

## SAFEGUARDS TO BE TAKEN BEFORE CLIMBING POLES TESTING POLES

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### 1. GENERAL

**1.01** This section covers methods of testing poles to determine whether or not they are capable of withstanding the loads to which they will be subjected in climbing and working on them.

**1.02** This section is reissued to add information on the use of B and C Pole Tags for marking defective poles, and to clarify the prod and sounding test.

**1.03** The following tests will provide important information in addition to that obtained in the visual examination described in 620-131-010. The necessary tests shall be made to determine whether the pole can be climbed safely.

**1.04** *In any case where suitable means for determining the condition of a pole and bracing it when necessary are not available and*

*there is any question about the pole being sufficiently strong to permit safe climbing and safe working, do not climb the pole.* Inform your supervisor about the condition and request the necessary assistance to enable the work to be done safely.

### 2. METHODS OF TESTING POLES

**2.01** Each of the methods of testing listed below has certain limitations and may not be applicable under the conditions existing at certain locations. It is important, therefore, to make a selection of the tests that are applicable and most suitable under the existing conditions. The tests are as follows:

(a) Pike Pole Test

(b) Prod and Sounding Test

(c) Boring Test

(d) Hand Line Test

**2.02** As pointed out in Section 620-131-010, the necessity for testing occurs principally under *any* of the following conditions.

(a) At dead-end poles.

(b) In longer span cable or open wire construction.

(c) Where there is a downward change in grade at a pole.

(d) Where the line is carrying a small number of telephone wires or both power and telephone wires.

(e) Where drop wires are attached, especially where the pull from them is unbalanced.

