

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

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POLE REPLACING
ORIGINAL LOCATION

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1. GENERAL

- 1.01 This section describes methods of replacing poles in their original location.
- 1.02 The situations discussed in this section are intended to develop broad principles on how to do this type of work safely and economically. For situations not covered, the application of these principles will aid in doing the job.
- 1.03 It is advantageous to replace a pole in its original location when:
- (a) it carries a cable terminal, a load coil, or a lateral cable;
 - (b) it carries open wire, and transferring and retieing operations can be noticeably reduced;
 - (c) it has been so located because of reference to a property line;
 - (d) the surrounding soil conditions present difficult digging.
- 1.04 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.
- 1.05 Poles carrying open wire supported by crossarms should, in general, be shifted across the lead.

1.06 There may be situations where it would be practicable 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 the practices, "Erecting Poles and Stubs," "Pole Removal," and "Placing Poles Near Electric Power Lines" 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. POLE DERRICK METHOD

3.01 When practicable 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 hence trenching should only be used when special circumstances exist which indicate it would be a safer or more economical method.

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

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

- (1) Position the derrick in the ground position 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.

Loosen Cable
Suspension Clamp.

Drop cable away
from strand.

1 Foot

Lashing Wire Grip

Lashing wire removed the
distance pole is to be moved.

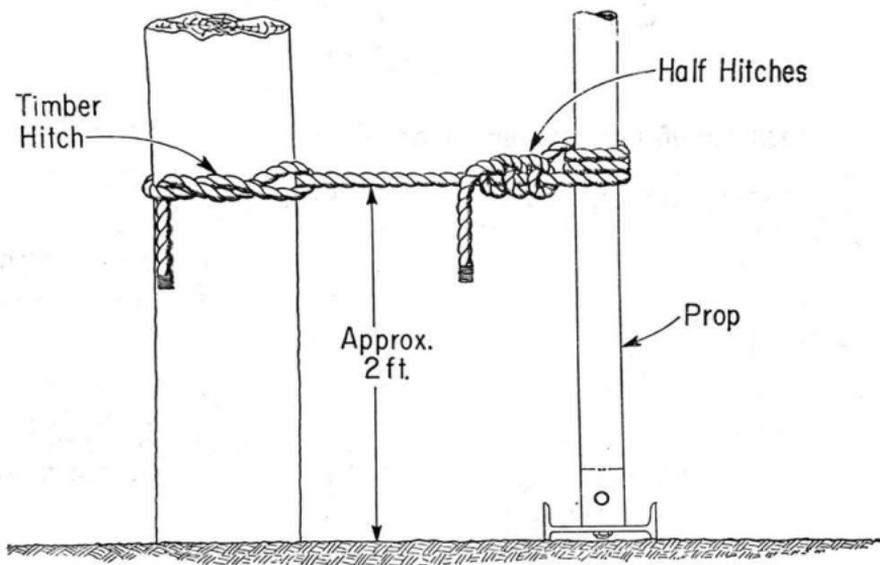
Note: Suspend pole
mounted terminals from
strand temporarily during
replacement operation.

Guy butt of pole
with $\frac{3}{4}$ in. ropes.

Use Wheel Chocks.

Cut off old pole near ground line.

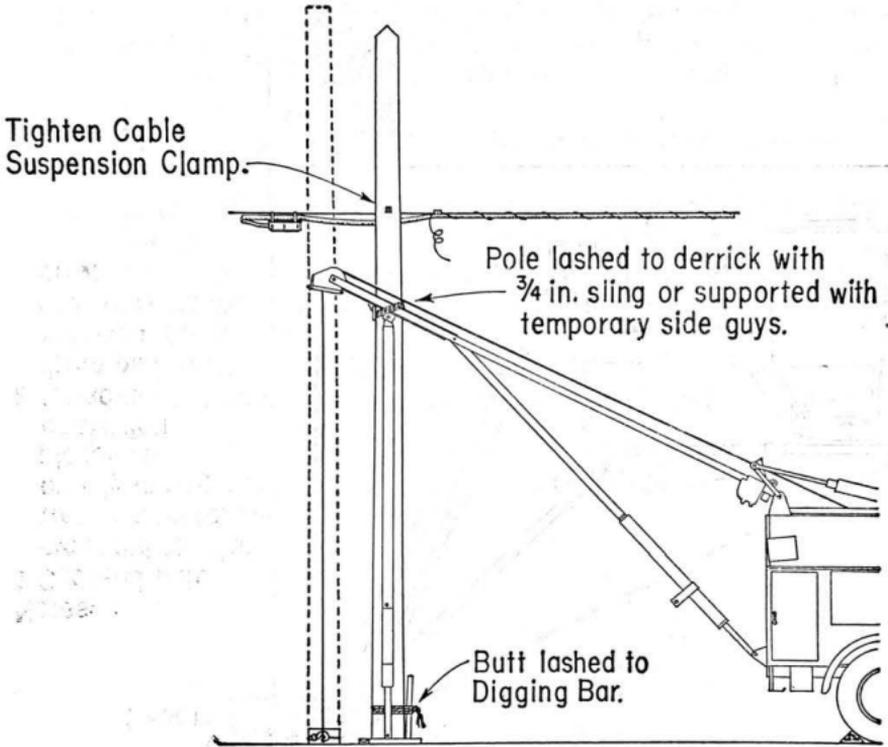
(4) When using the derrick in the manner shown the pole may be snubbed to the ground prop instead of digging bars if the ground plate is resting firmly on level ground, the prop is in a vertical position, and considerable down pressure can be placed on the prop. This is done with a $3/4$ inch or larger 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 the following illustration.



