

GENERAL**1. DESCRIPTION**

The engine clutch is installed in the tractor between the engine and the transmission. It is a three-plate, over-center, wet type clutch. The complete clutch consists of three main sections: The operating or hand lever, the driving unit and the driver unit.

The hand lever, through the clutch release shaft and fork, is used to engage or disengage the clutch. An automatic clutch brake located on the rear of the clutch shaft becomes operative when the clutch is disengaged to facilitate shifting the transmission gears by stopping their rotation. The transmission gears are locked hydraulically in the selected position when the clutch is engaged through the use of a diverter valve and related piping.

The clutch driving unit consists of the release sleeve, pressure plate, cams, driving discs and drive ring which are attached to the clutch back plate. The back plate is secured to the flywheel; therefore, the unit revolves whenever the engine is running.

The clutch driven unit, which consists of the splined center with three driven discs and the clutch shaft, is supported at the front end by a pilot bearing installed in the flywheel and at the rear to the transmission input shaft through a universal joint. This independent assembly revolves as a unit with the driving unit only when the clutch is engaged.

Hydraulic Oil Flow

The rear main frame is the source of oil supply for the clutch, transmission, steering boosters and pivot brakes. The oil is drawn from the rear main frame through hose (15) to the suction filter (19) to the rear section of the charging pump (7) located on the upper right side of the clutch housing. The pump is driven through a series of gears by the engine crankshaft. The oil leaves the pump and is diverted by hose through the pressure filter (5) to a tee in the pressure regulator (18) and on to the steering boosters (1). A tee is used in the pressure filter outlet so the outlet oil can also be directed to the diverter valve.

Oil at the steering boosters and diverter valve is under a pressure of 1379-1586 kPa (200-230 psi) which is pre-set by the spool valve springs in the pressure regulator. This oil remains static until the engine clutch or the steering mechanism of the machine is put into operation. Operation of the steering controls or clutch lever will cause some of this stored pressure to be dissipated, and the pressure regulator will function to rebuild the pressure to the specified amount. Oil on the outlet side of the boosters is returned via hose (16) into the rear main frame by action of the booster piston. Refer to Section 8 for service information on the steering boosters. When the engine clutch is engaged, the clutch hand lever moves the diverter valve spool to allow the high pressure oil to enter the transmission and move the poppets to lock the gears in the selected position. When the engine clutch is disengaged, the high pressure oil is blocked at the diverter valve and the oil at the transmission poppets is returned to the pump through hose (25).

Oil pressure from the charging pump rear section is exerted against the spool valve in the pressure regulator. When this pressure builds up to the spool valve spring tension (approximately 1379-1586 kPa/200-230 psi), the spool valve will unseat, opening a passage to the oil cooler. Oil leakage past the spool valve is ported into the transmission housing for return to the rear main frame.

Oil from the oil cooler (9) flows via hose (10) to a connector at the clutch housing end cover. Oil flows through drilled passages in the end cover and clutch shaft to lubricate and cool the various parts of the clutch and then falls to the bottom of the clutch housing.

After the oil falls to the bottom of the clutch housing, it is drawn through a clutch sump strainer (12) by the front section of the charging pump (7). The oil is circulated by hose at approximately 345-483 kPa (50-70 psi) to the transmission front lubricating orifice. Oil that does not enter the transmission lubricating orifices is used to cool the pivot brakes. All system oil returns to the rear main frame for recirculation.

GENERAL

1. DESCRIPTION — Continued

Hydraulic Oil Flow — Continued

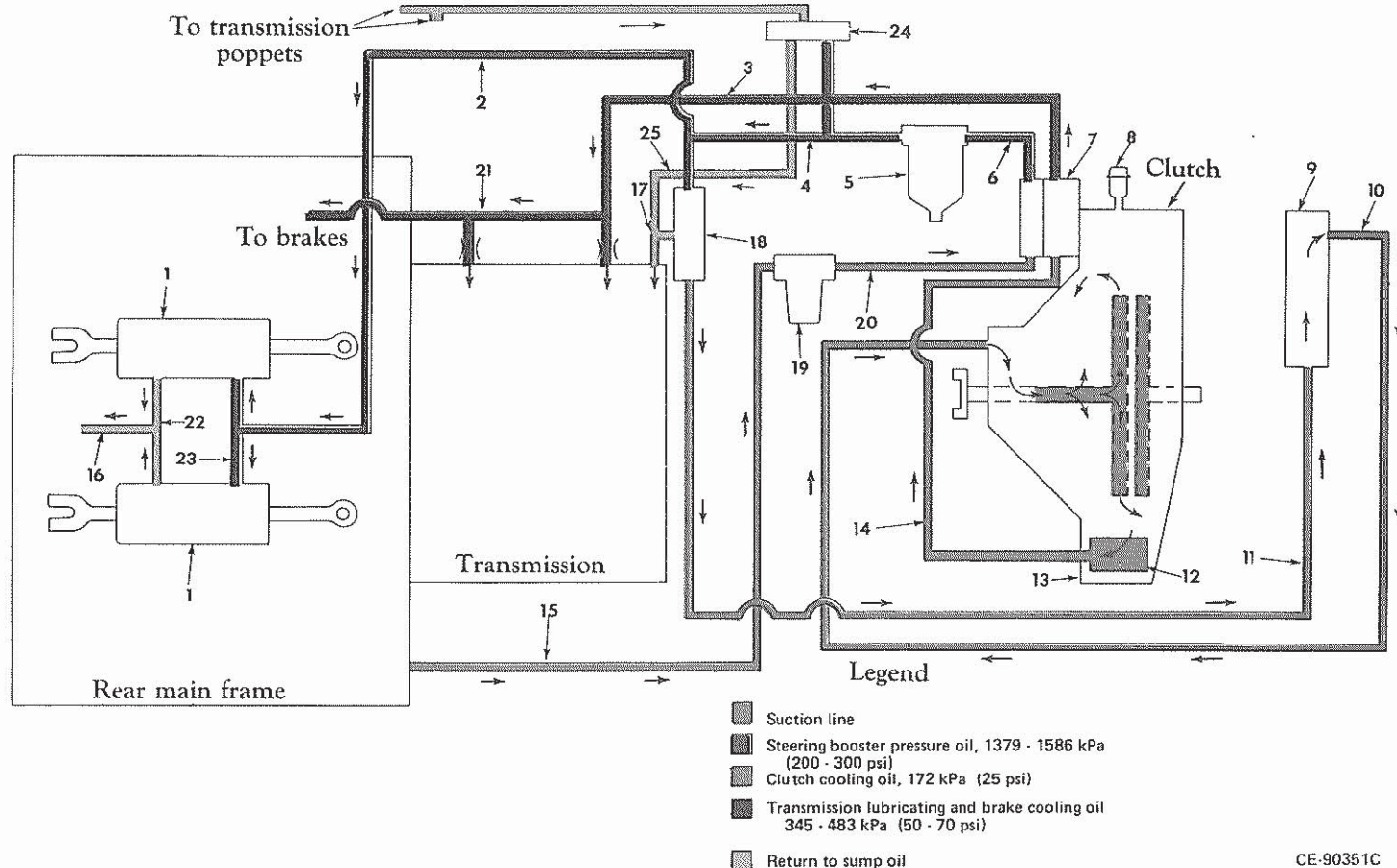


FIG. 1 — Hydraulic Oil Flow Diagram (Engine Clutch Disengaged)

- | | | |
|--|--|--|
| 1. Steering booster | 9. Oil cooler | 17. Pressure regulator overflow tube |
| 2. Pressure regulator-to-steering booster hose | 10. Oil cooler-to-clutch housing hose | 18. Pressure regulator |
| 3. Charging pump-to-transmission hose | 11. Pressure regulator valve-to-oil cooler hose | 19. Suction filter |
| 4. Pressure filter-to-regulator hose | 12. Clutch sump strainer | 20. Suction filter-to-charging pump hose |
| 5. Pressure filter | 13. Engine clutch | 21. Transmission cover-to-rear case tube |
| 6. Charging pump-to-pressure filter hose | 14. Engine clutch-to-scavenging port of charging pump | 22. Steering booster drain-to-tee hose |
| 7. Charging pump | 15. Rear main frame-to-suction filter hose | 23. Steering booster pressure crossover hose |
| 8. Breather | 16. Steering booster drain tee-to-rear main frame hose | 24. Diverter valve (if equipped) |
| | | 25. Diverter valve drain hose (if equipped) |

