

3M™ Cold Shrink Rubber Splicing Kit 5551

for 5/8 kV Shielded to Shielded or
Shielded to Non-Shielded Cables

Instructions

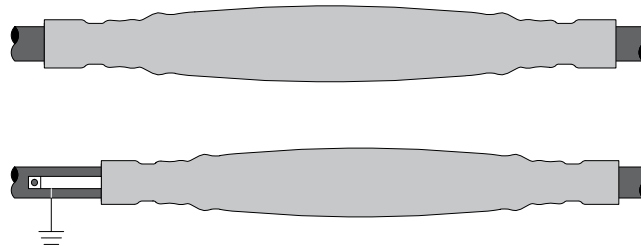
IEEE Std. No. 404-1986

5 kV Class, 75 kV BIL

8 kV Class, 95 kV 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 Contents

(3 splices per kit)

- 3 Cold Shrink Insulators (tapered ends)
- 3 Cold Shrink Splice Jackets
- 3 Scotch® Electrical Semi-Conducting Tape 13
- 3 Scotch® Electrode Wraps 13
- 3 Rolls Scotch® Rubber Mastic 2228
- 3 Scotch® Linerless Rubber Splicing Tape 130C
- 3 Shielding Braid Sleeves
- 6 Constant Force Springs (solderless ground connector)
- 3 Cleaning Pad Kits
- 3 Instruction Sheets

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	Conductor Size Range (AWG)	
		Copper	Aluminum
5551	0.45"-0.88" (11,5-22,3 mm)	6-4/0	6-3/0

Table 1

Optional Grounding Accessory	
For use if splices are to be individually grounded (not included with splice kit)	
Kit Number	Accessory 3M Ground Strap Assembly Kit No.
5551	GS-1
Packaged 3 per bag; 9 per carton.	

1.0 Prepare Cable

- 1.1 Clean cable jackets by wiping with a clean dry cloth for approximately 3 feet (1 meter) at each end.
- 1.2 Prepare cables using standard procedures.

For Non-shielded Cable

- a. Wrap a marker tape band around cable jacket a distance of 5" (127 mm) from cable end (*Figure 1*).
- b. Remove insulation from cable end a distance of 1/2 the connector length (*Figure 1*).

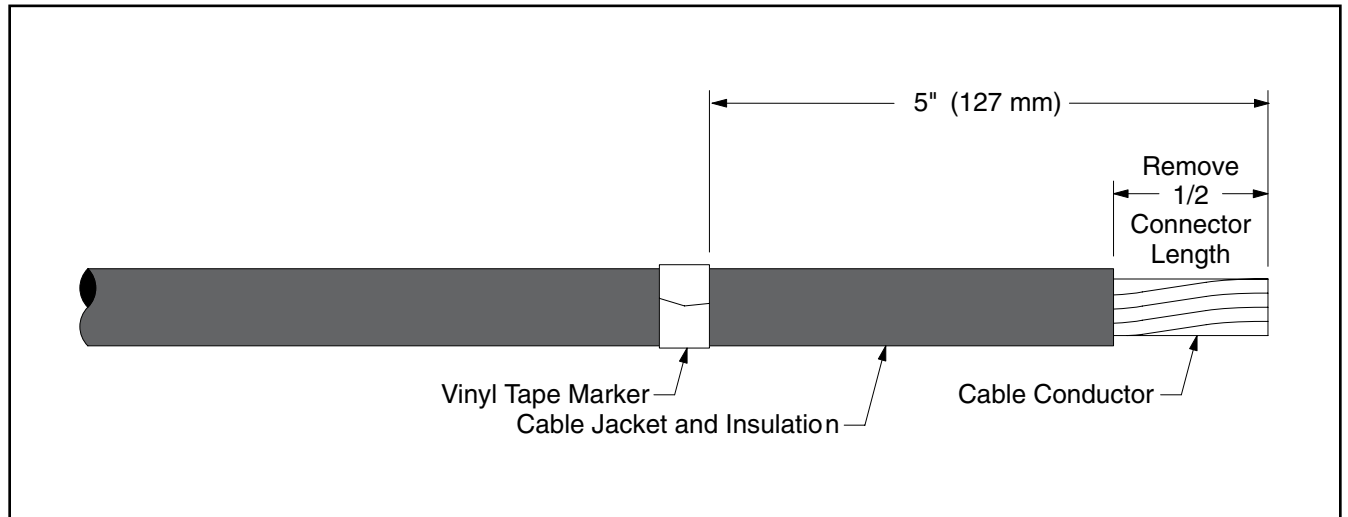


Figure 1

For Tape Shielded Cable

- a. Remove jacket a distance of 7" (178 mm) (*Figure 2*).
- b. Remove tape shield a distance of 5 1/2" (140 mm) from cable end.
- c. Remove cable semi-con layer as shown.
- d. Remove cable insulation from cable ends for a distance of 1/2 connector length.

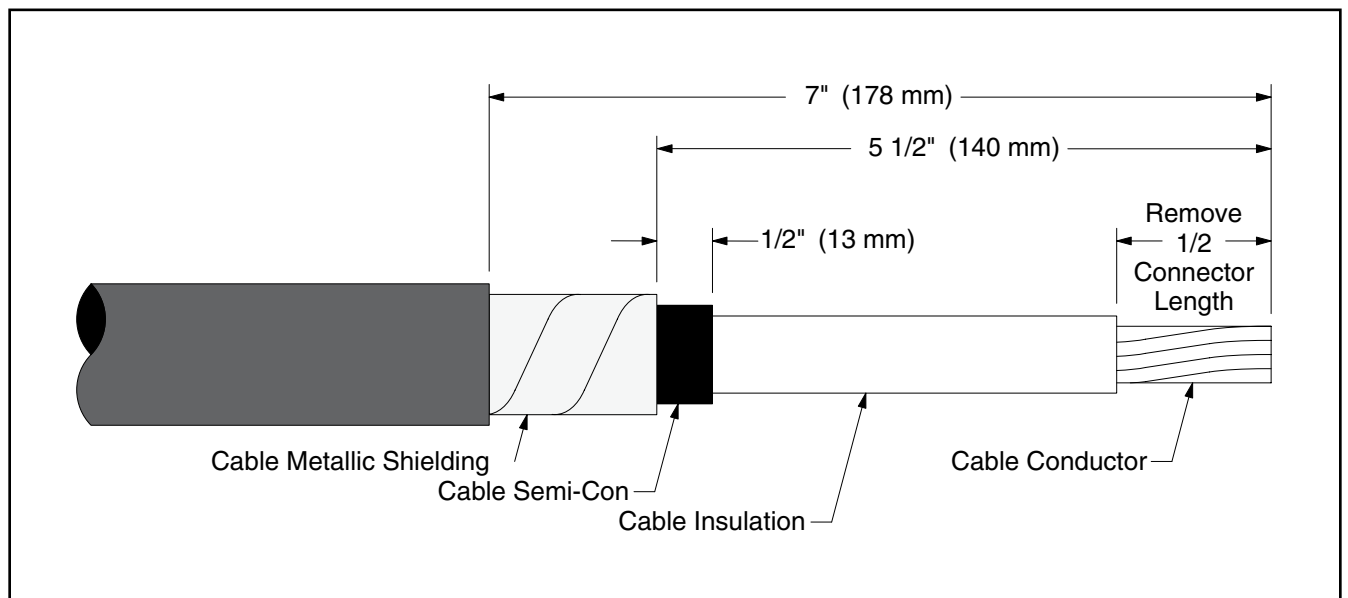


Figure 2

For Wire Shielded Cables

- Remove jacket a distance of 7" (178 mm) (Figure 3).
- Wrap 2 full wraps Scotch® Electrical Semi-Conducting Tape 13 over ground wires, 1 1/2" (38 mm) from cable jacket ends (Figure 3).
- Bend ground wires back over 13 tape and cut off wires at jacket edge (Figure 3).
- Remove cable semi-con layer as shown (Figure 3).
- Remove cable insulation from cable ends for a distance of 1/2 connector length (Figure 3).

