

POLE REPLACING

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1. GENERAL

1.01 This section describes methods of replacing poles, both in their original location and at H-type aerial cable loading fixtures. This section is intended to develop broad principles concerning methods of doing this work safely and economically. For situations not covered, the application of these principles will aid in doing the job.

1.02 This section includes information formerly contained in Section 621-295-325, which is canceled.

1.03 There may be situations where it would be practical to remove the attachments from the old pole and temporarily support the wire or cable or allow it to float free. The old pole can then be removed and the new one placed in the same location.

2. SAFETY PRECAUTIONS

2.01 The precautions outlined in Sections 621-205-200, 621-220-200, and 621-205-010 shall be observed when replacing poles.

2.02 Stepped poles, which have been cut off at the ground line and not immediately taken down shall have all pole steps removed up to a distance of at least 6 feet 6 inches above the ground.

3. REPLACING POLES IN ORIGINAL LOCATION

USE OF POLE DERRICK

3.01 It is advantageous to replace a pole in its original location when:

- It carries a cable terminal, a load coil, or a lateral cable
- It carries open wire, and transferring and retying operations can be noticeably reduced
- It has been so located because of reference to a property line
- The surrounding soil conditions present difficult digging.

3.02 When replacing a pole in its original location which is supporting aerial cable, shift, if possible, in line with the lead and in the direction away from an existing terminal or load coil. A dead-end pole should be shifted across the lead. A corner pole can, in general, be shifted by the same method as a straight line pole.

3.03 When practical, the pole derrick should be used for pole replacement. The old pole may be moved by cutting near the ground line and pulling the butt or by trenching. Cutting and pulling the butt will usually be more economical than trenching and trenching should only be used when special circumstances exist which indicate it would be a safer or more economical method.

3.04 The procedures to be followed are similar regardless of the type derrick being used.

3.05 The following illustrations show the procedures for cutting off the old pole and replacing it at its original location after pulling the butt:

- Position the derrick in the ground position (Fig. 1) and take a slight strain on the winch line.

- (2) Loosen the cable suspension clamp sufficiently to allow the strand to slip through it.
- (3) Snub the lower portion of the pole with rope slings to one or more digging bars or other substantial anchorage. Do not locate the bars where they will hinder the shifting of the pole when it is cut and lifted off the butt.
- (4) When using the derrick in the manner shown, the pole may be snubbed to the ground prop instead of digging bars if the ground plate is resting firmly on level ground, the prop is in a vertical position, and considerable down pressure can be placed on the prop. This is done with a 3/4-inch or larger snub rope, approximately 15 feet long, attached to the pole with a timber hitch about 2 feet above the ground then three wraps around the prop with successive wraps above the preceding turn. The free end should be terminated by three half hitches around the rope between the prop and the pole as shown in Fig. 2. When the pole has been cut off, untie the half hitches and leave the wraps around the prop to serve as a snub while the pole is being shifted off the butt and set on the ground.

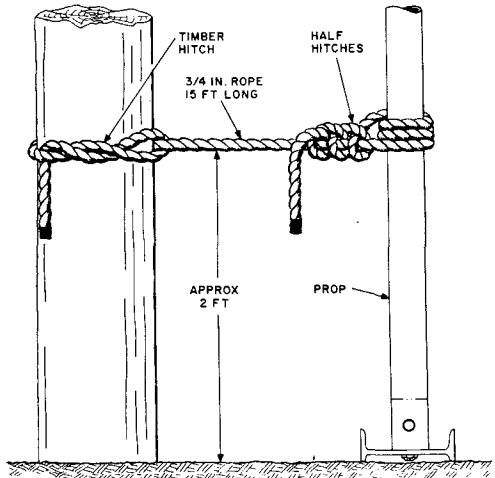


Fig. 1—Derrick In Ground Position

- (5) Saw through the pole near the ground line and lift it off the butt.
- (6) Slack off the snub rope and winch line enough to set the pole on the ground.
- (7) Push the top of the pole to a vertical position with pike poles.
- (8) Lash the pole to the main leg of the derrick as shown in Fig. 3 or support it with pike poles or rope side guys.
- (9) Tighten the cable suspension clamp.
- (10) The winch line can now be released to be used to remove the butt and raise the new pole.

