

3M™ Cold Shrink QT-III Silicone Rubber Termination 7673-S-10(S)-Tape/LC

For Tape Shield or Longitudinally Corrugated (LC)
Shielded Cable

Instructions

IEEE Std. No. 48-1996

Class 1 Termination

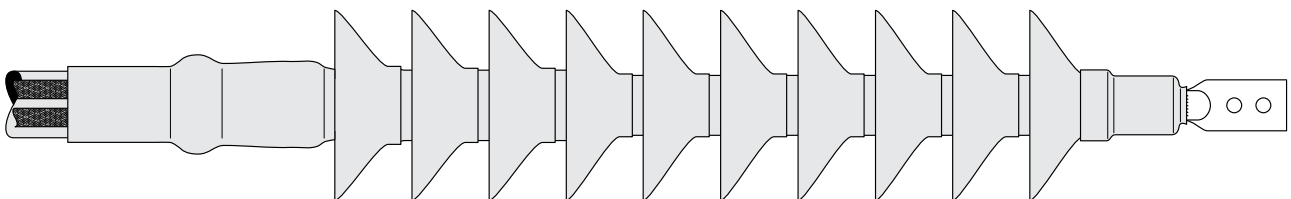
69 kV Class, 350 kV BIL

IEC 60840

72,5 kV

CAUTION

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



Kit Contents

- 1 Silicone Rubber Lug Seal Insulator Assembly
- 1 Hi-K Stress Control Assembly
- 1 Silicone Rubber Ground Seal Assembly
- 1 Silicone Rubber Skirted Insulator Assembly
- 1 Preformed Ground Braid Assembly
- 3 Constant Force Springs
- 1 Roll Scotch® Electrical Shielding Tape 24
- 4 Tubes 3M™ Red Compound P55/R. (Non-Silicone Grease)
- 1 Roll 3M™ Scotch-Seal™ Mastic Tape 2229, 1" (25 mm) wide
- 1 Roll Scotch® Self-fusing Silicone Rubber Electrical Tape 70
- 1 Roll Scotch® Vinyl Electrical Tape Super 88, 3/4" × 66'
- 2 Roll Scotch® Rubber Mastic Tape 2228, 2" x 6.5'
- 2 3M™ Cable Cleaning Pads CC-3
- 1 3M™ EMI Copper Foil Shielding Tape Strip 1181, 15" long
- 3 Instruction Sheets

Note: Utility Colth (Aluminum Oxide) abrasive materials are required for cable preparation, but are NOT INCLUDED IN KIT. Required grits are P180, P240 and P320. Available 3M™ Utility Colth (Aluminum Oxide) Rolls UPC Codes are:

- P180: 51115-19788**
- P240: 51115-19786**
- P320: 51115-19784**

Note: Do not use knives to open plastic bags.

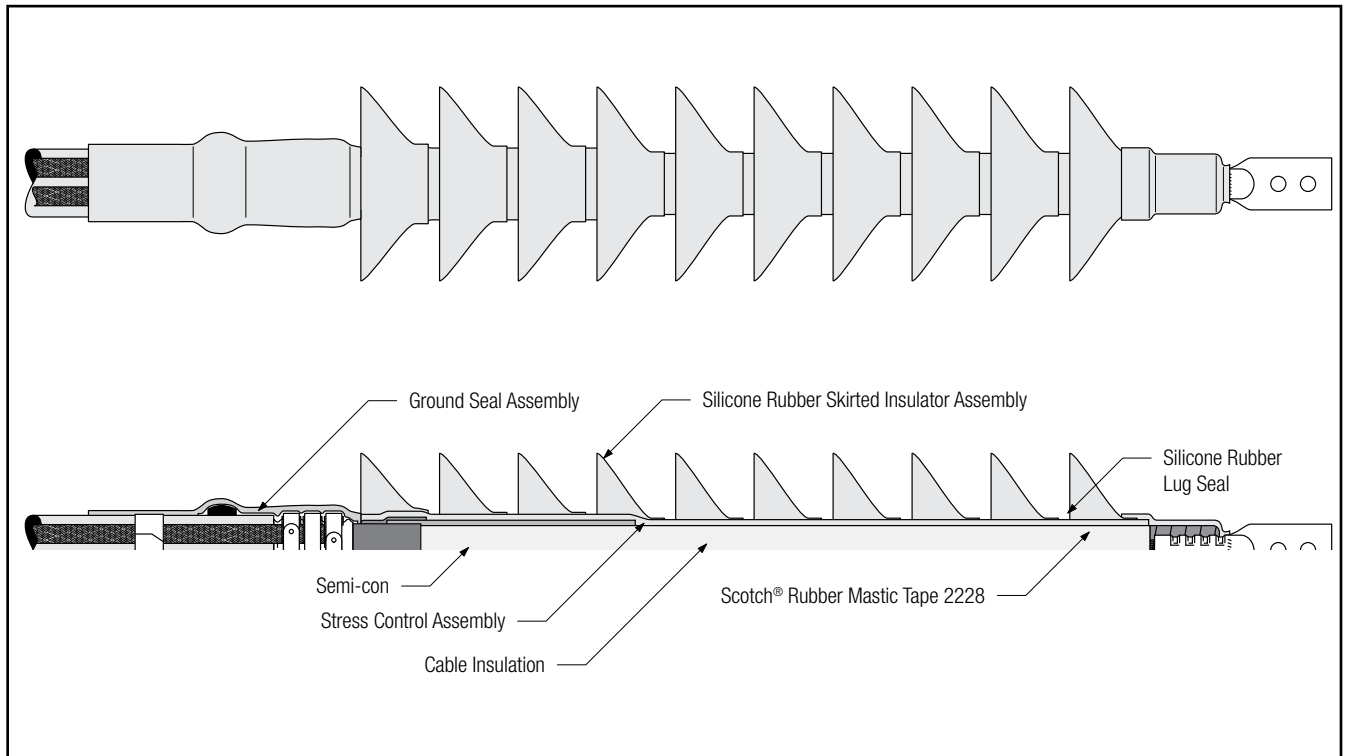
Kit Selection Chart

Note: Final determining factor is cable insulation diameter.

Kit Number	Primary Insulation O.D. Range	Jacket O.D. Range	Conductor Size Range* AWG (mm²)
7673-S-10(S)	2.01"-2.87" (51,1-72,9 mm)	2.25"-3.45" (57,2-87,6 mm)	350-1500 (175-725)
*Based on 650 mil insulation thickness			

Table 1

Correct Installation of Termination



Note: Check to insure that the lug seal tube will fit over the lug. If the lug will not fit through the tube core, contact 3M for an alternative installation procedure.

1.0 Prepare Cable

- 1.1 Check to be sure the cable fits within the kit ranges as shown in Table 1.
- 1.2 Prepare cable using dimensions shown in Figure 1. **Be sure to allow for depth of terminal lug plus 0.5" (13 mm) plus crimp growth.**

Note: Provide additional exposed conductor to allow for growth of aluminum lugs or connectors during crimping.

