

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G34.120.2
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AT&T Co Standard

C RURAL WIRE
PLACING

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1. GENERAL

1.01 This section together with Section G34.120.3 describes methods of placing, splicing and terminating C Rural Wire.

2. DESCRIPTION

2.01 C Rural Wire is a self-supporting insulated paired wire which may be used in spans up to 350 feet, 450 feet, and 600 feet in heavy, medium and light loading areas, respectively. It consists of two parallel No. 14 AWG, 30 per cent conductivity, extra high strength copper-steel conductors insulated with polyethylene. The weight of the wire is approximately 35 pounds per 1,000 feet and the breaking strength is approximately 1,100 pounds.

3. PRECAUTIONS

3.01 The safety precautions contained in the sections "Safeguards to be Taken before Climbing Poles, Precautions—General, and Precautions—Aerial Work" shall be observed.

3.02 The following precautions shall be observed when placing C Rural Wire on joint use poles, at power line crossings, and in non-joint use situations involving electric induction from power lines.

(a) **Joint Use Construction.** Prior to placing the initial section of wire, when placing from a moving reel or prior to sagging when placing from a stationary reel, connect both conductors to an effective ground such as a grounded metallic cable sheath, a multigrounded neutral ground wire or a metallic public water system. Additional sections of wire shall be grounded either as indicated for the initial section or by bonding the conductors of both sections. Adequate precautions shall be taken such as covered in the practice "Wire Stringing Precautions—Jointly Used Lines" to prevent the wire from contacting power conductors. Rubber gloves shall be worn during stringing and sagging operations and during the operation of grounding the conductors when the wire has been placed from a stationary reel.

(b) **Power Crossings.** Temporary ties or supports as covered in the practice "Wire Stringing Precautions—Electric Light or Power Crossings" shall be used to prevent contact with the electric conductors in the crossing span. Rubber gloves shall be worn during stringing and sagging operations.

(c) **Electric Induction from Power Lines.** In joint use construction or in non-joint use construction where electric induction is sufficient to require drainage, the precautions contained in Paragraph 3.02(a) will also serve to reduce the effects of electrical induction. In non-joint use construction, where grounds as specified in Paragraph 3.02(a) are not available, connection of the conductors to a ground such as anchor rods, down guys or ground rods should be made to reduce the effects of electrical induction.

3.03 The polyethylene insulation on C Rural Wire has low crushing strength and, therefore, the wire should not be pulled over drive hooks or other small radius supports while it is under tension. If the wire must be placed where it will come into contact with tree branches larger than 3/4 inches in diameter, it should be protected by P Wire Guards.

3.04 Vehicular traffic should not be allowed to pass over wires during placing operations. The wire should be suspended temporarily above roads, driveways, etc., or adequately protected by planks or other means to prevent damage to the conductor insulation.

4. GROUND CLEARANCES

4.01 The basic clearances above ground given in Section G10.303.3 to G10.303.5, inclusive, shall be increased as specified for 109 H Steel Line Wire in Paragraph 3.03 in each of these sections.

5. GUYING

5.01 Guy C Rural Wire in accordance with the instructions contained in the section "Guying—Insulated Wires".

6. PLACING

6.01 Where C Rural Wire is being placed from a moving reel, the wire may be lifted with a wire raising tool and laid over a drive hook which is driven into the side of a pole. At corners where the wire pulls against the hook (inside corners) and at poles where downward change in grade exceeds 10 per cent, support the wire during placing and sagging in a No. 5101 snatch block attached to the drive hook.

