CONTENTS

(Select instruction sheet for your cable type and discard others.)

Each kit contains enough material to make three 15 KV standard-length terminations.

KIT NO.	VOLTAGE	CABLE RANGE*
		Polyethylene and EPR
5701	5, 8 & 15 KV	#8-4/0
5702	5 & 8 KV	250-1000 kcmil
	15 KV	250-750 kcmil

*For standard-length terminations. For short terminations see instruction sheet.

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TECHNICAL DATA

- VOLTAGE RATING — 15 KV CLASS
- TEMPERATURE RATING — 130°C EMERGENCY OPERATION
- CONDUCTORS — COPPER OR ALUMINUM
- INSULATION — POLYETHYLENE AND EPR
- STANDARD-LENGTH TERMINATIONS WITH NO. 70 TAPE OVERWRAP MEETS REQUIREMENTS OF IEEE STD. 48 CLASS I TERMINATIONS.

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DR. M. E. Wiseman | APP. R. L. Goodman

2047-B-91

Electro-Products Division/3M
225-4N 3M Center, St. Paul, MN 55144

3M

Scotch® Brand K-Tape Termination Kits 5701 & 5702

34-7017-6781-5

Litho in U.S.A. with 3M BRAND Photo Offset Plates, Film and Chemicals.

WIRE SHIELDED CABLE 5-15 KV FOR STANDARD-LENGTH TERMINATION

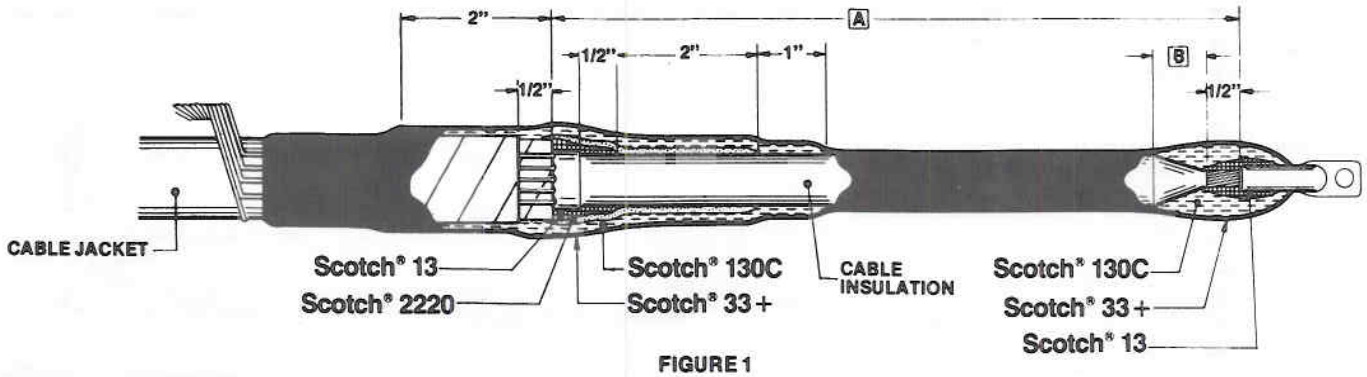

FIGURE 1

A. PREPARE CABLE

1. Buff cable jacket 3" beyond dimension A.
2. Prepare cable according to Figure 2 and Table I.

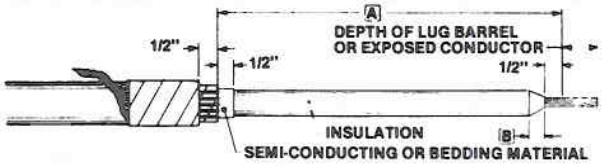

FIGURE 2

VOLTAGE	A	B
5 KV	12-3/4"	1/2"
8 KV	15"	1/2"
15 KV (100-133%)	20"	3/4"

TABLE I

3. Wrap two half-lapped layers of 130C Tape over cable jacket for 2". See Figure 3. WRAP TACKY SIDE OUT AND HIGHLY ELONGATE.
4. Fold wires back over 130C Tape. DO NOT TWIST. See Figure 3.