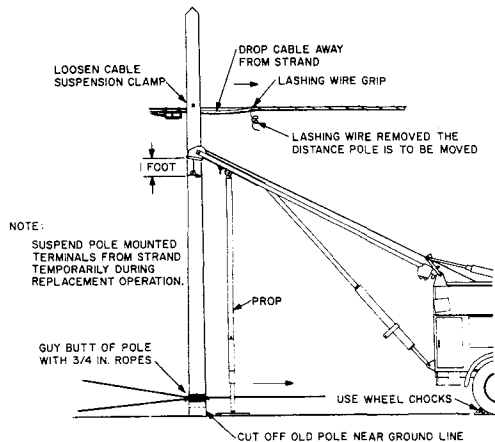


Fig. 2—Pole Tied To Prop

3.06 Fig. 4, 5, and 6 illustrate the method for trenching the old pole and replacing it in its original location by the use of the pole derrick.

- (1) Position the derrick and take a slight strain on the winch line (Fig. 4).
- (2) Loosen the cable suspension clamp sufficiently to allow the strand to slip through it. If

rope side guys are to be used they should be placed at this time.

- (3) Dig a trench the width of the pole and the depth of the setting in the direction it is to be shifted. (If the truck is equipped with a

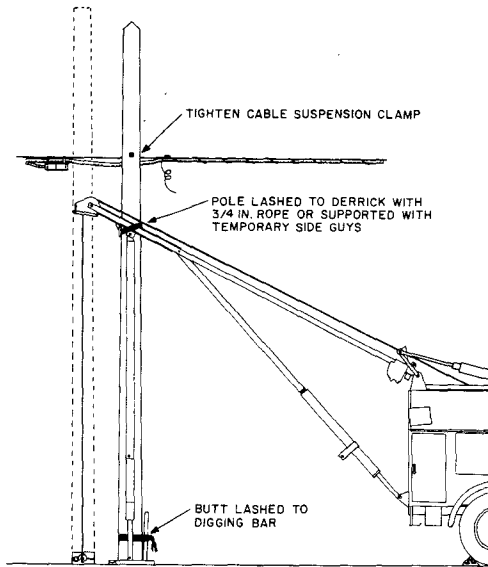


Fig. 3—Pole Lashed To Derrick

digger the trench should be dug first before Step (1).

- (4) Shift the butt of the pole with digging bars or rope blocks.
 - (5) Slack off slightly on the winch line and push the top of the pole to a vertical position with pike poles.
 - (6) Lash the pole to the main leg of the derrick as shown in Fig. 5, or support it with pike poles or rope side guys.
 - (7) Tighten the cable suspension clamp.
 - (8) The winch line can now be released and used to place the new pole.
- 3.07** Poles which are taller than the derrick is capable of handling may be placed by using the old pole as a gin pole (Fig. 6).
- 3.08** The same general principles apply when replacing poles in open wire lines. The job

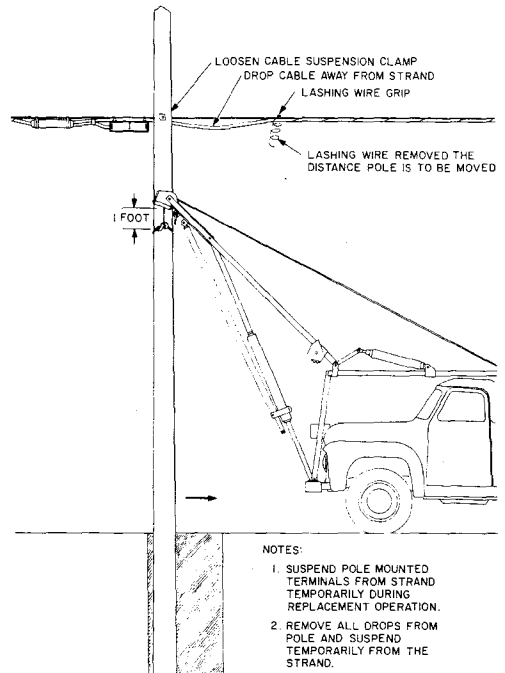


Fig. 4—Trenching Pole

should be planned to transfer the crossarms with the least amount of retying.

USE OF POLE JACK

3.09 When the pole location cannot be reached with power equipment, the pole jack can be used.

3.10 The following illustrations show the procedures for cutting off the old pole and replacing it in its original location by the use of the pole jack:

- (1) Support the top of the pole with 3/4-inch rope guys and loosen the cable suspension clamp.
- (2) Snub the lower portion of the pole with rope slings to one or more digging bars or other substantial anchorage.

