3M™ Motor Lead Inline Splice 5331, 5332, 5333 & 5334

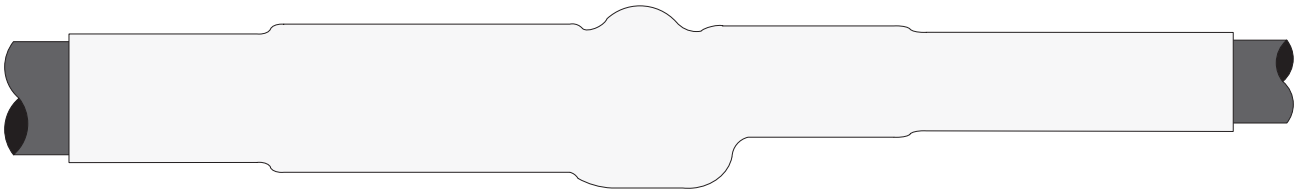
for 5/8 kV Non-Shielded and Shielded Cables (Ribbon, Wire and UniShield® Cables)

Instructions

Cable Size Range:
Feeder: #8 AWG – 500 kcmil
Motor Lead: #10 AWG – 500 kcmil
Copper Conductors

⚠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.



August 2009
78-8096-4636-3-D

3M

Kit Contents

3 Cold Shrink Tube
12 Adapters
3 Rolls Scotch® Stress Control Tape 2220
3 Bags Solvent Cleaning Cloth
6 Tubes Silicone Grease
3 Rolls Scotch® Linerless Rubber Splicing Tape 130C
3 Instruction Sheets
Requires Vinyl Tape that is not in kit

*Quantity varies with kit number

Kit Selection Table

Kit Number	Cable Size Range (AWG/kcmil)		Max Bolt Length
	Feeder	Motor Lead	
5331	8 – 4	10 – 4	3/4 in.
5332	2 – 1/0	4 – 1/0	1 1/4 in.
5333	1/0 – 250	2 – 250	1 1/2 in.
5334	250 – 500	4/0 – 500	1 1/2 in.

Table 1

Adapter Selection Chart for Cable Size Ranges

Kit Number	Adapter Size Length X I.D.	Cable Size Range (AWG / kcmil)	Insulation O.D. Range
5331	4 in. X .24 in I.D.	10 – 6	.30 – .46 in.
	3 1/2 in. X .30 in I.D.	6 – 4	.37 – .51 in.
5332	3 1/2 in. X .30 in I.D.	4 – 2	.43 – .57 in.
	3 1/2 in. X .42 in I.D.	2 – 1/0	.52 – .65 in.
5333	4 in. X .50 in I.D.	2 – 2/0	.53 – .71 in.
	4 1/8 in. X .60 in I.D.	3/0 – 250	.70 – .88 in.
5334	5 in. X .60 in I.D.	4/0 – 350	.75 – .98 in.
	5 in. X .84 in I.D.	350 – 500	.94 – 1.12 in.

Table 2

Instructions for 5/8 kV Inline Non-Shielded Feeder Cables

1.0 Prepare Cable According to Standard Procedures

NOTE: The Scotch® Stress Control Tape 2220 will not be used for non-shielded cable.

1.1 Check to be sure cables fit within cable kit range as shown in *Table 1*.

1.2 Remove cable insulation for length recommended by terminal lug manufacturer; if no information is available, remove for depth of lug barrel.

1.3 Clean insulation for approximately 6" using solvent saturated cloth provided in kit.

2.0 Install Lugs

2.1 Install and crimp lugs per manufacturer's direction. See back page if 3M™ Scotchlok™ Lugs are used.

2.2 FOR 8kV ONLY. Fill lug/insulation gaps with Scotch® Linerless Rubber Splicing Tape 130C (*Figure 1*).

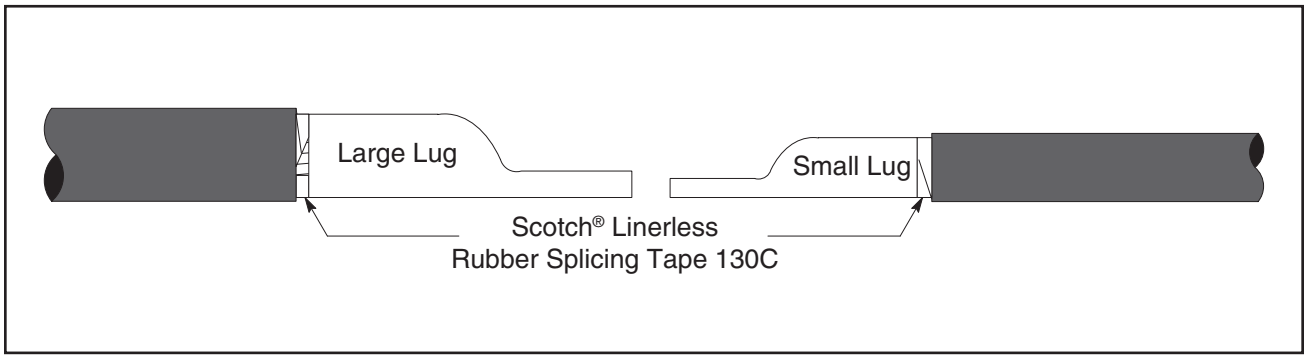


Figure 1

3.0 Slide on Adapters, Cold Shrink and Bolt Lugs Together

3.1 Determine proper adapter size for each cable from *Table 2*.

3.2 Apply silicone grease to the inside at one end of the adapters. (If necessary grease cables). Slide (grease end first) onto lugs and cables just far enough to clear the lug holes (*Figure 2*).

