

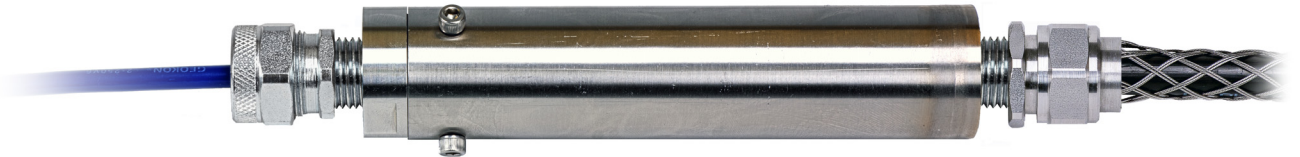
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# **Armored Cable Splice Kit**

**Model 4500-9-HDF1**

**Model 4500-9-HDF2**

Instruction Manual





## **WARRANTY STATEMENT**

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GEOKON warrants its products to be free of defects in materials and workmanship, under normal use and service for a period of 13 months from date of purchase. If the unit should malfunction, it must be returned to the factory for evaluation, freight prepaid. Upon examination by GEOKON, if the unit is found to be defective, it will be repaired or replaced at no charge. However, the **WARRANTY IS VOID** if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion or current, heat, moisture or vibration, improper specification, misapplication, misuse or other operating conditions outside of GEOKON's control. Components that wear or are damaged by misuse are not warranted. This includes fuses and batteries.

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## TABLE OF CONTENTS

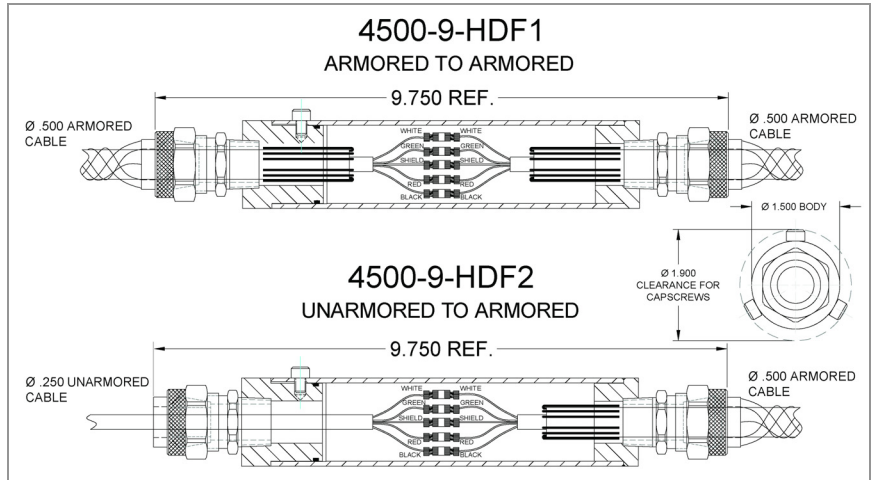
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<b>1. SPLICING PREP</b>	1
<b>1.1 REMOVABLE END PREPARATION</b>	2
1.1.1 ARMORED CABLE	2
1.1.2 UNARMORED CABLE	5
<b>1.2 FIXED END PREPARATION</b>	6
<b>2. MAKING THE SPLICE</b>	9
<b>2.1 CONNECT THE WIRES</b>	9
<b>2.2 ADJUST THE SPLICE POSITION</b>	10
<b>2.3 RECONNECT THE FIXED END</b>	10
<b>2.4 ASSEMBLE THE REMOVABLE END CAP</b>	11
<b>3. ENCAPSULANT MIXING INSTRUCTIONS</b>	12



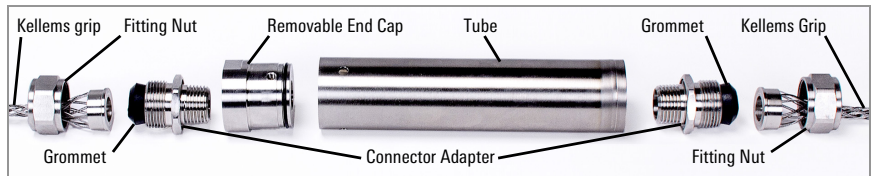
## 1. SPLICING PREP

The GEOKON Model 4500-9-HDF1 and 4500-9-HDF2 Armored Cable Splice Kits are designed to enabling splicing armored cables both to other armored cables and to unarmored cables. See the figures below.

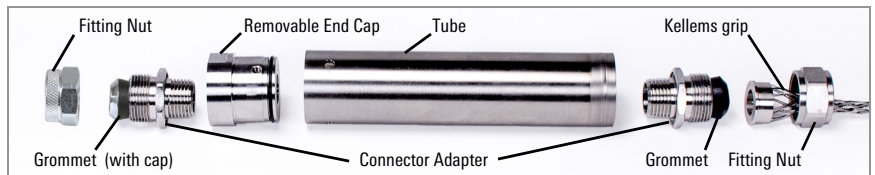


**FIGURE 1:** Model 4500-9-HDF1 and -2 Cutaway View

One end of the splice tube features a removable end cap, allowing access to the inside of the tube. The other end of the tube is fixed. Both tube ends feature removable fitting nuts, designed to accept cables of multiple sizes. See the figure below.



