

STEERING SYSTEM



PIVOT BRAKES

10. REMOVAL

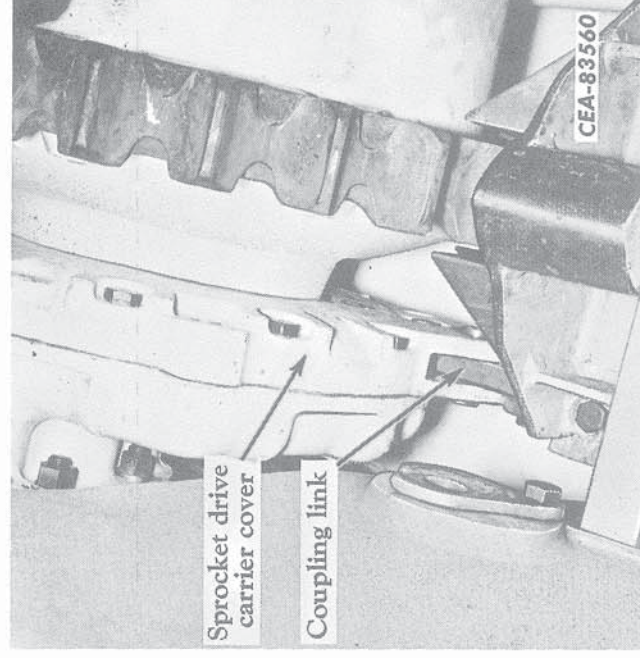
NOTE: Remove all dirt accumulation from the main frame cover. Excessive dirt pack-up could cause binding of external brake linkage and result in premature brake failure.

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.

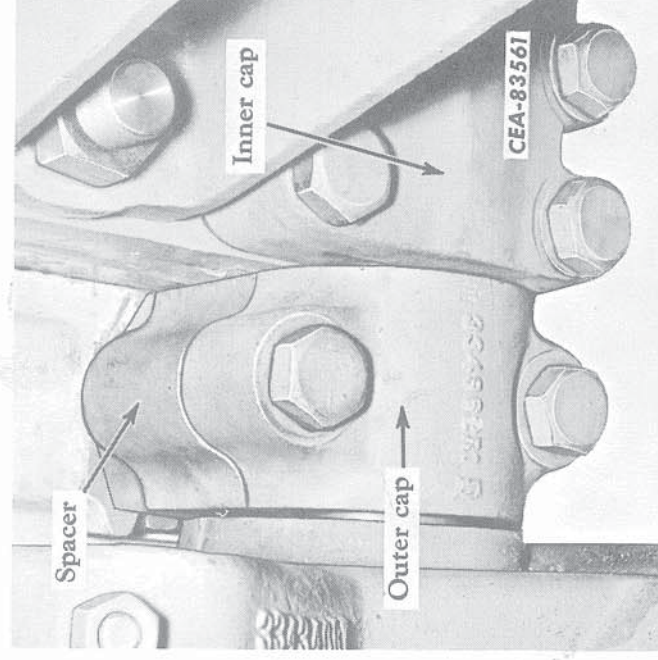
1. Remove the sprocket rock shield (if equipped). Disconnect the track chain and clear it from the sprocket. If is not necessary to remove the track chain from under the track frame.
2. Drain the rear main frame by removing the plug in the underside of the frame.
3. To facilitate removal and installation of the pivot brake actuating cable (3, Illust. 15), the seat frame, batteries and battery support brackets must be removed. When disconnecting the pivot brake cable on the right hand side of the unit, the brake pawl operating lever and guides (Illust. 7) must be removed and the seat side sheet moved out of the way. (Refer to Par. 4, "REMOVAL" under "STEERING PLANETARY" for the removal procedure of these components.)
4. Remove the cotter and end pin securing the pivot brake actuating cable (3) to the bellcrank (1). Using a pair of pliers or other suitable tool, pull the rubber boot from the cable. Push the cable (3) down into the rear frame cover (Illust. 15).
5. Remove the inspection cover located behind the pivot brake actuating cable. It will be necessary to work through this opening to feed the cable into the rear frame cover upon installation. If working on the right hand side of the unit, the rear frame oil level dipstick will first have to be removed.

NOTE: A pry bar or large screwdriver can also be used through this opening to aid in pushing the cable into the rear frame if it cannot be done by hand.

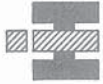
(Continued on page 43)



Illust. 43
Track Frame Coupling Link.
(Model 175 Loader Only)



