

Correcting Operational Troubles

1. Bobbing implements

- a. This condition may be due to maladjustment of the main control spring or to a binding in the hydraulic control linkage.
- b. Adjusting the main control spring.

NOTE: To explain how to adjust the main control spring, follow the procedure as outlined under job Procedure, Point I, in the Job Plan.

2. Mechanism will lift implements only at high engine speeds.

- a. This condition is usually due to
 - (1) The quadrant assembly being out of adjustment.
 - (2) The constant draft spring set too short.

- b. Adjusting the quadrant assembly.

NOTE: To explain how to adjust the quadrant assembly, follow the procedure as outlined under job Procedure, Point III, in the Job Plan.

- c. Adjusting the constant draft spring.

NOTE: To explain how to adjust the constant draft spring, follow the procedure as outlined under job Procedure, Points IV and V, in the Job Plan.

3. Implement raises and lowers in transport position.

- a. This condition may be caused by one or all of the following:
 - (1) Binding linkage.
 - (2) Scored ram cylinder.
 - (3) Leak in the hydraulic pump.

4. Implement position control in-operative.

- a. This condition is usually caused by the implement position control spring being too short.
- b. Adjusting the length of the implement position control spring.

NOTE: To explain how to adjust the length of the implement position control spring, follow the procedure as outlined under job Procedure, Point VI, in the Job Plan.

5. Constant draft control does not engage properly.

- a. This condition may be corrected by correctly adjusting the main control spring as previously explained.

6. Complete range of touch control inoperative.

- a. This condition may be due to
 - (1) Improper setting of the quadrant support plate.
 - (2) The constant draft control spring set too short.

FORD TRACTOR HYDRAULIC ADJUSTMENTS

TRAINING TIME: 1½ Hr.

TOOLS AND MATERIALS:

- a. 1½" box wrench.
- b. 1½" socket and ratchet.
- c. ⅝" open end wrench.
- d. ⅞" box wrench.
- e. Soft face hammer.
- f. Speed wrench.
- g. Pliers.
- h. 6" Machinist steel scale.
- i. Bench with 4" machinist vise.
- j. Steel tape.

JOB PROCEDURE:

I. ADJUSTING THE MAIN CONTROL SPRING

NOTE: For training purposes it is advisable to remove the tractor seat. (Remove two hex head nuts (A-Figure 1).)

Step 1—Remove the cotter pin (B-Figure 1) from the rocker pin.

Step 2—Pull the rocker pin (C-Figure 1) and free the rocker from the main control spring yoke.

Step 3—Turn the control spring yoke (A-Figure 2) until there is no end play in the spring. (It should be possible to turn the spring by hand using pressure of the thumb and the first two fingers. See Figure 3.)

II. ADJUSTING THE FRICTION ON TOUCH CONTROL LEVER

Step 1—Tighten or loosen the nut on the end of the hydraulic lift control lever shaft (A-Figure 4). This nut should be adjusted so

