

REPLACEMENT OF POLES

AERIAL CABLE LOADING FIXTURES

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1. GENERAL

1.01 This section covers methods to be followed in replacing poles at H type aerial cable loading fixtures. Due to the heavy loads carried by the poles at these fixtures, exercise extreme care in all operations.

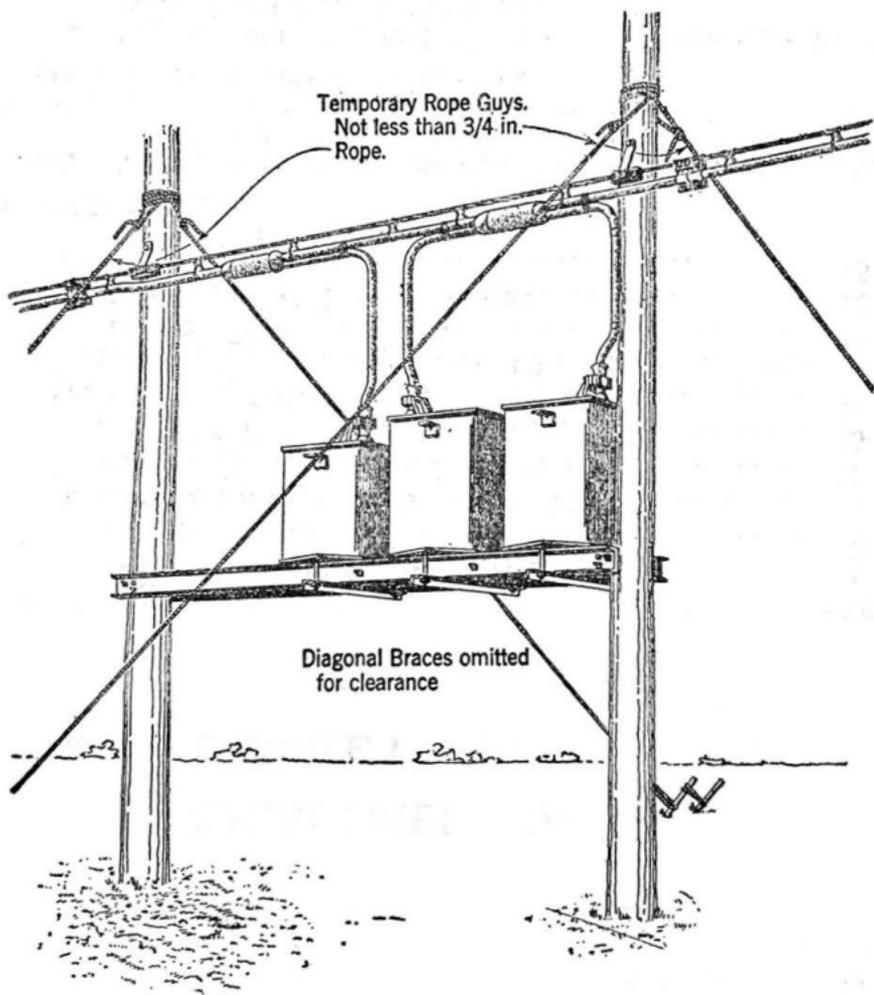
1.02 Support only one end of a fixture at one time by the method outlined in these instructions.

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

2. TEMPORARY GUYING

2.01 Place temporary side guys (unless permanent guys are in place) in both directions to both poles of the fixture. Use rope not smaller than $3/4$ inch. Attach these guys to digging bars, in tandem, driven in the ground, to large trees, or to any suitable and safe support. Four-inch screw type anchors can be used where soil conditions permit. Recover these anchors after all work is completed.

Note: If permanent guys are to be added to the fixture as part of the work, install the anchors and use them for securing the temporary guys.