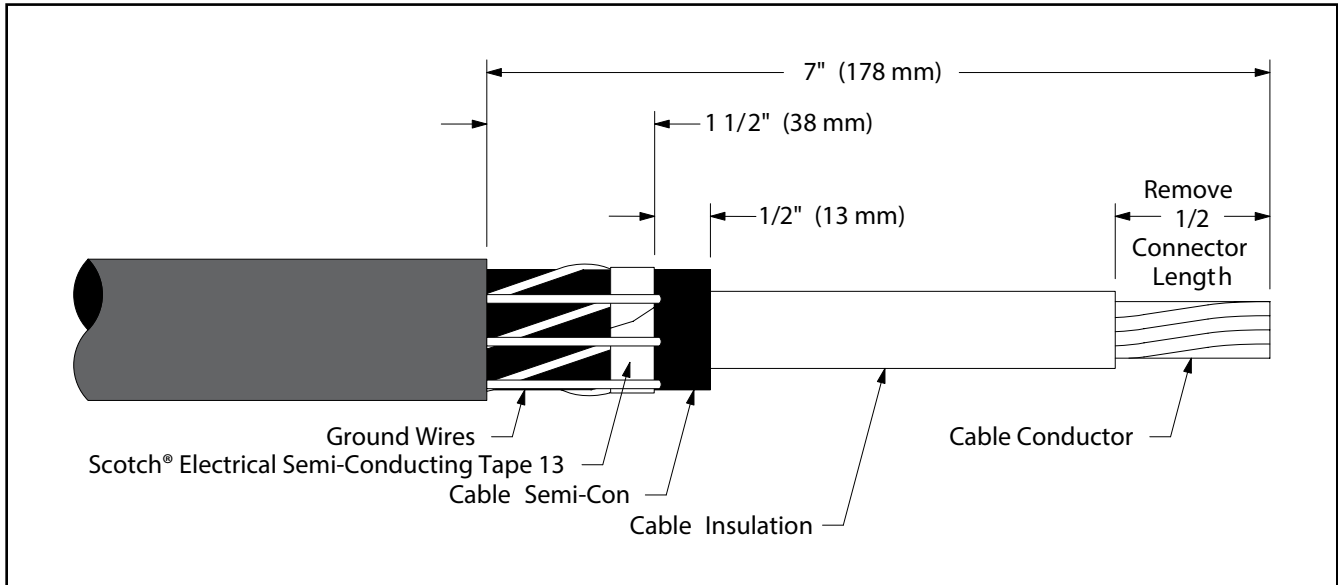


Figure 3

For UniShield® Cables

- Wrap a vinyl tape band around cable jacket at a point 5 1/2" (140 mm) from cable end and remove drain wires from semi-con jacket to leading edge of applied vinyl tape band (Figure 4).

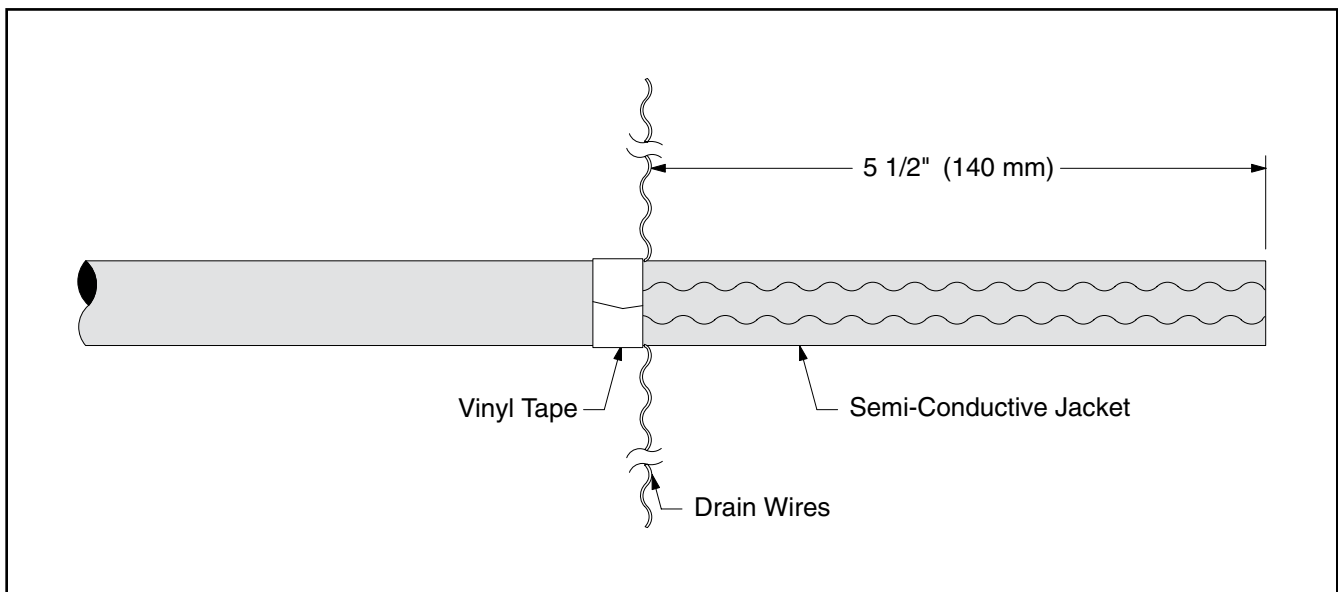


Figure 4

- b. Cut-off shield drain wires to a length of 1 1/2" (38 mm) and fold back onto cable (*Figure 5*).

Important: For instruction purposes, this end of the cut-off drain wires shall be considered as the **END OF THE JACKETS** for the remainder of this instruction.

- c. Install hose clamp and on side of clamp closest to cable end, cut 80% through cable jacket (*Figure 5*).
- d. Remove jacket by pulling against hose clamp. **DO NOT BELL SEMI-CON JACKETS** (*Figure 5*).

Note: Jacket may separate into two layers. Remove both layers of black semi-con jacket.

- e. Remove hose clamp.
- f. Remove cable insulation from cable end for a distance of 1/2 connector length (*Figure 5*).

