

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

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LTF POLE DERRICK

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1. GENERAL

1.01 The LTF Derrick is intended for mounting on the front end of a truck chassis equipped with a front mounted single drum winch, derrick mounting brackets and a truck body provided with a derrick anchor post.

1.02 It may be used in handling poles, lifting other items of material within its capacity and for supporting a small earth boring machine when boring a pole or an anchor hole.

1.03 The LTF Derrick is designed for use in the truck position only and is not provided with a prop for ground use.

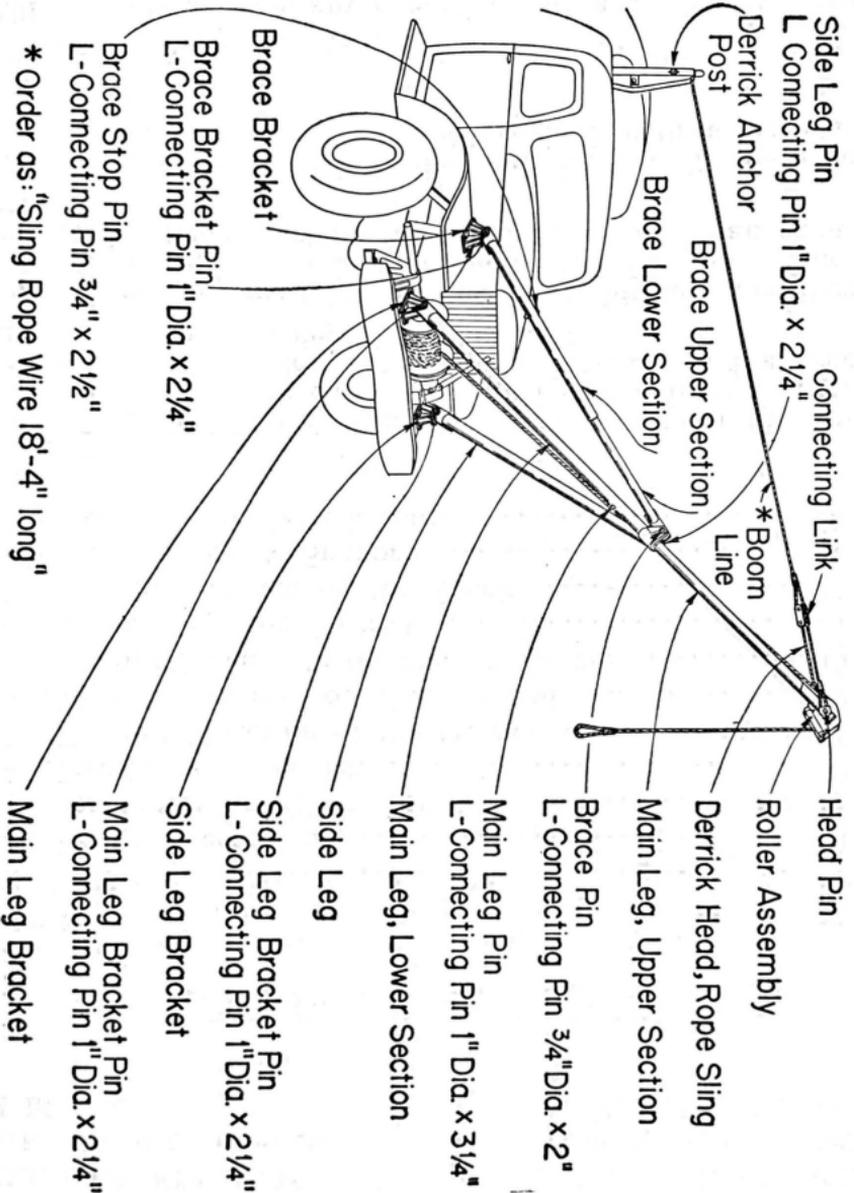
2. SAFETY PRECAUTIONS

2.01 Before starting any operation with a derrick, the operator shall be familiar with the safety precautions outlined in the section on Pole Derricks—General.

2.02 The derrick should be operated at the minimum overhang that is adaptable to the particular job so that the stress in the boom line, truck chassis and derrick members is at a minimum.