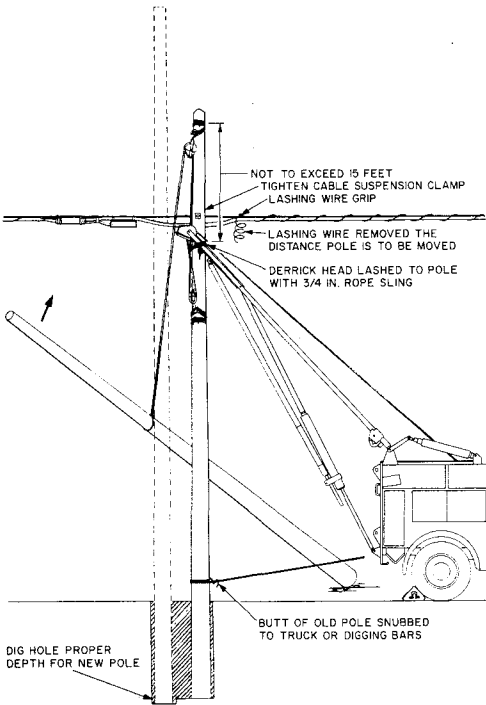


Fig. 5—Place New Pole

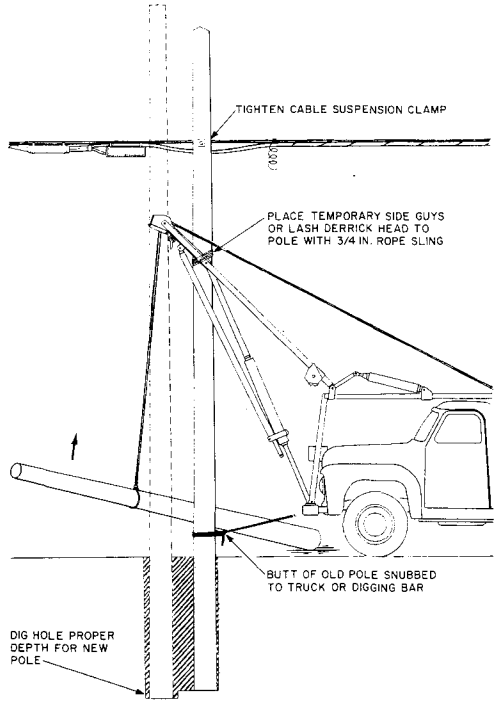


Fig. 6—Placing Tall Pole

- (3) Set up the pole jack on the opposite side toward which the pole is to be shifted. Before fastening the chain to the jack extend the rack bar sufficiently to enable setting the pole on the ground after it has been cut and shifted away from the butt (Fig. 7).
- (4) Apply a strain with the jack and saw through the pole near the ground line.
- (5) Shift the pole off the butt and slack off with the jack (Fig. 8) to set it on the ground. During this operation a workman attending the snubbing rope at the base of the pole can adjust the slack so the pole can be set down at the desired location.
- (6) Pull the top of the pole to a vertical position and adjust the rope guys to equal tension.
- (7) Jack out the pole butt.

- (8) Set the new pole by using pike poles or by using the old pole as a gin pole.

USE OF GIN POLE

3.11 At locations which are not accessible to the truck but where the winch line can be run to the pole location, it is advisable to do the pole replacement by the gin pole method with the power winch as described in Section 621-205-200. Where the winch line cannot be run to the pole location, blocks and tackle may be used.

3.12 Use the following method for trenching the old pole to use it as a gin pole:

- (1) Support the top of the pole with 3/4-inch rope guys and loosen the cable suspension clamp.