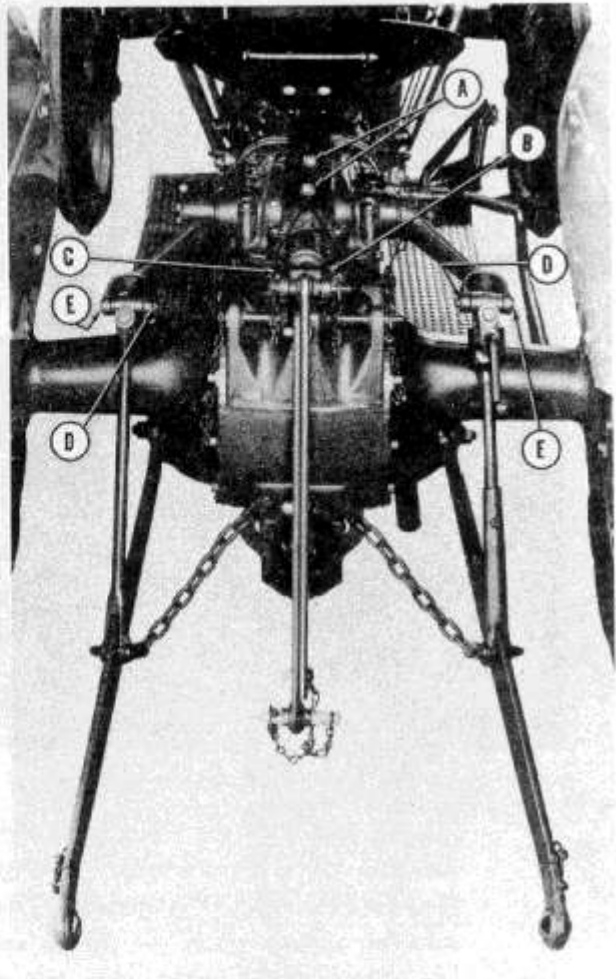


Fig. 1

that a pull of four to five pounds is required to move the lever.

III. CHECKING QUADRANT ADJUSTMENT

Step 1—Remove the inspection plate (B-Figure 2) from the right side of the center housing.

Step 2—Disengage the implement position control lever (C-Figure 2) by pushing forward to the down position.

Step 3—Take hold of the control arm by inserting the left hand through the inspection plate

