

UNDERGROUND CABLE

PULLING CABLE INTO SUBSIDIARY DUCTS

1. GENERAL

1.01 This section covers, in general, the method of placing cable in subsidiary conduit and installing U cable guards on poles and walls.

1.02 This section is reissued to delete reference to 2-4, 3-4, and 4-4 sizes of cast iron caps which have been rated "Manufacture Discontinued". These sizes of cast iron caps are replaced by G plastic caps which are available in the same sizes. In addition, reference is made to the E plastic bends which with the E split plastic extensions replace the cast iron bends, the B split cast iron bend, and the B split cast iron extension.

1.03 The arrangement of the pulling equipment at the manhole is covered in Section 628-200-208.

1.04 When the Champion Duct Rodder is used to rod subsidiary duct, consideration should be given to rodding and pulling the cable in one operation. The Champion Duct Rodder is covered in Section 649-321-100.

2. PRECAUTIONS

2.01 Before starting any underground cable placing operation all personnel must be thoroughly familiar with the 620 Division of the Bell System Practices. The sections covering the following operations should be given special emphasis.

- (a) Guarding and protecting work areas
- (b) Testing and ventilating manholes
- (c) Precautions pertaining to smoking or use of open flames in or around manholes
- (d) Removing and replacing manhole covers
- (e) Signals used in outside plant construction work.

3. PLACING CABLE

3.01 Place a duct shoe or LG-345 Leadergard in the duct to prevent damage to the cable sheath.

**Reprinted to comply with modified final judgment.

3.02 To develop the minimum pulling load against the bend, position the cable reel trailer (or cable reeljacks) containing the cable reel at the end of the duct closest to the bend. Usually this will be at the pole or wall. Feed the cable off

the reel into the duct in a long smooth curve (Fig. 1). Pull the cable into the duct, leaving sufficient cable in the manhole and at the pole or wall for the splicing operation.

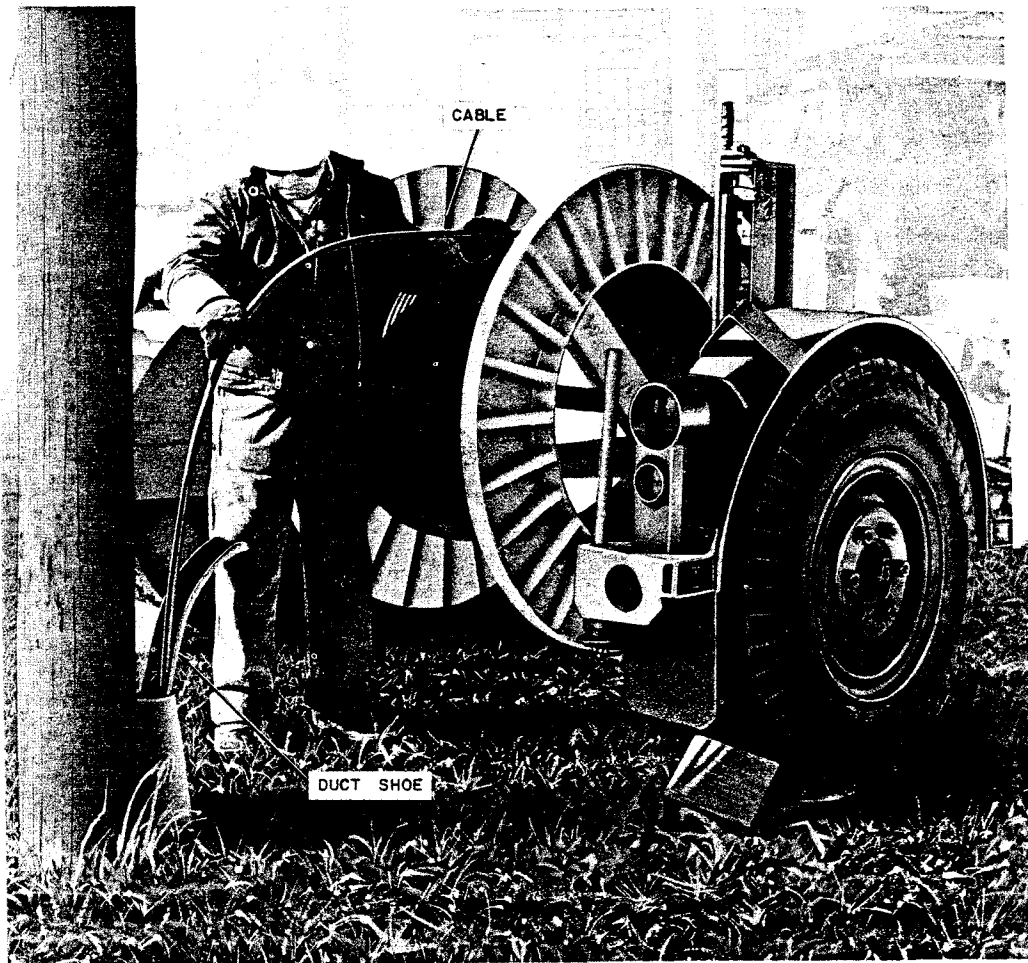


Fig. 1—Cable Reel Trailer Positioned At Pole

3.03 Where the pull cannot be made from the manhole, it can be made from the pole as illustrated in Fig. 2. At building walls, the pole derrick can be used to pull the cable.

