3M™ Cold Shrink QS-III Silicone Rubber Splice Kit 5488A-Tape/LC

For Tape Shielded and Longitudinally Corrugated (LC) Shielded Cable

For 250–2000 kcmil cable with 650-mil primary insulation thickness

Instructions

IEEE Std. No. 404
69kV Class 350 kV BIL
IEC 60840
72kV Class 325kV BIL

⚠️ 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 Selection Table

<table>
<thead>
<tr>
<th>Kit Number</th>
<th>Primary Insulation O.D. Range</th>
<th>Conductor Size Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>5488A</td>
<td>1.94–3.08” (49.3–75.4 mm)</td>
<td>250–2000 kcmil (125–1000 mm²)</td>
</tr>
</tbody>
</table>

Table 1
1.0 Kit Contents

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Silicone Rubber Splice Body</td>
</tr>
<tr>
<td>2</td>
<td>Jacketing Tubes</td>
</tr>
<tr>
<td>1</td>
<td>Shielding Sleeve, 7'</td>
</tr>
<tr>
<td>1</td>
<td>Pre-formed Ground Braid Assembly</td>
</tr>
<tr>
<td>7</td>
<td>Constant Force Springs</td>
</tr>
<tr>
<td>6</td>
<td>3M™ Red Compound P55/R Tubes (non-silicone grease)</td>
</tr>
<tr>
<td>2</td>
<td>Roll 3M™ Scotch-Seal™ Mastic 2229, 1&quot; x 3.5'</td>
</tr>
<tr>
<td>4</td>
<td>Rolls Scotch® Rubber Mastic Tape 2228, 2&quot; x 36&quot;</td>
</tr>
<tr>
<td>1</td>
<td>Roll Scotch® Electrical Shielding Tape 24, 1&quot; x 15'</td>
</tr>
<tr>
<td>1</td>
<td>Pad Scotch® Electrical Semi-conducting Tape 13, 18&quot; x 35&quot;</td>
</tr>
<tr>
<td>2</td>
<td>Rolls Scotch® Vinyl Electrical Tape Super 88, 1½&quot; x 44'</td>
</tr>
<tr>
<td>4</td>
<td>3M™ Cable Cleaning Pads CC-3</td>
</tr>
<tr>
<td>4</td>
<td>3M™ EMI Copper Foil Shielding Tape Strips 1811, 15&quot; long</td>
</tr>
<tr>
<td>4</td>
<td>Rolls 3M™ Armorcast Structural Material 4560, 3&quot; x 15'</td>
</tr>
<tr>
<td>1</td>
<td>Connector</td>
</tr>
<tr>
<td>1</td>
<td>Connector, Foil Pad</td>
</tr>
<tr>
<td>1</td>
<td>Connector, Instruction Sheet</td>
</tr>
<tr>
<td>3</td>
<td>Splice Instruction Booklets</td>
</tr>
</tbody>
</table>

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.
2.0 Prepare Cable

2.1 Check to be sure the cable fits within the kit ranges as shown in Table 1.

2.2 Prepare cables according to standard procedures. Refer to the illustration below for proper dimensions. Copper foil tape strips are included to secure and cover the ends of the tape/LC shield.

2.3 Remove cable insulation for [B]. Insulation removal length shall not exceed 4 ½" (114 mm) from conductor end. Do not install connector now.

<table>
<thead>
<tr>
<th>Conductor Size Kcmil (mm²)</th>
<th>Primary Insulation O.D.* Inches (mm)</th>
<th>Semi-con Cutback [A] Inches (cm)</th>
<th>Insulation Cutback [B] Inches (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 – 600 (125 – 325)</td>
<td>1.94 – 2.24 (49.3 – 56.9)</td>
<td>13 ½ (34.3)</td>
<td>4 (102)</td>
</tr>
<tr>
<td>700 – 1000 (400 – 500)</td>
<td>2.25 – 2.60 (57.0 – 66.0)</td>
<td>13 ¼ (33.7)</td>
<td></td>
</tr>
<tr>
<td>1100 – 1500 (600 – 800)</td>
<td>2.61 – 2.85 (66.1 – 72.4)</td>
<td>13</td>
<td>4 ½ (114)</td>
</tr>
<tr>
<td>1600 – 2000 (850 – 1000)</td>
<td>2.86 – 3.08 (72.5 – 75.4)</td>
<td>12 ¾ (32.4)</td>
<td></td>
</tr>
</tbody>
</table>

* Insulation OD is the final determining factor

2.4 Clean or cover the cable jackets if necessary, 36" (915 mm) from the cable jacket cutback.
3.0 Install Ground Braid Assembly (Optional)

*Note: If not grounding at this splice location, continue at step 4.0.*

3.1 (LC Shielded cable only.) 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](image1)

3.2 Select the pre-formed 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 or longitudinally corrugated shield and Scotch® Electrical Shielding Tape 24 tape as shown. *(Figure 3)*

![Figure 3](image2)
3.3 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](image1)

