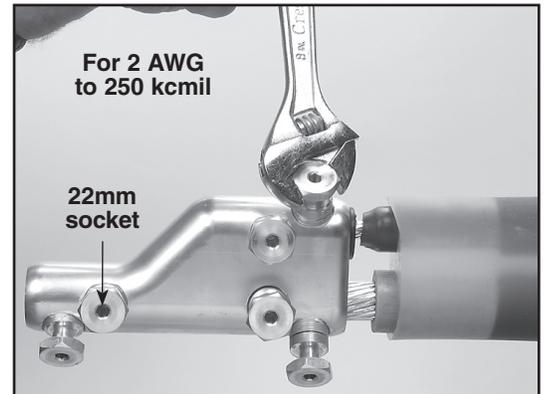


- 3.2 Install the connector. Tighten each pair of screws per the conductor size shown below.

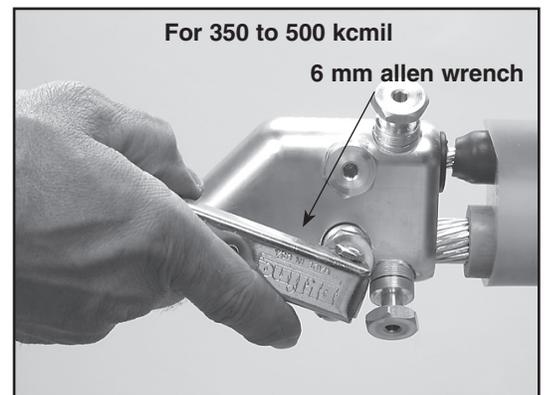
**For 2AWG to 250kcmil:** Place the plastic bushing in to the matching connector hole. Use the Black plastic bushing for 2AWG to 2/0AWG. Use the White plastic bushing for 3/0 AWG to 250kcmil. Conductors must be fully inserted into the connector.



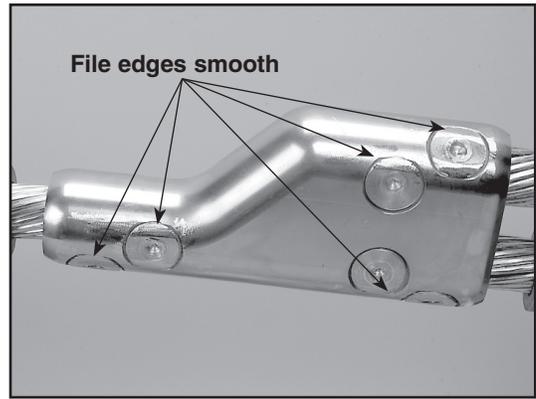
Using a 22mm socket, hand tighten the hex bolt until screw head shears off.



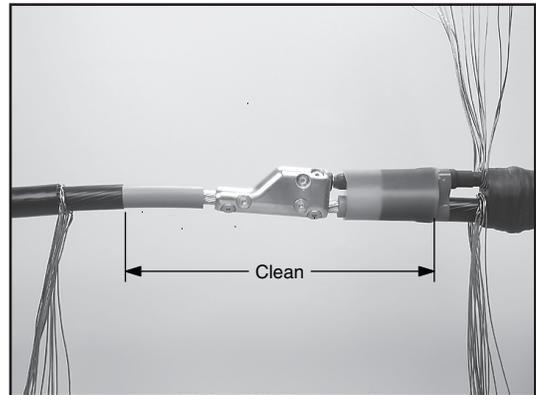
**For 350-500kcmil conductors:** Use a 6mm Allen key wrench (fully inserted) to tighten. Conductors must be fully inserted into the connector. Hand tighten each screw until screw head shears off.



Using a file, smooth all sharp screw edges.

