

**BELL SYSTEM PRACTICES**  
**Outside Plant Construction**  
**and Maintenance**

**SECTION G92.320.1**  
**Issue 1, November, 1953**  
**AT&T Co Standard**

**POLE DERRICKS**  
**MIDDLE TYPE**

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**1. GENERAL**

1.01 This section replaces Section J6.136.

1.02 This practice covers the erecting, dismantling and method of carrying on the truck, the derricks known as the "Middle Type."

1.03 These are three-leg derricks operating from the rear middle of the truck and using the winch line from a single drum truck-driven winch.

1.04 The code letters of the middle type derricks now in use are shown in the following table. Derrick codes including the letter "A" indicate that the center leg is adjustable

when the derrick is erected in the truck position and those including a number give the length of the longest pole in feet which can be conveniently set with the derrick.

<u>Code</u>	<u>Description</u>
XLM, M35	Short Light Middle Type
LM, M40, LMA, MA40	Light Middle Type
HM, M45, MA45	Heavy Middle Type

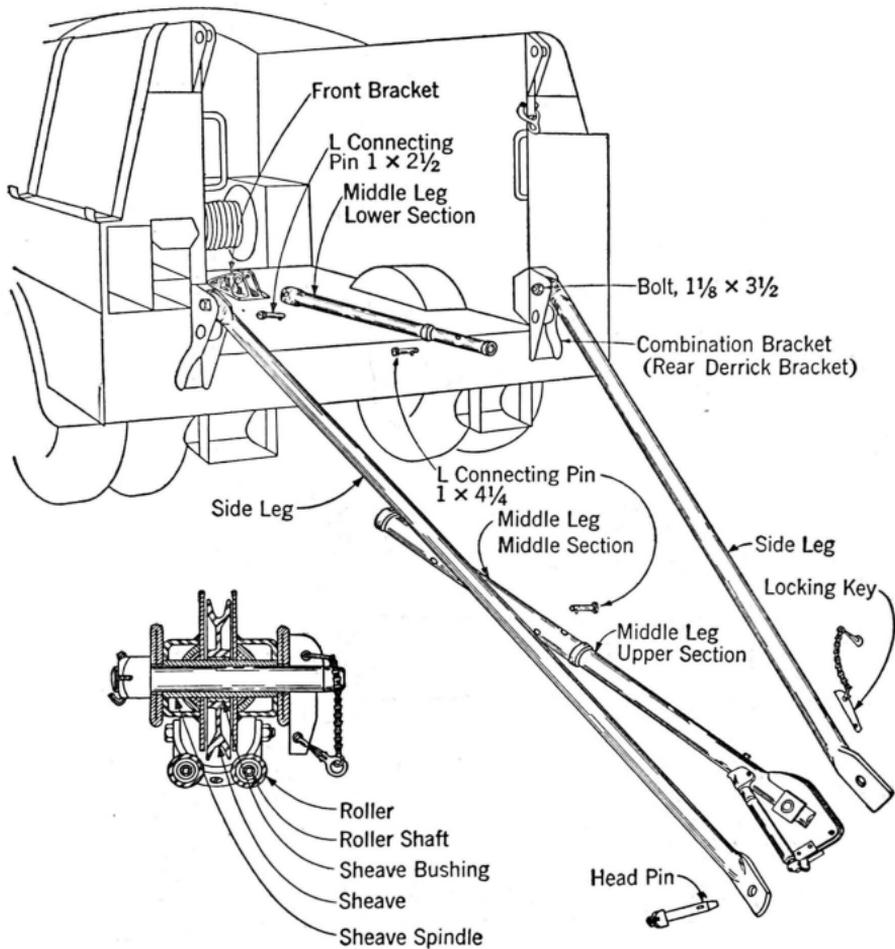
1.05 These derricks may be assembled in two positions. In the **truck** position all members of the derrick are on the truck. In the **ground** position the side legs are attached to the rear of the truck and the middle leg is on the ground, used as a vertical prop or stiff leg.

## 2. SAFETY PRECAUTIONS

- 2.01 One man shall be assigned to check that the derrick is properly erected or installed.
- 2.02 Those operating the derrick shall be familiar with the precautions and general instructions outlined in the sections on Pole Derricks and shall apply them to the work.

### 3. NAMES OF DERRICK PARTS

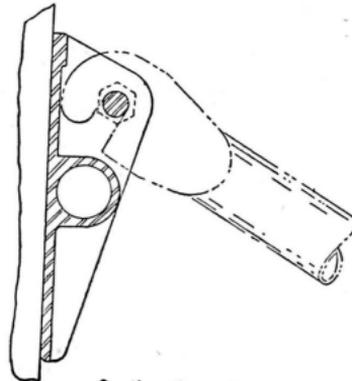
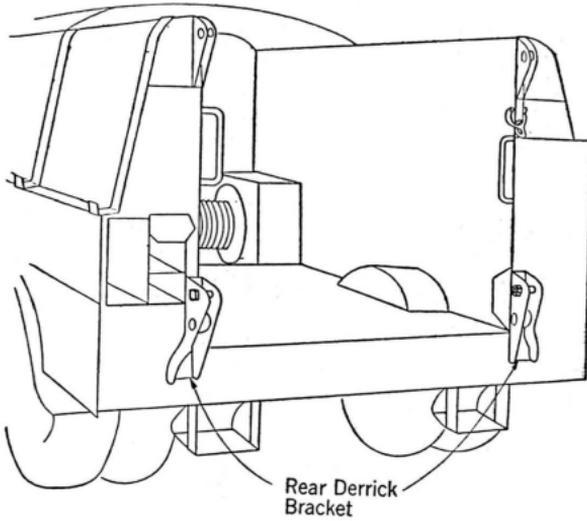
3.01 The following figure shows the names of the derrick parts which may be required as replacement parts.



