3M™ Cold Shrink T-Body Equipment Connection Kit 7706-35TC-D2E-A

600 Amp 35 kV Class

Instructions

⚠️ CAUTION
The 3M Cold Shrink Modular Equipment Splice is designed to be operated in accordance with normal safe operating procedures. These instructions are not intended to supersede or replace existing safety and operating procedures. The system must be de-energized during operation or maintenance. Visible break and adequate grounding must be provided before cable work proceeds. Ensure that the components are rated for the intended application before they are installed.

Cold Shrink Modular Equipment Splice components should be installed and serviced only by personnel familiar with good safety practice and the handling of high-voltage electrical equipment.

These instructions do not claim to cover all details or variations in the equipment, procedure, or process described, nor to provide directions for meeting every contingency during installation, operation, or maintenance. When additional information is desired to satisfy a problem not covered sufficiently for the user’s purpose, please contact your 3M sales representative.
Kit Contents
1 – 3M™ Cold Shrink Modular T-body; D-Series; 35kV
1 – Cable Insulation Adapter
1 – Dead End Plug; AL, 35kV
1 – Dead End Plug Cap
1 – Connecting Stud; 35kV, AL
3 – Tubes; 3M Red Compound P/55
2 – Scotch® Mastic Strips #2230; 6” long
1 – Connector Adapter
1 – 3M™ Cable Cleaning Preparation Kit CC-2
1 – Instruction Sheet

Equipment Required
- 3M™ Cold Shrink T-Body Equipment Connection Kit 7706-35TC and one aluminum lug.
- Tools: Torque Wrench (for measuring 55 ft-lb of torque)

Application Range Chart

<table>
<thead>
<tr>
<th>Kit Number</th>
<th>Primary Cable Insulation O.D. Range</th>
<th>Max. Jacket O.D. Range</th>
<th>Conductor Size Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>7706-35TC-D2E-A</td>
<td>1.01” – 1.50” (25.7 – 38.1 mm)</td>
<td>1.80” (45.7 mm)</td>
<td>1/0 AWG – 250 kcmil</td>
</tr>
</tbody>
</table>

Check compatibility of kit and cable for application.
Before beginning, ensure cable insulation O.D. fits within the parameters for this kit.
1.0 Cable Preparation

1.1 Train Cables

Position cable(s) in final assembled location as shown in the graphic below (Figure 1). Allow enough slack to provide clearance for connecting or disconnecting of the T-body to or from the apparatus bushing.

Support cable(s) as needed to maintain position. Cut cable(s) approximately 2" (50 mm) from centerline of apparatus bushing.

![Figure 1](image1)

1.2 Prepare cable per cutback dimensions noted in (Figure 2) below. The conductor cutback dimension includes both the depth of the lug, the appropriate growth allowance as well as a small gap allowance between the end of the lug and the end of the cable insulation. Penciling of the cable insulation is not required, however lightly sanding or chamfering the edge of the cable insulation is a good technique to apply.

*Note: Allow sufficient neutral wire length for grounding.*

![Figure 2](image2)
1.3 Clean cable insulation with appropriate cable cleaning solvent. If necessary, lightly sand the cable insulation with an abrasive cloth to remove conductive material. (120-grit abrasive is recommended)

**Note:** DO NOT ALLOW SOLVENT TO TOUCH CABLE SEMI-CON.

1.4 Select one of two mastic strips from kit and remove white release liners. Using light tension, wrap a band of mastic around the cable jacket at the cut edge *(Figure 3)*. Cut off excess.

1.5 Bend neutral wires back over applied sealing mastic and secure to cable jacket using vinyl tape *(Figure 4)*.

1.6 Select second mastic strip from kit and remove white release liners. Apply a second mastic band over the neutral wires and previously applied mastic *(Figure 5)*. Cut off excess.

1.7 Compress neutral wires into mastic by over-wrapping seal strip with two highly stretched layers electrical grade vinyl tape *(Figure 5)*.
2.0 Install Cold Shrink Adapter:

2.1 Mark the cable semi-con at a point 1" (25 mm) from semi-con end (Figure 6) with vinyl tape.

![Figure 6]

2.2 Fill the stepped edge of the cable semi-con with 3M™ Red Compound P55/R. Apply 3M Red Compound P55/R evenly along the entire length of cable insulation.