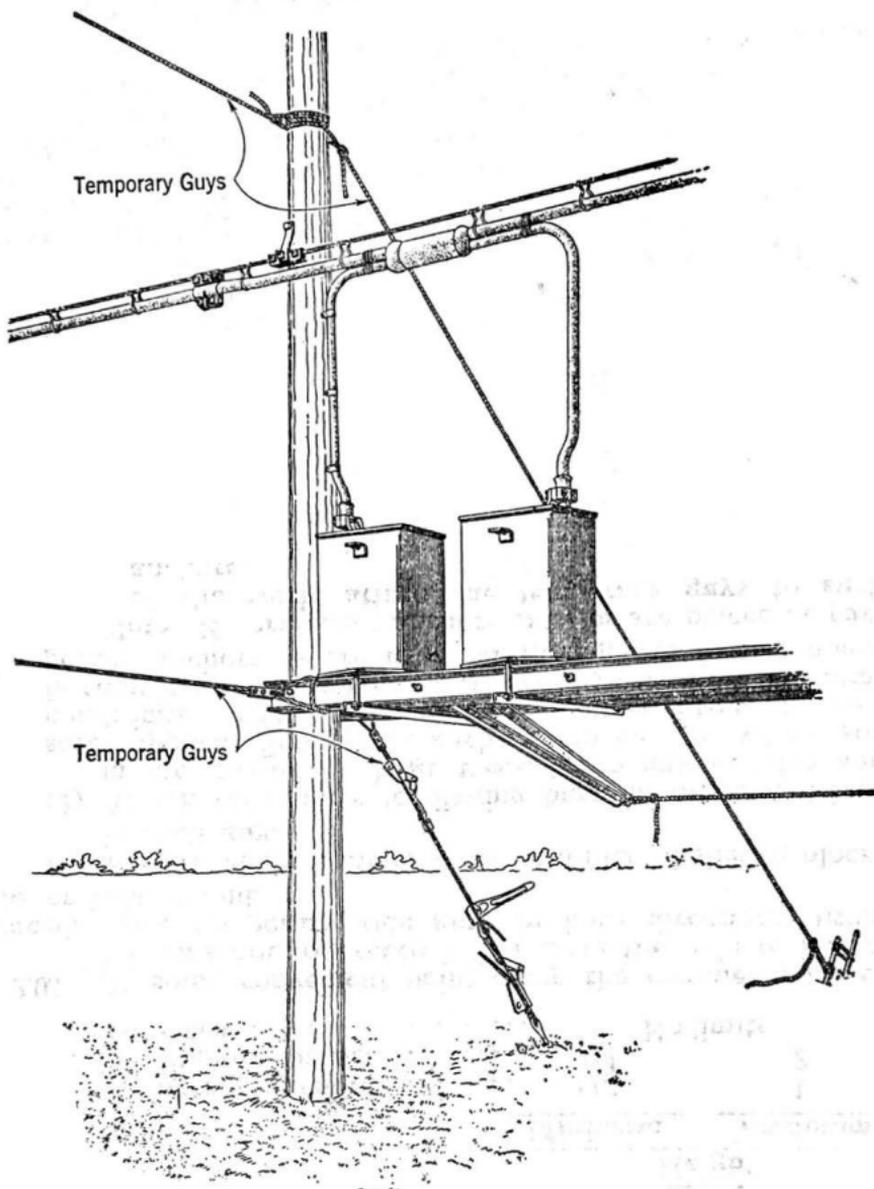
2.02 The lead of the temporary guys will, in general, depend upon conditions encountered at the fixtures to be replaced and the judgment of the foreman will be necessary to determine the best arrangement. For these temporary guys Lead should, in general, be as follows:
Height

	<u>Lead</u>	
	<u>Height</u>	
	<u>Minimum</u>	<u>Maximum</u>
To patent anchors.....	1/2	1
To digging bars.....	3/4	2
To trees	No limits	

2.03 At some convenient point along the channel irons or I beams not to exceed 2 feet from the pole to be replaced, place temporary side guys in both directions, using 6M or 10M strand.