GENERAL

2. SPECIFICATIONS

Wet Clutch

Manufacturer	Rockford
Type	Over-center
Size	343mm (13-1/2 in.)
Number of clutch driven discs used	3
Allowable out-of-flatness of pressure plate	0.127mm (.005 in.)
Release shaft bushing inside diameter (assembly in clutch housing)	31.80-31.90mm (1.252-1.256 in.)
Release shaft outside diameter	31.62-31.75mm (1.245-1.250 in.)
Release sleeve bushing inside diameter (assembled in release sleeve)	44.45-44.50mm (1.750-1.752 in.)
Clutch shaft outside diameter (for release sleeve bushings)	44.32-44.37mm (1.745-1.747 in.)
Release fork, bushings and bearing carrier: Fork slot width	25.34-25.45mm (.998-1.002 in.)
Bushing: OD at flats	25.17-25.30mm (.991-.996 in.)
ID (fits on bearings carrier)	19.10-19.17mm (.752-.755 in.)
Bearing carrier trunnion diameter	18.92-19.05mm (.745-.750 in.)
Release cams and cam saddles: Cam diameter	22.10-22.15mm (.870-.872 in.)
Saddle width	21.59-22.27mm (.875-.877 in.)
Clearance	0.076-0.178mm (.003-.007 in.)
Maximum allowable total wear of cams and saddles	1.59mm (1/16 in.)
Clutch return springs: Free length	39.62mm (1.56 in.)
Test length	30.23mm (1.19 in.)
Test load	400-462 N (90-104 lbf)

Pressure Regulator

	Free Length	Test Length	Test Load	Number of Coils
Springs:				
Spool valve spring (inner)	75.7mm (2.98 in.)	54.8mm (2.156 in.)	191 N (42.9 lbf)	13.5
Spool valve spring (outer)	84.6mm (3.33 in.)	54.6mm (2.15 in.)	538-596 N (121-134 lbf)	10
Spool valve spring (internal)	23.3mm (.917 in.)	14.0mm (.550 in.)	22-27 N (5 to 6 lbf)	12
Spool valve opening pressure	1241-1517 kPa (180-220 psi)			

Charging Pump

Type	Double element
Make	Webster
Model	116YC/077YC
Capacity	34 and 22.7 l/min @ 1838 rpm @ 345 to 689 kPa (9 and 6 rpm @ 1838 rpm @ 50 to 100 psi)

ENGINE CLUTCH

GENERAL

3. SERVICE DIAGNOSIS

PROBABLE CAUSE	COMPLAINT	REMARKS
Clutch Drags		
1. Improper adjustment	Adjust clutch.	
2. Warped or cracked clutch disc	Replace disc.	
3. Weak return springs	Replace return springs.	
Clutch Slips		
1. Improper adjustment	Adjust clutch.	
2. Clutch inner disc worn	Replace disc.	
3. Sticking pressure plate	Repair or install new pressure plate.	
Clutch Grabbing		
1. Lack of oil on facings	Refer to "Insufficient Lubrication" problem following.	
2. Sticking pressure plate	Repair or install new pressure plate.	
Insufficient Lubrication		
1. Oil leakage	Check all hoses and connections. Check for oil between clutch housing and flywheel housing and between clutch end cover and seal housing.	
2. Faulty clutch pump	Remove, disassemble and replace parts as necessary.	
3. Faulty pressure regulator	Inspect springs, valve and body bore.	
High Oil Temperature		
1. Insufficient lubrication	Refer to previous problem.	
Clutch Noisy		
1. Excessive clearance at driving lugs	Install new pressure plate.	

CLUTCH ASSEMBLY

4. REMOVAL

NOTE: When disconnecting hydraulic lines for any reason, they should be properly capped with the correct size plastic cap. If these 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 of the tractor.

1. Drain the hydraulic system: Run the engine at low idle until the oil reaches operating temperature and stop the engine. Remove the access cover from the underside of the front frame. Remove the flywheel housing drain plug and allow the oil to drain completely.

2. Remove the decelerator pedal, decelerator pedal support and platforms.

3. Disconnect all linkage necessary to facilitate removal of the platform support channel. Remove the support channel.

4. Remove the clutch charging pump. Refer to Par. 10 for procedure. Remove the clutch drive shaft.

5. Disconnect the clutch inlet hose (1, Fig. 2) at the clutch housing end cover. Disconnect the outlet hose at the bottom of the clutch housing. With the outlet hose disconnected, remove the strainer capscrews and pull the strainer (18, Fig. 3) with "O" ring (18A) from the clutch housing to prevent it from being damaged during clutch removal.

6. Disconnect the cable at the clutch oil temperature sending unit (2, Fig. 2).

7. Disconnect the clutch housing vent tube (3, Fig. 2) at the clutch housing.

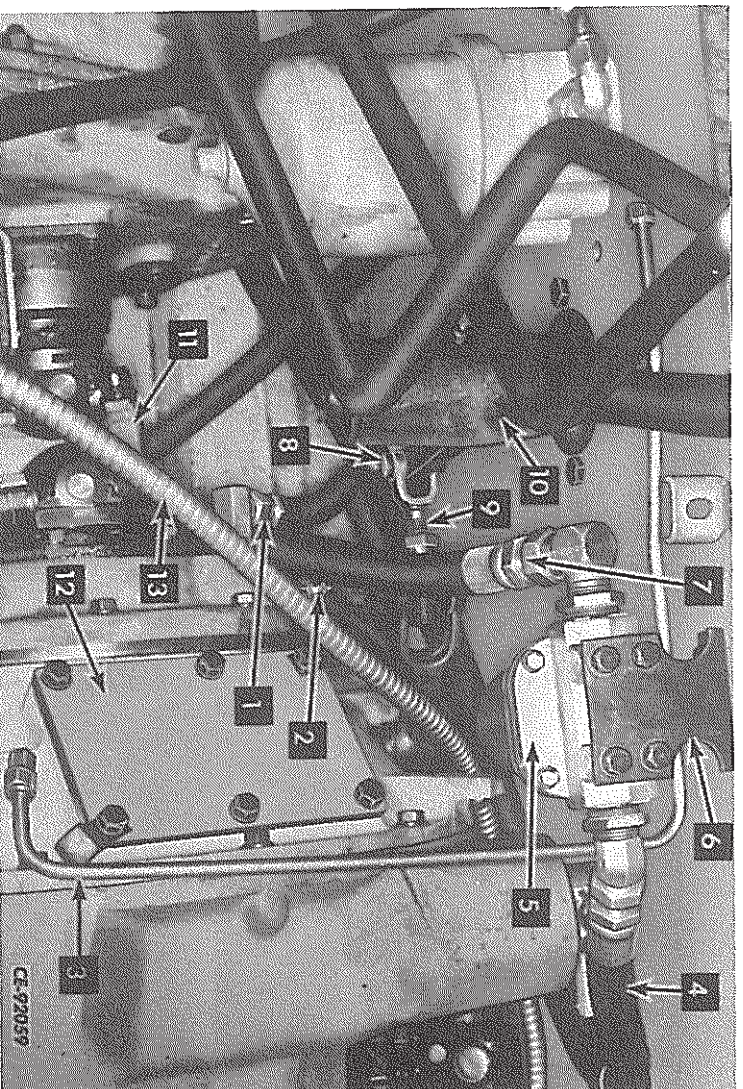


FIG. 2 — Clutch Mounting

ENGINE CLUTCH

CLUTCH ASSEMBLY

4. REMOVAL — Continued

8. Disconnect the suction filter inlet hose (4, Fig. 2). Cap and secure the hose in a raised position to prevent any oil draining from the rear main frame. Disconnect the suction filter outlet hose (7). Remove the capscrews securing the suction filter mounting bracket (6) to the frame side. Remove the suction filter (5) and mounting bracket (6) as an assembly.

9. Remove the cotter pin from the rod end pin (8, Fig. 2). Remove the rod end pin and disconnect the link (9) from the hand lever (10).

10. Disconnect the universal joint (11, Fig. 2) from between the clutch and transmission.

NOTE: Before removing the capscrews securing the universal joint, it is recommended that the bearing caps be wired to

prevent the bearings from falling off the spider trunnions.

11. Remove the inspection cover (12, Fig. 2) and gasket from the clutch housing. Paint mark the clutch back plate to the flywheel to assure assembly in the same position and remove the back plate securing capscrews and lockwashers.

12. Move the battery cable (13, Fig. 2) out of the way for clutch removal.

13. Attach a hoist to two top inspection cover bolt holes in the clutch housing. Remove the capscrews and lockwashers securing the clutch to the flywheel housing and lift the clutch assembly from the tractor.

NOTE: One of the clutch assembly mounting capscrews is located in the pump mounting opening.

