

# 3M™ Motor Lead Pigtail Splice 5321, 5322, 5323 & 5324

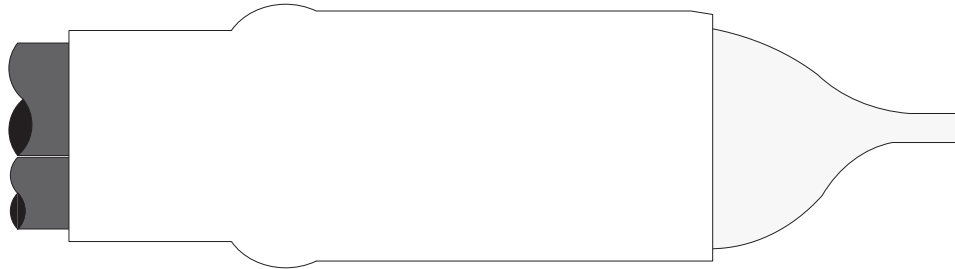
for 5/8 kV Non-Shielded and Shielded Cables  
(Ribbon or Wire and UniShield® Cables)

## 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.



# Kit Contents

- 3 Lug Cover
- 3 Cold Shrink Tube
- 9 Mastic Sealing Strip(s)\*
- 3 Roll Scotch® Stress Control Tape 2220
- 3 Bag Solvent Cleaning Cloths
- 3 Tube 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)		Cable Insulation O.D. Range	Max Bolt Length
	Feeder	Motor Lead		
<b>5321</b>	8 – 4	10 – 4	0.30 – 0.51 in.	1/2 in.
<b>5322</b>	2 – 1/0	4 – 1/0	0.43 – 0.65 in.	3/4 in.
<b>5323</b>	1/0 – 250	2 – 250	0.53 – 0.88 in.	1 1/4 in.
<b>5324</b>	250 – 500	4/0 – 500	0.75 – 1.12 in.	1 1/2 in.

**Table 1**

# Instructions for 5/8 kV Pigtail 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.

## 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 Clean insulation for approximately 6" using solvent saturated cloths provided in kit.
- 2.3 FOR 8kV ONLY. Fill lug/insulation gaps with Scotch® Linerless Rubber Splicing Tape 130C (*Figure 1*).

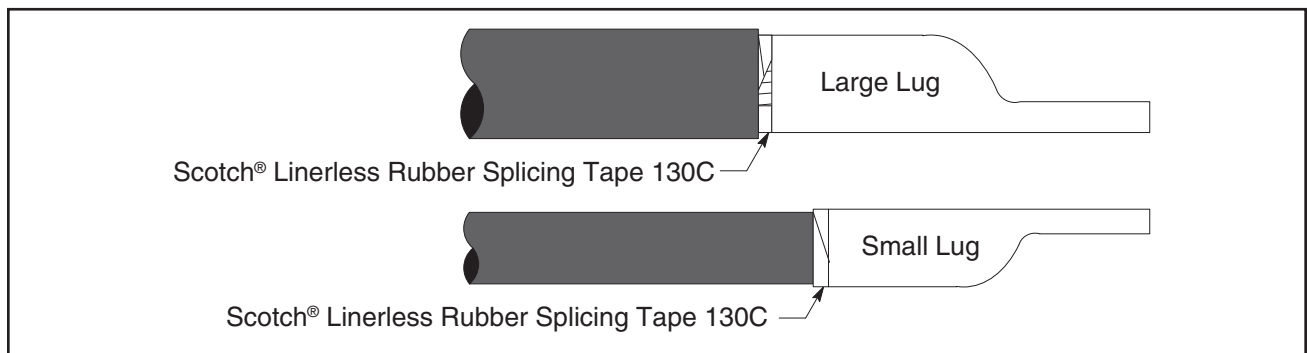


Figure 1

- 2.4 Bolt lugs together. See *Table 1* for maximum bolt length. See *Figure 2* for proper bolt/lug arrangement.

