



Model 4500HT-9-5

Splice Kit for High Temperature Cables

Instruction Manual



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Splice Kit Manuals

1. INTRODUCTION

GEOKON Model 4500HT-9-5 Splice Kits are designed for splicing high temperature cable and sheathing. This kit offers a quick and permanent solution used to create and secure a splice.

Splice kits for standard cable, armored cable, and settlement system cable are also available. View the manuals of available splice kit models at geokon.com/Cables.

If the splice will be subjected to high temperatures, all permanent materials used in the splice must be rated for the anticipated temperature. The following tools and materials (not provided by GEOKON) are required to complete the installation:

TOOLS AND MATERIALS

- High temperature solder
- Pipe cutter, or grinder with cut-off wheel
- Torch
- Soldering iron
- Wire cutters/strippers
- Vice grips
- Two 12 mm (1/2") wrenches
- 5 mm (13/16") wrench
- 23 mm (7/8") wrench

2. COMPONENTS

Each kit consists of a splice tube weldment, a Swagelok weldment, and high temperature heat shrink tubing.



FIGURE 1: *Splice Tube Weldment*

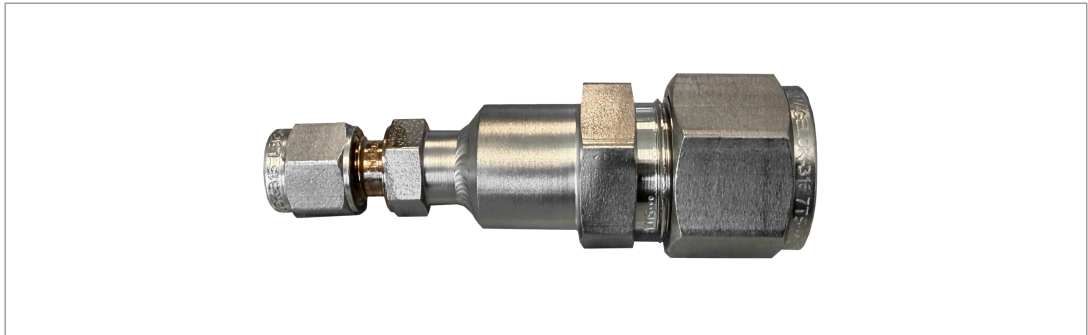


FIGURE 2: *Swagelok Weldment*



FIGURE 3: *High Temperature Heat Shrink Tubing*

3. INSTALLATION

1. If connected, separate the Swagelok weldment from the splice tube weldment using the 5 mm (13/16") and 23 mm (7/8") wrench.



FIGURE 5: *Separating the Assembly*

2. Slide one tube piece over a length of sheathing to be spliced and the other tube piece over the other length of sheathing. Make sure the orientation and order of the ferrules in the 4 mm and 13 mm (1/2") Swageloks are correct.

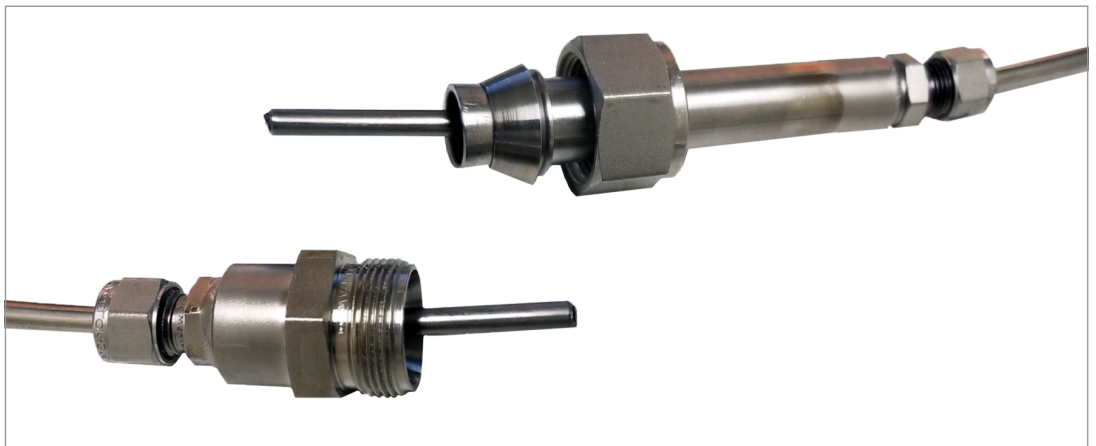


FIGURE 6: *Weldments over Sheathing*

3. Score the sheathing approximately 25 mm (1") from the ends of each cable using either a grinder (Figure 7) **or** wire cutters (Figure 8). Whichever you use, do NOT cut through the stainless steel casing, due to the risk of cutting the internal signal wires.