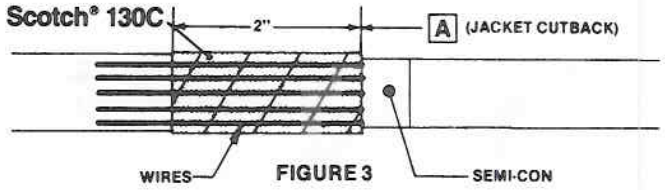

FIGURE 3

5. Beginning 1/2" on exposed wires, tightly wrap one half-lapped layer of 130C Tape over wires 1-1/2". See Figure 4.

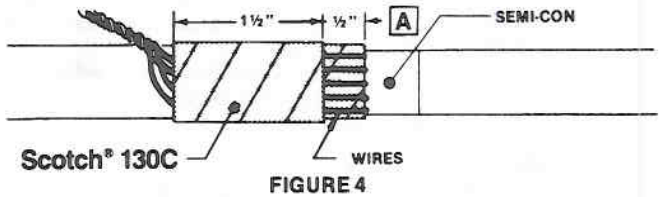

FIGURE 4

6. Clean cable using standard practice.
   a. Use the "SCOTCH" Brand Cable Prep Kit A-2.
   b. DO NOT ALLOW SOLVENT TO TOUCH SEMI-CONDUCTIVE MATERIAL.

B. LUG INSTALLATION

1. Install lug, following manufacturer's directions.
2. If closed end lug is not used, solder block conductor end.

C. APPLY SEMI-CONDUCTING TAPE — #13 HIGHLY ELONGATE 13 TAPE

1. Fill indents in lug. See Figure 5.
2. Wrap two half-lapped layers of 13 Tape over lug. See Figure 5.

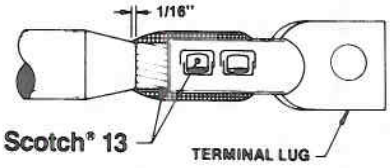

FIGURE 5

3. Wrap two half-lapped layers of 13 Tape to 1/2" beyond cable semi-conducting material. Begin and end taping at front end of wire shielding. See Figure 6.

D. APPLY STRESS CONTROL — #2220

1. Wrap two half-lapped layers of 2220 Tape over 13 Tape and 2" beyond 13 Tape on cable insulation. See Figure 6. STRETCH TAPE TO 3/4 OF ORIGINAL WIDTH.

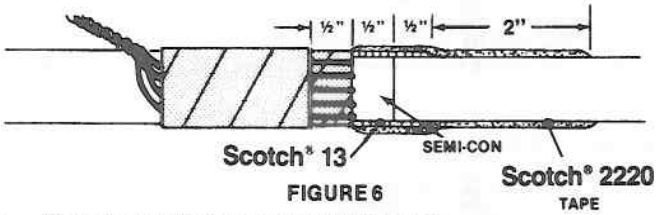

FIGURE 6

E. APPLY HIGH VOLTAGE TAPE #130C WRAP TACKY SIDE OUT AND HIGHLY ELONGATE.

1. Tightly wrap four half-lapped layers of 130C Tape over lug or exposed conductor. See Figure 1.
2. Starting at end of previously applied 130C Tape on cable jacket, wrap two half-lapped layers of 130C Tape to 1" beyond Stress Control Tape 2220. See Figure 1.

F. APPLY VINYL TAPE — #33+

1. Wrap one half-lapped layer of 33+ Tape over entire termination covering lug end seal and extending 1" onto cable jacket. See Figure 1.

NOTE: IF TRACKING PROTECTION IS DESIRED, TERMINATIONS MUST BE OVERWRAPPED WITH "SCOTCH" BRAND SILICONE RUBBER TAPE #70. SEE TABLE BELOW FOR AMOUNT OF 70 TAPE REQUIRED. WRAP 70 TAPE WITH MODERATE TENSION.

KIT	NO. OF ROLLS
5701	2
5702	3

1. Connect termination in final position (if possible).
2. Overwrap end seal with at least four layers of 70 Tape.
3. Overwrap entire termination with at least one half-lapped layer of 70 Tape.

WIRE SHIELDED CABLE 5 TO 15 KV
INSTRUCTIONS FOR MAKING A SHORT TERMINATION FOR INDOOR (WEATHER PROTECTED) CONFINED AREAS.

NOTE: ADDITIONAL TAPES ARE REQUIRED TO MAKE A SHORT TERMINATION. SEE TABLE I BELOW.

Kit No.	Voltage KV	Conductor Size Range	130C (Rolls)	70 (Rolls)
5701	5	8 — 4 AWG	0	1
		2 AWG — 2/0	1	1
		3/0 — 600 kcmil	1	2
	8	6 — 2 AWG	1	1
		1 AWG — 250 kcmil	1	2
	15 (100%)	4 AWG — 2/0	1	2
5702	5, 8 & 15 (100%)	650-1000 kcmil	1	2
	15 (133%)	1 AWG — 750 kcmil	1	2
		800-1000 kcmil	2	2