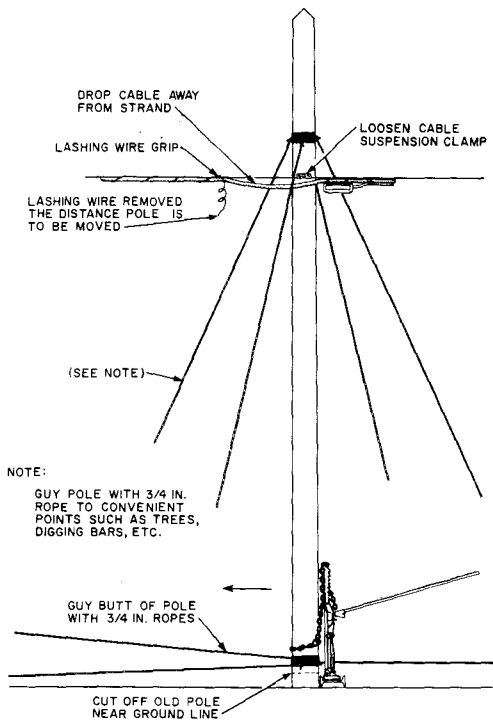


Fig. 7—Pole Jack Support

- (2) Dig the trench in the direction the pole is to be shifted (Fig. 9). In soft ground a board placed in the bottom of the trench to be used as a skid will facilitate shifting the butt of the pole.
- (3) Use the digging bars or rope blocks to shift the butt of the pole away from its original location as shown in Fig. 10.
- (4) Pull the top of the pole to a vertical position and adjust the rope guys to equal tension. Snub the lower portion of the pole with rope slings to digging bars or other substantial anchorage.
- (5) If conditions are such that it is desirable to remove the in-line rope guys before placing the new pole they may be removed after tightening the cable suspension clamp.

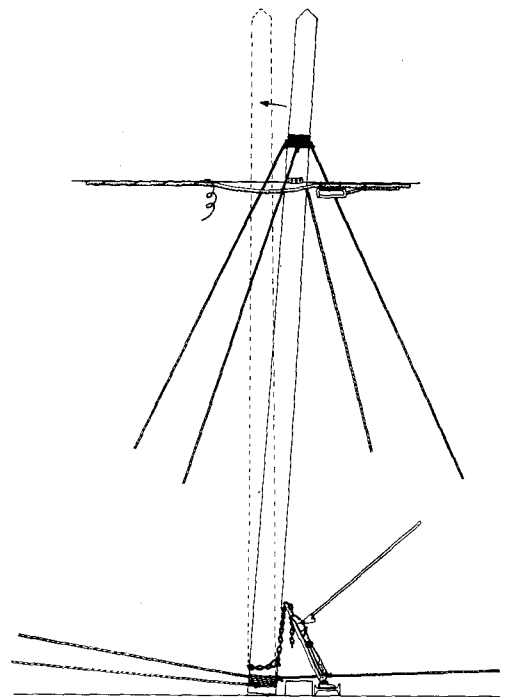


Fig. 8—Pole Jack Move

- (6) Proceed to rig the old pole as a gin pole and set the new pole. See Fig. 11.
- (7) To remove the old pole, transfer the snatch blocks and temporary head guys to the new pole and use it as a gin pole.

4. REPLACING H-FIXTURE POLES

4.01 The procedures to be followed to replace a pole in an H-fixture are very nearly the same as those previously discussed in this practice. However, H-fixtures are placed to support extraordinary loads, and extra care should be exercised to provide support and guying while replacing the pole. Support only one end of a fixture at one time by the method outlined in these instructions.

4.02 If the fixture is on a grade and both poles are to be replaced, it is usually preferable to replace first the pole at the downhill end of