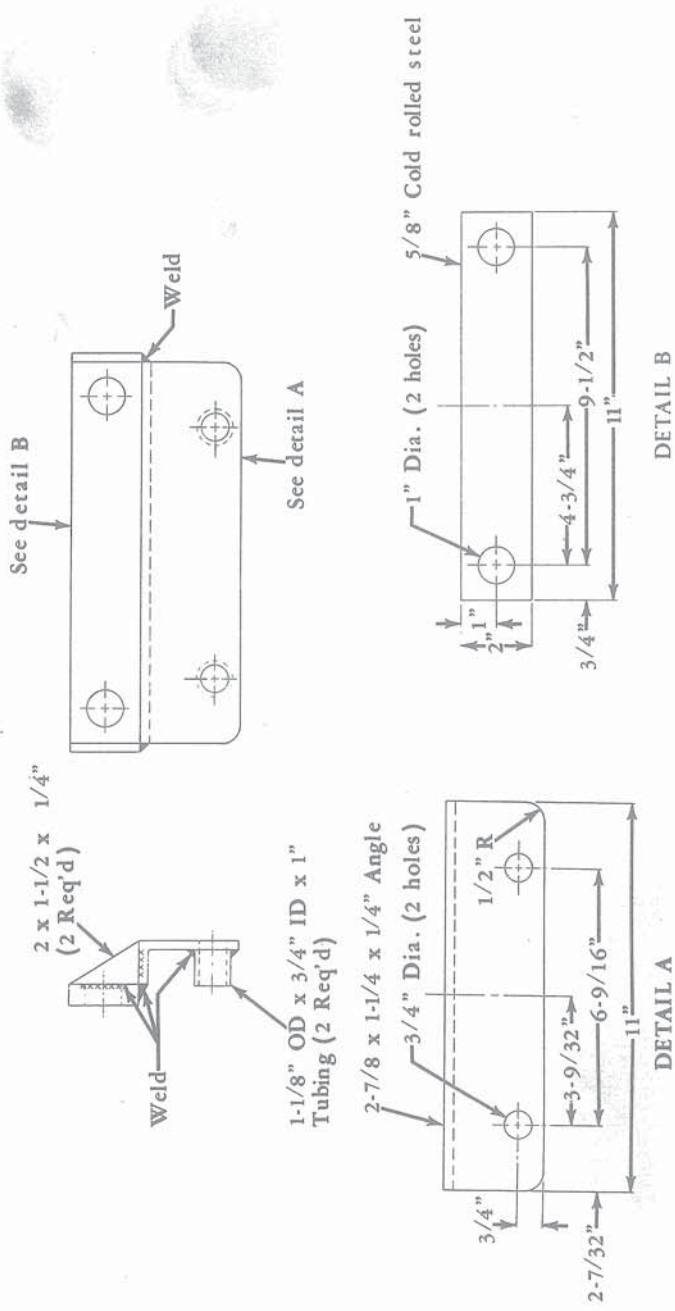
Illust. 44
Pivot Shaft Mounting Caps.
(TD-15 SERIES B Only)