#### 4. DERRICK BRACKETS

4.01 The middle type derricks are erected using three brackets, two rear and one front. The two rear brackets hold the side legs and the front bracket holds the middle leg of the derrick.

4.02 All of the rear brackets now in use are of the same design.

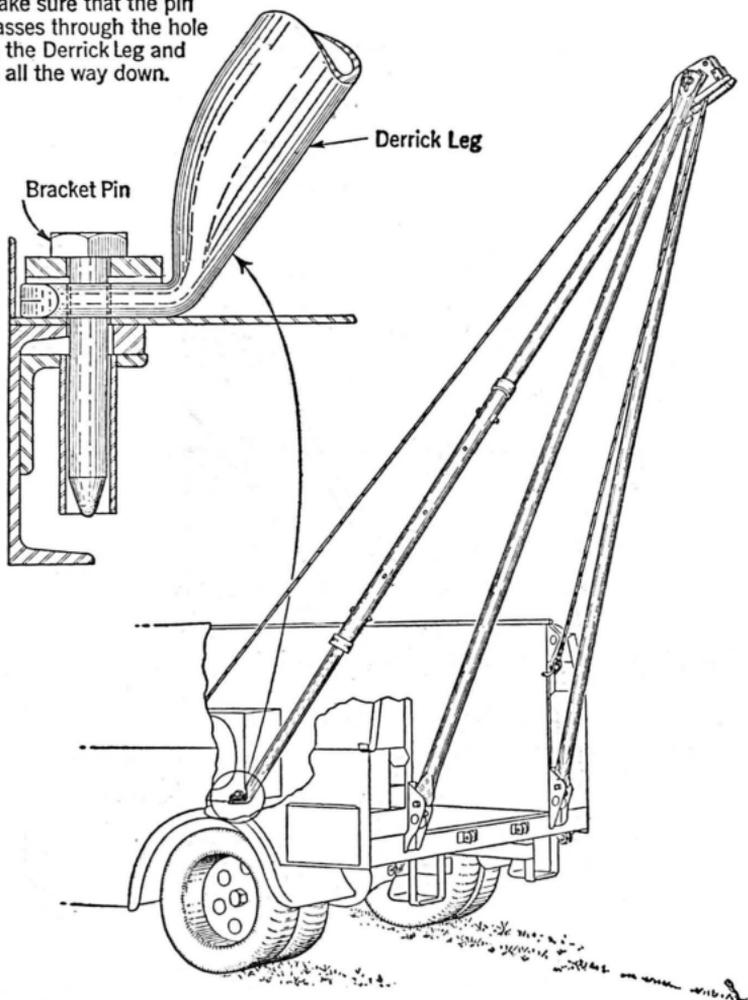


Section through Rear Bracket

4.03 There are two types of front brackets now in use with middle type derricks. Each requires certain precautions to insure proper operation.

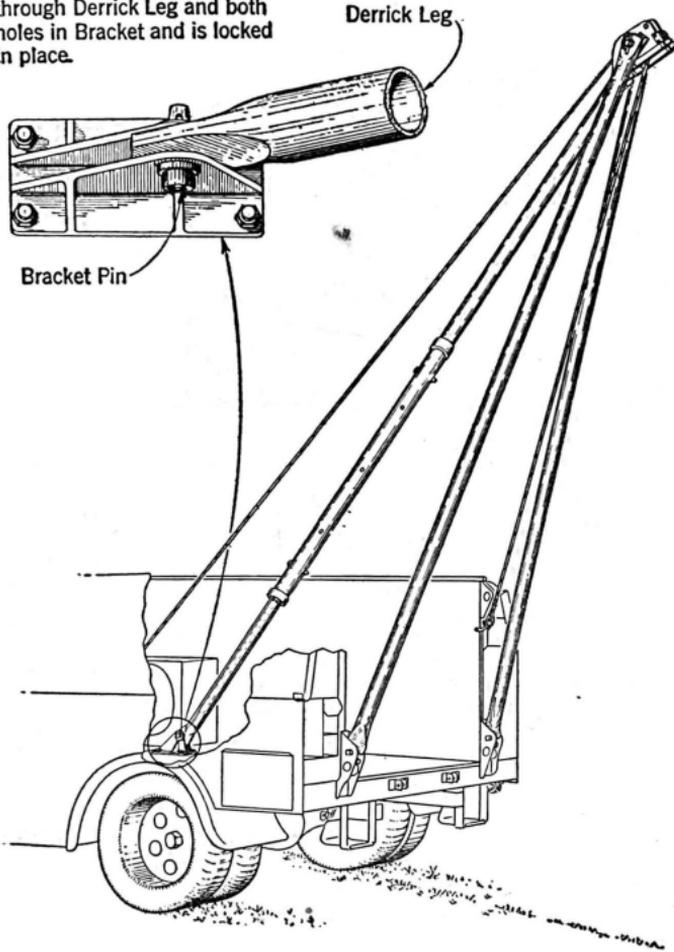
4.04 The following figure shows the older type of front bracket with a vertical pin which was used with middle type derricks having a nonadjustable middle leg.

Make sure that the pin passes through the hole in the Derrick Leg and is all the way down.



4.05 The following figure shows one of the newer types of front brackets used with the later middle type derricks and adjustable or nonadjustable center legs.

Make sure Bracket Pin passes through Derrick Leg and both holes in Bracket and is locked in place.



