

3M™ Cold Shrink Rubber Splicing Kit 5553

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

Instructions

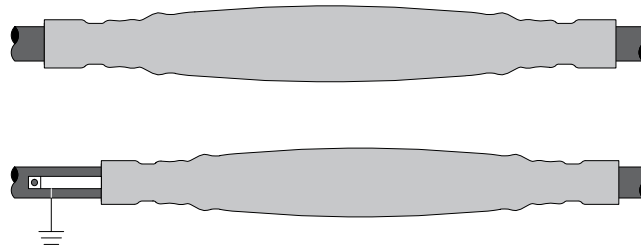
IEEE Std. No. 404

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 Rolls Scotch® Electrical Semi-Conducting Tape 13
3 Scotch® Electrode Wraps 13
9 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 (kcmil)	
		Copper	Aluminum
5553	0.995"–1.52" (25,3–38,6 mm)	500–1000	500–1000

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.
5553	3M™ Ground Strap Assembly GS-3
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 7" (178 mm) from cable end (*Figure 1*).
- b. Remove insulation from cable end a distance of 1/2 the connector length plus 1/4" (6 mm) (*Figure 1*).

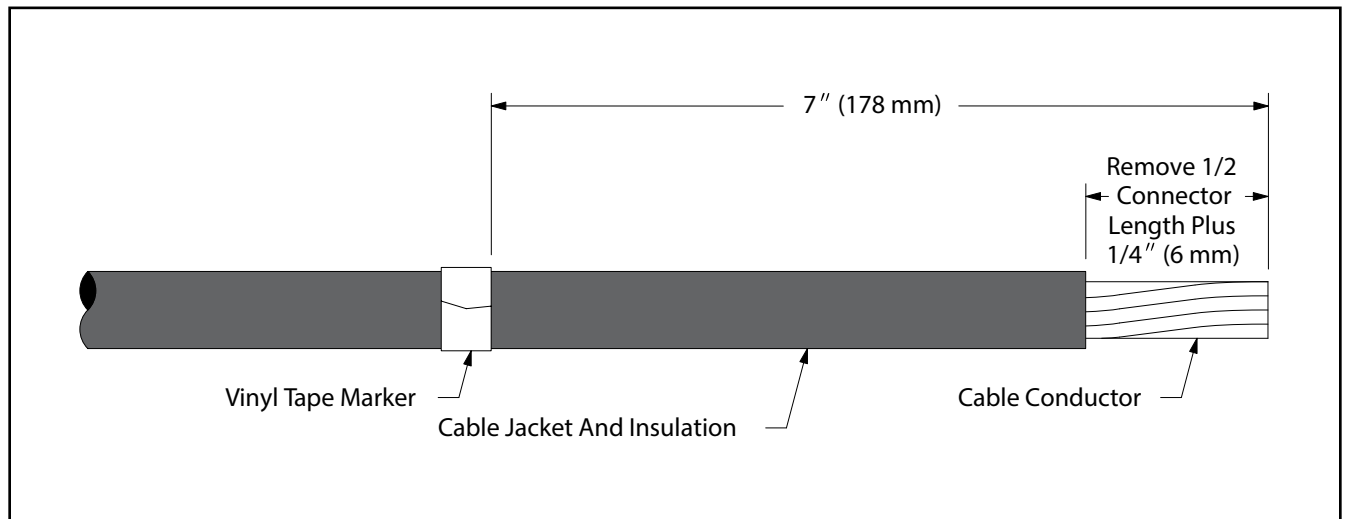


Figure 1

For Tape Shielded Cable

- a. Remove jacket a distance of 9" (229 mm) (*Figure 2*).
- b. Remove tape shield a distance of 7 1/2" (190 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 plus 1/4" (6 mm).

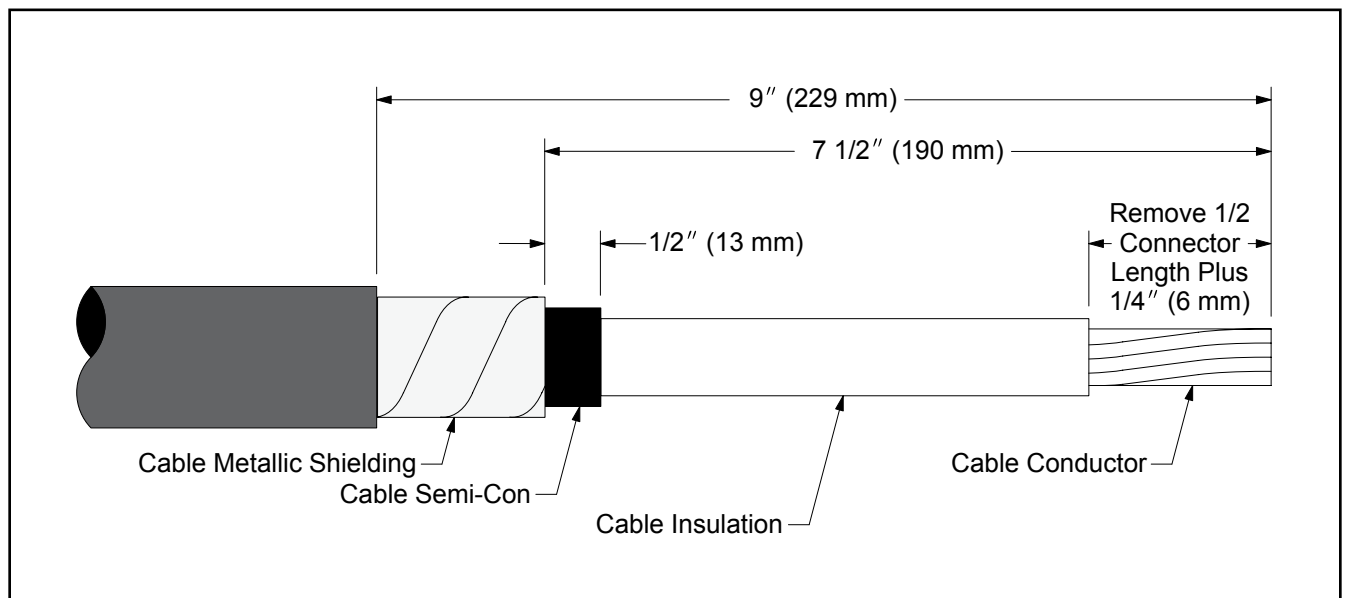


Figure 2

For Wire Shielded Cables

- Remove jacket a distance of 9" (229 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 plus 1/4" (6 mm) (*Figure 3*).