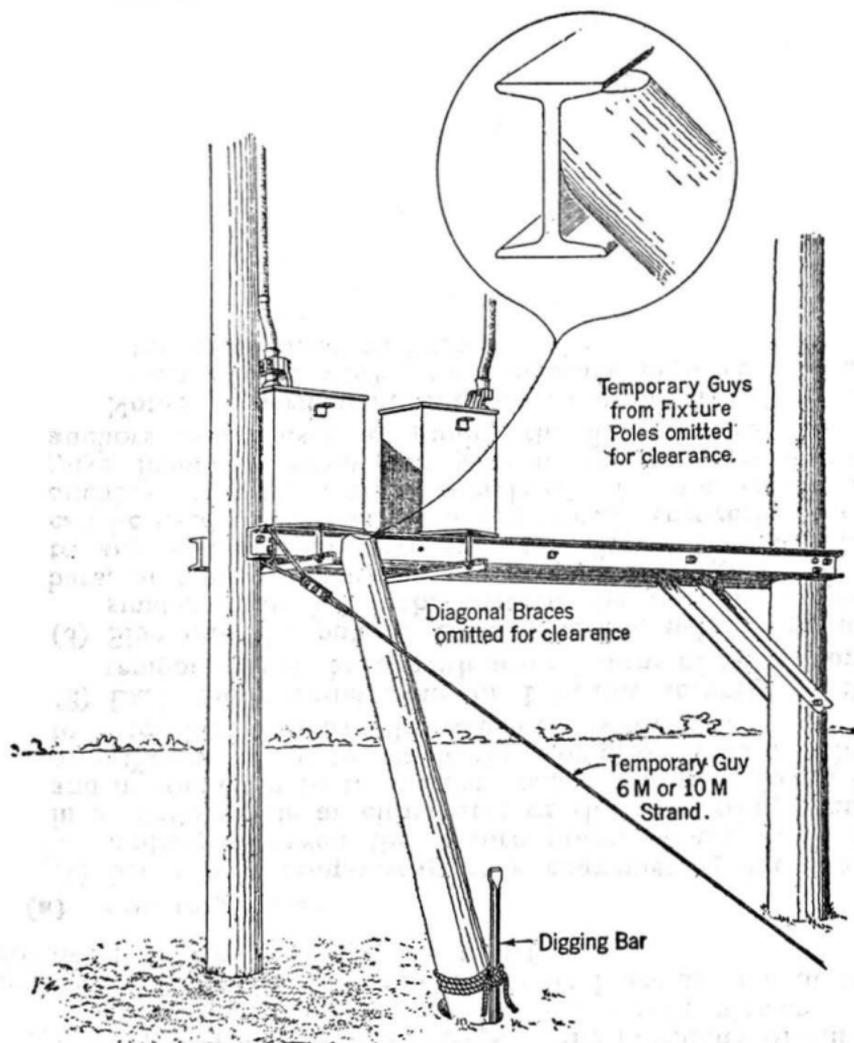
- (1) Place a chain hoist or a set of 3-inch, 3-sheave blocks in each guy.
- (2) Attach these guys to digging bars, in tandem, driven in the ground, to large trees, or to any suitable and safe support. Screw type anchors can be used where soil conditions permit. Recover these anchors after all work is 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.



2.04 Where the fixture is along a road and it is impracticable to place anchor guys on both sides, if the height of the channel irons or I beams above the ground is such as to prevent guying the beams across the road, place a brace as outlined in the following:

- (1) Cut a section of sound timber from an old pole.
- (2) Frame one end of this brace to permit fitting it under the beam or channel.
- (3) Dig a shallow hole in the ground for the lower end of the brace. Where soft ground is encountered, place a plank under the end of the brace. Where this footing is not secure, drive a bar in the ground and lash it to the lower end of the brace to prevent the brace from kicking out.
- (4) Lash this brace to the supporting strut mentioned in Part 3.