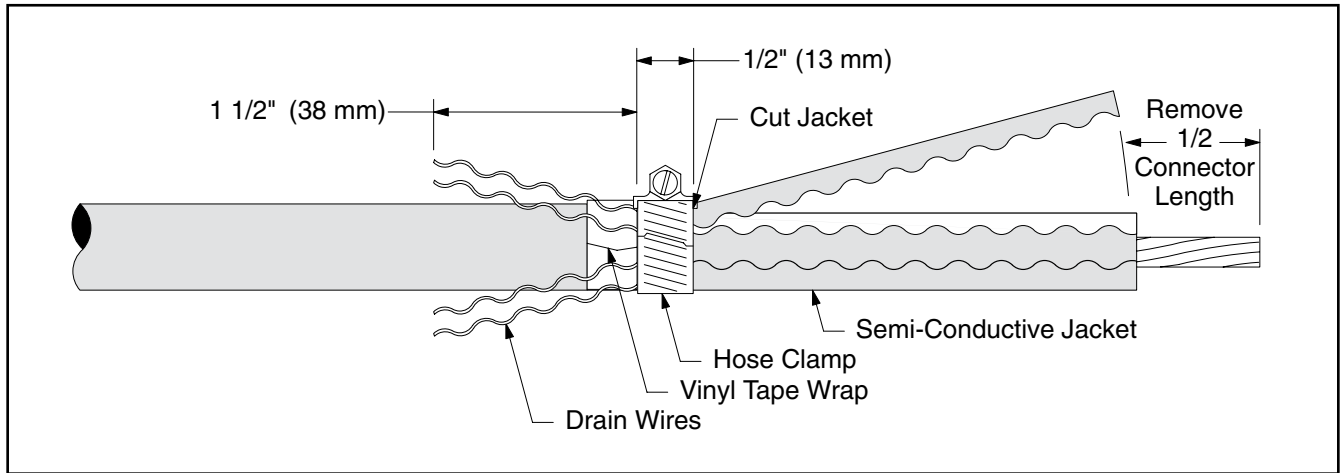


Figure 5

2.0 Slide Splice Components onto Cable

2.1 Slide cold shrink tubes and shielding braid sleeve onto cables.

- a. Slide cold shrink Jacket (longer, non-tapered tube) onto one cable (*Figure 6*).

Note: For shielded to non-shielded splices, the shielding braid sleeve is not used.

- b. Expand diameter of shielding braid sleeve by pushing in at ends (to shorten length) and slide onto other cable (*Figure 6*).
- c. Slide cold shrink insulator (tapered ends) onto cable (behind shielding braid sleeve if used) (*Figure 6*).

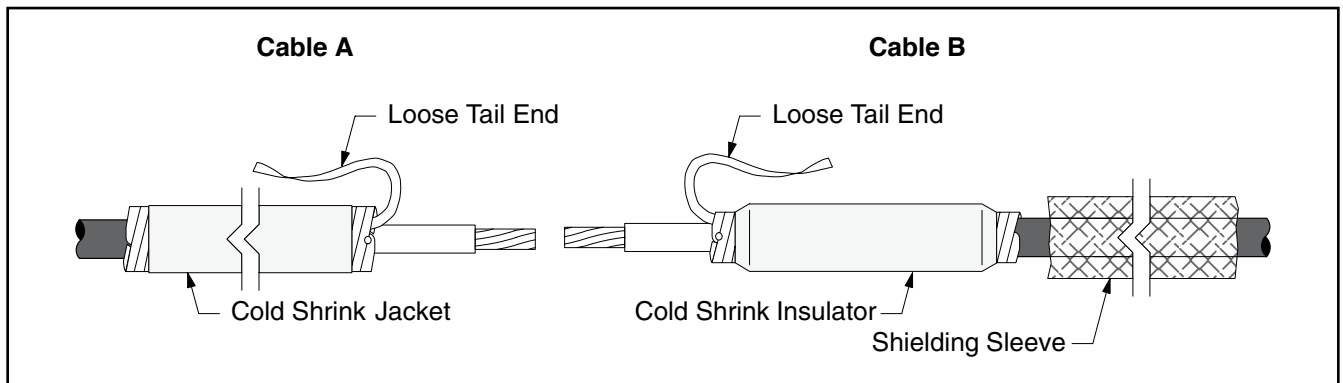


Figure 6

2.2 Clean exposed cable insulations with solvent cleaning pads.

CAUTION: DO NOT allow solvent to touch cable semi-con.

3.0 Install Connector

3.1 Install connector per manufacturer's directions.

Note: Connector length must not exceed maximum shown in Table 2.

Connector Length (maximum)	
Copper	Aluminum
3.3" (84 mm)	2.7" (69 mm)

Table 2

3.2 See pages 12 and 13 if 3M™ Scotchlok™ Connectors are used.

4.0 Apply Electrode Wrap (Semi-con)

4.1 If a gap greater than 1/8" (3 mm) exists between the connector and cable insulation, fill with Scotch® Electrical Semi-Conducting Tape 13 (**DO NOT exceed height of connector**).

4.2 **FOR INDENT CRIMPED CONNECTORS ONLY:** Fill connector indents with 13 tape (*Figure 7*).

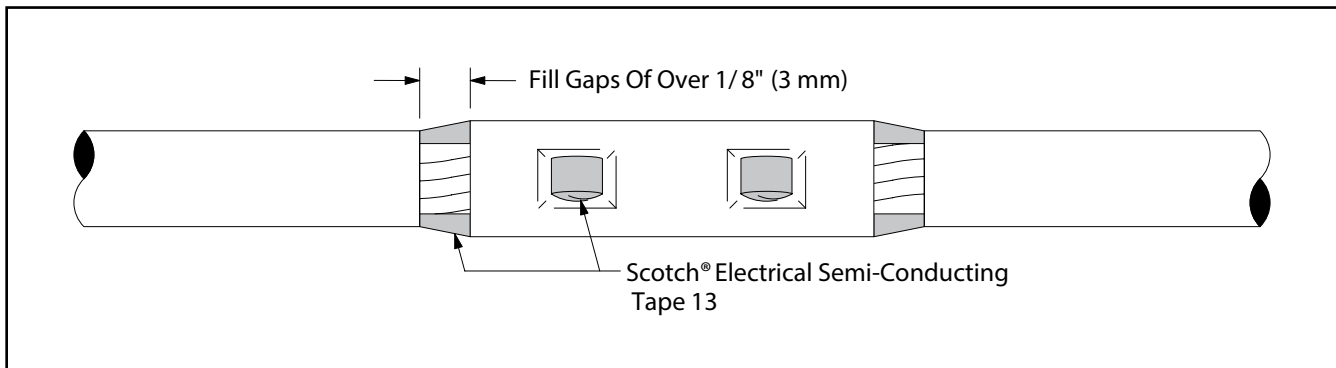


Figure 7

5.0 Apply Semi-Conductive Electrode Wrap

5.1 Remove liner from Scotch® Electrode Wrap 13. Center electrode wrap (narrow end) over connector. Wrap around connector with sufficient tension to eliminate gapping and wrinkling. Continue wrapping until electrode wrap divides into 2 legs (*Figure 8*).