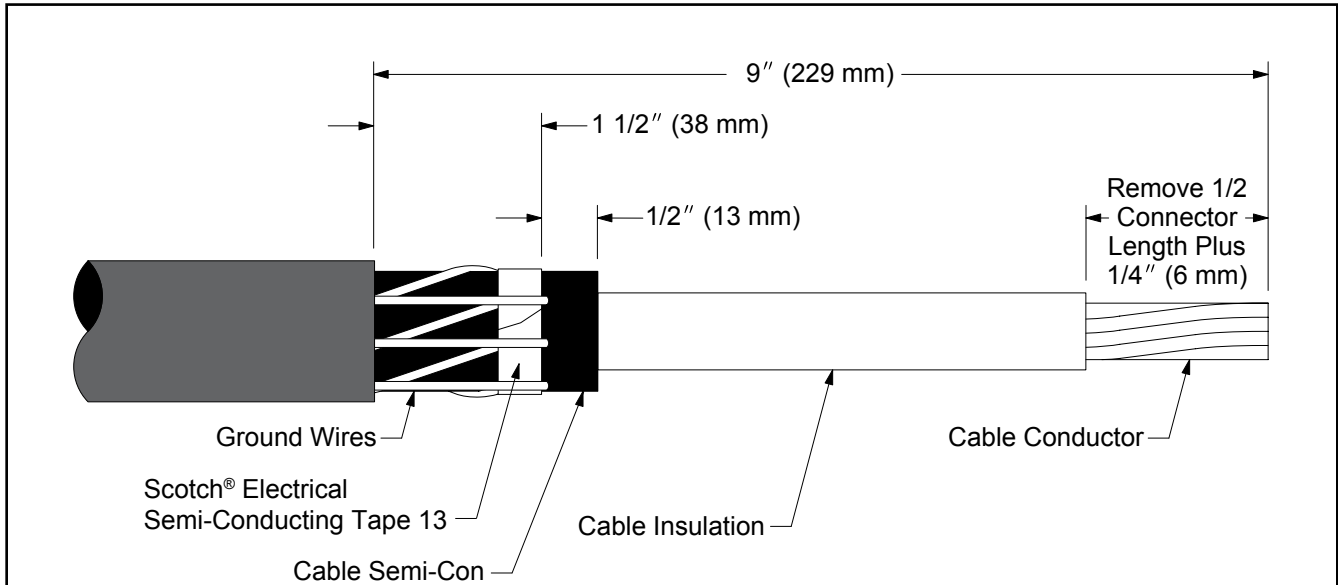


Figure 3

For UniShield® Cables

- Wrap a vinyl tape band around cable jacket at a point 7 1/2" (190 mm) from cable end and remove drain wires from semi-con jacket to leading edge of applied vinyl tape band (*Figure 4*).

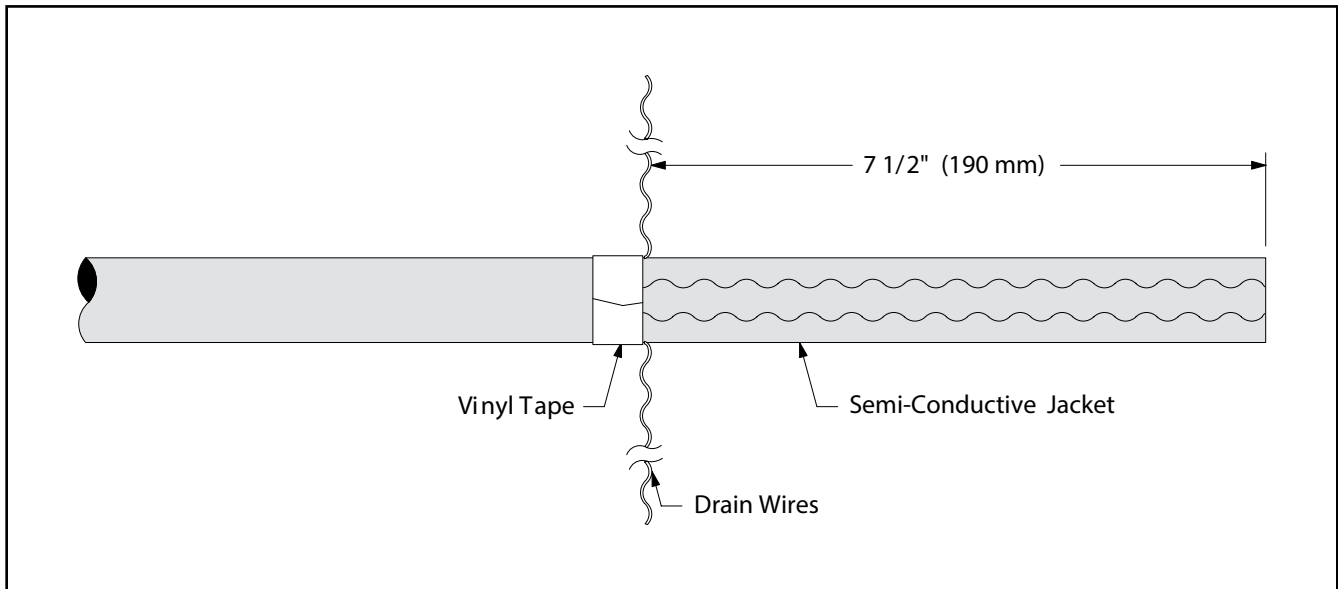


Figure 4

- 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*).