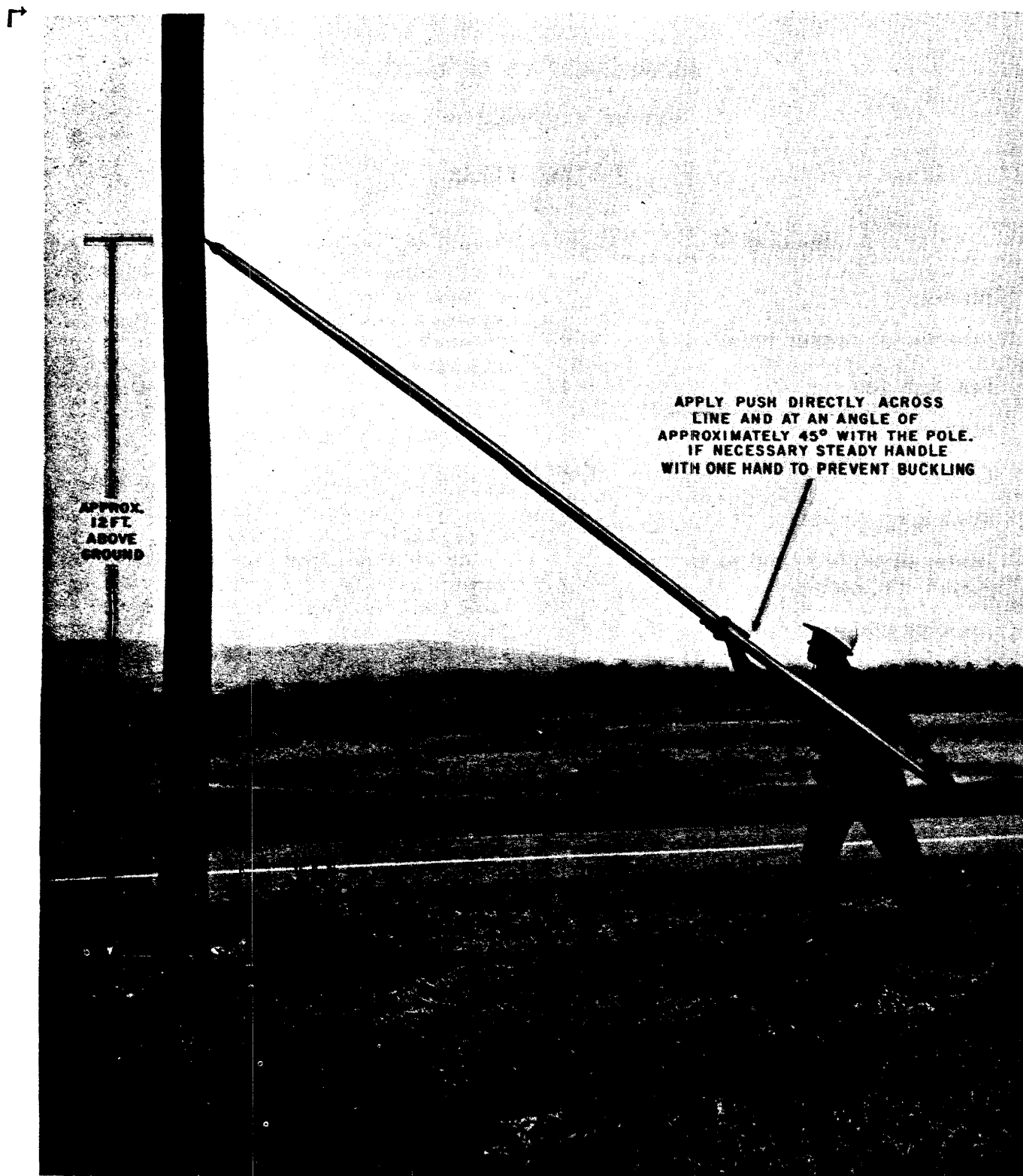


Fig. 1 — Pike Pole Test

### 3. PIKE POLE TEST

**3.01** The pike pole test is applied by making a vigorous effort to rock the pole back and forth in a direction at right angles to that of the line by pushing the pole with a 12-foot or longer pike pole. If practicable, the pike pole should be held at an angle of about  $45^\circ$  ( $\frac{\text{Lead}}{\text{Height}}=1$ ) with the pole, as shown in Fig. 1. If the pole cracks or breaks, the test should be discontinued immediately and the pole should be regarded as unsafe for climbing. The pole should not be rocked so hard as to cause the wires to swing together and thus introduce trouble in the circuits.

**3.02** If in certain cases (particularly in connection with the longer spans of telephone open wire and power wires) it is found impracticable to rock the pole without causing the wires to swing together, the pole should be given a steady push with the pike pole, applying as heavy a push as possible. If the pole withstands such a push, it should also be subjected to the prod and sounding test before being climbed.

**3.03** If a 16-foot pike pole is available, its use is preferred to that of a shorter size, inasmuch as it enables the push to be applied at a higher point on the pole and is therefore more effective. In those cases, however, where a 16-foot pike pole is not available, use may be made of a standard 14-foot or 12-foot pike pole or a standard 1-3/4 inch test-pike, fitted with two extension sections of the large tree pruner handle. As an alternative to the 1-3/4 inch test-pike, a standard 1-1/4 inch test-pike may be used, and it should be fitted with a tapered section and one extension section of a large tree pruner handle.

**3.04** The pike pole test cannot effectively be applied to poles that have attachments such as wires, guys, push braces, etc., arranged in such a manner as to take the thrust of the pike, rather than permitting the thrust to be transferred directly to the pole. Some locations at which such conditions are encountered are guyed corner poles, junction poles, side storm guyed poles, etc.

**3.05** Many of the small poles in suburban or rural leads, carrying eight wires or less have sufficient strength from a service standpoint, but can be broken by applying the pike pole test too vigorously. In applying the test to such poles, exercise reasonable care to prevent breaking those which are in serviceable condition and can be climbed safely. (See Paragraph 4.05.)

**3.06** Pavement or frozen ground surrounding poles sometimes tends to hold poles firmly, even though they may be badly deteriorated. Where such conditions exist, it is usually desirable to apply temporary supports to the pole, if there is any question as to the soundness of the pole.

**3.07** *The pike pole test should not be applied to poles which, if they were to break off, might cause damage to nearby property or result in contact between telephone plant and electric light or power wires, or introduce some other hazardous situation.*

### 4. PROD AND SOUNDING TEST

**4.01** The prod and sounding test can be used in some cases where it is impractical to apply the pike pole test. It consists of two parts:

- (1) exploring the condition of a pole at or below the groundline with a prod ↗
- (2) sounding the pole with a hammer from the groundline up to as high as can be reached.