TABLE I

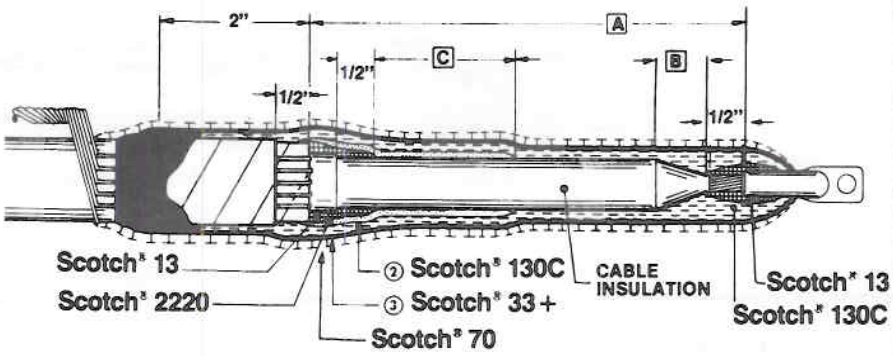

FIGURE 1

A. PREPARE CABLE

1. Buff cable jacket 3" beyond dimension [A].
2. Prepare cable according to Figure 2 and Table II.

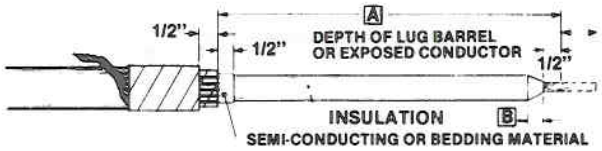

FIGURE 2

VOLTAGE	A	B
5-8 KV	5"	1/2"
15 KV	6"	3/4"

TABLE II

3. Wrap two half-lapped layers of 130C Tape over cable jacket for 2". See Figure 3. WRAP TACKY SIDE OUT AND HIGHLY ELONGATE.
4. Fold wires back over 130C Tape. DO NOT TWIST. See Figure 3.

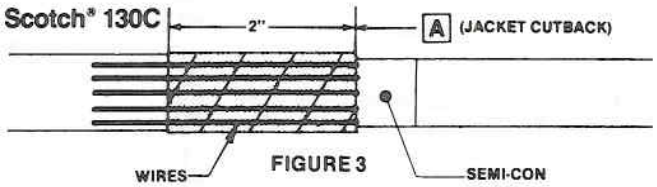

FIGURE 3

5. Beginning 1/2" on exposed wires tightly wrap one half-lapped layer of 130C Tape over wires 1-1/2". See Figure 4.

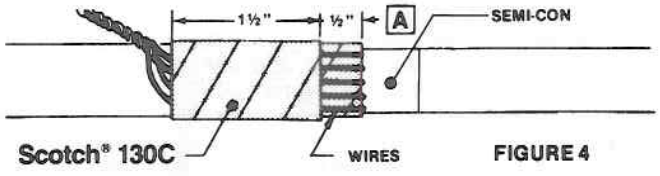

FIGURE 4

6. Clean cable using standard practice.
   a. Use the "SCOTCH" Brand Cable Prep Kit A-2.
   b. DO NOT ALLOW SOLVENT TO TOUCH SEMI-CON MATERIAL.

B. LUG INSTALLATION

1. Install lug following manufacturer's directions.
2. If closed end lug is NOT used, solder block conductor end.

C. APPLY SEMI-CONDUCTING TAPE — #13

1. Fill indents in lug. See Figure 5.
2. Wrap two half-lapped layers of 13 Tape over lug. See Figure 5.

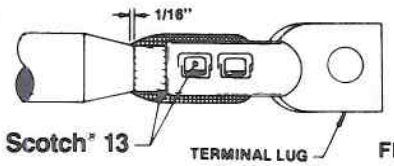

FIGURE 5

3. Wrap two half-lapped layers of 13 Tape 1/2" beyond cable semi-conducting material. Begin and end taping at front end of wire shielding. See Figure 6. HIGHLY ELONGATE 13 TAPE.

D. APPLY STRESS CONTROL TAPE #2220

1. Wrap two half-lapped layers of 2220 Tape over 13 Tape and cable insulation. See Table III and Figure 6 for dimension [C]. STRETCH 2220 TAPE TO 3/4 OF ORIGINAL WIDTH.

VOLTAGE	C
5-8 KV	2"
15 KV	3"

TABLE III

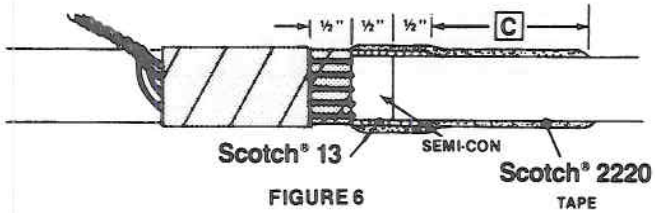

FIGURE 6

E. APPLY HIGH VOLTAGE TAPE #130C WRAP TACKY SIDE OUT AND HIGHLY ELONGATE

1. Tightly half-lap 130C Tape over "pencil" and 13 Tape, extending onto lug or exposed conductor seal. Build up to level of cable insulation.
2. Wrap 130C Tape over entire termination overlapping 130C Tape in "pencil" area. Build up 130C Tape to a thickness of 3/16". See Figure 1.