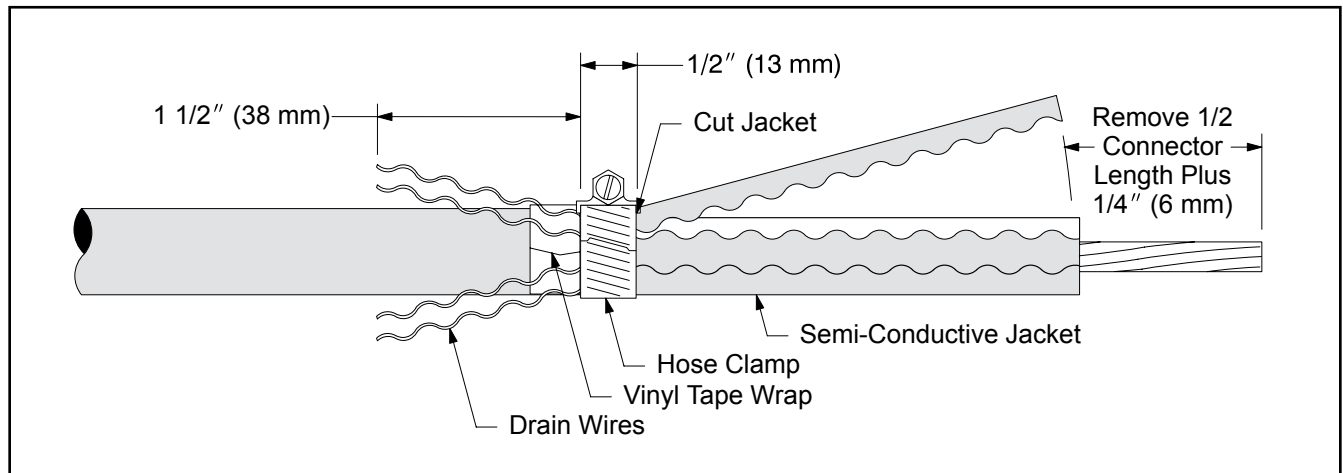


Figure 5

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*).

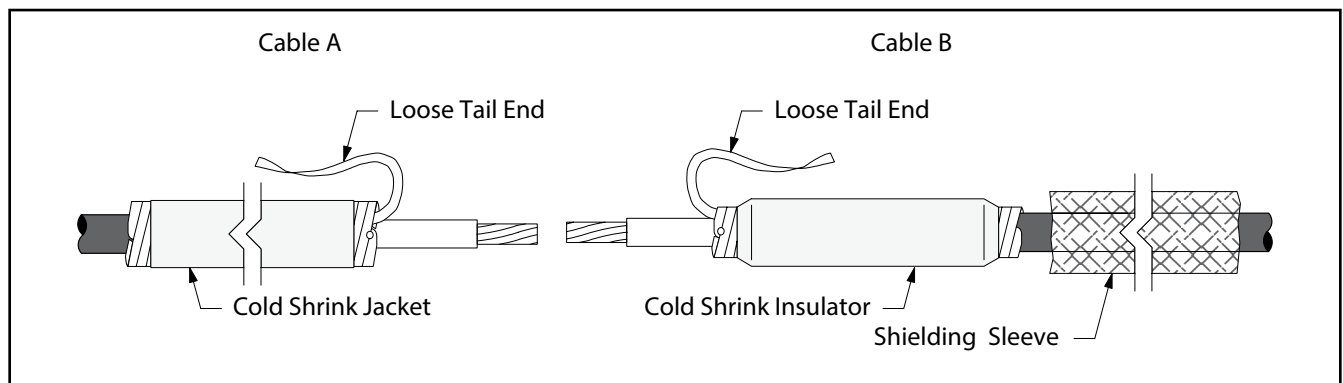


Figure 6

- 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
6.3" (160 mm)	5.3" (135 mm)

Table 2

3.2 See pages 13 and 14 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® 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*).

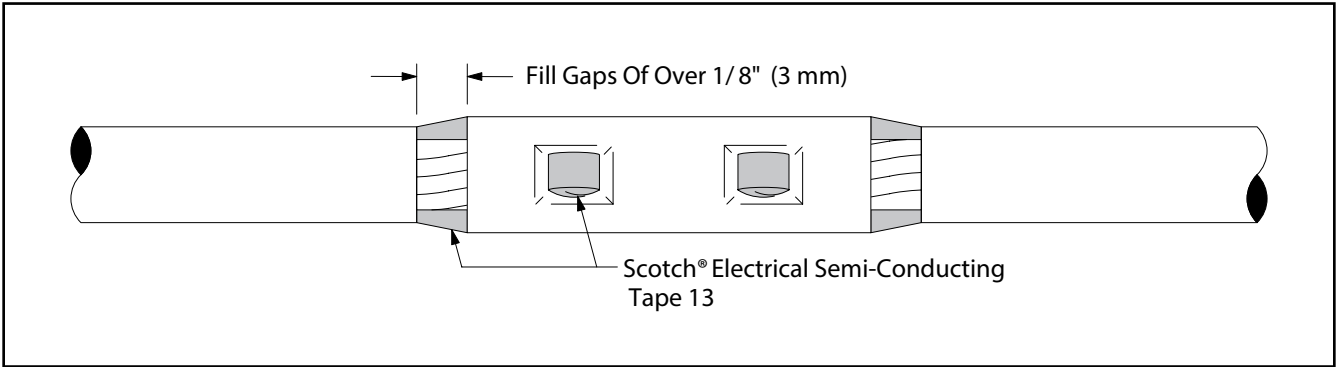


Figure 7

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*).

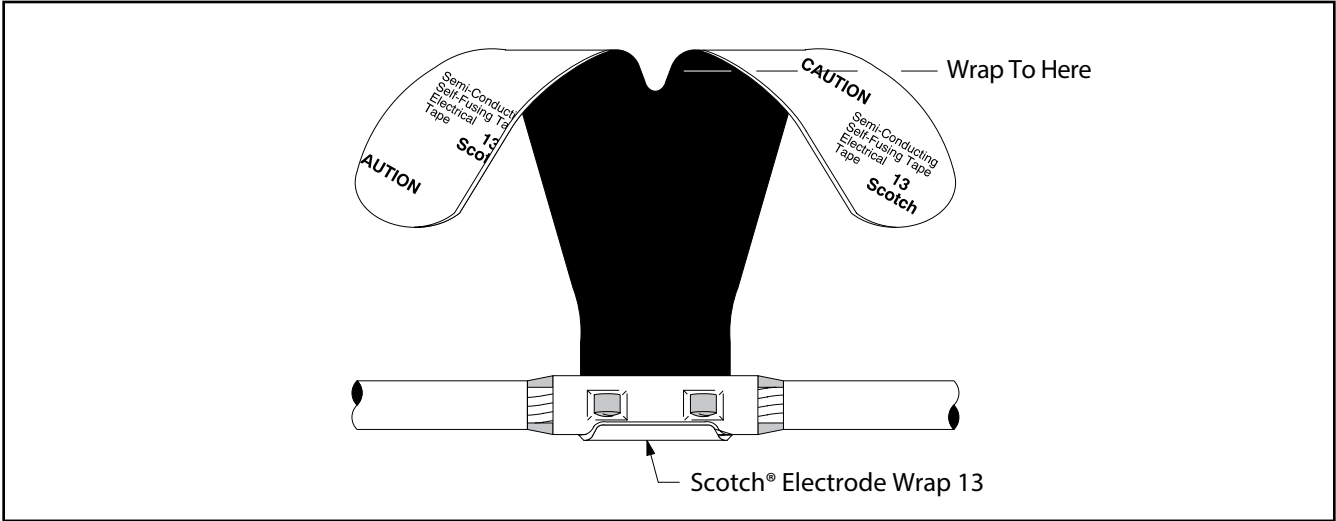


Figure 8

- 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*).