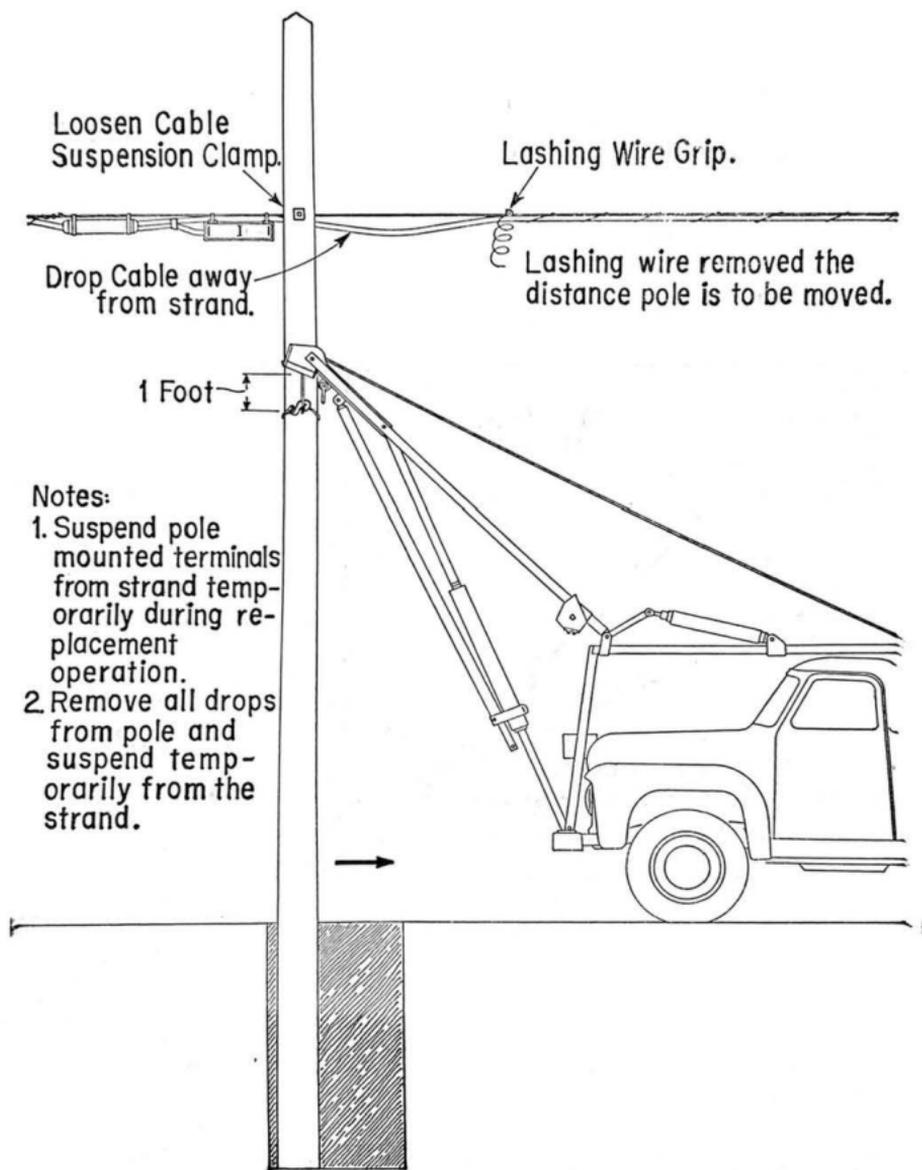
When the pole has been cut off, untie the half hitches and leave the wraps around the prop to serve as a snub while the pole is being shifted off the butt and set on the ground.