**FIGURE 2:** Model 4500-9-HDF1 Disassembled View



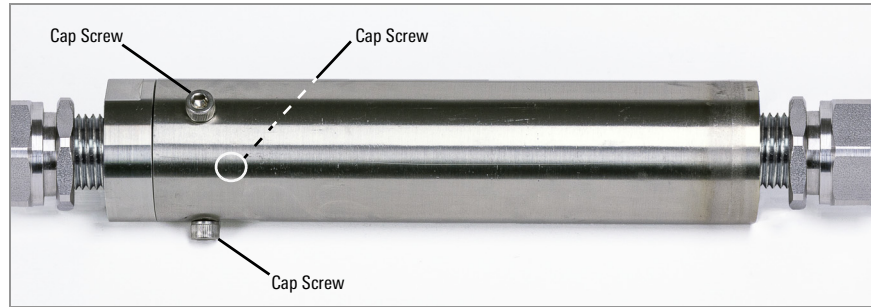
**FIGURE 3:** Model 4500-9-HDF2 Disassembled View

The general procedure for making the splice is as follows:

1. Position the cables appropriately, through both ends of the splice tube.
2. Splice the wire leads together.
3. Reassemble the end components.
4. Reconnect the fixed end to the tube body, leaving the removable end cap assembled but unattached.
5. Prepare and pour the encapsulant into the tube body, fixed end down.
6. Reconnect the removable end cap to the tube body.
7. Wait for the encapsulant to cure.

## 1.1 REMOVABLE END PREPARATION

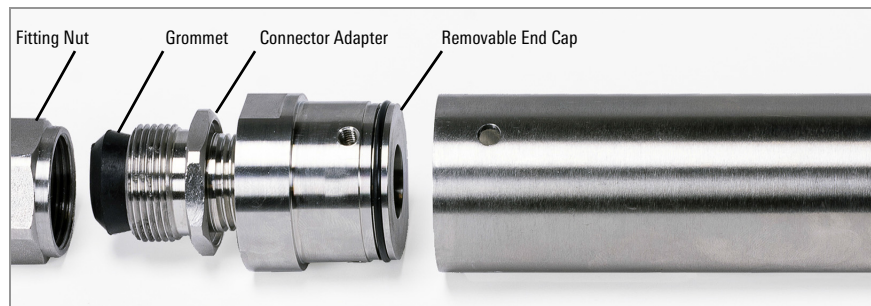
1. Remove the three #10-32 x 3/8" long hex socket head cap screws from the circumference of the tube.



2. Detach the removable end cap from the tube.



3. Unscrew and remove the cable fitting nut from the removable end cap.



### 1.1.1 ARMORED CABLE

**Note:** For preparing blue unarmored cable, please refer to Section 1.1.2.

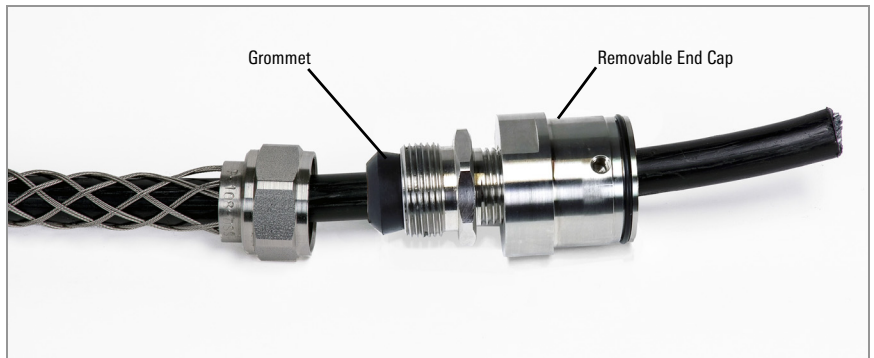
1. Slide the black 02-500PEI armored cable through outer end of the Kellems grip and through the fitting nut.



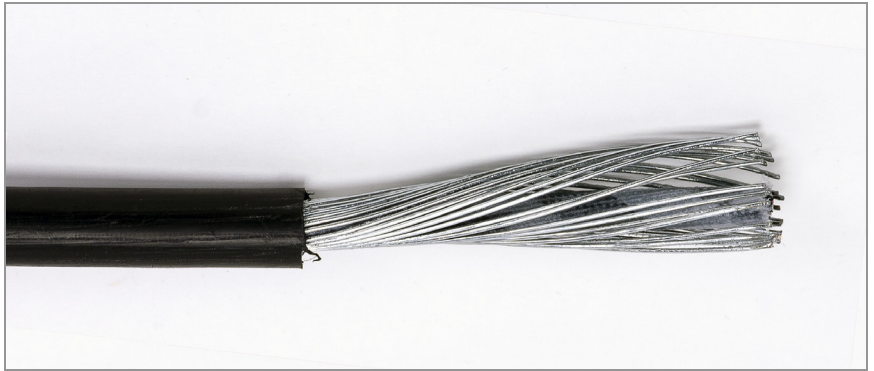
**Note:** Compress the Kellems grip lengthwise to aid in sliding the cable.



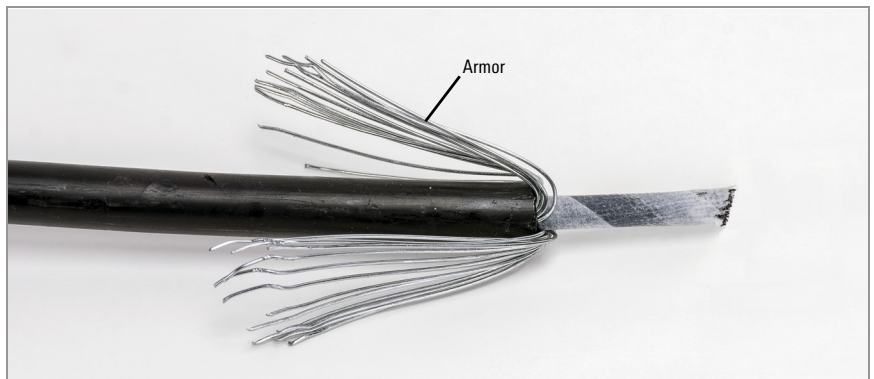
2. Slide the cable through the black grommet, and then through the end cap.