3.04 When the winch line from the truck cannot be used to pull the cable, a block and tackle (Section 081-510-203) or chain hoist (Section 081-500-101) can be used.

3.05 Lubricate the cable under the following conditions:

- (a) When the subsidiary duct is 150 or more feet long,
- (b) When the bends in the subsidiary duct total 180 degrees or more,
- (c) When the cable pull must be made by hand (see 3.04).

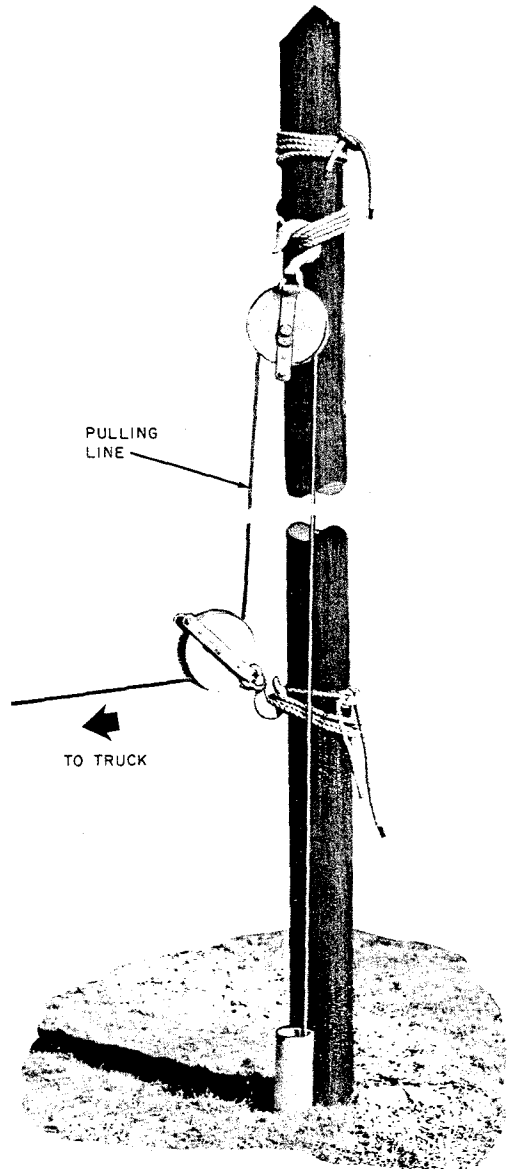


Fig. 2—Cable Pulled From Pole

4. PLACING U CABLE GUARD

4.01 U cable guards and cast iron or G plastic caps are used to provide mechanical protection for cable placed on poles or building walls. Refer

to Fig. 3 and Table A for information concerning U cable guards. The relationship among conduit sizes, cast iron or G plastic caps, U cable guards, and cable sizes is shown in Table B.

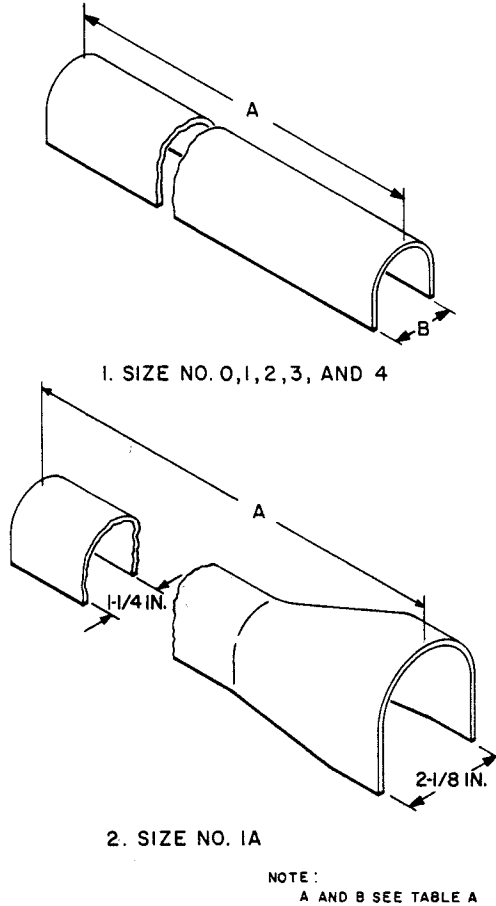


Fig. 3—U Cable Guard

TABLE A

U CABLE GUARDS, STRAPS, AND MATERIAL REQUIRED FOR INSTALLING U CABLE GUARDS

SIZE NO.	LENGTH (FEET) (A)	INSIDE DIAMETER (INCHES) (B)	U CABLE GUARD STRAP SIZE NO.	DRIVE SCREW FOR USE ON POLES (INCHES)	HAMMER DRIVE ANCHOR FOR USE ON SOLID MASONRY (INCHES)	TOGGLE BOLTS FOR USE ON HOLLOW MASONRY (INCHES)
0*	5 or 8	3/4	0	1/4 × 2-1/2	1/4 × 1	1/4 × 4
1*	5 or 8	1-1/8	1	1/4 × 2-1/2	1/4 × 1	1/4 × 4
1A	5 or 8	1-1/4	1A	1/4 × 2-1/2	1/4 × 1-1/4	1/4 × 4
2	5 or 8	2-3/16	2	1/4 × 2-1/2	1/4 × 1-1/4	1/4 × 4
3	5 or 8	3-3/16	3	5/16 × 3	5/16 × 1-1/4	1/4 × 4
4	8	3-11/16	4	5/16 × 3	5/16 × 1-1/4	1/4 × 4