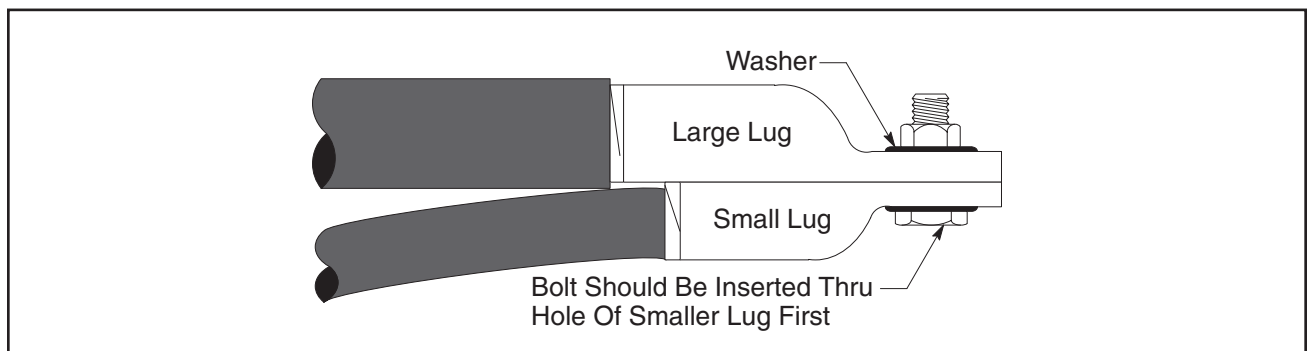


Figure 2

2.5 FOR 8 kV ONLY. Cover the lugs and bolt with four half-lapped layers of Scotch® Linerless Rubber Splicing Tape 130C (Figure 3).

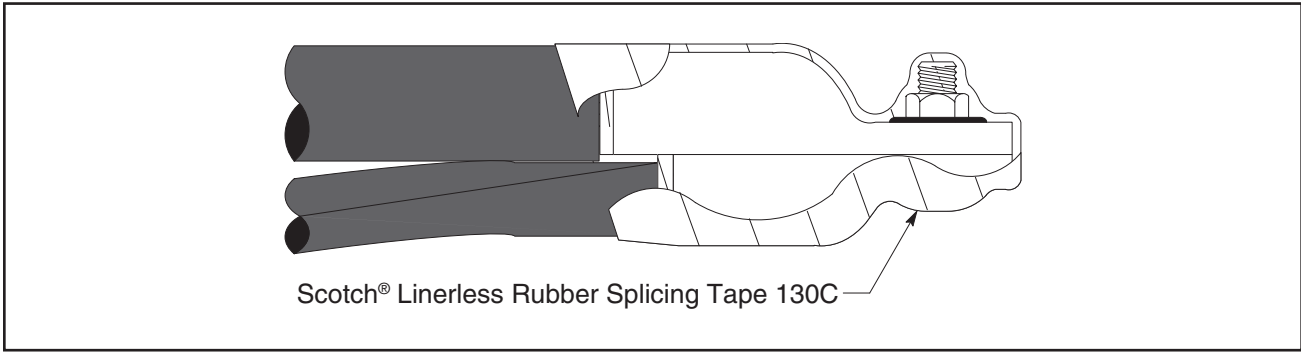


Figure 3

**NOTE: FOR 8 kV ONLY: Lug cover will be printed with 5 kV rating, but mastic layer in Step B-5 (Figure 3) qualifies the part as 8 kV.**

### 3.0 Install Lug Cover

3.1 Install Lug Cover.

**NOTE: The lug cover must extend over the cable insulation by a minimum of 1". For a one hole lug it will be greater than 1" (Figure 4).**

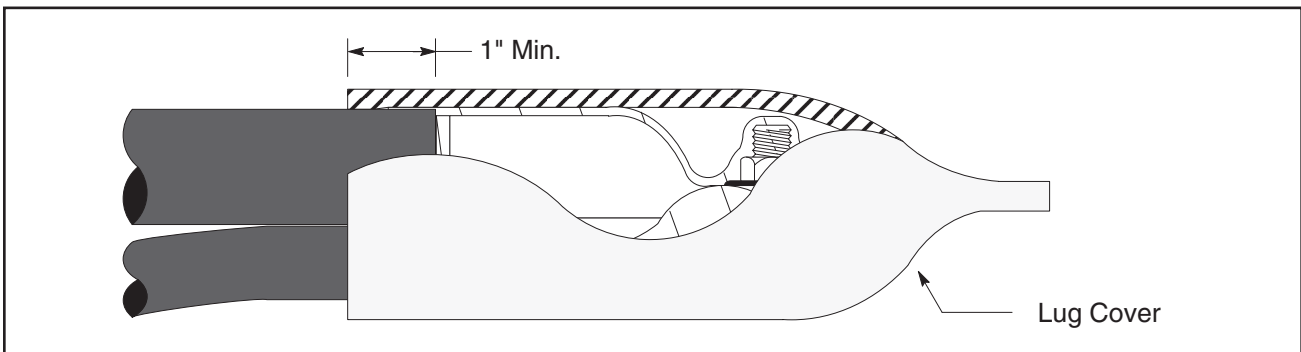


Figure 4

3.2 Remove liner from Mastic Sealant Strips and apply around and between cables and at a position as close as possible to the end of the Lug Cover (Figure 5).