14. Cover the flywheel housing opening to prevent dust and dirt from entering.

5. DISASSEMBLY

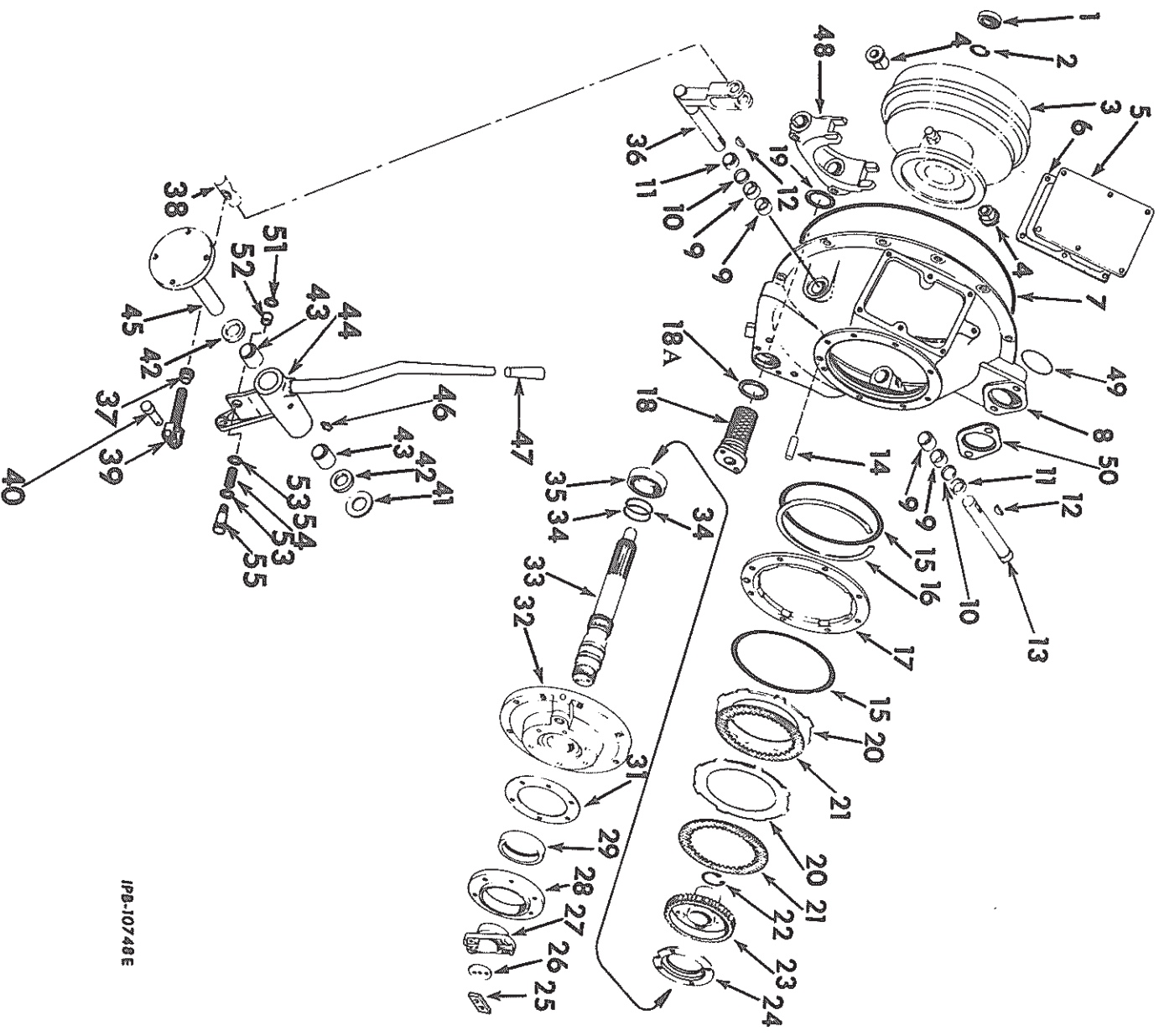
Legend for Fig. 3

1. Pilot bearing
2. Snap ring
3. Wet clutch
4. Fork bushings
5. Inspection cover
6. Cover gasket
7. Sealing ring
8. Clutch housing
9. Release shaft bushings
10. Release shaft seal
11. Seal wear ring
12. Key
13. Clutch release shaft (RH)
14. Locating pin
15. Retainer "O" ring
16. Brake disc retaining ring
17. Retainer
18. Clutch sump strainer

- | | |
|-------------------------------|---|
| 18A. Strainer "O" ring | 39. Operating link |
| 19. Clutch sump "O" ring | 40. Link end pin |
| 20. Clutch brake plate | 41. Hand lever washer |
| 21. Clutch brake plate | 42. Hand lever hub seal |
| 22. Hub snap ring | 43. Hand lever bushing |
| 23. Clutch brake hub | 44. Clutch hand lever |
| 24. Bearing retainer | 45. Hand lever shaft |
| 25. Bolt lock plate | 46. Hand lever lubrication fitting |
| 26. End plate | 47. Hand lever handle |
| 27. Drive yoke | 48. Clutch release fork |
| 28. Seal cover | 49. Clutch housing-to-flywheel housing "O" ring |
| 29. Clutch shaft seal | 50. Clutch pressure pump gasket |
| 31. Seal cover gasket | 51. Flat washer |
| 32. Housing end cover | 52. Bushing |
| 33. Clutch shaft | 53. Flat washers |
| 34. Shaft sealing rings | 54. Compression spring |
| 35. Clutch shaft bearing | 55. Diverter actuating bolt |
| 36. Clutch release shaft (LH) | |
| 37. Link locknut | |
| 38. Link pin | |

CLUTCH ASSEMBLY

5. DISASSEMBLY — Continued



IPB-10748E

FIG. 3 — Exploded View of Clutch Housing and Related Parts

5. DISASSEMBLY — Continued



FIG. 4 — Cross Section of Clutch Assembly

1. Clutch pressure pump
2. Flywheel housing
3. Pump drive gear
4. Power take-off pump mounting flange cover
5. Idler gear
6. Crankshaft rear oil seal
7. Spacer drive gear
8. Flywheel
9. Oil strainer
10. Clutch housing
11. Outer drive ring retainer
12. Housing end cover
13. Clutch shaft
14. Drive yoke
15. Inspection cover
16. Clutch back plate
17. Clutch drive ring
18. Splined center and disc assembly
19. Clutch pressure plate
20. Clutch adjusting ring
21. Clutch release sleeve
22. Clutch bearing carrier
23. Clutch brake disc
24. Clutch brake hub and plate assembly

CLUTCH ASSEMBLY

1. Support the clutch housing so the clutch drive ring (Fig. 5) is up. The housing must be blocked up sufficiently to clear the drive yoke (27, Fig. 3).
2. Remove the sealing ring from around the housing mounting flange. Remove the snap ring securing the splined center and disc assembly to the shaft (Fig. 5).

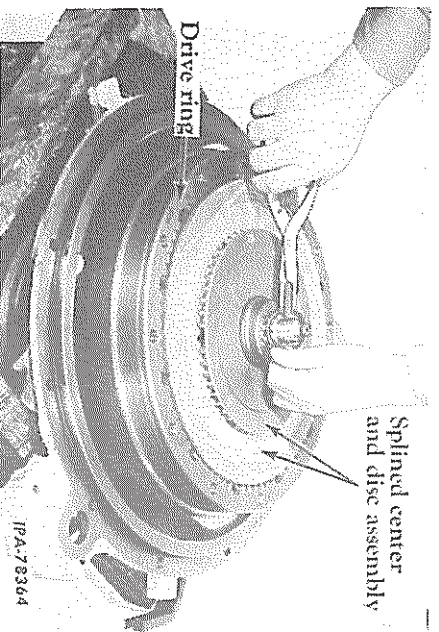


FIG. 5 — Removing the Splined Center and Disc Assembly Snap Ring

3. Lift the splined center and disc assembly from the clutch shaft. Remove the snap ring that positions the splined center and disc assembly from the shaft (Fig. 6). If a component of the splined center and disc assembly (1, Fig. 14) needs to be replaced the assembly can be separated by cutting the three rivets (34) and removing the washers (33) and rivets out of the hub cover (29).

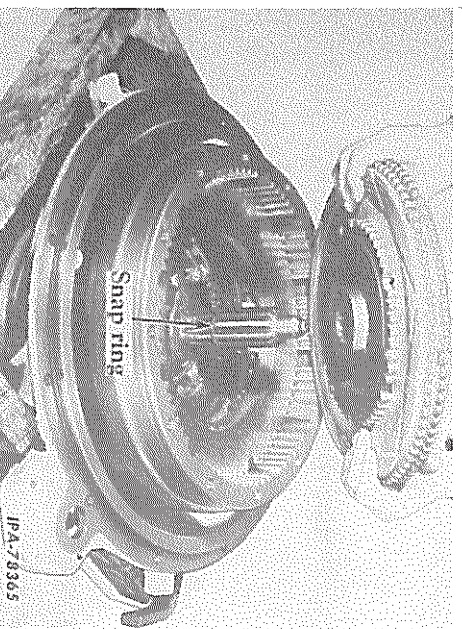


FIG. 6 — Removing the Splined Center and Disc Assembly

4. Attach a hoist by inserting two capscrews (approximately 4-1/4 inches in length) in the drive ring mounting holes and secure with nuts. Lift the drive ring until there is sufficient clearance to loosen the brake disc from the bearing carrier (Fig. 7).