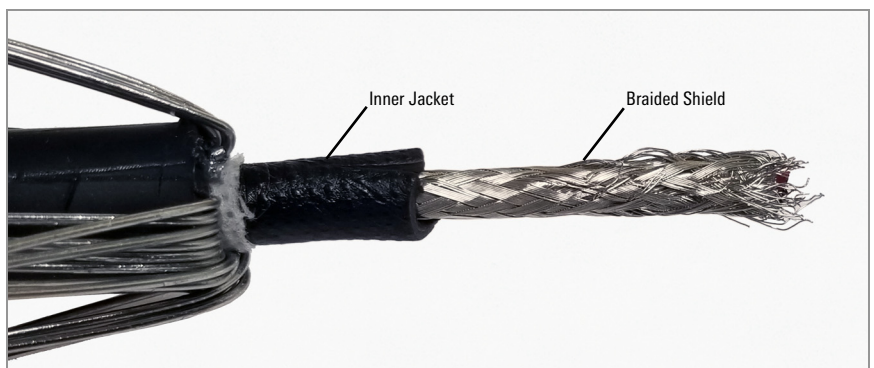
3. Strip the cable's black outer jacket back approximately 1 1/2" (40mm) from the end to expose the armor and wire leads.



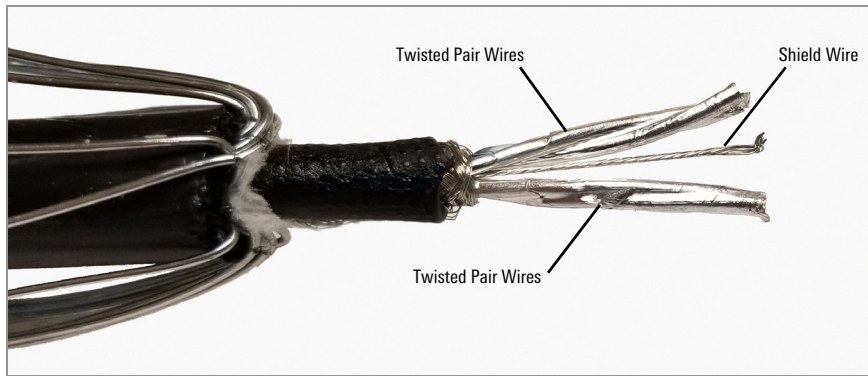
4. Bend the exposed armor backward over the outer jacket.



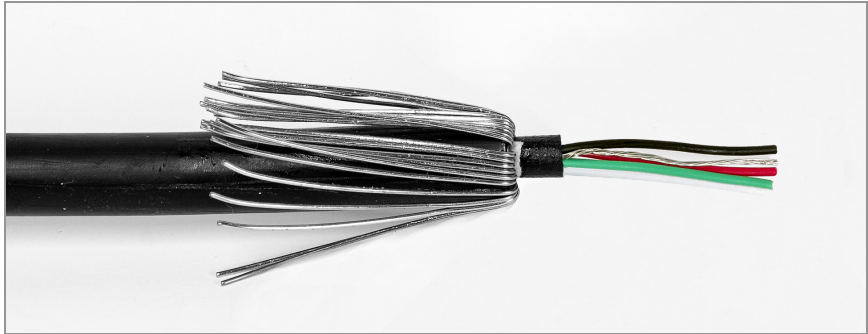
5. Remove the paper and 25 mm (1 inch) of inner jacket to expose the braided shield.



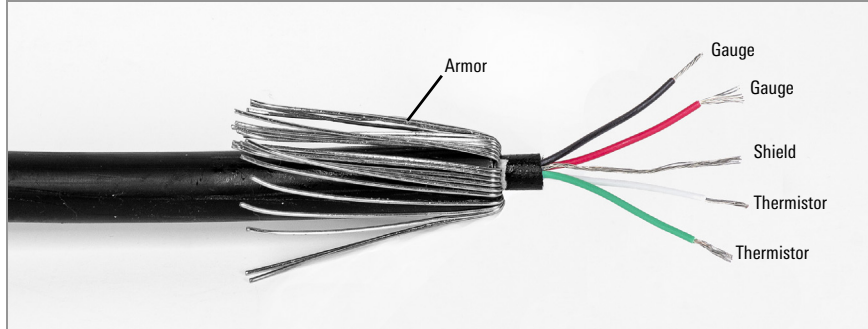
6. Remove the braided shield to expose the two twisted pair wires and shield wire.



7. Remove the mylar wrapping to expose the 2 pair wire leads and shield wire.



8. Strip the insulation back approximately 12 mm (½ inch) on the red & black gauge wires and on the green & white thermistor wires.



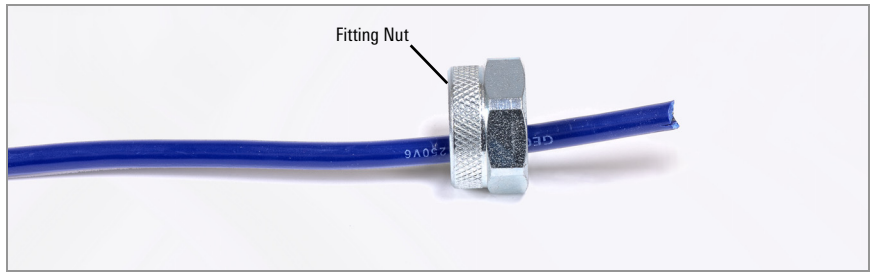
**Note:** Do not connect the fitting nut to the connector adapter until you after you have finished splicing the wire leads. Refer to Section 2 for more information.