- (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 the following illustration or support it with pike poles or rope side guys.

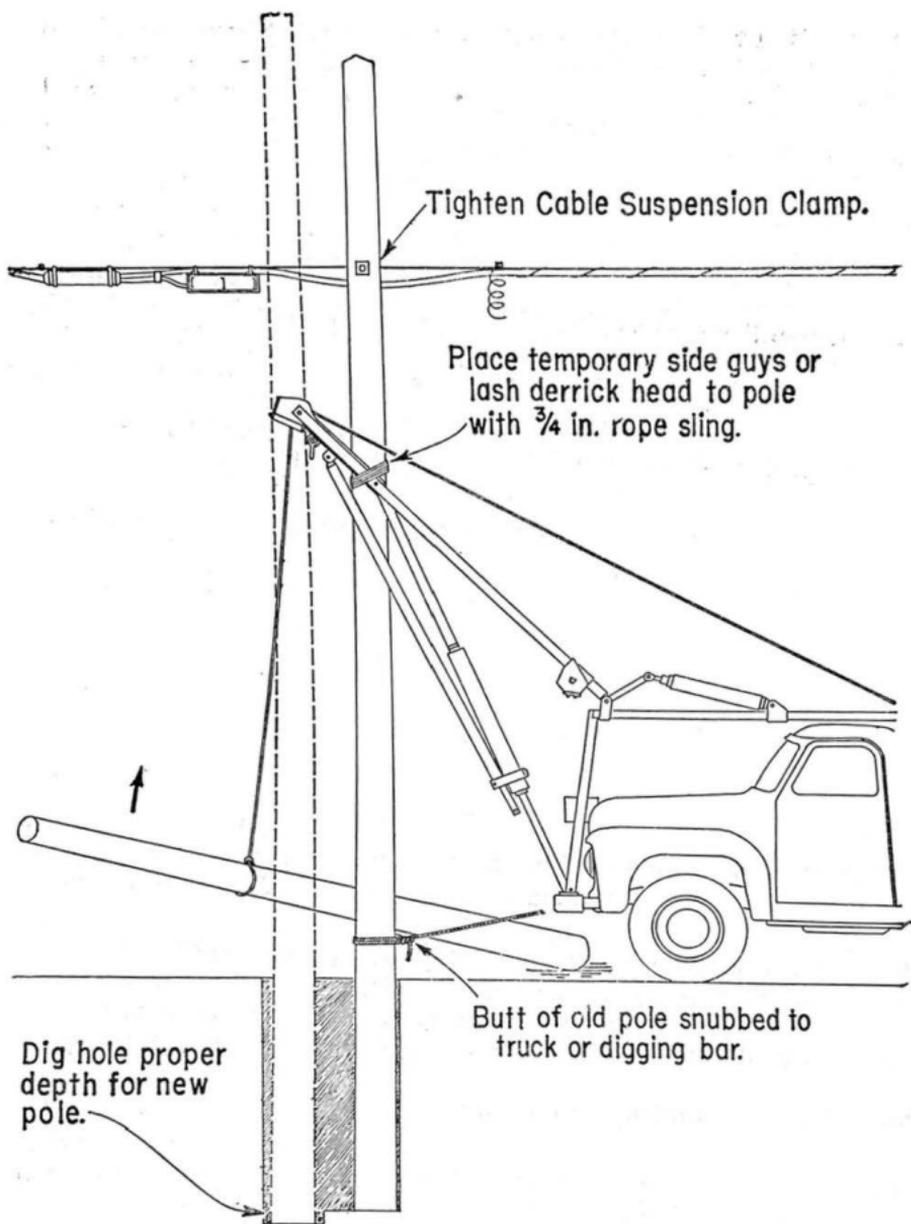
- (9) Tighten the cable suspension clamp.
- (10) The winch line can now be released to be used to remove the butt and raise the new pole.



