

STEERING SYSTEM

STEERING PLANETARY

Linkage Adjustment (Fig. 48A) —Continued

ment is completed and rod (6) is connected and secured, the booster timing marks (1) will not necessarily be aligned.

3. Stop the engine.

PIVOT BRAKES

10. REMOVAL

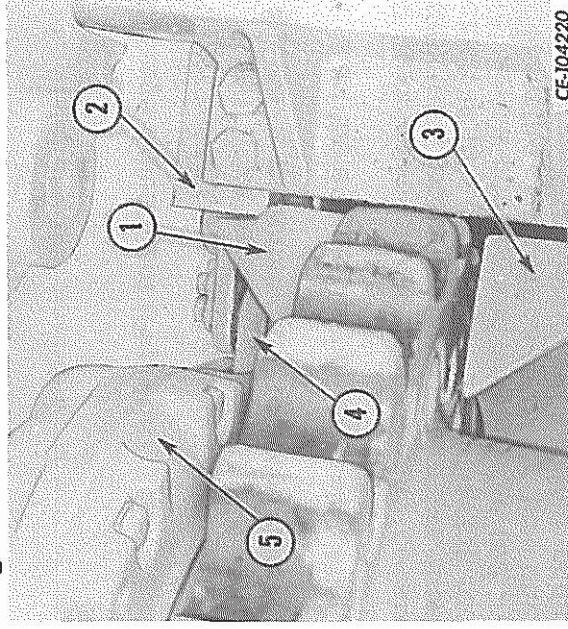
NOTE: Remove all dirt accumulation from the main frame cover. Excessive dirt buildup could cause binding of external brake linkage and result in premature brake failure.

The pivot brake assemblies on both sides of the tractor are the same; therefore, all parts are interchangeable. The removal, disassembly, inspection, repair and reassembly procedures are also the same for both sides.

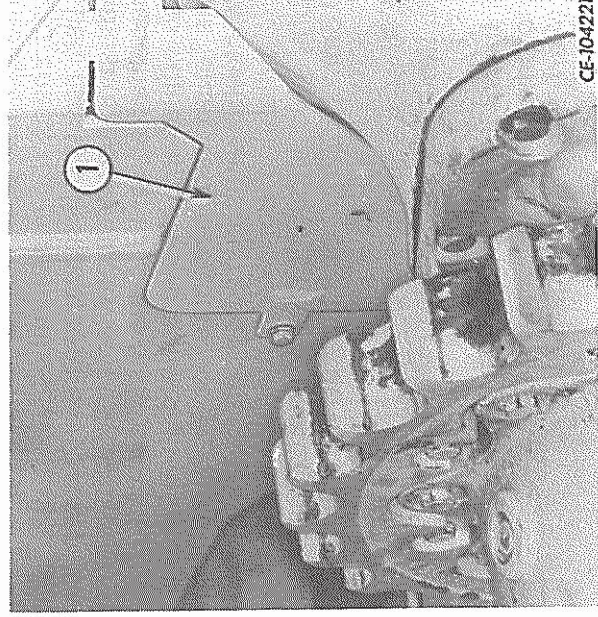
1. Disconnect the track chain and clear it from the sprocket. It is not necessary to remove the track chain from under the track frame (refer to Section 10, "TRACKS AND TRACK FRAME" for chain removal.) Remove the sprocket outer rock shield (3, Fig. 49) (if equipped).

2. Remove the hose guard (1, Fig. 50) (if equipped).

3. Drain the rear main frame by removing the Plug in the underside of the frame.



**FIG. 49 — Track Frame Coupling Link
(Model 175C Only)**



**FIG. 50 — Equipment Hydraulic Cylinder
Hose Guard**

4. **MODEL 175C ONLY:** Remove the track frame coupling link (4, Fig. 49). Remove the capscrews, washers and link pin locks securing the link pins to the sprocket inner rock shield (1) at the track frame (2) and at the bottom of the sprocket drive carrier cover (5). Pull out the link pins to remove the coupling link (4). Remove the inner rock shield (1). On units not equipped with sprocket rock shields, a coupling is used in place of the inner rock shield (1).

TD-15C ONLY: Remove the outer cap (2, Fig. 51) securing the track frame pivot shaft to the sprocket drive carrier (4). Loosen the mounting bolts on the inner cap (1) on each side of the tractor. Pry forward slightly on the pivot shaft to remove the shims (5) between the spacer (3) and sprocket drive carrier. The spacer should be worked free of the carrier when the sprocket drive assembly is removed from the unit. Keep the shims together with the spacer and outer cap to facilitate reassembly.

PIVOT BRAKES

10. REMOVAL — Continued

5. Remove the brake inspection cover (located next to the steering booster) from the rear main frame cover. Discard the gasket. Work through this opening to free the actuating lever assembly from the pivot brake by removing the bolts (17, Fig. 61) securing the support (1) to the brake. Swing the support, with spring (16) and lever (2) attached, out of the frame and secure this assembly to the cover as shown in Fig. 52).

6. Jack up the rear of the unit until the sprocket clears the track chain.

7. To remove the sprocket drive assembly as a unit, a lifting hood and adapter must be made as shown in Figs. 53 and 54.

8. Remove the capscrews securing the sprocket drive carrier to the rear main frame. To obtain the proper balance for removing the sprocket drive assembly, remove the sprocket drive carrier cover mounting bolt from the location shown in Fig. 55. Use a bolt 83mm (3-1/4 in. in length) to secure the adapter (2) to the cover. Install the lifting hook (1) to the adapter and attach to a hoist.