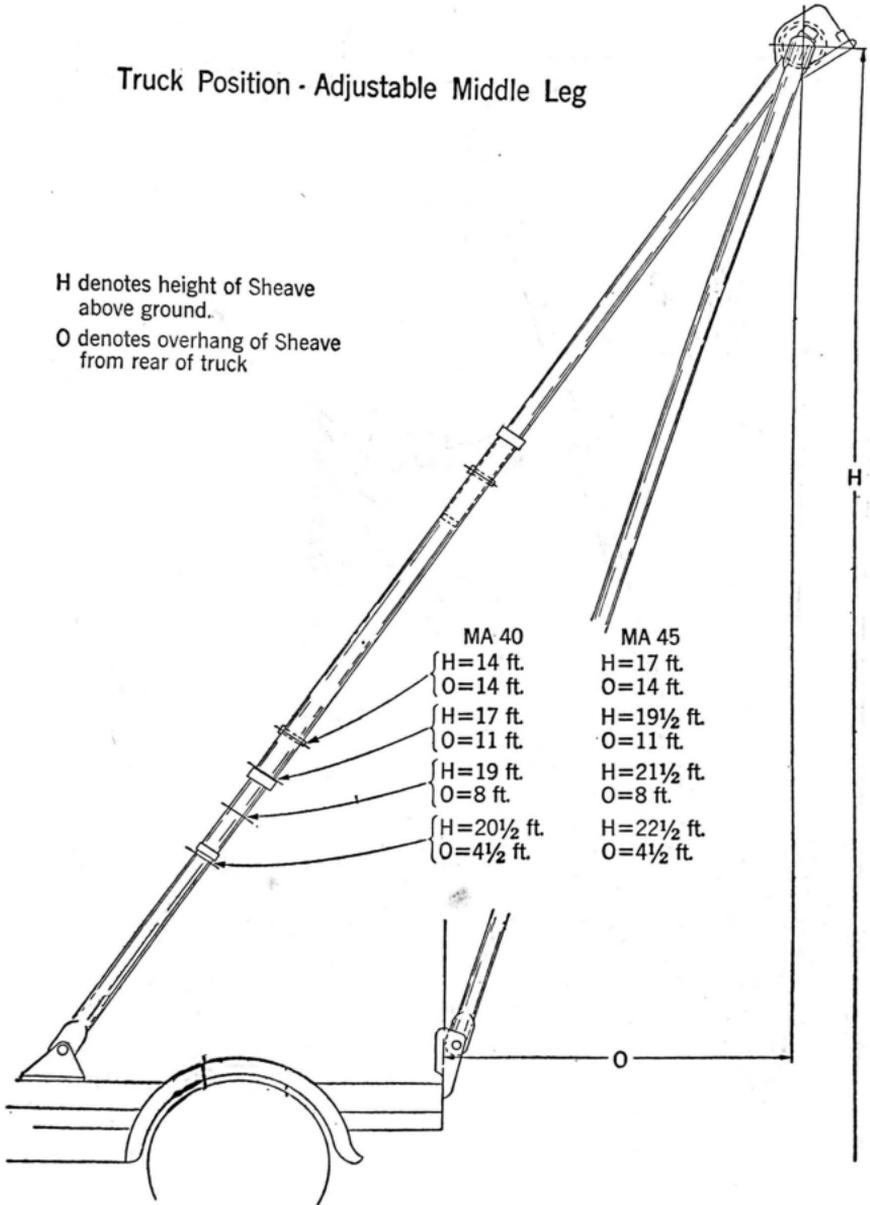
## 5. MIDDLE LEG ASSEMBLIES

5.01 There are two types of middle leg assemblies used for the middle type derrick known as adjustable or non-adjustable. This refers to the derrick in the truck position since both types are adjustable when the derrick is in the ground position.

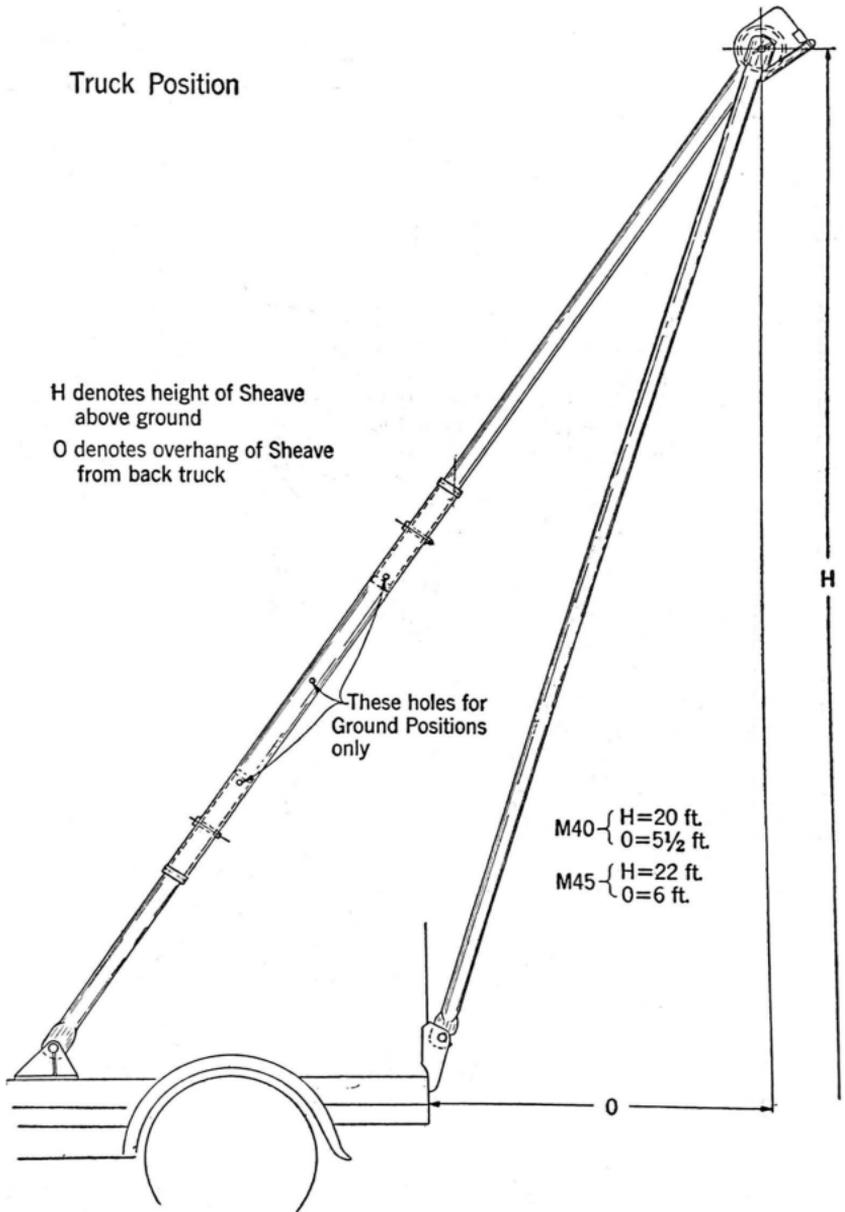
5.02 The following figure shows a middle leg assembly which is adjustable.