3. DESCRIPTION AND NAMES OF PARTS

3.01 The following illustration shows the general appearance of the LTF Derrick assembled on the front of a truck chassis and indicates the names of the parts which may be required for repair or replacement.



3.02 Basically the LTF Derrick is the same as the "T" type derrick and consists of a main leg or boom, a side leg and a back brace. The main leg is in two sections, the top section telescoping into the lower section when it is desired to carry the derrick erected and it is necessary to pass under a low obstruction. The side leg is in one piece and attaches to a collar on the lower section of the main leg by means of an "L" Connecting Pin. The brace is in two parts, the top section telescoping into the lower section, and also connects to the main leg collar by means of an "L" Connecting Pin. It acts as a safety leg to prevent the derrick from swinging in over the truck, and as a push brace.

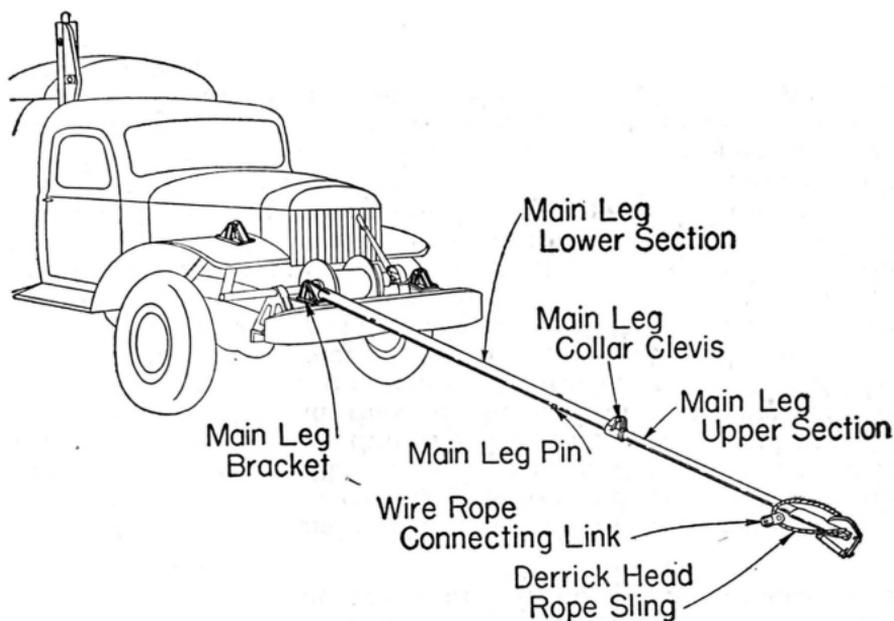
3.03 The assembled derrick attaches to permanent derrick mounting brackets on the front of the truck and is supported in any one of three positions by means of a boom line which attaches to a suitable button installed on the derrick anchor post at the front of the truck body.

3.04 A derrick raising button is provided on the right-hand side of the derrick anchor post near the top for attaching the end of the winch line when raising the derrick to the desired position.

4. ERECTING THE DERRICK

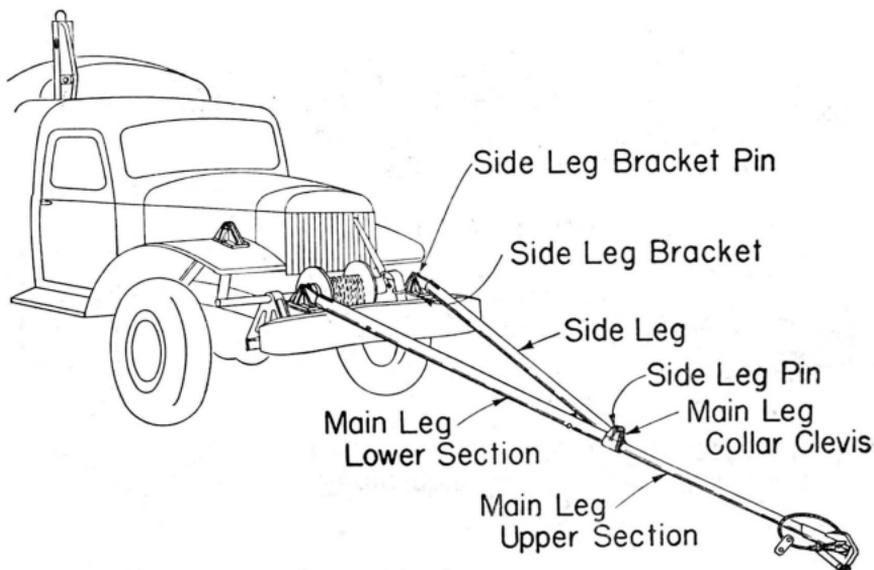
4.01 To erect the LTF Derrick remove the brace from the carrying position in the truck body, lay it on the ground in front of the truck and inspect it as described in Paragraph 11.01.