3.3 Overwrap Mastic Sealant and the end of the Lug Cover with one or two wraps of vinyl tape (Figure 5).

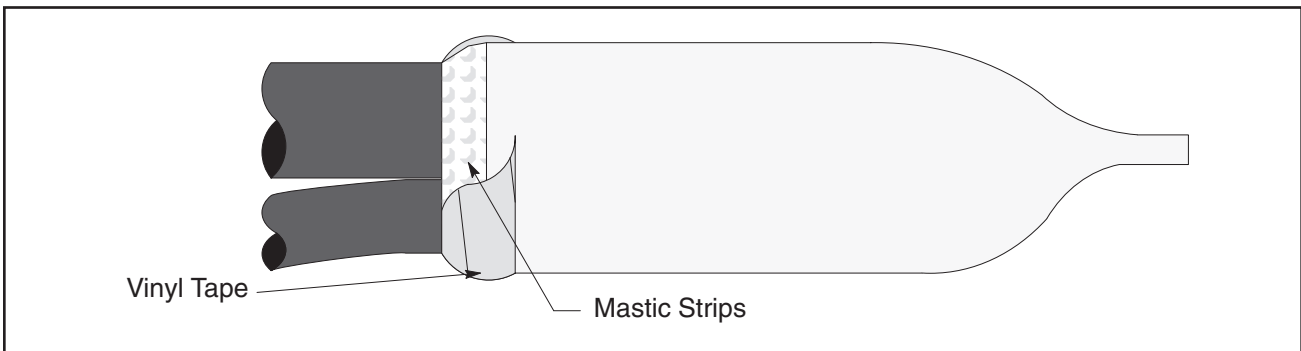


Figure 5

## 4.0 Install Cold Shrink Insulator

- 4.1 Install Cold Shrink by sliding it over the Lug Cover with the loose end tab at terminal lug end. Align the end of the Cold Shrink Tube approximately 2" beyond the Mastic Seal and Vinyl Seal Tape. Remove core by unwinding counter-clockwise (Figure 6).

**TIP:** An occasional tug will aid in the removal of the core.

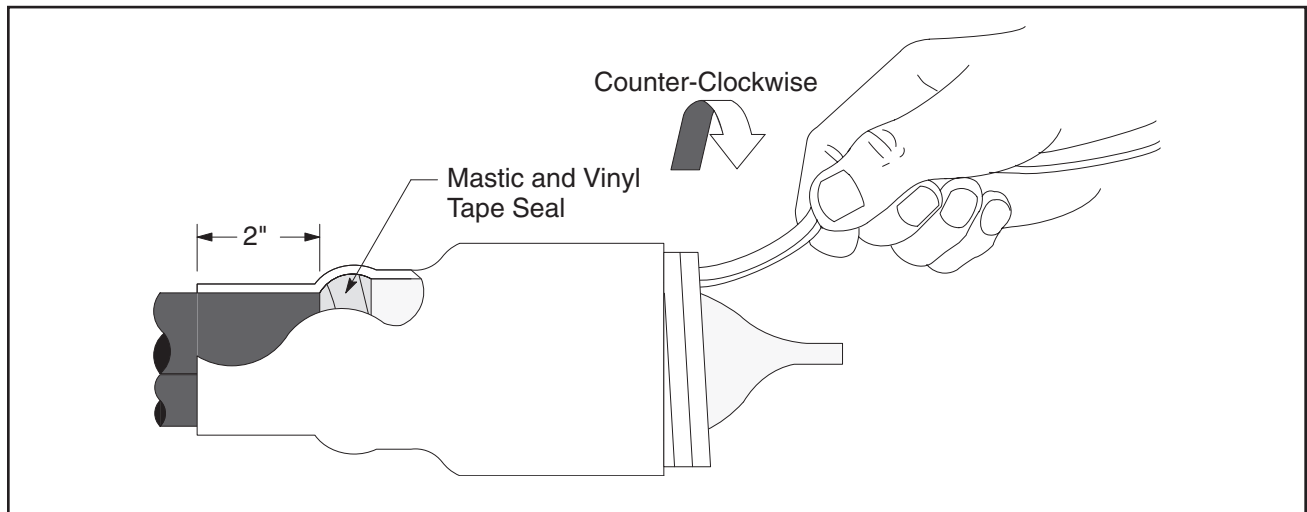


Figure 6

## Instructions for 5/8 kV Pigtail Shielded Feeder Cables (Ribbon or 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.

