

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

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OPEN WIRE
L WIRE GUARD

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1. GENERAL

1.01 This section, covering the installation of L Wire Guards on open wire lines, has been revised to include a new size of guard and to provide information concerning an alternate method of securing the guard in position on the line wire. Since this section has been rewritten, the usual arrows to indicate changes or points of difference have been omitted.

1.02 The L Wire Guard is for use on open wire lines to protect the line wire from tree interference in those cases where adequate trimming can not be obtained. It is intended primarily for insulating open wire from occasional contacts with leaves and branches of trees. When the contacts are of a continuous nature throughout two or more spans, the use of other methods such as crossarm extension fixtures or tree wire will usually provide more complete protection for the line wire.

2. DESCRIPTION

2.01 The L Wire Guard consists of a black plastic tubing designed to be slipped over the line wire as detailed in the following paragraphs. It is available in two sizes, one having an inside diameter of 3/16 inch and the other 21/64 inch. The 3/16-inch size is for insulating unspliced wire and the 21/64-inch size is for insulating wire containing rolled sleeve joints of any of the sizes currently in use. Both sizes of the guard are supplied in 100-foot coils which weigh approximately 1.4 pounds for the 3/16-inch size and 2.8 pounds for the 21/64-inch size.

3. INSTALLATION OF L WIRE GUARDS

3.01 The L Wire Guard is usually installed by first cutting the line wire and lowering it to the ground then sliding the required length of guard over the wire as detailed in Para-

graph 3.03. Where a twisted sleeve will interfere with placing the guard in a desired location, cut out the sleeve and splice the wire with a rolled sleeve.

3.02 Prior to lowering the line wire, observe those conditions in the span which determine the extent and location of the section to be protected keeping in mind potential sources of trouble such as several years tree growth and occasional contacts caused by the tree swaying in the wind. After the desired location in the span has been determined visually, obtain corresponding measurements on the ground to insure that the guard can be properly positioned while the line wire is on the ground. To locate the guard by measurement, proceed as follows:

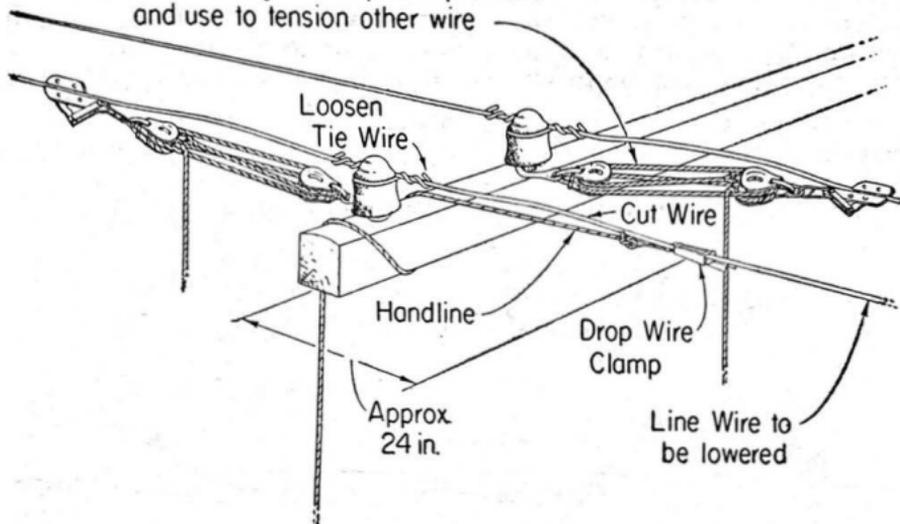
- (1) From the pole where the line wire is to be cut, pace or measure along the span to a point on the ground directly below the near end of the section to be protected. Note this distance, then
- (2) Continue measuring to a point directly below the far end of the section to be covered. Subtract the first measurement from the second and the remainder represents the amount of guard required.
- (3) If the section includes the low point in the span, locate this point by measurement also (see Paragraph 3.03(6)).

A quick drying paint applied to the line wire from the ground by means of a brush secured to the end of a tree pruner handle or wire raising tool is suggested as an alternate method of marking these points before the wire is lowered to the ground.