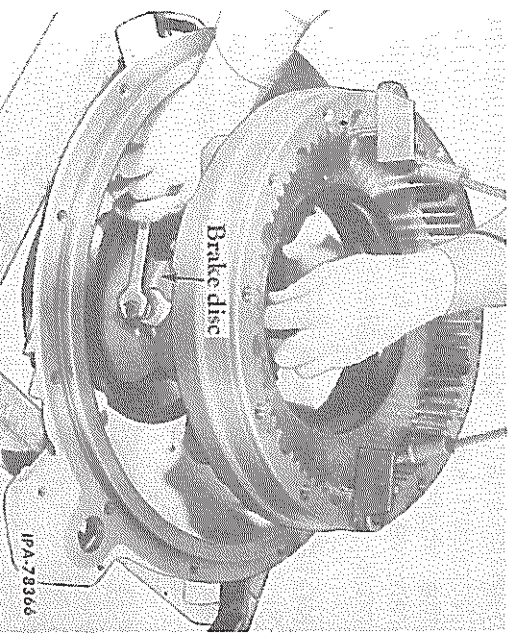


FIG. 7 — Removing the Brake Disc Lock Screw

5. Lift the drive ring with back plate and camshaft assembly from the clutch housing. As the assembly is removed, the release fork will slip off of the bearing carrier trunnions. If necessary a pry bar can be used against the clevis of the left hand release shaft to fully engage the clutch to allow the fork to fall free of carrier trunnions (Fig. 8).

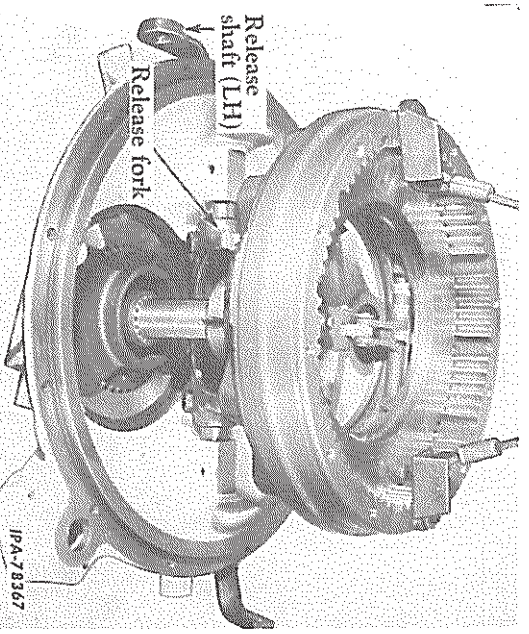


FIG. 8 — Removing the Drive Ring from the Clutch Housing

ENGINE CLUTCH

CLUTCH ASSEMBLY

5. DISASSEMBLY — Continued

6. Remove the bushings (4, Fig. 3) from the trunnions of the bearing carrier.
7. Remove the capscrews securing the release fork to the two clutch release shafts. Tap the shafts from the release fork until the Woodruff keys can be removed. Then tap the shafts from the clutch housing and remove the release fork. Lift the clutch brake disc from the shaft (Fig. 9).

NOTE: The release shaft bushings (9, Fig. 3), seal (10) and seal wear ring (11) will remain in the clutch housing and can easily be removed if replacement is necessary.

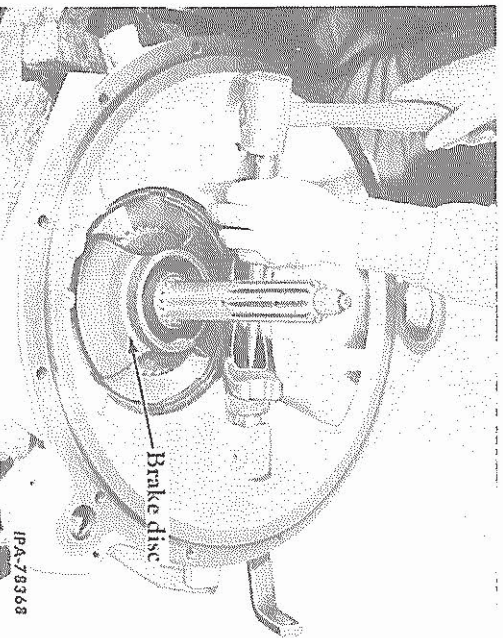


FIG. 9 — Removing the Clutch Release Shaft (RH)

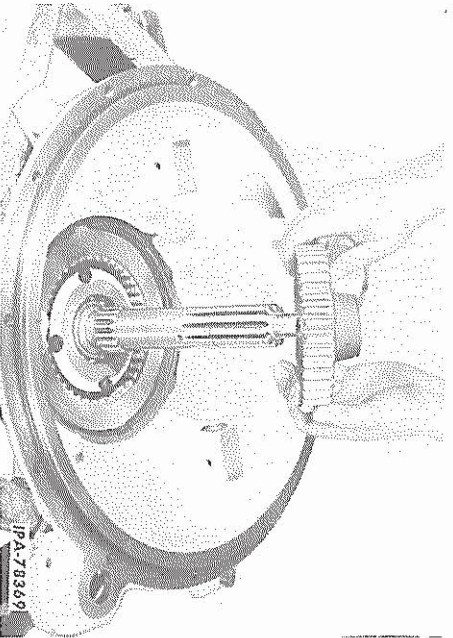


FIG. 10 — Removing the Clutch Brake Hub

8. Remove the snap ring securing the clutch brake hub to the clutch shaft and lift off the hub (Fig. 10).

9. Turn the housing over so the drive yoke is up. Remove the capscrews, lock plate and end plate. Lift the drive yoke from the shaft splines (Fig. 11).

10. Remove the seal cover (28, Fig. 3) with oil seal (29) from the end cover (32). Discard the seal cover gasket.

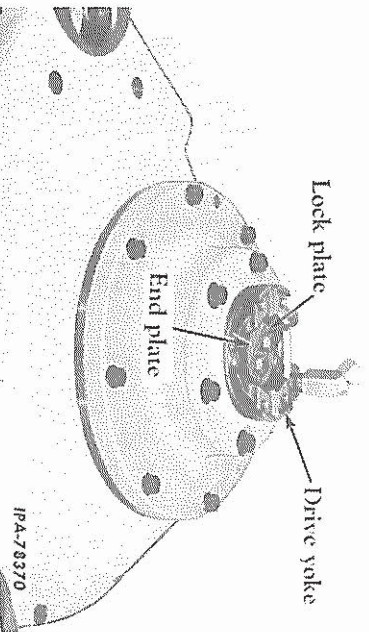


FIG. 11 — Drive Yoke, Lock Plate and End Plate Assembled

11. Remove the capscrews and washers securing the end cover and lift off the end cover and clutch shaft assembly from the housing. To separate the assembly, remove the hex socket head screws securing the

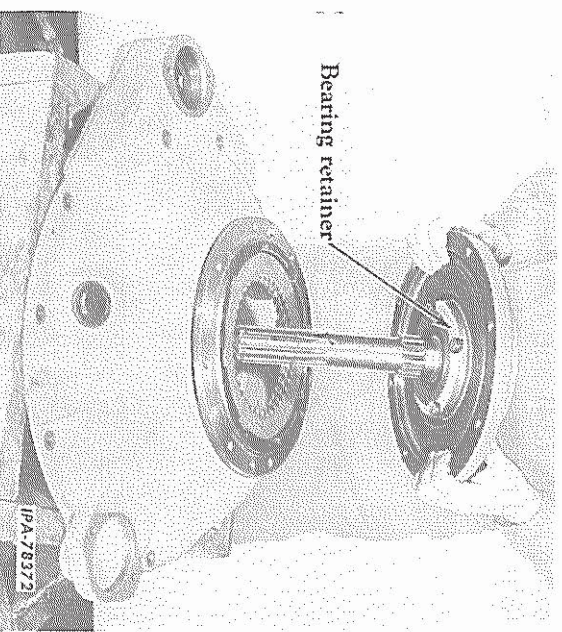


FIG. 12 — Removing the End Cover and Seal Assembly

CLUTCH ASSEMBLY

5. DISASSEMBLY — Continued

bearing retainer to the end cover. Tap the shaft with two seal rings and the ball bearing out the bearing retainer end of the housing end cover (Fig. 12).

12. Lift the clutch brake plates from the housing. Remove the drive ring retainer with "O" rings and retaining snap ring from the housing (Fig. 13).

13. Lay the clutch assembly on a bench with the bearing carrier up. Remove the nuts securing the adjustment lock to the adjusting ring and remove the lock (Fig. 15).

14. Unthread the adjusting ring from the

back plate and remove the adjusting plate (Fig. 16).

