BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G31.114.2
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AT&T Co Standard

OPEN WIRE

STRINGING WIRE FROM MOVING REELS NON-JOINT USE LINES

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1. GENERAL

1.01 This section presents the details of the method of stringing line wire from moving reels.

2. STRINGING

2.01 Before the wire stringing operation is started the Sections covering "Wire Stringing Precautions" shall be carefully reviewed with particular attention given to the section on "Power Crossings." The foreman or supervisor shall carefully review the job on the ground in advance of the actual start of construction in order that adequate precautions will be taken to insure that the work will be carried out safely and to be sure that each employee fully understands his assignment.

2.02 Wire coils should be placed on the payout reels before removing the coil ties. Locate the inner end of each coil and fasten it to the reel drum by hooking it in one of the small holes in the drum. The outer end of each coil should be passed through its proper wire guide at the rear end of the reel rack and secured to the base of the pole at the beginning of the run. The rope brake should then be put in place and tensioned to provide enough braking so that reels will not "overrun" when the reel carrier is stopped for any reason.

2.03 Stringing should preferably be done with the reel carrier moving in the direction of traffic. Warning signs, flags or flagmen will be required when the traveled portion of the road is used and traffic may be hindered by the slow moving vehicle. Hills, curves or other obstructions to vision will also require the use of warning signs or flags. Stringing may be done facing traffic **only if it is confined to slightly used roads and adequate provision is made for controlling any traffic which may appear,** and then only if in the judgment of responsible supervision the work may be carried out safely.

2.04 All workmen should be thoroughly familiar with the signals to be used. When visual signals are used, all concerned must be able to see them; when a whistle is to be used those concerned must be within hearing distance. Signals shall be plainly given. A system of signaling is described in another section of Practices.

2.05 The reel carrier should be started very slowly when beginning to string wire. Snagging of the wire at the reels is most likely to occur while the first few turns are being payed out. The driver should pull ahead slowly for one or two spans to be sure that the wire is coming off the reels properly.

2.06 Workmen shall not follow immediately behind the moving reels since a snagged wire may break and whip back for a considerable distance. **Workmen handling the payed out wire must keep at least 300 feet behind the reels as long as the reels are moving.** The workman observing the reels shall stay abreast of the reels while they are moving. If it should be necessary to handle the wires at a point closer than 300 feet, this should be done while the reels are stopped or with a hand-line which will permit the workman to stand sufficiently in the clear.

2.07 At any pole when there is an upward change of grade the wires must be secured to the base of the pole as soon as the reels have passed the pole. The reels must be stopped while this is being done.

2.08 At corner poles where the wires have a tendency to pull away from the pole they must be secured to the base of the pole as soon as the reels have passed the pole. The reels must be stopped while this is being done. As far as practicable, workmen should stay outside of the angle made by the wires at the corner pole.

2.09 **On non-joint use lines** the amount of wire to be payed out on the ground before laying it up on the crossarms is governed by the nature of the terrain, the number of road and power crossings, number of workmen available, etc. Gen-

erally, if the reels are at least 1000 feet ahead the wires may be raised with wire raising tools or pulled up with a hand-line without stopping the reels. **The hand-line must not be securely attached to the lineman's person or body belt.** The safe way to carry a hand-line when climbing a pole is to bend the free end of the line into a bight and tuck the bight up under the body belt; thus it will be secured adequately, but will pull free and not endanger the lineman should a sudden strain be placed on the hand-line.

2.10 At poles where an upward change of grade occurs the wires, when raised to the crossarm, should be secured to the top of the crossarm so they will not be floating out of reach during sagging operation. In bracket construction, if upward change of grade occurs, secure the wire to the pole in the notch between the bracket and the pole.

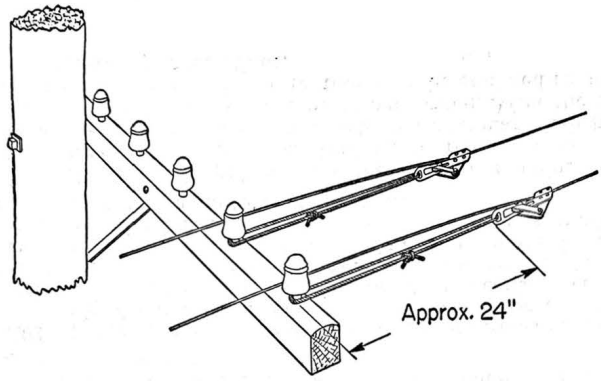
2.11 After the wire has been laid up on the crossarms, it should be pulled to approximate sag and snubbed at a crossarm or other support near the reels. The entire length of line being pulled up must be kept under observation to detect any snagging of the wires on trees, bushes, fences or other obstructions. If the wires are snagged they must not be released until the tension has been slacked off.