4.02 Remove the main leg, upper and lower sections as a unit, from the carrying position and inspect it as indicated in Paragraph 11.01. Place the end of the lower section in the main leg bracket so that the hole in the bolt guide at the bottom of the leg and that of the main leg bracket are in alignment, then place the main leg bracket pin (1" x 2-1/4" L Connecting Pin) securely in the bracket with the head towards the outside of the truck and lock the pin. Make sure that the main leg collar clevis for the side leg points to the right as viewed from the front of the truck and that the clevis for the brace points up. Adjust the upper section of the main leg to secure the boom length desired. From the top down through both main leg sections, insert the main leg pin (1" x 3-1/4" L Connecting Pin) in either the upper or lower hole depending on the over-all length of boom previously chosen. Lock the pin and lower the head end of the main leg to the ground.



4.03 Remove the side leg from the carrying position in the truck and inspect it as described in Paragraph 11.01. Place the lower (bent) tongue on the end of side leg in its mounting bracket so that the hole in the lower tongue and the hole in the bracket are in alignment. Insert the side leg bracket pin (1" x 2-1/4" L Connecting Pin) with the head to the outside of the truck. Lock the pin.

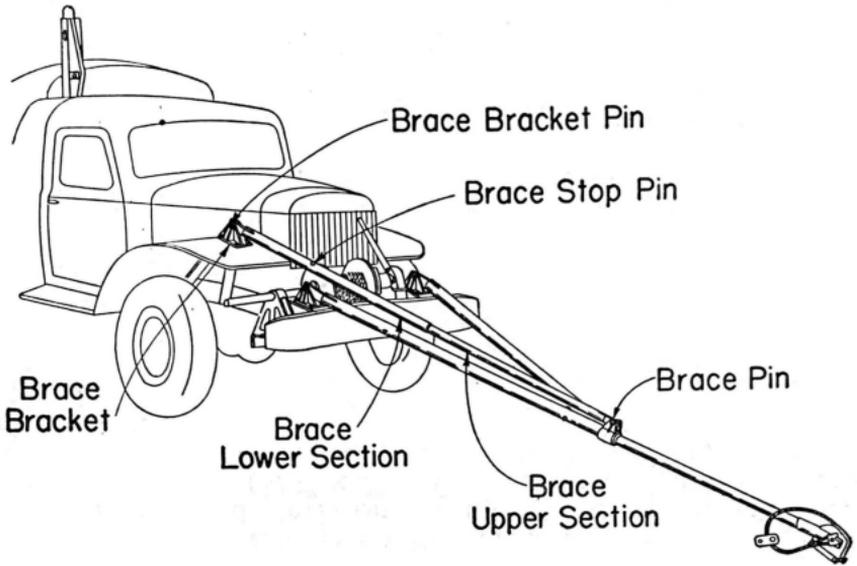
4.04 Place the upper (straight) tongue on the end of the side leg in the main leg collar clevis so that the hole in the clevis and the tongue are in alignment. Insert the side leg pin (1" x 2-1/4" L Connecting Pin) so that the head is up. Lock the pin.