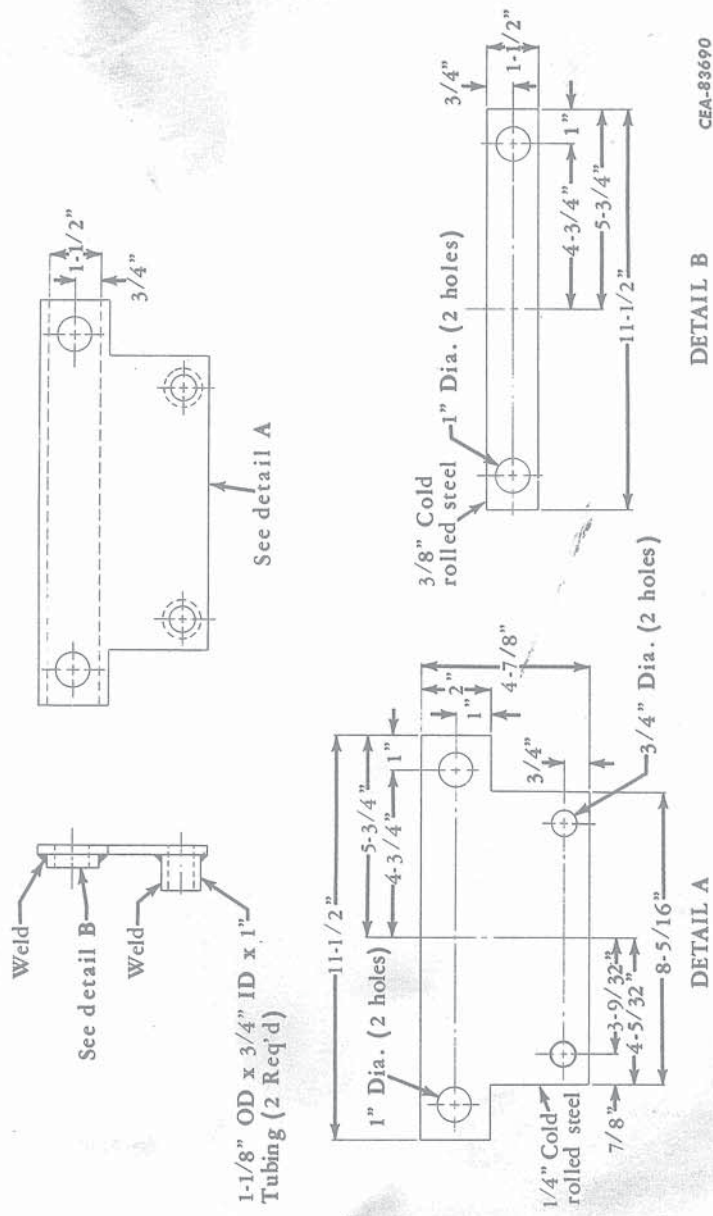
STEERING SYSTEM

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PIVOT BRAKES



TD-15 (SERIES B) Lifting Adapter



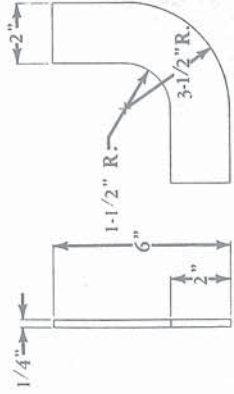
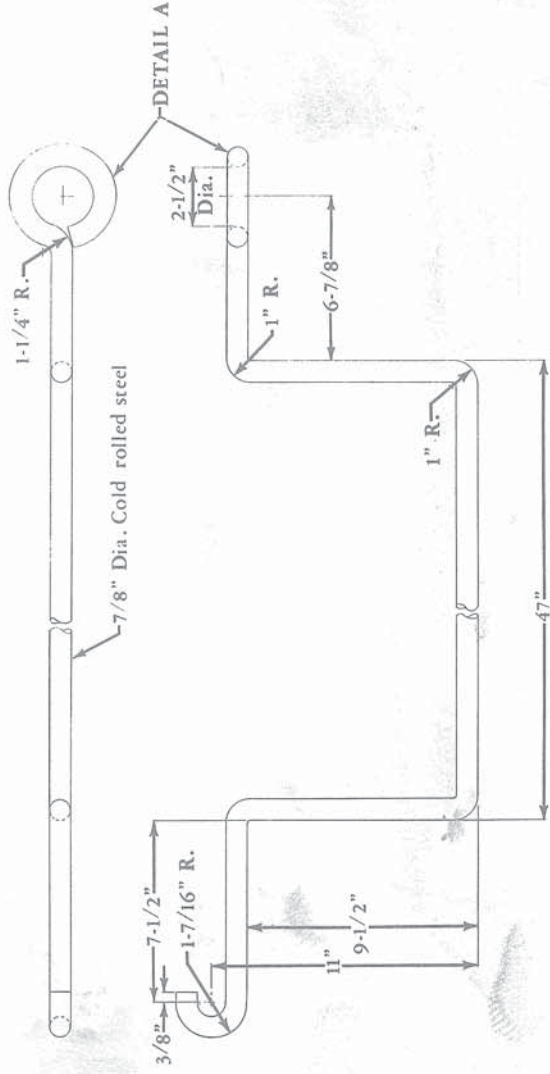
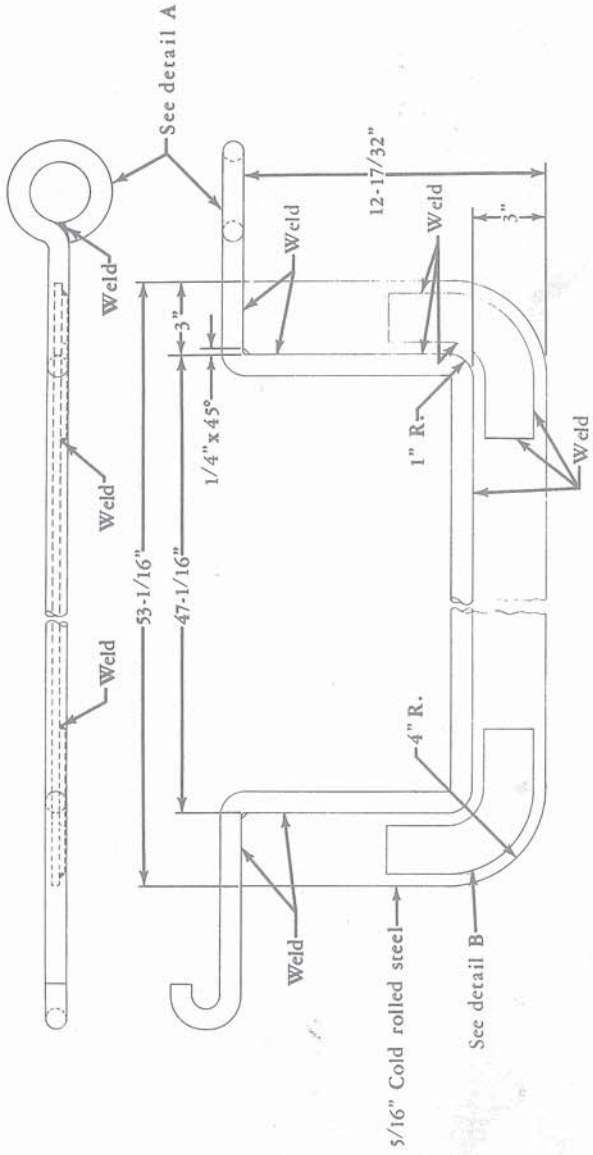
Model 175 Loader Lifting Adapter

CEA-83690

Illust. 45
Detailed Parts for Sprocket Drive Lifting Hook Adapter Shown in Illust. 47.