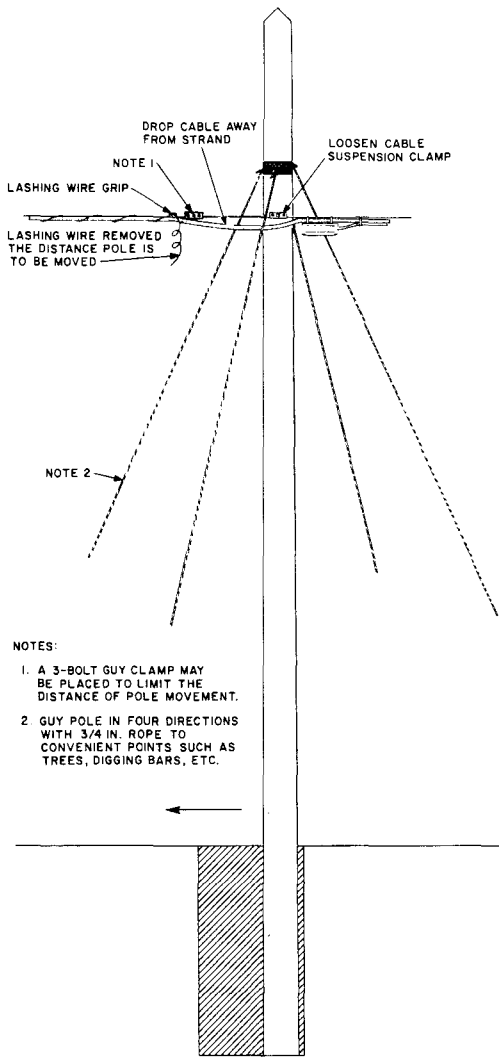


Fig. 9—Trenching Gin Pole

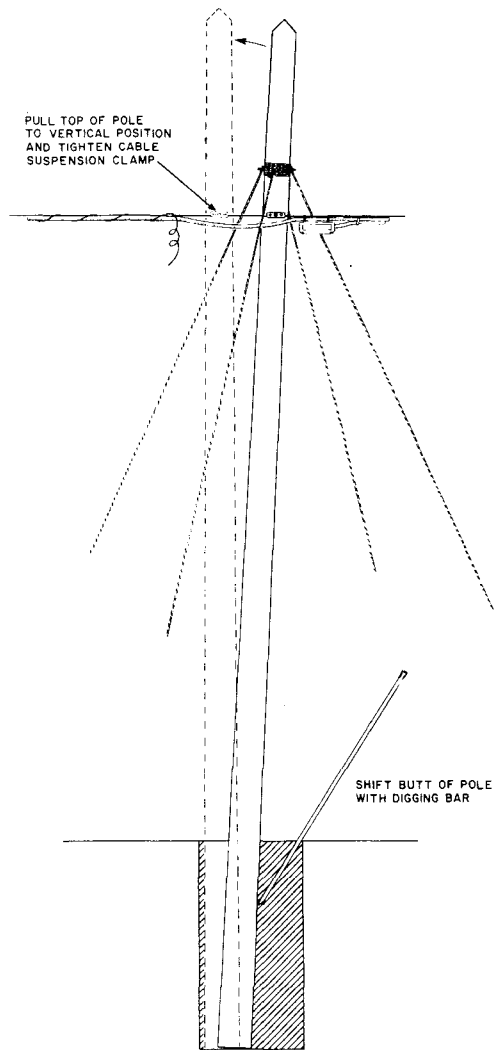


Fig. 10—Moving Gin Pole

the fixture. The strut and braces used at that end can then be shortened, if necessary, and used at the other end.

4.03 An example of the procedures is as follows:

(a) Using a 3/4-inch rope, place temporary sideguys from the top of each pole to digging bars, in tandem driven in the ground, to large trees, or to any suitable and safe support (Fig. 12).

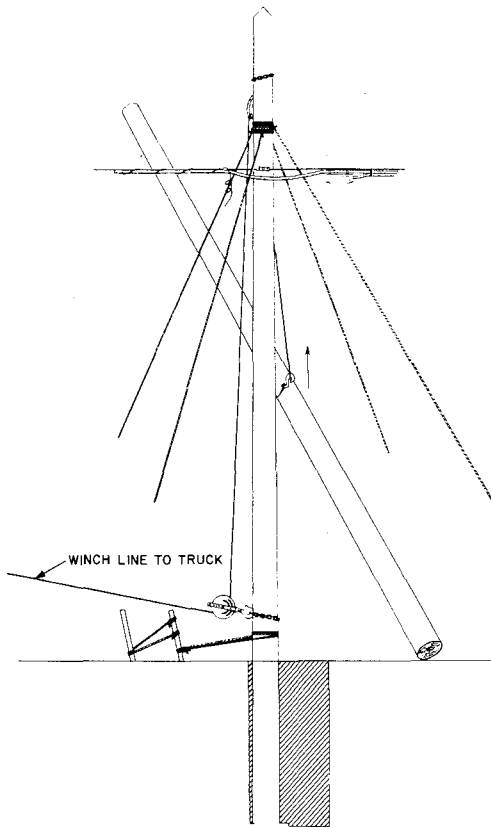


Fig. 11—Using Gin Pole

- (b) Loosen the earth around the pole to be replaced and jack the pole up an inch or two by means of two pole jacks placed on opposite sides of the pole.
- (c) Cut a section of sound timber from a pole which has been removed from some other location for use as a strut.

Note: The strut should be of such length that, when the jacks are lowered and the fixture is resting on this strut, the channel irons or I-beams will be level. When sawing this strut to proper length, cut each end at right angles to the axis of the piece to give even bearing when the strut is upright.

