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**BELL SYSTEM PRACTICES**
**Outside Plant Construction and Maintenance**

**SECTION G63.120.3**
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# ELECTROLYSIS DRAINAGE WIRE CONSTRUCTION

## STRINGING WIRE

**Contents** **Page**

1. General ..... 1
2. Placing Wire ..... 1
3. Pulling Line ..... 2
4. Attaching Pulling Line to Wire ..... 3
5. Sags ..... 5

## 1. GENERAL

1.01 This section covers placing electrolysis drainage wires on poles.

1.02 It is desirable to place drainage wires in as long lengths as practicable. However, this is not always possible because of existing conditions. Some of the factors that control the length of wire that may be placed in one pull, are:

(a) Length of wire in coil or reel.
(b) Number of corners and degree of pull at each.
(c) Tree interference.
(d) Wires or cables, particularly supply or trolley wires hindering the placing operations.
(e) Highway and railroad crossings.
(f) Vehicular traffic.

## 2. PLACING WIRE

2.01 Electrolysis drainage wires may be placed:

(a) In one-sheave cable blocks lashed to the pole.
(b) Over the spool insulators of the pole brackets where they are required.

(c) Over crossarms, provided rope mats or similar devices, are used to protect the weatherproofing or insulation on the wire.

(d) Along the ground where the surface will not damage the wire or the covering thereon and there is no interference from trees, foreign wires, guys, cables, driveways, road crossings, etc., which would hinder raising the wire.

2.02 When wire is furnished in reels, the small cable reel jack or the strand payout frame may be used in setting up the reel to pay out the wire.

2.03 In selecting the locations for the wire reels or coil setups, the following factors should be considered:

(a) Set up the wire reel or coil on streets and highways but avoid interfering with traffic.

(b) Avoid pulling long lengths of wire around sharp corners.

(c) Obstructions, such as fire hydrants, light standards, trees, posts, etc.

(d) To minimize setting up time, select wire reel location that will permit pulling the wire in both directions.

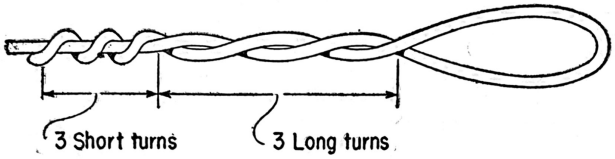
## 3. PULLING LINE

3.01 When it is necessary to pull electrolysis wire in cable blocks, over pole brackets or crossarms mounted on jointly used poles, use dry manila rope, free from metallic strands. Observe precautions outlined in the sections covering Open Wire Stringing Precautions and Prevention of Flip-Ups.

3.02 On non-joint use lines the truck winch line may be used for pulling the wire.

## 4. ATTACHING PULLING LINE TO WIRE

4.01 For No. 4 or smaller sizes of solid wires, make a loop in the end of the wire as shown in the following figure. For the larger sizes, (solid wire), make three long turns and serve end tightly with lashing wire.




4.02 For stranded wires make a core hitch as shown in the section covering placing aerial cable.

4.03 Where drainage wire is to be placed over supply wires, special precautions must be taken to prevent contacts. **Workmen handling the ropes and drainage wire must wear rubber gloves until the wire has been tensioned and permanently secured.** Place the wire in the crossing span as follows:

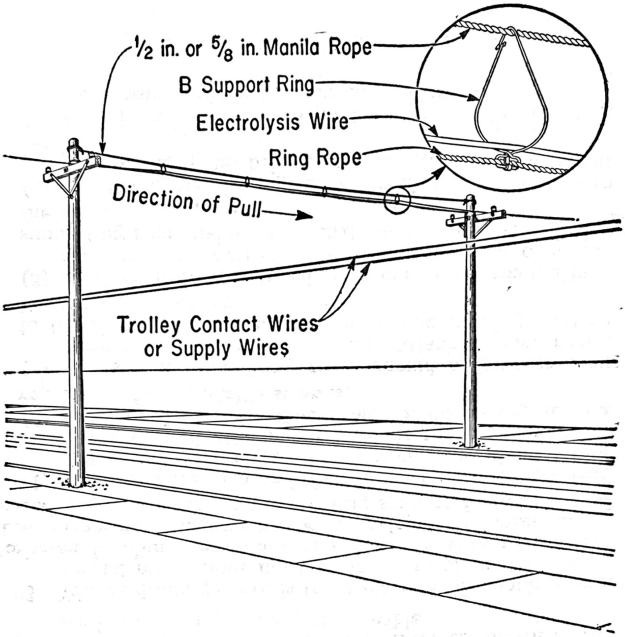
(1) Place two 1/2-inch or 5/8-inch ropes over the crossing and tie one securely to the crossing poles about 1 foot above the desired attachment level of the drainage wire. **All ropes used in these operations should be dry manila ropes, free from metallic strands.**

(2) The second rope (ring rope) should be greater than twice the length of the crossing. Attach a support ring to the ring rope and secure a third rope (pulling line) to the first support ring.