For instructions on making the splice, see Section 2.

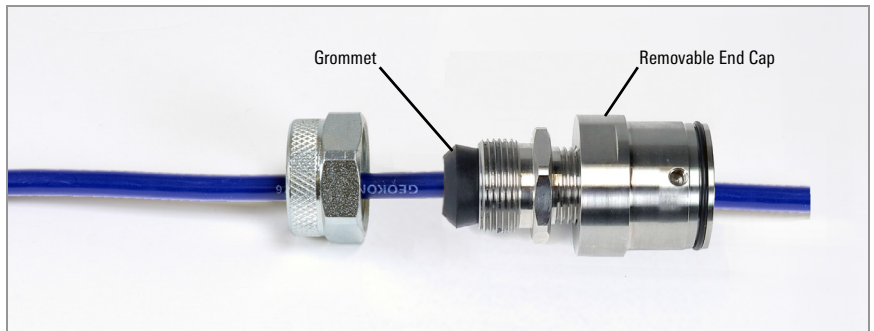
### 1.1.2 UNARMORED CABLE

For preparing black armored cable, please refer to Section 1.1.1.

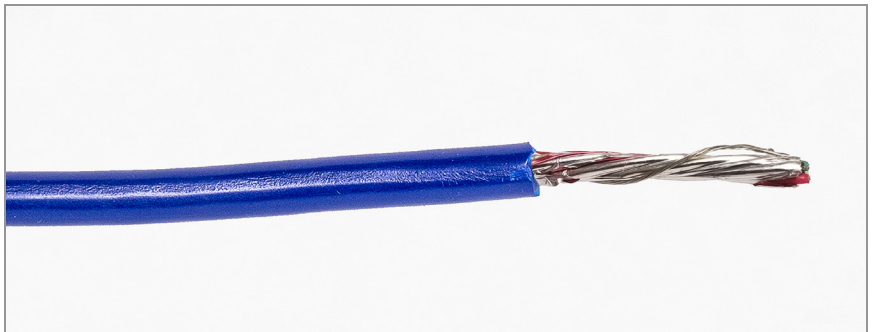
1. Slide the blue 02-250V6 unarmored cable through outer end of the Kellems grip and through the fitting nut.



2. Slide the blue cable through the black grommet and end cap.



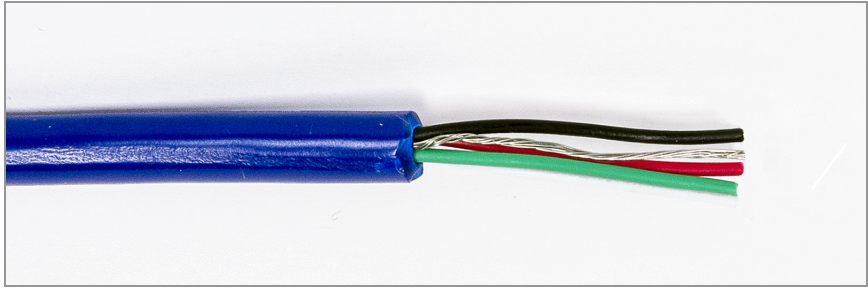
3. Strip the cable's blue outer jacket back approximately 40 mm (1 ½ inches) from the end to expose the mylar-coated twisted-pair of wire leads.



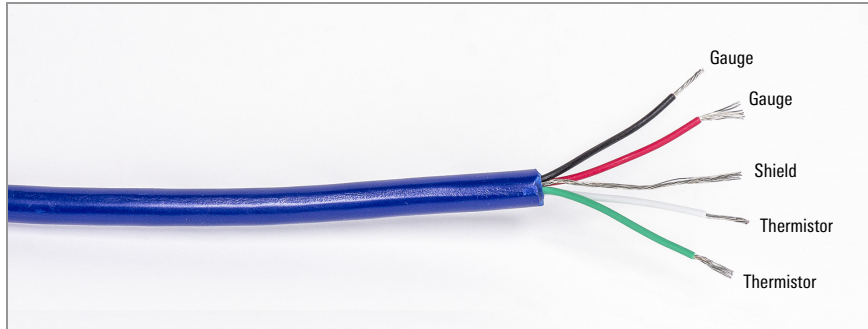
4. Unwind the leads to separate the pair and the shield wire.



5. Remove the mylar wrapping to expose the wire leads.



6. Strip the insulation back approximately 12 mm (½ inch) on the red & black gauge wires and on the green & white thermistor wires.

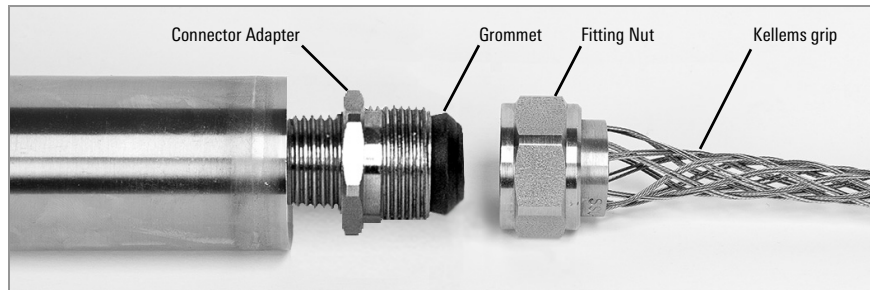


**Note:** Do not connect the fitting nut to the connector adapter until you after you have finished splicing the wire leads. Refer to Section 2 for more information.