STEERING SYSTEM

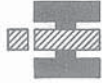
PIVOT BRAKES



DETAIL B (2 Req'd)

CEA-83691

Illust. 46
Detailed Parts for Lifting Hook Shown in Illust. 47.



PIVOT BRAKES

6. MODEL 175 LOADER ONLY: Remove the track frame coupling link. Remove the cap screws, washers and link pin locks securing the link pins to the coupling at the track frame and at the bottom of the sprocket drive carrier cover. Tap out the link pins to remove the coupling link. (Illust. 43.)

TD-15 (SERIES B) TRACTOR ONLY: Remove the outer cap securing the track frame pivot shaft to the sprocket drive carrier. Loosen the mounting bolts on the inner cap on each side of the tractor. Pry forward slightly on the pivot shaft to remove the shims between the spacer and sprocket drive carrier (Illust. 44). 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.

7. Jack up the rear of the unit until the sprocket clears the track chains.

8. To remove the sprocket drive assembly as a unit, a lifting hook and adapter should be made as shown in Illust. 45 and 46.

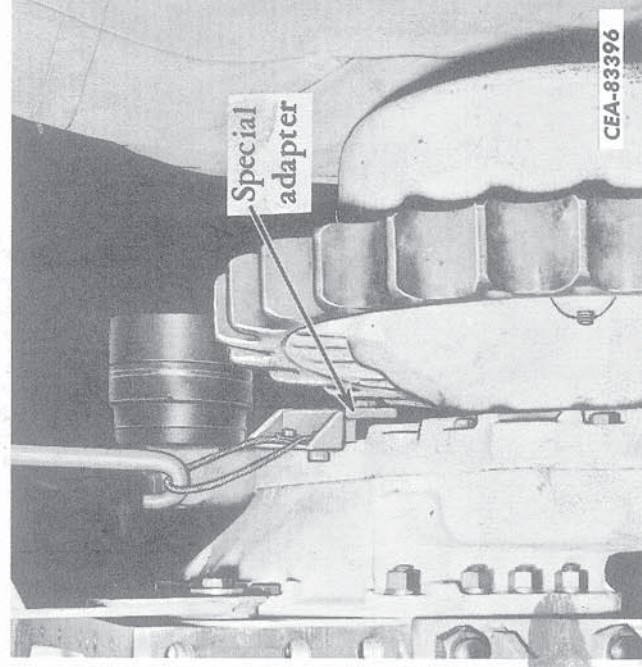
9. Remove the cap screws and nuts securing the sprocket drive carrier to the rear main frame. Remove two of the sprocket drive carrier cover mounting bolts and use two bolts (three inches in length) to secure the adapter (Illust. 45) to the cover. Secure a short cable to the top holes of the adapter and attach the lifting hook (Illust. 46) and hoist (Illust. 47).

Turn in the three hexagon-socket set screws provided in the sprocket drive carrier until pry bars can be inserted to pry the assembly from the studs and dowel. Pull the assembly straight away from the frame until the pinion shaft clears the frame. On the TD-15 (SERIES B), the pivot shaft spacer (Illust. 44) should be worked free of the carrier as the assembly is being removed.

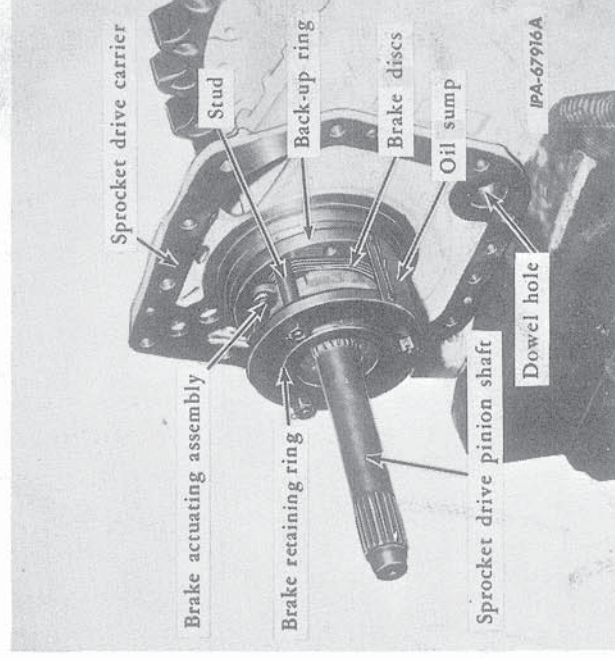
11. DISASSEMBLY

1. Support the sprocket drive assembly as shown in Illust. 48.
2. Disconnect the pivot brake actuating cable from the links of the brake actuating assembly.
3. Remove the lockwire, cap screws and washers securing the oil sump and gaskets to the bottom of the brake retaining and back-up

(Continued on next page)



Illust. 47
Installing Sprocket Drive Special Lifting Hook and Adapter (TD-15 (SERIES B) Shown, Model 175 Loader Similar.)



Illust. 48
Pivot Brake Assembly.