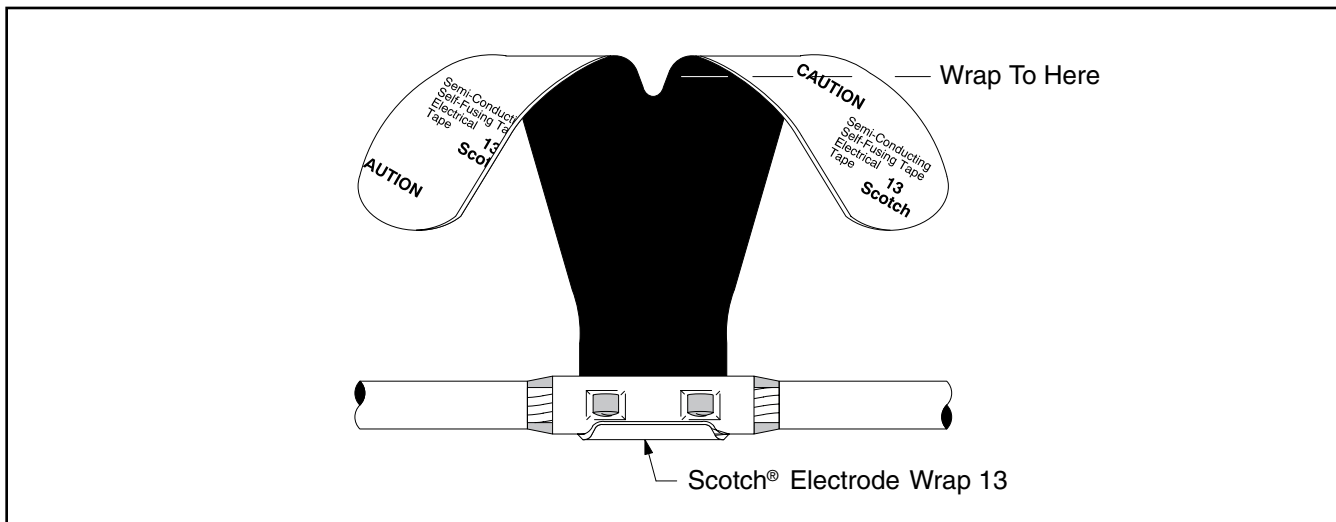


Figure 8

5.2 Individually wrap each leg of Scotch® Electrode Wrap 13 over area at ends of connector and cable insulation. Apply with adequate tension so legs conform tightly onto cable insulation (*Figure 9*).

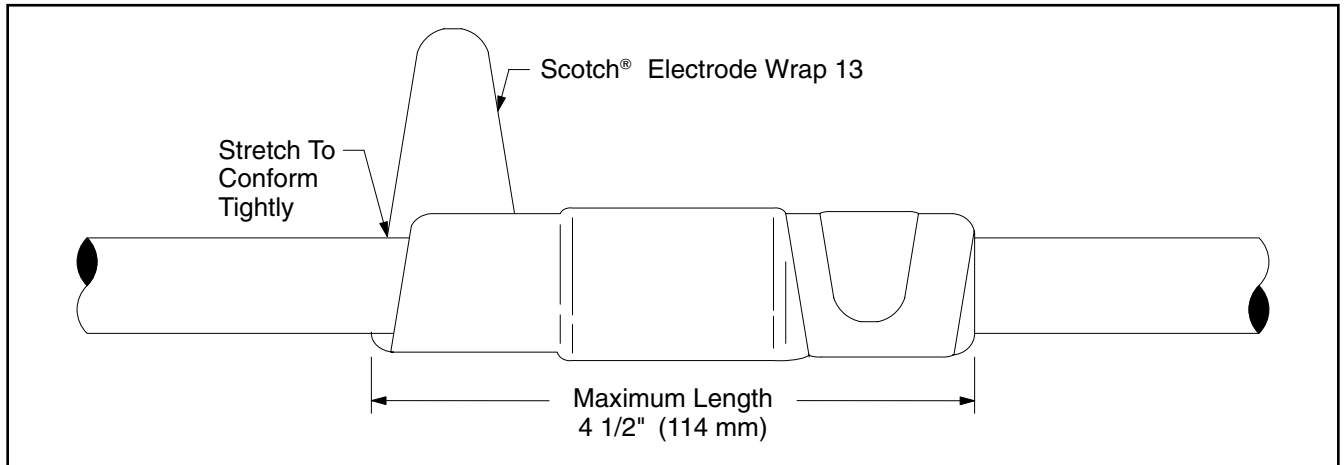


Figure 9

6.0 Apply Wrap Insulation

6.1 Apply Scotch® Rubber Mastic 2228 tacky side down toward cable (*Figure 10*).

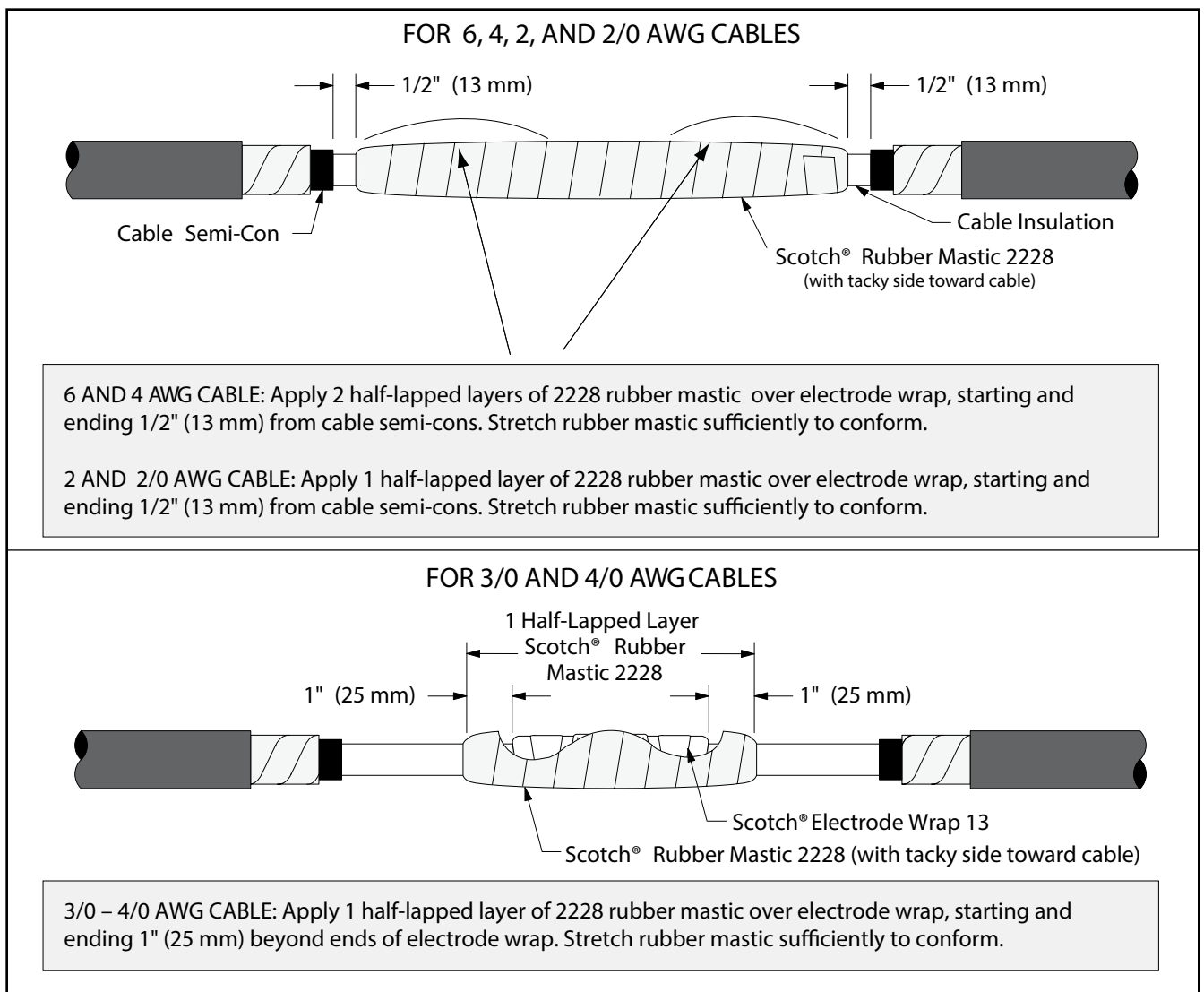


Figure 10

7.0 Install Cold Shrink

7.1 Slide cold shrink insulator short tube with (tapered ends) over connector area. Align end of insulator (not core) at Dimension A, Table 3 and (Figure 11).