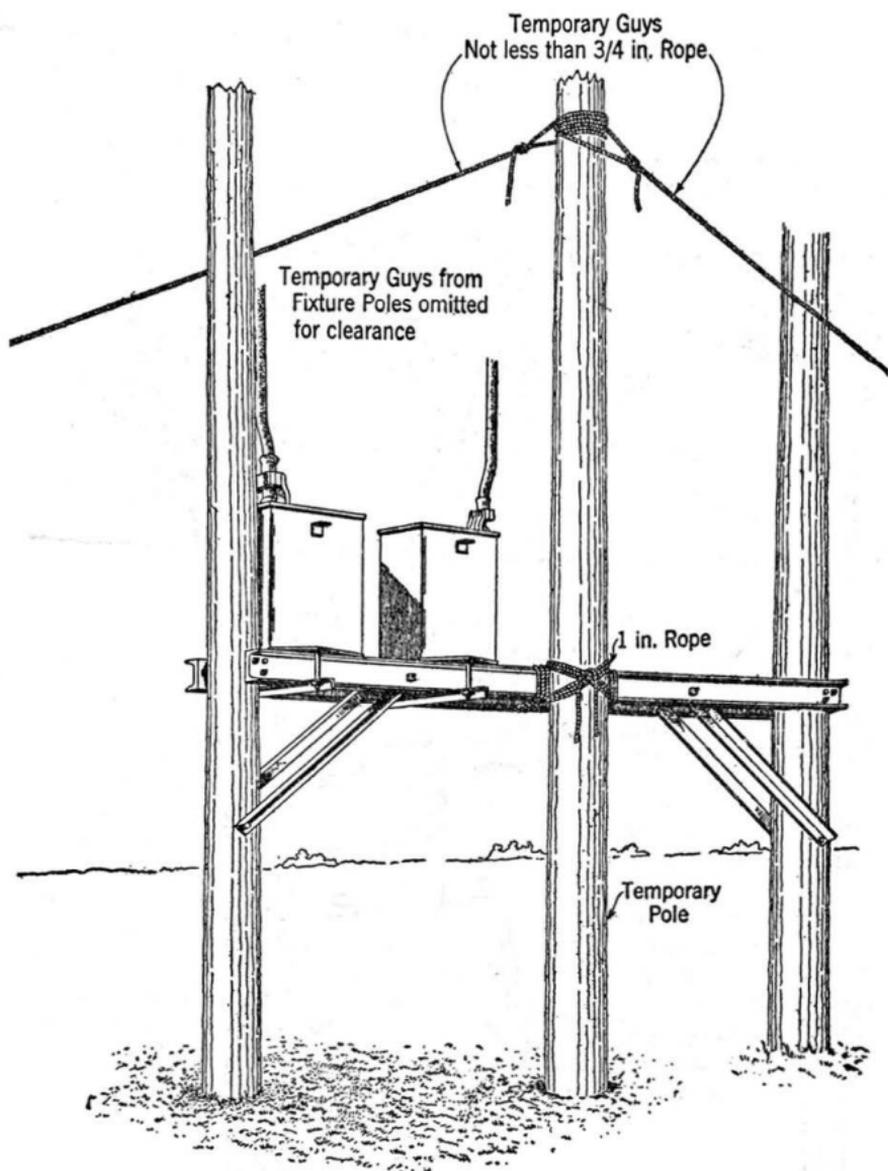


2.05 Where clearance over roads or the proximity of buildings, obstructions, etc., will not permit placing any guys directly from the channel irons or I beams, one of the following two methods may be used:

(a) Temporary Pole

- (1) Set a pole temporarily at a convenient point about midway between the fixture poles. Place this pole in a shallow hole at either side of the supporting beams and in contact with the nearer beam. The pole should be of sufficient height to enable the temporary guys attached to it to clear properly the road or obstructions.
- (2) Lash the channel irons or I beams securely to the temporary pole brace with several turns of 1-inch rope.
- (3) Side guy the pole in each direction, using rope not smaller than 3/4 inch. Attach the guys to digging bars, in tandem, driven in the ground, to large trees, or to any suitable and safe support. Screw type anchors can be used where soil conditions permit, recovering these anchors after all work is completed. Do not attach the guys from the temporary pole to the same temporary anchors as are used for guying the fixture poles.