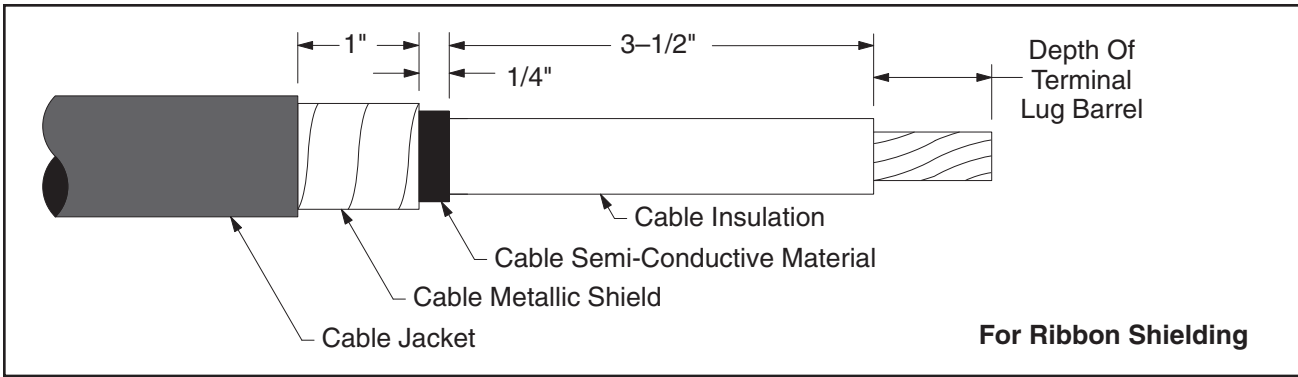


Figure 7a

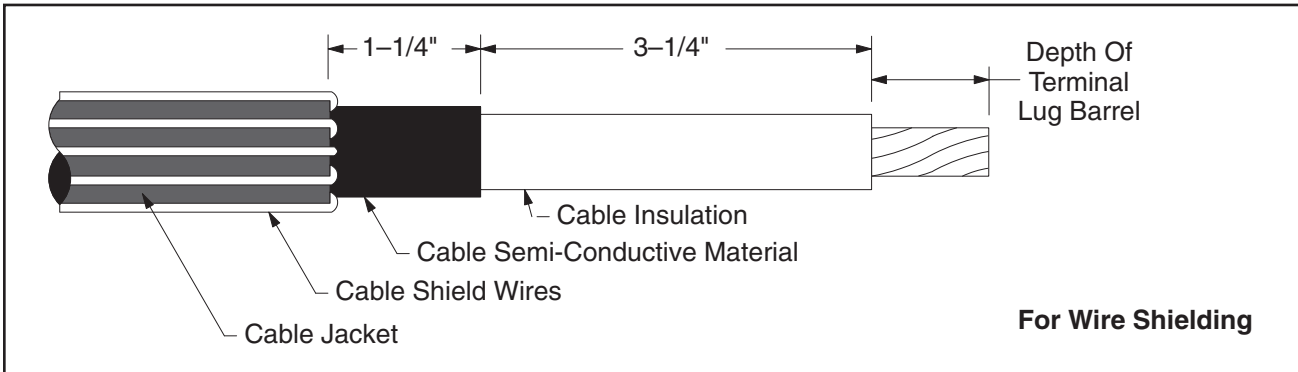


Figure 7b

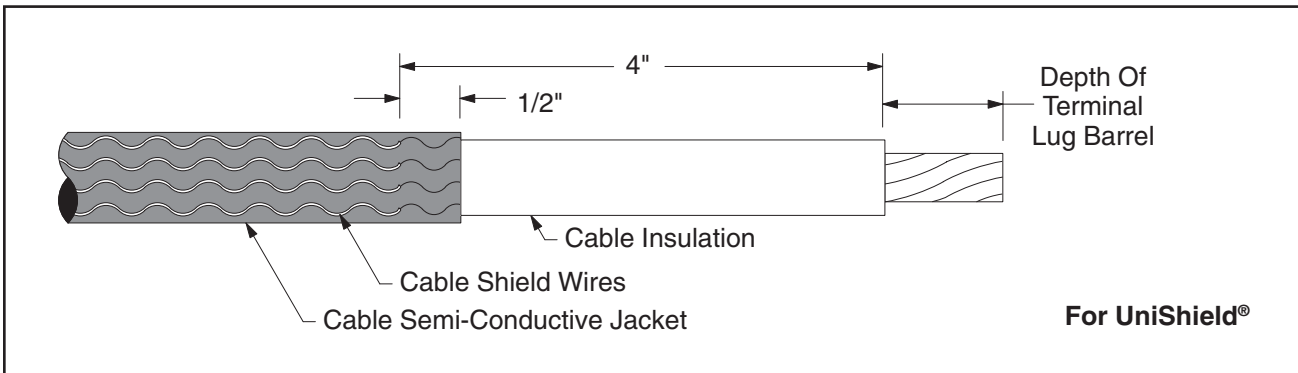


Figure 7c

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 non-conductive, 120 grit aluminum oxide, such as in the Scotch® Cable Prep Kit CC-2 or 3M™ Abrasive Roll A-3.