#### BELOW GROUNDLINE

**4.02** The tool used for the prod portion of this test is a pole inspector's prod or screw-driver having a 5-inch or longer blade. It is undesirable to use a heavy, pointed tool, such as a digging bar, because of the damage which such a tool can cause to the treated sapwood of a sound pole, thus reducing the effectiveness of the preservative treatment and exposing the interior of the pole to decay attack. ↗

**4.03** Inasmuch as the section of maximum decay is normally encountered between the groundline and a point about 12 inches below the groundline, it is desirable, if conditions permit, to excavate sufficient earth from around the pole to permit a more satisfactory examination of the pole. If, however, the pole is set in pavement, or for other reasons, it is impracticable to remove any earth, the prod should be applied as close to the groundline as practicable, at any angle of approximately 45 degrees with the pole and completely around the pole. The presence of general sapwood decay or decay pockets will usually be evident from this test.

**4.04** If the prod test indicates the presence of extensive decay, it is desirable to apply temporary supports, regardless of the original circumference of the pole, unless in accordance with Section 620-131-010, no supports are required.

**4.05** If there is no indication of decay or other reduction of strength in the prod and sounding tests and the pole has been subjected to a moderate pike pole test where conditions permit its use, *25-foot or shorter poles* in straight sections of rural lines carrying eight or less 104 copper or stronger wires with no downward change in grade, and measuring 13 inches or more in circumference at the groundline, may be climbed without placing temporary supports.

**4.06** The prod test is not considered as satisfactory as the pike pole test and it should not be completely depended upon to furnish information as to the soundness of the pole.

#### ABOVE GROUNDLINE

**4.07** The sounding test consists of applying blows with a hammer, such as a drilling hammer, or the back of a hand axe, to the pole surface completely around the pole from points close to the groundline to as high as can conveniently be reached. The presence of a hollow heart condition or advanced internal decay can usually be recognized by the characteristic hollow or dull sound resulting from the blows on

the wood. A pole free from decay usually sounds clear and the hammer usually rebounds noticeably when the pole is struck sharply and squarely. Wet surfaces due to recent rains, wet interior near the groundline due to high soil moisture, wide checks, or shakes in the pole near the surface may change the sound of a solid pole. Care must be taken not to mistake the altered sound due to these causes for the sound associated with internal decay.

#### 5. BORING TEST

**5.01** The boring test consists of boring a hole in the pole at a point where internal decay is suspected by means of a 3/8 inch wood boring bit or by means of an increment borer. The condition of the wood can be determined by an examination of the chips or core brought out by the bit. The presence of a hollow heart condition is, of course, revealed by the bit breaking through the wood.

**5.02** If a hole is bored in a pole and it is concluded that the pole is in sound condition and the pole is to be left in plant, the hole should be filled by means of a wooden plug. (Ordering information is as follows: Plug, Wooden (length) inches. Plugs come in 2-, 3-, 4- or 6-inch lengths. Order the length desired.)

#### 6. HAND LINE METHOD

**6.01** The hand line method consists of applying a series of pulls to a pole with the object of rocking the pole back and forth. In applying this test, use should be made of a 3/8 inch or larger rope, attached to the pole at such a height that the pull can be applied at right angles to the direction of the line and at an angle of about 45 degrees with the pole. The same use limitations and precautions applying to the pike pole test, apply also to this method of testing. In attaching the rope to the pole, the pole should not be climbed, but the rope should be thrown over a fixed attachment, such as a pole step or a crossarm, or a loop should be made at the base of the pole and moved into position by means of a convenient tool, such as a wire raising tool.

## 7. REPORTING POLES FOUND TO BE UNSAFE FOR CLIMBING

**7.01** Poles found by the previously described tests to be unsafe for climbing should be marked immediately with a B or C Pole Tag, as described in Part 8. The unsafe condition should be reported promptly to your supervisor.