Truck Position - Adjustable Middle Leg

H denotes height of Sheave above ground.  
 O denotes overhang of Sheave from rear of truck

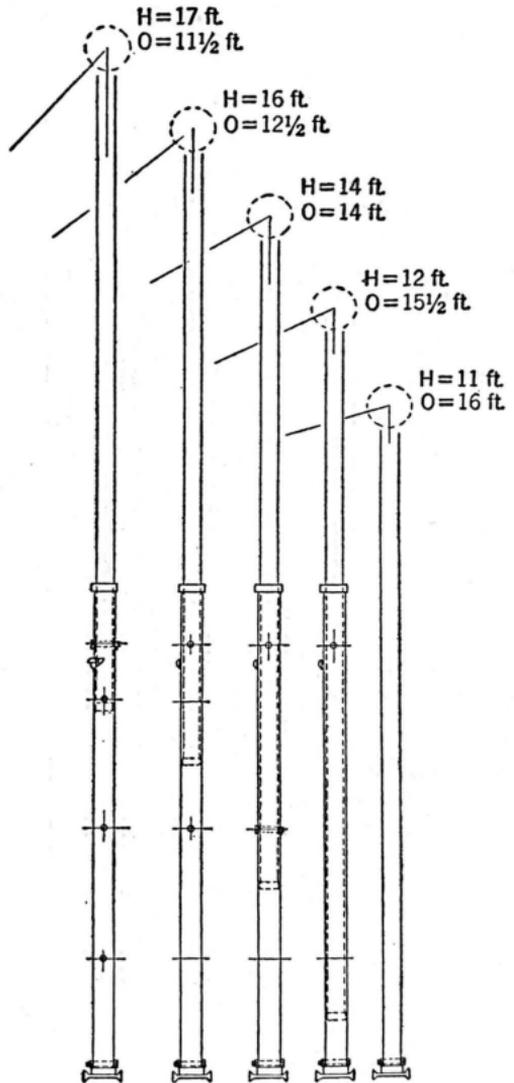


5.03 The following figure shows a middle leg assembly which is nonadjustable in the truck position.



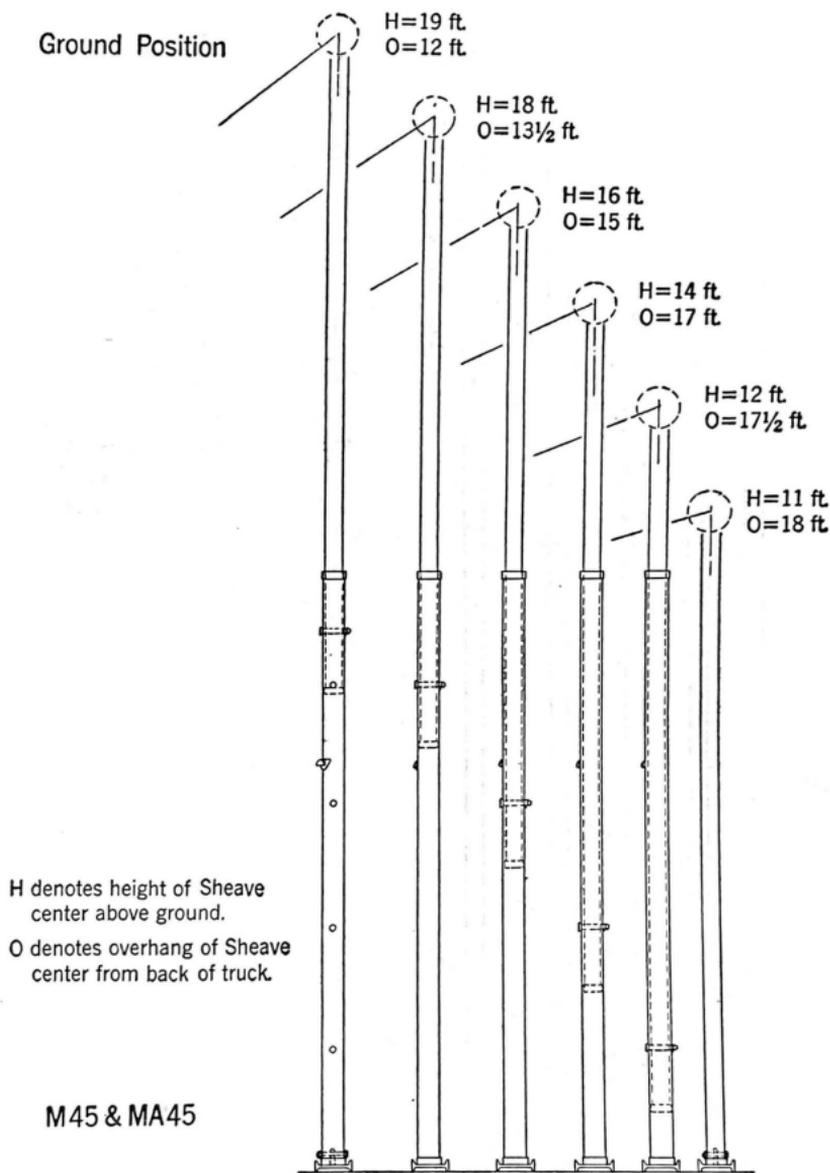
5.04 The following figures show the middle leg assembled for the ground position.