F. APPLY VINYL TAPE #33+

1. Wrap one half-lapped layer of 33+ Tape over entire termination covering lug or conductor seal and extending 1" onto cable jacket. See Figure 1.

G. APPLY TRACKING PROTECTION — SILICONE TAPE #70

SHORT TERMINATIONS MUST BE OVERWRAPPED WITH 70 TAPE. WRAP 70 TAPE WITH MODERATE TENSION.

1. Connect termination into final position (if possible).
2. Overwrap end seal with at least four layers of 70 Tape.
3. Overwrap ENTIRE termination with at least one half-lapped layer of 70 Tape. See Figure 1.

RIBBON SHIELDED CABLE 5-15 KV FOR STANDARD-LENGTH TERMINATIONS

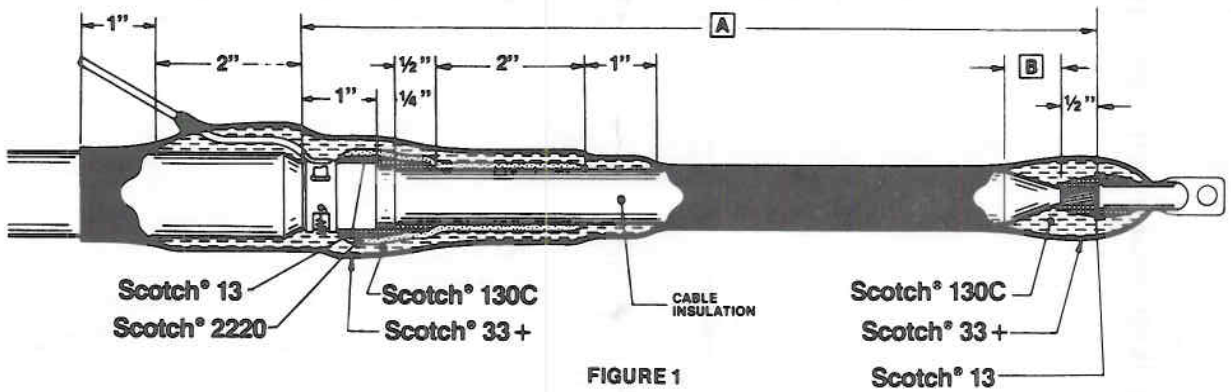

FIGURE 1

A. PREPARE CABLE

1. Buff cable jacket 3" beyond dimension A.
2. Prepare cable according to Figure 2 and Table I.

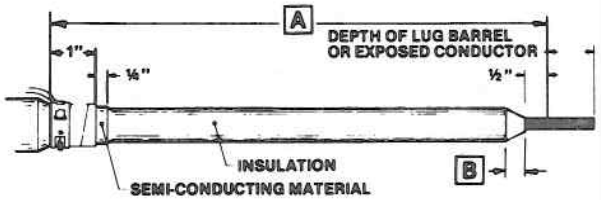

FIGURE 2

VOLTAGE	A	B
5 KV	12-3/4"	1/2"
8 KV	15"	3/4"
15 KV (100-133%)	20"	3/4"

TABLE I

3. Wrap ground strap around cable shielding and butt up against edge of cable jacket. Insert the tongue into the slot and snug up like a belt. Bend the tongue back and cut off excess, as shown in Figure 3.

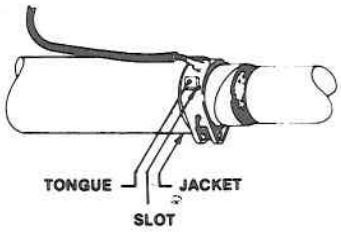

FIGURE 3

4. Clean cable using standard practice.
   a. Use the "SCOTCH" Brand Cable Prep Kit A-2.
   b. DO NOT ALLOW SOLVENT TO TOUCH SEMI-CONDUCTIVE MATERIAL.

B. LUG INSTALLATION

1. Install lug following manufacturer's directions.
2. If closed end lug is NOT used, solder block conductor end.

C. APPLY SEMI-CONDUCTING TAPE — #13

1. Fill indents in lug. See Figure 4.
2. Wrap two half-lapped layers of 13 Tape over lug. See Figure 4.

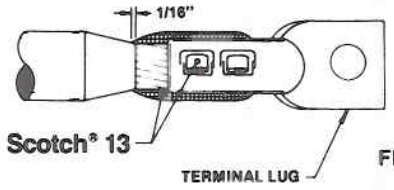

FIGURE 4

3. Wrap two half-lapped layers of 13 Tape 1/2" beyond cable semi-conducting material. Begin and end taping at front edge of ground strap. See Figure 1. HIGHLY ELONGATE 13 TAPE.