## 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.*

### NOTE: Grounding

*If practice calls for an external ground, 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 to connect to the system ground.*

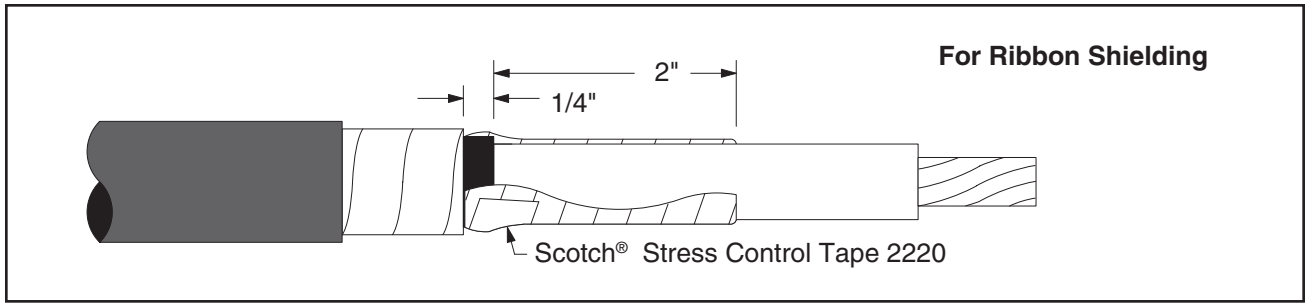


Figure 8a

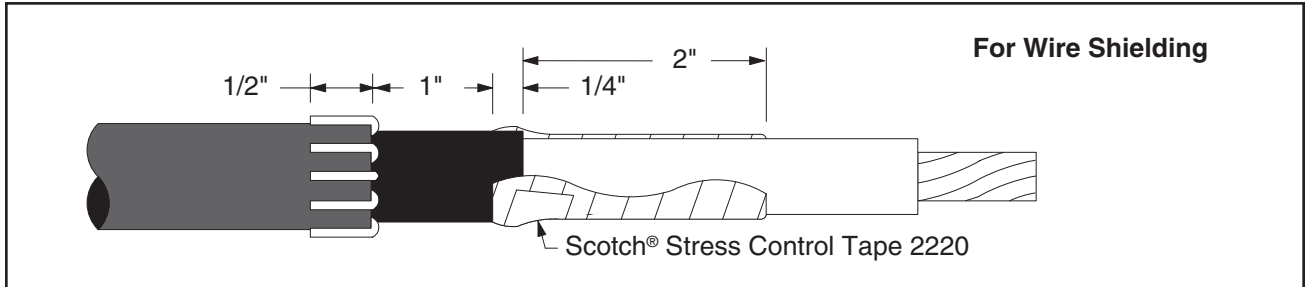


Figure 8b

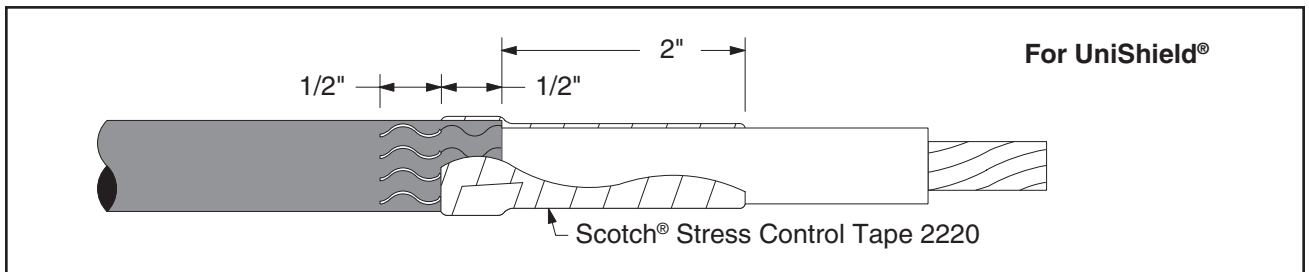


Figure 8c

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).