Ground Position



**H** denotes height of Sheave center above ground.  
**O** denotes overhang of Sheave center from back of truck.

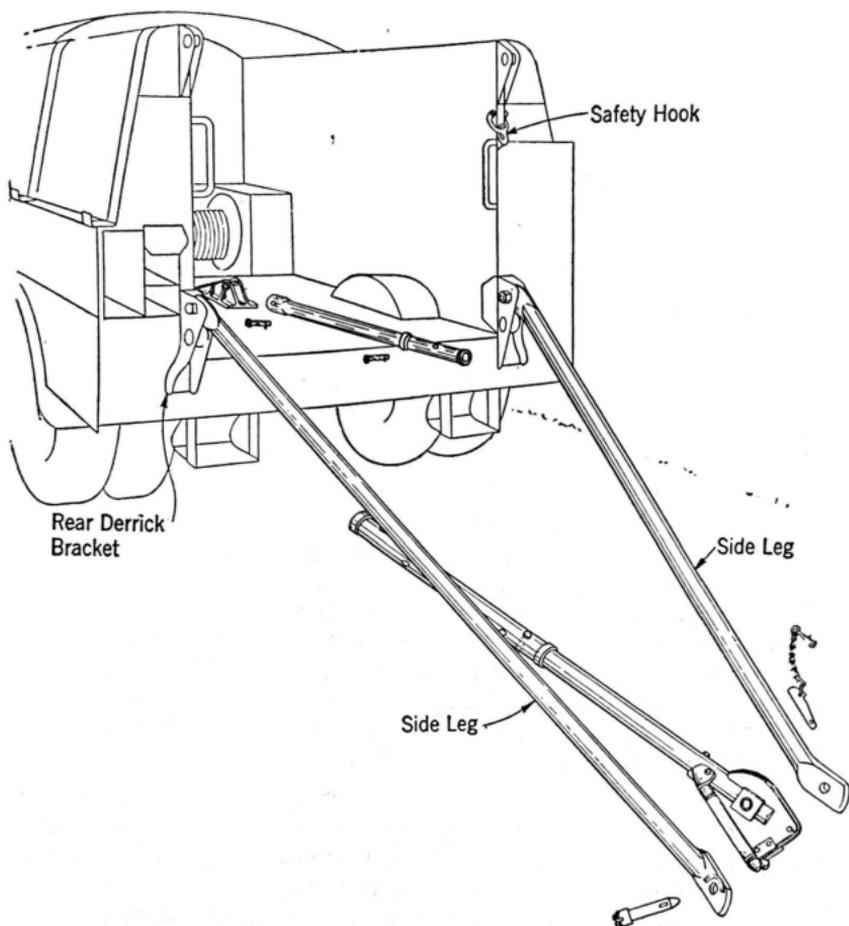
M40 & MA40



## 6. ERECTING THE DERRICK. TRUCK POSITION

6.01 Remove the derrick members from the carrying position on the truck and lay them out behind the truck. Inspect the members as outlined in the section on Pole Derricks, General to see that they are in good working condition.

6.02 Hook the forward end of each of the side legs into the truck rear derrick brackets making sure they engage the bolts.



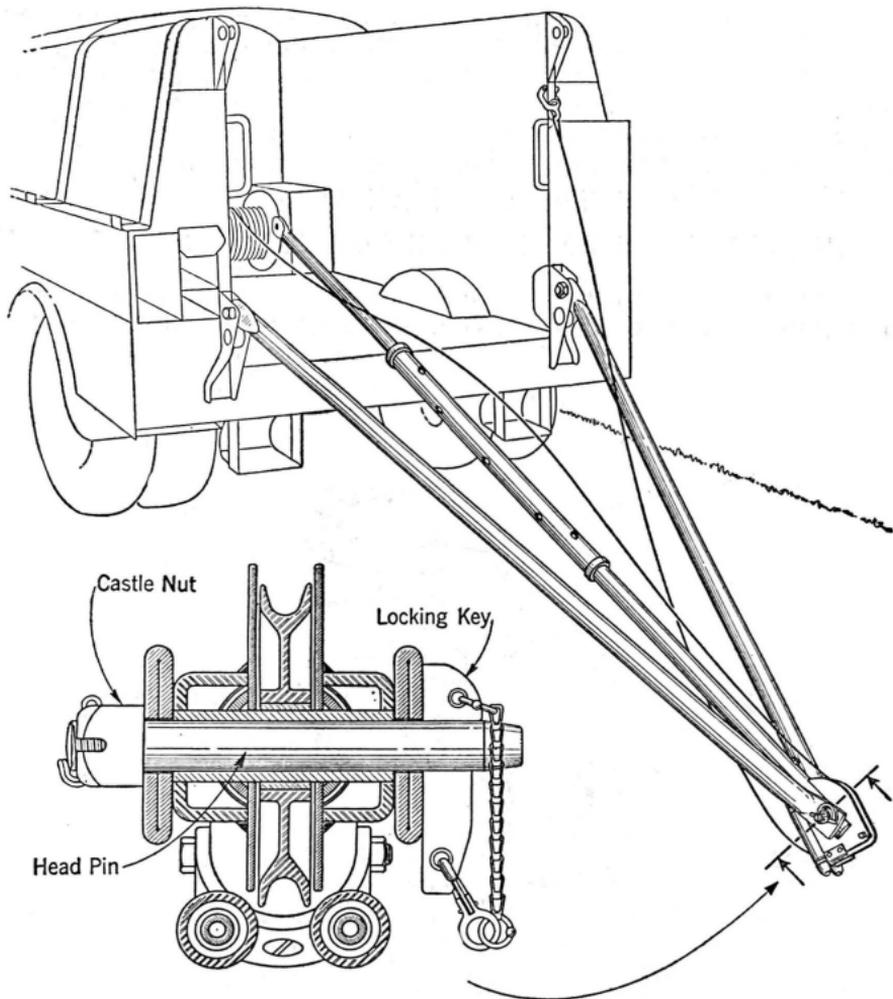
6.03 Assemble the three sections of the middle leg, fully extended if a nonadjustable type, or to the length desired for the adjustable type. (See Part 5.) Place the connecting pins through the holes in the middle leg with the heads of the pins up and lock them in place. Be **very sure** that the pins pass through the holes of the inside as well as the outside tube.