D. APPLY STRESS CONTROL TAPE — #2220

1. Wrap two half-lapped layers of 2220 Tape over 13 Tape and 2" beyond 13 Tape on cable insulation. See Figure 1. STRETCH TAPE TO 3/4 OF ORIGINAL WIDTH.

E. APPLY HIGH VOLTAGE TAPE — #130C WRAP TACKY SIDE OUT AND HIGHLY ELONGATE.

1. Tightly wrap four half-lapped layers of 130C Tape over lug or exposed conductor. See Figure 1.
2. Starting at ground strap, wrap one half-lapped layer of 130C Tape over cable jacket for 2".
3. Wrap one half-lapped layer of 130C Tape around first 2" of ground wire and bend wire back along jacket for 1", then bend away.
4. Wrap two half-lapped layers of 130C Tape over cable jacket, 2220 Tape and cable insulation as shown in Figure 1.

F. APPLY VINYL TAPE #33+

1. Wrap one half-lapped layer of 33+ Tape over entire termination covering lug end seal and extending 1" onto cable jacket. See Figure 1.

NOTE: IF TRACKING PROTECTION IS DESIRED, TERMINATIONS MUST BE OVERWRAPPED WITH "SCOTCH" BRAND SILICONE RUBBER TAPE 70. SEE TABLE BELOW FOR AMOUNT OF 70 TAPE REQUIRED. WRAP 70 TAPE WITH MODERATE TENSION.

KIT	NO. OF ROLLS
5701	2
5702	3

1. Connect termination in final position (if possible).
2. Overwrap end seal with at least four layers of 70 Tape.
3. Overwrap entire termination with at least one half-lapped layer of 70 Tape.

UNISHIELD® CABLE — 5-15 KV
INSTRUCTIONS FOR MAKING A SHORT TERMINATION FOR INDOOR (WEATHER PROTECTED) CONFINED AREAS.

NOTE: ADDITIONAL TAPES ARE REQUIRED TO MAKE A SHORT TERMINATION. SEE TABLE I BELOW.

Kit No.	Voltage KV	Conductor Size Range	130C (Rolls)	70 (Rolls)
5701	5	8 — 4 AWG	0	1
		2 AWG — 2/0	1	1
		3/0 — 600 kcmil	1	2
	8	6 — 2 AWG	1	1
		1 AWG — 250 kcmil	1	2
	15 (100%)	4 AWG — 2/0	1	2
5702	5, 8 & 15 (100%)	650-1000 kcmil	1	2
	15 (133%)	1 AWG — 750 kcmil	1	2
		800-1000 kcmil	2	2

TABLE I

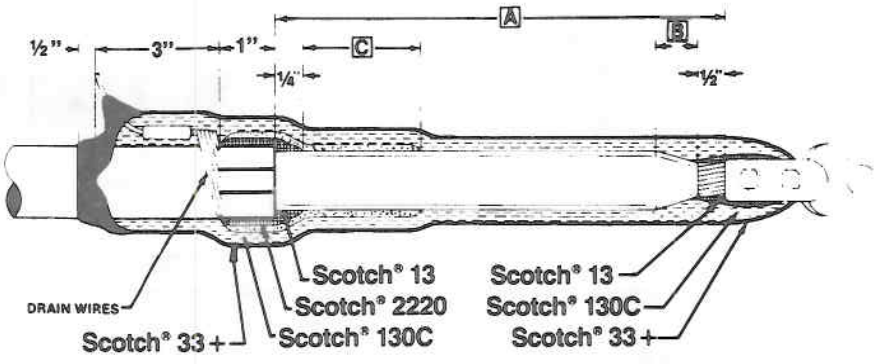

FIGURE 1

A. PREPARE CABLE

1. Prepare cable according to Figure 2 and Table II.
2. Pull back drain wires to dimension as shown in Figure 2.

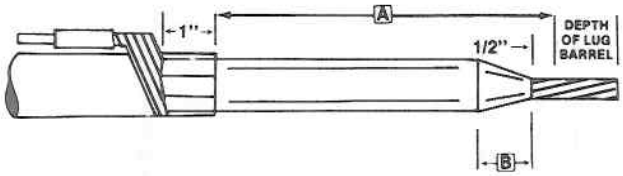

FIGURE 2

VOLTAGE	A	B
5 KV	4-1/2"	1/2"
8 KV	4-1/2"	1/2"
15 KV (100-133%)	5-1/2"	3/4"

TABLE II

3. Install a hose clamp. Ring cut 80% through cable jacket at leading edge of hose clamp and remove jacket. See Figure 3.
4. Twist drain wires together to form a pigtail. Connect to a #6 AWG (minimum) solid copper ground wire. See Figure 3.