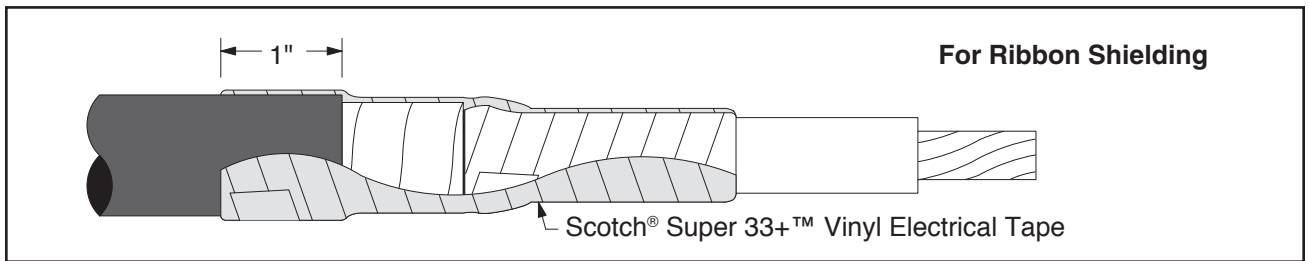


Figure 9a

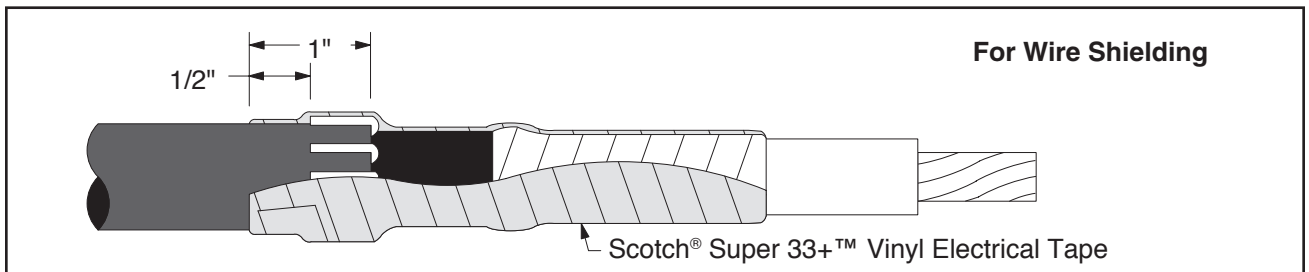


Figure 9b

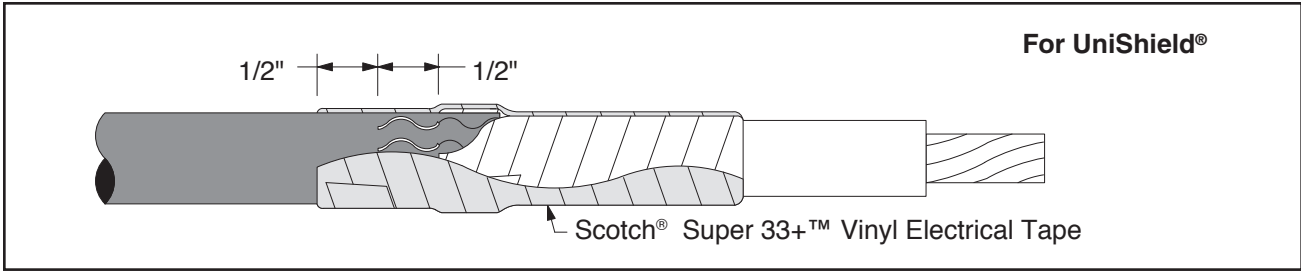


Figure 9c

## 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*).

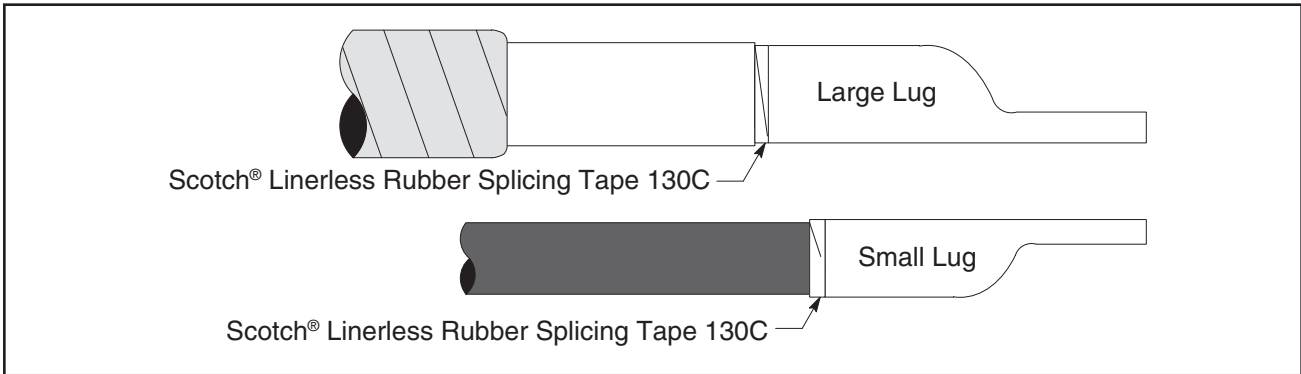


Figure 10

- 7.3 Bolt lugs together. See Table 1 on cover for maximum bolt length. See *Figure 11* for proper bolt/lug arrangement.