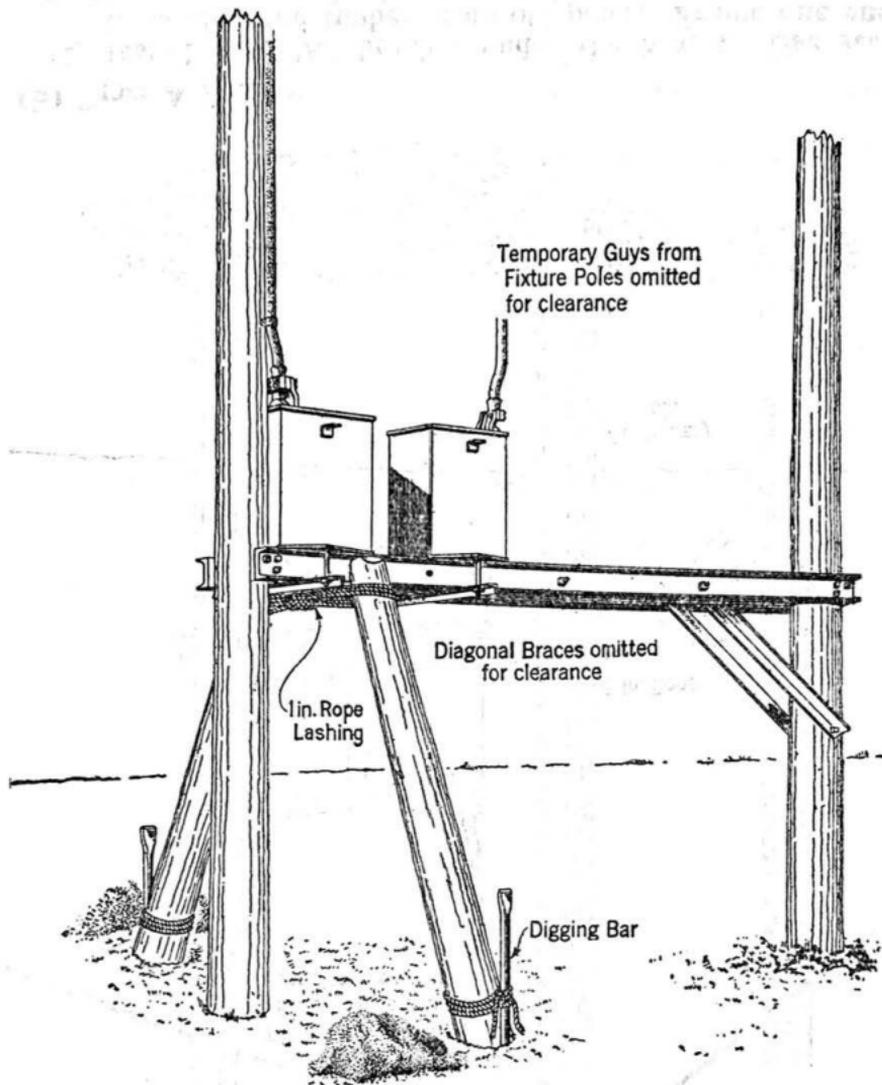
Note: If permanent anchors exist or are placed as part of the work, the temporary guys can be attached to these anchors.



(b) Type A Bracing

- (1) Install type "A" bracing under the beams. Use sections of sound timber from old poles. Frame one end of each section to fit the channel irons or I beams.
- (2) Set the lower end of each brace in a shallow hole. If the ground is soft, place a plank under the end of the brace.

- (3) Where the footing is not secure, drive bars into the ground at the lower end of each brace.
- (4) Lash the bars to the braces as shown below.



3. SUPPORTING FIXTURE BY MEANS OF STRUT

3.01 Place the strut for supporting the cross members of the fixtures as follows:

- (1) Cut a section of sound timber from a pole which has been recovered from some other location for use as a strut as outlined below.

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.

- (2) Loosen the earth around the pole to be replaced.
- (3) Jack the pole up an inch or two by means of two pole jacks placed on opposite sides of the pole.