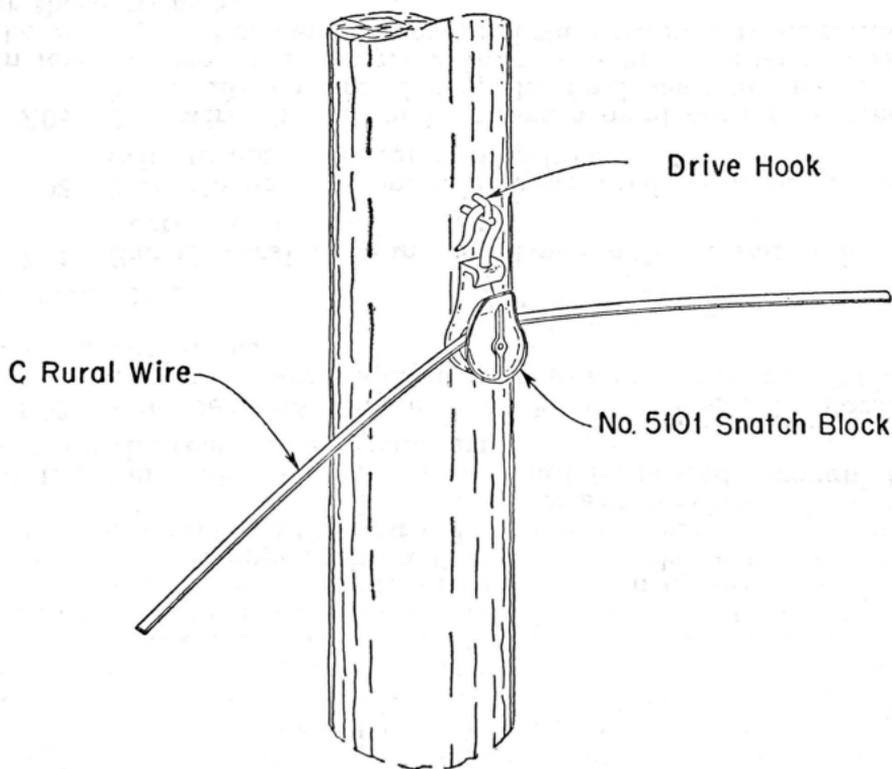


Fig. 1

6.02 Where C Rural Wire is being pulled from a stationary reel, it may be pulled over drive hooks, except at corners where the wire pulls against the hook and at poles where the downward change in grade exceeds 10 per cent. At such locations, support the wire during placing and sagging in snatch block as shown in Paragraph 6.01. The wire may be prevented from dragging over obstructions in the span by use of a Wire Payout Reel equipped with a B Reel Brake placed between the wire supply reel and the first pole of the wire run. A single turn of wire is made around the payout reel and tension maintained by the reel brake. The wire should not be passed through the loop on the reel brake tension arm.

6.03 The Deadend Support may be used where temporary dead ends are required to maintain clearances during placing operations.

7. SAGGING

7.01 Sag C Rural Wire in accordance with the sag tables in Section G34.120.4.

7.02 The Deadend Support may be used as a temporary grip during the sagging operation.

7.03 The wire should not be pulled around corners exceeding a 10-foot pull during the final sagging operation. In leads where such corners exist, it will be necessary to sag the wire by sections and to dead-end the wire in both directions at these corners.

8. ATTACHING TO POLES

8.01 After sagging but before making the pole attachment introduce at least 10 complete twists (in either direction) into the wire in each span in order to minimize noise from power line induction as well as the dancing of the wire in high winds. These twists may be placed in two spans of wire at an intermediate pole, after the attachments have been made to the adjacent poles, by lifting the line support attachment at the intermediate pole and rotating it through ten complete turns before placing it on the drive hook. In some cases such as a section containing an odd number of spans it may be necessary to introduce 20 twists into the next to last span in order to get 10 twists into the last span.

8.02 **Where attachments are made to poles adjacent to road crossings, C Rural Wire shall be dead-ended in both directions.** The following are illustrations of attachments to poles:

(a) In line pole or pull away from pole of 10 feet or less.

Place wire in support so that a flat side will be on top.

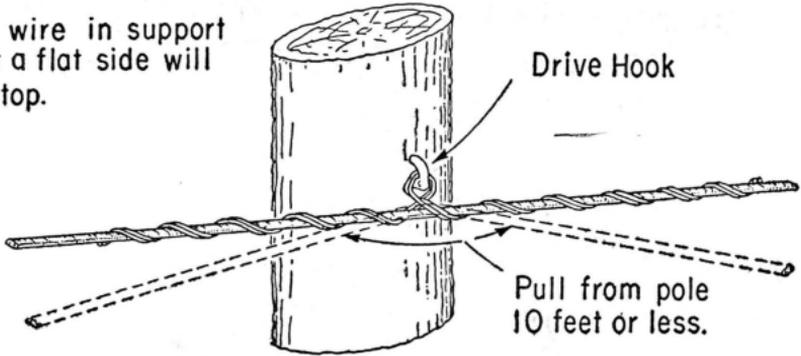


Fig. 2

(b) In line pole adjacent to road crossing.