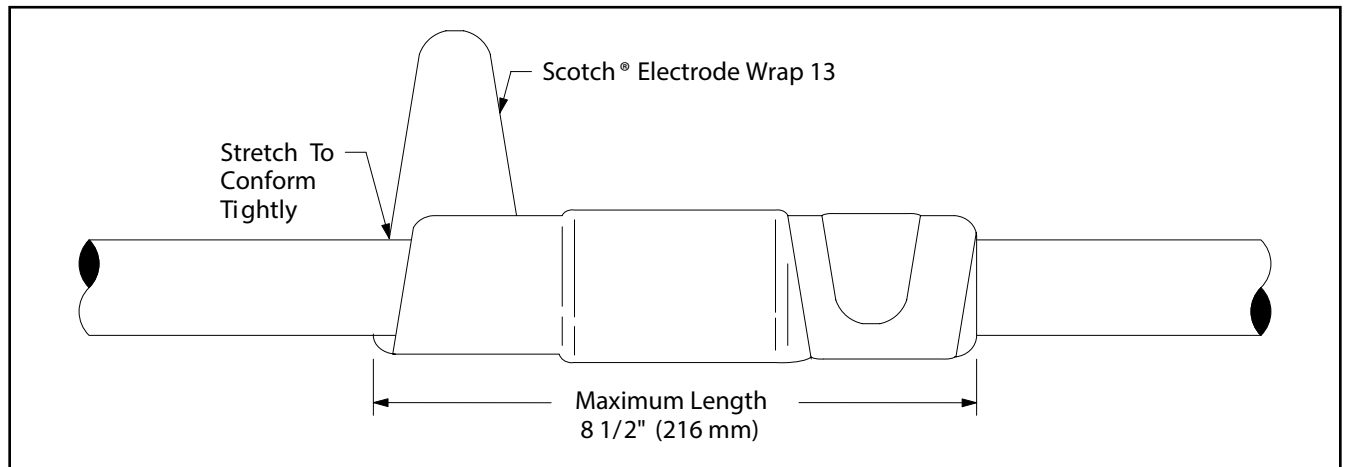


Figure 9

6.0 Apply Wrap Insulation

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

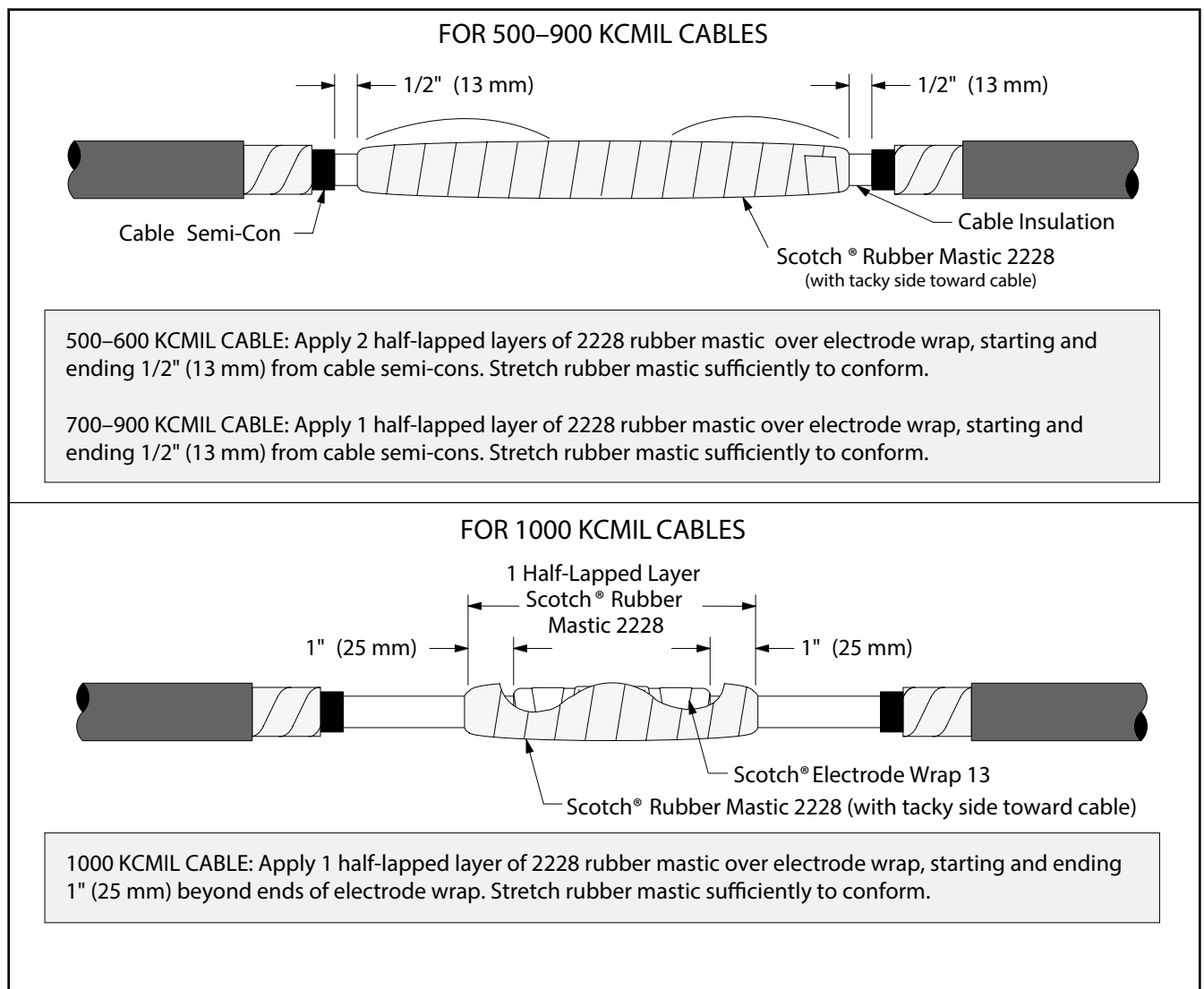


Figure 10

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 (kcmil)	Dimension A	
	Copper Connector	Aluminum Connector
500, 600	1/4" (6 mm)	1/2" (13 mm)
700, 750, 800	1/2" (13 mm)	3/4" (19 mm)
900, 1000	3/4" (19 mm)	1" (25 mm)