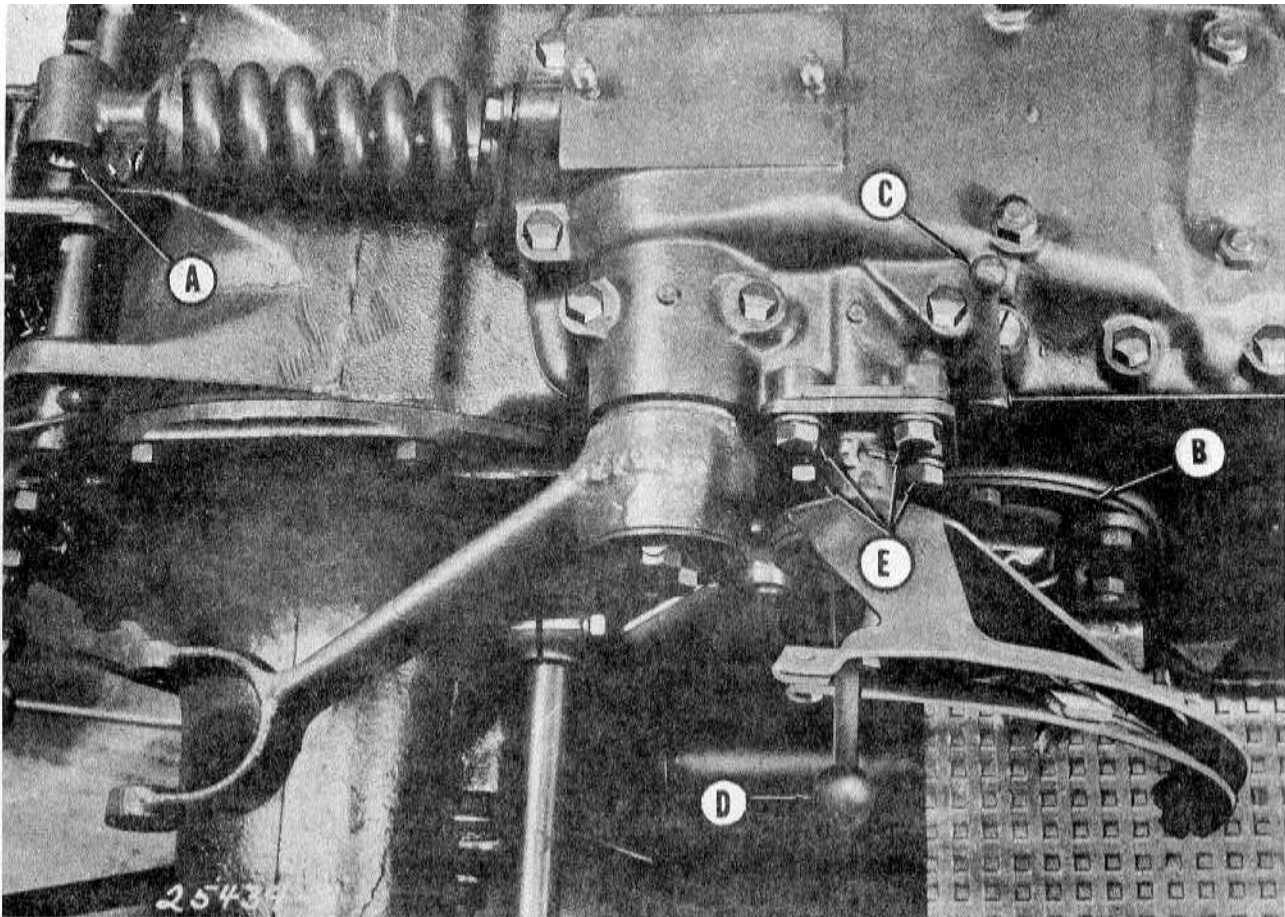


Fig. 2

opening, and with the right hand slowly raise the touch control lever (D—Figure 2) toward the top of the quadrant. Determine by feeling when the intake valve end of the control valve lever just contacts the pump housing.

NOTE: If the quadrant adjustment is correct, the control valve lever will just touch the pump housing when the touch control lever is in the position shown in (D—Figure 2).

a. If the control valve lever does not contact the pump housing, make the following adjustment:

- (1) Loosen the (4) cap screws (E—Figure 2) in the quadrant support plate.
- (2) Move the quadrant assembly rearward, until the control valve lever contacts the

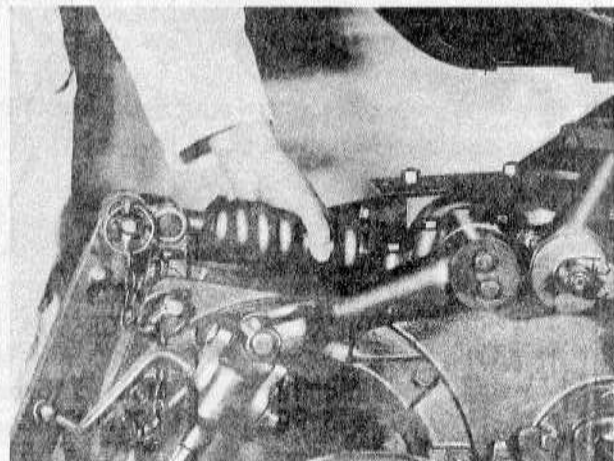


Fig. 3

pump housing with the touch control lever in the maximum up position.

NOTE: The top of the quadrant support plate should be parallel with the top of the attaching plate on the lift cover.

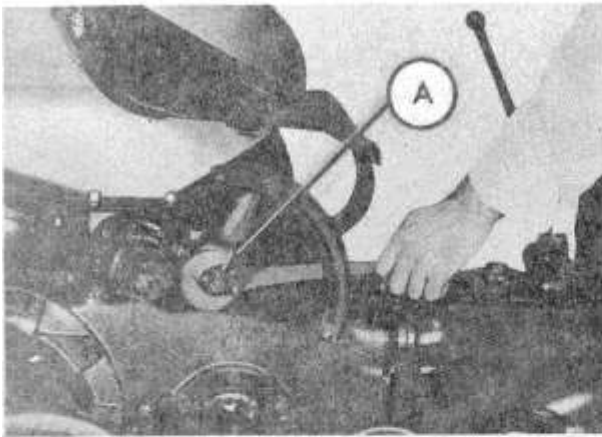


Fig. 4

(3) Retighten the cap screws and check to see that the intake valve is fully open when the touch control lever is in the up position.

b. If the control valve lever contacts the pump housing before the touch control lever is raised to its maximum up position, adjust by using the following procedure:

(1) Loosen the four cap screws in the quadrant support plate.