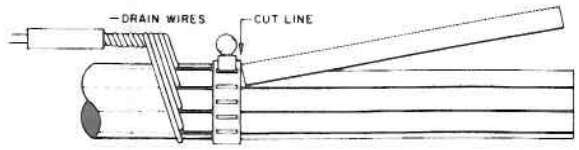

FIGURE 3

5. Clean cable using standard practice.
   a. Use "SCOTCH" Brand Cable Prep Kit A-2. Use the solvent and abrasive cloth on cable insulation only. DO NOT USE SOLVENT OR ABRASIVE CLOTH ON CABLE SEMI-CONDUCTING JACKET.

B. LUG INSTALLATION

1. Install lug using manufacturer's directions.
2. If closed end lug is NOT used, solder block conductor end.

C. APPLY SEMI-CONDUCTING TAPE — #13 HIGHLY ELONGATE 13 TAPE.

1. Fill indents in lug. See Figure 4.
2. Wrap two half-lapped layers of 13 Tape over lug. See Figure 4.

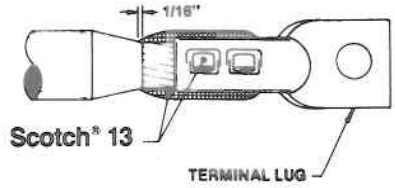

FIGURE 4

3. Wrap two half-lapped layers of 13 Tape 1" on the cable jacket to 1/4" onto cable insulation. See Figure 1.

D. APPLY STRESS CONTROL TAPE — #2220

1. Wrap two half-lapped layers of 2220 Tape over 13 Tape and cable insulation to dimension C . See Figure 1 and Table III for dimension C . STRETCH 2220 TAPE TO 3/4 OF ORIGINAL WIDTH.

VOLTAGE	C
5-8 KV	2"
15 KV	3"

TABLE III

E. APPLY HIGH VOLTAGE TAPE — #130C WRAP TACKY SIDE OUT AND HIGHLY ELONGATE.

1. Tightly half-lap 130C Tape over pencil and 13 Tape, extending onto lug or exposed conductor seal. Build up to level of cable insulation.
2. Starting at the drain wire pull out, wrap two half-lapped layers of 130C Tape over cable jacket for 3".
3. Wrap one half-lapped layer of 130C Tape around the pigtail connector on drain wire, and bend wires back along jacket for 2" and then bend away.
4. Wrap 130C Tape over entire termination overlapping 130C Tape in pencil area. Build up 130C Tape to a thickness of 3/16". See Figure 1.

F. APPLY VINYL TAPE — #33+

1. Wrap one half-lapped layer of 33+ Tape over entire termination covering lug on conductor seal and extending 1/2" onto cable jacket. See Figure 1.

G. APPLY TRACKING PROTECTION SILICONE RUBBER — 70 TAPE. SHORT TERMINATIONS MUST BE OVERWRAPPED WITH 70 TAPE. WRAP 70 TAPE WITH MODERATE TENSION.

1. Connect termination into final position (if possible).
2. Overwrap end seal with at least four layers of 70 Tape.
3. Overwrap ENTIRE termination with at least one half-lapped layer of 70 Tape. See Figure 1.

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CONCENTRIC NEUTRAL (URD) CABLE 5-15 KV FOR STANDARD-LENGTH TERMINATIONS

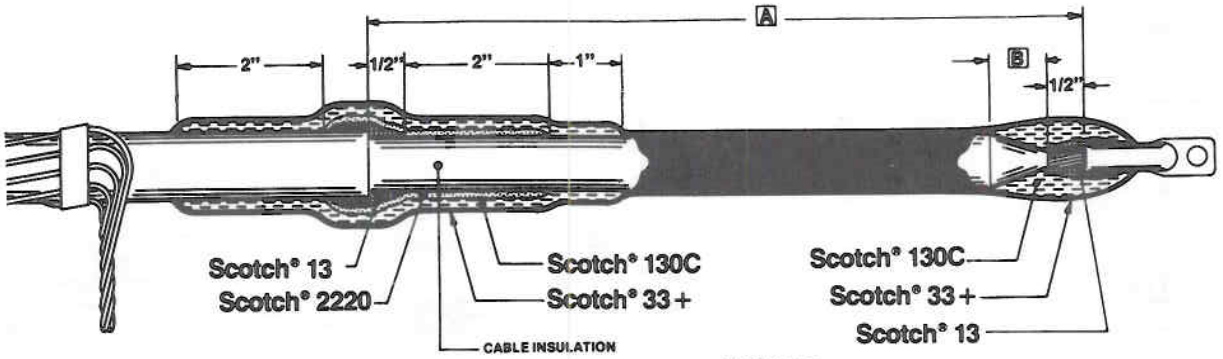

FIGURE 1

A. PREPARE CABLE

1. Allow sufficient length of concentric wires for ground procedures.
2. Bind concentric wires in place 4" beyond dimension [A].
3. Prepare cable according to Figure 2 and Table I.