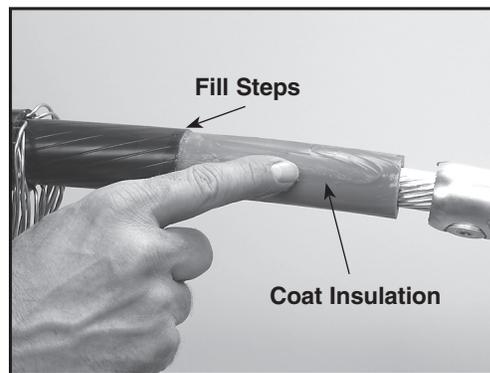
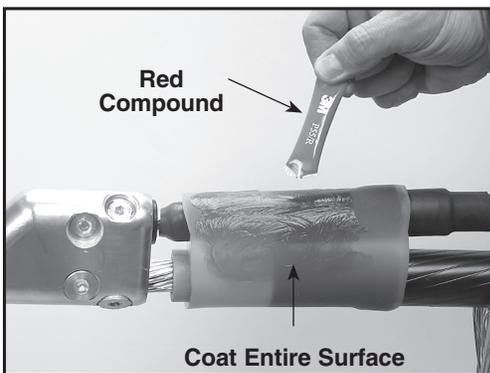


- 3.3 Clean Cable C insulation, surface of Cold Shrink Silicone Rubber Stress Control and the connector, if necessary before continuing.

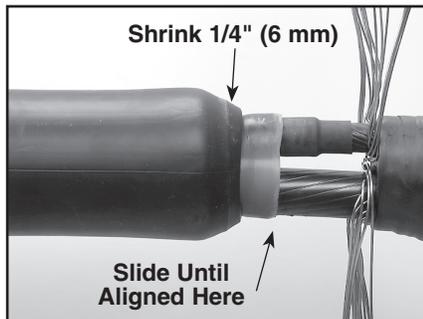
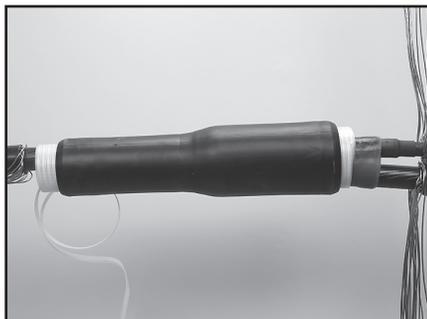


- 3.4 Apply red compound on Cold Shrink Silicone Rubber Stress Control and Cable C insulation, making certain to fill in the edge of the cable semi-con.

**Do not use silicone grease.**

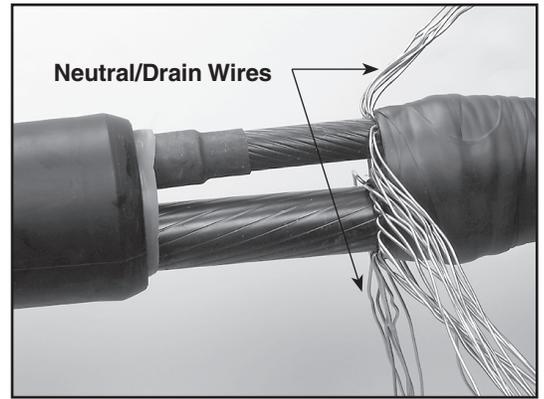


- 3.5 Position the splice body over the connector and Cold Shrink Silicone Rubber Stress Control. Install the splice body by slowly pulling and unwinding the core in a counter-clockwise direction, until 1/4" (6 mm) of the body has shrunk on to the Cold Shrink Silicone Rubber Stress Control. Slide the body until its end aligns with the end of the Cold Shrink Silicone Rubber Stress Control, as shown. Continue removing core to complete splice body installation.