HINT: When installing adapters, the use of a clean cloth or rag to grip them will aid in their movement.

3.3 Slide the Cold Shrink Insulator onto the smallest cable. The direction of the loose core end tab should be where it is most easily removed later (*Figure 2*).

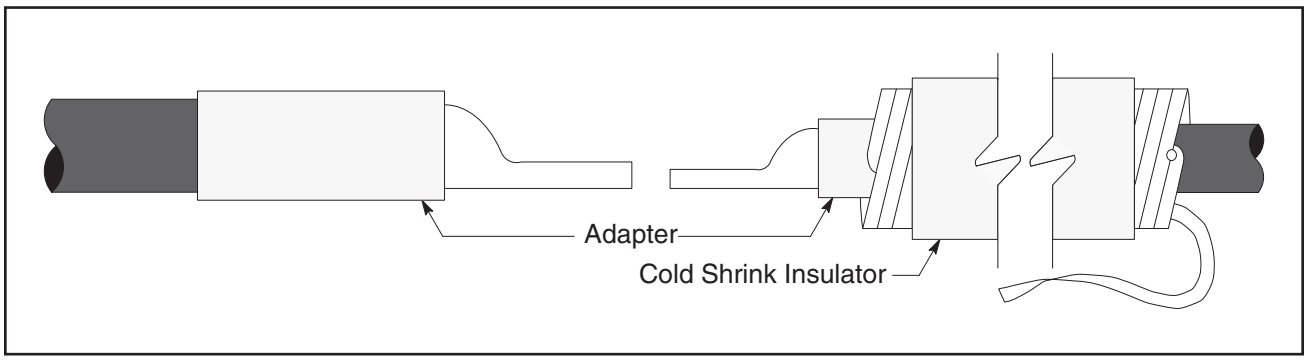


Figure 2

3.4 Remove silicone grease from lugs. Bolt lugs together (see *Table 1* for maximum bolt length). See *Figure 3* for proper lug/bolt arrangement.