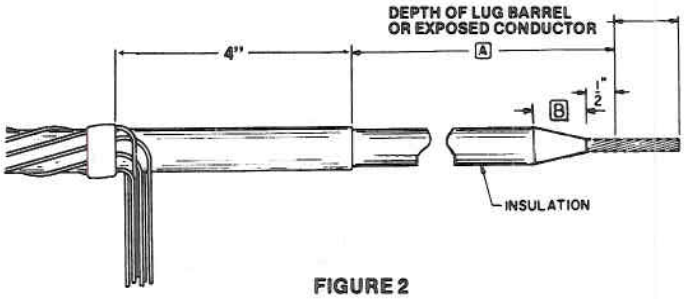

FIGURE 2

VOLTAGE	A	B
5 KV	11-1/4"	1/2"
8 KV	13-1/2"	3/4"
15 KV (100-133%)	18-1/2"	3/4"

TABLE I

4. Clean cable using standard practice.
   a. Use the "SCOTCH" Brand Cable Prep Kit A-2. Use the solvent and abrasive cloth on the cable insulation only. DO NOT USE SOLVENT OR ABRASIVE CLOTH ON CABLE SEMI-CONDUCTING JACKET.

B. LUG INSTALLATION

1. Install lug following manufacturer's directions.
2. If closed end lug is NOT used, solder block conductor end.

C. APPLY SEMI-CONDUCTING TAPE — #13 HIGHLY ELONGATE 13 TAPE.

1. Fill indents in lug. See Figure 3.
2. Wrap two half-lapped layers of 13 Tape over lug. See Figure 3.

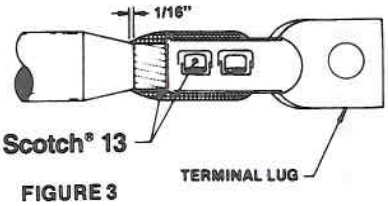

FIGURE 3

3. Wrap two half-lapped layers of 13 Tape 1" on the cable jacket to 1/2" onto cable insulation. See Figure 1.

D. APPLY STRESS CONTROL TAPE — #2220

1. Wrap two half-lapped layers of 2220 Tape over 13 Tape and 2" beyond 13 Tape on cable insulation. See Figure 1. STRETCH 2220 TAPE TO 3/4 OF ORIGINAL WIDTH.

E. APPLY HIGH VOLTAGE TAPE — #130C. WRAP TACKY SIDE OUT AND HIGHLY ELONGATE.

1. Tightly wrap four half-lapped layers of 130C Tape over lug or exposed conductor. See Figure 1.
2. Wrap two half-lapped layers of 130C Tape over cable jacket, 2220 Tape and cable insulation as shown in Figure 1.

F. APPLY VINYL TAPE — #33+

1. Wrap one half-lapped layer of 33+ Tape over entire termination covering lug end seal and extending 1/2" onto cable jacket. See Figure 1.

NOTE: IF TRACKING PROTECTION IS DESIRED, TERMINATIONS MUST BE OVERWRAPPED WITH "SCOTCH" BRAND SILICONE RUBBER TAPE 70. SEE TABLE BELOW FOR AMOUNT OF 70 TAPE REQUIRED. WRAP 70 TAPE WITH MODERATE TENSION.

KIT •	NO. OF ROLLS
5701	2
5702	3

1. Connect termination in final position (if possible).
2. Overwrap end seal with at least four layers of 70 Tape.
3. Overwrap entire termination with at least one half-lapped layer of 70 Tape.

CONCENTRIC NEUTRAL (URD) CABLE 5-15 KV INSTRUCTIONS FOR MAKING A SHORT TERMINATION FOR INDOOR (WEATHER PROTECTED) CONFINED AREAS.

NOTE: ADDITIONAL TAPES ARE REQUIRED TO MAKE A SHORT TERMINATION. SEE TABLE I BELOW.