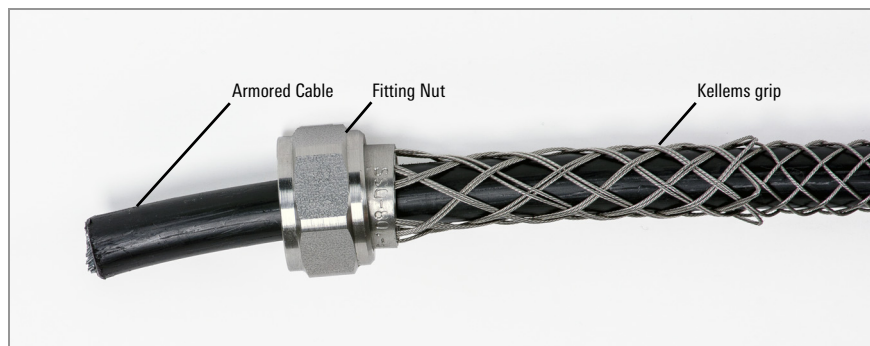
For instructions on making the splice, see Section 2.

## 1.2 FIXED END PREPARATION

1. Unscrew and remove the cable fitting nut from the fixed end of the tube.



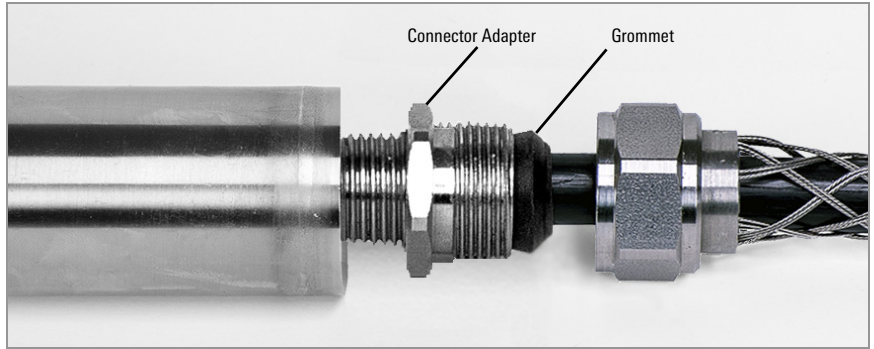
2. Slide the black 02-500PEI armored cable through outer end of the Kellems grip and through the fitting nut.



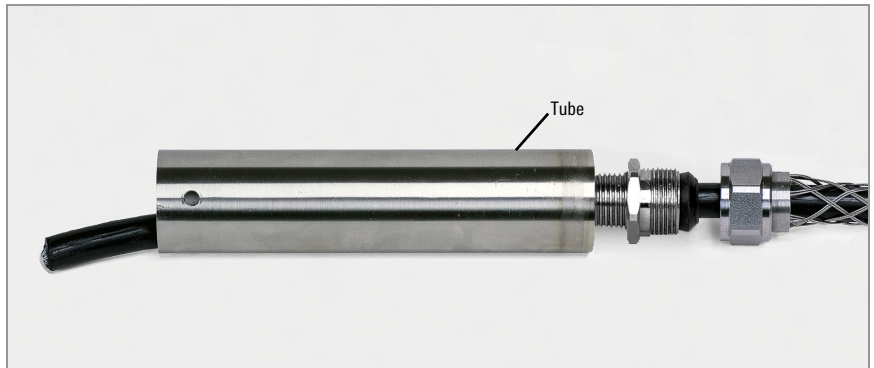
**Note:** Compress the Kellems grip lengthwise to aid in sliding the cable.



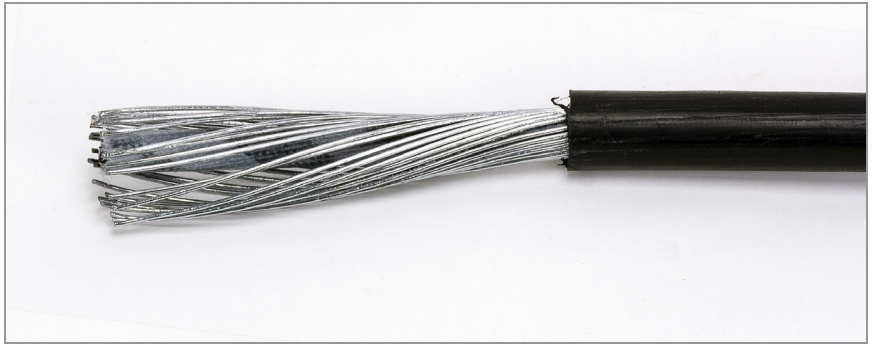
3. Slide the cable through the black grommet, and then through the connector adapter.



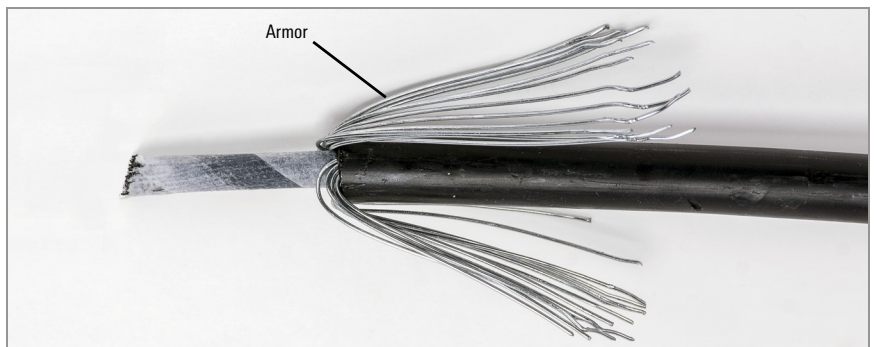
4. Continue to slide the cable through the tube until it protrudes from the end.