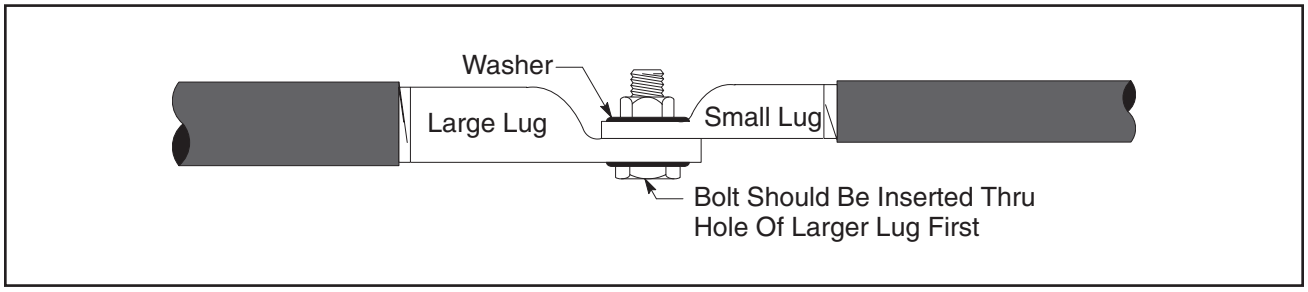


Figure 3

3.5 Cover the lugs and bolt with four half-lapped layers of Scotch® Linerless Rubber Splicing Tape 130C (*Figure 4*).

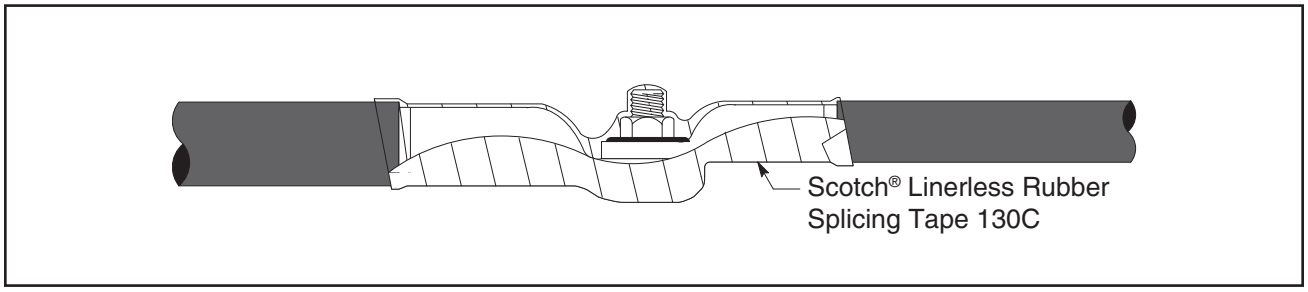


Figure 4

3.6 Slide adapters toward the bolt(s) as far as possible (*Figure 5*).

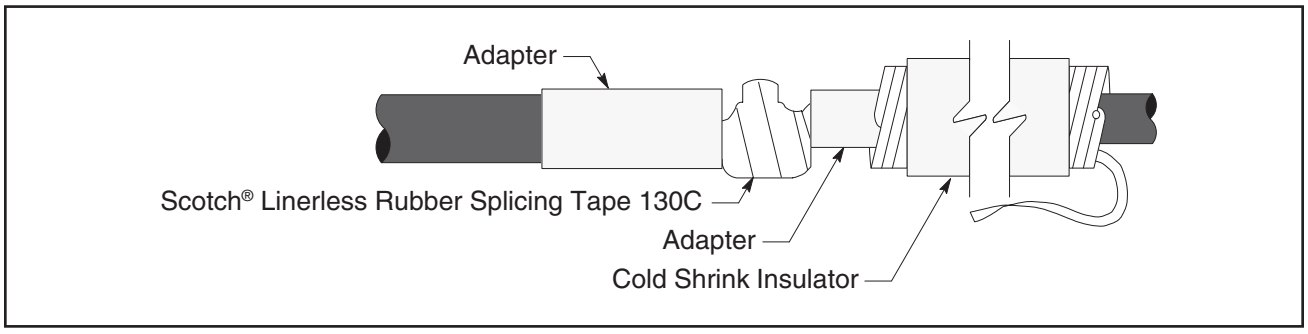


Figure 5

4.0 Install Cold Shrink Insulator

4.1 Center Cold Shrink insulator over connected lugs and remove core by unwinding counter-clockwise (*Figure 6*).

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

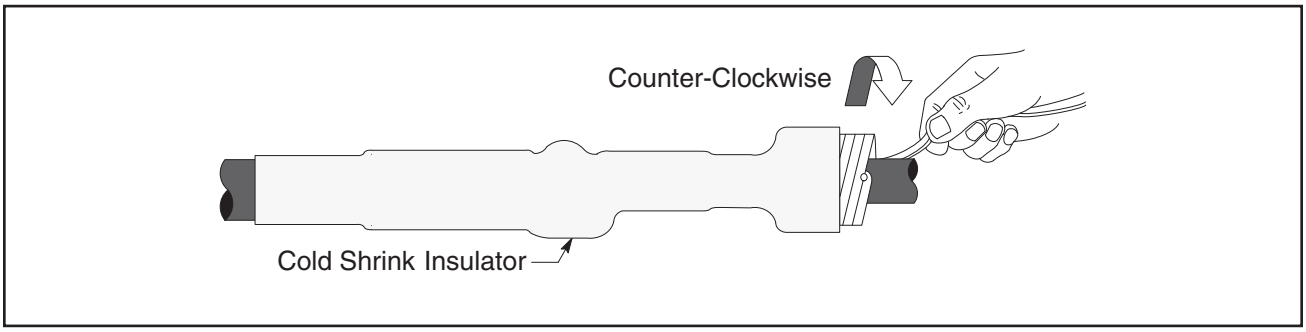


Figure 6

NOTE: The Cold Shrink may extend beyond the adapters and may not make contact with the cable insulation. Although this will not result in a leak problem, (seal is made at adapter) it can be cut off flush with end of adapter if desired.

Instructions for 5/8 kV Inline Shielded Feeder Cables (Ribbon, Wire Shielded and UniShield® Cables)

5.0 Prepare Cable According to Standard Procedures

5.1 Check to be sure cables sizes fit within cable kit range as shown in *Table 1*.

For Non-Shielded Motor Lead Cable

5.2 Remove cable insulation for length recommended by terminal lug manufacturer; if no information is available, remove for depth of lug barrel.

5.3 Clean insulation for approximately 6" using solvent saturated cloth provided in kit.

For Shielded Feeder Cable

For Ribbon Shielded Cable see *Figures 7a, 8a and 9a*.
For Wire Shielded Cable see *Figures 7b, 8b and 9b*.
For UniShield® Cable see Figures *7c, 8c and 9c.*

5.4 Prepare cable by removing jacket and shielding per dimensions as shown in *Figures 7 and 8*, depending on type of cable shielding.

NOTE: If practice calls for grounding shield, do not cut shield wires. See grounding.

5.5 Remove cable insulation for length recommended by terminal lug manufacturer; if no information is available, remove for depth of lug barrel. See *Figure 7a, 7b and 7c,* depending on type of cable shielding.