Conductor Size (AWG)	Dimension A	
	Copper Connector	Aluminum Connector
6, 4, 2, 1	1/2" (13 mm)	1/2" (13 mm)
1/0	1/2" (13 mm)	3/4" (19 mm)
2/0	3/4" (19 mm)	3/4" (19 mm)
3/0	1" (25 mm)	1" (25 mm)
4/0	1" (25 mm)	---

Table 3

7.2 Remove core UNWINDING, COUNTERCLOCKWISE (Figure 11).

Note: An occasional tug of the core strand while unwinding will aid in core removal.

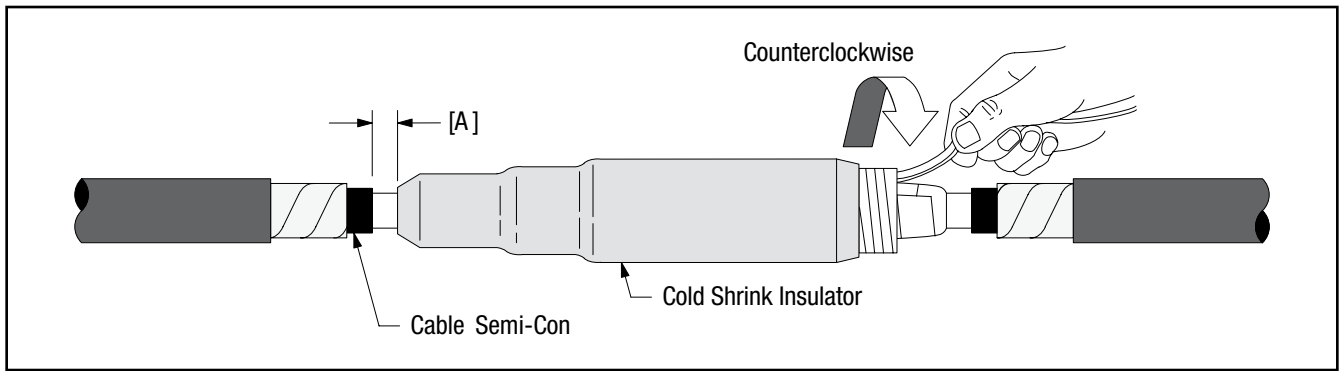


Figure 11

7.3 **FOR 8 kV RATING ONLY:** Apply 2 half-lapped layers of stretched Scotch® Linerless Rubber Splicing Tape 130C over the Cold Shrink insulator between the end tapers (Figure 12).

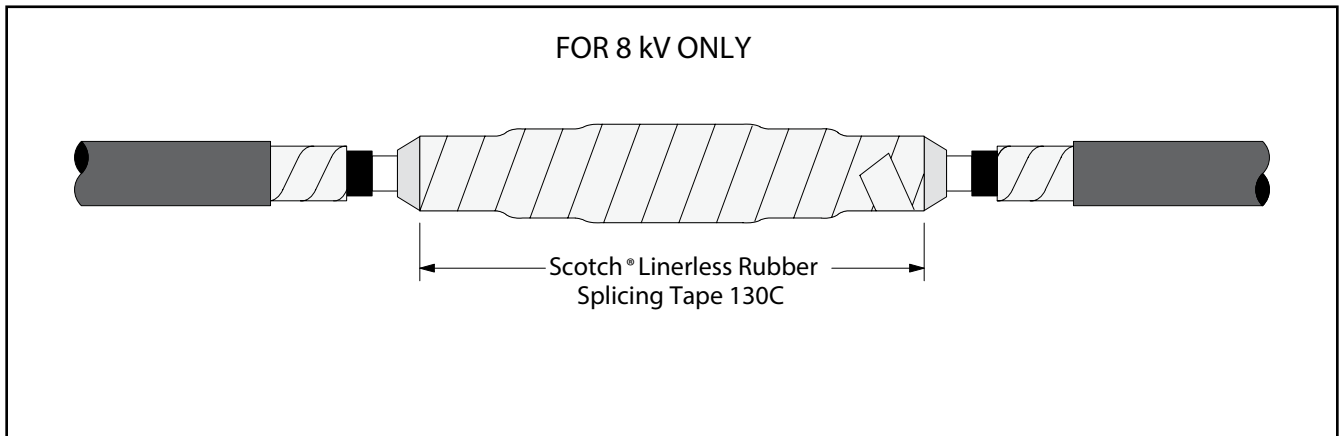


Figure 12

8.0 Install Insulation Shield

8.1 **IMPORTANT:** Do the following steps that pertain to either shielded to shielded or shielded to non-shielded cables.

For Shielded to Non-Shielded Cables

- Starting 1/4" (6 mm) cable's metallic shielding (i.e. tape, wire or UniShield®) apply 2 half-lapped layers of Scotch® Semi-Conducting Tape 13 over the end of the cold shrink insulator for a total wrapped distance of 2 1/4" (70 mm) (Figure 13).

Note: Install adequate ground lead to shield on the shielded cable side. (i.e. 3M™ Ground Strap Assembly GS Series), when rounding practices require.

- DO not use shielding braid sleeves** included in kit for this installation.
- Proceed to **Step 9.0, Install Jacket.**

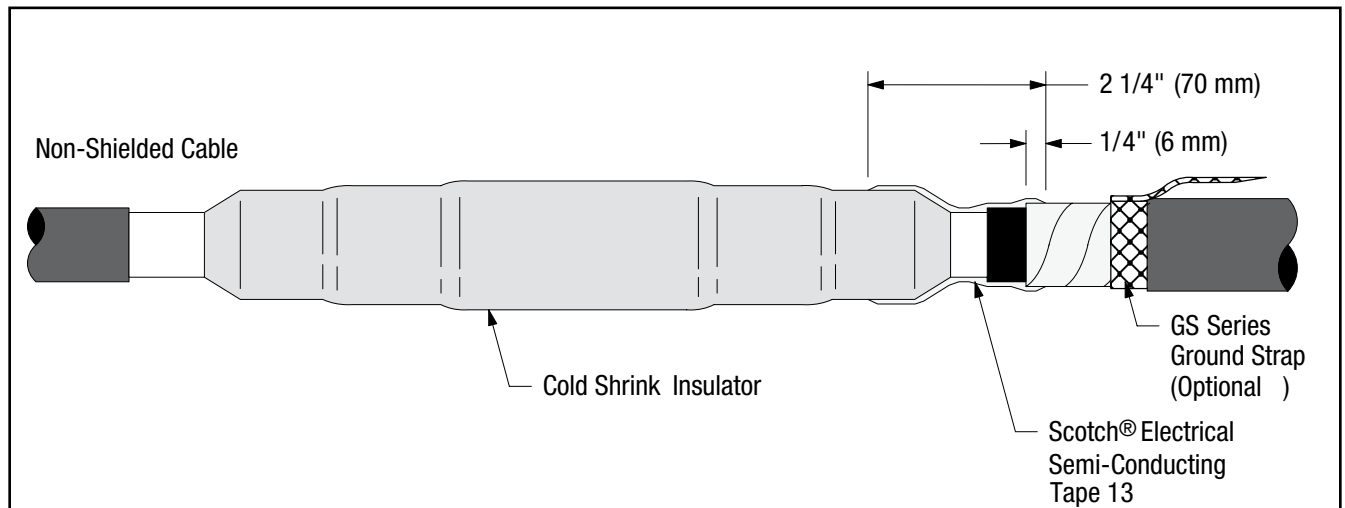


Figure 13

For Shielded to Shielded Cables

- Apply 1 half-lapped layer of 13 tape over insulation starting and ending 1/4" (6 mm) onto cable's metallic shielding (Figure 14).