Kit No.	Voltage KV	Conductor Size Range	130C (Rolls)	70 (Rolls)
5701	5	8 — 4 AWG	0	1
		2 AWG — 2/0	1	1
		3/0 — 600 kcmil	1	2
	8	6 — 2 AWG	1	1
		1 AWG — 250 kcmil	1	2
	15 (100%)	4 AWG — 2/0	1	2
5702	5, 8 & 15 (100%)	650-1000 kcmil	1	2
	15 (133%)	1 AWG — 750 kcmil	1	2
		800-1000 kcmil	2	2

TABLE I

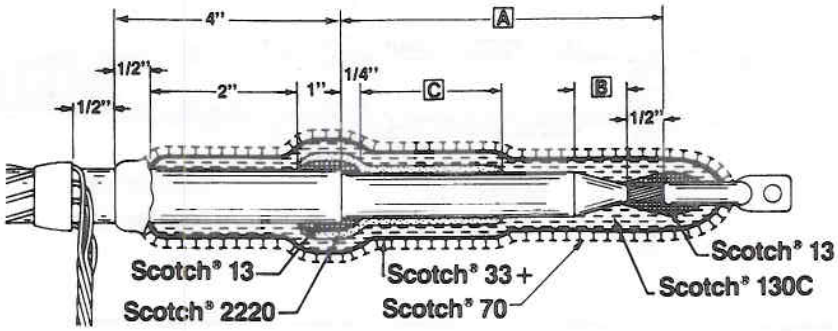

FIGURE 1

A. PREPARE CABLE

1. Allow sufficient length of concentric wires for ground procedure.
2. Bind concentric wires in place 4" beyond dimension A .
3. Prepare cable according to Figure 2 and Table II.

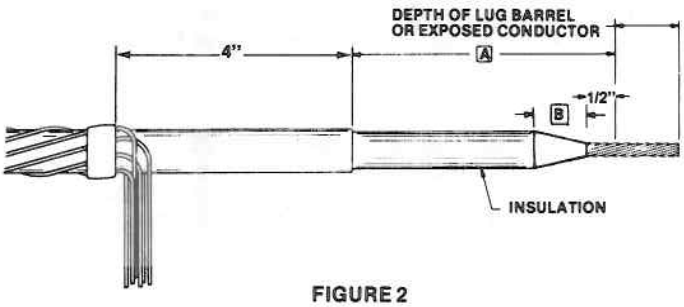

FIGURE 2

VOLTAGE	A	B
5 KV	4-1/2"	1/2"
8 KV	4-1/2"	1/2"
15 KV (100-133%)	5-1/2"	3/4"

TABLE II

4. Clean cable using standard practice.
   a. Use the "SCOTCH" Brand Cable Prep Kit A-2. Use the solvent and abrasive cloth on the cable insulation only. DO NOT USE SOLVENT OR ABRASIVE CLOTH ON CABLE SEMI-CONDUCTING JACKET.

B. LUG INSTALLATION

1. Install lug according to manufacturer's directions.
2. If closed end lug is NOT used, solder block conductor end.

C. APPLY SEMI-CONDUCTING TAPE — #13. HIGHLY ELONGATE 13 TAPE.

1. Fill indents in lug. See Figure 3.
2. Wrap two half-lapped layers of 13 Tape over lug. See Figure 3.

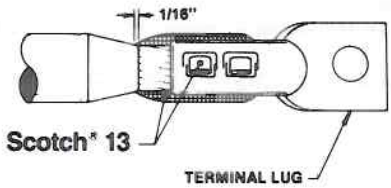

FIGURE 3

3. Wrap two half-lapped layers of 13 Tape 1" on cable jacket to 1/4" onto cable insulation. See Figure 1.

D. APPLY STRESS CONTROL TAPE — #2220

1. Wrap two half-lapped layers of 2220 Tape over 13 Tape and cable insulation to dimension C . See Figure 1 and Table III for dimension C . STRETCH 2220 TAPE TO 3/4 OF ORIGINAL WIDTH.

VOLTAGE	C
5-8 KV	2"
15 KV	3"

TABLE III

E. APPLY HIGH VOLTAGE TAPE — #130C. WRAP TACKY SIDE OUT AND HIGHLY ELONGATE.

1. Tightly half-lap 130C Tape over pencil and 13 Tape, extending onto lug or exposed conductor seal. Build up to level of cable insulation.
2. Wrap 130C Tape over entire termination overlapping 130C Tape in pencil area. Build up 130C Tape to a thickness of 3/16". See Figure 1.

F. APPLY VINYL TAPE — #33+

1. Wrap one half-lapped layer of 33+ Tape over entire termination covering lug or conductor seal and extending 1/2" onto cable jacket. See Figure 1.

G. APPLY TRACKING PROTECTION SILICONE RUBBER — 70 TAPE. SHORT TERMINATIONS MUST BE OVERWRAPPED WITH 70 TAPE. WRAP 70 TAPE WITH MODERATE TENSION.

1. Connect termination into final position (if possible).
2. Overwrap end seal with at least four layers of 70 Tape.
3. Overwrap ENTIRE termination with at least one half-lapped layer of 70 Tape. See Figure 1.