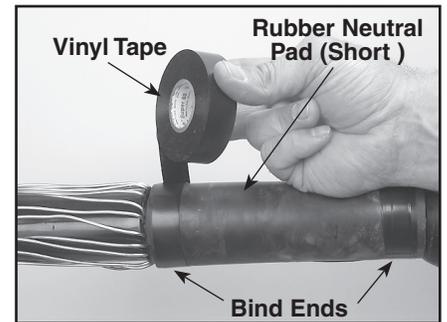
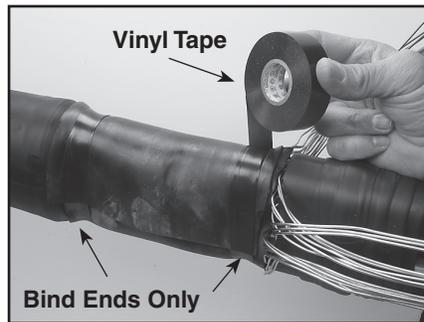


## 4.0 Connect Shielding/Neutrals

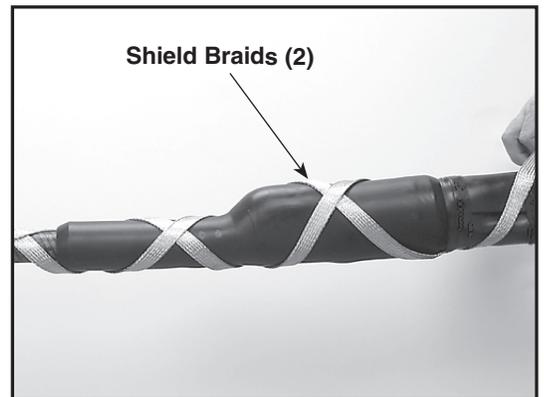
- 4.1 Divide the neutral/drain wires into two groups and position them on the front and back of cables A & B. Remove vinyl tape securing Cable C neutral wires and divide/position them the same way.



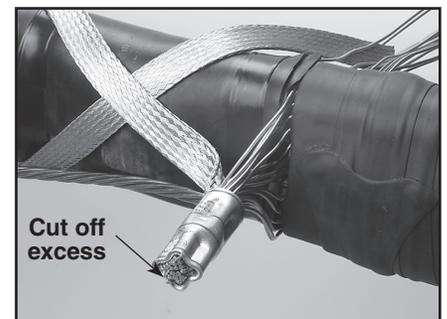
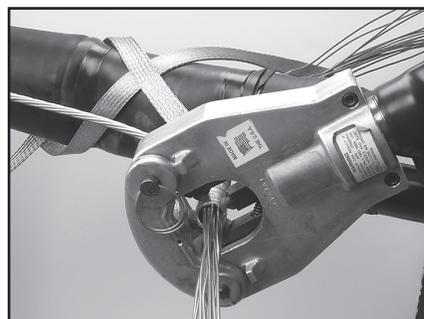
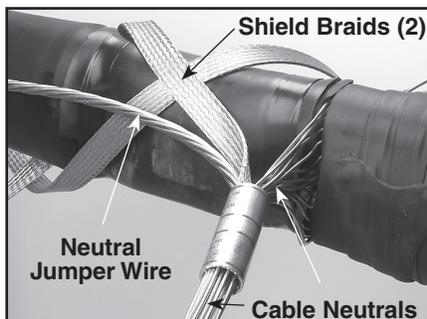
- 4.2 Wrap one of the short semi-conductive neutral pads around Cable AB and Cable C semi-con, under the neutral/drain wire connection area(s) to protect the cable. Secure each side of the pad with a band of vinyl tape; do not cover the entire pad.



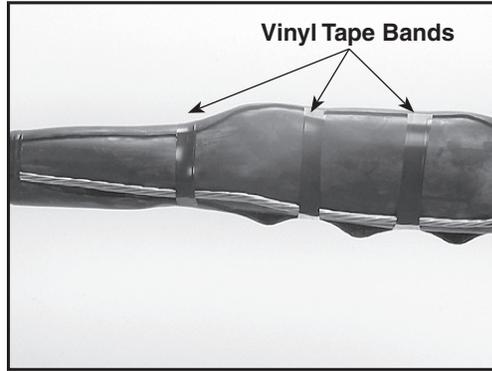
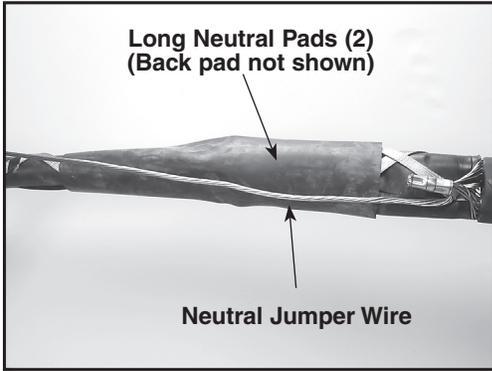
- 4.3 Spiral wrap the two shield braids around the splice body from Cable AB across to Cable C, leaving an extra 6–8" (150–200 mm) of braid for connecting to cable neutrals.