3.03 On existing open wire, install the L Wire Guard as follows:

- (1) On the poles at both ends of the span in which the section to be protected is located, snub the line wire to the crossarm using slack blocks equipped with wire grips and hooks. Pull up on the slack blocks sufficiently to maintain the sag in the adjacent spans. Loosen the tie wire on the line wire to be lowered.
- (2) About 2 feet from the crossarm in the span to be lowered, place a drop wire clamp securely on the line wire. To the loop of this clamp, attach a hand line of sufficient length to reach through the trees to the ground on the other side. Snub the hand line temporarily around the crossarm then pull up on the slack blocks until the wire is noticeably slack between the drop wire clamp and the blocks. The procedure thus far is illustrated by the following sketch:

First use this set of slack blocks as snub to hold arm in position then after guard is placed, remove and use to tension other wire



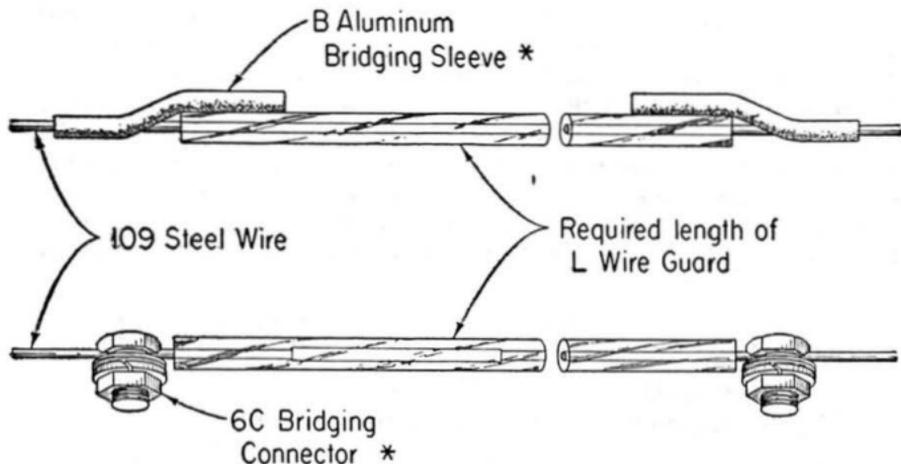
(3) Cut the line wire between the drop wire clamp and the crossarm. Release the hand line from the crossarm and lower the wire to the ground. **Observe the necessary precautions when lowering a wire which crosses a street, highway, driveway, etc.**

(4) Where the tree conditions will not permit the wire to be lowered freely to the ground, use the hook of a wire raising tool to pull the wire down within reach. Pull the wire and hand line through the trees until the end of the wire is reached. Remove the drop wire clamp and pull the line wire until it lies straight on the ground. Measure along the wire to locate the point for the far end of the guard. Place a bridging sleeve or bridging connector at this point.

(5) The L Wire Guard can best be handled by first uncoiling and laying out part of the coil on the ground. Measure the required amount as determined in Paragraph 3.02(2) and cut from the coil. Then grasping the line wire with one hand, use the other hand to slip the end of the guard along the wire until the bridging sleeve or bridging connector is reached. Special care will be required to slip the guard over sleeves in the line wire.

(6) To provide drainage for water which might otherwise collect in the guard, it is advisable to install the guard in sections not exceeding about 25 feet in length. In addition, where the guard is required to cover the low point in a span of wire, the guard should be cut at that point (previously located or marked as described in Paragraph 3.02). The wire guard may be cut with diagonal or side cutting pliers.

(7) After the guard has been properly positioned on the line wire, either of the two methods illustrated in the following sketches may be used to secure the guard to prevent it from sliding out of position. No bridging sleeves or bridging connectors shall be placed between adjacent lengths of the guard.



* The appropriate type and size of Bridging Sleeve or Bridging Connector depends upon the kind and size of line wire.

(8) Reattach the drop wire clamp securely on the end of the line wire and pull the wire into place by means of the hand line. Tension the wire using the slack blocks from the uncut wire and splice in the standard manner.

3.04 Where the guard is to be installed in connection with the placing of new open wire, it will generally be desirable to string and dead-end the open wire in the usual manner and then, having determined the locations of tree interference, cut the wire and place the guard as described in Paragraph 3.03. However, where a guard is to be placed in an end span, it may be desirable to place it before dead-ending the wire.