STEERING SYSTEM

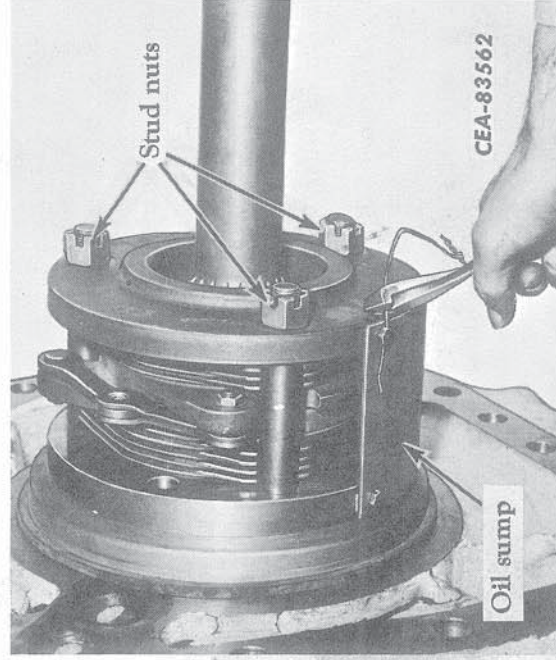
PIVOT BRAKES

11. DISASSEMBLY - Continued

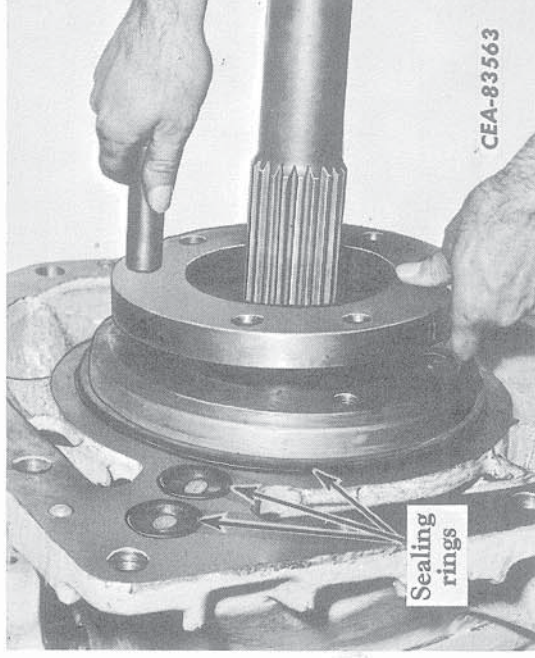
3. Remove the cotter pins and nuts from the three brake studs (Illust. 49).
4. Remove the cotter pins and nuts from the three brake studs (Illust. 49).
5. Remove the brake retaining ring, discs and actuating assembly from the studs and off the end of the pinion shaft (Illust. 50).

NOTE: Some brake assemblies are equipped with stud spacers. If so equipped, discard the spacers.

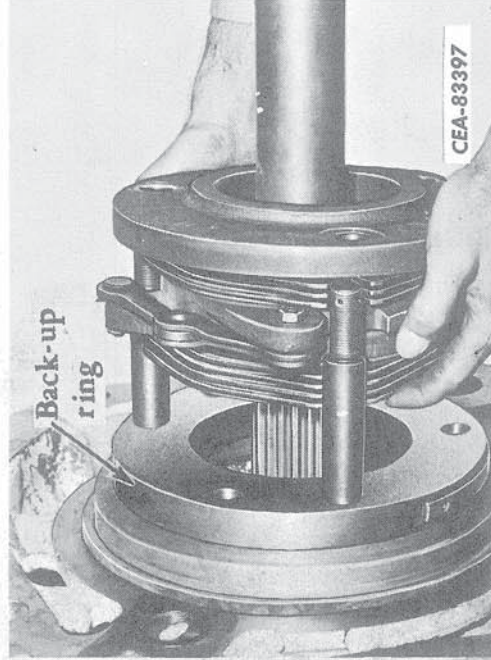
6. If necessary, the brake back-up ring can be removed from the carrier by loosening the three studs with a stud puller. Remove the studs and back-up ring (Illust. 51).



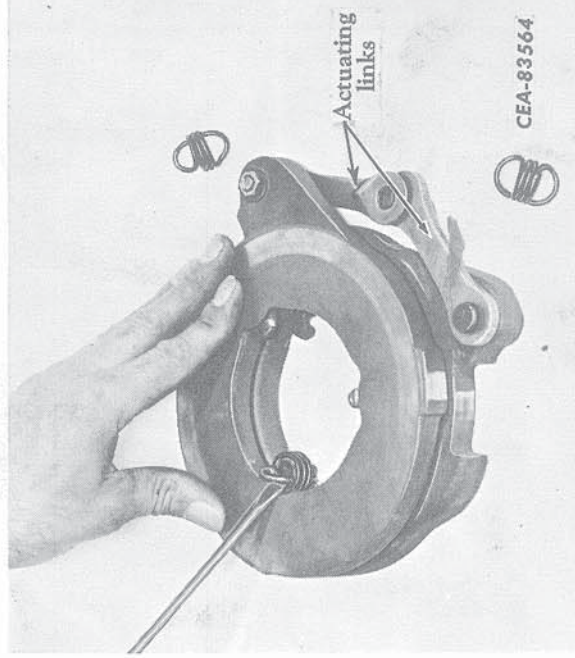
Illust. 49
Removing the Lockwire from the Oil Sump Mounting Cap Screws.