6.04 Thread the winch line around the sheave, starting from the top, always keeping the line inside both spacers. Then carry the end of winch line back and attach the winch line eye to the **safety hook** on the rear of the truck body. Do not use the winch line hook.

6.05 Place the front end of the middle leg on the truck platform and carry the middle leg forward until the hole in the head section is in line with the holes in the ends of the side legs.

6.06 Place the head pin through one of the side legs, through the hole in the head section and through the hole in the other side leg. Insert the locking key in the head pin and attach the snap hook to the key to prevent the key from accidentally disengaging.

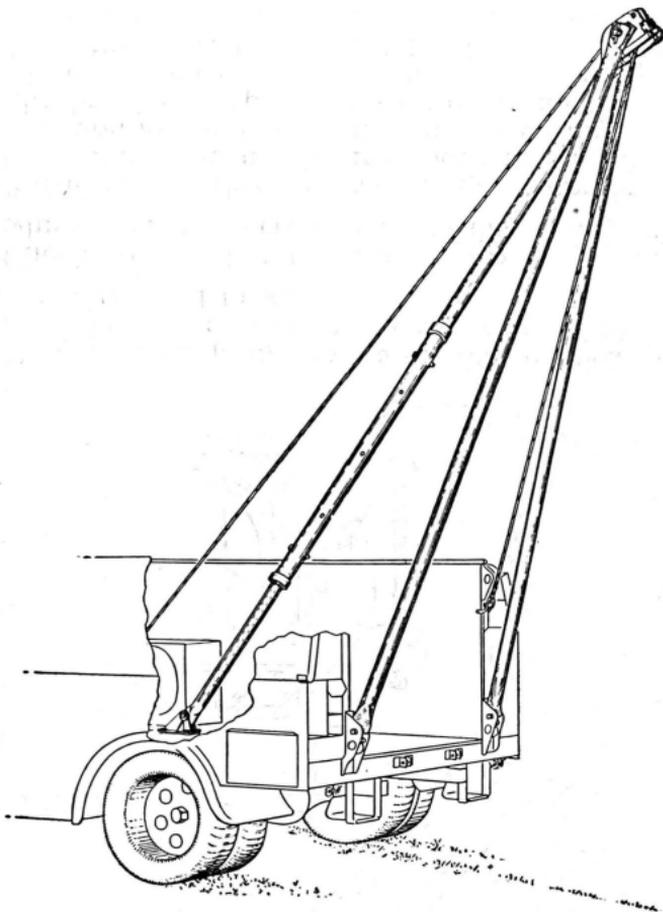
Note: In assembling a new derrick or new derrick parts, make sure that the key, when fully inserted, draws the side braces snugly against the head section but not tight enough to cause binding. Adjustment of the length of the head pin can be made by the castle nut and cotter pin on the end opposite the key. Make sure that the cotter pin is secured in the castle nut after the adjustment has been made.



6.07 Before attempting to raise the derrick, check the assembly to see that it is correct and that all pins are properly installed and locked.

6.08 Check to see that there are no overhead obstructions which might interfere with raising the derrick.

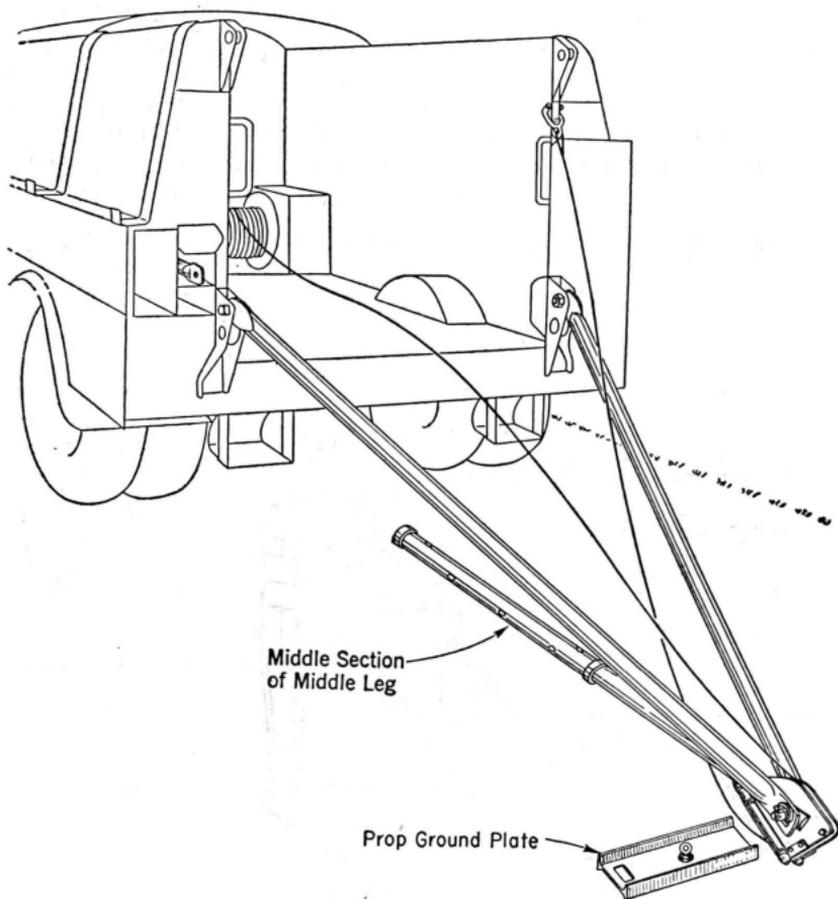
6.09 Raise the derrick by taking up slowly on the winch line. Guide the middle leg foot into the front derrick bracket. As soon as the hole in the middle leg lines up with the holes in the bracket, stop the raising operation, thrust the pin into the bracket holes, making sure that the pin properly engages both the derrick foot and the bracket members. Lock the pin, if of the horizontal type. (See Part 4.)