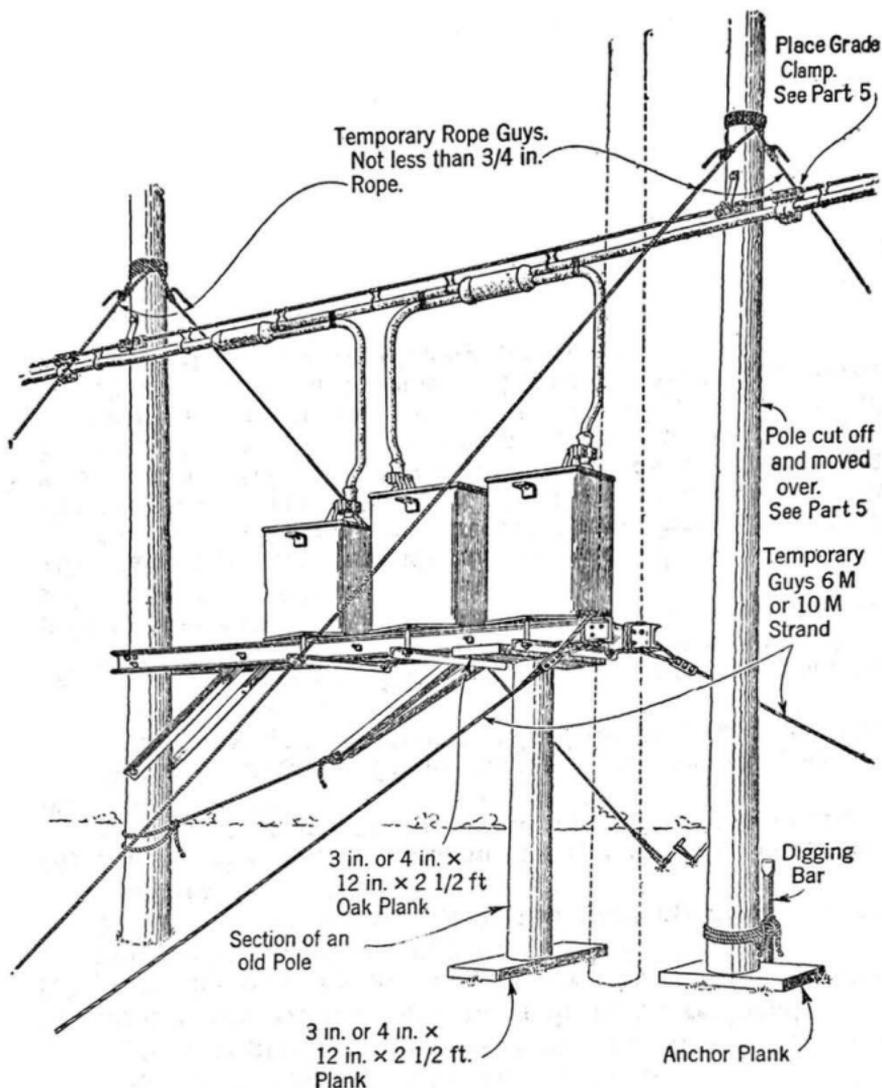
Note: In soft ground, jack the pole up about three inches.

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

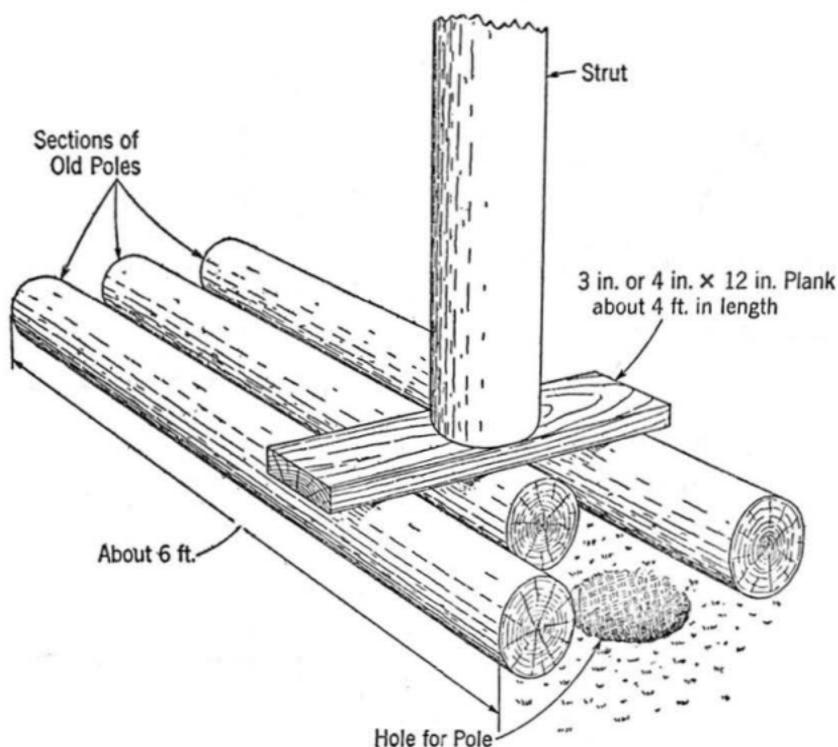
Note: It may be found necessary to loosen slightly the stay bolts holding the loading coil cases to the irons.

- (5) Detach the diagonal braces, if any, from the pole to be replaced, and swing them back toward the other pole so that there will be no interference with work on the pole to be replaced.

- (6) 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 x 12-inch x 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. The sketch following shows the general method of placing this strut.



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



(8) With 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.