2.3 Slide cold shrink insulation adapter onto cable with the loose core end going on last (extending toward the cable end) (Figure 7).

![Figure 7]

2.4 Position the insulation adapter beyond the vinyl tape marker on the cable semi-con and slowly start to remove the support core by pulling while unwinding the loose core ribbon end in a counter clockwise direction. When the insulator contacts the semi-con, pull the assembly to the edge of the vinyl tape marker and continue to unwind the core, to complete the adapter installation (Figure 8) remove vinyl tape marker.

![Figure 8]
3.0 Install Compression Lug

3.1 If using aluminum conductor cable, wire brush the conductor strands.

3.2 Insert conductor completely into compression lug and rotate to distribute inhibitor onto the conductor strands.

*Note: Conductor must bottom on inside of compression lug.*

3.3 Align flat face of the compression lug with the connecting component.

3.4 Refer to "Compression Connector Crimp Chart" on page 10 for crimp tool and die information.

3.5 Make first crimp at the first line below shoulder of compression lug.

3.6 Rotate each successive crimp 90 degrees on compression lug *(Figure 9).*

3.7 Thoroughly wipe all excess inhibitor from end of lug.

3.8 Use connector adapter when required as per the following table. Install connector adapter on connector close to cable insulation.

<table>
<thead>
<tr>
<th>Kit Number</th>
<th>Use connector adapter for the following conditions</th>
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<tbody>
<tr>
<td>7706-35TC-D2E-A</td>
<td>Cable conductors 1/0-4/0 AWG or crimp barrel of lug is between 0.71&quot; and 1.0&quot;</td>
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</table>

3.9 Clean adapter with an appropriate cable cleaning solvent.
4.0 Install 3M™ Cold Shrink T-Body

4.1 Apply one tube of 3M™ Red Compound P55/R over entire length of cable insulation tube (Figure 10).

![Figure 10](image)

4.2 Slide T-body onto cable until compression lug eye is centered with the 600A operating interface. Connecting eye must be visible through the open ends of the T-body (Figure 11).

![Figure 11](image)

5.0 Install Connecting Stud and Dead End Plug

5.1 Clean and lubricate mating interfaces of the T-body, dead end plug and apparatus bushing using one tube of red lubricating compound (Figure 12). Do not use silicone grease from other manufacturers.

![Figure 12](image)
5.2 Insert a connecting stud into the end of the apparatus bushing and hand-tighten until snug (*Figure 13*).

![Figure 13](image)

5.3 Install the 3M™ Cold Shrink T-body onto the apparatus bushing. The connecting stud should pass through the lug eye. Be careful not to bind threads against lug eye as metal particles may be scraped onto the cable insulation interface (*Figure 14*).

![Figure 14](image)

5.4 Install the dead end plug onto the connecting stud. Hand-start the plug onto the stud being careful not to cross-thread the connection. Using a torque wrench with a 1" socket, tighten dead end plug to 55 ft-lb (74.5 N·m) of torque (*Figure 15*).

![Figure 15](image)
5.5 Clean and lubricate inner surface of dead end plug cap as well as the hex bolt with one tube of lubricating compound. Push cap onto dead end plug until it snaps into place (Figure 16).

5.6 Shrink the 3M™ Cold Shrink T-body onto the cable by slowly pulling and unwinding the core counterclockwise (Figure 17).
6.0 Grounding Neutral Wires

6.1 Gather and bind all neutral wires together with vinyl tape or a binding wire approximately 1” (25 mm) below end of T-body and connect into system grounding mechanism.

6.2 Installation is complete.

7.0 Compression Connector Crimp Chart

Crimp Die Information for 600 Amp, Aluminum and Bimetal Lugs, P6AL-“X” Series and P7ALCU-“X” Series

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<th>&quot;X&quot;</th>
<th>Lug O.D.</th>
<th>Conductor Size Std, Cmptct</th>
<th>Burndy Die (# of crimps)</th>
<th>Kearney</th>
<th>CSA</th>
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