* Sizes 0 and 1 cannot be used with cast iron or G plastic caps.

TABLE B

CAST IRON CAPS, G PLASTIC CAPS,
U CABLE GUARD SIZES, AND CABLE DIAMETERS

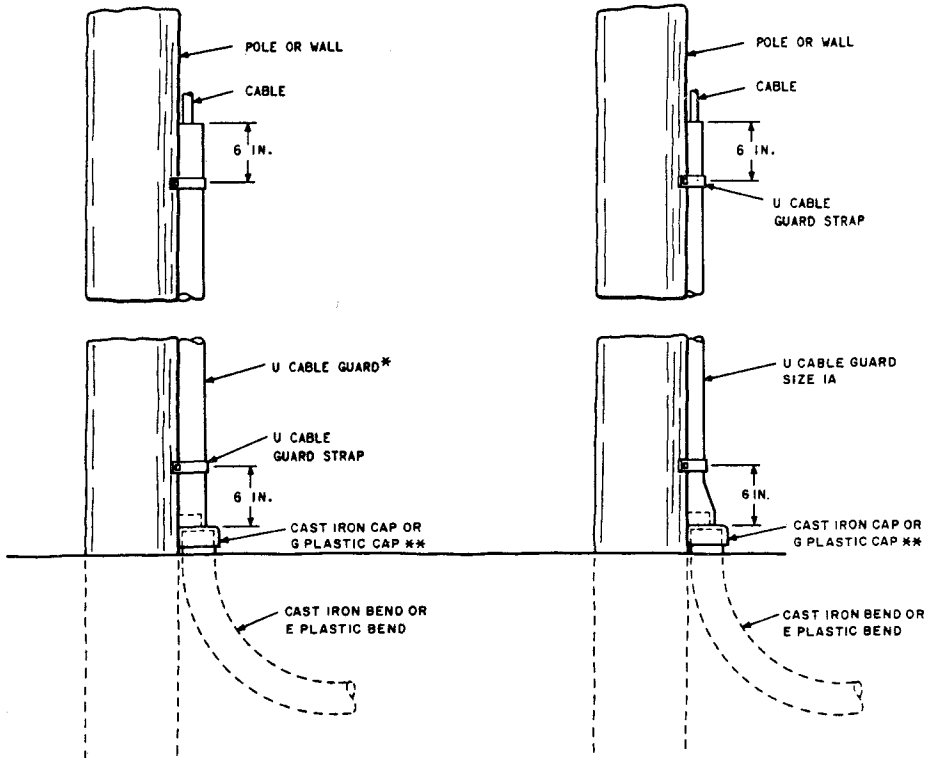
CAST IRON CAP SIZE (NOTE)	G PLASTIC CAP SIZE (NOTE)	USED WITH	CABLE DIAMETERS UP TO AND INCLUDING
2-2	X	2-in. Conduit and No. 1A U Guard	1-1/8 in.
2-3-1/2		2-in. Conduit and No. 2 U Guard	1-5/8 in.
3-3-1/2		3-1/2 in. Conduit and No. 2 U Guard	1-5/8 in.
X	2-4	3-1/2 in. Conduit and No. 3 U Guard	2-5/8 in.
	3-4	4-in. Conduit and No. 2 U Guard	1-5/8 in.
	4-4	4-in. Conduit and No. 3 U Guard	2-5/8 in.
		4-in. Conduit and No. 4 U Guard	3-1/8 in.

Note: The first number of the size designation gives the associated U-guard number, the second number gives the conduit size.

4.02 Before placing the U cable guard, secure the cable to the pole or wall with cable straps, except for the length of cable that will be covered by the cable guard. Place the U cable guard as illustrated in Fig. 4. The material required to attach the U cable guard to the pole or wall is listed in Table A.

4.03 Normally, use an 8-foot U cable guard on a pole and a 5-foot U cable guard on a wall.

When it is necessary to provide mechanical protection for a height greater than that covered by one U cable guard, a second U cable guard can be placed, overlapping the first U cable guard for a distance of about 5 inches. Place U cable guard straps 6 inches from the top and bottom of the second U cable guard and 6 inches from the bottom of the first U cable guard.



* U CABLE GUARD
 SIZE - 2, 3 OR 4
 ** SOLVENT WELD THIS JOINT WHEN G
 PLASTIC CAP IS USED WITH PLASTIC BEND.

Fig. 4—U Cable Guards Installations