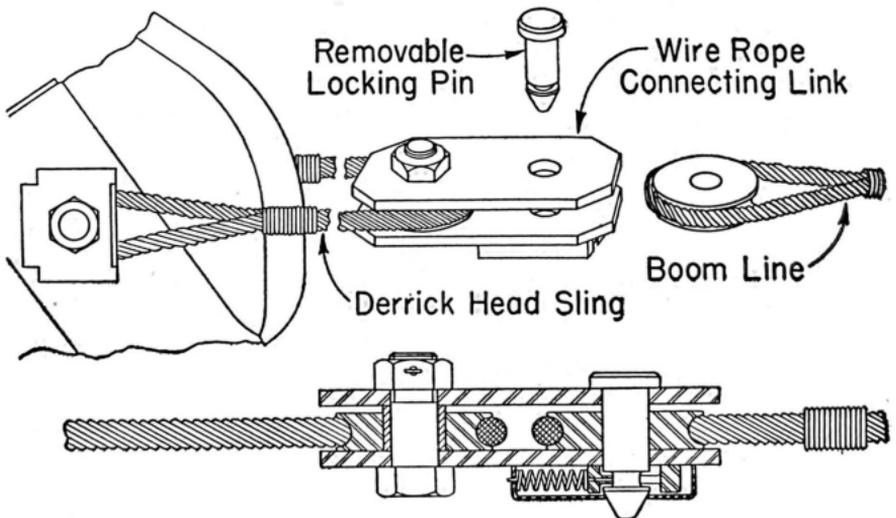
4.05 Attach the tongue on the lower section of the brace to its mounting bracket located on the right-hand truck fender using the brace bracket pin (1" x 2-1/4" L Connecting Pin). Lock the pin.

4.06 Attach the tongue on the upper section of the brace to the fixed clevis on the upper side of the main leg using the brace pin (3/4" x 2" L Connecting Pin) and inserting it with the head to the right as viewed from front of truck. Lock the pin.

4.07 Insert brace stop pin in proper hole as outlined in Paragraph 4.11.

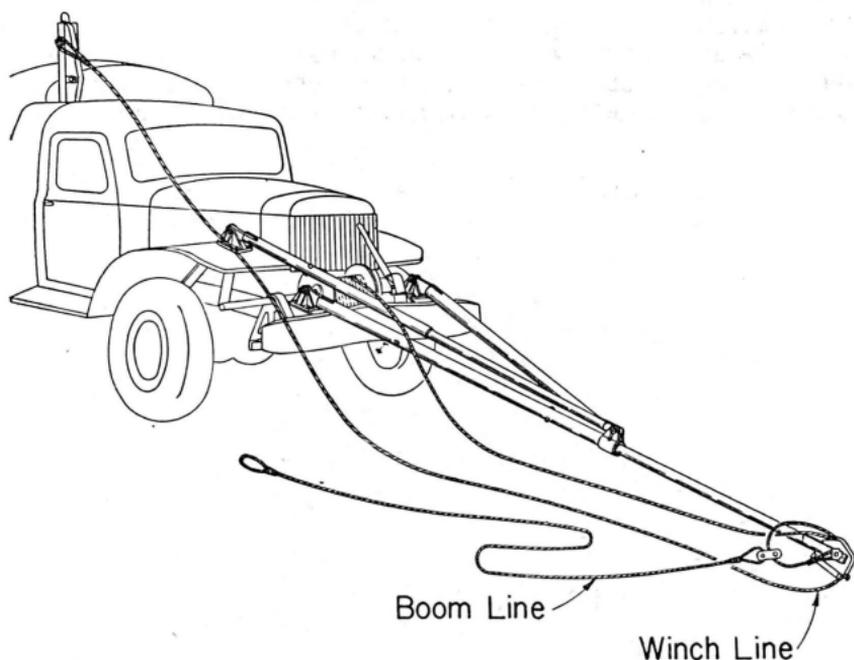


4.08 Remove the locking pin from the derrick head sling connecting link and take out the roller. Place the roller in the eye of the derrick boom line and insert the roller and boom line eye between the side plates of the connecting link. Replace the connecting pin. Make sure the pin is all the way in and locked in position.