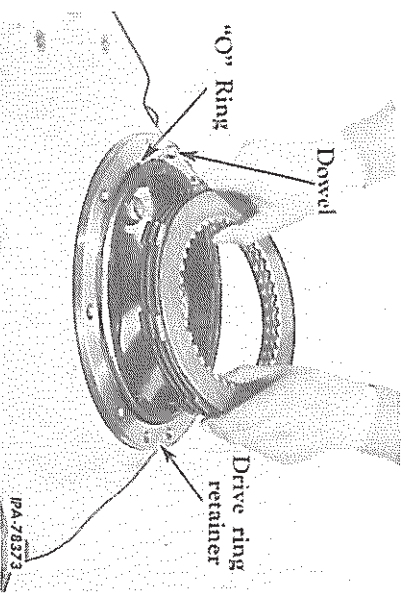
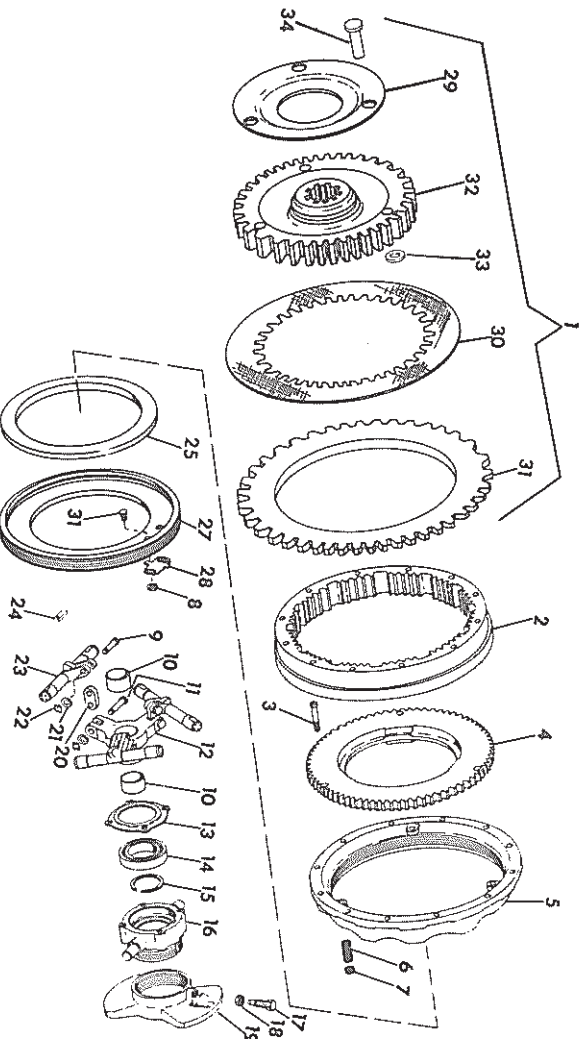


FIG. 13 — Removing the Clutch Brake Discs



CE-103476

FIG. 14 — Exploded View of Clutch Assembly

- | | | |
|-------------------------------------|---------------------------|--------------------------|
| 1. Splined center and disc assembly | 12. Release sleeve | 24. Camblock |
| 2. Drive ring | 13. Bearing carrier plate | 25. Adjusting plate |
| 3. Capscrew | 14. Ball bearing | 26. Adjustment lockscrew |
| 4. Pressure plate | 15. Snap ring | 27. Adjusting ring |
| 5. Back plate | 16. Bearing carrier | 28. Adjustment lock |
| 6. Return spring | 17. Lockscrew | 29. Hub cover |
| 7. Locknut | 18. Jam nut | 30. Inner disc w/facing |
| 8. Nut | 19. Brake disc | 31. Outer disc |
| 9. Link pin (short) | 20. Connecting link | 32. Splined center |
| 10. Release sleeve bushing | 21. Plain washer | 33. Washer |
| 11. Link pin (long) | 22. Link pin "X" washer | 34. Rivet |

CLUTCH ASSEMBLY

5. DISASSEMBLY — Continued

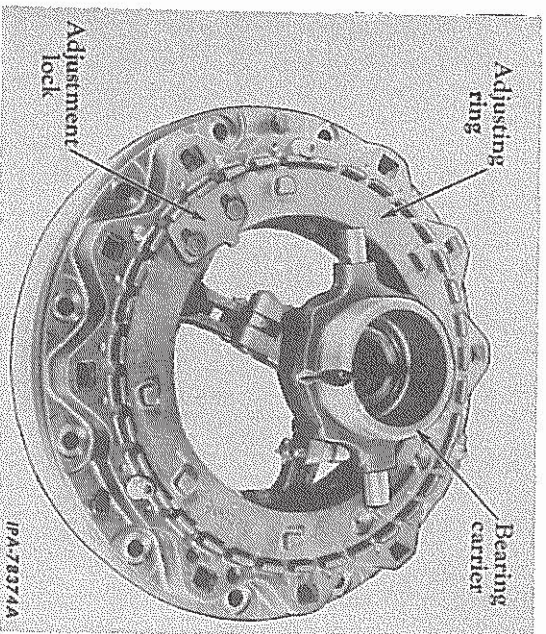


FIG. 15 — Clutch Assembly

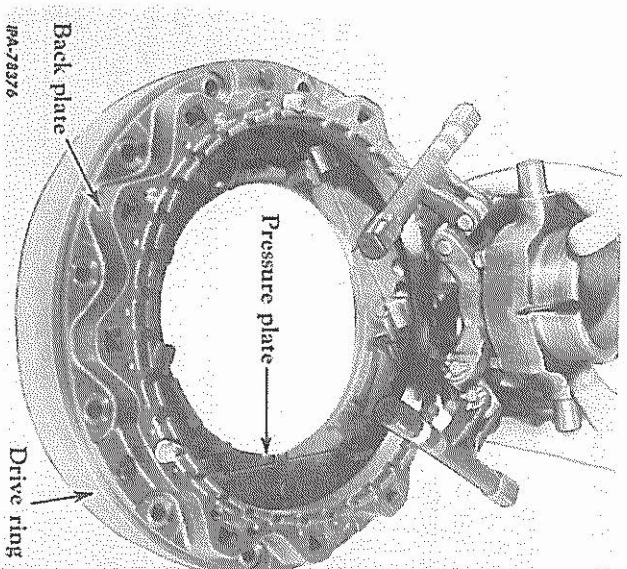


FIG. 17 — Removing the Camshaft and Bearing Carrier Assembly

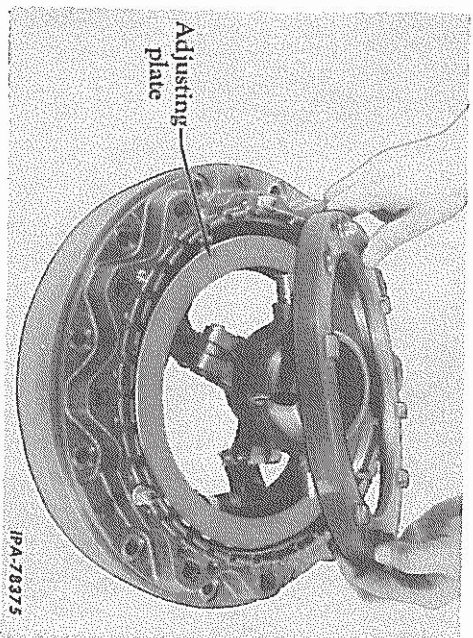


FIG. 16 — Removing the Adjusting Ring

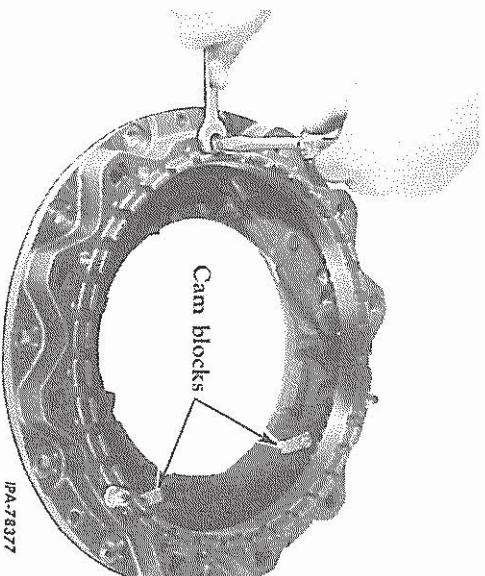


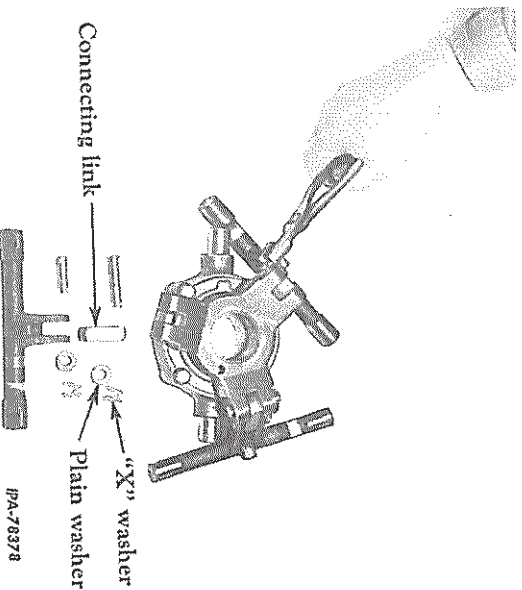
FIG. 18 — Removing the Return Spring Locknut

15. Lift the camshaft and bearing carrier assembly from the pressure plate. Remove the three capscrews and washers securing the back plate to the drive ring and remove the back plate with pressure plate and return springs (Fig. 17).
16. Remove the three return spring assemblies. Remove the locknut from the cap-screw and lift out the return spring (Fig. 18). Lift the back plate from the pressure plate. Lift the pressure plate from the three return spring capscrews.

