

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

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DROP AND BLOCK WIRING
INSULATED WIRE

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1. GENERAL

1.01 This section is reissued to cover the current standard types of insulated wire and to delete certain wires now rated "Manufacture Discontinued."

1.02 This section covers the selection, description, and handling of insulated parallel and twisted paired wire used in drop and block wiring and in cross-connection wiring at terminals.

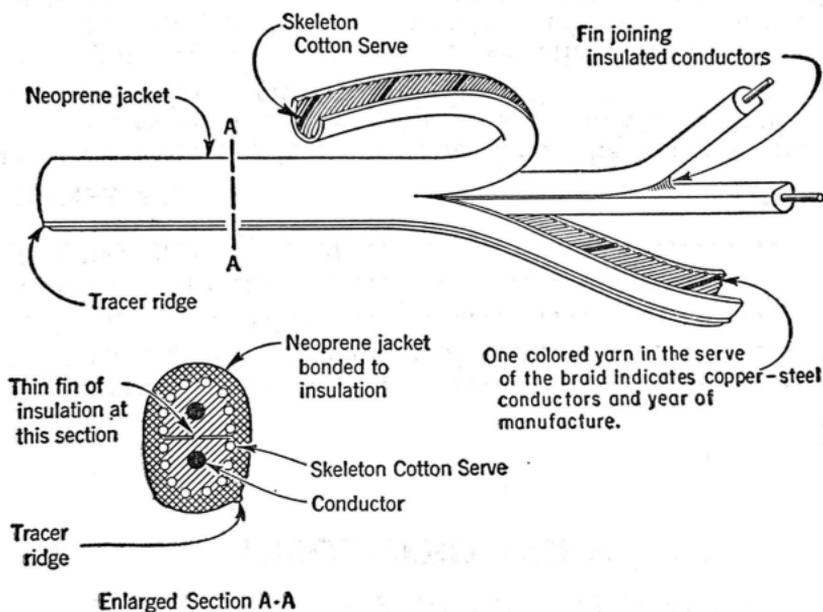
2. SELECTION AND DESCRIPTION OF WIRE

2.01 **C Drop Wire** is the standard drop wire used in running subscriber loops between poles and from pole to house. It is a parallel-type wire consisting of two copper-steel conductors of .038-inch diameter which are insulated with rubber compound and joined with a thin fin. The insulated pair is covered with a serve of cotton yarn and a neoprene jacket. The tracer conductor is provided with one ridge molded on the outside neoprene jacket of the wire. **This wire is identified by a single colored yarn included in the cotton serve and a single ridge on the jacket.** The colored yarn is a dating marker which shows the year of manufacture as follows:

<u>Year</u>	<u>Color of Dating Marker</u>	<u>Year</u>	<u>Color of Dating Marker</u>
1955	Yellow	1960	Green-White
1956	Black	1961	Green
1957	Red	1962	Brown
1958	Red-White	1963	Black-White
1959	Orange	1964	Blue

The copper-steel conductor used in C Drop Wire is made by electroplating a copper coating of desired thickness directly on steel core wire. This method makes possible a uniform thickness of copper coating on the steel core and a higher strength wire than the NP Wire. The detail construction of C Drop Wire is shown in the following illustration.

C DROP WIRE



2.02 **The NP Drop Wire preceded C Drop Wire.** It is similar in construction to the C Wire except for the lower strength copper-steel conductor which is made by hot welding processes instead of electroplating. **This wire is identified by two colored yarns in the braid under the neoprene jacket and twin ridges on the outside of the jacket.**

2.03 **D Block Wire** is the current standard twisted wire for use in interior block wiring in rings attached to buildings. It has two .027-inch annealed electroplated copper-steel conductors, each insulated with a rubber compound over which is a neoprene jacket. The wire is furnished in single, pair, and triple forms. **Ridges on the jacket provide conductor identification.** Single wire has two such ridges; in pair wire, one conductor has a single ridge; in triple wire, one conductor has a single ridge and another has two ridges. This wire is suitable for stringing between buildings in spans up to 35 feet in length with drop wire clamps as supports. In spans longer than 35 feet, string drop wire instead of block wire.

2.04 **HD Wire** is the current standard twisted pair wire intended primarily for emergency restoration of telephone service on damaged open wire lines. It consists of two No. 14 AWG hard-drawn copper conductors each insulated with a rubber compound and covered with a neoprene jacket. **The jacket on one conductor of the pair bears two longitudinal-ridges as a tracer.** Other uses for this wire are:

- (a) Bridling open wire circuits into cable terminals, wire terminals and protector mountings.
- (b) Drops to toll stations.
- (c) As long drops when drop wire is not suitable because of transmission.
- (d) As bridling over highways between main and spur open wire lines.