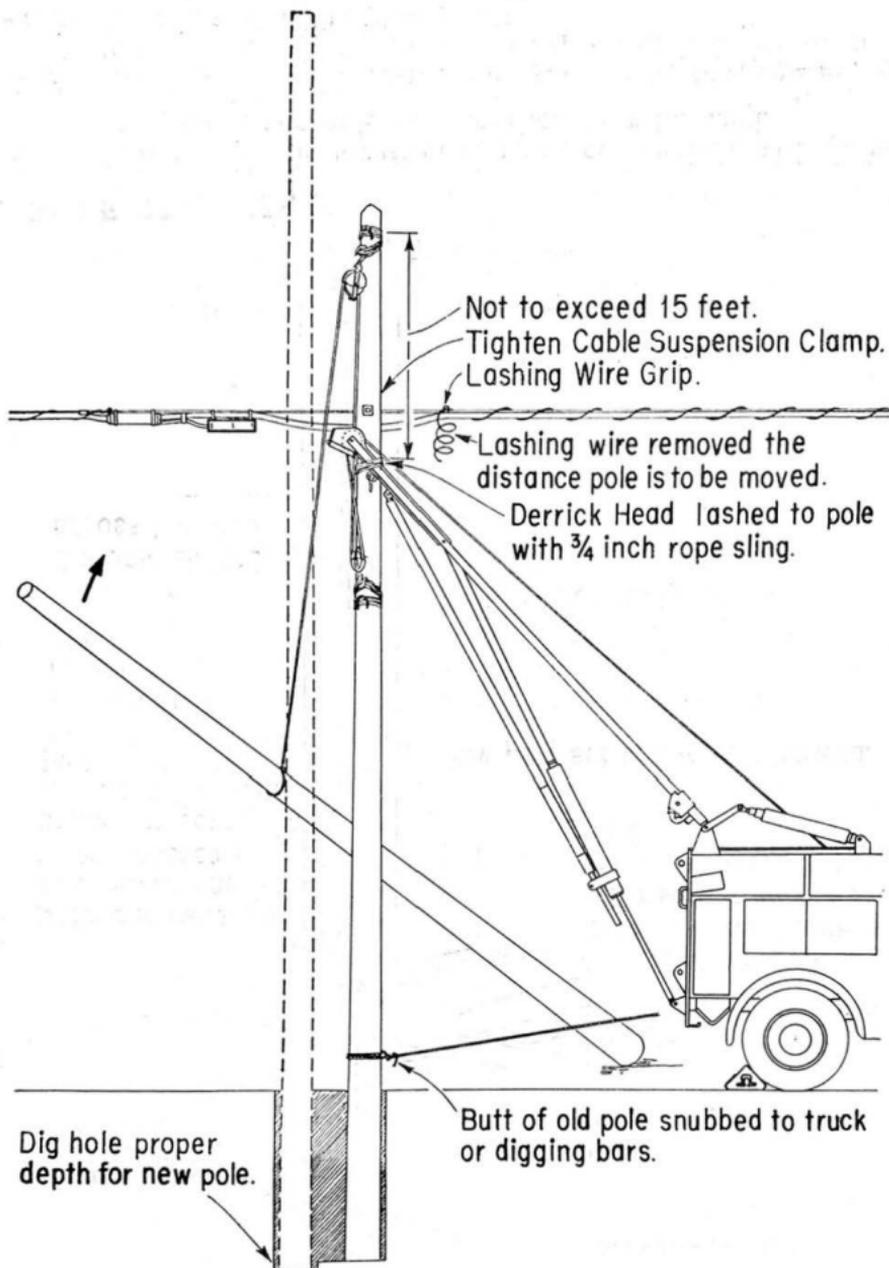
3.04 The following illustrations show the procedures for trenching the old pole and replacing it in its original location by the use of the pole derrick:



- (1) Position the derrick and take a slight strain on the winch line.
- (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 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 the following illustration 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.