Table 3

7.2 Remove core UNWINDING, COUNTER-CLOCKWISE (Figure 11).

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

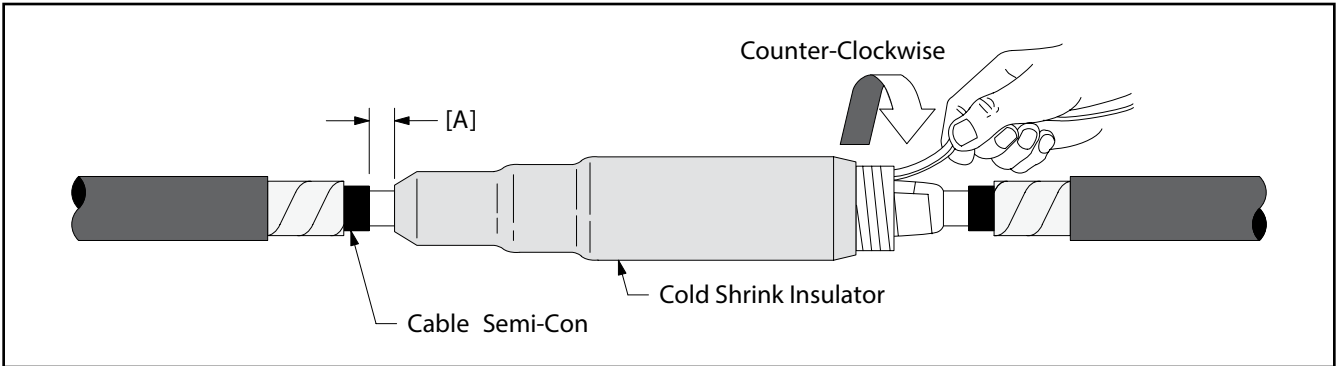


Figure 11

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

- a. Starting 1/4" (6 mm) cable's metallic shielding (i.e. tape, wire or UniShield®) apply 2 half-lapped layers of Scotch® Electrical Semi-Conductive 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.

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

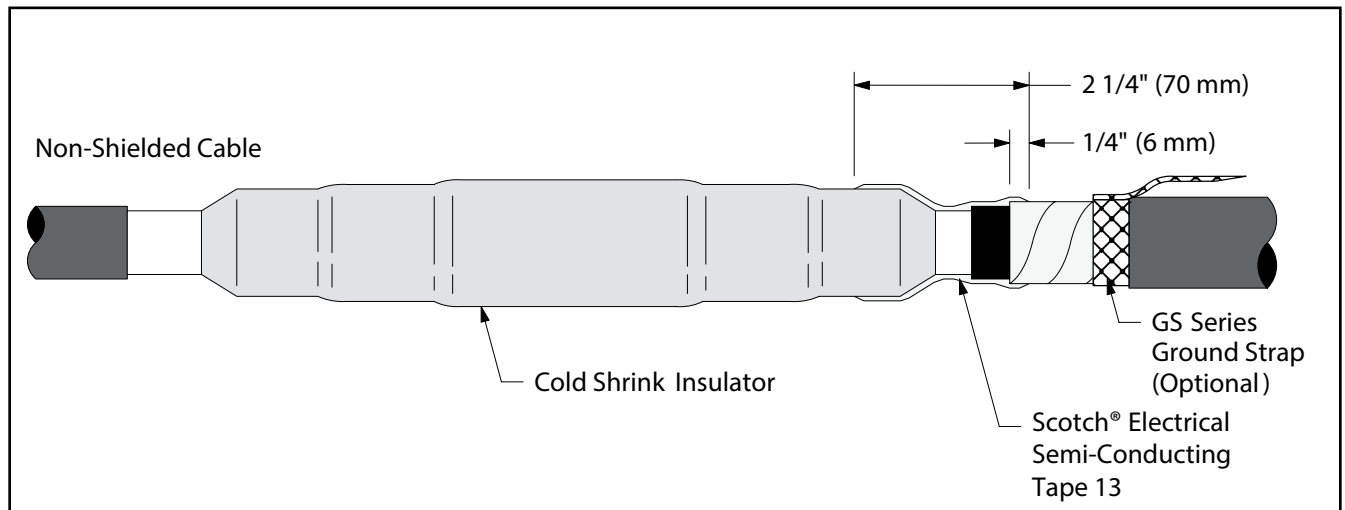


Figure 13

For Shielded to Shielded Cables

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

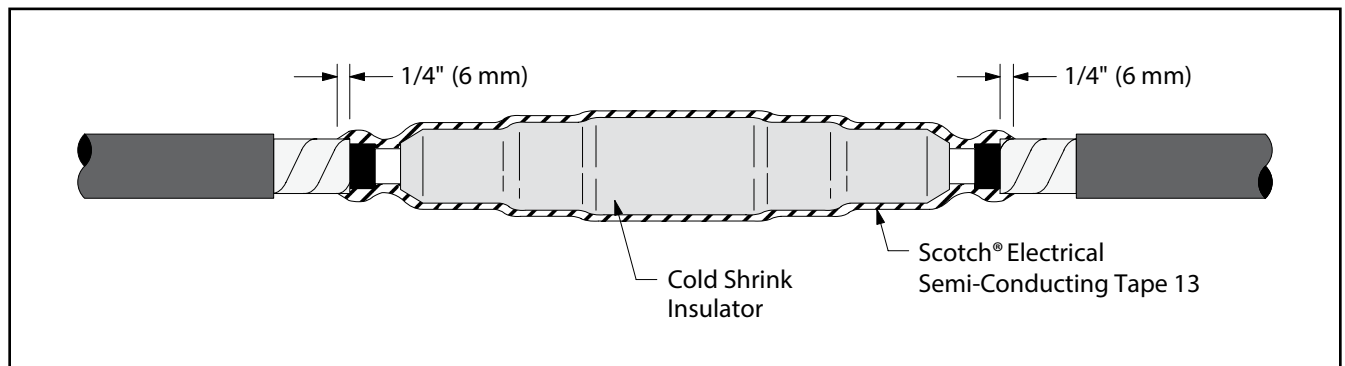


Figure 14

- 8.2 Center shielding braid sleeve over Scotch® Electrical Semi-Conductive 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.*