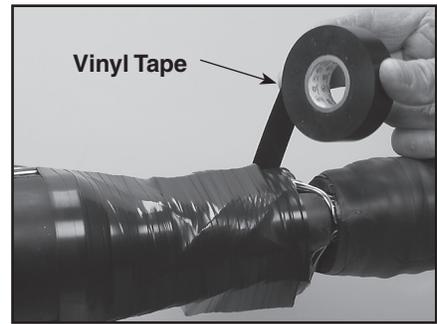
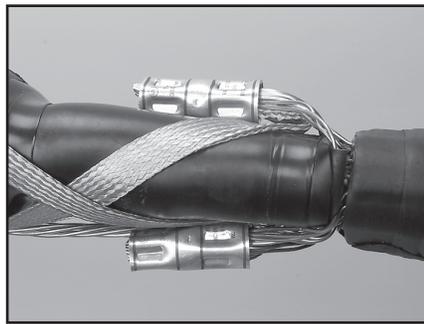
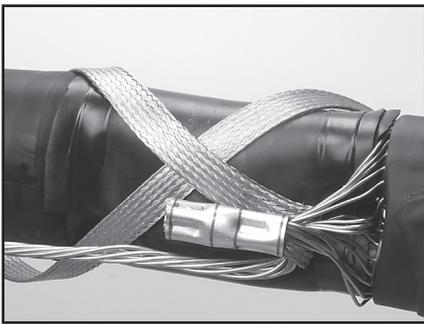
- 4.4 On the Cable AB side, connect one shield braid and a 5-foot (150 cm) piece of neutral jumper wire (not provided in kit) to each group (front and back) of neutral wires. The connection should be made so that the connectors will lay flat against the neutral pad after crimping. Recommended connector types include in-line barrel, C-Tap or H-Tap. Cut off excess neutral/drain and neutral jumper wires after crimping.



- 4.5 Place a long semi-conductive neutral pad between the splice body and neutral jumper wire. Bind neutral jumper wire and pad to splice body with three bands of vinyl tape.

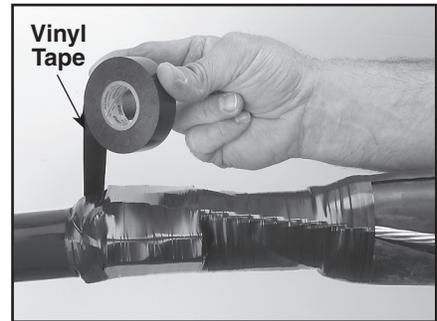
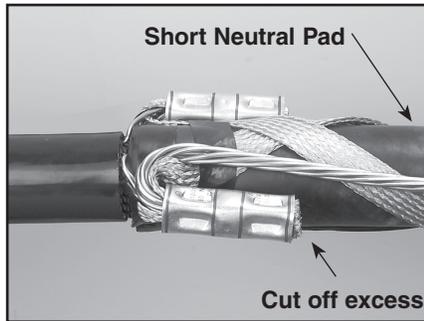
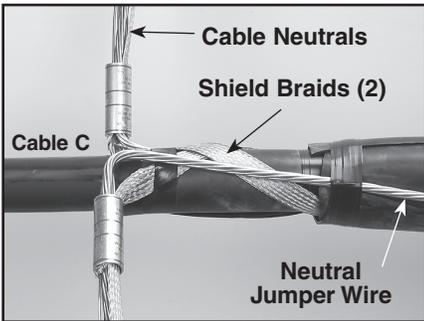


- 4.6 Position (fold) connectors over neutral pad. Cover the connectors and end of the neutral pad with two half-lapped layers of vinyl tape.