(2) Move the quadrant assembly forward until the control valve lever, on the intake valve end, touches the pump housing, when the touch control lever is in the maximum up position.

(3) Tighten the four cap screws.

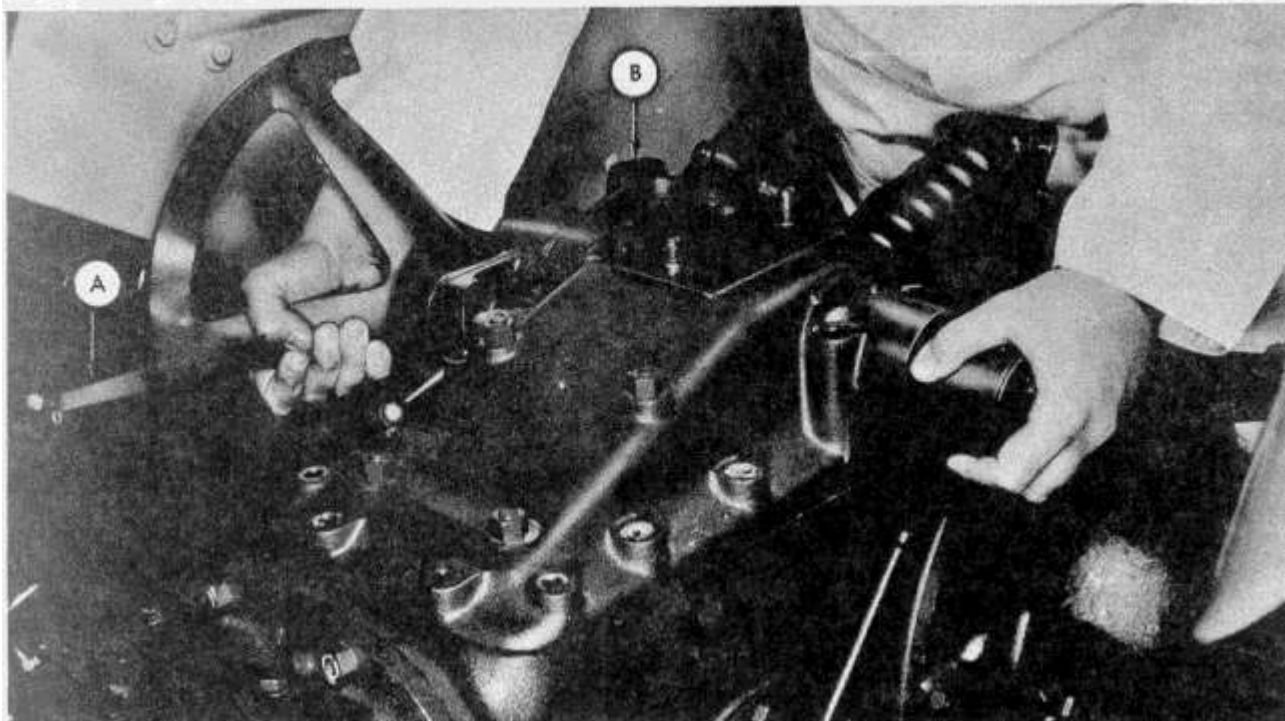
IV. REMOVING THE LIFT COVER ASSEMBLY

Start the tractor and raise the touch control lever to the maximum up position. When the lift arms have been raised to their highest position by the pump, check to see if the chisel marks are aligned. If not mark them with a cold chisel as shown at (B—Figure 6).

Step 1—Remove the cotter pins (D—Figure 1) from both leveling arm knuckle pins.

Step 2—Remove the knuckle pins (E—Figure 1) disengaging the leveling arms from the lift arms.

Step 3—Remove the fourteen hex head bolts that secure the lift cover casting to the center housing.