FIGURE 7: *Scoring the Sheathing with a Grinder*

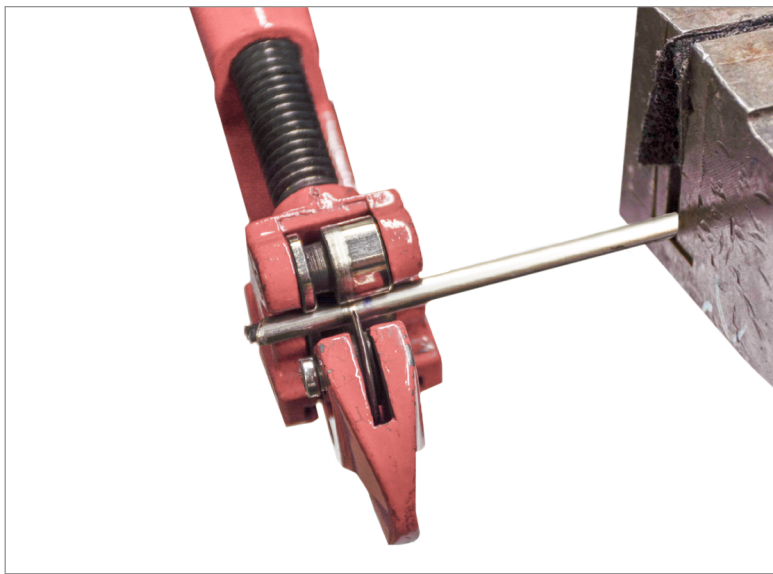


FIGURE 8: *Scoring the Sheathing with Wire Cutters*

4. Use the vice grips to work that 25 mm (1") section back and forth until it separates from the main section. Discard this piece and ensure there are no nicks in the sheathing of the internal wiring.

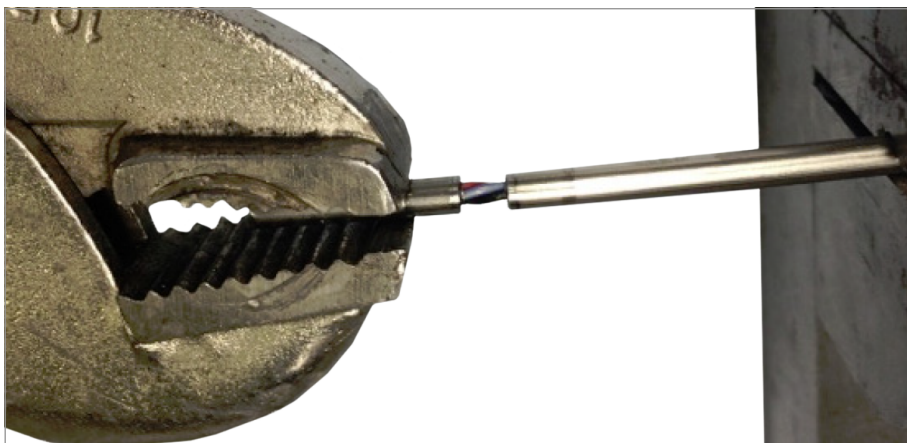


FIGURE 9: *Detach the End Piece*

5. Strip the jacket off each of the four signal wires, approximately 3 mm to 6 mm (0.12" to 0.24") on both splicing ends.