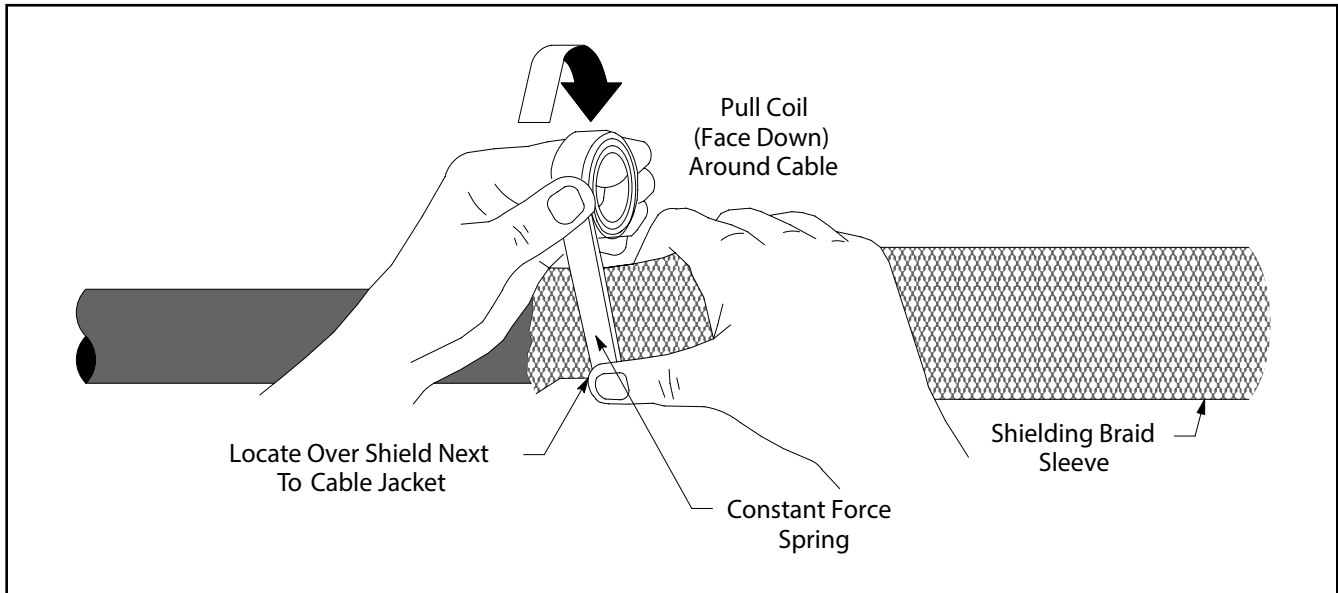


Figure 15

- 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*).

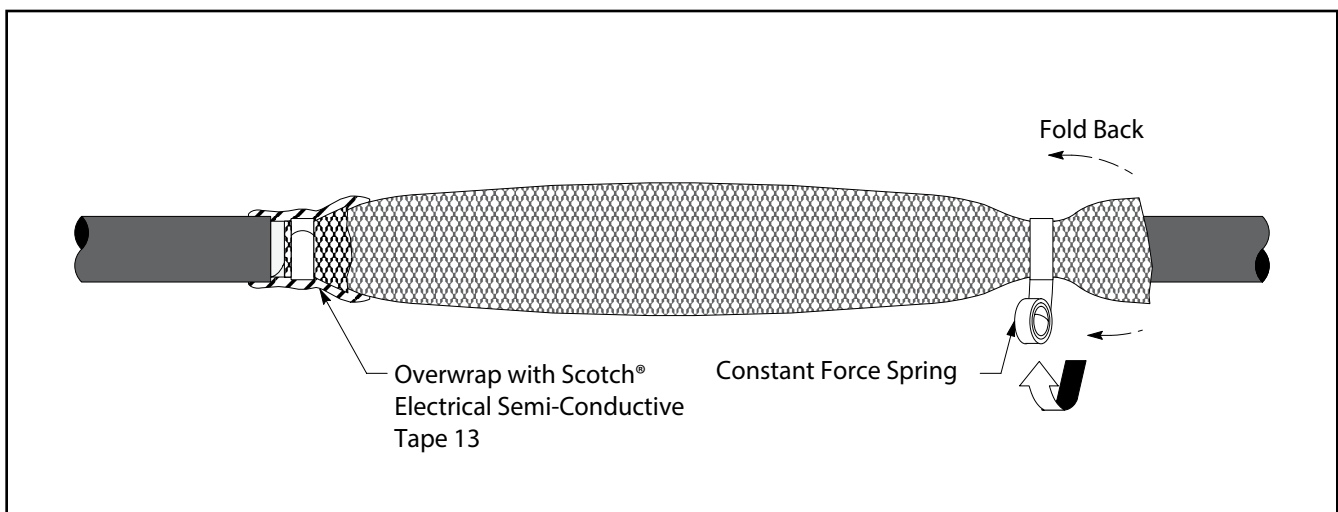
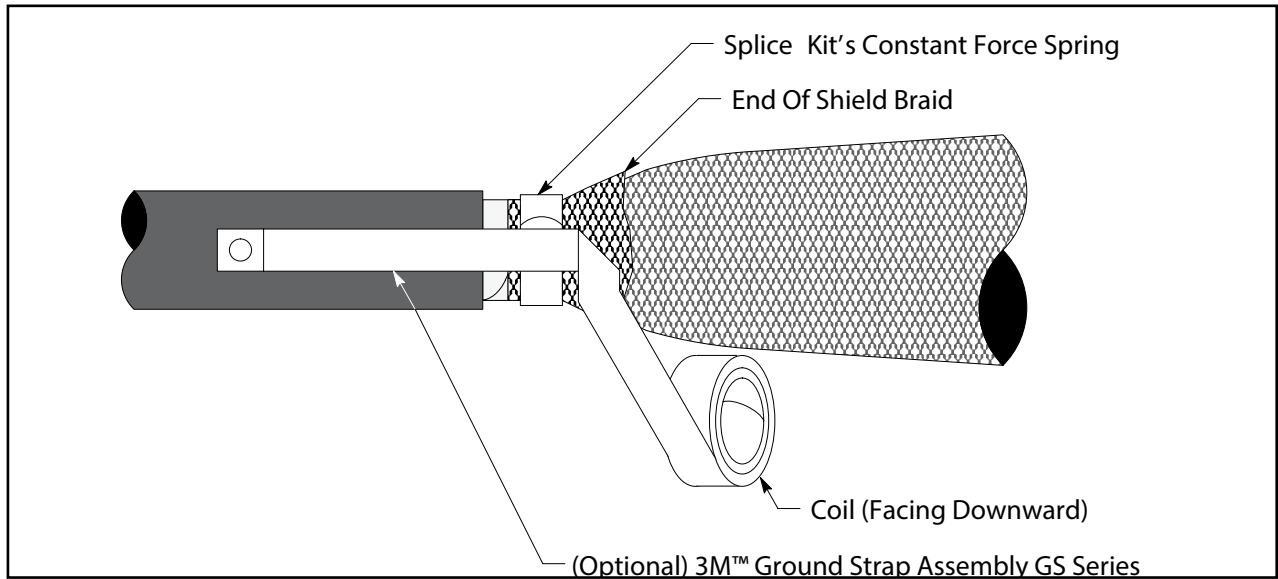