3.4 Select the roll of 1" (25 mm) wide 3M™ Scotch-Seal Mastic 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)*

3.5 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](image2)
3.6 Cut four 1" (25 mm) lengths of 1" (25 mm) wide 3M™ Scotch-Seal™ Mastic 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](image)

3.7 Select the roll of 1" (25 mm) wide 3M™ Scotch-Seal™ Mastic 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. Cover mastic with a wrap of vinyl tape. *(Figure 8)*

![Figure 8](image)
4.0 Park Splice Components

4.1 Slide the jacketing tubes onto one cable end (small tube inside larger tube with loose core ends opposite each other) (Figure 9). Slide splice body onto the opposite cable, loose core end first (Figure 10).
4.2 Slide expanded shield sleeve over the splice body onto the cable (Figure 11).

5.0 Install Connector

5.1 Install connector according to connector instructions included with the connector.

6.0 Install Splice

6.1 Apply tape marker to semi-con insulation shield 1¾" (45 mm) from the cut back edge of the cable semi-con on the cable which does not contain splice (Figure 13).
6.2 Clean cables using standard practice:

a. Do not allow solvent or abrasive to contact the cable semi-conductive insulation shield.

b. Do not reduce cable insulation diameter below 1.94" (49.3 mm) specified for the splice.

c. The insulation surface must be round, smooth and free of cuts/voids. **Finish sanding must be done with a 300 grit or higher electrical grade abrasive.**

d. Make certain that the cable insulation is smooth, clean and dry before continuing.

6.3 Apply 3M™ Red Compound P55/R on cable insulations, making certain to fill in edge of cable semi-con. Do not use silicone grease (*Figure 14*).

![Figure 14](image1)

### Figure 14

6.4 Position the splice body over connector area, aligning end of the splice body (not the core) at the center of the tape marker. Slowly start to remove the splice core by pulling and unwinding the loose core end counterclockwise, allowing only ¼" (6 mm) of the splice to shrink onto the tape marker. Carefully slide the splice body off the tape marker by pulling and twisting until the entire tape marker is exposed. Continue removing the core to complete the splice body installation (*Figure 15*).

![Figure 15](image2)

### Figure 15
7.0 Connect the Tape Shields/LC Shields

7.1 Wrap the Scotch® Electrical Semi-conducting Tape 13, 18" x 36" Pad over the shield sleeve (27" length following the cable), centered over the splice body. The pad can be trimmed to fit between the metallic shields. Secure with four bands of vinyl tape (Figure 16). **Do not cover the entire pad with vinyl tape.**

![Figure 16](image1)

7.2 Center the expanded shield sleeve over the semi-con pad (Figure 17).

![Figure 17](image2)

7.3 Hand tighten the sleeve outward while keeping it centered over the semi-con pad. Secure the centered shield sleeve to the cable metallic shield on both sides using two constant force springs on each end. Trim excess shield sleeve. (Figure 18).

![Figure 18](image3)
7.4 Wrap two half-lapped layers of highly-tensioned Scotch® Vinyl Electrical Tape Super 88 over the constant force springs, including the springs holding the optional ground braid assembly (Figure 19).

![Figure 19](image)

8.0 Install Jacket

*Note: Jacketing is not optional.*

8.1 Wrap a roll of slightly stretched Scotch® Rubber Mastic Tape 2228, 2" x 36" around cable jacket ends (tacky side toward cable) (Figure 20). Stretch and tear off last 1–2" (25–50 mm) of mastic (Figure 21). If grounding was applied, apply tape centered over 3M™ Scotch-Seal™ Mastic 2229.

![Figure 20](image)

![Figure 21](image)
8.2 Install the smaller cold shrink tube by covering the rubber mastic, overlapping the cable jacket approximately 1/4–1/2" (6–12 mm), and unwinding toward the splice body, slowly pulling and unwinding the core counterclockwise (Figure 22).

![Figure 22](image)

8.3 Wrap a single wrap of 3M™ Scotch-Seal™ Mastic 2229, 1" x 10' around the smaller cold shrink tube ¼" from the end (over the splice body). Completely cover the sealing mastic with a wrap of vinyl tape (Figure 23).

![Figure 23](image)
8.4 Install the larger cold shrink tube over the rubber mastic on the other cable in the same manner (Figure 24).

![Figure 24](image)

8.5 Using the four rolls of 3M™ Armorcast Structural Material provided, wrap half-lapped layers over the entire splice extending 3" (76 mm) onto the cable jacket. Bind the final wrap in place with vinyl tape (Figure 25).

![Figure 25](image)

Tear open the top end of the foil armorcast material container and fill foil container half full with water. Squeeze the container four or five times allowing the water to penetrate the roll. Pour out water, remove roll from foil container and immediately apply to splice area.

Note: Wear rubber gloves provided when handling armorcast material. The resin contains a black dye that will stain human skin.

Armorcast can be applied first and then sprayed with water to activate the curing system. It will also cure from moisture in the air in humid conditions.

8.6 Connect optional grounding.
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