DROP, BLOCK, AND CROSS-CONNECT WIRING

INSULATED WIRE

CONTENTS PAGE

1. GENERAL

1.01 This section covers the description, selection, use, and handling of insulated parallel and twisted form wire used in drop and block wiring. It also includes the type of wire used for cross-connecting terminals.

1.02 This section is reissued to revise information on E block wire and to add information on F drop wire which replaces C drop wire. Single- and triple-sizes of E block wire are deleted and a 2-pair size is added along with a revised method of pair identification. E block wire is packaged in a wire dispensing carton which replaces coils and bundles.

2. DESCRIPTION OF WIRE

2.01 ▶***F drop wire*** consists of a parallel pair of two copper-covered steel conductors 0.0380-inch in diameter that are insulated with a single layer of black vinyl plastic compound. The insulation is slotted on both sides. A single ridge tracer is provided on the insulation surface for conductor identification (Fig. 1).◀

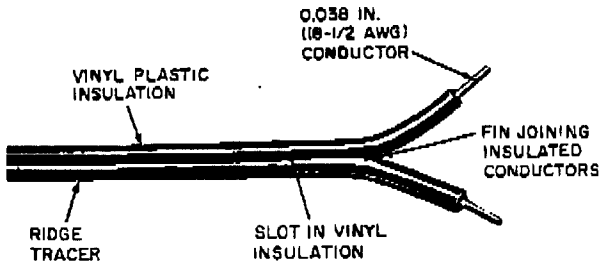

Fig. 1—▶F Drop Wire◀

2.02 ***E block wire*** is furnished in 1-pair and 2-pair sizes (Fig. 2). It consists of 0.027-inch annealed copper covered steel conductors individually dual insulated with a distinctively colored inner layer and a black outer layer of vinyl plastic compound. Conductor and pair identification are provided by the colored inner layer (see Table A). The 1-pair size is furnished as a twisted pair and the 2-pair size in a spiral four construction.

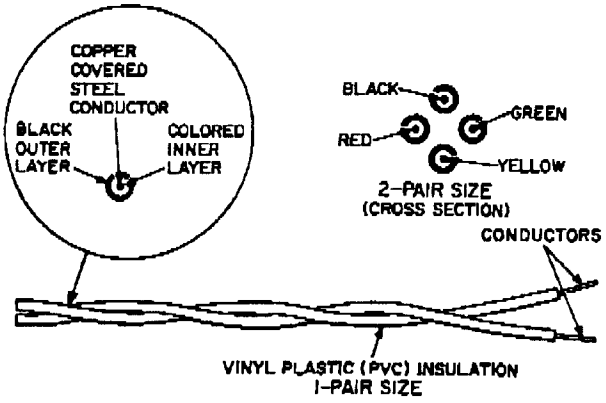

Fig. 2—E Block Wire

TABLE A

SELECTION AND USE OF WIRE FOR DROP AND BLOCK WIRING AND FOR CROSS-CONNECTING TERMINALS

	TYPE OF WIRE	GAUGE	NO. OF CONDUCTORS	CONDUCTOR AND PAIR IDENTIFICATION			PRINCIPAL USE
PARALLEL	F Drop Wire	18-1/2	1-Pair	Single ridge on vinyl plastic insulation adjacent to one conductor.			Subscriber loop runs between poles and from pole to house. Not to exceed 500 feet. [1]
TWISTED	E Block Wire	21-1/2		PAIR NO.	RING	TIP	Block distribution and in ring wiring on buildings.
			1-Pair	–	Red	Green	Spans between buildings. [2]
			2-Pair	1	Yellow	Black	Bridling between open wire, C rural, or 19-gauge multiple line wire and drop wire when 123A1A protector is used at station.
				2	Red	Green	
	F Cross-Connecting Wire [3]	24	1-Pair	–	Blue-Yellow	Yellow-Blue	For cross-connections between incoming cables and station equipment inside buildings and at serving area connectors (SAC).
			2-Pair	1	Blue-Red	Red-Blue	
				2	Orange-Red	Red-Orange	
			3-Pair	1	Blue-White	White-Blue	
				2	Orange-White	White-Orange	
				3	Green-White	White-Green	
			Triple [4] (3 Conductors)		Blue-Black	Orange-Black	
	G Cross-Connecting Wire	22	Single or Pair	White conductor and/or Violet conductor			For cross-connections in outdoor terminals, primarily aerial type cross connecting terminals.

Note 1: Due to transmission limitations F drop wire should not be used for runs exceeding 500 feet in length. In these cases C rural wire or equivalent should be used between poles and F drop wire from pole to house.

Note 2: Not in excess of 35 feet in length supported in drop wire clamps. In spans longer than 35 feet, string drop wire (see Section 462-350-214).

Note 3: Color code consists of colored insulation with colored ink dots.

Note 4: Triple conductor F cross-connecting wire has green-black insulation on sleeve conductor.