Remove the three corks or set screws from the sprocket drive carrier and install puller bolts. Turn in the puller bolts until pry bars can be inserted to pry the assembly from the dowels. Pull the assembly straight away from the frame until the pinion shaft clears the frame. On the TD-15C, the pivot shaft spacer (3, Fig. 51) should be worked free of the carrier as the assembly is being removed.

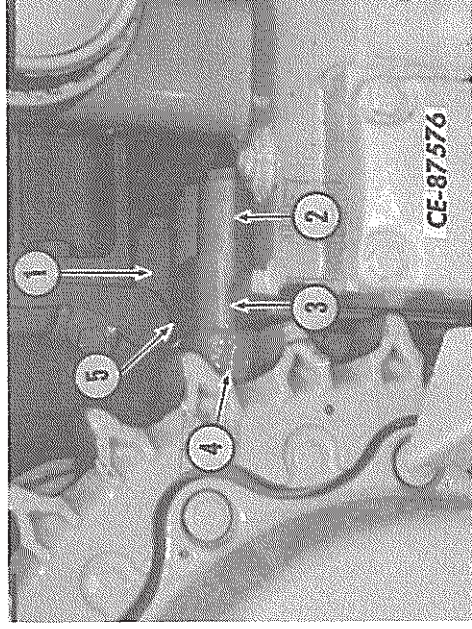


FIG. 51 — Pivot Shaft Mounting Caps (TD-15C Only)

1. Inner cap
2. Outer cap
3. Spacer
4. Sprocket drive carrier
5. Shims

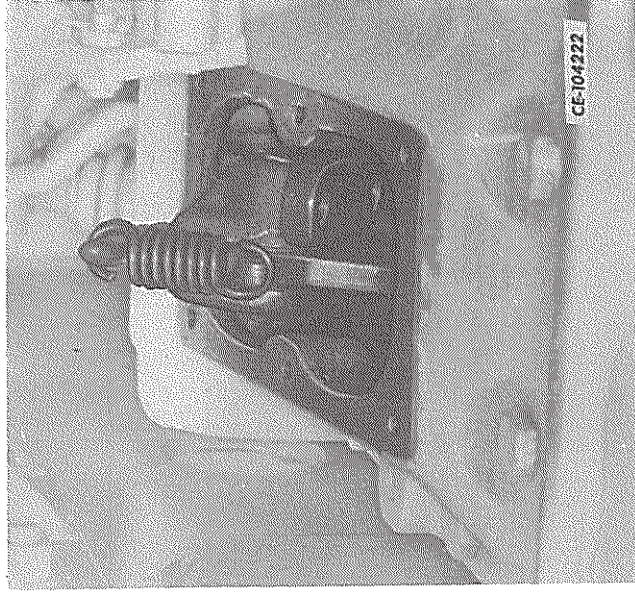
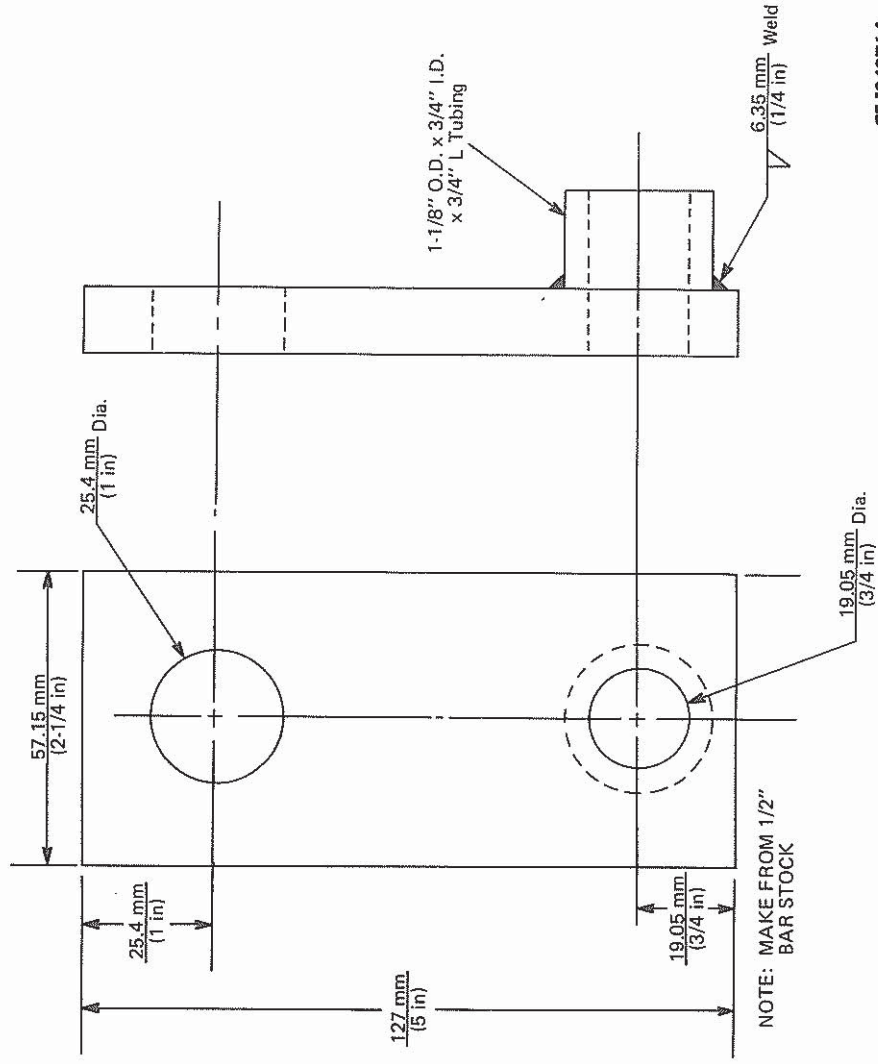