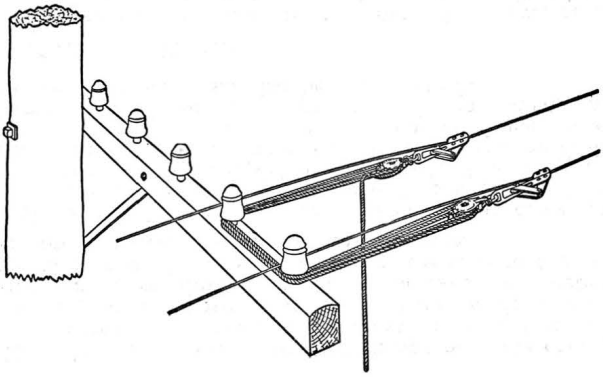
3. ROAD CROSSINGS

3.01 Immediately after crossing roads, driveways, or other locations where wire on the ground or sagging low between poles might create a hazard, all wires should be pulled up sufficiently to clear such locations and snubbed at a pole beyond the crossing.

3.02 Before pulling the wires up at such locations all of the payed out wires should have been laid up on the crossarms and secured with a hand-line or other means at corners or at poles where an upward change of grade occurs. Temporary guys may be required at the snubbing point in cases where several wires are to be snubbed, the pole is small, or clearance requirements are barely met.

3.03 Slack may be pulled out of the wires at snubbing points by applying additional braking to the reels and then driving the truck forward very slowly. No workman shall be on the pole while this operation is being performed. After the wires have been pulled up sufficiently, they may be snubbed as shown in the following illustrations.



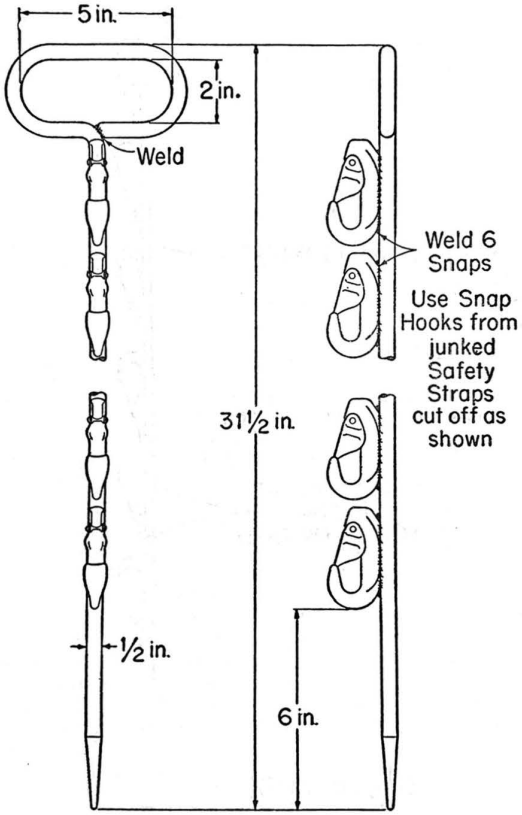


3.04 Ordinarily the hazards of crossing over a busy highway can best be handled by choosing such a location as the beginning of a stringing section.

4. TRANSPOSITIONS

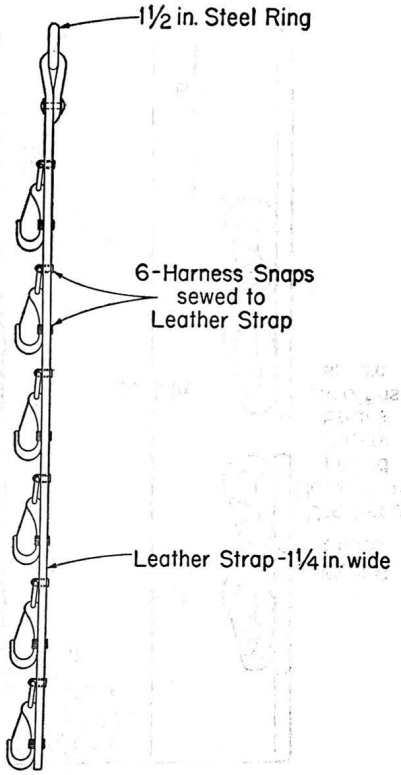
4.01 Transpositions may be placed in the wires as they are being payed out by using the Transposition Board and Transfer Board which are illustrated in the following paragraph.

4.02 The Transposition Board is shown in the following sketch.



TRANSPOSITION BOARD

The Transfer Board is shown in the following sketch.



TRANSFER BOARD

4.03 At the beginning of a stringing section, the wires are placed in the snap-hooks on the Transposition Board in proper order. This board is carried along the line, never closer than 300 feet to the reels at any time when they are in

motion. At transposition points the wires are transposed on this board. The Transfer Board is then attached to the wires, immediately behind the Transposition Board and in the same order as they appear on the Transposition Board. The Transposition Board is then moved ahead and the Transfer Board is raised to the crossarm and the wires placed in their proper position.

4.04 If the wires are placed under the R-1 or R-2 Transposition System they may be payed out straight without transpositions for the whole length of the stringing section. Then transpose each pair by placing two successive right-over-left transpositions followed by two successive left-over-right transpositions. To prevent the necessity of passing ahead a maximum of two twists in a pair, place an initial left-over-right transposition at the first transposition point, follow it with two right-over-left transpositions at the next two points and then two left-over-right transpositions at the following two points. The effect of this is to twist and untwist the wires of a pair with the maximum of only one twist appearing in a pair at any one time.

Note: Alternate **single** left-over-right and right-over-left transpositions should not be used.