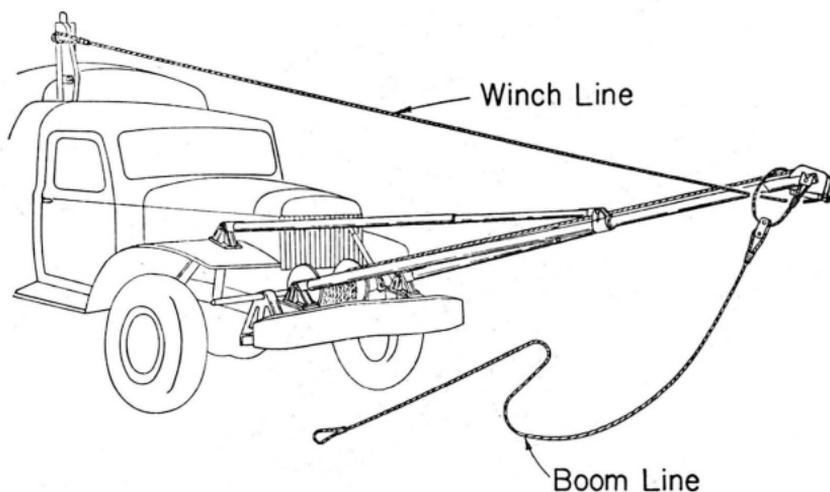
4.09 Pass the winch line from the front mounted winch through the head sling from below and then over the derrick sheave from the top down.

4.10 Pull sufficient slack in the winch line so that the eye on the end of the winch line can be attached to the rope button located near the top and on the right-hand side of the derrick anchor post installed at the front of the truck body. Carry the end of the winch line back to the derrick anchor post keeping it on the left-hand side of the main leg as viewed from the front of the truck. Place the eye in the end of the winch line over the button referred to above, making sure that the winch line eye is properly seated in the groove of the button.