FIG. 52 — Pivot Brake Actuating Lever Assembly

STEERING SYSTEM

PIVOT BRAKES

10. REMOVAL — Continued



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FIG. 53 — Detailed Parts for Lifting Hook Adapter Shown in Fig. 55

REMOVAL – Continued



FIG. 54 -- Detailed Parts for Lifting Hook Shown in Fig. 55

STEERING SYSTEM

PIVOT BRAKES

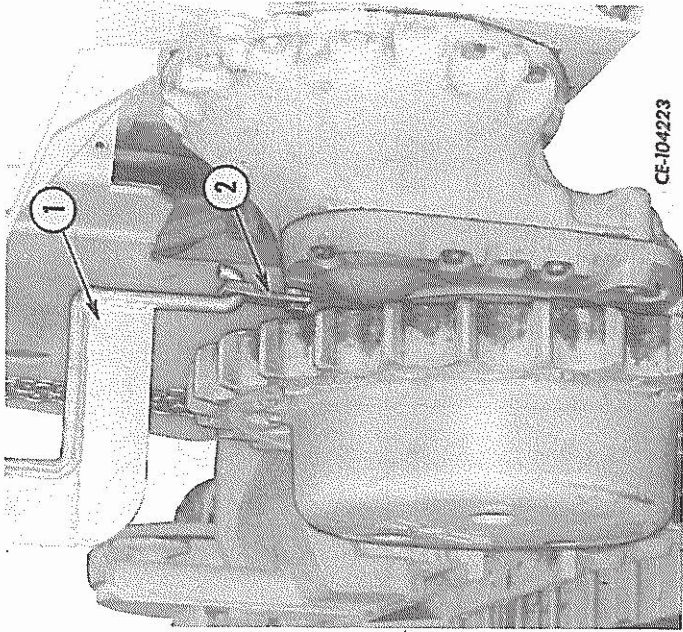


Fig. 55 — Lifting Hook and Adapter Installed

11. DISASSEMBLY

1. Position the sprocket drive assembly so the pinion shaft is up.

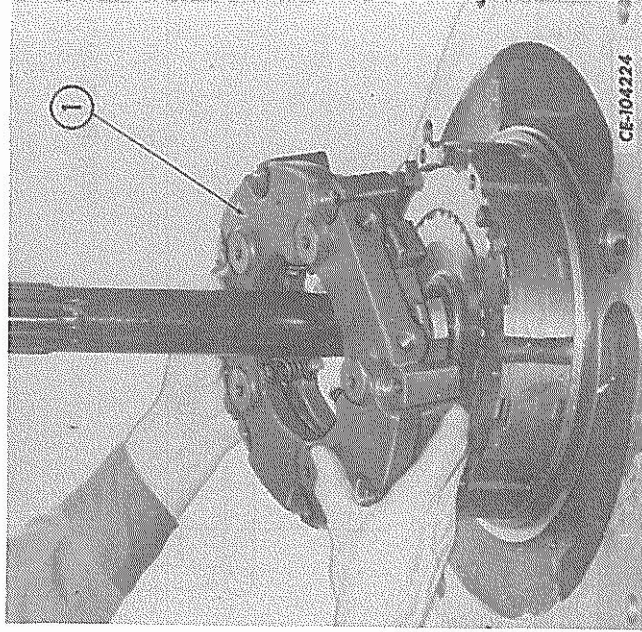


FIG. 56 — Removing the Brake Actuator Assembly

2. Remove the capscrews securing the actuator pressure plate (1, Fig. 56) to the carrier. Lift the brake actuator assembly from the pinion shaft.