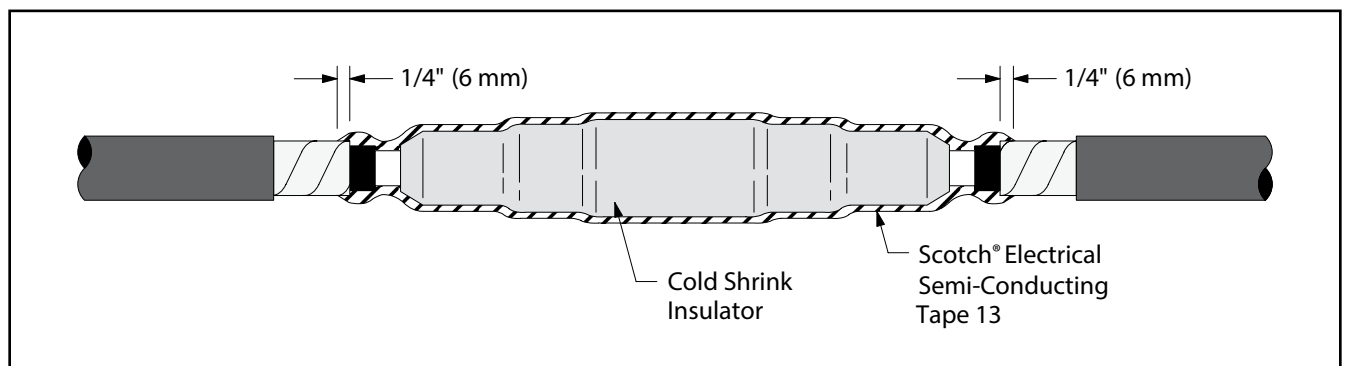


Figure 14

- 8.2 Center shielding braid sleeve over Scotch® Electrical Semi-Conducting Tape 13.
- 8.3 Install a constant force spring at one end; position spring over cable metallic shield next to cut-off cable jacket. With thumb, hold coil in place over sleeve (rolled up coil should be facing away from you). Pull coil around cable for one wrap only (*Figure 15*).

Note: *UNISHIELD® CABLE ONLY: Reminder that cut-off ends of drain wires represent end of cable jacket.*

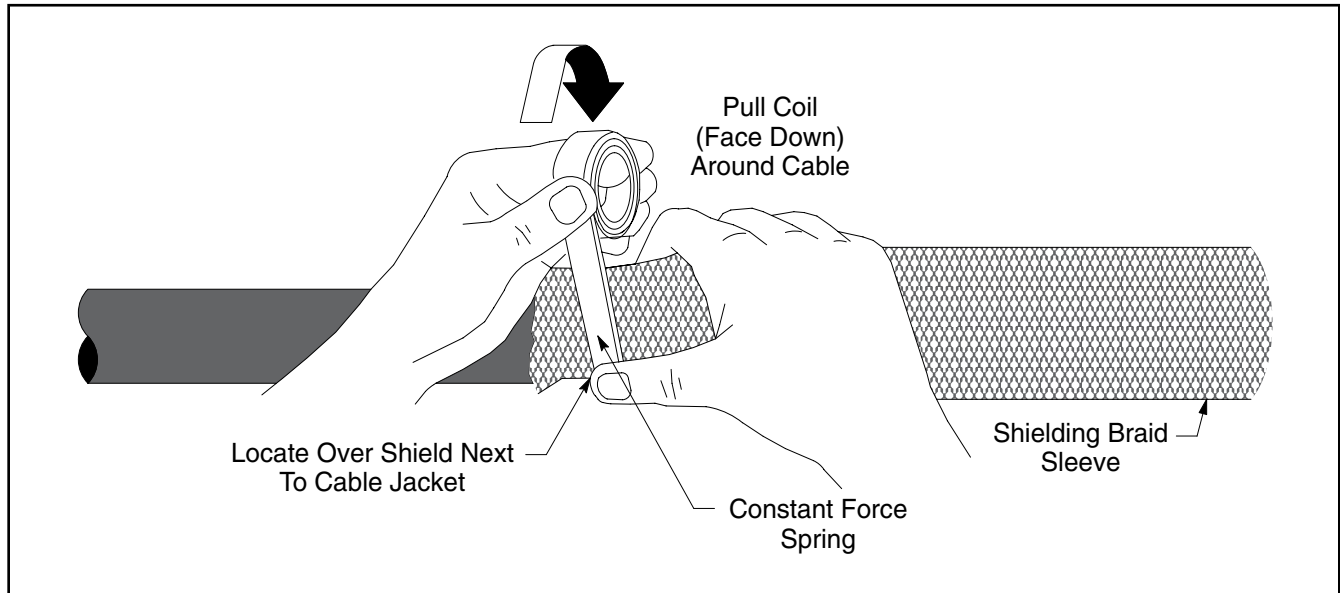


Figure 15

- 8.4 Fold ends of sleeve wires back over the single wrap of coil, then continue applying coil allowing it to wrap around the wires and itself (*Figure 16*).

Note: *Cinch (tighten) coil after final wrap.*

- 8.5 Using hand to pull on loose end of shielding braid sleeve, pull so sleeve snugs firmly against splice. Secure it into position with second constant force spring applied in the same manner as the first (*Figure 16*).
- 8.6 Overwrap constant force spring and ends of folded back shielding braid with a layer of 13 tape or vinyl electrical tape (*Figure 16*).