Figure 16

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*).

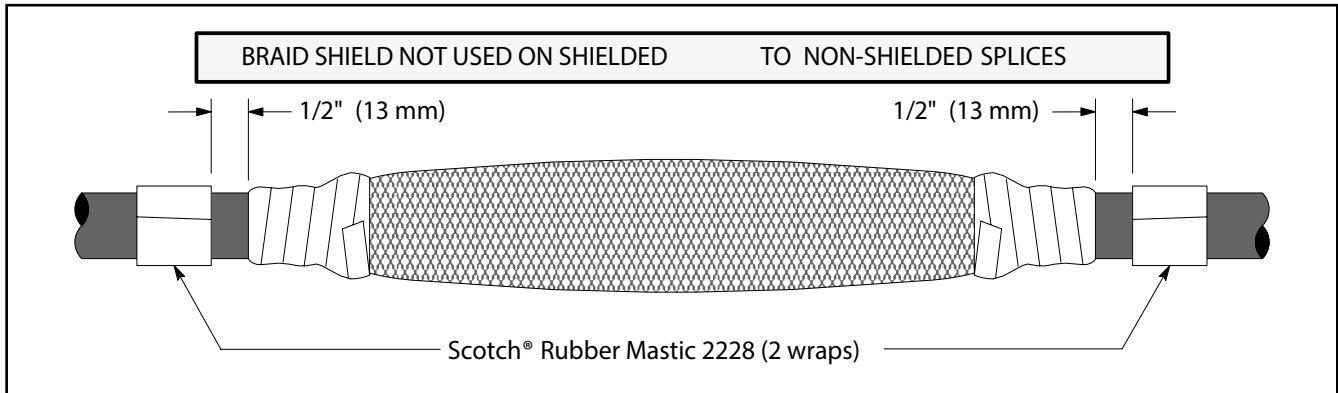


Figure 17

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.*

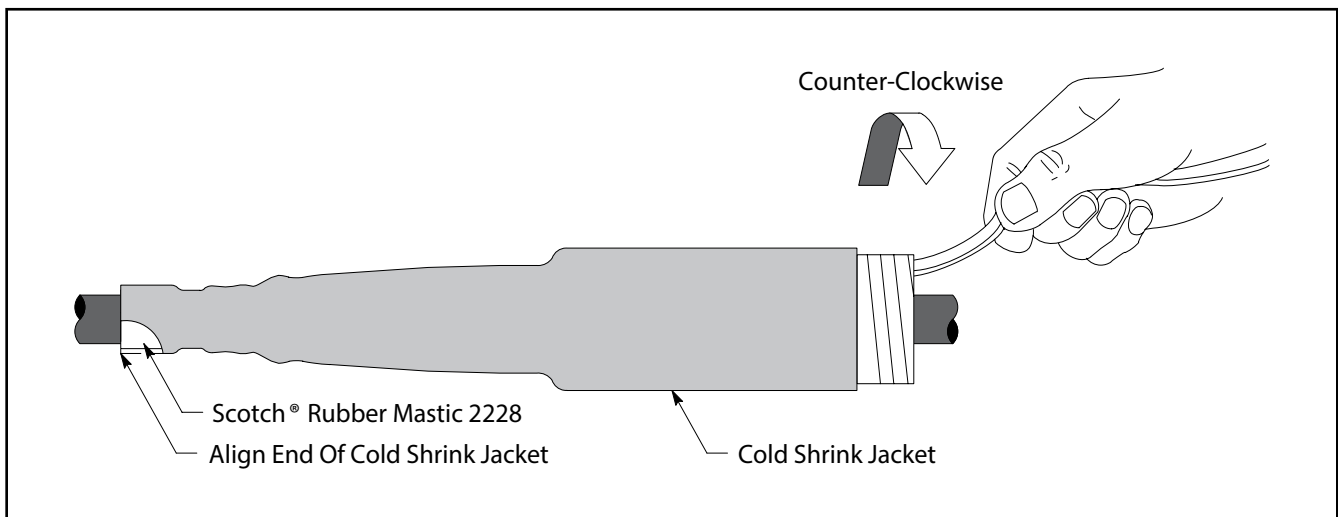


Figure 18

Optional

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

Tooling Index

Copper Connectors

CRIMPING TOOL/DIE SETS (NO. OF CRIMPS/END)										
Splice Kit No.	Cable Size	3M™ Scotchlock™ Copper Connector Number	Length inches (mm)	Burndy Corporation			Thomas & Betts Corporation			Square D Co. - Anderson Div
				MD6	MY29	Y34A	Y35, Y39, Y45*, Y46*	TBM 5	TBM 8	TBM 15
5551	6	10001	1.75 (44,4)	—	6AWG (1)	—	U5CR T (1)	Blue (1)	Blue (1)	—
	4	10002		W161 (1)	4AWG (1)	A4CR (1)	U4CR T (1)	Grey (1)	Grey (1)	—
	2	10003	1.88 (47,6)	W162 (2)	2AWG (1)	A2CR (1)	U2CR T (2)	Brown (1)	Brown (1)	33 (1)
	1	10004		—	1AWG (1)	A1CR (1)	U1CR T (2)	Green (1)	Green (1)	37 (1)
	1/0	10005		W163 (2)	1/0 (1)	A25R (1)	U25R T (1)	Pink (2)	Pink (2)	42 (2)
	2/0	10006		W241 (2)	2/0 (1)	A26R (1)	U26R T (2)	Black (2)	Black (2)	45 (1)
		11006	3.13 (79,4)	W241 (3)	2/0 (2)	A26R (2)	U26R T (3)	Black (3)	Black (3)	45 (2)
	3/0	10007	2.13 (54,0)	W243 (2)	3/0 (1)	A27R (1)	U27R T (2)	Orange (2)	Orange (2)	50 (1)
		11007	3.13 (79,4)	W243 (3)	3/0 (2)	A27R (2)	U27R T (3)	Orange (3)	Orange (3)	50 (2)
	4/0	10008	2.13 (54,0)	BG (3)	4/0 (1)	A28R (2)	U28R T (2)	Purple (2)	Purple (2)	54H (2)
5552	4/0	11008	3.38 (85,8)	BG (4)	4/0 (2)	A28R (3)	U28R T (3)	Purple (3)	Purple (3)	54H (3)
		10009	2.25 (57,2)	W166 (3)	250 (1)	A29R (2)	U29R T (2)	Yellow (2)	Yellow (2)	62 (2)
	250	11009	3.38 (85,8)	W166 (4)	250 (2)	A29R (3)	U29R T (3)	Yellow (3)	Yellow (3)	62 (3)
		10010	2.25 (57,2)	—	—	A30R (2)	U30R T (2)	—	White (2)	66 (2)
	300	11010	4.13 (104,8)	—	—	A30R (3)	U30R T (3)	—	White (3)	66 (3)
		10011	2.38 (60,4)	—	—	A31R (2)	U31R T (2)	—	Red (3)	71H (3)
	350	11011	4.13 (104,8)	—	—	A31R (3)	U31R T (3)	—	Red (4)	71H (4)
		10014	2.88 (73,0)	—	—	A34R (2)	U34R T (2)	—	Brown (3)	87H (3)
	500	11014	4.63 (117,5)	—	—	A34R (4)	U34R T (3)	—	Brown (4)	87H (4)
		10019	3.38 (85,8)	—	—	—	Y39, Y45, Y46: U39R T (3)	—	—	106H (3)
5553	750	11019	5.88 (149,2)	—	—	—	Y39, Y45, Y46: U39R T (5)	—	—	106H (4)
		10024	3.88 (98,4)	—	—	—	Y45: S44R T (4) Y46: P44R T (4)	—	—	125H (3)