- 4.7 If splice grounding is required at this location, go to Section 5.0. If splice is not grounded at this location, continue with next step (Step 4.8).

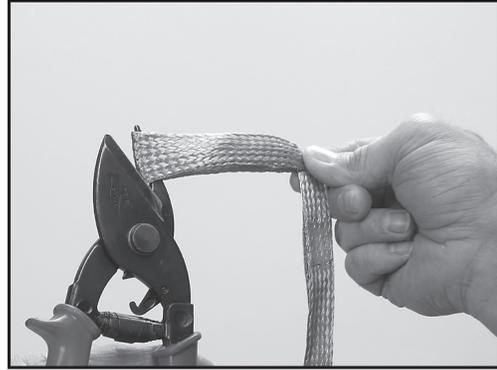
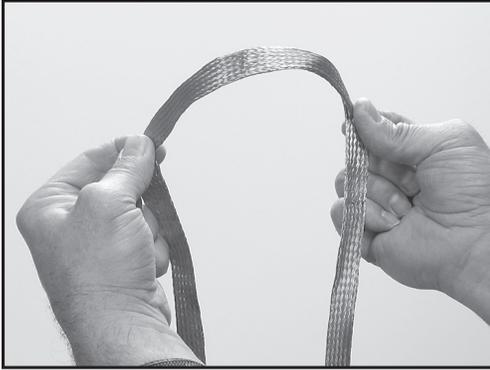
- 4.8 Connect Cable C neutral wires to the shield braids and neutral jumper wire in the same manner as Cable AB (Step 4.4). If grounding, see Section 5 below. Cover the finished connections and end of the neutral pad with two half-lapped layers of vinyl tape.



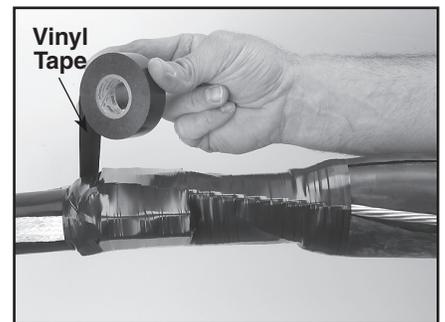
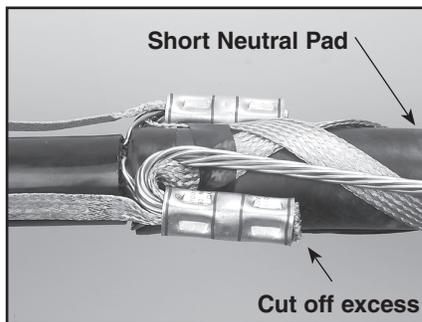
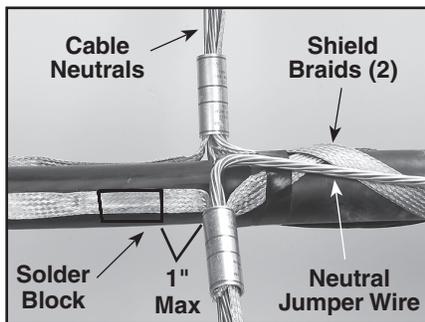
## 5.0 Grounding (Optional)

*Note: Use these instructions if circuit grounding is required at this location.*