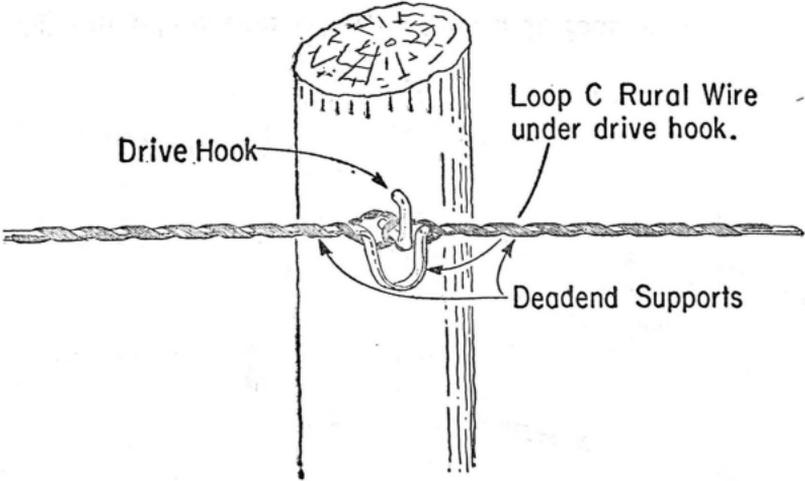


Fig. 3

(c) Outside corner of a 10-foot pull or less.

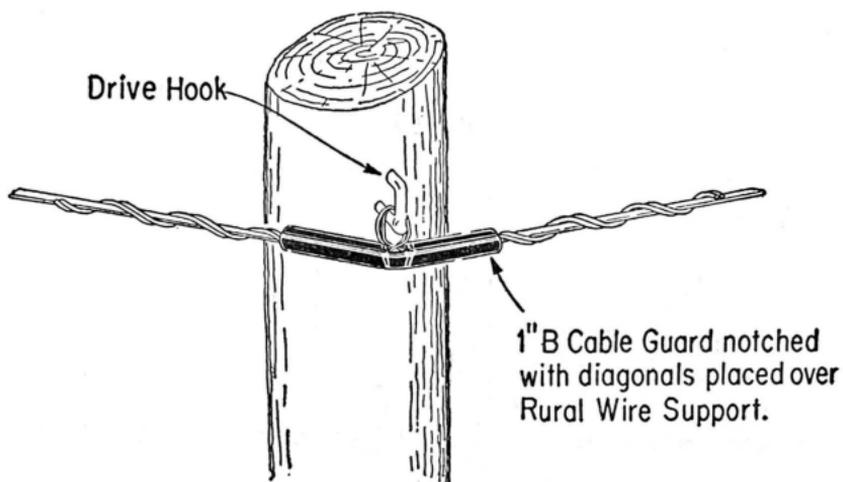


Fig. 4

(d) Outside corner of more than a 10-foot pull.

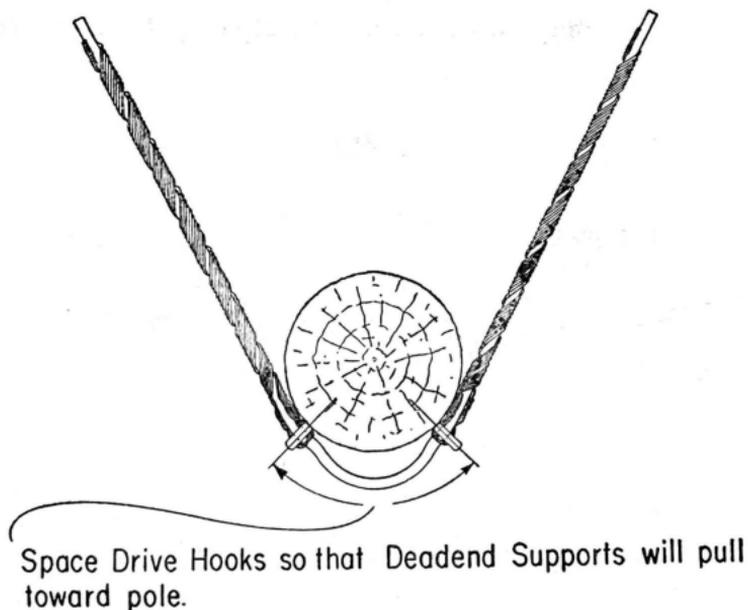


Fig. 5

(e) Inside corner of more than a 10-foot pull.

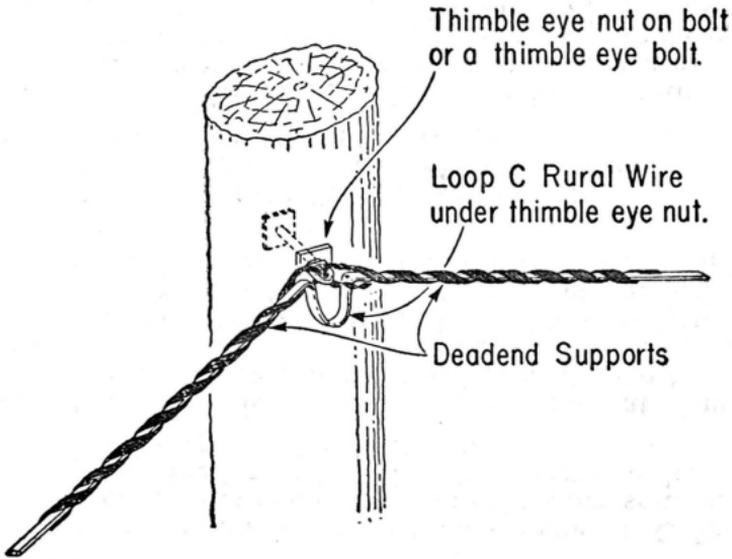


Fig. 6

(f) Wire dead-ended without guy.