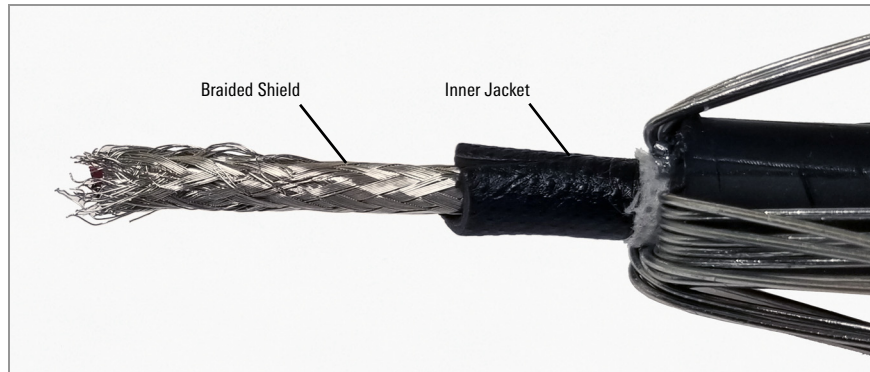
5. Strip the cable's black outer jacket back approximately 40 mm (1.5 inches) from the end to expose the armor and wire leads.



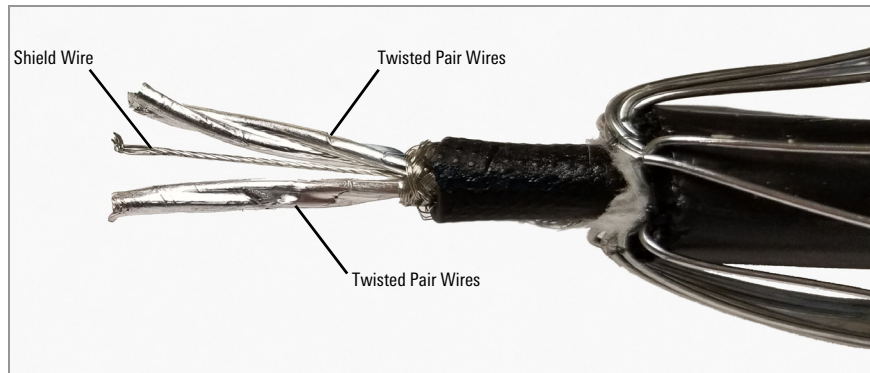
6. Bend the exposed armor backward over the outer jacket.



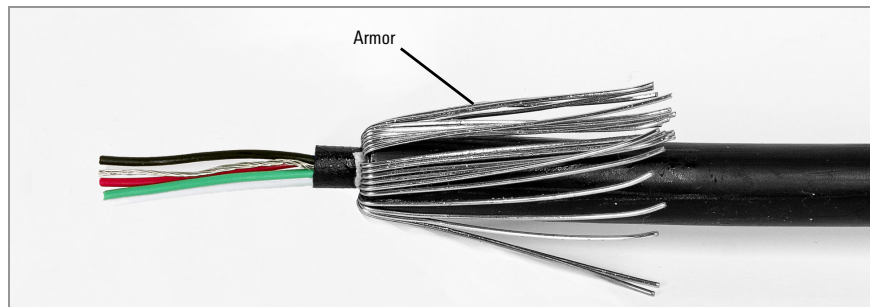
7. Remove the paper and 25 mm (1 inch) of inner jacket to expose the braided shield.



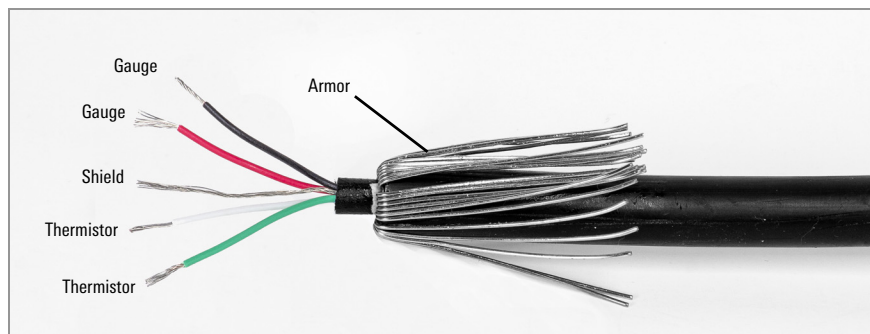
8. Remove the braided shield to expose the two twisted pair wires and shield wire.



9. Remove the mylar wrapping to expose the 2 pair wire leads and shield wire.



10. Strip the insulation back approximately 12 mm (½ inch) on the red & black gauge wires and on the green & white thermistor wires.



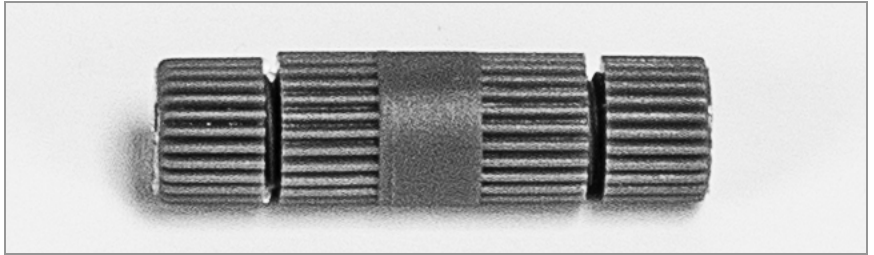
**Note:** Do not connect the fitting nut to the connector adapter until you after you have finished splicing the wire leads. Refer to Section 2 for more information.