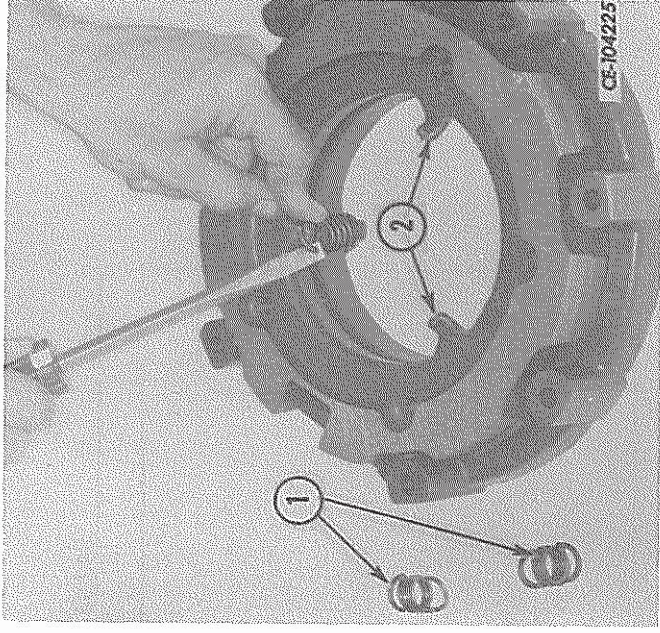


FIG. 57 — Removing the Actuator Assembly Return Springs

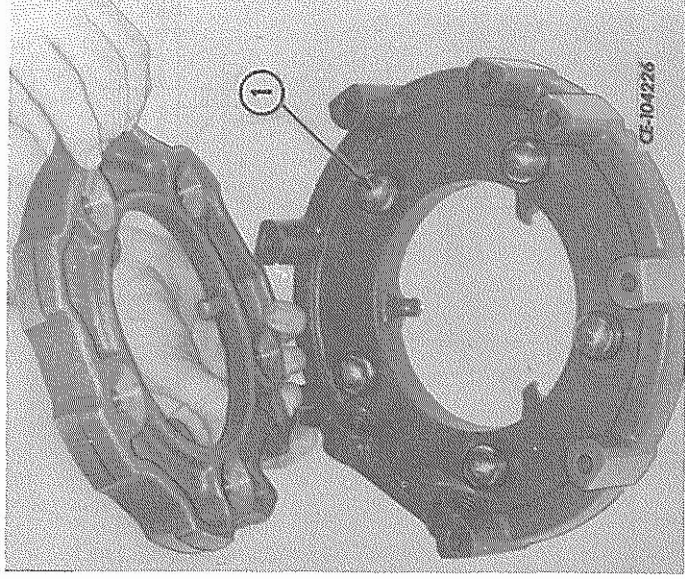


FIG. 58 — Removing the Brake Actuator

PIVOT BRAKES

11. DISASSEMBLY -- Continued

3. To separate the brake actuator assembly, pry the three return springs (1, Fig. 57) from the actuator ear lugs (2) using a screw driver. Remove the actuator and five steel balls (1, Fig. 58) from the pressure plate.

4. Before removing the bolts securing the separator plate retainer (1 Fig. 59) to the carrier, punch mark the bolt holes to prevent confusing them with the pressure plate bolt holes (2) in the retainer when reassembling these components.

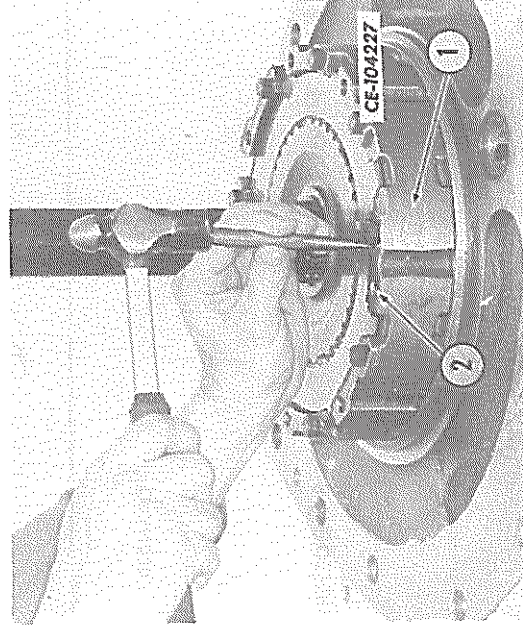


FIG. 59 — Marking the Retainer Mounting Bolt Holes

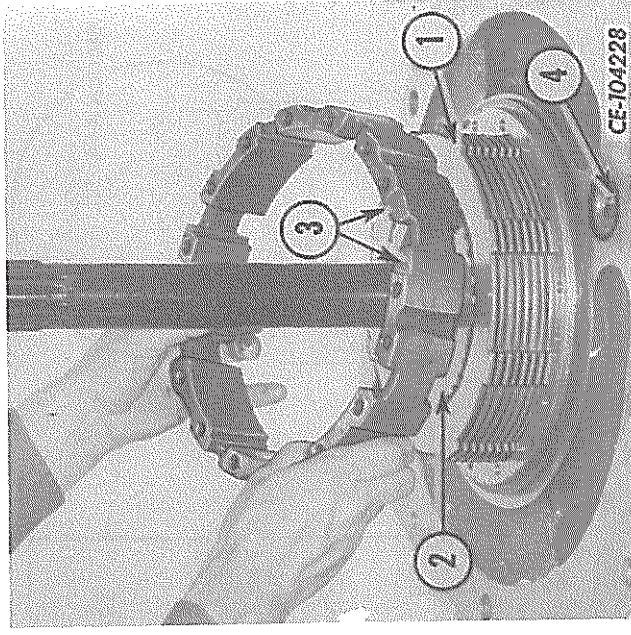


FIG. 60 — Removing the Separator Plate Retainer

5. Remove the separator plate retainer from the carrier (Fig. 60). Lift the friction plates and separator plates (1) from the brake hub (2).

6. Remove the brake hub outer retaining ring from the pinion shaft (Fig. 62). Slide the hub from the shaft (Fig. 63). Discard the sealing ring (2, Fig. 63) (if equipped) and the "O" ring (1).