When there is a surplus emergency stock of HD Wire on hand, it may be desirable to dispose of it by substituting for drop wire.

2.05 **B Cross-connecting Wire** is the current standard for use in inside and outside cross-connecting cable terminals. It consists of two twisted No. 22 AWG soft copper conductors each insulated with colored polyvinyl chloride compound. **One conductor is colored red and the other black to facilitate the running and tracing of connections.**

3. HANDLING OF WIRE

3.01 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.

3.02 In unwinding twisted paired wire, such as D Block Wire and HD Wire, without the aid of a drop wire reel, kinks and spirals can be avoided by reversing the coil every five or six turns.

3.03 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.

3.04 In 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:

- (a) Attach the wire at the end of the run (call this pole, pole No. 1).
- (b) At the next pole from the end of the run (pole No. 2) turn the wire over three times before making the attachment.
- (c) At the fourth and other even-numbered poles proceed as on the second pole.

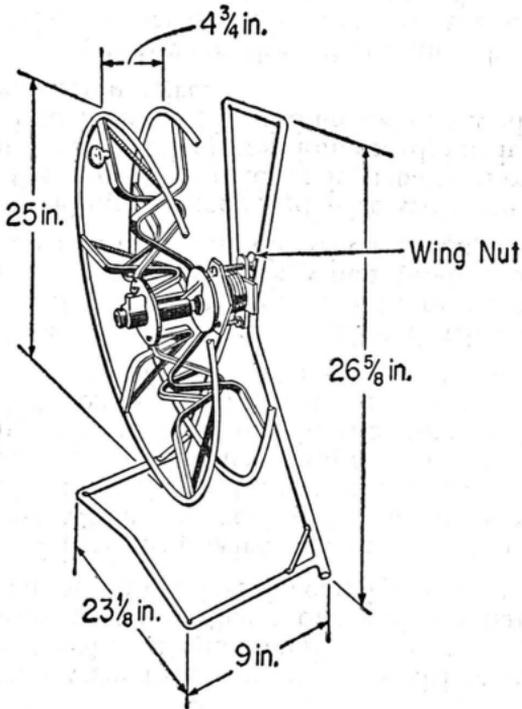
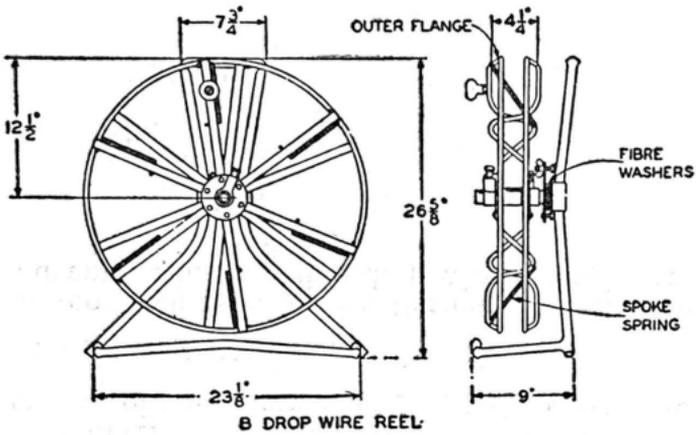
It is not necessary to twist the wire at the odd-numbered poles. However, the wire should be attached to each pole in numerical order.

4. DROP WIRE REEL

4.01 **The C Drop Wire Reel** is available to facilitate the installation and recovery of drop wire. It supersedes the B Drop Wire Reel. These reels will accommodate coils of wire having an inside diameter of about 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 having a greater inside diameter, it will be necessary either to wind the wire on the reel from the coil or to re-coil the wire so that the diameter of the coil will be between 15 and 16 inches and its thickness about 4 inches. Wire which is re-coiled for use on a drop wire reel shall be of such length that its weight will not exceed approximately 50 pounds.

4.02 See Sections G32.137.1 and G32.137.2 on use of the drop wire reel when stringing drop wire, and Sections G32.415.1 and G32.415.2 when lowering and replacing drop wire.

4.03 The B and C Drop Wire Reels are shown in the following illustrations:



Note that the C 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.

4.04 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.

4.05 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.

4.06 **The drop wire reels** are 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.

4.07 When reeling in recovered 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.

4.08 The bearing between the spindle and the sleeve should be lubricated occasionally through the oil hole in the outer flange and 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.

5. WIRE RAISING TOOL

5.01 A tool such as the Wire Raising Tool may be used to advantage in threading drop wire through trees.