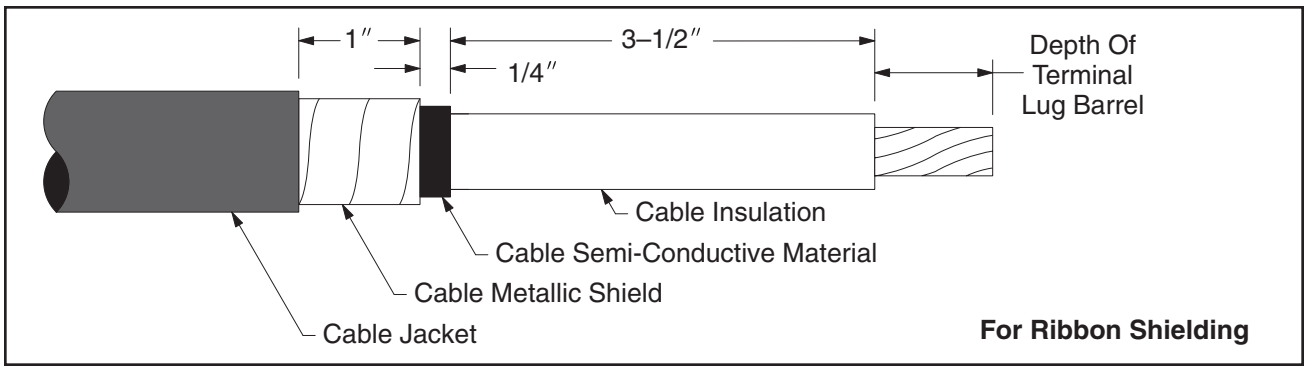


Figure 7a

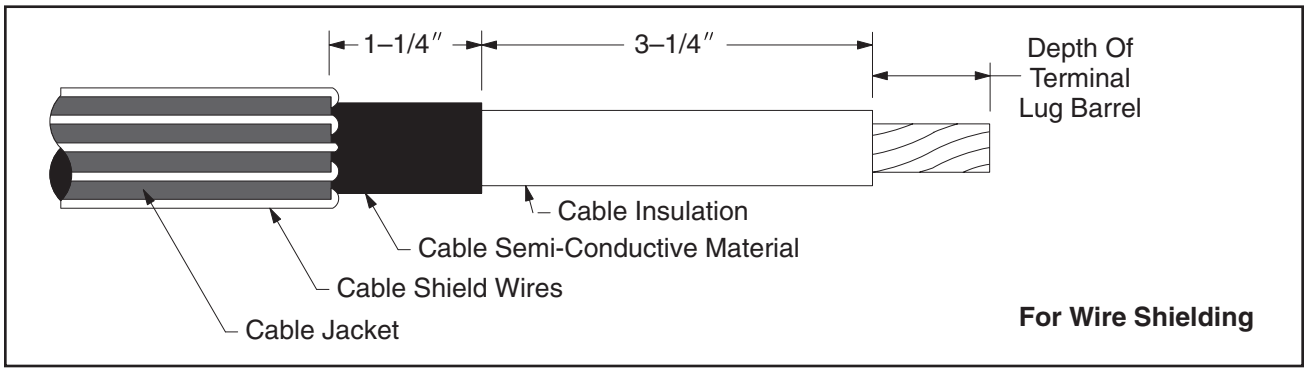


Figure 7b

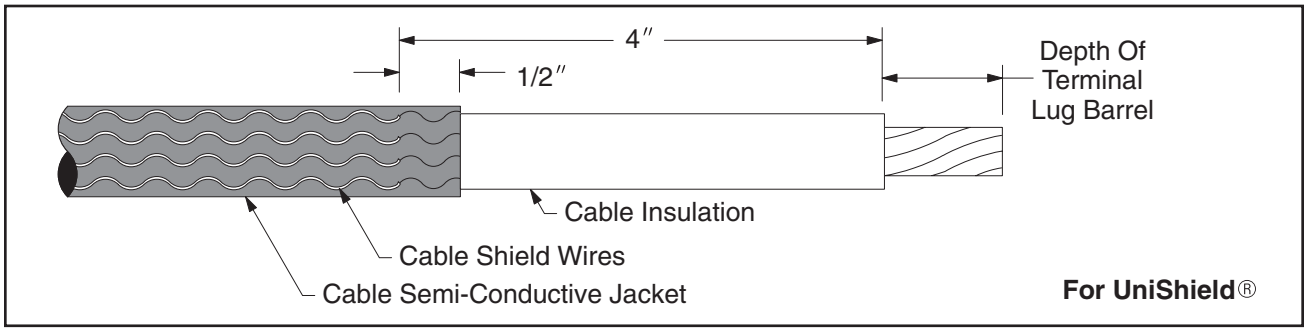


Figure 7c

5.6 Clean cable insulation by using solvent saturated cloths. **Do not allow solvent to touch cable semi-con.** If abrasive must be used to remove imbedded semi-con from cable insulation, use a non1–conductive, 120 grit aluminum oxide, such as in the Scotch® Cable Prep Kit CC-2.

6.0 Install Stress Relief

6.1 Apply two half-lapped layers of Scotch® Stress Control Tape 2220 for 1/4" onto the cable semi-con (1/2" onto UniShield® jacket) and extend two inches onto cable insulation (wrap tape silver side out). *Figures 8a, 8b or 8c*, depending on type of cable shielding.