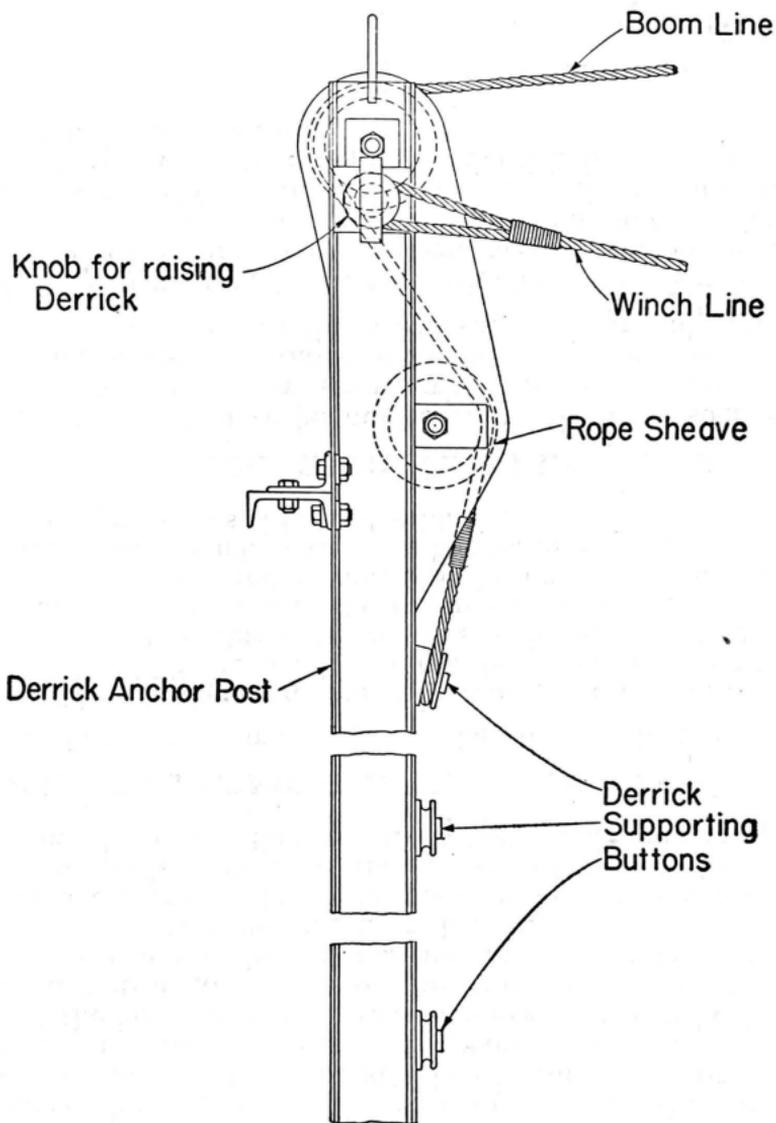


4.11 The assembly shall now be checked carefully to see that all pins are properly placed and locked. Make sure the $3/4" \times 2-1/2"$ L Connecting Pin used as a stop in the lower section of the brace is in place in the upper or lower hole depending on the derrick working overhang that is to be used. With the derrick in its highest position and least overhang the pin should be in the lower hole of the brace. When greatest overhang is to be used the pin should be in the upper hole.

4.12 Hold the boom line away from the truck so that it will not become entangled or caught in the derrick or other part of the truck while raising the derrick and slowly take up on the winch line. As the pull is made on the winch line observe the derrick carefully to be sure that the line does not catch on the pins or other projections of the derrick and that it does not catch on any part of the truck. When the derrick has been raised to approximately the desired overhang or working height, stop the winch.



4.13 Thread the boom line through the sheaves in the derrick anchor post as shown below and attach the eye in the end of the line to the button on the front of the derrick anchor post which will give the derrick the desired overhang or working height. It may be necessary to raise the derrick further to



permit reaching the desired button. If the derrick has been raised too high initially, lower slowly until the weight of the derrick is supported by the boom line. Be sure that the eye

in the end of the boom line is securely attached to the button selected. Continue to let off on the winch line until sufficient slack is secured to permit releasing the eye in the end of the winch line from the raising button on the side of the derrick anchor post.

5. CHANGING POSITION OF THE DERRICK

5.01 The derrick can be operated at either of two overhangs and working heights. If, after the derrick is erected, it is desired to change its position to either increase its height or reduce the height and decrease or increase the overhang, the winch line eye should be attached to the button on the side of the derrick anchor post and the winch operated to take the load off the boom line. The boom line eye may then be changed from one button to another on the front of the derrick anchor post to secure the desired position of the derrick using the winch to raise or lower the derrick as the case may be. After the derrick overhang has been changed, be sure the boom line eye is properly seated in the groove of the button before removing the winch line eye from the derrick raising button.

6. ADJUSTING LENGTH OF MAIN LEG OF DERRICK

6.01 The derrick main leg may be adjusted to two lengths.

6.02 If it is found desirable to change the length of the main leg the derrick should be lowered as outlined in Paragraph 8.01 of this Practice. The main leg pin (1" x 3-1/4" L Connecting Pin) should be removed, the main leg adjusted and the pin reinserted as outlined in Paragraph 4.02 of this Practice. The derrick may then be raised to position as outlined in Paragraphs 4.12 and 4.13.

7. MOVING TRUCK WITH THE DERRICK ERECTED

7.01 The truck may be moved short distances such as the length of a few spans, with the derrick erected. All the special precautions outlined in the section of Pole Derricks—General that apply to this work shall be carefully observed.

7.02 When moving the truck with the derrick supported by the boom line, the movement should be slow so that no excessive stresses will occur in the boom line and derrick mast due to shock load from uneven ground conditions. These stresses may be excessive even though the derrick is carrying no load other than its own weight.

8. DISMANTLING THE DERRICK

8.01 To take the derrick down the winch line eye should be attached to the derrick raising button on the derrick anchor post. The derrick should be raised with the winch to relieve the strain from the boom line and the boom line disconnected from the derrick anchor post. After observing that no person or property is under the derrick, the winch should be operated to lower the derrick to the ground.