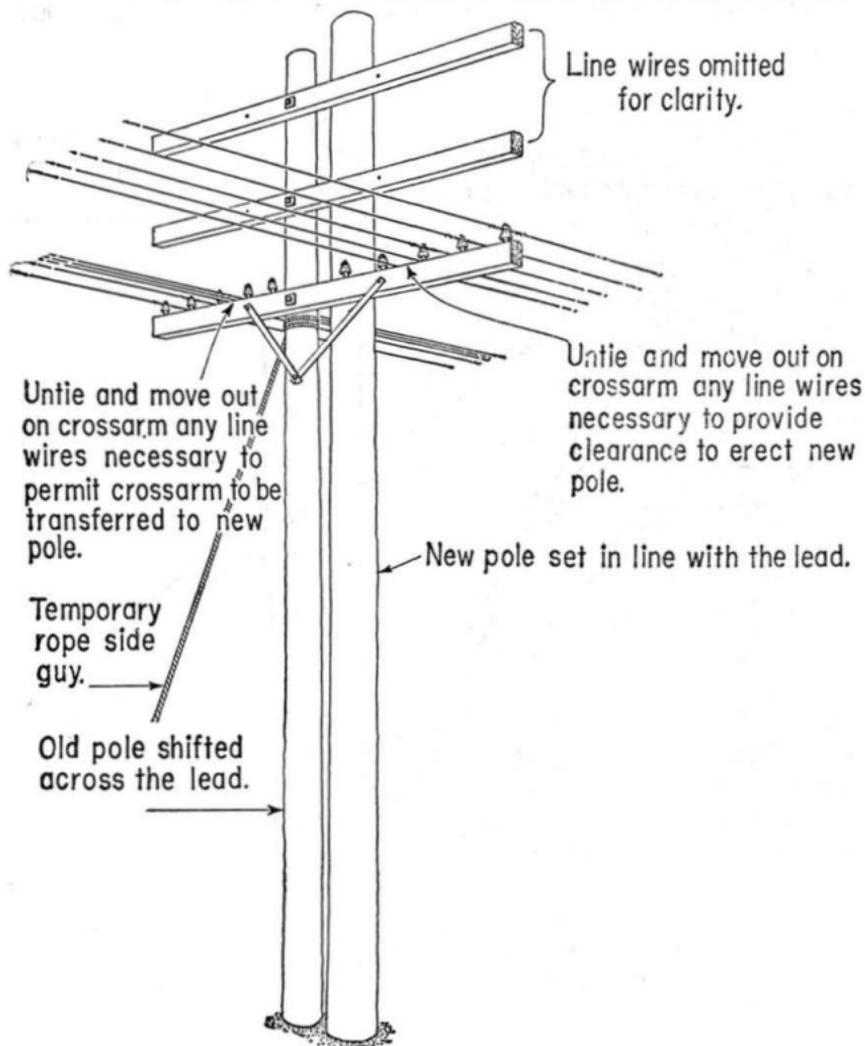


3.05 Taller poles can be set by using the old pole as a gin pole as shown.



3.06 The same general principles set forth in the preceding paragraphs for replacing poles supporting aerial cable apply to poles supporting open wire. The retieing operations can be noticeably reduced if the job is planned to transfer the cross-arms to the new pole with the minimum amount of line wires being untied. This can be done if the old pole is shifted across

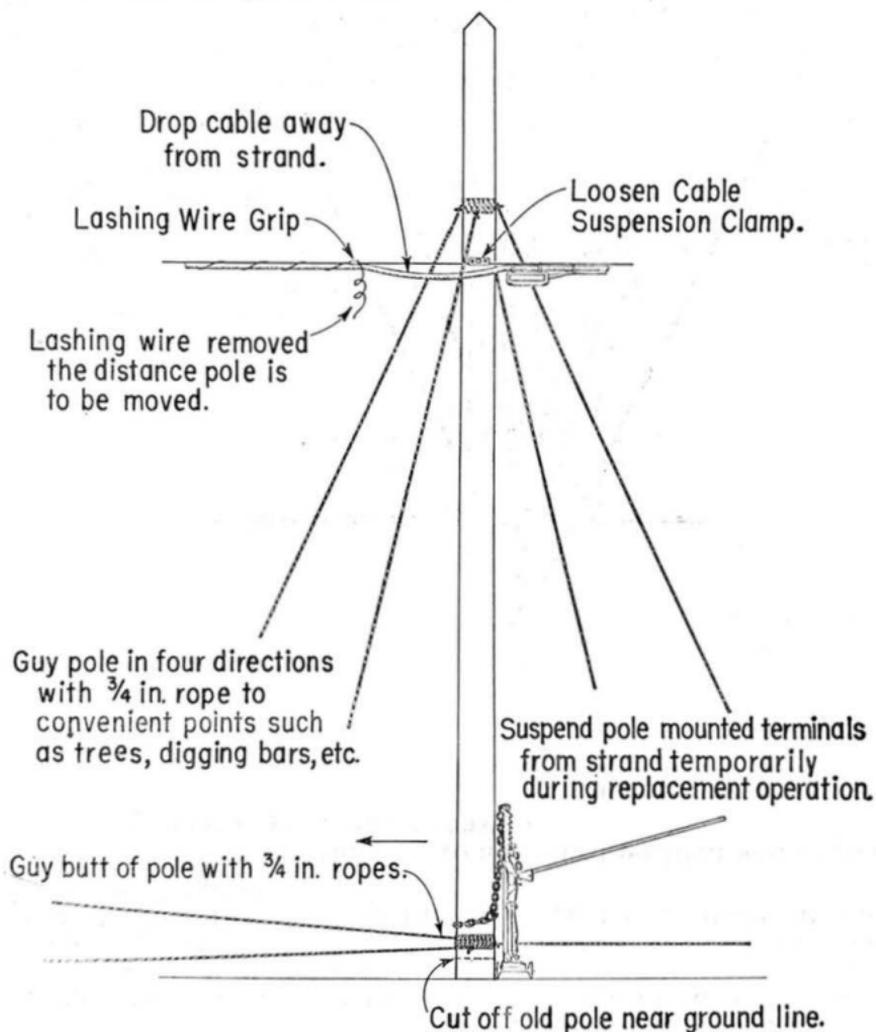
the lead as shown in the following illustration. Lash the old and new poles together with 3/4-inch slings or support the old pole by any of the methods described in this practice which apply to the method used to replace the pole. This shall be done before transferring the crossarms or other pole attachments.