Conductor Size	350	400-650	750-1000	1100-3000
Growth Allowance	0.25" (6 mm)	0.5" (13 mm)	0.75" (19 mm)	Field Determined

Table 2

- 1.2a **For cables that have a bonded semi-conductive (semi-con) insulation shield that does not peel squarely. The following steps describe how to square the semi-con cutback. Note: Graphite Spray is not provided in this kit.**

Semi-conductive Graphite Spray can be used to square the semi-con after insulation sanding has been completed. During cable preparation, remove additional cable semi-con to bring the highest point 1/8"-1/4" (3-6mm) past the instructions semi-con cutback dimension.

Following insulation sanding, use tape and clean plastic wrap to cover/mask the cable insulation from the original semi-con cutback dimension to the end of the insulation and partially cover the cable semi-con leaving 0.5"-1.0" (12-25 mm) exposed. Apply a coat of Graphite Spray (avoid runs caused by excessive spray) and let dry. Apply a second coat of Graphite Spray and let dry. Using soft towel, lightly buff the graphite to remove any loose material. Remove masking tapes and plastic wrap.

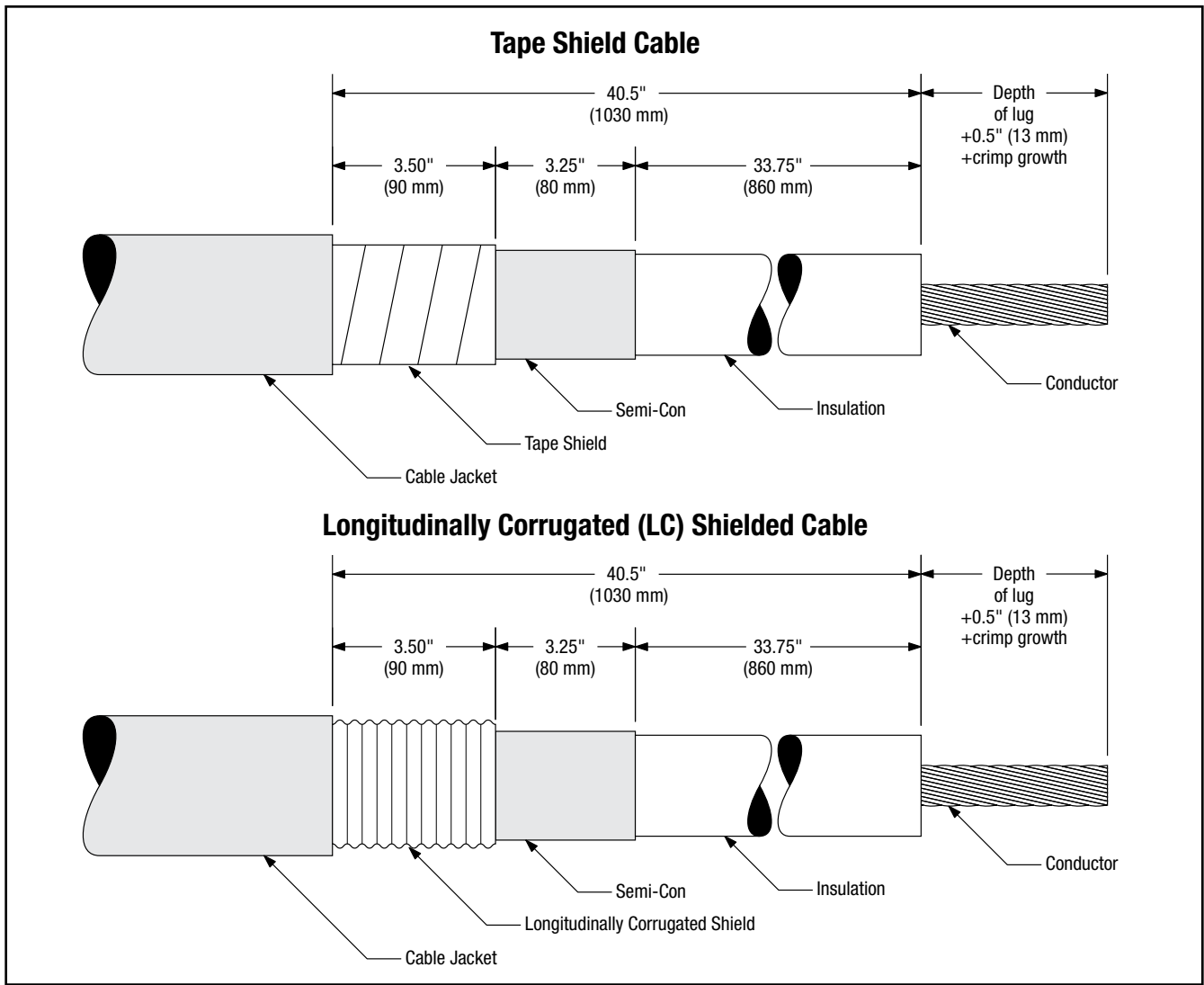


Figure 1

Typical Conductor Size Kcmil (mm ²)	Insulation OD after Preparation Inches (mm)
350-1500 (175-725)	2.01"-2.87 (51,1 mm - 72,9 mm)

Table 3

2.0 Install Ground Braid Assembly

- 2.1 For longitudinally corrugated (LC) cables, fill the valleys on the longitudinally corrugated shield with several wraps of Scotch® Electrical Shielding Tape 24. Half-hitch to tie off. (*Figure 2*)

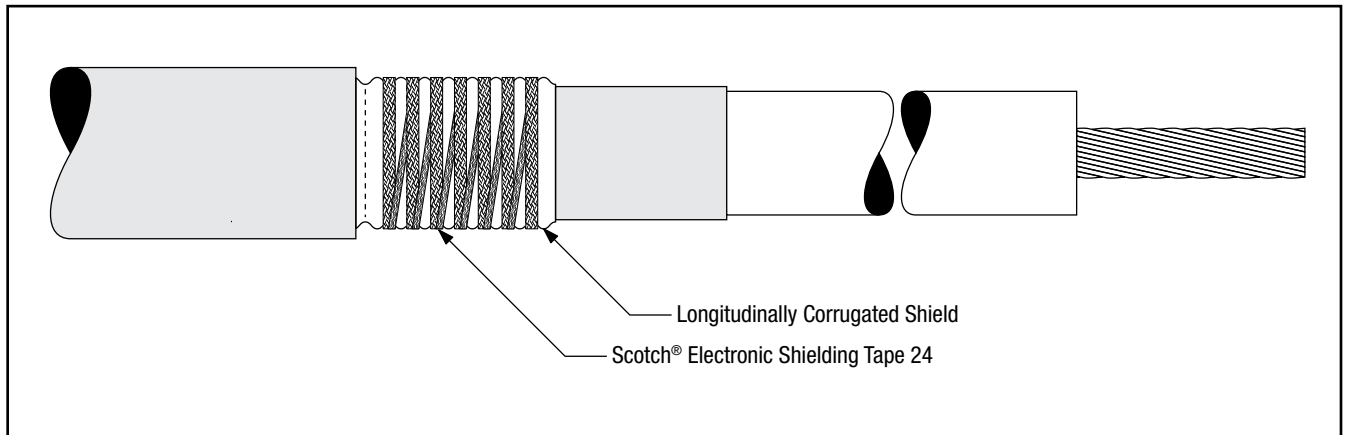


Figure 2

- 2.2 Select the preformed ground braid assembly from the kit. Pass the end of the cable through the ground braid assembly loop, and position the ground braid assembly around the tape shield shown. (*Figure 3*)