	1000	11024	6.13 (155,6)	—	—	—	Y45: S44R T (6) Y46: P44R T (6)	—	—	125H (4)
				—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—

*Y45 and Y46 accept all Y35 dies ("U" Series). For Y45 use PT6515 adapter . For Y46 use PUADP adapter .
 **Anderson VC6-3 and VC6-FT require no die set.

Tooling Index

Copper/Aluminum Connectors

CRIMPING TOOL/DIESETS (NO. OF CRIMPS/END)														
Splice Kit No.	Cable Size	3M™ Scotchlock™ Aluminum Connector Number	Length inches (mm)	Bumdy Corporation				Thomas & Betts Corporation			Square D. Co. Anderson Div	ITT Blackburn Co.	Kearney Nat'l Inc.	
				MD6	MY29	Y34A	Y35, Y39, Y45*, Y46*	Y1000**	TBM 5	TBM 8				TBM 15
5551	6	20001	1.62 (41,1)	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 (2)	Green (2)	37 (1)	Universal (1)	BY53 (3)	P (3)
	2	20003	2.00 (50,8)	W163 (3)	2AWG (1)	A2CAB (1)	U2CABT (1)	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)	U1CAR T (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)	A25AR (1)	U25AR T (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)	A26AR (2)	U26AR T (2)	Universal (1)	Olive (2)	Olive (2)	54H (2)	Universal (2)	BY31C (3)	5/8-1 (3)
5552	3/0	20007	2.62 (66,5)	W166 (4)	3/0 (1)	A27AR (2)	U27AR T (2)	Universal (1)	Ruby (2)	Ruby (2)	60 (2)	Universal (2)	—	737 (3)
	4/0	20008	2.75 (69,9)	W660 (4)	4/0 (2)	A28AR (2)	U28AR T (2)	Universal (1)	—	White (4)	66 (4)	Universal (2)	BY35C (4)	840 (4)
	250	20009	2.94 (74,7)	W249 (3)	—	A29AR (2)	U29AR T (2)	—	—	Red (3)	71H (2)	Universal (2)	—	—
	300	20010	3.12 (79,2)	—	—	A30AR (2)	U30AR T (2)	—	—	Blue (4)	76 (1)	—	—	—
	350	20011	3.38 (85,9)	—	—	—	U31AR T (2)	—	—	Brown (4)	87H (2)	—	—	—
	400	20012	3.75 (95,3)	—	—	—	U32AR T (4)	—	—	—	94H (1)	—	—	—
5553	500	20014	3.88 (98,6)	—	—	—	U34AR T (4)	—	—	—	106H (3)	—	—	—
	600	20016	4.12 (104,6)	—	—	—	U36AR T (4)	—	—	—	115H (2)	—	—	—
	750	20019	4.62 (117,3)	—	—	—	Y39, Y45, Y46: U39AR T-2 (4)	—	—	—	125H (3)	—	—	—
	800	20020	4.75 (120,7)	—	—	—	Y45: S40AR T (4) Y46: P40AR T (4)	—	—	—	125H (3)	—	—	—
	1000	20024	5.25 (133,4)	—	—	—	Y45: S44AR T (4) Y46: P44AR T (4)	—	—	—	—	—	—	—

*Y45 and Y46 accept all Y35 dies ("U" Series). For Y45 use PT6515 adapter
 **Anderson VC6-3 and VC6-FT and Bumdy Y1000 r require no die set.

. For Y46 use PUADP adapter .

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