(9) Level the channel irons or I beams both across and along the fixtures, using wedges where necessary. This will permit attachment of the channel irons or I beams to the new pole without further leveling.

4. SUPPORTING SMALL LOADING COIL CASES

4.01 Where small loading coil cases are attached to the poles to be replaced, exercise care to prevent injury to the stubs or wiped joints.

4.02 If the weight of the case does not exceed 200 pounds, proceed as follows:

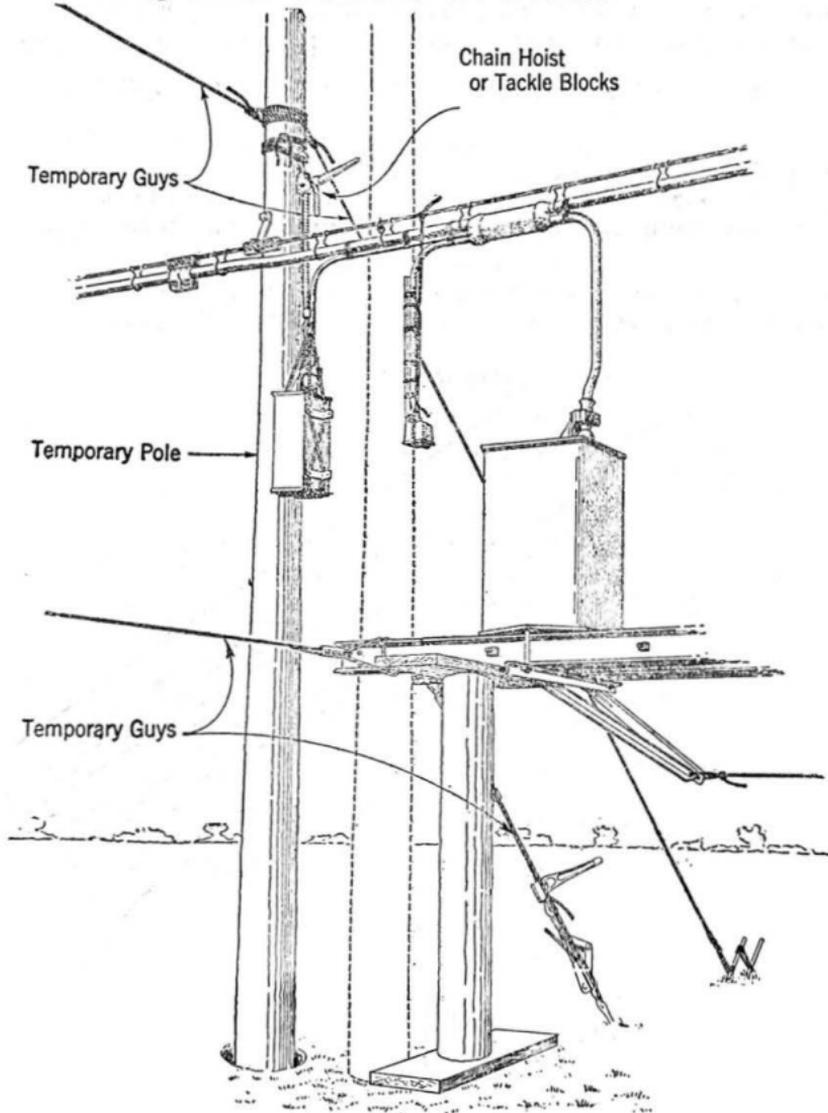
(1) Detach the case from the pole and temporarily support it from the suspension strand by means of rope lashed around the case, which, in turn, is tied to the strand as shown in paragraph 4.03.

(2) Lash an upright timber to the case and at intervals along the stub in order to hold the stub vertically.

(3) Lash this timber to the strand where this is considered necessary.

4.03 If the weight of the 3-unit and larger auxiliary loading coil case or the program transmission case exceeds 200 pounds, temporarily suspending such cases from the suspension strand is undesirable. Under such conditions use the following method for supporting the cases.

(1) Place a chain hoist or blocks and tackle and temporarily support the auxiliary loading coil case. The following sketch illustrates the method.



Note: In general, the fixture pole can be moved over to the location shown for the temporary pole but if this is impracticable place a gin pole at the location shown for the temporary pole.

- (2) Cut off and move the fixture pole to be replaced ahead about 3 feet as described in Part 5.