6.10 Make sure that no person or property is under the derrick, then release tension on the winch line.

## 7. ERECTING THE DERRICK. GROUND POSITION

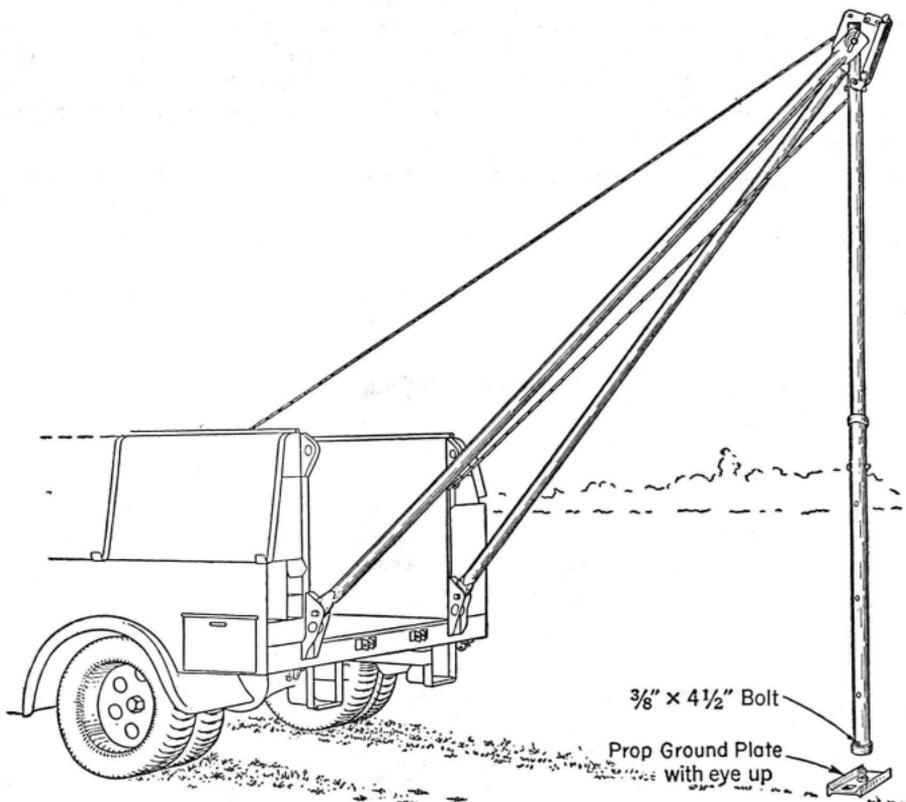
7.01 To erect the derrick with the middle leg on the ground, the procedure is the same as outlined in Part 6 except that the lower section of the middle leg is not used. The middle and upper sections should be assembled to the desired length. (See Part 5.) In preparing to erect the derrick the end of the middle leg will rest on the ground instead of on the back of the truck.



7.02 Raise the derrick slowly by taking up on the winch line until the middle leg clears the ground. Secure the middle leg until the truck is moved to the working position. Then guide the middle leg to a vertical position and place the prop ground plate under the bottom end. Make sure that the prop ground plate rests level and securely on the ground, so that it will not shift its position as a load is applied.

7.03 Lower the derrick slowly by releasing tension on the winch line. Make sure that the bottom end of the middle leg fits over the eye on the prop ground plate. The ground plate

may be attached to the derrick leg if desired by passing a bolt through the derrick leg and the eye of the ground plate.



## 8. CHANGING THE POSITION OF THE DERRICK

### From Truck to Ground Position

8.01 To change the derrick from the truck position to the ground position be sure that the winch line is properly threaded around the sheave inside of both spacers, then carry the end of the winch line back to the truck and attach the winch line eye to the safety hook. Tie one end of a short rope to the lower end of the middle section of the middle leg.

8.02 Take up on the winch line slowly and as soon as the foot pin is free, remove it. Make sure that the foot is free in the bracket and that it will slide out readily.

8.03 Lower the derrick slowly a few feet and remove the lower section of the middle leg, using the rope to hold the middle leg from swinging away quickly and then permit the middle leg to swing slowly to a vertical position.

8.04 Then proceed as outlined in Paragraphs 7.02, 7.03 and 7.04.

### **From Ground Position to Truck Position**

8.05 To change the derrick from the ground position to the truck position, the procedure given in Paragraph 7.01 is followed except that the rope is tied to the middle leg and then carried onto the platform of the truck. The procedure is then the reverse of that given in Paragraphs 7.02 and 7.03.

## **9. CHANGING THE LENGTH OF THE MIDDLE LEG. TRUCK POSITION**

9.01 The procedure for adjusting the length of the middle leg when the derrick is in the truck position is as follows:

- (a) Attach the winch line eye to the safety hook.
- (b) Raise the derrick very slowly until the pin through the lower end of the middle section of the middle leg is free, then remove it.
- (c) Pull up or release the winch line very slowly depending on whether the leg is to be shortened or lengthened. When the proper holes through the middle section and the lower section are aligned, replace the pin securely. When adjusting to the fully extended position, be sure that the pin passes through the holes of the inside tube as well as the outside tube.
- (d) Then release the winch line.