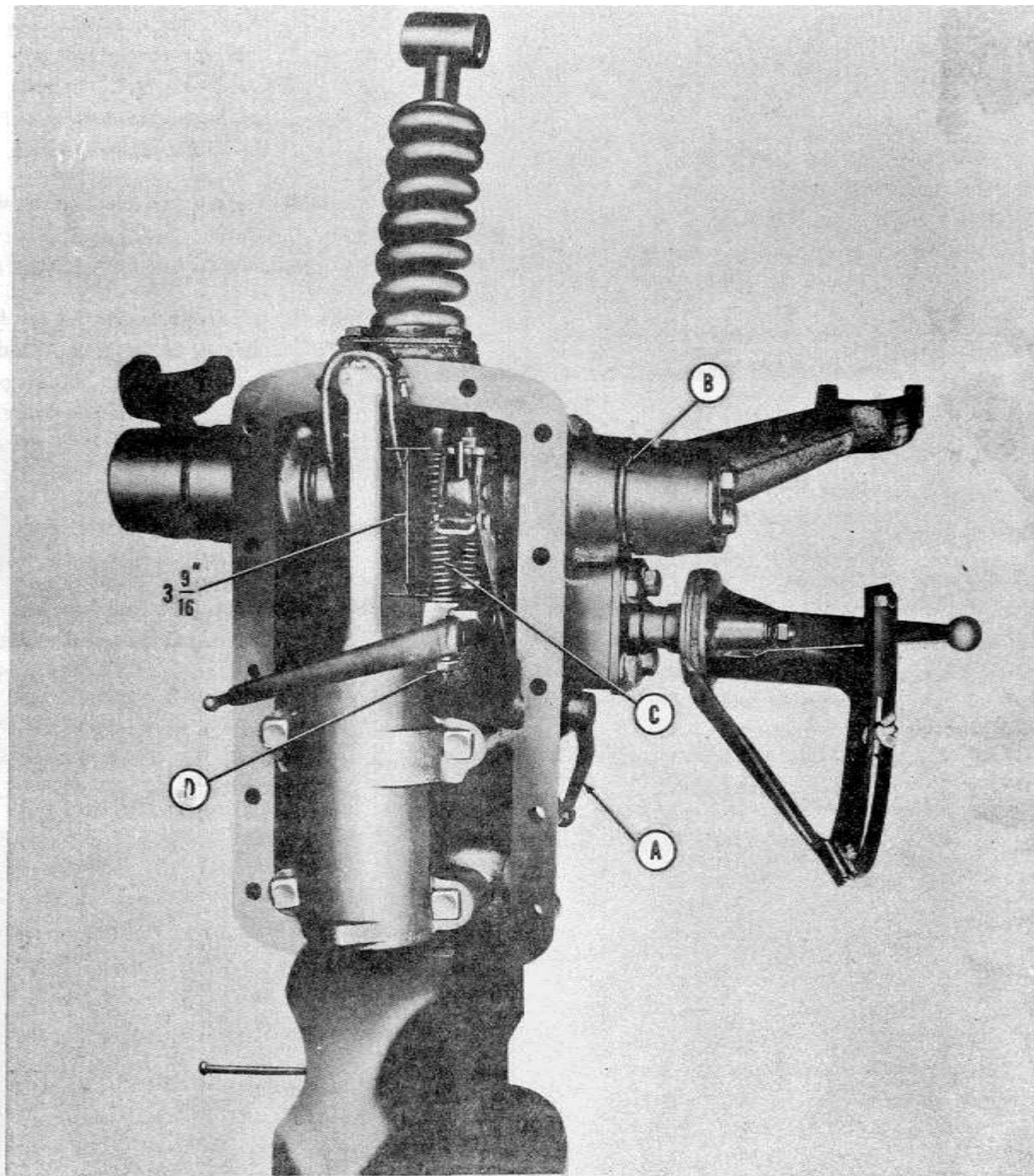


Fig. 6

Step 4—Set the touch control lever in the down position (A—Figure 5).