4.04 When the new pole has been set, transfer the auxiliary loading coil cases to it in such a position as to give the best setup for the stub cables.

5. MOVING OLD POLE

5.01 Loosen the suspension clamps only enough to permit sliding them along the strands. Do not remove the strands from the clamps. At this time attach two hand lines near the top of the pole. One of the lines is to be used for pulling the pole away from the fixture and the other, which should be snubbed around the other pole of the fixture, is to be used as a back guy for controlling the movement of the pole as it is being pulled away from the fixture. Place a grade clamp a sufficient distance from the pole to be moved so that it will not interfere with moving the pole. Remove the existing grade clamp and cable rings so that the pole with suspension clamp attached to it can be moved along the strand.

5.02 Remove the 1-inch bolts attached through the channel irons or I beams.

5.03 Cut off the fixture pole a few inches above the ground line, making the cut at right angles to the axis of the pole. If necessary, level off the ground to permit moving the old pole about three feet away from the fixture. A plank should usually be placed from the butt in the direction the pole is to be moved and the bottom of the old pole pulled over onto this plank and along the line a distance of about three feet. The top should then be pulled along the line by means of the hand line. As this pole will continue to carry the weight of the cables and may possibly be used as a gin, drive a bar in the ground close to the butt of the pole and lash it to the butt. In soft ground the pole should be supported by the plank but in firm soil it should be placed in a shallow hole. Where the suspension strand has a normal change in grade at fixture poles the top of the old pole can be moved along the line by means of a chain hoist or blocks and tackle. Where the change in grade is too great to permit moving the fixture pole, place a gin pole in accordance with the note below paragraph 4.03.

5.04 Pull out the old butt, using a pole derrick, jacks, or the old pole as a gin.

5.05 All temporary guys should be kept sufficiently tight to prevent any side motion of the fixture, which is now supported at one end by the strut, as the old pole is moved.

5.06 Where two cables are supported on opposite ends of the same suspension bolt it may be found necessary to spread these cables in order to set the new pole. Place a rope sling of 1-inch rope or an approved gin device at the top of the pole, high enough to attach a chain hoist and support one of the cables from the hoist. The cable having no loading coil stubs if such exists at the fixture should be the one supported in this manner. The suspension clamp should then be removed and the cable held away from the pole by means of a temporary guy. If a cable and loading coil stubs are held away from the pole in this manner, exercise extreme care in moving this cable to prevent injury to the wiped joints.

6. SETTING NEW POLE

6.01 Dig out pole hole sufficiently to permit setting new pole to the specified depth for its height. Tamp the bottom of the hole thoroughly so that the new pole will not settle when the weight of the fixture is placed on it.

6.02 Except where otherwise specified, the new pole shall be of the same height as the normal line poles. Care should be taken to select a pole having approximately the same diameter as the old pole at the channel iron location.

6.03 Using a pole derrick or the old pole as a gin, raise the new pole into position. Exercise extreme care in this operation so that the temporary supporting strut will not be dislodged or moved.

6.04 Align the new pole both across and along the line. Backfill the hole in accordance with standard instructions.

6.05 Bore the new pole from each side and install the one-inch bolts with the channel irons or I beams in place. Bore for the cable suspension bolts, attach and tighten the suspension clamps that secure the cables to the new pole.

6.06 If the replaced pole was permanently guyed, transfer these guys to the new pole. If the fixture is in soft soil and conditions are such that permanent guys cannot be placed, install ground braces in accordance with Section G21.145.

7. REMOVAL OF SUPPORTING STRUT, OLD POLE AND TEMPORARY GUYS

7.01 Remove the old pole, lowering it to the ground by means of a derrick or by means of a rope snubbed around the new pole.

7.02 Remove the supporting strut and planks. It will probably be necessary to dig under the lower plank to remove this strut.

7.03 Remove all temporary guys.

7.04 Attach the diagonal braces, if any, to the new pole.

8. REPLACING SECOND POLE OF FIXTURE

8.01 When the second pole of a fixture is to be replaced, this shall be done in the manner outlined above. Except where otherwise specified, the pole shall be of the same height as the normal line poles. Care should be taken to select a pole having approximately the same diameter as the old pole at the channel iron.

9. MARKING NEW POLES

9.01 Mark the new pole in accordance with standard instructions.