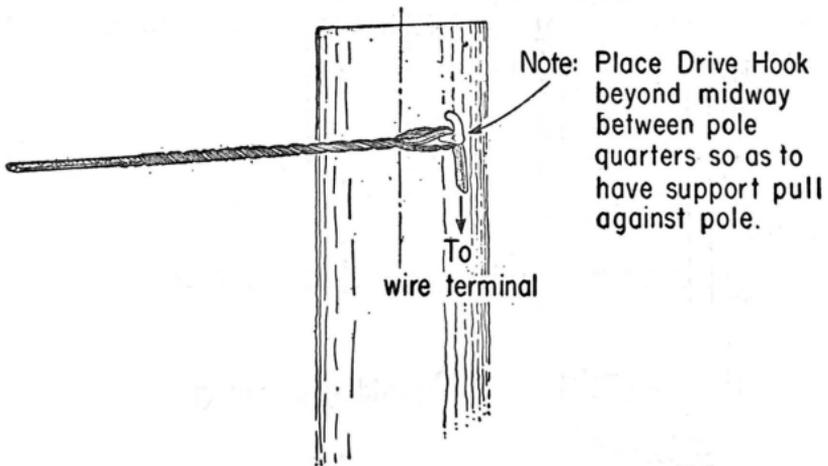


Fig. 7

(g) Wire dead-ended with guy.

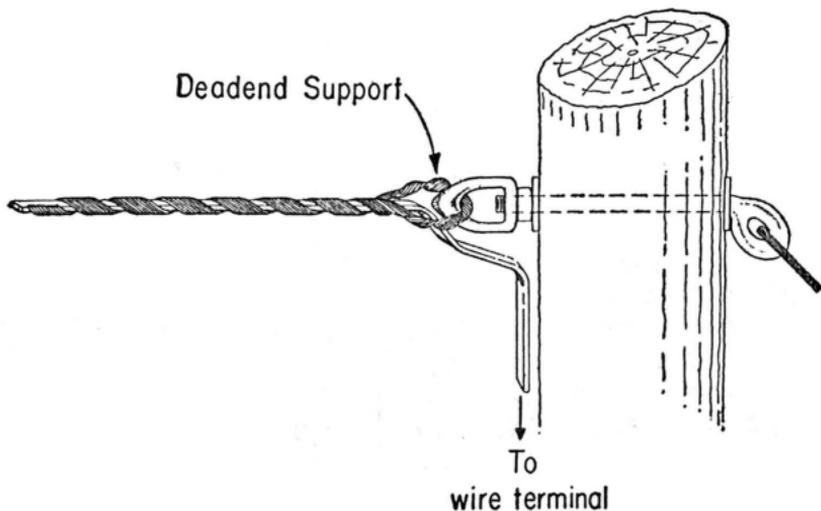


Fig. 8

9. ELECTRICAL PROTECTION

9.01 From the station protection standpoint, C Rural Wire is classed as open wire and subscriber stations that are served by this facility either directly or through drop wire will require a fuse-type station protector.

9.02 The need for lightning protection at junctions of C Rural Wire and cable will depend upon the degree of exposure of the wire. If the wire run is 1/2 mile or more, protectors containing 26 and 30 blocks or 107B protectors will be required at the junction of the wire and the cable, unless experience with open wire indicates that shorter lengths need protection.

9.03 When C Rural Wire is placed jointly with power circuits less than 2900 volts to ground, no protection other than that specified in Paragraph 9.02 is required.

9.04 When C Rural Wire is placed jointly with power circuits exceeding 2900 volts to ground, the same protection measures employed for open wire are required except under the following conditions in which protectors are not required:

- (a) When C Rural Wire is installed below a metallic sheath cable.

(b) When C Rural Wire is installed below open wire on crossarms or brackets.

9.05 As an alternate arrangement to the 99 or 118 type protector spacing used for open wire, the protectors may be so located that no station is more than 1/4 mile from a protector.

9.06 When only a portion of a line involves joint use with power circuits exceeding 2900 volts to ground and there are no stations connected in this section, this section may be isolated from the non-joint portions by 99 or 118 type protectors located at or within 1/4 mile of each end of it.