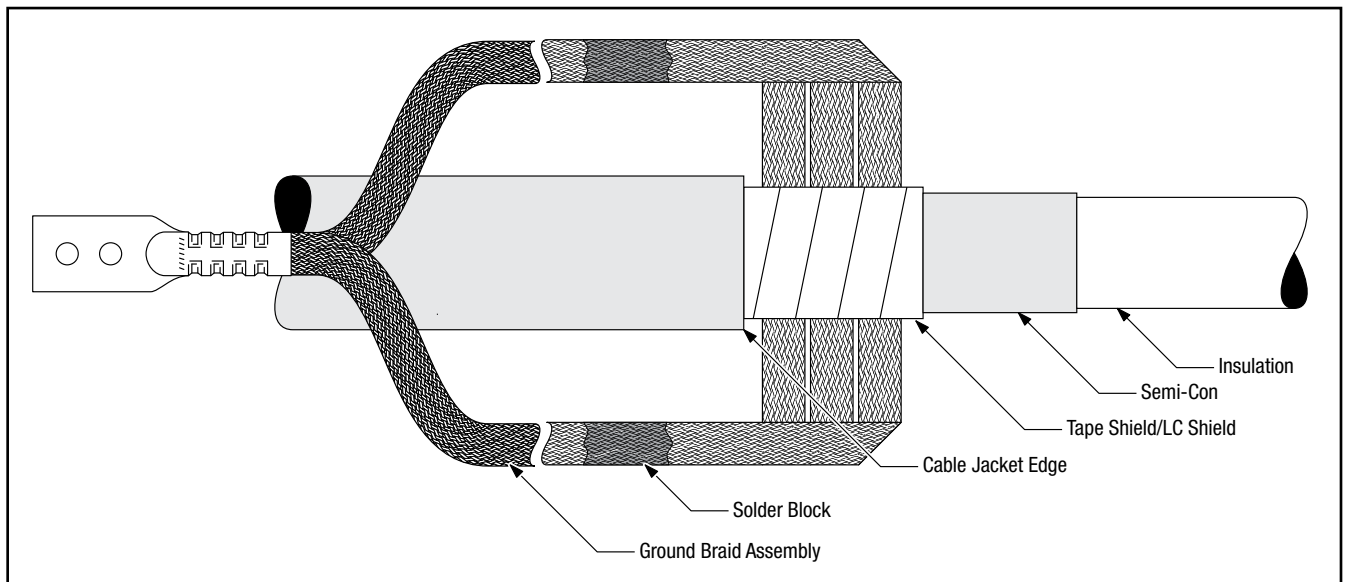


Figure 3

- 2.3 Select the 3 constant force springs from the kit. Starting at the loop of the ground braid assembly nearest the cable jacket edge, install the 3 constant force springs, one around each ground braid loop. Cinch (tighten) the springs after wrapping the final turn. Extend the ground braid tails down the cable jacket. (Figure 4)

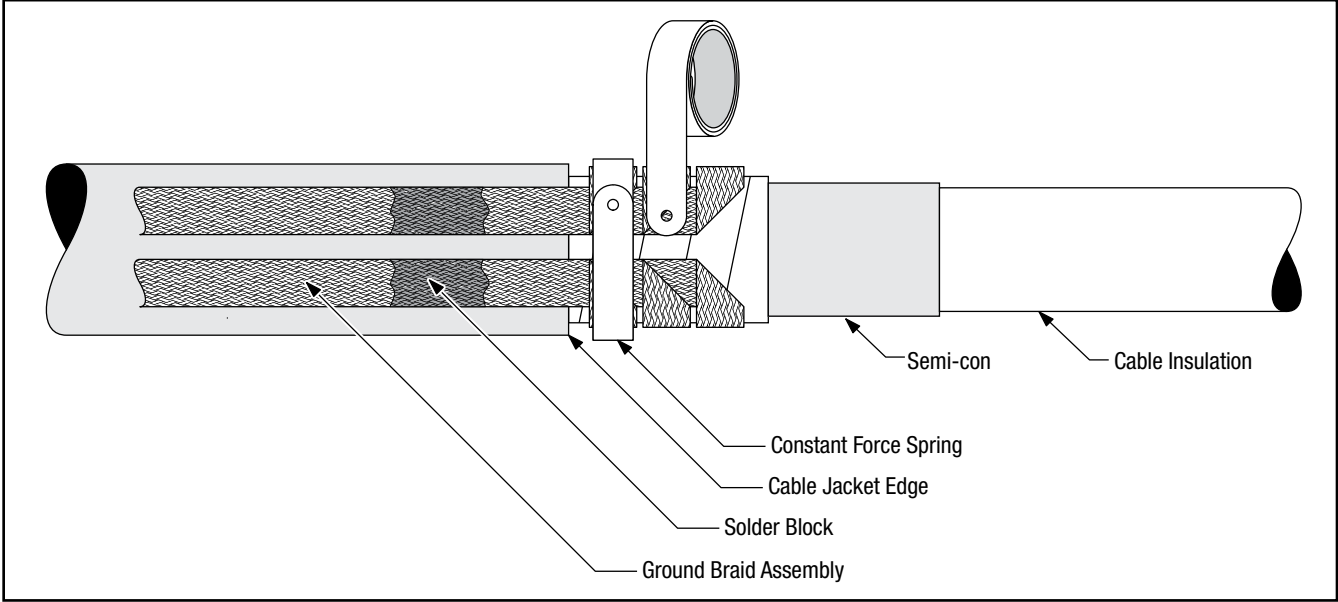


Figure 4

- 2.4 Select the roll of 1" (25 mm) wide 3M™ Scotch-Seal™ Mastic Tape 2229 from the kit. Cut a length of the tape long enough to wrap around the cable jacket. Remove the release liner from the mastic and, using light tension, apply a single wrap of mastic around the cable jacket, positioned under the ground braid solder blocks. (Figure 5)
- 2.5 Secure the two tails of the ground braid assembly to the cable jacket approximately 6 inches (150 mm) from the cable jacket edge with several wraps of vinyl tape. (Figure 5)