NOTE: Be sure implement position control lever is disengaged.

Step 5—Place the lift arms in the down position (B—Figure 5).

Step 6—Grasp the assembly at the base of the quadrant with the right hand and the left lift arm with the left hand. Lift the rear of the assembly upward with a slight forward motion as shown in Figure 5.

CAUTION: Handle carefully to avoid damaging control arm and linkage assembly.

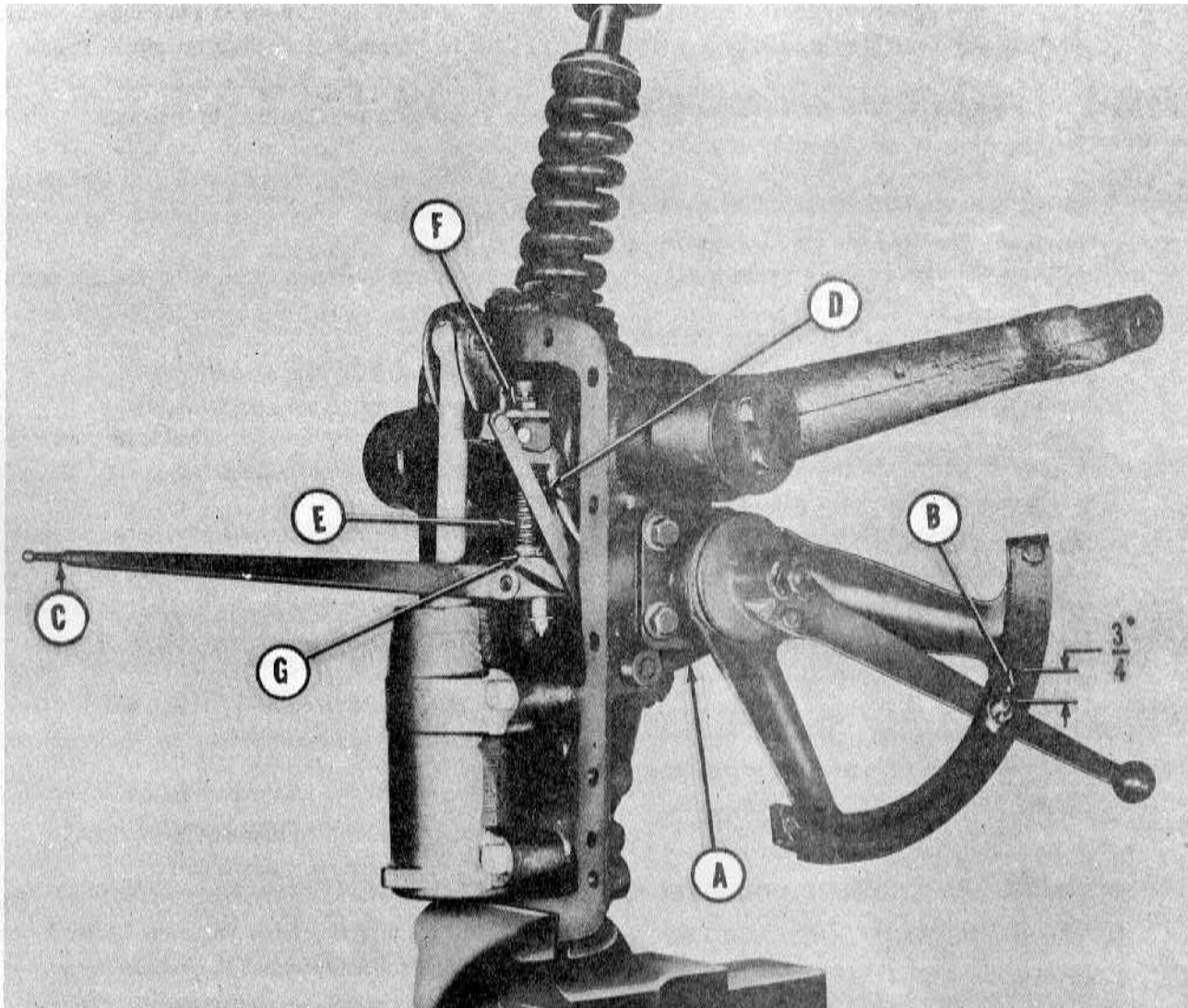


Fig. 7

V. ADJUSTING THE CONSTANT DRAFT SPRING

Step 1—Support the lift cover assembly in a vise in a vertical position with the main control spring up, as shown in Figure 6.