## **10. CHANGING THE LENGTH OF THE MIDDLE LEG. GROUND POSITION**

10.01 To change the length of the middle leg when it is used as a ground prop, attach the winch line eye to the safety hook, and then raise the derrick slowly just enough to remove the strain on the pin which holds the two parts of the middle leg together.

10.02 Remove the pin and adjust the leg to the proper length. Replace the pin securely. Then proceed as outlined in Paragraphs 7.02, 7.03 and 7.04.

## **11. MOVING THE TRUCK WITH THE DERRICK ERECTED**

11.01 The truck may be moved a short distance such as the length of a span with the derrick erected but all the safety precautions outlined in the section on Pole Derricks, General that apply to this work shall be carefully observed.

11.02 If the truck is to be moved when the derrick is in the ground position and it is not desired to change it to the truck position, attach the winch line eye to the safety hook and raise the derrick by taking up on the winch until the middle leg clears the ground. The lower end of the leg may be allowed to hang free or it may be supported in line with the side legs by a rope tied from the middle leg to the rear of the truck or by a rope tied between the side legs running around and under the middle leg. Protect the rear end of the derrick members with a red flag or light as required by highway regulations.

## **12. DISMANTLING THE DERRICK. TRUCK POSITION**

12.01 To take the derrick down from the truck position attach the winch line eye to the safety hook. Make sure there is no one under the derrick.

12.02 Take up on the winch line until the pin in the front bracket is free, then remove the pin. Make sure that the foot is free in the bracket and that it will slide out readily.

12.03 Lower the derrick slowly until the head rests on the ground.

12.04 Remove the winch line from the safety hook and the sheave and disassemble the derrick members.

## **13. DISMANTLING THE DERRICK. GROUND POSITION**

13.01 To take the derrick down from the ground position attach a rope to the bottom end of the middle leg, and carry the other end of the rope to the platform of the truck. Place the winch line eye on the safety hook.

13.02 Raise the derrick slowly until the middle leg clears the ground and then with the rope pull its bottom end toward the truck.

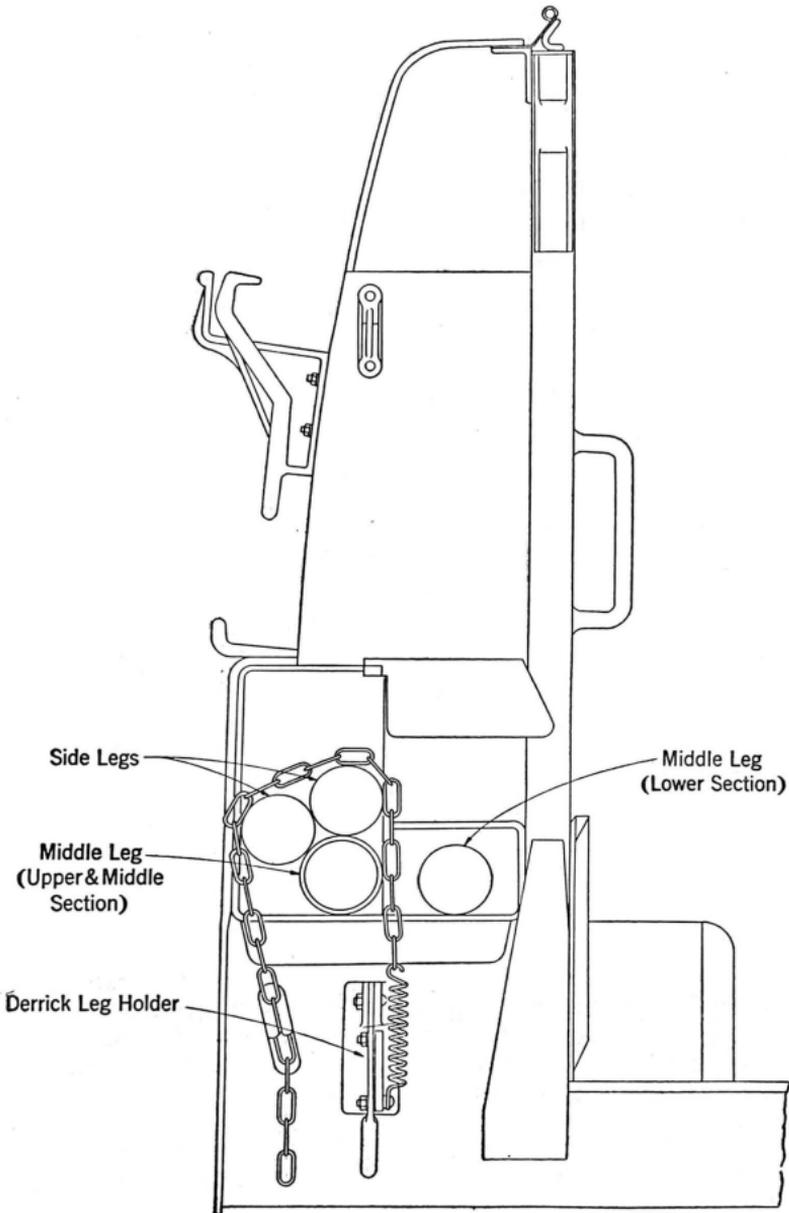
13.03 Hold this leg clear of the ground and lower the derrick slowly until it rests on the ground.

13.04 Remove the winch line from the safety hook and the sheave and disassemble the derrick members.

## 14. CARRYING THE DERRICK ON THE TRUCK

14.01 For storing these derricks on most construction trucks carry the top two sections of the middle leg assembled and all connecting pins in the leg members in their proper locations.

14.02 The members should be placed in the carrying position, a typical arrangement of which is shown in the following figure. In placing the derrick members in the truck body carrying brackets, they are generally inserted from the rear of the truck but on most trucks they can be inserted from either front or rear as desired. Protect the rear end of projecting derrick legs with a red flag or light as required by highway regulations.



14.03 After all derrick members have been properly placed on the truck they should be fastened in position with the pole derrick leg holders which are parts of the truck.