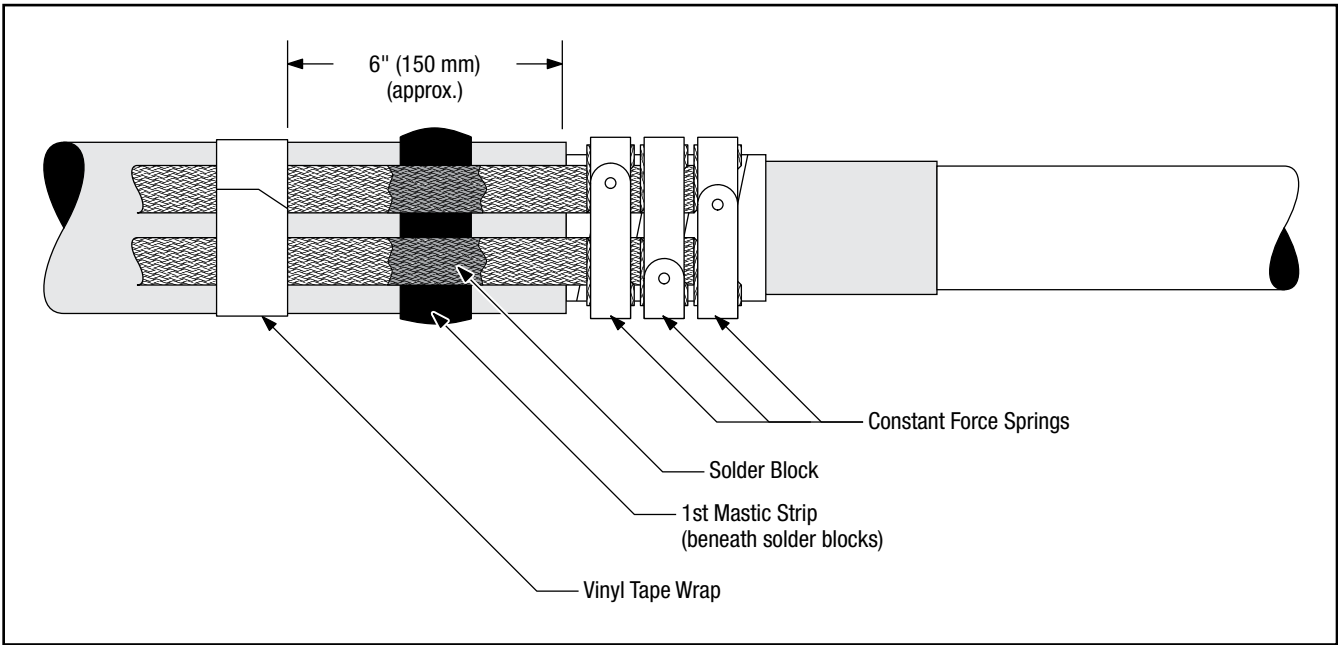


Figure 5

- 2.6 Cut four 1" (25 mm) lengths of 1" (25 mm) wide 3M™ Scotch-Seal™ Mastic Tape 2229. Remove the release liner and roll each mastic strip into a small roll. (*Figure 6*) Press the mastic rolls into place on either side of the ground braid solder blocks. (*Figure 7*)

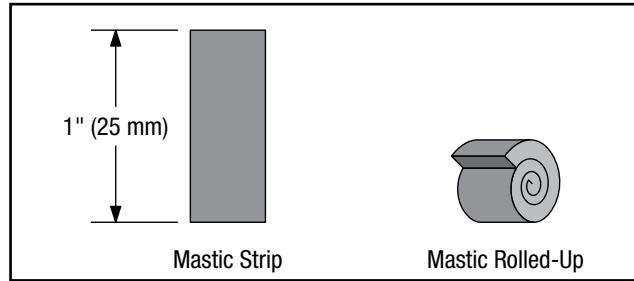


Figure 6

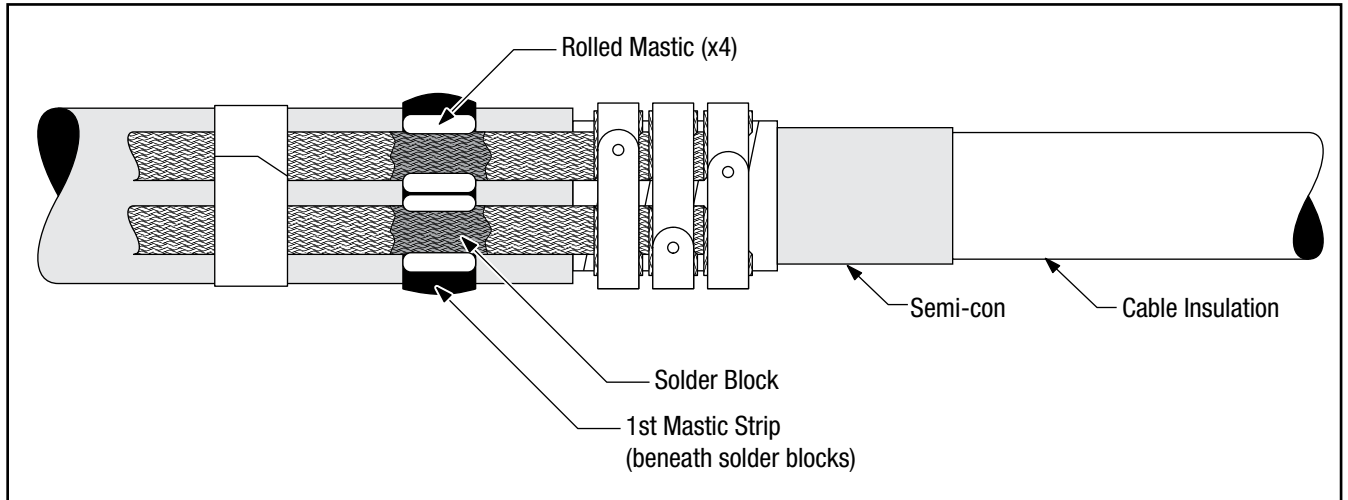


Figure 7

- 2.7 Select the roll of 1" (25 mm) wide 3M™ Scotch-Seal™ Mastic Tape 2229 from the kit and cut a length of the mastic. Using light tension, apply a single wrap of mastic around the cable jacket over the ground braid solder blocks and the previously applied mastic. (*Figure 8*)