STEERING SYSTEM

PIVOT BRAKES

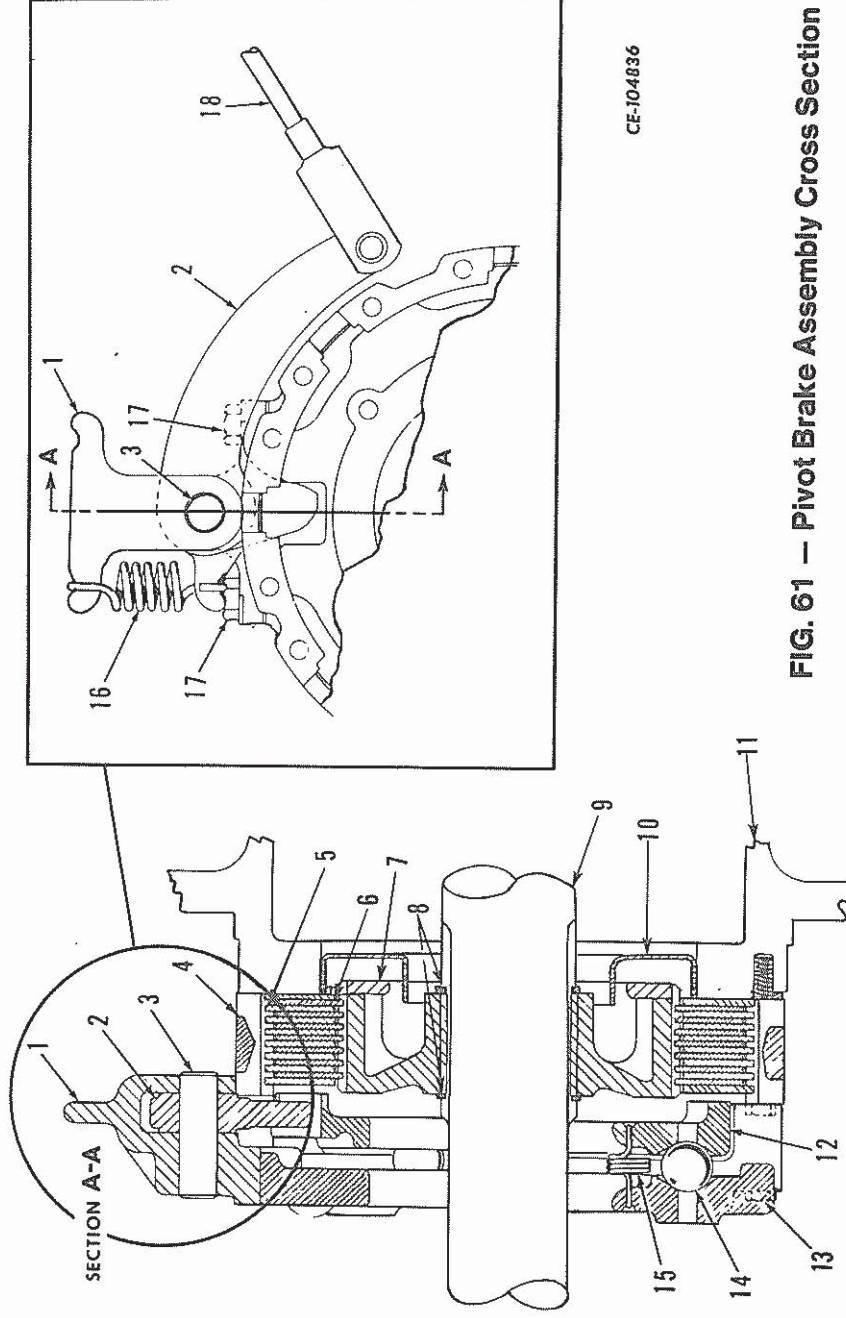


FIG. 61 — Pivot Brake Assembly Cross Section

1. Actuating lever support
2. Actuating lever
3. Actuating lever pivot shaft
4. Separator plate retainer
5. Separator plates
6. Friction plates
7. Pivot brake hub
8. Hub retaining rings
9. Sprocket drive pinion shaft

10. Oil dam
11. Sprocket drive carrier
12. Pivot brake actuator
13. Actuator pressure plate
14. Steel ball
15. Actuator return spring
16. Actuating lever return spring
17. Lever support mounting bolts
18. Pivot brake actuating cable

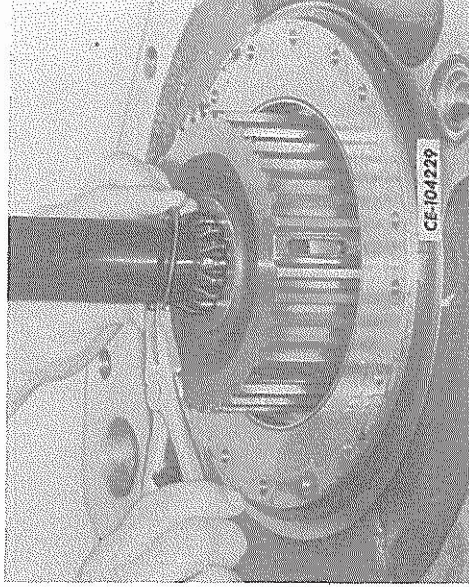


FIG. 62 — Removing the Brake Outer Retaining Ring

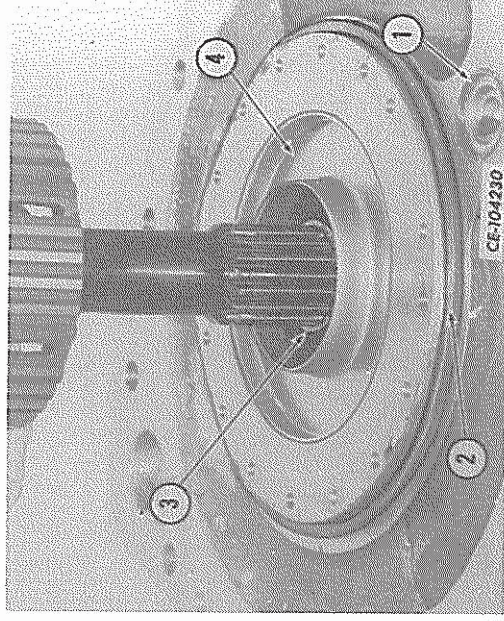


FIG. 63 — Removing the Brake Hub

PIVOT BRAKES

12. INSPECTION AND REPAIR

1. Check the brake pedal action. New bushings are required if excessive looseness causes pedal wobble. If a binding movement exists, it may be possible to eliminate it by lubricating at the grease fitting in the pedal hub.