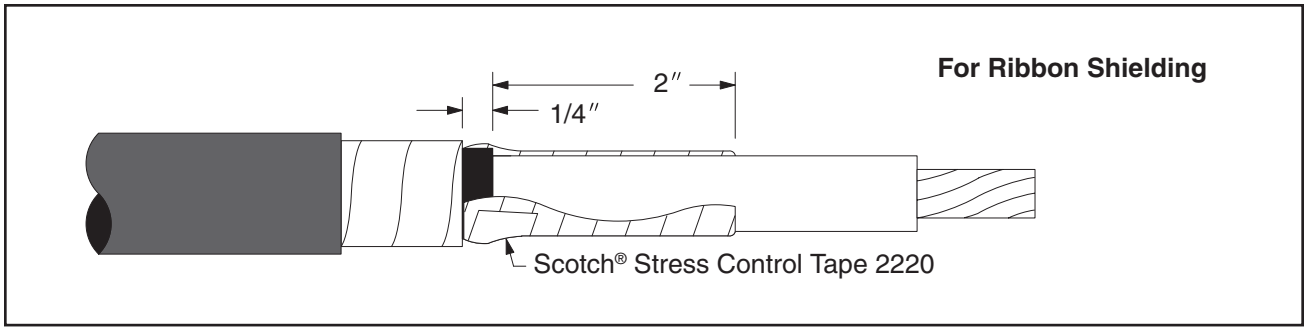


Figure 8a

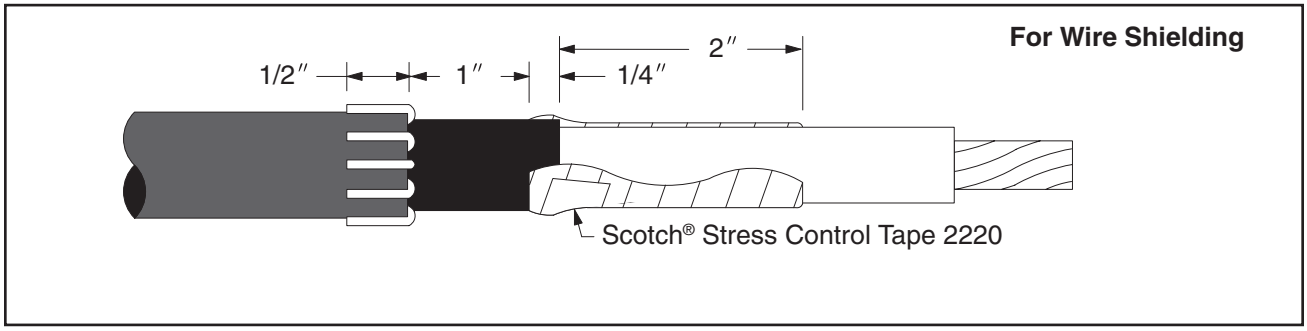


Figure 8b

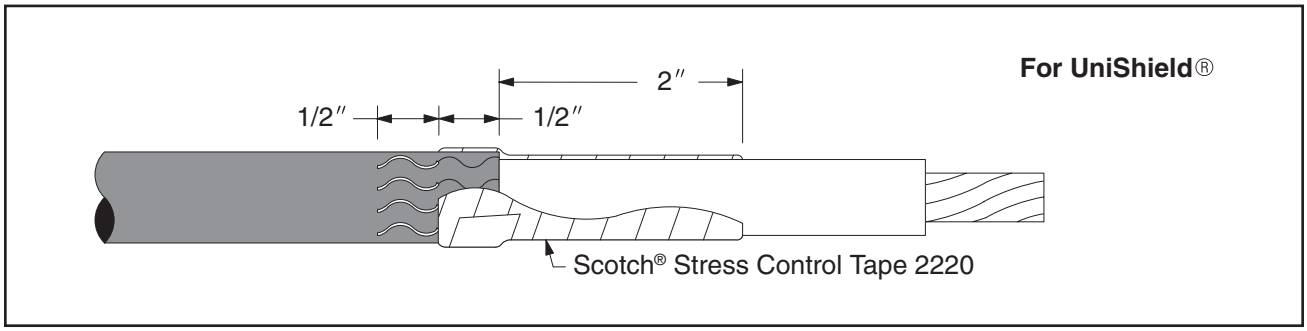


Figure 8c

6.2 Wrap two half-lapped layers of vinyl tape over the Scotch® Stress Control Tape 2220 and one inch onto cable jacket. (1/2" beyond cut off, bent back shield wires for wire and UniShield® cables. Figures *9a, 9b or 9c,* depending on type of cable shielding).