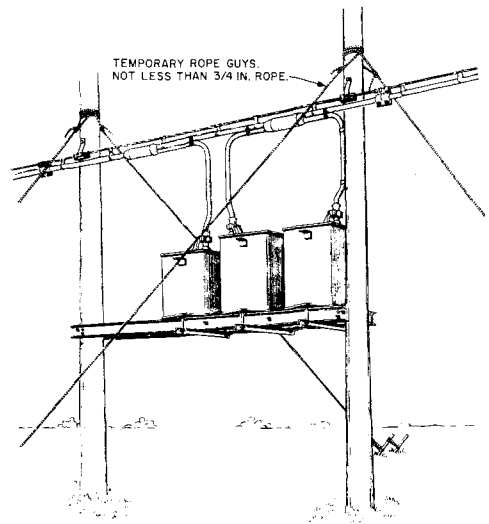


Fig. 12—Temporary Sideguys

- (d) Loosen the outside nuts on the spacer bolts near the pole to be replaced to permit spreading the channel irons or I-beams.

Note: It may be found necessary to loosen slightly the stay bolts holding the loading coil cases to the irons.

- (e) Detach the diagonal braces, if any, from the pole to be replaced, and swing them back toward the other pole so there will be no interference with work on the pole to be replaced.
- (f) Place the strut upright under and midway between the channel irons or I-beams about three feet from the pole to be replaced. Set the strut on a 3- or 4-inch by 12-inch by 2-1/2 foot plank, preferably oak or some other hard wood, placed on level ground. Place a similar plank between the upper end of the strut and the bottom of the channel irons or I-beams. Fig. 12 shows the general method of placing this strut.
- (g) Place temporary sideguys in both directions using 6M or 10M strand attached to the I-beams near the strut. Attach these guys to

digging bars in tandem, driven in the ground, to large trees, or to any other suitable or safe support. Screw-type anchors can be used where soil conditions permit. Recover these anchors after all work is completed. Do not attach these guys to the same temporary anchors as are used for guying the fixture poles.

Note: If permanent anchors exist or are placed as part of the work, attach the temporary guys to such anchors.

- (h) Attach the strut in place, lower the jacks attached to the pole to be replaced, allowing the weight at that end of the fixture to rest on the strut.
- (i) Cut the pole off and move it over (Fig. 13), pull the butt, and place the new pole as described in Part 3.

- (j) Attach the channel irons or I-beams and braces to the new pole and transfer the cable suspension clamp to secure the cables to the new pole.
- (k) Remove the supporting strut and plank. It may be necessary to dig under the lower plank to remove this strut.
- (l) Remove all temporary guying at the old pole.

4.04 Where marshy or very wet ground conditions are encountered, provide a foundation for the supporting strut. Sections of old poles laid parallel to and under the fixture (Fig. 14) can be used for this purpose. The lower plank, on which the supporting strut is placed should be long enough to be in contact with all the poles forming the foundation. The strut should be placed directly over one of the poles.

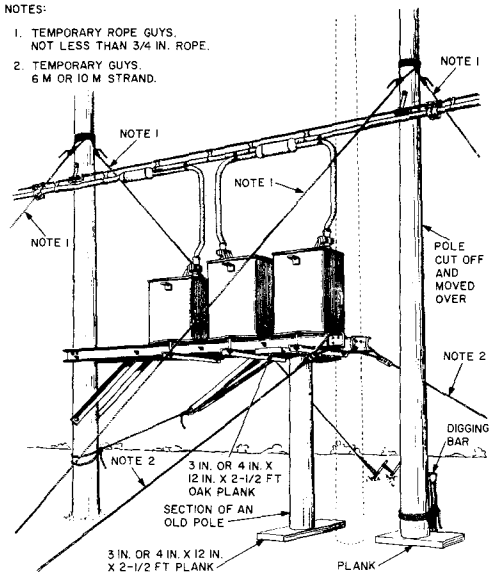


Fig. 13—Strut and Pole Arrangement

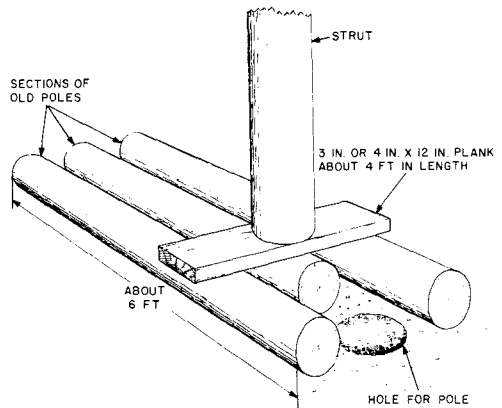


Fig. 14—Strut Support