8.02 When the derrick has been lowered to the ground, dismantle the members by detaching them in the following order:

Boom Line—Coil up and bind with soft wire ties or other suitable material

Side Leg

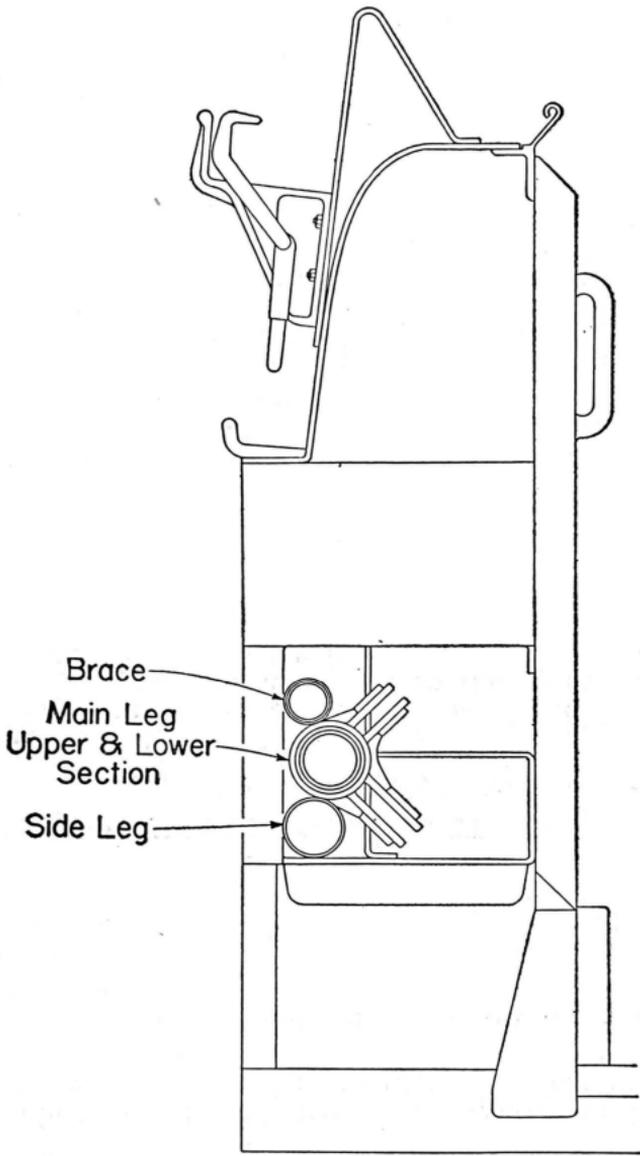
Rear Brace

Main Leg

9. CARRYING DERRICK ON THE TRUCK

9.01 For carrying the derrick it will be found desirable to store the main leg assembled but fully telescoped.

9.02 The derrick members should be placed in the proper carrying position as shown on the following page and inserted from the rear of truck.



9.03 Protect the rear end of the projecting derrick leg with a red flag or light if required by highway regulations.

10. USE OF DERRICK SUPPORTS

10.01 Derrick supports are short adjustable tubing supports, which attach to the ends of the truck bumper assembly and can be adjusted to the proper length to reach the ground under all normal conditions of surface unevenness.

10.02 These supports relieve the truck springs and the front tires of any excessive stress when a heavy winch line pull is made. They partially eliminate the spring and tire flexing and thus stabilize the entire unit.

10.03 For general pole derrick work the supports should not be used except where it is necessary to eliminate excessive spring and tire action. The use of the derrick supports places the ground support point forward of the front wheels and nearer the line of the derrick load. The derrick can therefore be overloaded before the rear wheels of the truck begin to lift off the ground, a condition which indicates that the load far exceeds the safe load limit of the derrick and truck. For these reasons, extreme care should be exercised when using the derrick with the derrick supports in the ground position.

10.04 Derrick supports should be adjusted to a length such that, with no load on the derrick, the supports clear the ground by not more than one inch. Care should be exercised to be sure that the base of the supports will rest on level and firm ground so that they will support the load evenly.

10.05 When it is necessary to move the truck with a load suspended from the derrick, the supports cannot be used.

11. INSPECTION OF DERRICK PARTS

11.01 The first time each day that the derrick is removed from its carrying position, preliminary to erecting it, all parts including the winch line and boom line shall be given a visual inspection to detect any apparent defects which may make the derrick unsafe. This inspection shall follow the procedures outlined in the section on Pole Derricks—General.