17. If it is necessary to replace the cam-blocks (Fig. 18) they can easily be removed by removing the securing capscrew and star washer. Always replace star washers with new ones.
18. Remove the "X" washers and plain washers securing the link pins to the camshafts and release sleeve. Tap out the link pins to separate the connecting links and camshafts from the release sleeve (Fig. 19).

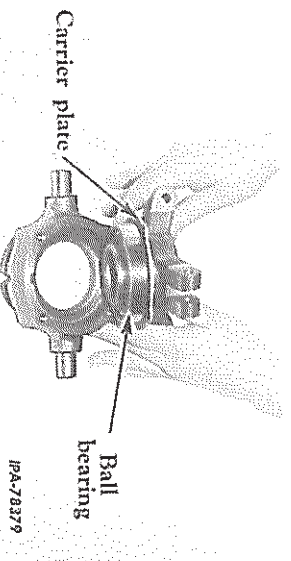
CLUTCH ASSEMBLY

5. DISASSEMBLY — Continued



**FIG. 19 — Removing the Link Pin
"X" Washers**

19. Remove the capscrews and washers securing the release sleeve to the bearing carrier. Remove the release sleeve with carrier plate, ball bearing and bushings (Fig. 20). Do not remove the bushings or ball bearing from the release sleeve unless replacement is necessary. To remove the ball bearing it will first be necessary to remove the external snap ring.



**FIG. 20 — Separating the Sleeve and
Carrier Assembly**

6. INSPECTION AND REPAIR

1. Wash all parts thoroughly.
2. Check the condition of the clutch return springs. If they are worn or broken, replace with new ones (refer to Par. 2, "SPECIFICATIONS.")

3. Inspect the clutch brake plates and clutch inner and outer discs (in the splined center and disc assembly (1, Fig. 14) for excessive wear, grooving or damage. If any of these conditions exist replace.

4. Inspect the pressure plate for warpage. (Refer to Par. 2, "SPECIFICATIONS.")

5. Check the operating condition of the cams. They should revolve free and easy with a snug fit. If not, the bearings are probably jammed, broken or worn, and the camshaft must be replaced. The cams on the camshaft assembly should not have excessive clearance at the cam saddles on the pressure plate. (Refer to Par. 2, "SPECIFICATIONS" for proper clearance.)

6. Inspect the bearings for cracks, scores and wear. Replace if necessary. All reusable bearings must be soaked in oil, wrapped or covered until ready for assembly.

7. Check the splines on the drive yoke, clutch shaft, brake hub and clutch splined center for wear. If wear is excessive replace. Slight burrs can be smoothed down with an oil stone.

8. Replace all sealing rings. Inspect the oil seal for excessive wear or damage and replace if necessary. If the oil seal (29, Fig. 3) is found to be unserviceable, a new seal must be installed as described in Par. 7, "REASSEMBLY."

9. Inspect the seal (10, Fig. 3) in each end of the clutch housing for wear or damage. The seal wear ring (11, Fig. 3) is a press fit on the release shaft. Whenever the release shaft seal is replaced, it is suggested that the wear ring be replaced also. Cut the wear ring to remove it from the release shaft and press the new one into position on the shaft.

10. Inspect the inside diameter of the release shaft bushings and the outside diameter of the release shafts for excessive wear or scoring. Replace parts if necessary. (Refer to Par. 2, "SPECIFICATIONS" for dimensions of new parts.)

ENGINE CLUTCH

CLUTCH ASSEMBLY

6. INSPECTION AND REPAIR — Continued

When installing new bushings, be sure the inner bushing is flush with the inner end of the release shaft bore and the outer bushing is flush with the inner edge of the chamber of the seal counterbore.

11. Inspect the inside diameter of the release sleeve bushings and the outside diameter of the clutch shaft for excessive wear or scoring. Replace parts as necessary. (Refer to Par. 2, "SPECIFICATIONS" for dimensions of new parts.)

When new bushings are necessary, press one in from each end of the release sleeve until it is flush with the edge of the bore.

12. Check for excessive wear at the bearing carrier trunnions, bushings and release fork. (Refer to Par. 2, "SPECIFICATIONS" for dimensions of new parts.)

13. Flush out the oil passages in the clutch housing end cover and in the clutch shaft to be sure they are clean and free of obstruction.

7. REASSEMBLY

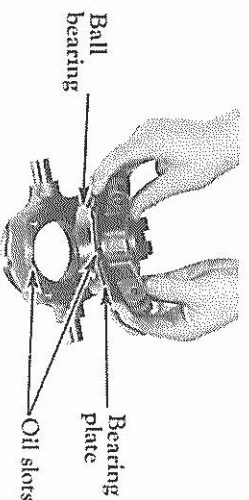
1. If the release sleeve bushings were replaced, be sure to install new ones as described in Par. 6, "INSPECTION AND REPAIR."

2. If the bearing (14, Fig. 14) needed replacement, reassemble the release sleeve. Place the bearing plate in position on the sleeve and press the bearing onto the sleeve until it bottoms on the sleeve shoulder. Install the bearing snap ring (Fig. 21).

3. Install the release sleeve on the bearing carrier being sure to align the oil slot in the bearing plate and bearing carrier. Secure with the bearing plate capscrews and washers (Fig. 21).

4. Assemble the connecting link to the release sleeve and camshaft using the longer of the link pins at the release sleeve.

Secure the link pins with the plain washers and "X" washers. Always use new "X" washers. Assemble the remaining two camshafts to the release sleeve in the same manner (Fig. 22).



IPA-75380

FIG. 21 — Installing the Release Sleeve Assembly

NOTE: When the link pins are installed, pin heads must lead in the direction of rotation (clutch rotation is counterclockwise when viewed from the bearing carrier end).

5. If the cam blocks were removed, place them on the pressure plate so the side with the serrations around the mounting hole is up. Secure with the capscrew and external-tooth lockwasher.

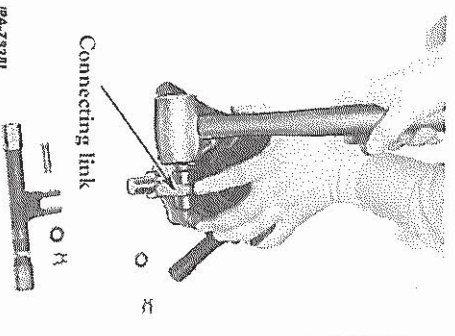


FIG. 22 — Installing Camshaft Connecting Link Pin (Long)

6. Insert the three return spring capscrews into the pressure plate and place the pressure plate on a bench with the camblocks up. Place the back plate over the capscrews in the pressure plate aligning the letter "A" stamped on the back plate and pressure

CLUTCH ASSEMBLY

7. REASSEMBLY — Continued

plate (Fig. 23). Insert the return springs in the counterbore of the back plate and secure with the locknuts. The locknuts must be tightened until the top of the nut is 0.8-1.6mm (1/32-1/16 in.) below the end of the capscrew (3, Fig. 14).

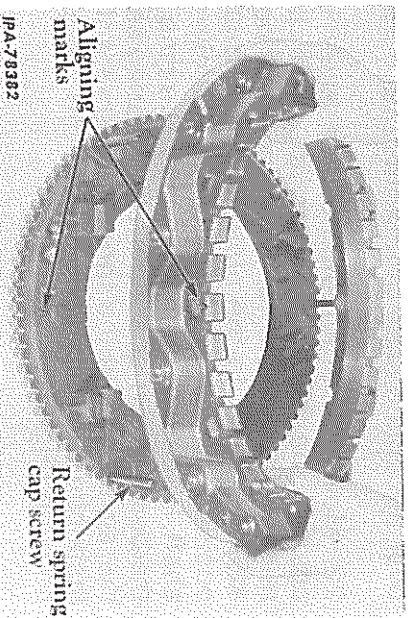


FIG. 23 — Installing the Clutch Back Plate

7. Place the drive ring (2, Fig. 14) on a bench with the three threaded holes up. Position the back plate and pressure plate assembly on the drive ring aligning the letters "A" stamped on the back plate and drive ring. Secure with the three capscrews and washers.