Remove the brake pedal to install the new bushings as follows:

- a. Remove the center and right front floor plates.
- b. Disconnect the brake rod yoke from the bottom of the pedal and unhook the pedal return spring. Check spring tension. Refer to Par. 2, "SPECIFICATIONS."
- c. Drive out the pedal shaft retaining pin installed through the side of pedal bracket arm and remove the shaft.
- d. Press out both bushings installed in the pedal bore.
- e. Press in new bushings until each is flush with the outer edges to allow space between the bushings for lubrication.
- f. Reinstall the brake pedal, linkage and floor plates.

2. Inspect the separator and friction plates for distortion and excessive wear at the braking surface. Refer to Par. 2, "SPECIFICATIONS" for dimension of new parts.

The braking surface on both sides of the friction plates are grooved to allow oil to squeeze out when the brakes are applied. All these groovings should be cleaned thoroughly.

3. Inspect the friction plate and the pivot brake hub splines for excessive wear and damage. Replace parts as necessary.

4. Check the pressure plate and actuator ramps for wear that may prevent the ball from rolling smoothly up the ramp. If any corrosion is found, polish the ramp with emery cloth. Inspect the steel balls and, if

they are out-of-round or too rough to be polished with emery cloth, replace them with new balls.

5. Inspect the extension springs for excessive wear at the attaching loops or loss of tension needed to hold the actuator firmly against the balls. Refer to Par. 2, "SPECIFICATIONS."

6. Check the actuating lever return spring (16, Fig. 61) for damage and tension (refer to Par. 2, "SPECIFICATIONS").

13. REASSEMBLY

1. Position the brake hub on the pinion shaft splines until it bottoms on the inner retaining ring (3, Fig. 63). Secure with the outer retaining ring (Fig. 62).

NOTE: To prevent damaging the oil dam (4, Fig. 63) be sure to install the brake hub with the open end toward the oil dam.

2. Secure the separator plate retainer (Fig. 60) to the carrier using the punch marked holes made during disassembly (Fig. 59). Torque the mounting bolts to 50-53 N.m (37-39 lbf ft). To prevent interference with the actuating lever when the assembly is installed in the unit, the retainer must be installed so the milled slot (3, Fig. 60) is facing away from the carrier and toward the cooling port (4).

3. Alternately install eight separator plates (5, Fig. 61) and seven friction plates (6) between the brake hub and plate retainer. These plates are installed correctly when the first and last plates to be installed are the externally tapered separator plates (5).

4. If the actuator assembly was disassembled, reassemble as follows. Place the five steel balls (1, Fig. 58) in the ramp of the pressure plate. Use a straight edge to measure the required distance of .615/.605" (15.62/15.36mm) (refer to Fig. 64A) between steel balls and holding bolt bores of the pressure plate. Distance must be same for 5 places within .002" (0.0508mm). Position the actuator (Fig. 58) over the pressure

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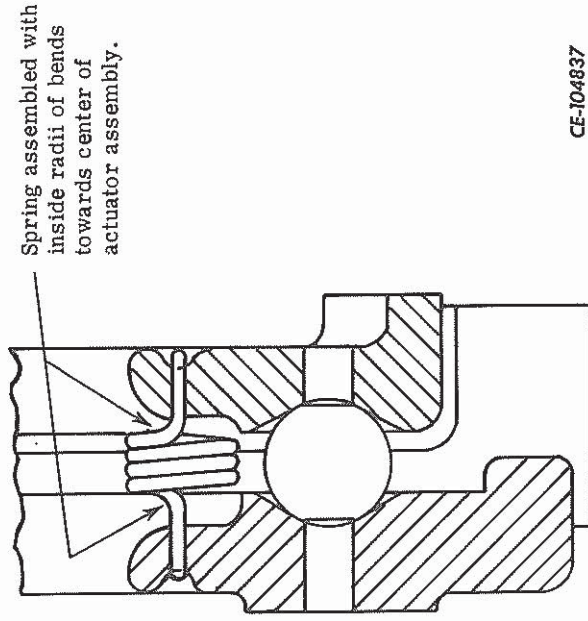
PIVOT BRAKES

13. REASSEMBLY — Continued

plate aligning the actuator ramp with the steel balls and secure the assembly with the three return springs (1, Fig. 57). These return springs must be installed so the inside radii of the bends are toward the center of the actuator assembly (Fig. 64).