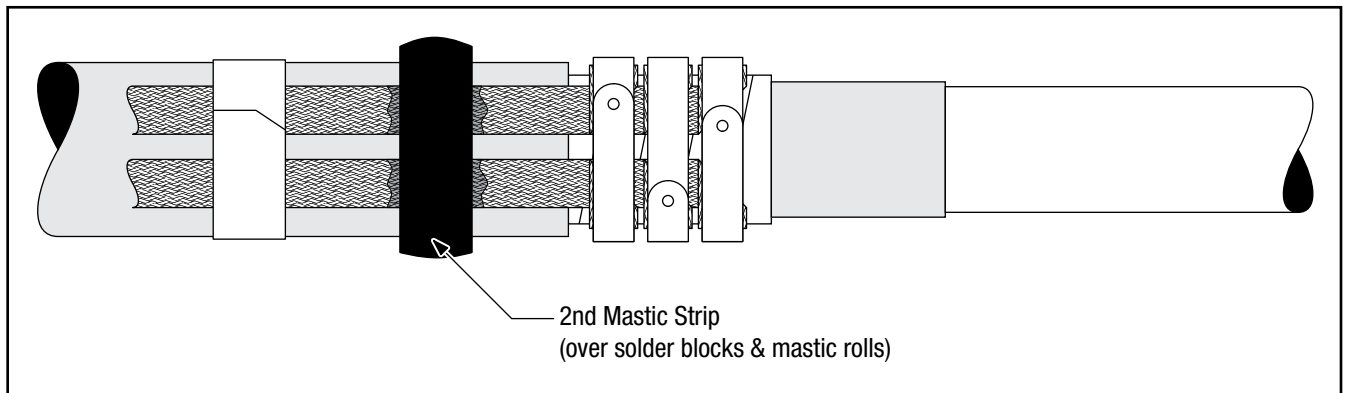


Figure 8

- 2.8 Wrap two half-lapped layers of highly-tensioned Scotch® Vinyl Electrical Tape Super 88 over the mastic seal and constant force springs. Cover all exposed mastic, constant force springs and tape shield, overlapping 0.25" (6 mm) onto the exposed cable semi-con. (Figure 9)

Note: Take care to leave 3.0" (76 mm) of exposed semi-con. This will be used as a marker tape later.

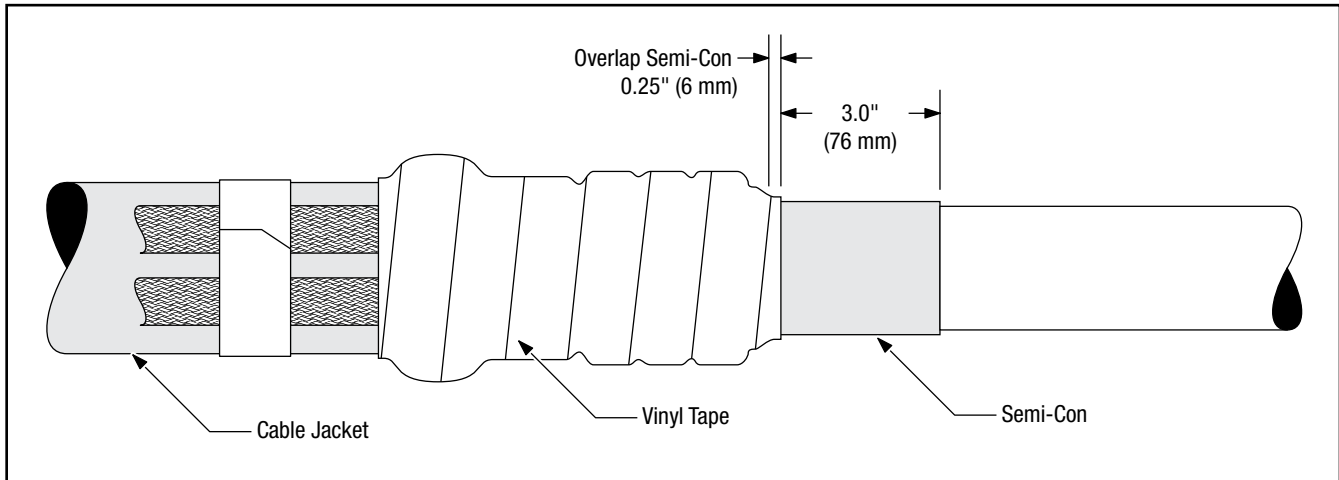


Figure 9

3.0 Clean Cable Insulation Using Standard Practice

- 3.1 Use only aluminum oxide abrasive (300 grit or finer) to finish and polish insulation surface.
- 3.2 Use abrasive only on cable insulation. **Do not use on semi-con.**
- 3.3 When using abrasive, do not reduce the cable insulation diameter below that allowed by the kit.
- 3.4 Wipe the cable insulation clean with an approved solvent. **Do not allow the solvent to touch semi-con insulation shield or graphite spray, if used.**

Note: Remove any remaining solvent with 3M™ Cable Cleaning Pads CC-DRY (not supplied with kit) or lint-free cloth.

4.0 Install Termination

- 4.1 Slide the large dark grey ground seal assembly onto the cable jacket, loose core end first. (Figure 10)