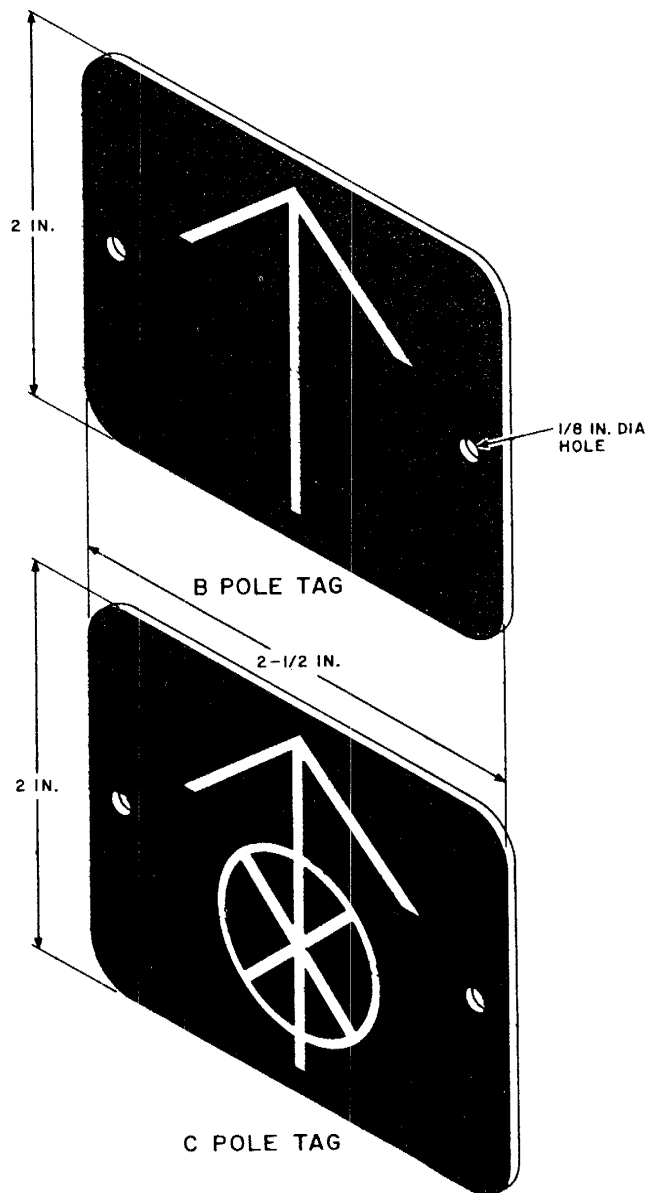
**7.02** If the pole has been broken, resulting in an unsafe condition and requiring immediate support, temporary supports should, if practicable, be applied immediately to prevent the pole from falling. If suitable bracing means are not available, steps should be taken to warn passers-by or traffic away from the location until a safe condition can be restored and a report of the condition should be made promptly to your supervisor.

## 8. MARKING DEFECTIVE POLES

**8.01** All poles which are recommended for replacement on account of deterioration or mechanical damage should be plainly marked to indicate that they are defective. Because of the transfer of personnel between Operating Companies during storm breaks or other restoration work, the method for marking poles should be uniform throughout the Bell System. Two aluminum tags, designated as B and C Pole Tags have been standardized for this purpose (see Fig. 2).

**8.02** The B Pole Tag has a white arrow on a red background. It is intended for marking defective poles which do not require immediate replacement, that is, defective poles which are not yet considered dangerous. It serves as a warning to workmen that the pole is defective and should not be climbed or worked on without following the recommendations of Section 620-131-011 "Safeguards To Be Taken Before Climbing Poles—General" and the appropriate tests, as described in this section have been made.

**8.03** The C Pole Tag is similar to the B Pole Tag except that an "X" inscribed in a circle is imposed on the shaft of the arrow. This tag is intended for marking poles which are in



**Fig. 2 — B and C Pole Tags**

a dangerous condition and require immediate replacement. It serves as a warning to workmen that the pole is in a dangerous condition and should not be climbed or worked on before being temporarily supported as described in Section 620-133-010 "Safeguards To Be Taken Before Climbing Poles—Temporary Supports."

**8.04** Place one tag on the road side of the pole just below the pole number, if the pole is numbered, or at approximately 6 feet above.

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- ┐ groundline if the pole is not numbered. Place another tag at approximately the same height on the field side of the pole. If the pole is defective in the groundline section, place the tags so that the arrow points downward. If the pole is defective in the upper portion, place the tags so that the arrow points upward. If, however, the pole is defective in both the groundline section and in the upper portion place a double set of tags, one set with the arrow pointing downward and the other set with the arrow pointing upward.
- └ Attach the tags with Pole Tag Nails.