## 2. MAKING THE SPLICE

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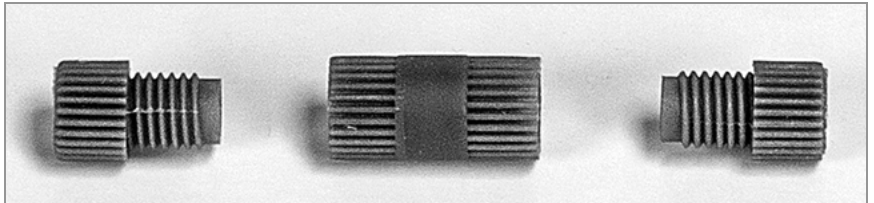
### 2.1 CONNECT THE WIRES

Use the provided Posi-Lock connectors to connect the wire leads together, color to color, including the bare shield wire. Alternatively, the cable conductors can be soldered together.

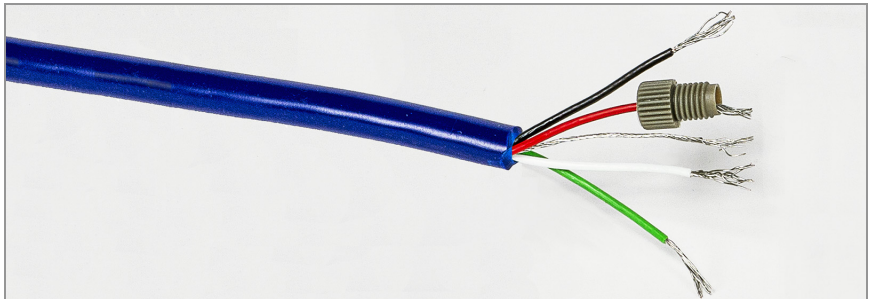


Use the Posi-Lock connectors as follows:

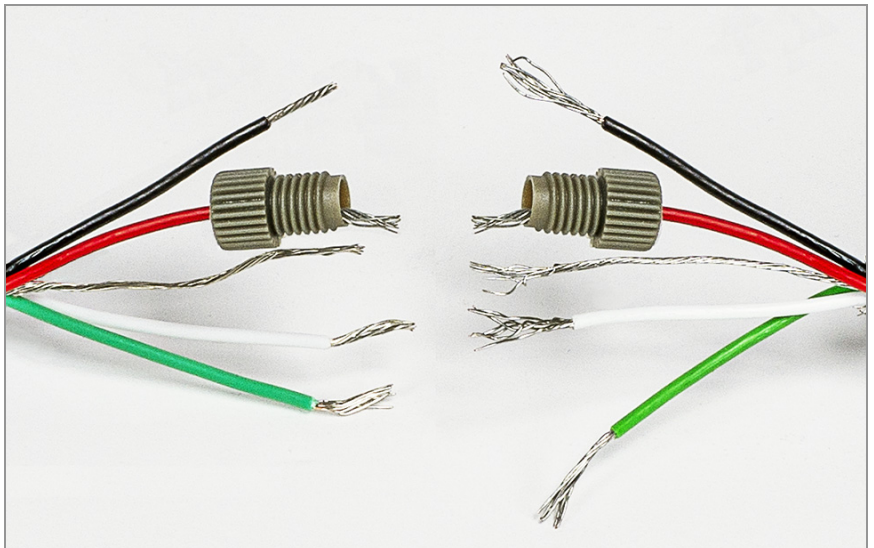
1. Unscrew and remove the ends from the center of the Posi-Lock connector.



2. Insert one bare wire end through one of the Posi-Lock end.

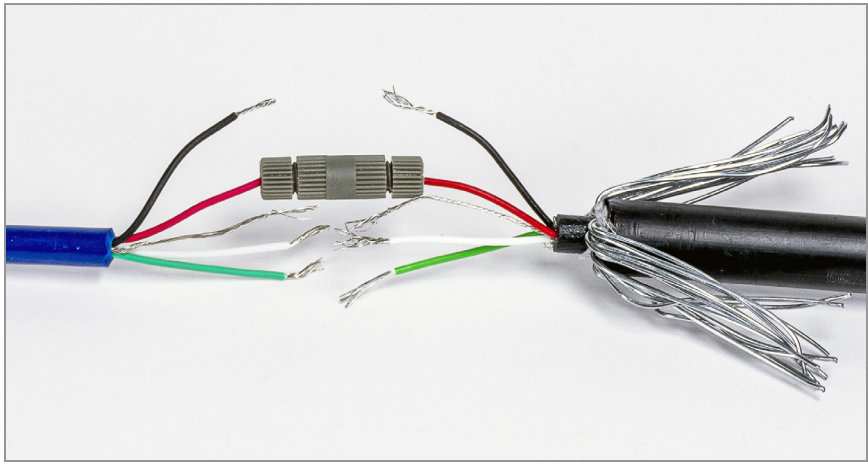


3. Insert the matching other bare wire end through the other Posi-Lock end.





4. Screw each Posi-Lock end onto the Posi-Lock center piece.



5. Tighten securely by hand but be sure not to strip the threads.
6. Repeat steps 1-5 for each wire lead.

## 2.2 ADJUST THE SPLICE POSITION

The center of the tube is the ideal location for the wire splice. This location ensures the splice will be submerged within the encapsulant when you fill the tube in Section 3.

Adjust the position as follows:

1. Slide the cable through the removable cap towards the center of the tube. You likely will have to adjust the Kellems grip and grommet manually to accommodate this.