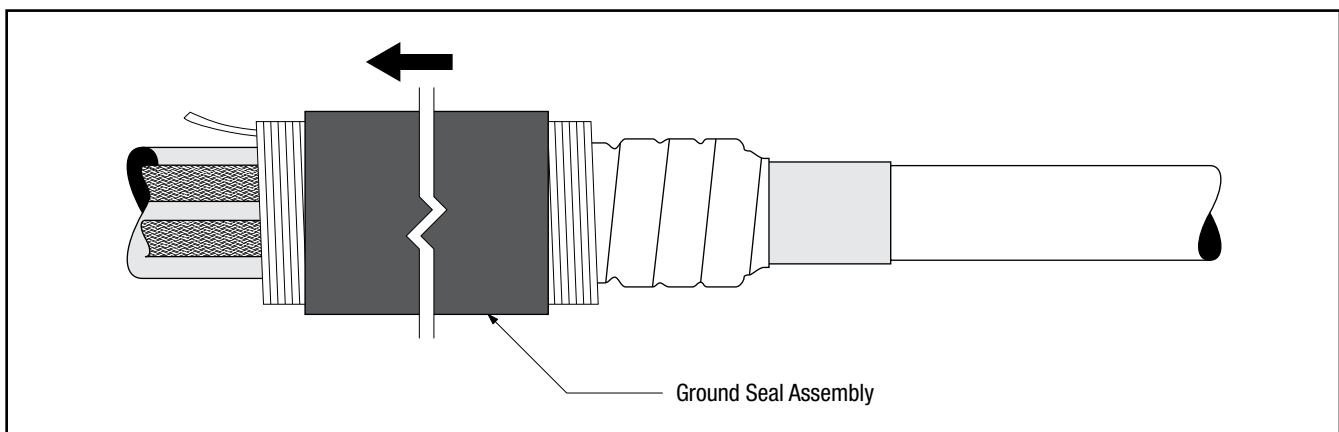


Figure 10

4.2 Place a marker tape on the cable semi-con located 1.75" (45 mm) from the end of the semi-con. (Figure 11)

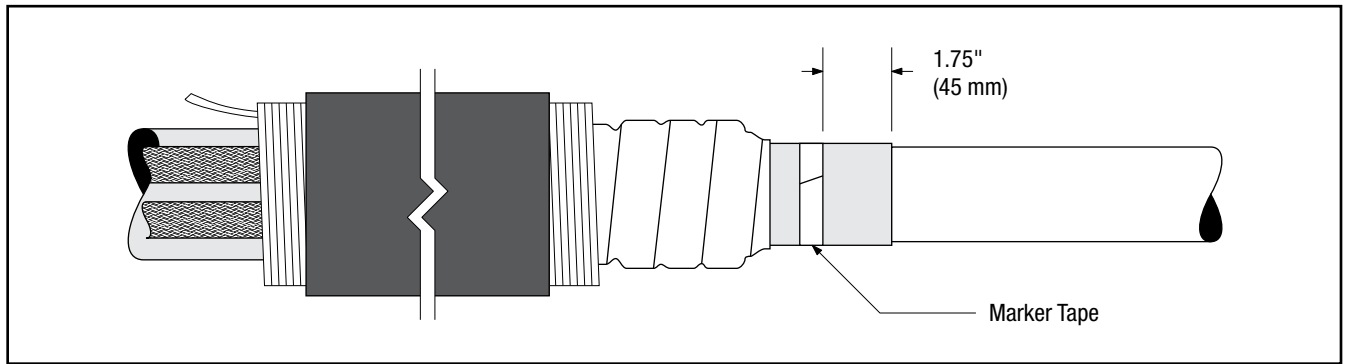


Figure 11

4.3 Apply 1 tube 3M™ Red Compound P55/R starting at marker tape and continuing on to the cable insulation for approximately 8" (200 mm). (Figure 12)

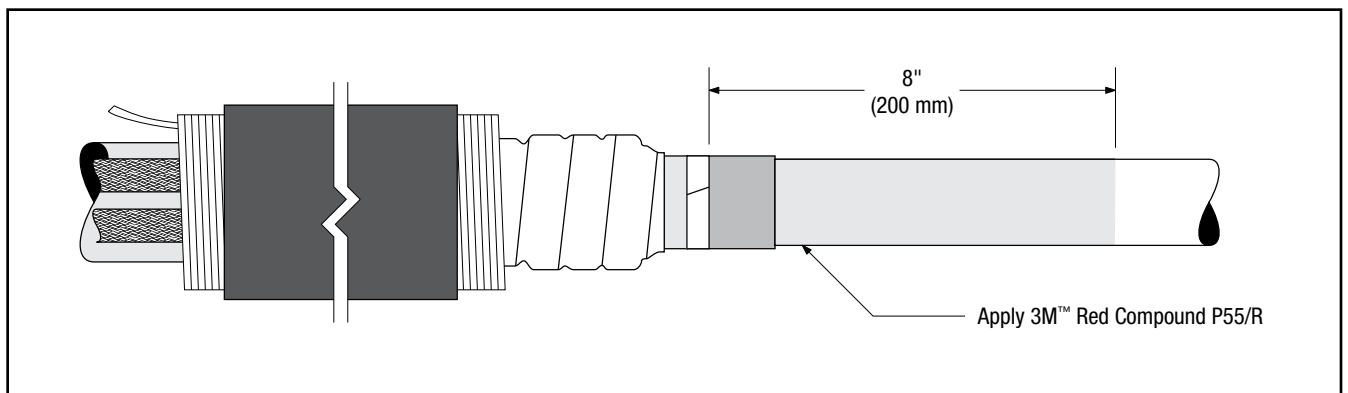


Figure 12

4.4 Select the 2-Part Black Stress Control Assembly (medium length tubular assembly on white core) from the kit. Slide the Stress Control Assembly over the cable with the loose core end toward the cable end. Align the Stress Control Assembly Tube (not the core) with the marker tape, and remove the core by pulling the loose end while unwinding counterclockwise. (Figure 13)

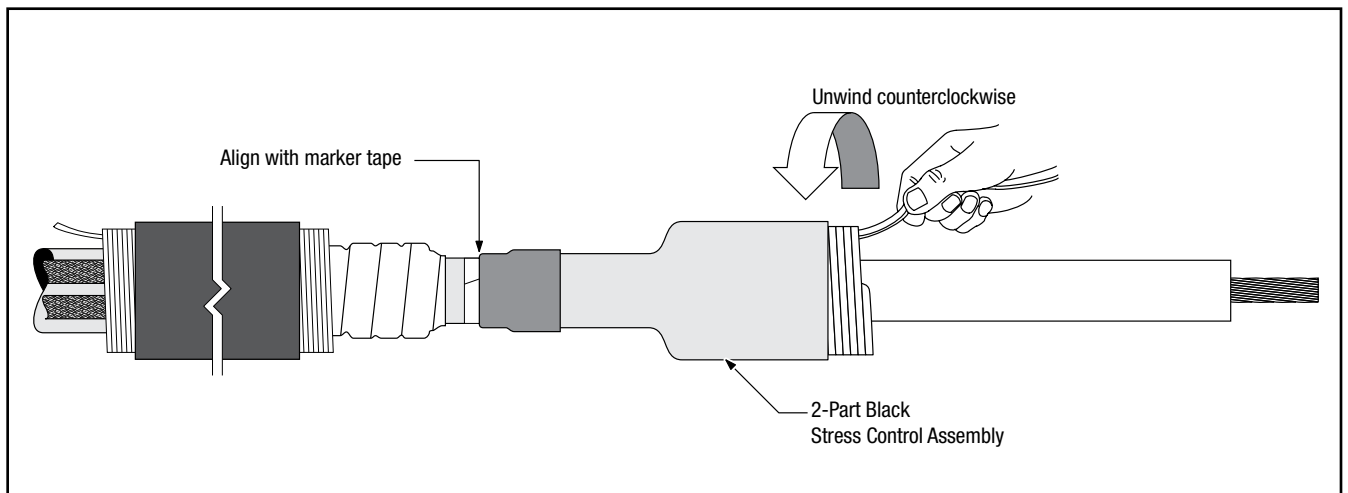


Figure 13

4.5 Apply 2 tubes 3M™ Red Compound P55/R to the exposed insulation and stress control adapter. Fill the top edges of the stress control tube with the P55/R. (Figure 14)

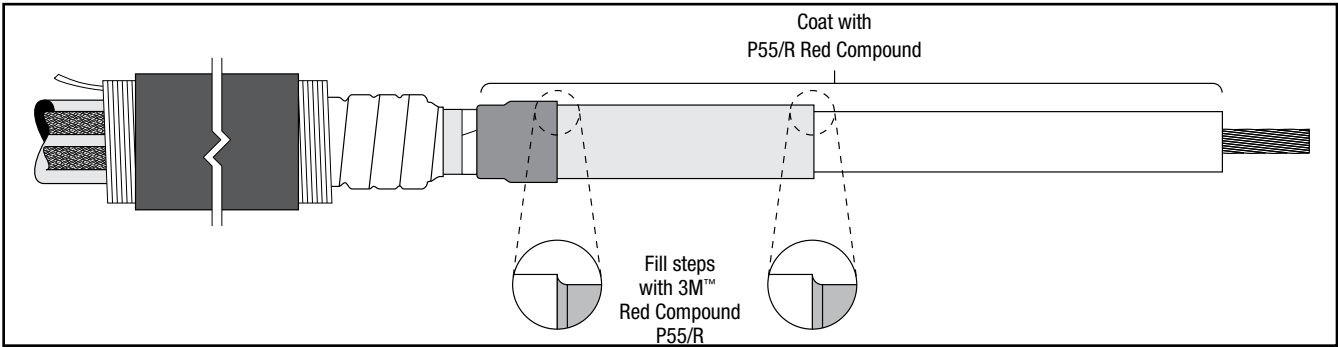


Figure 14

4.6 Slide the Silicone Rubber Skirted Insulator Assembly onto the cable. Align the assembly tube (not the core) with the end of the sealing mastic/constant force spring cover tape located 3" (76 mm) from the end of the cable semi-con, and remove the core by pulling the loose end while unwinding counterclockwise. (Figure 15)