Illust. 51
Removing the Back-up Ring.



Illust. 50
Removing the Brake Disc Assembly from the Pinion Shaft.



Illust. 52
Removing the Brake Extension Springs.



PIVOT BRAKES

7. Pry the three extension springs from the ear lugs of the actuating discs using a screwdriver (Illust. 52). Separate the discs and remove the five steel balls.

8. If it is necessary to remove the actuating link (Illust. 52) from the disc, unstake and remove the nut and stud.

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

6. Check the actuating links, studs, brake rod yoke and yoke pin for wear, and replace worn parts with new.

7. Inspect the brake actuating cable assembly removed from the rear main frame cover.

12. INSPECTION AND REPAIR

1. Inspect the middle and intermediate discs for distortion and excessive wear at the braking surface. If a wear pattern is established on either or both sides of an intermediate disc and the original disc thickness is reduced below the minimum dimension shown in Par. 2, "SPECIFICATIONS," the disc should be replaced with a new one.

The braking surface on both sides of the middle discs are grooved to allow oil to squeeze out when the brakes are applied. All these groovings should be cleaned thoroughly. If the discs or disc hub splines are excessively worn, replace the disc with a new one.

NOTE: The pressure required to obtain a given braking action will increase as braking surface wear progresses. This is due to the changing leverage of the actuating links as their angular relationship to each other decreases.

2. The outer face of the brake back-up ring and the inner surface of the brake retainer ring serve as stationary braking surfaces and must be inspected for excessive scratches or pitting. If these cannot be cleared up with emery cloth, replace the grooved or pitted parts.

3. Perform the same inspection and servicing operations, as in Step 2 preceding, on the brake surfaces of the actuator disc assembly.

4. Check each actuator disc ramp 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.

(a) Remove the snap ring installed below the spring retainer and disassemble the spring guide. Check the brake cable return spring. Refer to Par. 2, "SPECIFICATIONS."

(b) Remove the "O" rings, from the grooves in the cable guide, and the dirt seal installed in the cover upper recess.

(c) Thoroughly clean all parts including the interior of the cover opening. Install a new dirt seal and new "O" rings, reassemble the spring and install the snap ring.

8. 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.

(Continued on next page)

STEERING SYSTEM



PIVOT BRAKES

12. INSPECTION AND REPAIR - Continued

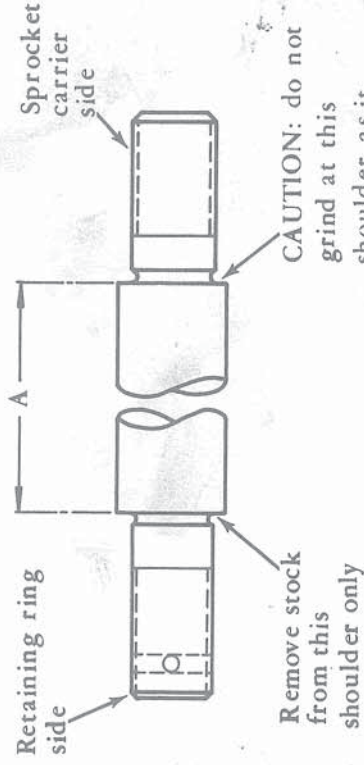
(f) Reinstall the brake pedal, linkage and floor plates.

9. Check length (A, Illust. 53) of the pivot brake studs. If the dimension obtained is 3.023 to 3.028 inches, the studs must be removed and this length reduced to 3.006 to 3.011 inches to provide the proper brake disc clearance. Be sure to remove stock from the retaining ring end of the stud (Illust. 53). Install the studs so they are shouldered against the back-up ring. Refer to Par. 2, "SPECIFICATIONS" for the proper torque.

NOTE: Instead of grinding the stud an alternate method is to add an additional intermediate (steel) disc between the brake retaining ring (Illust. 48) and the outer lined disc upon reassembly of the pivot brake discs.

13. REASSEMBLY

1. If the actuating links (Illust. 52) were removed, assemble the two actuating links on the ramp side of the actuating discs with the link stud nuts on the friction side. Tighten and stake the nuts in place.
2. Place the five steel balls in the ramps of one actuating disc, place the other actuating disc over it and secure them together with the three extension springs. (Illust. 52.)
3. If the brake back-up ring was removed, secure it into position against the sprocket drive carrier with the three studs. Refer to Par. 2, "SPECIFICATIONS" for the proper torque. Be sure the studs are shouldered against the back-up ring.



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Illust. 53
Pivot Brake Stud Modification.