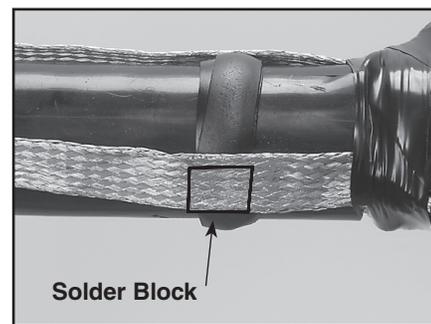
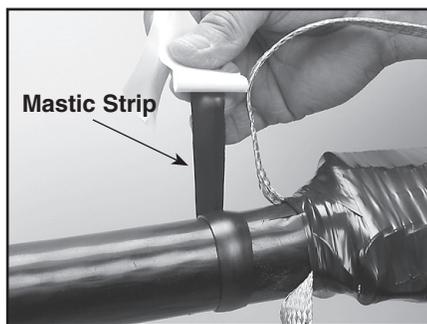
- 5.1 Fold the ground strap in the center of the “U” and cut in the center of the fold.



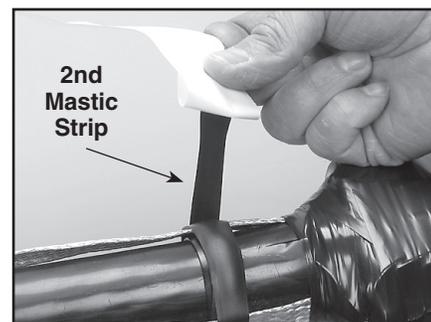
- 5.2 Crimp the Cable C neutral/drain wires, neutral jumper wire, and the cut end of the ground strap together using a C-tap, H-tap or barrel connector. Cut off excess wires and position connections over the semi-conductive neutral pad.



*Note: The solder blocks on the ground strap must be located over the cable jacket and within 1" (25mm) from cable jacket end.*

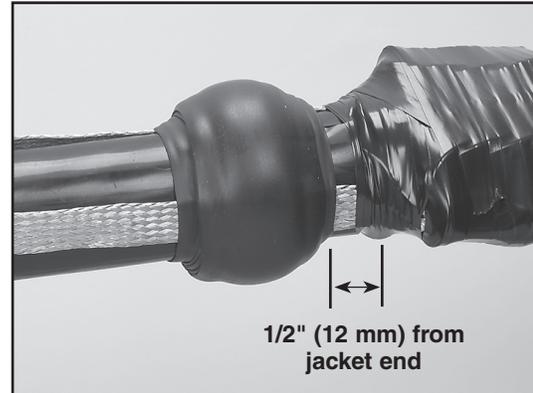
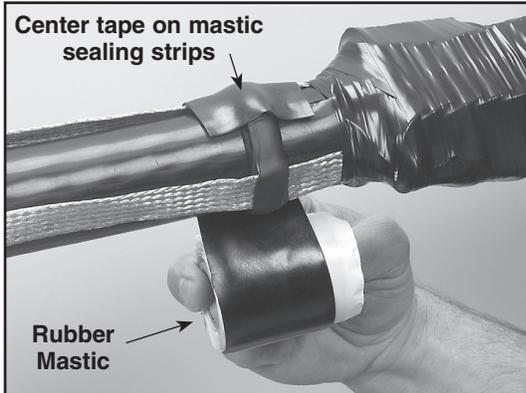


- 5.3 Locate the solder blocks on the ground strap, wrap a 6" mastic sealing strip around the cable jacket under the solder blocks. If the solder blocks overlap, a piece mastic must be placed between the solder blocks. Secure tail ends to jacket using vinyl tape.