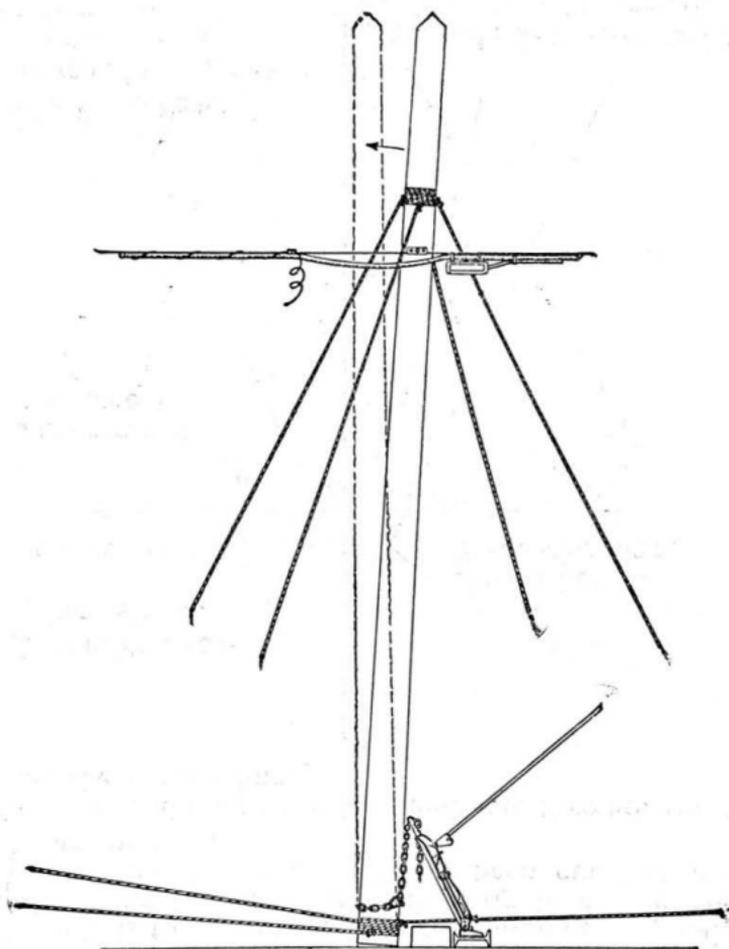
4. POLE JACK METHOD

- 4.01 When the pole location can not be reached with power equipment the pole jack method may be used.
- 4.02 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.
- (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.
- (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 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 either by the gin pole or pike pole method as covered in the practices "Erecting Poles and Stubs."