Step 2—Be sure the implement position control lever (A—Figure 6) is disengaged.

Step 3—Check the length of the constant draft control spring (C—Figure 6). It should measure $3\frac{9}{16}$ ".

Step 4—If the spring is too long or too short adjust the nut (D—Figure 6) until the correct spring length is obtained. If the adjusting

nut is a locknut, tighten up until the washer bears against the shoulder.

VI. ADJUSTING THE IMPLEMENT POSITION CONTROL SPRING

Step 1—Engage the implement position control lever (A—Figure 7) by moving it to the "up" position.

Step 2—Move the hydraulic touch control lever until there is a $\frac{3}{4}$ inch opening between the top edge of the lever and the top end of the slot in the quadrant as shown at (B—Figure 7).

Step 3—Raise the lift arms to their top operating position as indicated by marks on the lift arm and housing (B—Figure 6).

NOTE: Make sure the control arm (C—Figure 7) moves freely.

Step 4—Raise the implement position control spring linkage until the pin (D—Figure 7) contacts the cam on the lift ram arm.

Step 5—Raise the control arm (C—Figure 7) until the swivel comes into contact with the collar on the constant draft control spring.

Step 6—Adjust the length of the implement position control spring (E—Figure 7) by loosening the locknut (F—Figure 7) and turning the adjusting bolt (G—Figure 7), so that it contacts the control arm when the pin is touching the cam and the swivel is in contact with the constant draft spring.

CAUTION: Check the position of the hydraulic touch control lever and lift arms to be sure they were not moved while making the adjustments.

VII. INSTALLING THE HYDRAULIC LIFT COVER ASSEMBLY ON THE TRACTOR

Step 1—Install new gasket on center housing.

NOTE: For training purposes it is not necessary to replace an undamaged gasket.

Step 2—Lower the hydraulic lift cover assembly into position.

NOTE: Be sure the touch control lever, the hydraulic lift arms and the implement position control lever are in the "Down" position before lowering the lift cover unit into position.

Step 3—Set the lift cover assembly on the center housing, placing the front of the assembly slightly to the rear of the position required to line up the bolt holes.

Step 4—Insert the right hand in the center housing at the inspection plate opening, as shown in Figure 8 and guide the tip of the control arm into position in the control valve lever.

Step 5—Bolt the lift cover assembly to the center housing.

Step 6—Attach the leveling arms to the lift arms.

VIII. FINAL CHECK OF ADJUSTMENTS

Step 1—Recheck the main control spring adjustment as shown in Figure 3.

Step 2—Recheck the quadrant adjustment. Follow the same procedure as in Part III of this Job Plan.

Step 3—Check the length of the control valve overlap as measured on the quadrant in constant draft position.

- a. Attach an implement to the tractor in performing Steps a and b.

NOTE: For training purposes, have a man stand on the two lower links to impose the weight necessary for making this check, as shown in Figure 9.

- b. Raise the touch control lever until the lift arms start to rise. (Engine running at $\frac{3}{4}$ throttle.) Mark this spot on the quadrant frame at the rear edge of the touch control lever.

NOTE: Line A—Figure 9 represents the point at which the lift arms begin to rise.

NOTE: When lowering the touch control lever from its maximum "up" position, the lift arms should start to lower at a point represented by the Line B—Figure 9. This point should be approximately $\frac{5}{8}$ inch below the point where the lift arms started to rise, represented by Line A—Figure 9. This distance represents the correct control valve overlap.