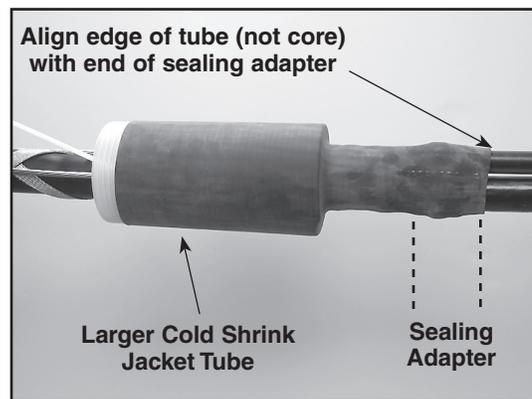


## 6.0 Install Jacket

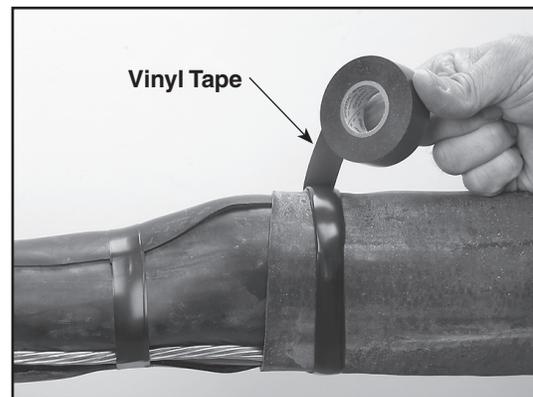
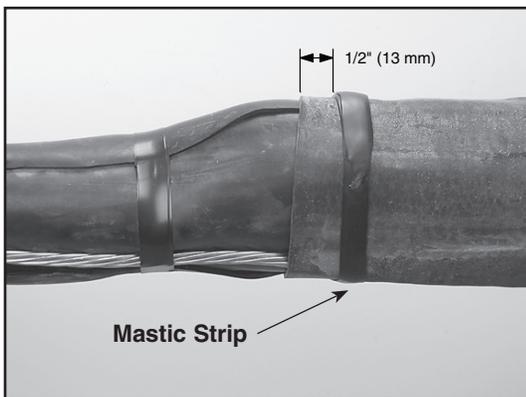
- 6.1 Wrap a roll of rubber mastic tape around the Jacket of Cable C, approximately 1/2" (12 mm) from jacket end (tacky side toward cable). For CN cable types, wrap tape over mastic applied during cable prep (Step A, 2). If ground strap was applied, apply tape over mastic sealing strips. Stretch and tear off last inch or two of rubber mastic tape.



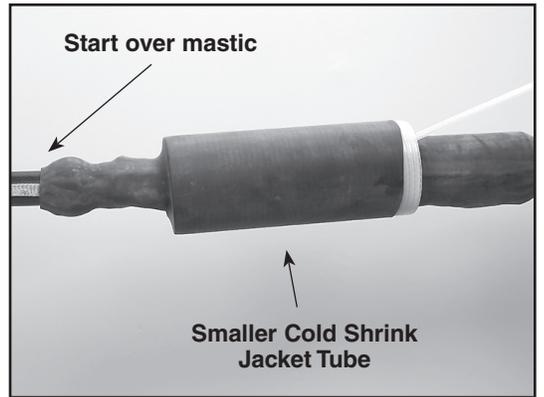
- 6.2 Install Larger Cold Shrink Jacketing Tube starting on the Cable A&B side. Cover the rubber mastic seal and unwind toward the splice body, slowly pulling and unwinding the core counterclockwise.



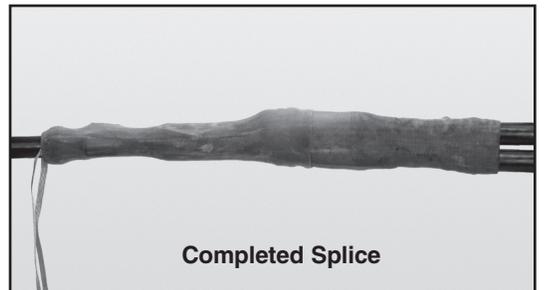
- 6.3 Wrap a mastic strip around the jacket tube approximately 1/2" (12mm) from the end of the jacket tube and cover with a single wrap of vinyl tape.



- 6.4 Install Small Cold Shrink Jacketing Tube starting on the Cable C side. Cover the rubber mastic seal and unwind toward the other jacket tube, slowly pulling and unwinding the core counterclockwise.



- 6.5 If grounded, connect ground straps to system ground.
- 6.6 Completed Splice.



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Note: The core material being removed from the Splice Body, Jacket Tubes and adapter are mixed polymers and can be recycled with other waste.



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