PIVOT BRAKES

4. Install nine of the brake discs on each side of the actuating disc assembly as follows (Illust. 54):

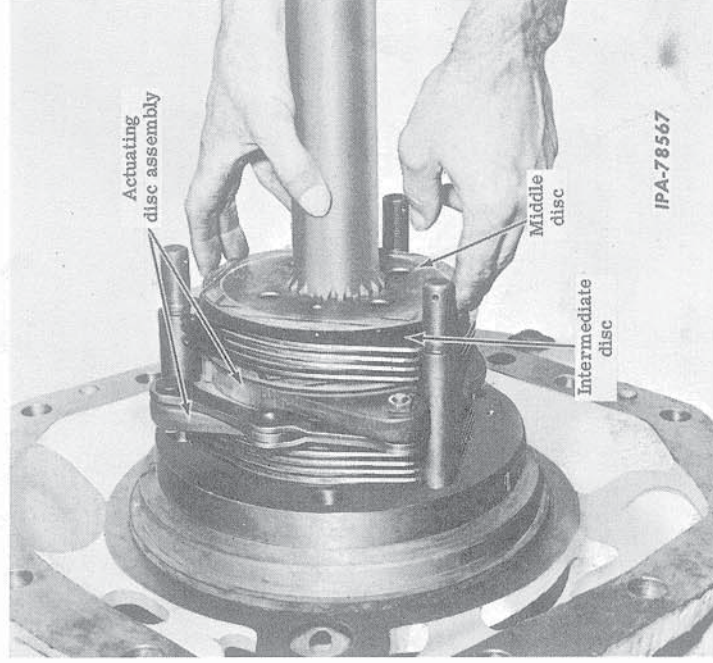
NOTE: Before installing the retaining ring step (d) be sure to assemble the additional steel (intermediate) disc to the studs (if necessary) (refer to Par. 12, "INSPECTION AND REPAIR.")

(a) Start with an internally splined middle disc next to the back-up ring. The next disc is a non-splined intermediate disc to fit the studs. Alternately install discs (five middle and four intermediate).

(b) Position the actuating disc assembly on the studs with the links toward the top as shown in Illust. 54.

(c) Install the remaining nine brake discs in the same manner as the first nine (step a).

NOTE: When installing the brake discs, be sure they are positioned so the holes are staggered. After the discs are in position, the holes should not line up.



Illust. 54
Installing the Brake Discs.

- (d) Install the brake disc retaining ring and lock nuts to the studs (stud threads oiled) and tighten the stud nuts to the torque specified in Par. 2, "SPECIFICATIONS." Back off the nuts to the nearest cotter pin hole and install the cotter pin.

5. Insert a feeler gauge between the retaining ring and the outer splined disc (steel disc, if additional disc was used) to determine the clearance of the brake discs between the retaining ring and the back-up ring. This clearance must be 0.050 to 0.119 of an inch. If the instructions under "INSPECTION AND REPAIR" were followed, this clearance should be obtained. If the addition of a steel disc did not bring the clearance within the specified limit, either grind the brake studs (refer to "INSPECTION AND REPAIR") or install new brake studs to obtain studs with the correct shoulder length. If this does not bring the clearance within the limit specified, install different brake discs (due to manufacturing tolerances) to obtain the proper clearance.

6. Install the sealing ring around the shoulder of the sprocket drive carrier (Illust. 51).

7. Install new gaskets and the brake oil sump to the bottom of the back-up and retaining rings with the cap screws and washers. Secure with new lockwire (Illust. 49).

NOTE: If the brake studs were changed or modified, the six slotted holes in the oil sump will have to be slightly widened for mounting.

8. Connect the pivot brake actuating cable to the links on the actuating discs.

NOTE: If it was necessary to modify the brake assembly to obtain the correct brake disc clearance, the brake assembly on the opposite side of the unit must be removed and the clearance checked.

STEERING SYSTEM

PIVOT BRAKES

14. INSTALLATION

NOTE: Be sure the three hexagon-socket set screws in the sprocket drive carrier have been turned back into place.

1. Apply Permatex No. 3 on the sprocket drive vent and the pivot brake cooling port sealing rings and install the sealing rings in the rear of the carrier (Illust. 51).
2. Attach a wire to the end of the pivot brake actuating cable to be used for guiding the cable into position during sprocket drive assembly and for final installation of the cable in the rear frame cover.
3. Sling the assembly with the special lifting hook and adapter as was done in removal and move the assembly toward the rear main frame until two long guide bolts can be started in the frame. Install the guide bolts into the bolt openings at the top of the carrier. Use a pry bar between the track chain and sprocket planet carrier to align the assembly with the studs. Tighten the guide bolts until the carrier is on the studs and then pry the carrier against the frame. If the spline on the inner end of the pinion shaft does not enter the sun gear in the steering planetary, turn the sprocket while prying the assembly into position.

NOTE: As the sprocket drive assembly is positioned against the frame, guide the pivot brake actuating cable into the opening in the side of the frame until the wire installed on the end of the cable can be reached through the inspection cover opening in the rear frame cover. On the TD-15 (SERIES B) tractor, the pivot shaft spacer (Illust. 44) must also be positioned between the pivot shaft and sprocket carrier at this time.