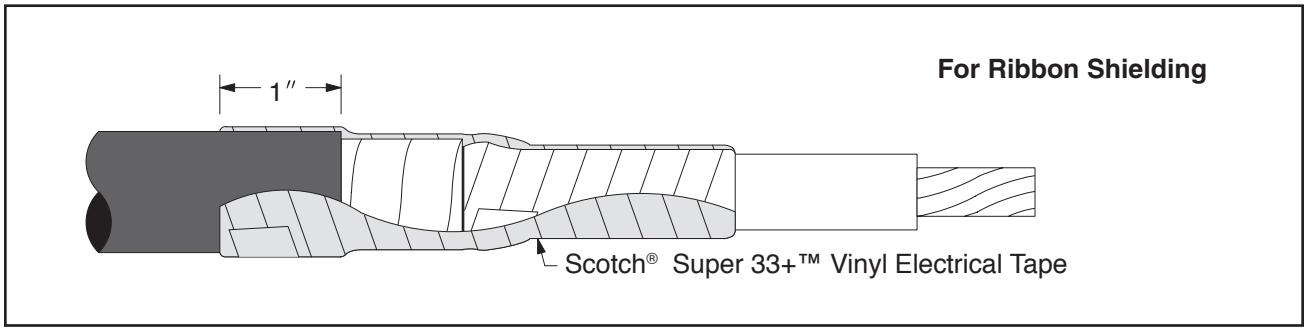


Figure 9a

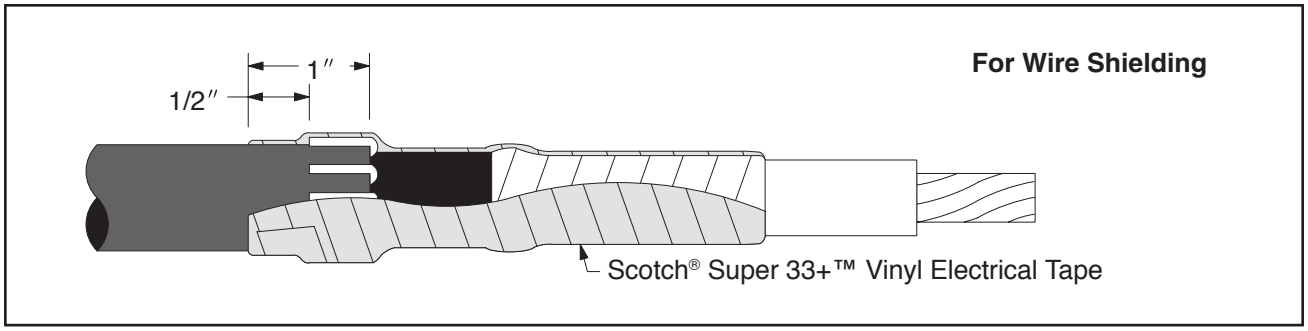


Figure 9b

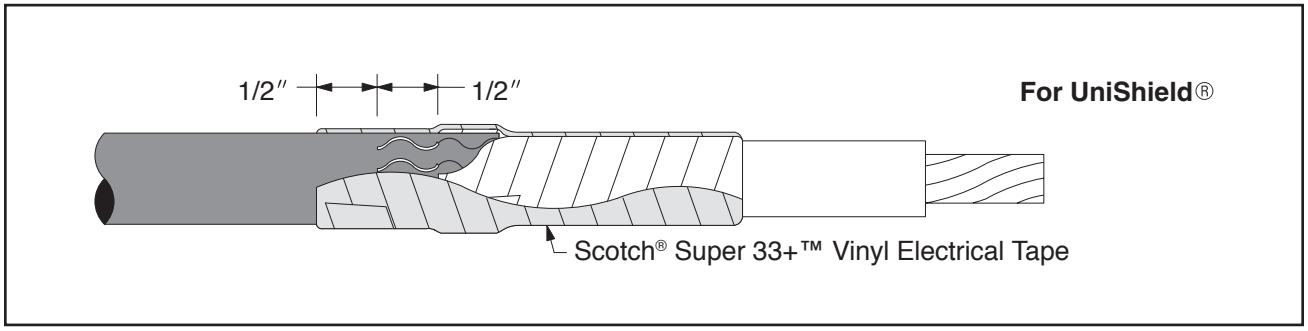


Figure 9c

NOTE: Grounding

If practice calls for grounding the splice a 3M™ Ground Strap Assembly Kit (GS–1, GS–2 and GS–3) is available from your local distributor for use on ribbon shield cable. Follow procedure for these kits for grounding. For UniShield and wire shield cable, a ground strap assembly kit is not necessary. Simply fold the wires back over jacket and use them to connect to the system ground.

7.0 Install Lugs

7.1 Install and crimp lugs per manufacturer's direction; see back page if 3M™ Scotchlok™ Lugs are used.

7.2 FOR 8kV ONLY. Fill lug/insulation gaps with Scotch® Linerless Rubber Splicing Tape 130C (*Figure 10*).

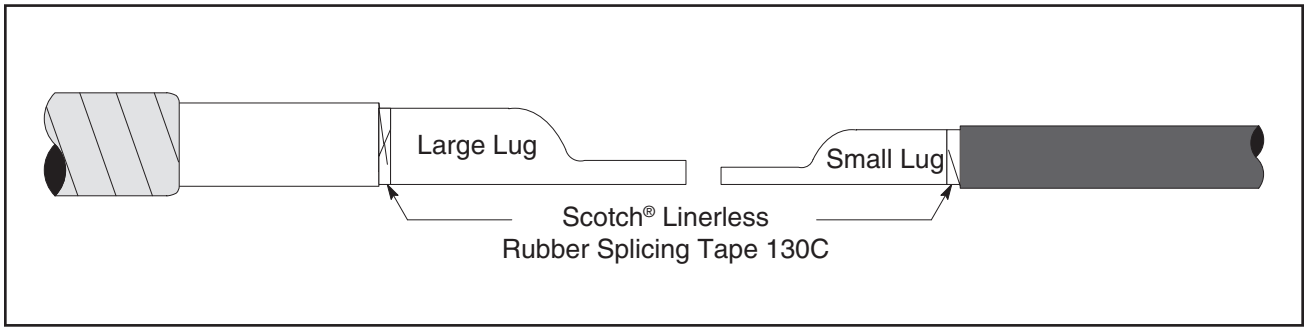


Figure 10

8.0 Slide on Adapters, Cold Shrink and Bolt Lugs Together

8.1 Determine proper adapter size for each cable form (*Table 2*).

8.2 Apply silicone grease to the inside at one end of the adapters. (If necessary grease cables). Slide (grease end first) onto lugs and cables just far enough to clear the lug holes (*Figure 11*).

HINT: When installing adapters, the use of a clean cloth or rag to grip them will aid in their movement.

8.3 Slide the Cold Shrink Insulator onto the smallest cable. The direction of the loose core end tab should be where it is most easily removed later (*Figure 11*).

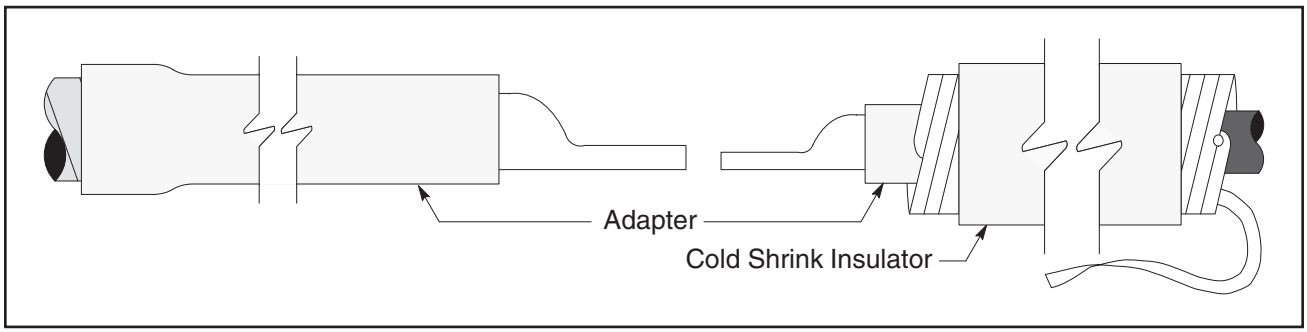


Figure 11

8.4 Remove silicone grease from lugs. Bolt lugs together (see Table 1 for maximum bolt length). See *Figure 12* for proper lug/bolt arrangement.