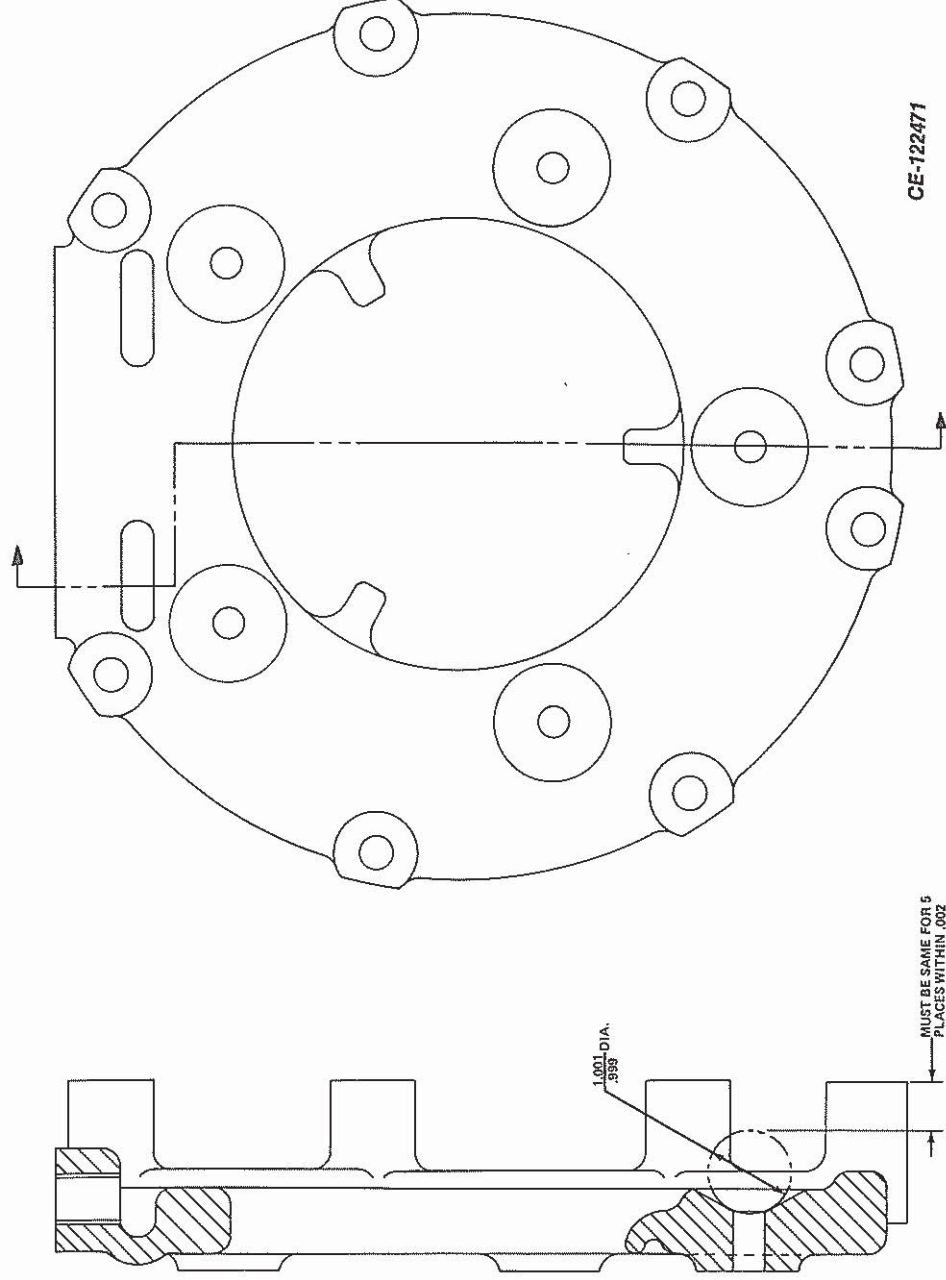
5. Position the actuator assembly over the sprocket drive pinion shaft and secure the pressure plate (1, Fig. 56) to the sprocket drive carrier using 50-53 N.m (37-39 lbf ft) torque.

6. Apply pressure to the plates (5, Fig. 61) and (6) to be sure they are bottomed on the carrier (11) and, with a feeler gauge, measure the gap between the plates and the actuator (12). (Refer to Fig. 65.) If the brake



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FIG. 64 — Return Spring Properly Installed



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FIG. 64A — Cross-Section of Actuator Pressure Plate

PIVOT BRAKES

REMOVAL — Continued

assembly was installed properly and the parts used, were thoroughly cleaned and within specification, a gap of 0.89 to 1.78mm (.035 to .070 in.) should be obtained.

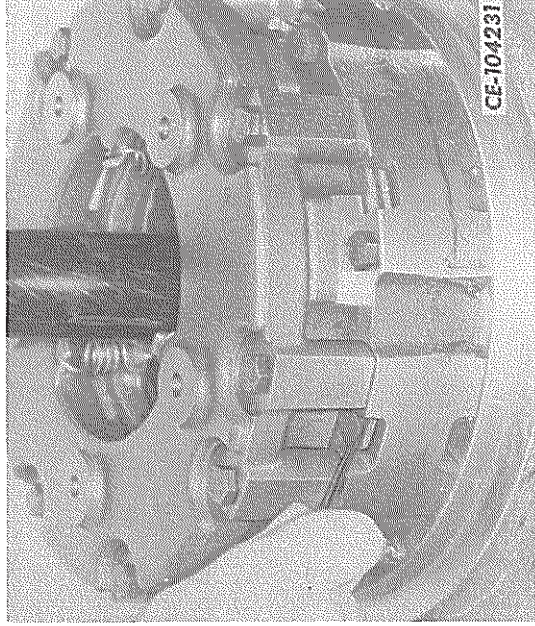


FIG. 65 — Measuring Plate End Clearance

14. INSTALLATION

NOTE: Remove the three puller bolts from the sprocket drive carrier and install the corks or set screws for thread protection.

1. Apply Permatex No. 3 on the sealing rings (1 and 2, Fig. 63) and install the sealing rings in the rear of the carrier.

NOTE: On machines that do not have a counterbore in the rear main frame, the sealing ring (2, Fig. 63) is not used.

2. Be sure the mating surfaces of the rear main frame and the sprocket drive carrier are clean. Apply "Loctite Plastic Gasket" to both surfaces.