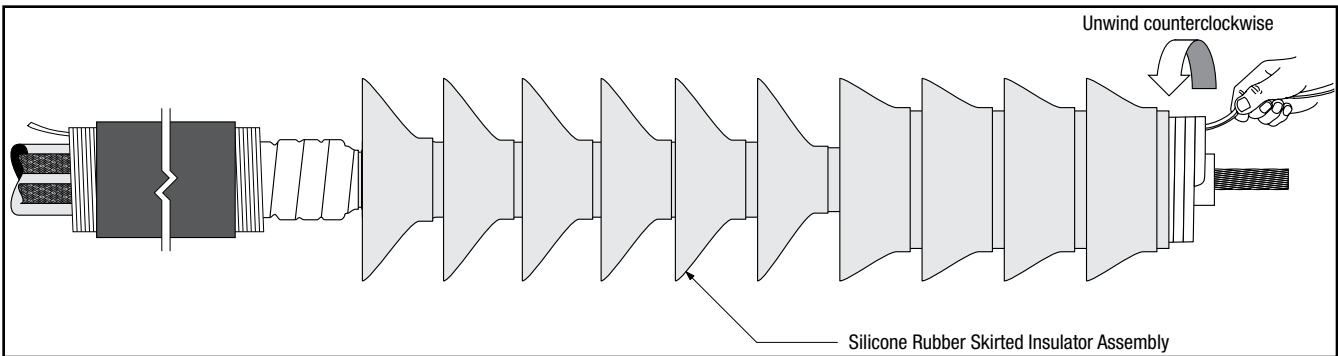


Figure 15

5.0 Install Lug or Connector

5.1 Position lug/connector and crimp according to manufacturer's directions. Remove excess oxide inhibitor and sharp crimp flashing following crimping.

5.2 Wrap Scotch® Rubber Mastic Tape 2228 half-lapped over the lug barrel and insulation/lug gap, building to a diameter equal to the cable insulation. Cover 2" (50 mm) of the lug barrel. (Figure 16)

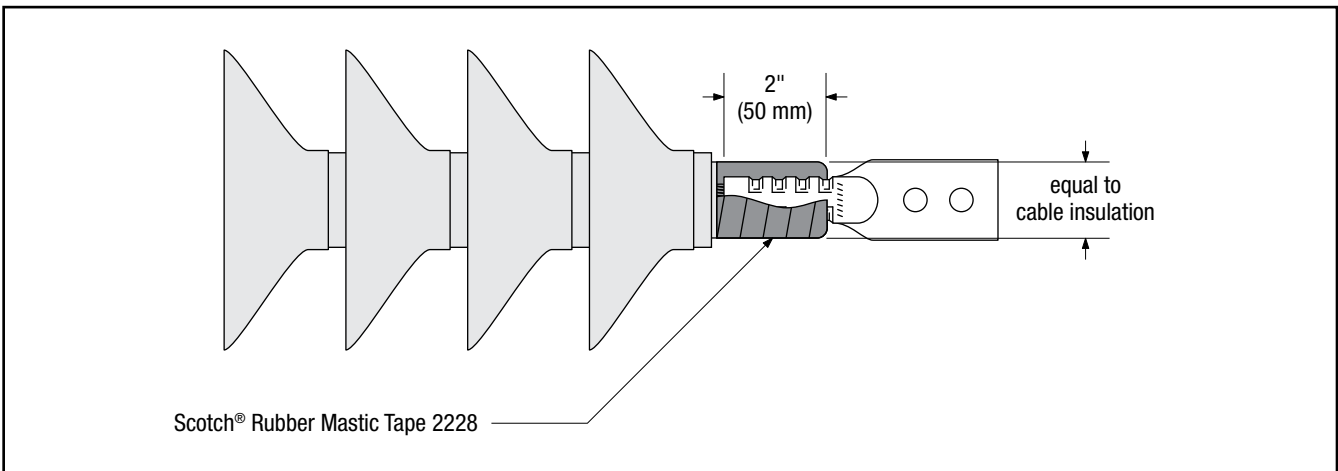


Figure 16

6.0 Install Sealing Tubes

- 6.1 Slide the small dark grey lug sealing tube onto the lug/termination, as shown. Start to shrink the tube near the top of the last skirt and onto the lug barrel. If the tube overlaps the lug pad or is not tight to the lug barrel, carefully trim the tube just past (1/4" or 6 mm) the Scotch® Rubber Mastic Tape 2228 sealing tape. A roll of Scotch® Self-fusing Silicone Rubber Electrical Tape 70 is provided to cover the edge of the trimmed tube, apply with moderate tension, stretching only enough to conform to the lug barrel and tube. (Figure 17)

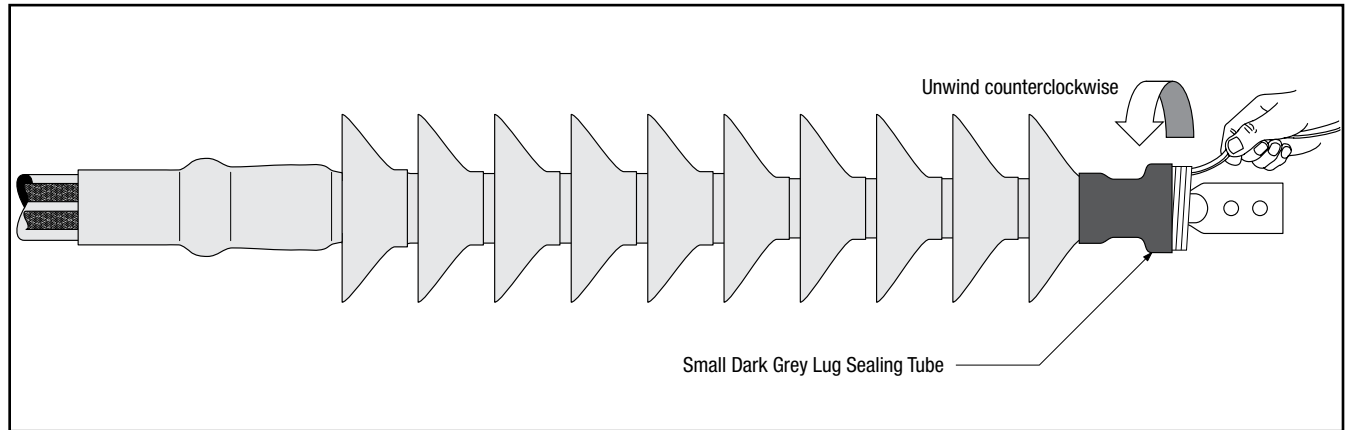


Figure 17

- 6.2 Figure 18 illustrates the appearance following installation of the Cold Shrink Silicone Rubber Lug Seal Insulator Assembly tube.