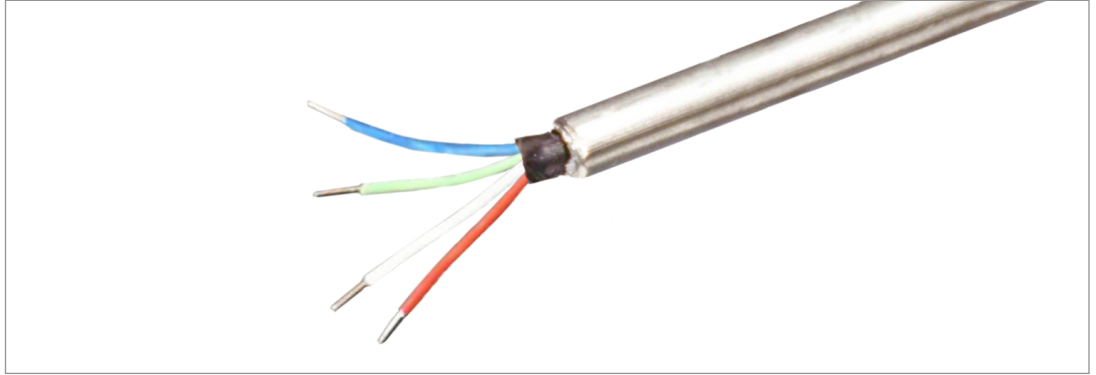


FIGURE 10: *Signal Wire Ends Stripped of Jackets*

6. Pre-tin the exposed ends with the high temperature solder. A temperature of about 415 °C is recommended for GEOKON solder.

Note: High temperature solder contains lead (Pb).

7. Slide a 12 mm (0.5") long piece of heat shrink tubing on each of the four signal wires, on only one splicing end.
8. Overlap the pre-tinned parts of the corresponding signal wires from each cable and solder each wire pair together.
9. Position the heat shrink tubing so that it is centered on each of the solder joints and, using a torch, heat the shrink tubing until it is securely bonded with the signal wires.

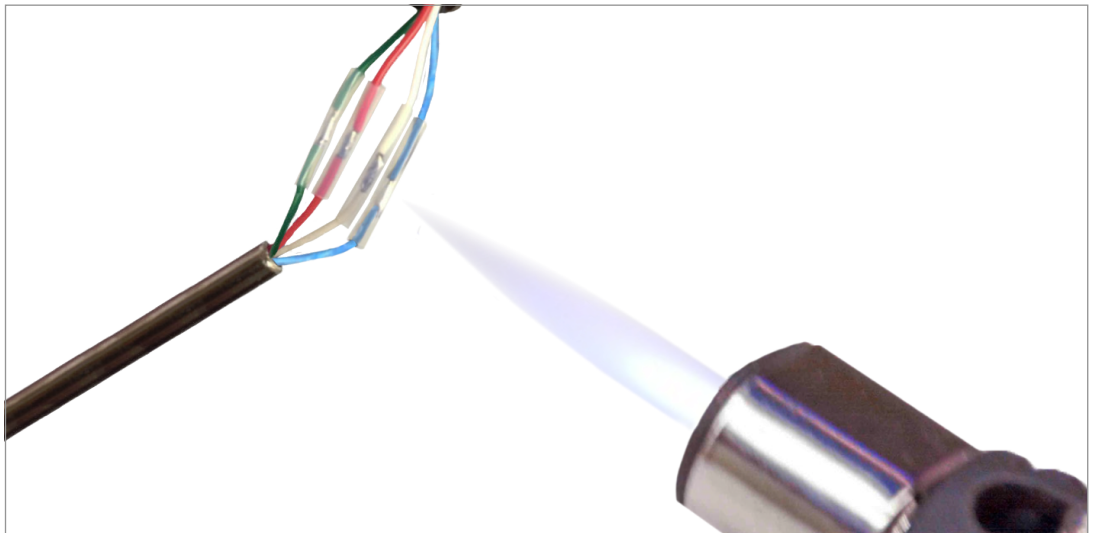


FIGURE 11: *Use a Torch to Bond the Tubing to the Wires*

10. Check continuity from each end of a signal wire and ensure there are no shorts to each other, the sensor, or to the sheathing.
11. Slide the 13 mm (0.5") diameter sheathing tube section of the splice so that it is centered on the solder joint.
12. Using the two 12 mm (0.5") wrenches, tighten the 4 mm (0.16") Swagelok past finger tight one 3/4" turn (refer to Appendix A for Swagelok instruction).



FIGURE 12: *Tighten the Swagelok*

13. Slide the other piece of the splice (the piece that has the 13 mm (1/2") Swagelok), until it comes to a positive stop on the 13 mm (1/2") tube.
14. Using the 5 mm and 23 mm (13/16" and 7/8") wrenches, tighten the 13 mm (1/2") Swagelok past finger tight until there is significant resistance.
15. Using the two 12 mm (0.5") wrenches, tighten the remaining 4 mm (0.16") Swagelok past finger tight one 3/4" turn.