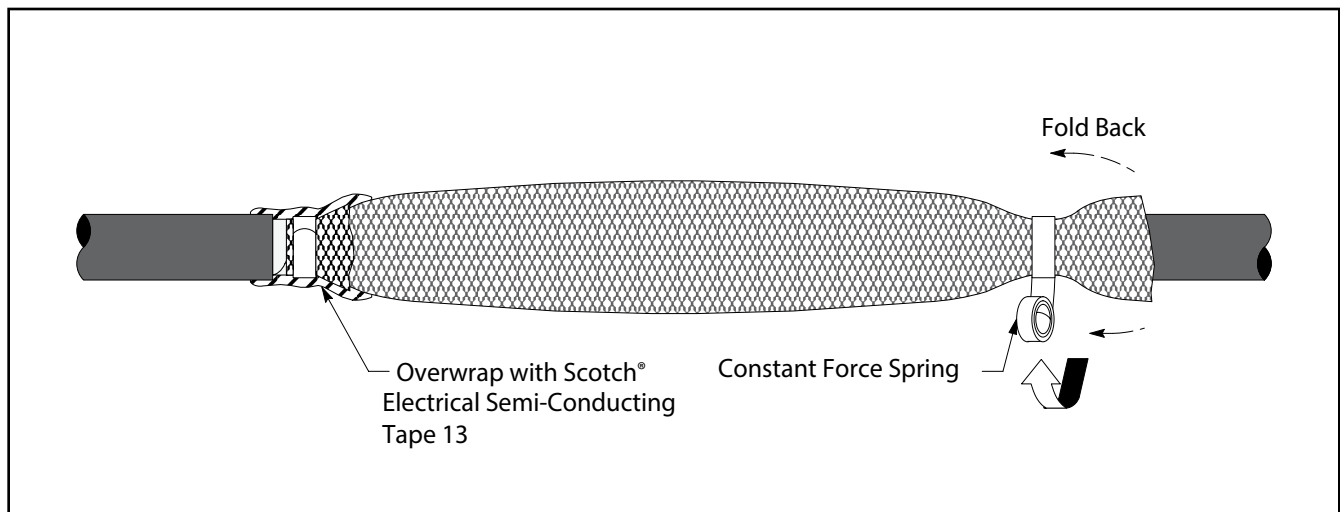
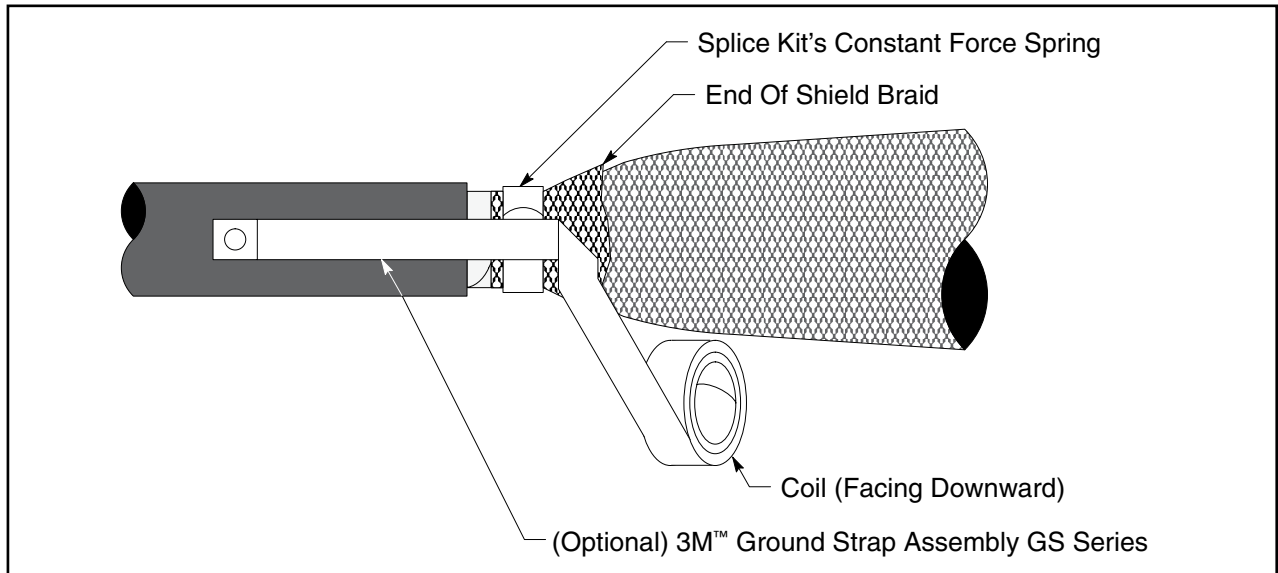


Figure 16

Optional

If splice is to be individually grounded, 3M™ Ground Strap Assemblies GS Series are ordered separately (see front cover for kit selection).

- a. Install the ground strap assembly on selected splice end.
- b. Unwrap 1" to 2" (25 to 50 mm) of coil.
- c. Lay the ground strap along cable with the extended coil facing downward (away from you--see figure below).



- d. Hold coil in place with thumb. Pull coil around cable allowing it to unwrap and rewrap around the shield braid and itself.

Note: *Cinch (tighten) the applied coil after final wrap.*

9.0 Install Jacket

- 9.1 Apply 2 wraps of Scotch® Rubber Mastic 2228 around cable jackets (tacky side toward jacket), 1/2" (13 mm) from jacket ends (*Figure 17*).

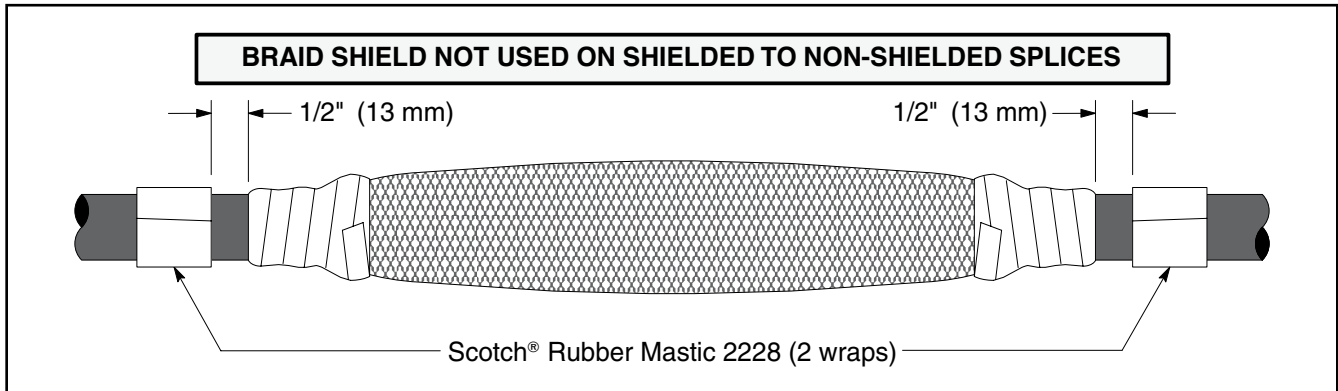


Figure 17

Optional

If 3M™ Ground Strap Assembly GS Series was installed.

- Carefully bend ground strap away from cable jacket.
- Apply 1 wrap of 2228 rubber mastic around cable jacket, 1/2" (13 mm) from jacket end (*Figure 17*).
- Press ground strap back down onto rubber mastic wrap, then apply second wrap of rubber mastic over ground strap and around cable.

- 9.2 Slide cold shrink splice jacket into position over splice. Align end of cold shrink jacket (not core) so that previously applied 2228 rubber mastic wrap is completely covered (*Figure 18*).