2.03 ***F cross-connecting wire*** (Fig. 3) has a single layer of vinyl plastic insulation and is intended for either indoor or outdoor cross-connecting terminals. It is available in 1-pair, 2-pair, 3-pair, and triple size. The 3-pair size allows the wiring of six button key sets and other installations requiring six conductors.

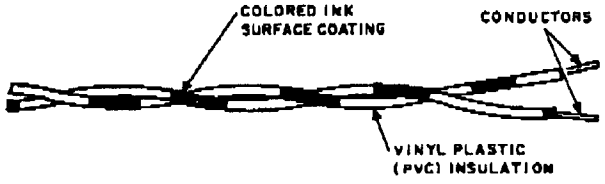

Fig. 3—F Cross Connecting Wire (One-Pair Size)

2.04 ***G cross-connecting wire*** has two layers of thermoplastic insulation and is intended for cross connections in outdoor aerial terminals. Because of its limited fire retarding properties, ***G cross-connecting wire shall not be used for indoor applications.***

3. SELECTION AND USE OF WIRE

3.01 Table A lists the type of wire, gauge, number of conductors, conductor identification, and the principal use of parallel and twisted wire for drop and block wiring and for cross-connecting terminals.

4. HANDLING OF WIRE

4.01 Exercise care to protect wire from injury. When transporting in vehicles, see that the wire is not subjected to injury by tools or other equipment. It is usually preferable to run wire from the outside of a coil. When uncoiling wire, do not allow kinks to develop. If a kink does develop to the extent of deforming the wire, it should be cut out.

4.02 When unwinding twisted wire, such as G cross-connecting wire without the aid of a drop wire reel, kinks and spirals can be avoided by reversing the coil every five or six turns.

4.03 Where parallel wire is unwound from a coil without the aid of a reel, the required twists will be obtained in the normal unwinding of the wire and it will be unnecessary to purposely introduce twists into the wire. Unless the coil is reversed or rotated, a twist will be introduced for each turn in the coil. If the wire tends to kink, the coil should be reversed and a sufficient number of turns taken off the reversed coil to reduce this tendency.

4.04 When running parallel wire along a pole line or from pole to building, it is desirable that at least three twists be present in each span of wire. Where the wire is run from a reel for a distance of more than four pole sections, throw at least three twists into the wire at alternate poles as follows:

(1) Attach the wire at the end of the run (call this pole, pole No. 1).

(2) At the next pole from the end of the run (pole No. 2), turn the wire over three times before making the attachment.

(3) At the fourth and other even-numbered poles, proceed as on the second pole.

It is not necessary to twist the wire at the odd-numbered poles. However, the wire should be attached to each pole in numerical order.

5. DROP WIRE REEL

5.01 ***The C drop wire reel*** is available to facilitate the installation and recovery of drop wire. This reel will accommodate coils of wire having an inside diameter of approximately 15 inches, such as the standard coils of drop wire. If it is desired to use a drop wire reel for paying out a coil of wire, other than drop wire, having inside diameters other than 15 inches, it will be necessary either to wind the wire on the reel from the coil or to recoil the wire so the diameter of the coil will be between 15 and 16 inches and its thickness about 4 inches. Wire which is recoiled for use on a drop wire reel shall be of such length that its weight will not exceed approximately 50 pounds.

5.02 See Sections 462-400-205, and 462-400-206 on use of the drop wire reel when stringing drop wire, and Sections 462-800-311 and 462-800-312 on lowering and replacing drop wire.

5.03 ***The C drop wire reel*** is shown in Fig. 4.

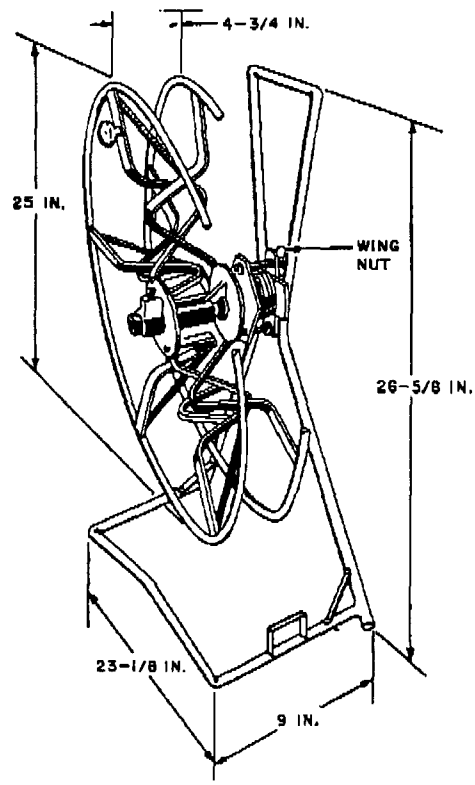

Fig. 4—C Drop Wire Reel

Note: The C drop wire reel has been improved by eliminating the overhang at the outer end of the flange rings and by changing the brake adjusting assembly so that the wing nut faces the rear of the frame. A handle has also been added to the base of the frame.