4.03 To replace a pole supporting open wire see Paragraph 3.06.

5. GIN POLE METHOD

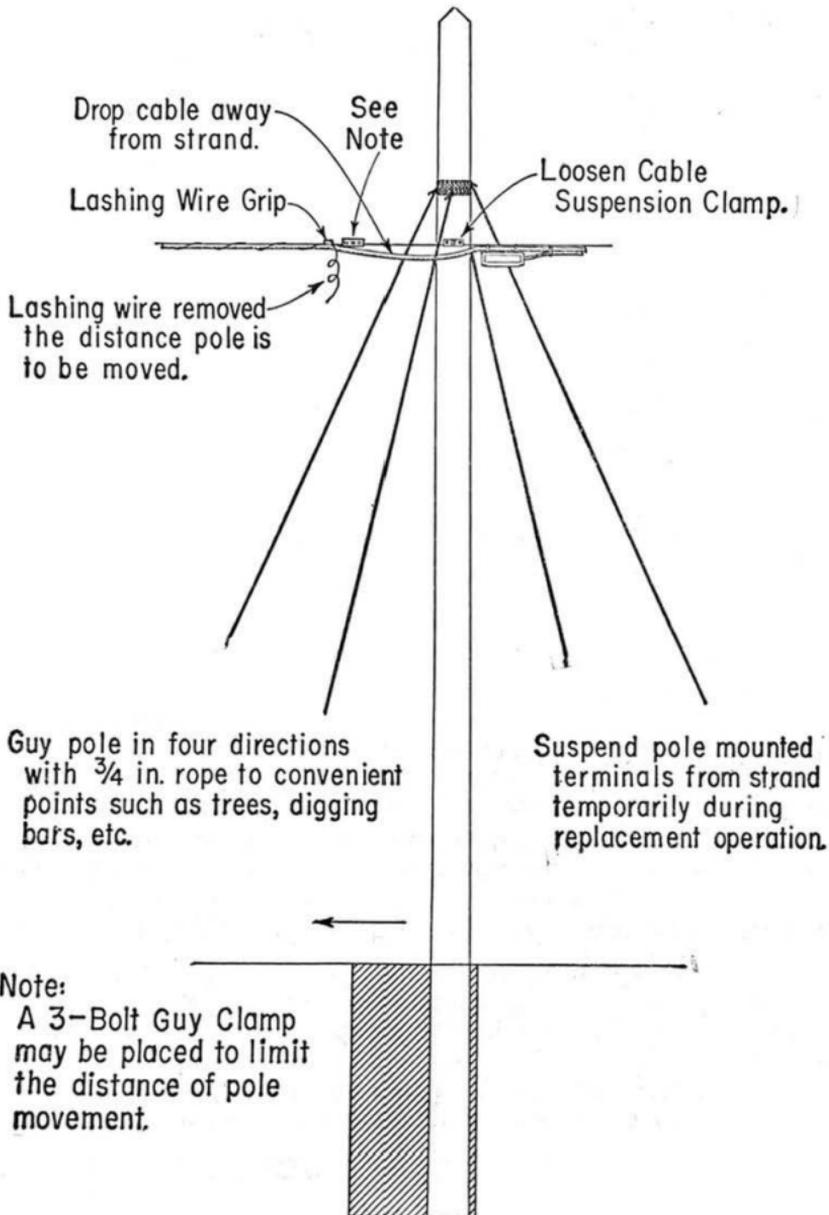
5.01 At locations which are not accessible to the truck but where the winch line can be run to the pole location, it is advisable to do the pole replacement by the gin pole method with the power winch as described in the practices "Erecting Poles and Stubs." Where the winch line can not be run to the pole location blocks and tackle may be used.

5.02 The following illustrations show the 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.

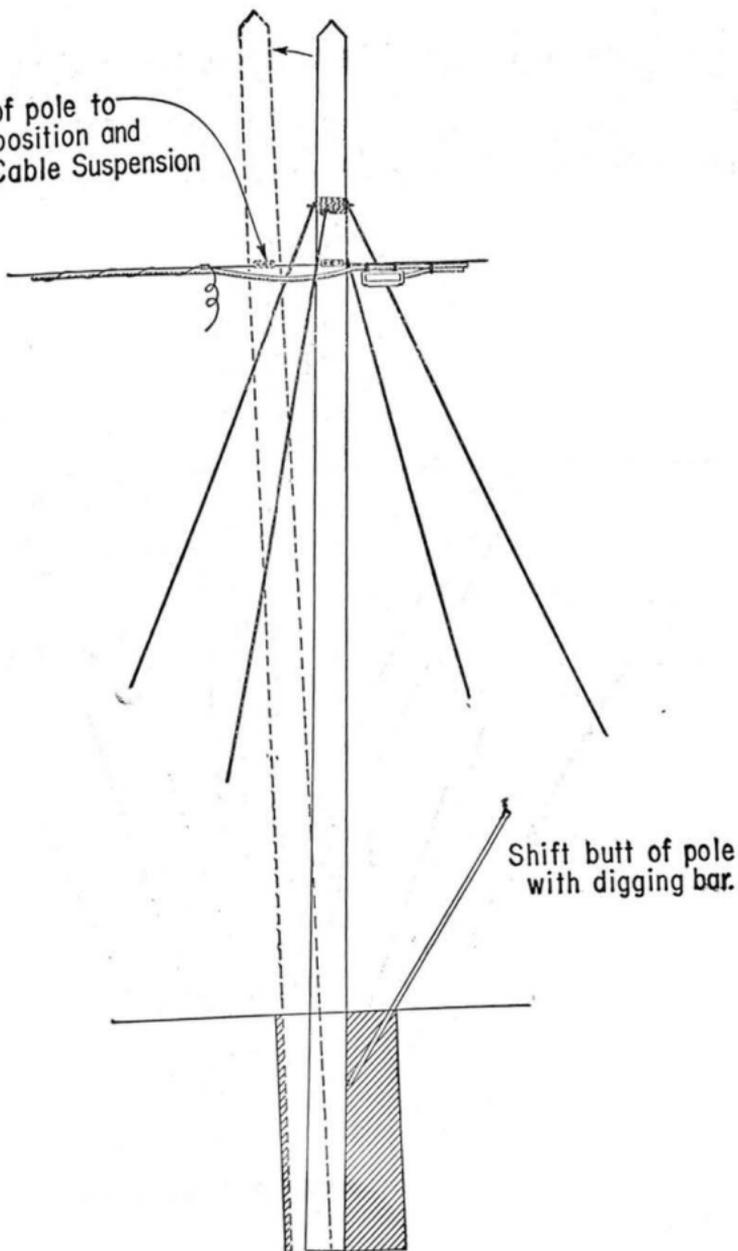
(2) Dig the trench in the direction the pole is to be shifted.