4. Install the nuts on the studs. Remove the two guide bolts and install the regular bolts. Torque the nuts and bolts to the amount specified in Par. 2, "SPECIFICATIONS."
5. Remove the jack from under the tractor.
6. **MODEL 175 LOADER ONLY:** Install the track frame coupling link (Illust. 43). Place the link in position and secure to the track frame coupling and sprocket drive carrier cover with the link pins. Install the link pin locks and secure with cap screws and washers.

TD-15 (SERIES B) ONLY: Install the same amount of shims that were removed between the sprocket carrier and spacer. To provide clearance for installing shims, the bolts securing the pivot shaft inner cap on each side of the tractor must be loosened (Illust. 44). 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 and bolts. Tighten the bolts of the outer cap and two inner caps.

NOTE: If a new sprocket drive carrier outer pivot shaft cap or pivot shaft spacer is installed, the number of shims to be used between the spacer and carrier must be determined as follows. Measure the distance between the spacer and carrier with a feeler gauge (both at the top and bottom of the spacer). This distance is the amount of shims to be installed between the spacer and carrier. When performing this check, the pivot shaft inner caps must be secured to the rear main frame.

7. Working through the inspection cover opening in the rear main frame cover, thread the wire on the end of the pivot brake actuating cable through the cable opening in the cover. Insert a heel bar through the inspection cover opening and under the brake return spring retainer to align the spring with the cable opening in the cover. Grab the wire on the end of the cable with a pair of pliers and in one motion, pry up with the heel bar and pull on the wire to seat the cable in the cover (Illust. 40). Remove the wire from the cable yoke. Secure the cable to the bellcrank with the end pin and cotter.

Install the rubber boot (Illust. 15) using a pair of pliers. First maneuver the boot down over the cable yoke until the top of the boot can be inserted in the groove around the bottom of the yoke. Then pull the boot all around the flange protruding from the rear main frame cover.

8. Install the batteries, battery support brackets and the seat frame. If the pivot brake on the right hand side of the unit was removed, the seat side sheet, brake pawl operating lever (Illust. 7) and lever guides must also be installed.
9. Install the inspection cover using a new gasket. Apply Permatex No. 3 to the inspection cover side of the cover gasket.



PIVOT BRAKES

10. 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 dip stick.
11. Install the track chain (refer to section 10, "TRACKS AND TRACK FRAME.")
12. Install the sprocket rock shield (if equipped).

13. 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. (Refer to Par. 9, "ADJUSTMENTS.")

14. 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.

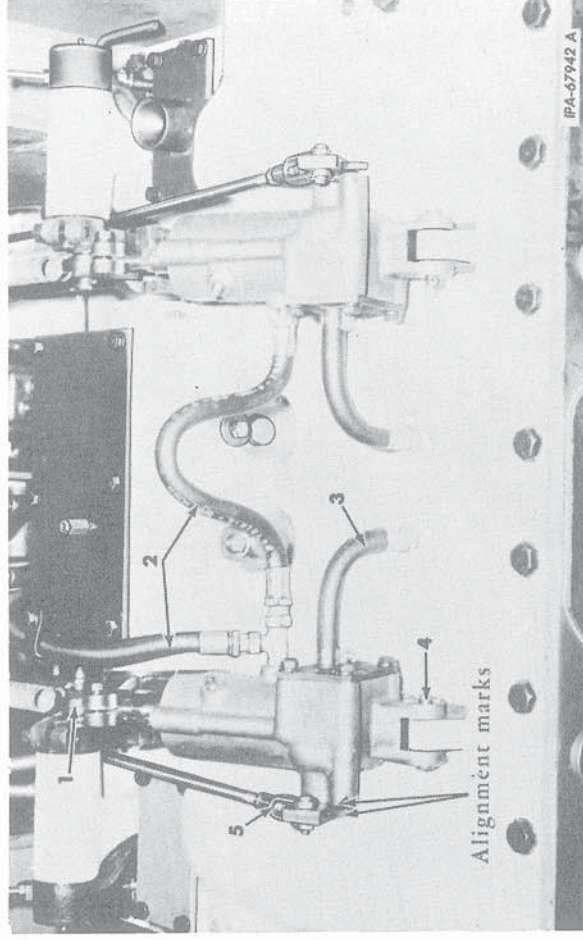
STEERING BOOSTERS

15. REMOVAL (Ref. Nos. Refer to Illust. 55)

NOTE: Disconnected hydraulic lines should be properly capped with the correct size plastic cap. If caps are not available, tape or clean rubber corks may be used. Hydraulic openings must NEVER be plugged with rags. This practice could easily introduce dirt or lint into critical hydraulic components.

1. Remove the apron type cover at the rear of the unit directly below the fuel tank for access to the steering boosters. If equipped with a scarifier, allow the cover to lay down over the hydraulic hoses.
2. Disconnect the pressure lines (2) at the booster housing. Loosen the hose clamp and pull the drain hose (3) from the booster housing cover.

(Continued on next page)



Illust. 55

Hydraulic Steering Booster Assembly. (Power Shift Unit Shown, Gear Drive Similar.)

1. Push rod bellcrank outer lever.
2. Booster pressure hoses.
3. Booster drain hose.
4. Mounting pin.
5. Booster valve operating rod clevis.