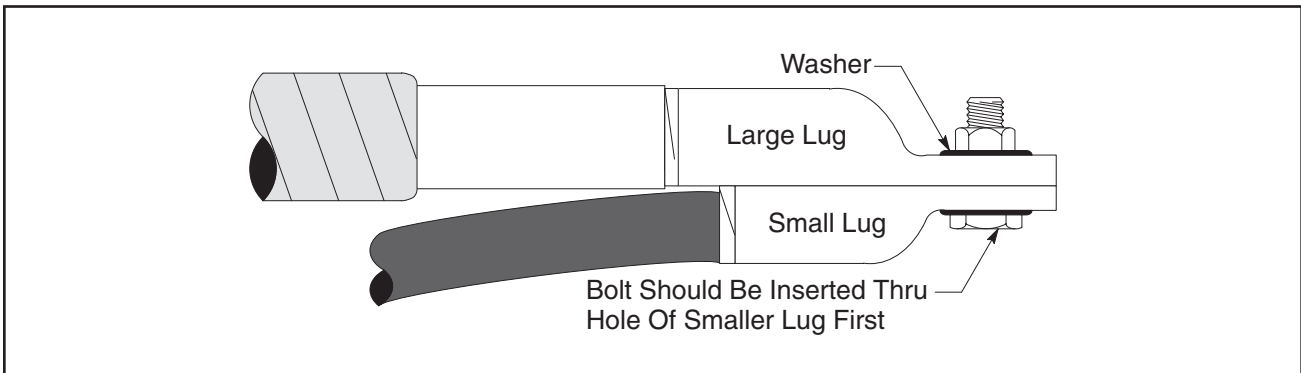


Figure 11



7.4 FOR 8 kV ONLY. Cover the lugs and bolt with four half-lapped layers of Scotch® Linerless Rubber Splicing Tape 130C (Figure 12).

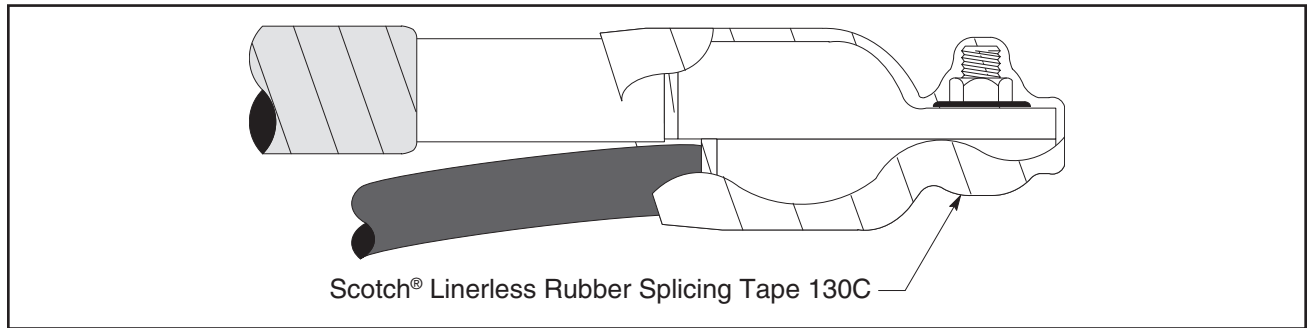


Figure 12

## 8.0 Installation

8.1 Install Lug Cover (Figure 13).

**NOTE: The lug cover must extend over the cable insulation by a minimum of 1". For a one hole lug, it will be greater than 1".**

8.2 Remove liner from mastic sealing strips and apply around and between the cables at a position as close as possible to the end of the lug cover (Figure 14).