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.



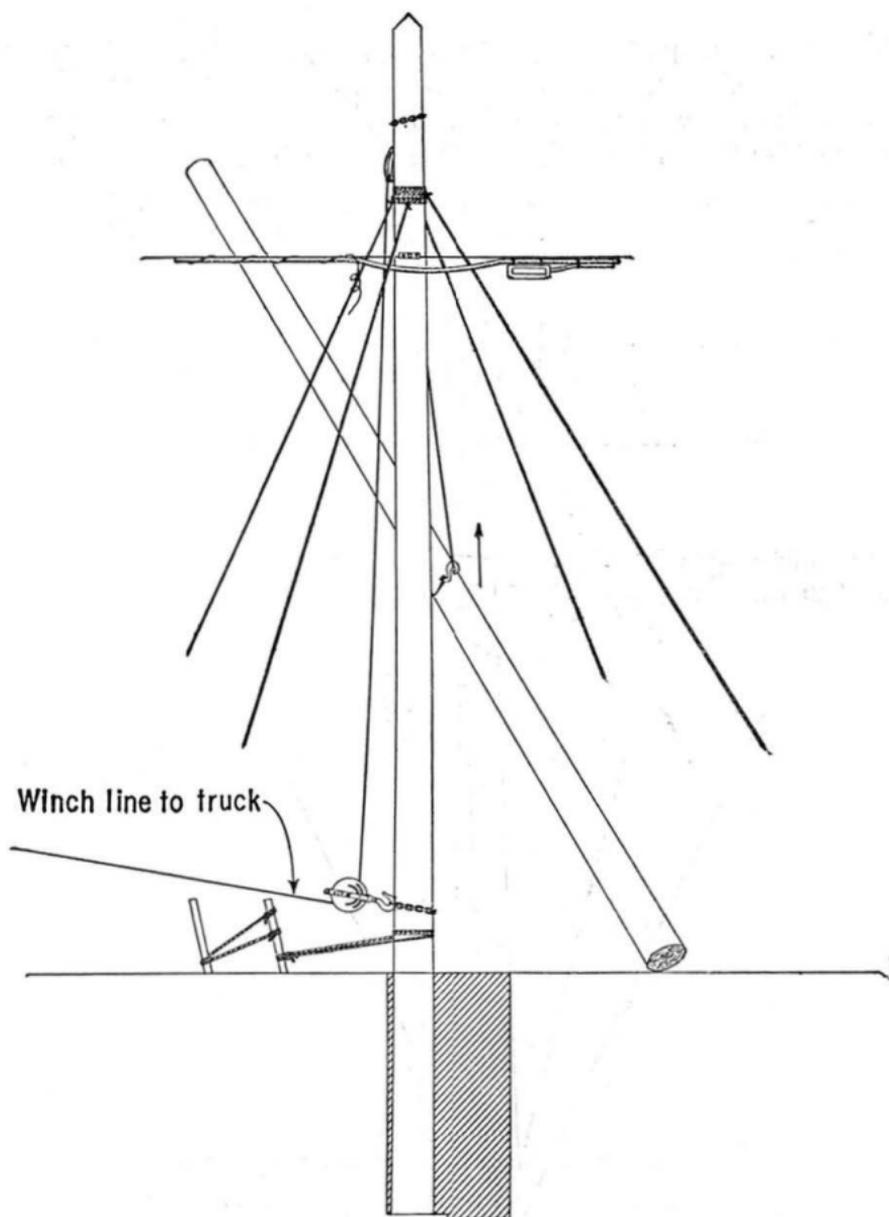
- (3) Use digging bars or rope blocks to shift the butt of the pole away from its original location.
- (4) Pull the top of the pole to a vertical position and adjust the rope guys to equal tension. Snub the lower portion of the pole with rope slings to digging bars or other substantial anchorage.

Pull top of pole to vertical position and tighten Cable Suspension Clamp.



Shift butt of pole with digging bar.

- (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.
- (6) Proceed to rig the old pole as a gin pole and set the new pole.



(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.

5.03 To replace a pole supporting open wire see Paragraph 3.06.