Note: *An occasional tug of the core strand while unwinding will aid in core removal.*

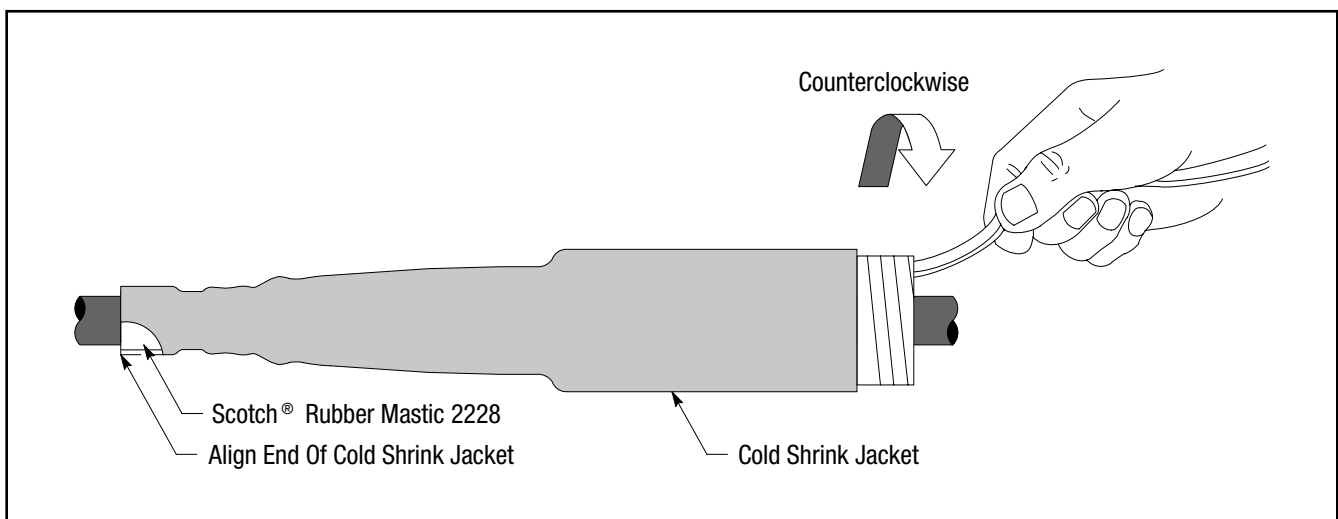


Figure 18

Optional

If GS ground strap assembly was installed, attach external ground wire to ground strap.

Tooling Index Copper Connectors

Splice Kit No.		Cable Size	3M™ Scotchlock™ Copper Connector Number	Length inches (mm)	CRIMPING TOOL/DIE SETS (MINIMUM NO. OF CRIMPS/END)									
					Burndy Corporation				Thomas & Betts Corporation			Square D Co. Anderson Div.		
					MD6	MY29	Y34A	Y35, 39, Y45*, Y46*	TBM 5	TBM 8	TBM 15	VCG-3**	VCG-FT**	
5551	6	10001		1.75 (44.4)	---	6AWG (1)	---	USCRT (1)	Blue (1)	Blue (1)	---	Universal (1)		
	4	10002			W161 (1)	4AWG (1)	A4CR (1)	U4CRT (1)	Grey (1)	Grey (1)	---	Universal (1)		
	2	10003			W162 (2)	2AWG (1)	A2CR (1)	U2CRT (2)	Brown (1)	Brown (1)	33 (1)	Universal (2)		
	1	10004		1.88 (47.6)	---	1AWG (1)	A1CR (1)	U1CRT (2)	Green (1)	Green (1)	37 (1)	Universal (2)		
	1/0	10005			W163 (2)	1/0 (1)	A25R (1)	U25RT (2)	Pink (2)	Pink (2)	42 (2)	Universal (1)		
	2/0	10006		2.00 (50.8)	W241 (2)	2/0 (1)	A26R (1)	U26RT (2)	Black (2)	Black (2)	45 (1)	Universal (1)		
		11006		3.13 (79.4)	W241 (3)	2/0 (2)	A26R (2)	U26RT (3)	Black (3)	Black (3)	45 (2)	Universal (2)		
	3/0	10007		2.13 (54.0)	W243 (2)	3/0 (1)	A27R (1)	U27RT (2)	Orange (2)	Orange (2)	50 (1)	Universal (1)		
		11007		3.13 (79.4)	W243 (3)	3/0 (2)	A27R (2)	U27RT (3)	Orange (3)	Orange (3)	50 (2)	Universal (2)		
	4/0	10008		2.13 (54.0)	BG (3)	4/0 (1)	A28R (2)	U28RT (2)	Purple (2)	Purple (2)	54H (2)	Universal (2)		

*Y45 and Y46 accept all Y35 dies ("U" series). For Y45 use PT6515 adapter. For Y46 use PUADP adapter.
 **Anderson VCG-3 and VCG-FTand Burndy Y1000 require no die set.

Tooling Index Copper/Aluminum Connectors

Splice Kit No.		Cable Size	3M™ Scotchlock™ Aluminum Connector Number	Length inches (mm)	CRIMPING TOOL/DIE SETS (MINIMUM NO. OF CRIMPS/END)										
					Burndy Corporation				Thomas & Betts Corporation			Square D Co. Anderson Div.			
					MD6	MY29	Y34A	Y35, 39, Y45*, Y46*	Y1000**	TBM 5	TBM 8	TBM 15	VCG-3**	VCG-FT**	
5551	6	20001		1.62 (41.4)	W161 (1)	6AWG (1)	A6CAB (1)	U6CABT (1)	Universal (1)	Grey (1)	Grey (1)	29 (1)	Universal (1)	BY19 (3)	J (3)
	4	20002		1.88 (47.8)	W162 (3)	4AWG (1)	A4CAB (1)	U4CABT (1)	Universal (1)	Green (1)	Green (1)	37 (1)	Universal (1)	BY53 (3)	P (3)
	2	20003		2.00 (50.8)	W163 (3)	2AWG (1)	A2CAR (1)	U2CABT (2)	Universal (1)	Pink (2)	Pink (2)	42H (2)	Universal (1)	BY23 (3)	1/2 (3)
	1	20004		2.00 (50.8)	W163 (3)	1AWG (1)	A1CAR (1)	U1CART (1)	Universal (1)	Gold (2)	Gold (2)	45 (1)	Universal (1)	BY23 (3)	1/2 (3)
	1/0	20005		2.12 (53.8)	W241 (2)	1/0 (1)	A25R (1)	U25ART (1)	Universal (1)	Tan (2)	Tan (2)	50 (1)	Universal (1)	BY25 (3)	5/8-1 (3)
	2/0	20006		2.31 (58.7)	BG (4)	2/0 (1)	A26R (2)	U26ART (2)	Universal (1)	Olive (2)	Olive (2)	54H (2)	Universal (2)	BY31C (3)	5/8-1 (3)
	20007		2.62 (66.5)	W166 (4)	3/0 (2)	A27R (2)	U27ART (3)	Universal (1)	Ruby (3)	Ruby (3)	60 (2)	Universal (2)	---	737 (3)	

*Y45 and Y46 accept all Y35 dies ("U" series). For Y45 use PT6515 adapter. For Y46 use PUADP adapter.
 **Anderson VCG-3 and VCG-FTand Burndy Y1000 require no die set.

3M, Scotchlok and Scotch are trademarks of 3M Company.
UniShield is a trademark of General Cable Technologies Corporation.

Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

Warranty; Limited Remedy; Limited Liability.

This product will be free from defects in material and manufacture at the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**



Electrical Markets Division

6801 River Place Blvd.
Austin, TX 78726-9000
800.245.3573
Fax 800.245.0329
www.3M.com/electrical

Please Recycle. Printed in USA.
© 3M 2014. All Rights Reserved.
78-8096-4637-1 Rev E