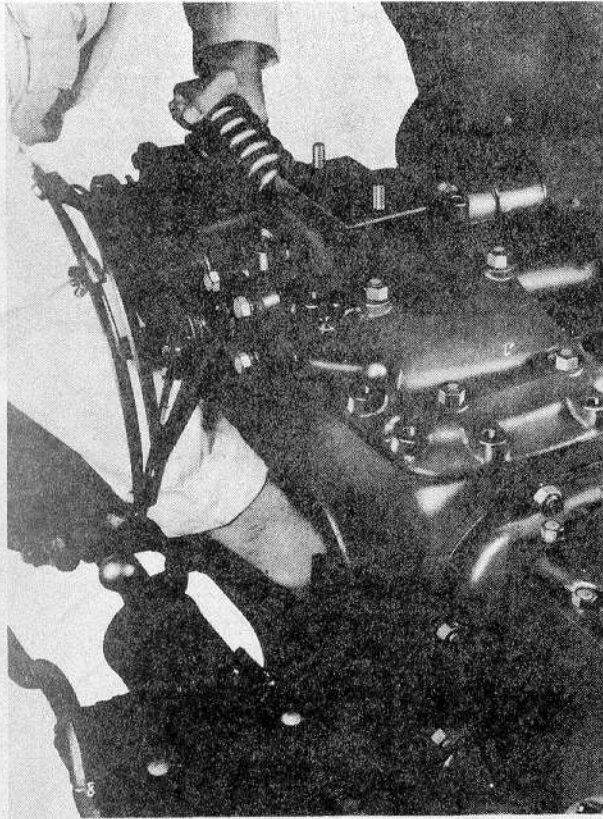


Fig. 8

Step 4—Check the implement position control spring adjustment.

- a. Raise and lower the lift arms to insure complete operating range.
- b. Engage the implement position control lever (up position).
- c. Move the touch control lever to the top of the quadrant, raising the lift arms.
- d. Move the touch control lever to the bottom of the quadrant.
- e. When the lift arms have stopped lowering, measure the height of the rear

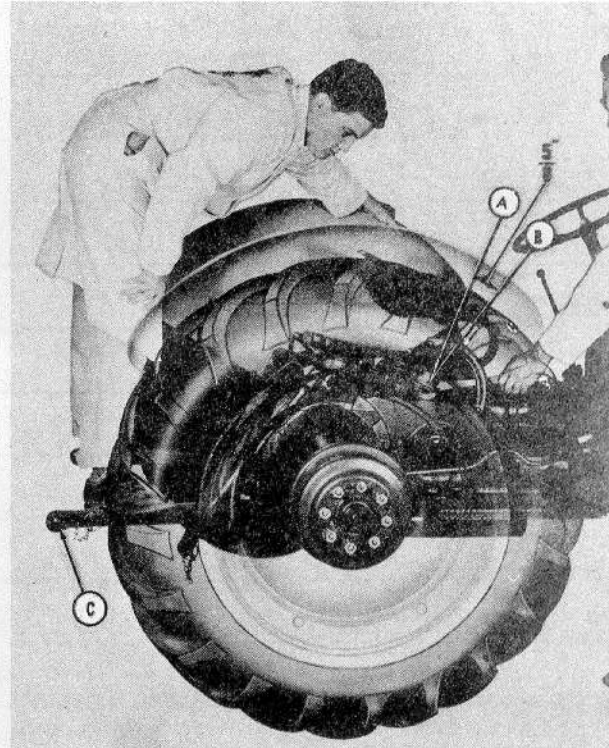


Fig. 9

end of the lower links (C—Figure 9) from the ground.

- f. Disengage the implement position control and check the amount of drop of the lower links by re-measuring the height of the rear end of the lower links from the ground.

NOTE: If the drop exceeds 3 inches this indicates that the implement position control spring is too long.

Step 5—Install the rocker on the main control spring yoke.

Step 6—Install the inspection plate and seat.