8. Install the bearing carrier and camshaft assembly on the pressure plate. When the camshafts are in their saddles on the pressure plate, the fingers of the camshaft sleeve should be below the fingers of the release sleeve and the connecting links in a vertical position (Fig. 24).

9. Be sure the threads in the adjusting ring and back plate are clean and not damaged.

10. Place the adjusting plate (25, Fig. 14) on the camshaft assembly. Hold the bearing carrier and camshaft assembly up in the disengaged position while the adjusting ring is threaded into the back plate. Position the adjustment lock so the tabs or tab of the lock engage the slots in the back plate and secure with locknuts (Fig. 15).

11. Install the retaining ring (16, Fig. 3) in

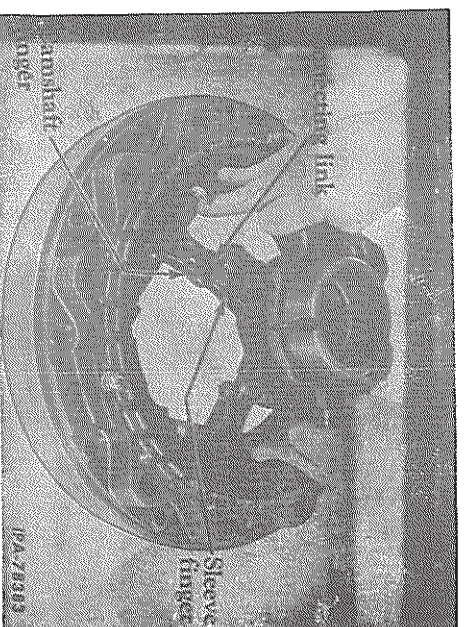


FIG. 24 — Positioning the Camshafts

the retainer (17, Fig. 3). Install a new "O" ring (15, Fig. 3) around the flange on each side of the drive ring retainer (17, Fig. 3) and install the retainer over the dowel in the clutch housing (Fig. 13). Tap around the outer diameter of the retainer to seat it in the housing bore.

12. Alternately stack one externally tangented brake disc and one internally splined brake disc. Install the discs on the retaining ring (16, Fig. 3) so the internally splined disc is at the top of the stack (Fig. 13).

13. Tap the ball bearing (35, Fig. 3) into the bore of the end cover (32) and secure the bearing in the cover with the retainer (24). Use a soft mallet to seat the end cover on the dowel (14) in the clutch housing. Secure the end cover with the capscrews and washers.

14. Install two new sealing rings (34, Fig. 3) in the grooves of the clutch shaft. Using a soft mallet tap the clutch shaft into the rear of the clutch housing until it bottoms on the bearing (35).

15. Install the seal (29, Fig. 3) into the front of the seal cover (28) (side that contacts end cover [32]). Align until it is flush with the seal cover rear face. The seal must be installed so its part number will face the end cover when the seal cover is installed. Install a new cover gasket (31) and the seal cover on the end cover and secure with the capscrews and washers.

ENGINE CLUTCH

CLUTCH ASSEMBLY

7. REASSEMBLY — Continued

16. Install the drive yoke on the shaft splines. Secure the yoke to the shaft with the end plate, lock plate and capscrews. Bend the ends of the lock plate against the flats of the capscrews (Fig. 11).
17. Turn the clutch housing over on the bench so the drive yoke is down.
18. Align the splines of the brake disc (21, Fig. 3). Install the clutch brake hub over the clutch shaft and engage the teeth of the hub with the disc splines. Install the hub snap ring in the shaft (Fig. 25).

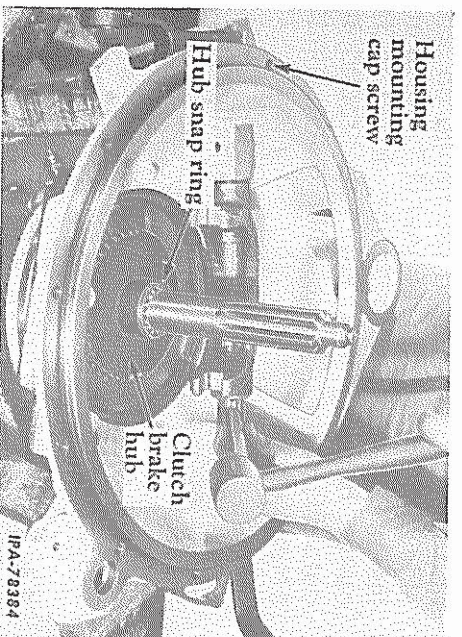


FIG. 25 — Installing the Right Hand Release Shaft Key

19. If the bushings (9, Fig. 3) needed replacement, be sure the new ones are installed as described in Par. 6, "INSPECTION AND REPAIR." Be sure the seal (10, Fig. 3) is installed in each of the clutch housing.
20. Lubricate the two release shafts before installing. Insert one of the clutch housing mounting screws (Fig. 25) in the hole above the left hand release bore. Insert the left hand release shaft (36, Fig. 3) carefully through the seal and bushings in the housing bore and install the key. This shaft must be installed in the housing so it will be on the left side of housing when in position in the tractor.

Place the release fork on the shaft. Insert the right hand release shaft carefully through the seal and bushings in the housing bore and install the key (Fig. 25). Tap the release shafts into the fork until the clamping bolt slots appear and secure the shafts to the fork.

21. Place the clutch brake disc (19, Fig. 14) over the clutch shaft and on the brake hub.
22. Move the left hand release shaft up against the clutch housing to place the release fork in the fully engaged position. Attach a hoist to the clutch drive ring and position the clutch assembly over the clutch shaft. Place the fork bushings on the pins of the bearing carrier and turn the bearing carrier so the slot in the threads is toward the inspection cover opening in the clutch housing (Fig. 26).

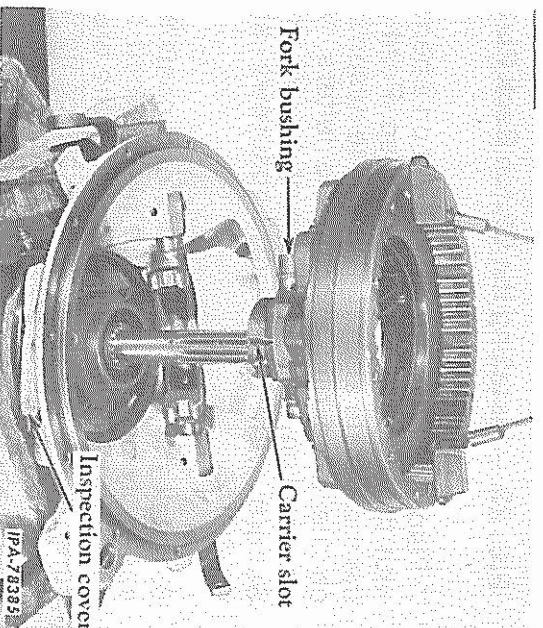


FIG. 26 — Installing the Clutch Assembly

23. Lower the clutch assembly until the bushings on the bearing carrier pins engage with the fingers of the release fork. At this time, thread the clutch brake disc (19, Fig. 14) into the bearing carrier. Lower the clutch assembly into the housing and remove the hoist. Install the snap ring that positions the splined center and disc assembly on the shaft (Fig. 27).
24. If the splined center and disc assembly (1, Fig. 14) was disassembled for service, reassemble as follows. From the counter-

CLUTCH ASSEMBLY

7. REASSEMBLY – Continued

bored side of the splined center (32), install the hub cover (29) aligning the three rivet holes in both pieces. From the opposite side of the splined center, alternately install one inner disc and one outer disc (three inner and two outer discs required) and secure the discs to the splined center with the three rivets and washers. Insert the rivets from the hub cover side, install the washers on the rivets and peen the rivet ends over the washers.

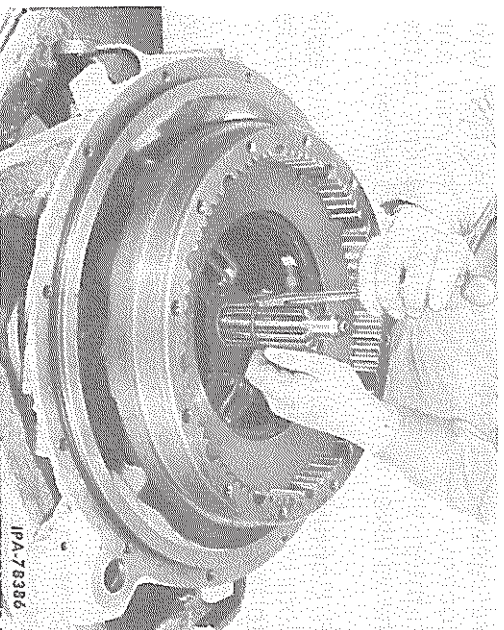


FIG. 27 – Installing the Splined Center and Disc Assembly Positioning Snap Ring

25. Install the splined center and disc assembly on the snap ring in the clutch shaft. Secure to the shaft with the snap ring. The hub cover in the splined center and disc assembly must face up when the assembly is installed. Install the clutch housing sealing ring around the flange of the housing (Fig. 28).