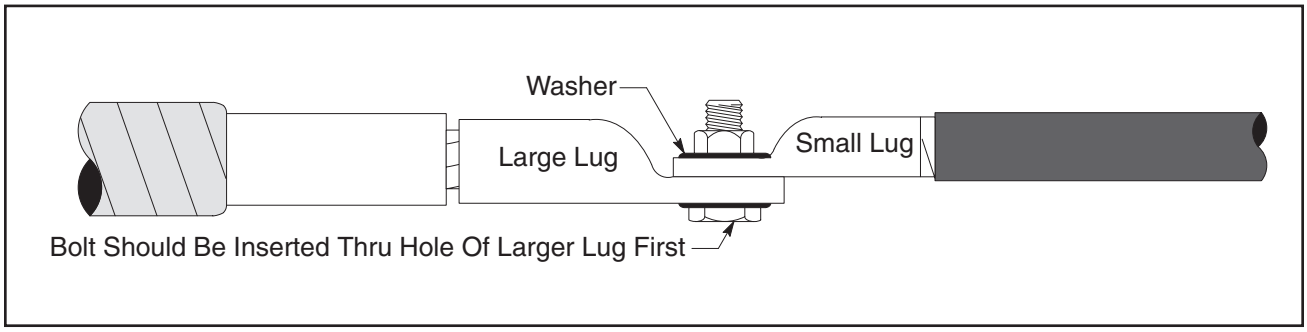


Figure 12

8.5 Wrap rubber tape over bolts to round off sharp edges. Apply a minimum of four layers over each bolt end. Use medium tension when applying (*Figure 13*).

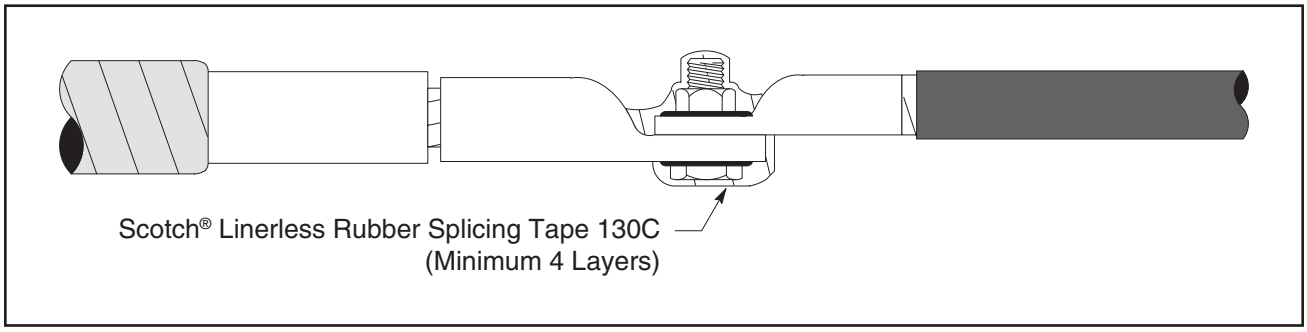


Figure 13

8.6 FOR 8 kV ONLY. Cover the lugs and bolt with four half-lapped layers of Scotch® Linerless Rubber Splicing Tape 130C (*Figure 14*).