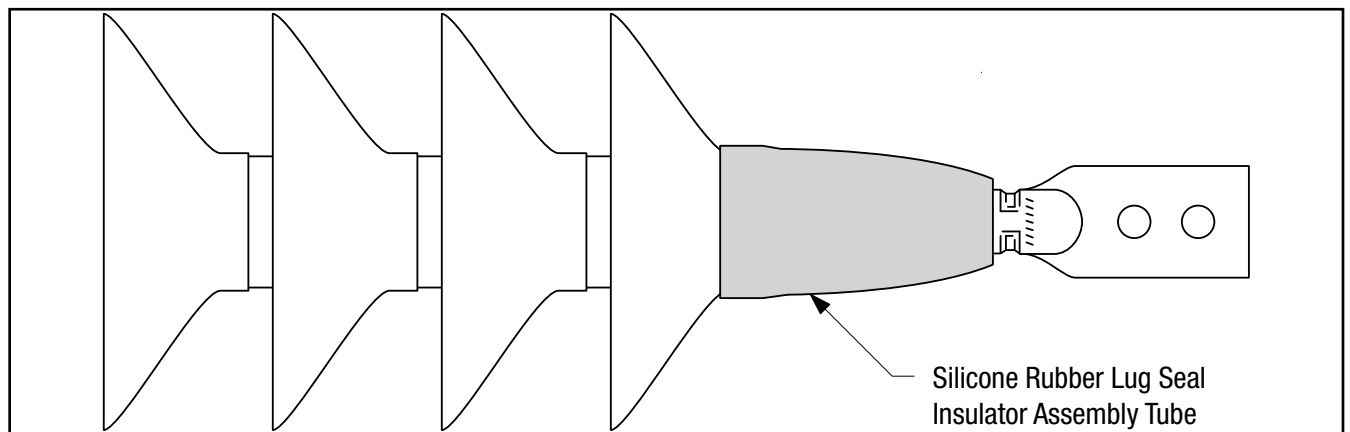


Figure 18

- 6.3 Figure 19 illustrates the appearance following installation of Scotch® Self-fusing Silicone Rubber Electrical Tape 70 (if needed) partially over the the Cold Shrink Silicone Rubber Lug Seal Insulator Assembly tube and the lug barrel.

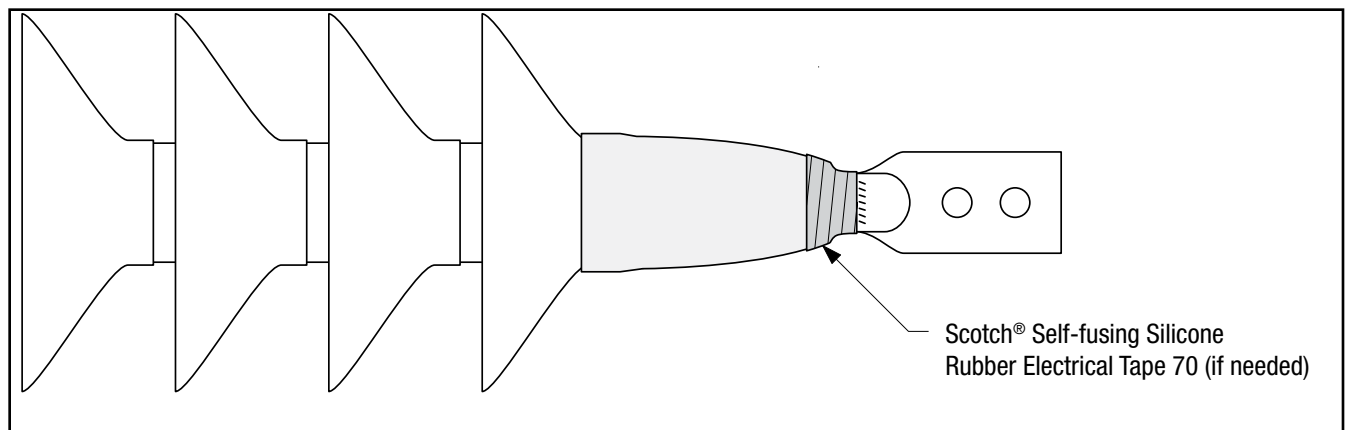


Figure 19

6.4 Slide the parked ground seal assembly onto the termination. Start to shrink underneath the first skirt. Remove the core by pulling the loose end while unwinding counter-clockwise. (Figure 20)

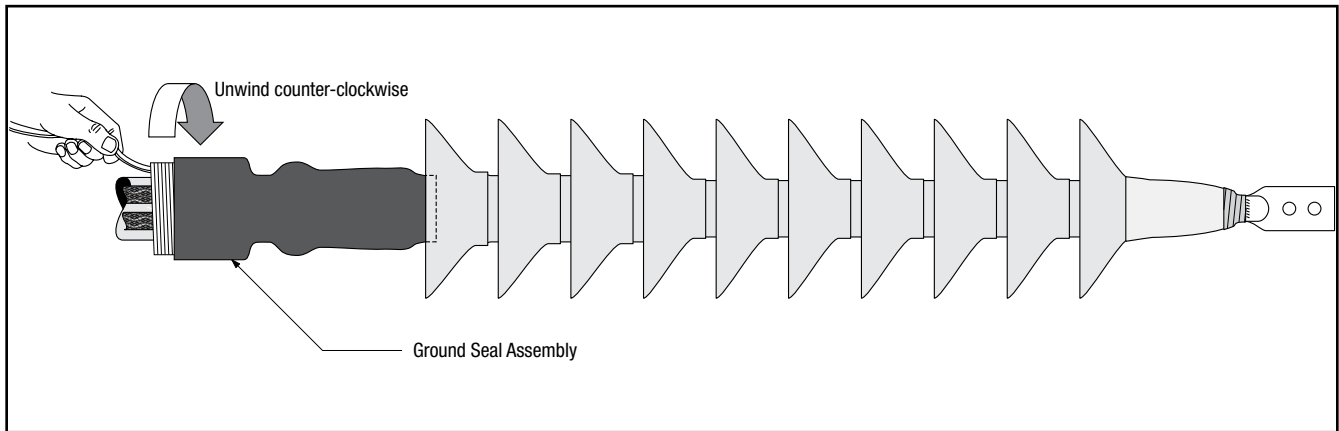


Figure 20

6.5 Connect the completed termination to equipment/system following standard practice.

6.6 Connect the neutral wires to the ground system following standard practice.

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78-8141-7025-0 Rev A