3. Sling the assembly with the special lifting hook and adapter as was done in removal (Fig. 55) and move the assembly toward the rear main frame until the pinion shaft contacts the sun gear in the steering planetary. Turn the sprocket as necessary to engage the pinion shaft and sun gear splines; then move the sprocket drive assembly against

the rear frame and secure. Use a long drift or heel bar to align the mounting bolt holes. Torque the capscrews from 393-433 N.m (290-320 lbf ft).

NOTE: On the TD-15C, the pivot shaft spacer (3, Fig. 51) must be positioned between the pivot shaft and sprocket carrier as the sprocket drive assembly is positioned against the rear frame.

4. Remove the jack from under the rear frame.

5. Working through the brake inspection cover opening in the rear main frame cover, position the actuating lever assembly (Fig. 52) on the pivot brake assembly so the finger of the lever (2, Fig. 61) engages the slot in the brake actuator (12). Secure the support (1) with the bolts (17) using 231-257 N.m (170-190 lbf ft) torque.

6. Install the inspection cover using a new gasket. Apply Permatex No. 3 to the inspection cover side of the cover gasket.

7. **MODEL 175C ONLY:** Install the sprocket inner rock shield (1, Fig. 49) (if equipped). On units not equipped with sprocket rock shields, install the track frame coupling. Place the track frame coupling link (4) in position and secure to the inner rock shield or coupling (as equipped) and to the sprocket drive carrier cover (5) with the link pins. Install the link pin locks and secure with the capscrews and washers.

TD-15C ONLY: Install the same amount of shims (5, Fig. 51) that were removed between the sprocket carrier (4) and spacer (3). To provide clearance for installing shims, the bolts securing the pivot shaft inner cap (1) on each side of the tractor must be loosened. Pry the pivot shaft spacer forward until the gap between the carrier and spacer is great enough to install the original shim pack. Install the outer pivot shaft cap (2) and bolts and tighten to 995-1216 N.m (734-897 lbf ft). Tighten the bolts of the two inner caps.

NOTE: If a new sprocket drive carrier outer pivot shaft cap or pivot shaft spacer is

STEERING SYSTEM

PIVOT BRAKES

14. INSTALLATION — Continued

installed, or if the number of shims (5, Fig. 51) previously used is unknown and must be determined, proceed as follows (refer to Fig. 66):

Be sure the pivot shaft inner cap (2) on each side of the main frame is fully torqued. Install a dial indicator (5) with a magnetic base on the rear of the pivot shaft and place the indicator pointer against the planet gear carrier (6). Set the indicator at zero. Using a prybar (7) between the pivot shaft (4) and the sprocket teeth, deflect the shaft until the indicator reads approximately minus 0.38mm (0.015 in.) (pointer rotation counterclockwise). At this time, measure the distance between the spacer (8) and the sprocket drive carrier with a feeler gauge (both at top and bottom of spacer). This is the amount of shims (1) to be used. Install the shims and remove the prybar (do not disturb the dial indicator). Secure the outer cap (3) using full torque 995-1216 N.m (734-897 lbf ft) and note the indicator reading. Reading obtained must be zero to minus 0.15mm (0.006 in.). If necessary, remove the outer cap and add or remove shims as needed to obtain this reading with the outer cap fully torqued.

8. Be sure the drain plug in the underside of the rear main frame is installed and tight. Fill the rear main frame with the lubricant and to the level described in the Operator's Manual. Install the oil level dipstick.

9. Install the hose guard (1, Fig. 50) (if equipped).

10. Install the track chain (refer to Section 10, "TRACKS AND TRACK FRAME").

11. Install the sprocket rock shield (if equipped) and torque the bolts to 394-474 N.m (290-350 lbf ft).

12. Start the engine and check for leakage. Operate the unit and check brake operation. If the brakes do not function properly, they must be adjusted as described in the Operator's Manual.

13. After the engine is up to operating temperature, recheck the oil level in the rear main frame and add if necessary. Check the level in the sprocket drive as described in the Operator's Manual.

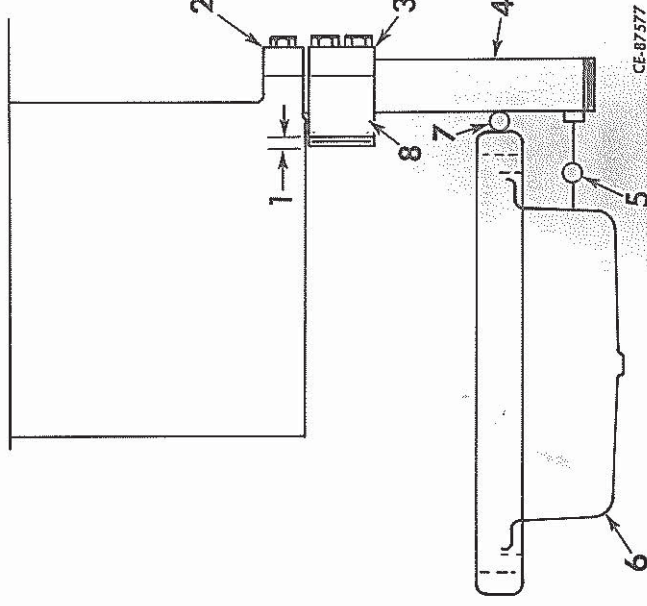


FIG. 66 — Pivot Shaft Shimming Drawing

- | | |
|----------------|------------------------|
| 1. Shim pack | 5. Dial indicator |
| 2. Inner cap | 6. Planet gear carrier |
| 3. Outer cap | 7. Prybar |
| 4. Pivot shaft | 8. Spacer |