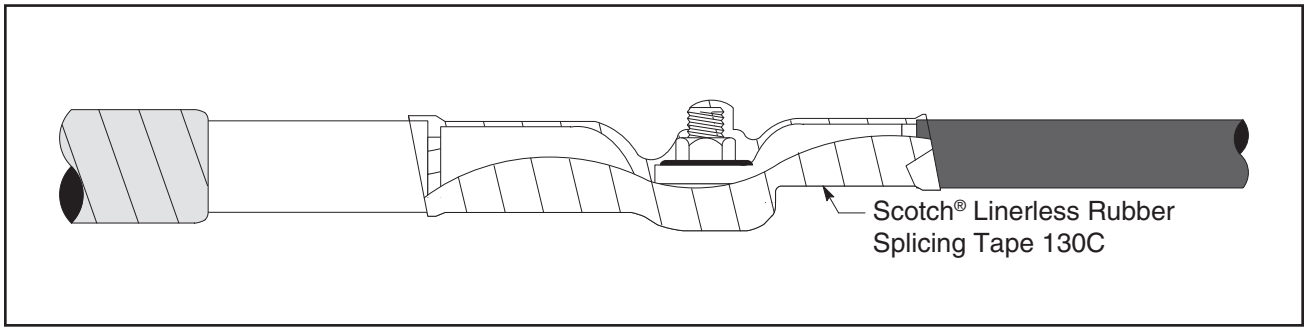


Figure 14

8.7 Slide adapters toward the bolt(s) as far as possible (*Figure 15*).

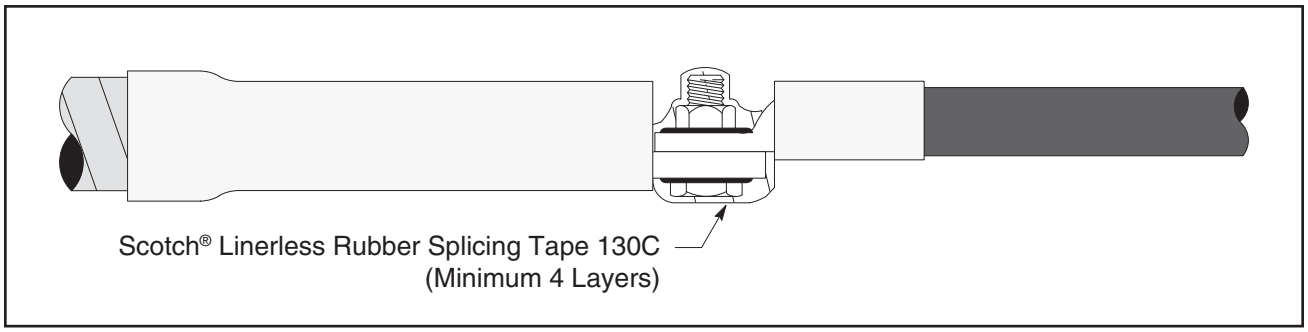


Figure 15

9.0 Install Cold Shrink Insulator

9.1 Center Cold Shrink over connected lugs and remove core by unwinding counter-clockwise. (*Figure 16*).

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

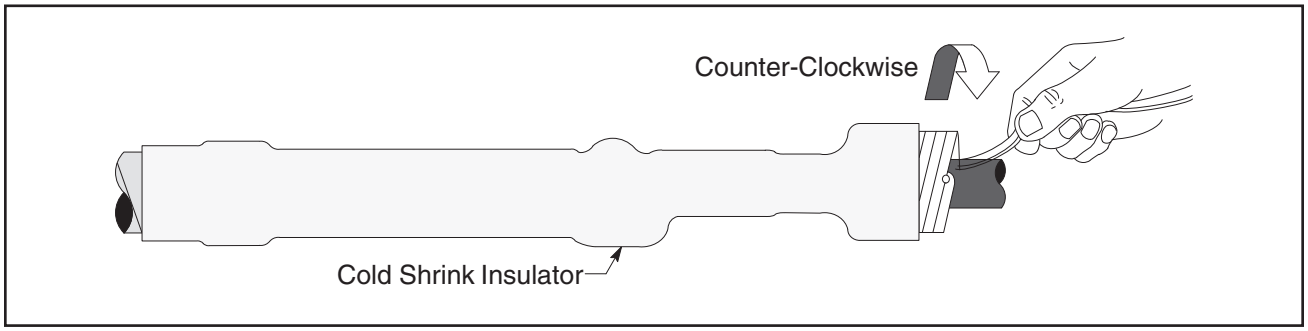
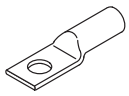
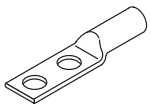


Figure 16

Tooling Index

Lug and Crimping Information for 3M™ Scotchlok™ Copper Lugs	
30014 thru 30045 **One hole** 	**31145 thru 31166** **Two hole** 

Copper Lugs

Cable Size	Stud Size	3M™ Scotchlok™ Copper Lug Number	CRIMPING TOOL-DIE SETS (NUMBER OF CRIMPS)							
			Burndy Corporation				Thomas & Betts Corporation			Square D Co. Anderson Div.
			MD6	MY29	Y34A	Y35, Y39, Y45*, Y46*	TBM 5	TBM 8	TBM 15	VC6–3 VC6–FT**
6	10 1/ 5/164	**30014** **30015** **30016**	—	6 AWG (1)	—	U5CRT (1)	Blue (1)	Blue (1)	—	Universal (1)
4	10 1/4 3/8	**30018** **30019** **30021**	W161 (1)	4 AWG (1)	A4CR (1)	U4CRT (1)	Grey (1)	Grey (1)	—	Universal (1)
2	1/4 5/16 3/8	**30022** **30023** **30024**	W162 (2)	2 AWG (1)	A2CR (1)	U2CRT (2)	Brown (1)	Brown (1)	33 (1)	Universal (2)
1	5/16 3/8	**30027** **30028**	—	1 AWG (1)	A1CR (1)	U1CRT (2)	Green (1)	Green (1)	37 (1)	Universal (2)
1/0	5/16 3/8	**30031** **30032**	W163 (2)	1/0 (1)	A25R (1)	U25RT (1)	Pink (2)	Pink (2)	42H (2)	Universal (1)
2/0	3/8	**30036**	W241 (2)	2/0 (1)	A26R (1)	U26RT (2)	Black (2)	Black (2)	45 (1)	Universal (1)
3/0	1/2	**30041**	W243 (2)	3/0 (1)	A27R (1)	U27RT (2)	Orange (2)	Orange (2)	50 (1)	Universal (2)
4/0	1/2 1/2	**30045** **31145**	BG (3) BG (4)	4/0 (1) 4/0 (2)	—	U28RT (2) U28RT (3)	Purple (2) Purple (3)	Purple (2) Purple (3)	54H (2) 54H (3)	Universal (2) Universal (3)
250	1/2	**31149**	W166 (4)	250 (2)	A29R (2)	U29RT (3)	Yellow (2)	Yellow (2)	62 (2)	Universal (2)
300	1/2	**31153**	—	—	A30R (2)	U30RT (3)	—	White (3)	66 (3)	Universal (3)
350	1/2	**31156**	—	—	A31R (2)	U31RT (3)	—	Red (4)	71H (4)	—
400	1/2	**31160**	—	—	A32R (2)	U32RT (3)	—	Blue (4)	76H (4)	—
500	1/2	**31166**	—	—	A34R (2)	U34RT (3)	—	Brown (4)	87H (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.

Important Notice

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