8.3 Overwrap mastic sealant and the end of the Lug Cover with one or two wraps of vinyl tape (Figure 14).

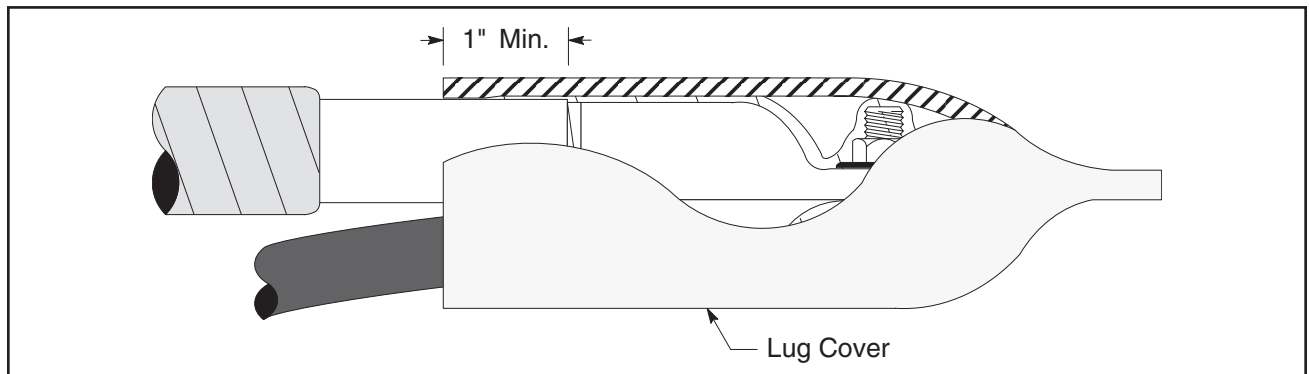


Figure 13

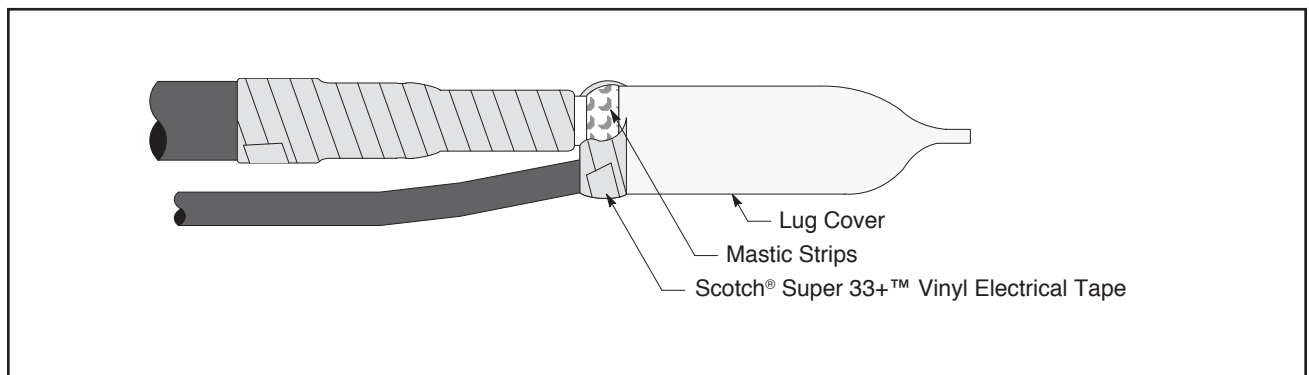


Figure 14

## 9.0 Install Cold Shrink Insulator

- 9.1 Install Cold Shrink Insulator by sliding it over the Lug Cover with the loose core end tab at terminal end. Align the end of the Cold Shrink Insulator so it covers the vinyl tape on the feeder cable. Remove core by unwinding counter-clockwise (*Figure 15*).

**TIP:** An occasional tug will aid in the removal of the core.

**NOTE:** When starting to remove core, observe to make sure end of Cold Shrink remains lined up over the vinyl tape (*Figure 15*).

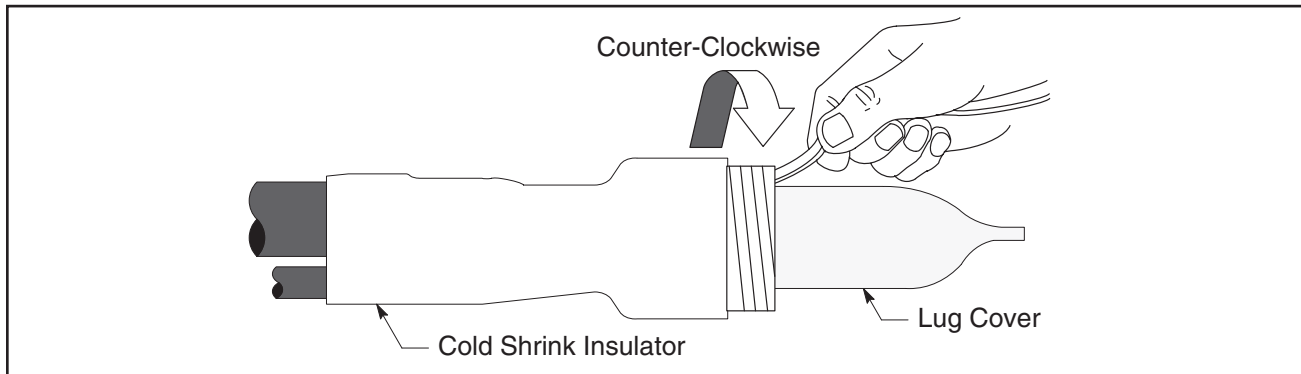
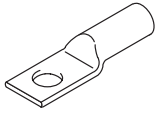
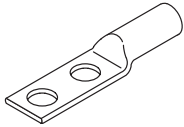


Figure 15

## Tooling Index

Lug and Crimping Information for 3M™ Scotchlok™ Copper Lugs	
<b>30014 thru 30045</b> One hole 	<b>31145 thru 31166</b> Two hole 

## Copper Lugs

Cable Size	Stud Size	3M™ Scotchlok™ Copper Lug Number	CRIMPING TOOL-DIE SETS (NUMBER OF CRIMPS)							
			Burdndy 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.

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