FIGURE 13: *Completed Splice*

16. Perform continuity and short-circuit checks to verify that the splice was **successful**.

APPENDIX A. SWAGELOK TUBE FITTING INSTRUCTIONS

These instructions apply to one inch (25 mm) and smaller fittings.

A.1 INSTALLATION

1. Fully insert the tube into the fitting until it bumps against the shoulder.

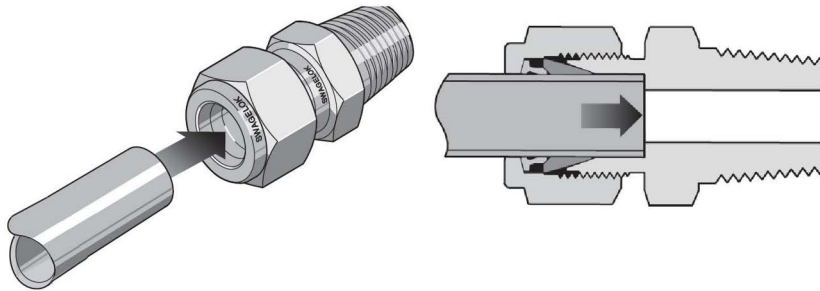


FIGURE 14: Tube Insertion

2. Rotate the nut until it is finger tight. (For high-pressure applications as well as high-safety-factor systems, further tighten the nut until the tube will not turn by hand or move axially in the fitting.)
3. Mark the nut at the six o'clock position.

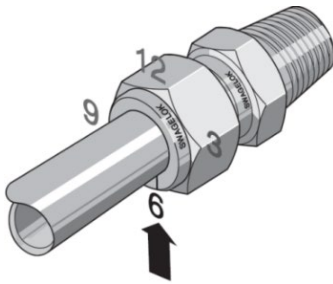


FIGURE 15: Make a Mark at Six O'clock

4. While holding the fitting body steady, tighten the nut one and one quarter turns, until the mark is at the nine o'clock position.

Note: For 1/16-inch, 1/8-inch, 3/16-inch, and 2, 3, and 4 mm fittings, tighten the nut three-quarters of a turn until the mark is at the three o'clock position.

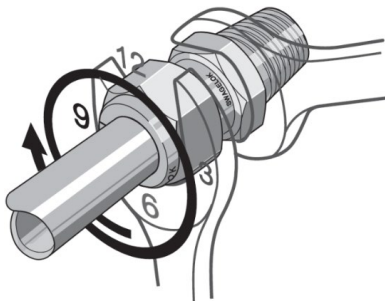


FIGURE 16: Tighten One and One-Quarter Turns

A.2 REASSEMBLY INSTRUCTIONS

Swagelok tube fittings may be disassembled and reassembled many times.

Warning! Always depressurize the system before disassembling a Swagelok tube fitting.

1. Prior to disassembly, mark the tube at the back of the nut, then make a line along the nut and fitting body flats. **These marks will be used during reassembly to ensure the nut is returned to its current position.**



FIGURE 17: Marks for Reassembly

2. Disassemble the fitting.
3. Inspect the ferrules for damage and replace if necessary. If the ferrules are replaced the connector should be treated as a new assembly. Refer to the section above for installation instructions.
4. Reassemble the fitting by inserting the tube with pre-swaged ferrules into the fitting until the front ferrule seats against the fitting body.

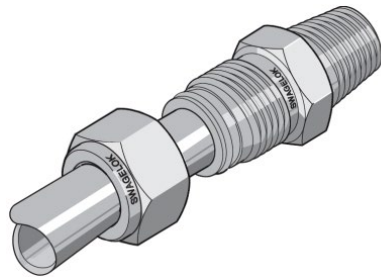


FIGURE 18: Ferrules Seated Against Fitting Body

5. While holding the fitting body steady, rotate the nut with a wrench to the previous position as indicated by the marks on the tube and the connector. At this point, there will be a significant increase in resistance.
6. Tighten the nut slightly.

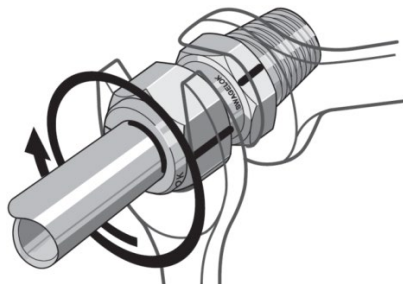


FIGURE 19: Tighten Nut Slightly



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