**Note:** This step creates slack in the cable inside the tube.

**Note:** Be careful not to disrupt the spliced wire leads.

2. On the fixed end of the tube, pull the cable away from the center, out through the grommet.

**Note:** This step removes the slack created in Step 1.

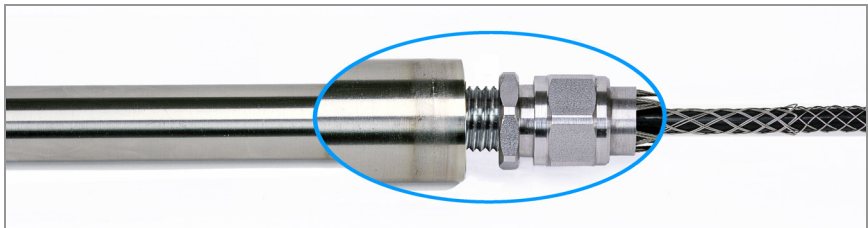
**Note:** Be careful not to disrupt the spliced wire leads.

3. Repeat Steps 1-2 as needed until the wire splice is in the center of the tube.

## 2.3 RECONNECT THE FIXED END

1. Ensure the grommet is firmly and snugly in place on the adapter connector.
2. Slide the fitting nut over the grommet and screw it onto the adapter connector.

**Note:** Make sure the cable doesn't move during this step.





## **2.4 ASSEMBLE THE REMOVABLE END CAP**

1. Ensure the grommet is firmly and snugly in place on the adapter connector.
2. Slide the fitting nut over the grommet and screw it onto the adapter connector.

**Note:** Make sure the cable doesn't move during this step.

**Note:** Do not connect the assembled removable end cap to the tube until you have finished filling the tube with encapsulant. Refer to Section 3 for more information.

When all the connections are complete, use the supplied CK200 encapsulant to protect the splice, as instructed in Section 3.

### 3. ENCAPSULANT MIXING INSTRUCTIONS

1. Open the Shake N' Seal® container and remove the contents.

**Note:** Do not open the bag containing the mixing tube until you perform steps 2-6 below.

2. Wear disposable gloves.
3. Point the heat-sealed end of the mixing tube away from you.
4. Flip the white barrier wafer inside the mixing tube with the thumb and forefinger to allow the two part encapsulant to mix.



5. If the temperature is at least 65 °F, shake the mixing tube with an up and down motion for the duration indicated below.

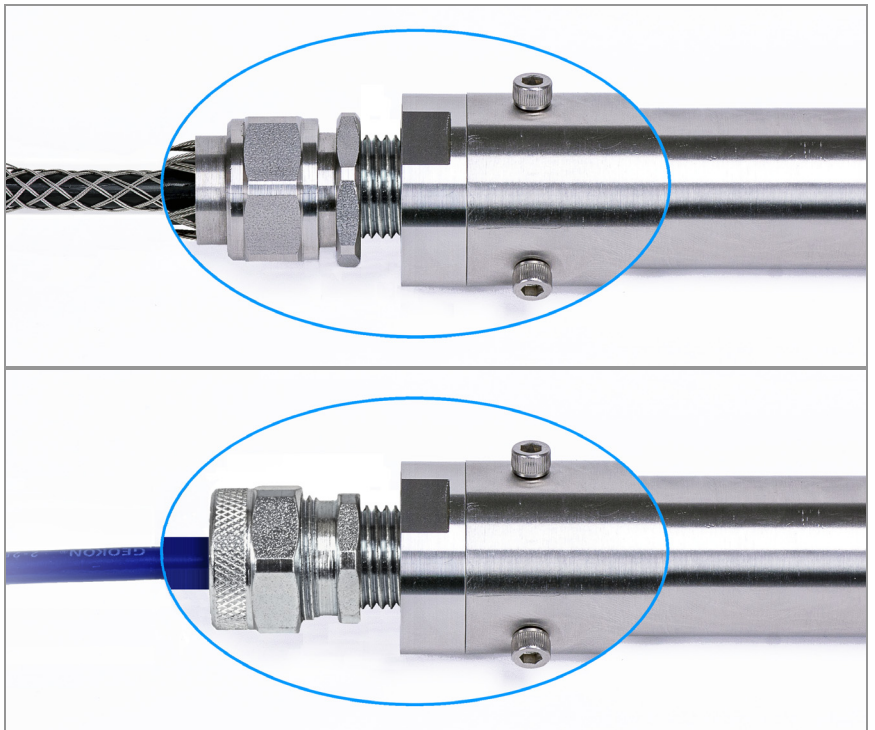
**Note:** DO NOT SHAKE the mixing tube if the temperature is below 65 °F.

Temperature	Mix Time
Below 65 °F	Do not shake; instead, proceed to step 6 below.
Between 65 °F and 85 °F	Shake for one minute
Between 86 °F and 100 °F	Shake for 30 seconds

6. Remove the mixing tube from the bag.
7. Cut the heat-sealed wide end of the tube.
8. Remove the white wafer from the tube using the provided wooden paddle.
9. Stir vigorously with the paddle for one minute to help blend the two components.

Once the encapsulant is mixed, do the following

1. Position the splice tube vertically, fixed end down.
2. Pour the mixed encapsulant out the opened, heat-sealed end of the mixing tube into the splice tube, stopping when the encapsulant is approximately 19 mm (¾ inch) from the open end of the tube.
3. Take the removable end cap and slide it into the splice tube.
4. Secure the end cap to the tube by reinstalling the three #10-32 x 3/8" hex socket head cap screws.
5. Keep the splice tube vertical during the curing process.



Allow 2 hours (minimum) for the epoxy to cure before installing.











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