5.04 The drop wire reel can be used either in the vertical or horizontal position. Facilities are provided for carrying it on various truck bodies from which position the wire may be uncoiled or coiled if this can be done with safety.

5.05 A coil of new drop wire can be placed on a drop wire reel best when the reel is in the horizontal position. Hold out the locking pin and remove the outer flange. Place the coil of wire on the inner flange and replace the outer flange, engaging the locking pin in the inner hole. The outer hole is provided for use only when equipping the reel with wire which has been coiled on the reel in the field.

5.06 ***The drop wire reel*** is equipped with an adjustable brake which can be tightened to prevent overrunning of the reel and to reduce slack when paying out wire. The brake should be released entirely when reeling in wire.

5.07 When reeling in wire with the reel removed from the motor vehicle, it is usually more convenient to use the reel in the vertical position, steadying it with one foot on the base. The locking pin should be engaged in the inner hole when recovering wire.

5.08 The bearing between the spindle and the sleeve should be lubricated occasionally through the oil hole in the outer flange and the lubricant should be placed as necessary on the outer surface of the sleeve to facilitate removing and replacing the outer flange. Any of the commonly used automobile engine oils are satisfactory for these purposes.

6. WIRE RAISING TOOL

6.01 A tool such as the wire raising tool may be used to advantage in threading drop wire through trees.

7. PREPARING DROP WIRE ENDS FOR SPLICING OR TERMINATING

Caution: Avoid nicking conductors when removing insulation.

7.01 ▸Prepare F drop wire for splicing or terminating as follows:

Note: C drop wire is deleted from this issue, but may be prepared in a similar manner.

(1) Hold the drop wire with the ridge tracer turned to one side. Slide wire halfway into jaws of diagonal pliers and cut insulation web. Repeat as required (Fig. 5).

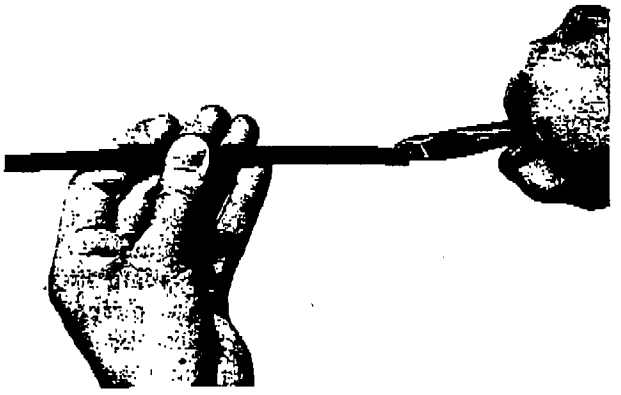

Fig. 5—Cutting Insulation Web

(2) Using diagonal pliers, nick insulation circumferentially 3/8-inch from end (Fig. 6). ***Caution should be observed to avoid nicking or cutting through a conductor.***

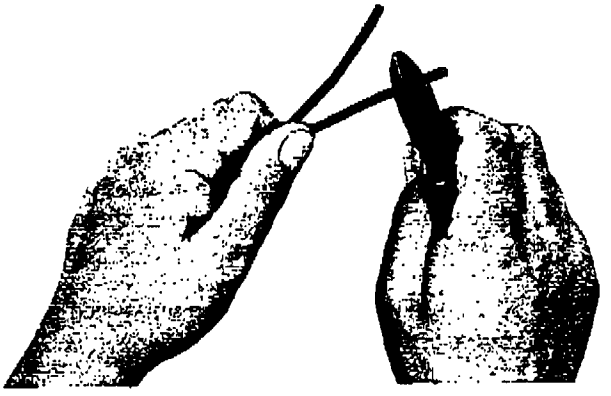

Fig. 6—Nicking Insulation

(3) Crush the 3/8-inch length of insulation between the handles of the diagonal pliers (Fig. 7).

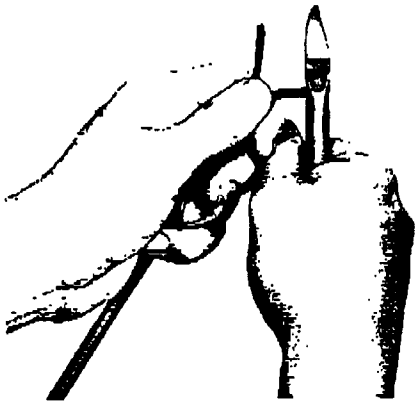

Fig. 7—Crushing Insulation

Fig. 8—Removing Insulation

(4) Twist off crushed insulation with the diagonal pliers or with thumb and forefinger (Fig. 8). Repeat steps (2) through (4) as required. Clean conductors with diagonal pliers exercising care not to expose the underlying steel core.

7.02 For splicing drop wires refer to pressed sleeve splices in Section 462-200-200.

7.03 To terminate drop wires on binding post, loosen nut of binding post sufficient to allow skinned conductor to be looped between washers. Wrap conductor one loop clockwise around binding post between washers and tighten nut. For other terminations refer to wiring sections in the 462 Division of the Bell System Practices.