(3) As the ring rope is pulled into the crossing span, attach support rings every 3 feet. Clip the rings over the supporting rope making sure that the pulling line is inside the rings.

(4) When the span is ringed, tie the ring rope securely to the crossing poles below the drainage wire attachment level.

(5) Pull drainage wire through the rings in the crossing spans using pulling line placed previously.


½ in. or ⅝ in. Manila Rope
B Support Ring
Electrolysis Wire
Ring Rope
Direction of Pull
Trolley Contact Wires
or Supply Wires

## 5. SAGS

5.01 The sags that should be obtained for the various sizes of aerial drainage wires, are shown in the following table.

| MINIMUM SAG (IN INCHES) FOR DIFFERENT SIZES OF WIRE FOR BOTH BARE AND INSULATED WIRES | | | | | |
|---|---|---|---|---|---|
| Size A.W.G. | Temp. Degrees Fahr. | Span | | | |
| | | 100 Ft. | 120 Ft. | 130 Ft. | 150 Ft. |
| 6 | 0 | 8 | 20 | 25 | 43 |
| | 60 | 14 | 24 | 30 | 48 |
| | 100 | 17 | 29 | 35 | 53 |
| 4 | 0 | 3 | 8 | 12 | 21 |
| | 60 | 6 | 11 | 15 | 24 |
| | 100 | 9 | 14 | 18 | 27 |
| 2 | 0 | 3 | 6 | 8 | 13 |
| | 60 | 5 | 8 | 10 | 15 |
| | 100 | 8 | 11 | 13 | 18 |
| 1 | 0 | 2 | 5 | 7 | 12 |
| | 60 | 4 | 7 | 9 | 14 |
| | 100 | 7 | 10 | 12 | 17 |
| 0 | 0 | 4 | 8 | 10 | 16 |
| | 60 | 6 | 10 | 12 | 18 |
| | 100 | 10 | 14 | 16 | 22 |
| 00 | 0 | 7 | 12 | 15 | 20 |
| | 60 | 9 | 15 | 17 | 23 |
| | 100 | 10 | 18 | 21 | 27 |
| 000 | 0 | 8 | 14 | 18 | 26 |
| | 60 | 13 | 19 | 23 | 31 |
| | 100 | 18 | 24 | 28 | 36 |
| 0000 | 0 | 12 | 19 | 22 | 26 |
| | 60 | 17 | 24 | 27 | 36 |
| | 100 | 22 | 29 | 32 | 41 |
| Size Circular Mils | | | | | |
| 250,000 | 0 | 14 | 22 | 27 | 36 |
| | 60 | 19 | 27 | 32 | 41 |
| | 100 | 23 | 32 | 37 | 46 |
| 300,000 | 0 | 16 | 24 | 28 | 40 |
| | 60 | 21 | 29 | 33 | 45 |
| | 100 | 25 | 33 | 37 | 49 |
| 350,000 | 0 | 19 | 28 | 31 | 42 |
| | 60 | 23 | 32 | 36 | 48 |
| | 100 | 27 | 37 | 39 | 51 |
| 500,000 | 0 | 25 | 34 | 41 | 56 |
| | 60 | 29 | 38 | 45 | 60 |
| | 100 | 32 | 41 | 48 | 63 |

5.02 The following grips and pullers may be used for tensioning drainage wires. Any covering or insulation on the wire shall be removed when these tools are used.

No. 1 Buffalo Grip.....Wires up to, and including No. 6 (approx. 3/16 in. dia. bare).

No. 2 Buffalo Grip.....Wires up to, and including No. 0 (approx. 5/16 in. dia. bare).

L or H Strand Pullers....Larger wires up to, and including No. 4/0 (approx. 17/32 in. dia. bare).

For wires larger than No. 4/0 suitable commercial pullers are required. If suitable tools are not available a loop shall be made at the end of the wire.