26. Attach a hoist to the two upper inspection cover mounting holes in the clutch housing and lift the assembly from the bench (Fig. 29).

27. Engage the clutch. Working through the inspection cover opening, thread the clutch brake disc on the bearing carrier until a 31.8mm (1-1/4 inch) clearance is obtained between the finished surface of the clutch brake disc and externally tangd clutch brake plate (Fig. 29). Thread the lockscREW

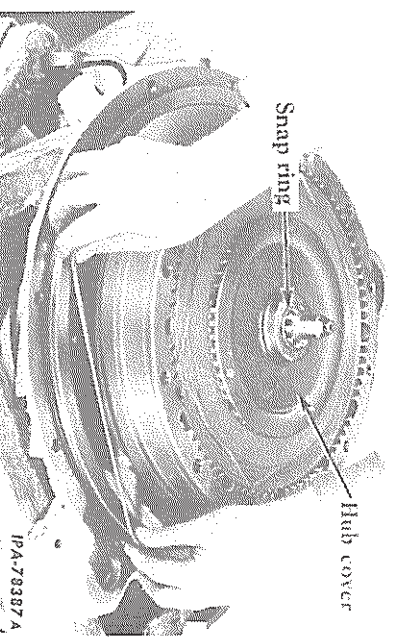


FIG. 28 – Installing the Clutch Housing Sealing Seal

into the brake disc until it engages the slot in the bearing carrier and tighten the jam nut.

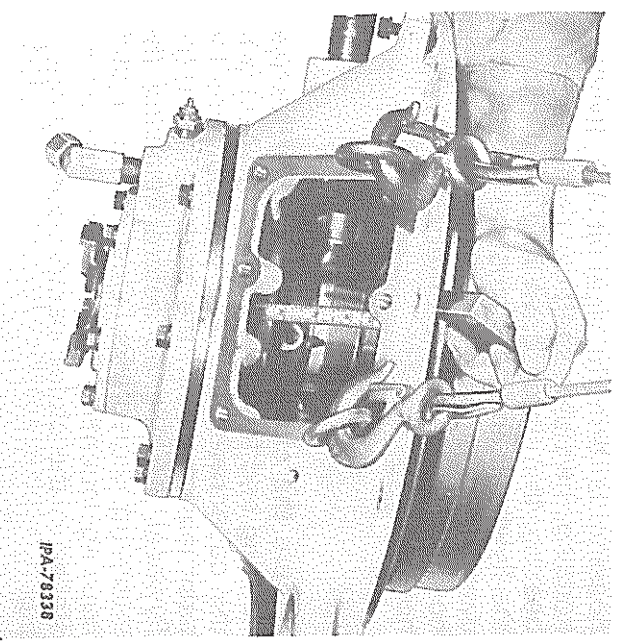


FIG. 29 – Checking the Clutch Brake Disc Clearance

NOTE: After the brake disc clearance is obtained, continue to tighten the brake disc, if necessary, to align the lockscREW opening with the slot in the bearing carrier. If the lockscREW opening is in view, the brake disc should be backed off for alignment with the carrier slot.

ENGINE CLUTCH

CLUTCH ASSEMBLY

8. INSTALLATION

NOTE: The suction and the pressure filters of the clutch hydraulic system should be serviced as described in the Operator's Manual.

1. Remove the cover from the flywheel housing opening. Install new "O" rings (19 and 49, Fig. 3) in the flywheel housing at the clutch pressure pump opening and at the clutch oil strainer opening.

2. Position the clutch in the tractor. Turn the clutch assembly in the clutch housing to bring the paint mark on the back plate (made in removal) as close as possible with the paint mark on the flywheel. As the clutch housing is brought against the flywheel housing, the clutch shaft must enter the pilot bearing, the clutch drive ring must pilot in the flywheel; and care must be taken not to damage the sealing ring around the clutch housing flange as it enters the flywheel housing.

Secure the clutch housing to the flywheel housing and the clutch to the flywheel with the capscrews and washers. Be sure the paint mark between the back plate and the flywheel are aligned before installing the mounting capscrews. One of the clutch housing mounting capscrews must be installed in the clutch pump mounting opening.

3. Install a new "O" ring on the oil strainer (18, Fig. 3) and insert the strainer in the bottom of the clutch housing. Secure with the two capscrews and washers.

4. Install the universal joint between the transmission and clutch shaft drive yokes. Torque the capscrews to 68 N.m (50 lbf ft).



CAUTION! Remove the wire used to keep the bearings from falling from the spider turnions. If installing a new spider and bearing assembly, remove the soft iron strap attached to the bearing caps. This will eliminate the possibility of the straps or wire breaking loose from the caps and causing personal injury when the engine is running and the clutch engaged.

5. Insert the pin (38, Fig. 3) in the yoke of the release shaft (36). Thread the link (39), with locknut (37) installed, into the pin and tighten the locknut. Secure the link to the hand lever with the end pin and cotter.

6. Connect the clutch outlet hose to the bottom of the clutch housing and the inlet hose to the clutch housing end cover.

7. Insert the clutch pressure pump drive shaft and coupling assembly into the flywheel housing engaging the slot in the end of the shaft with the pin located in the gear in the flywheel housing. Install and secure the clutch pressure pump to the clutch housing using a new gasket (50, Fig. 3). Connect the pump inlet and outlet hoses to the pump.

8. Connect the clutch vent tube to the clutch housing.

9. Install the suction filter (5, Fig. 2) and connect hoses (4 and 7, Fig. 2).

10. Install and secure the platform support channel. Connect all linkage that was necessary to disconnect the support channel.

11. Install the flywheel housing drain plug. Install the access cover to the underside of the front frame.

12. Operate the engine at low idle and check for leaks. When the system oil has reached operating temperature, stop the engine and check the oil level in the rear main frame and add oil as necessary (refer to the Operator's Manual for procedure).

CLUTCH ASSEMBLY

8. INSTALLATION — Continued

13. Adjust the clutch as described in Par. 9 "CLUTCH ADJUSTMENT."

NOTE: A new engine clutch will require several adjustments during the first 50 hours of operation before clutch facings are worn in.

14. Install the clutch inspection cover (5, Fig. 3) and gasket (6) to the clutch housing.

15. Install the platforms, decelerator pedal support and decelerator pedal.

16. Perform the engine idle adjustments as described in Section 4, "ENGINE."

9. CLUTCH ADJUSTMENT

The engine clutch must be adjusted when the hand lever pull decreases to 20 pounds or when clutch slippage is apparent under load. An adjustment must be made immediately when slippage is noticeable, as excessive heat and slippage may ruin the clutch.

NOTE: The unit must be cold before the following adjustment is performed.

1. Remove the platforms and the clutch inspection cover.

2. Disengage the engine clutch (clutch lever pushed all the way forward); this will automatically apply the clutch brake.

3. Slowly crank the engine (by depressing the starter button intermittently until the clutch adjusting ring lock plate is accessible through the clutch inspection cover opening (Fig. 30).

4. Place the electrical system master switch in the "OFF" position.

5. Loosen the lock plate nuts and disengage the lock plate from the lugs on the clutch back plate (Fig. 30).

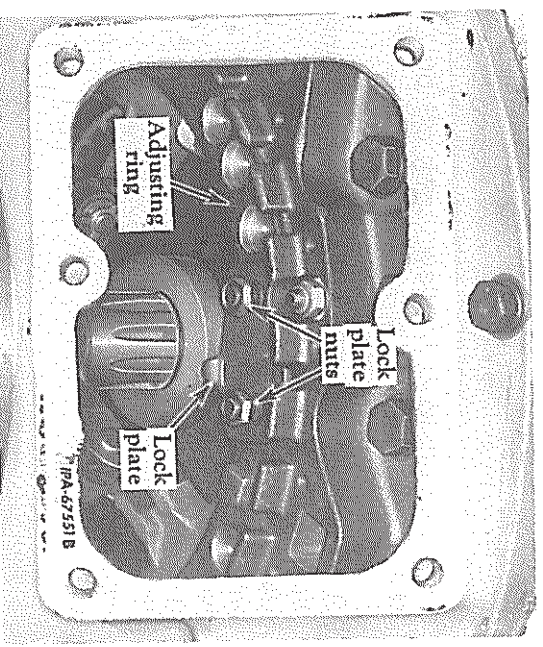


FIG. 30 — Engine Clutch Adjustment

6. Using a spring scale hooked near the top of the clutch lever, turn the adjusting ring in a clockwise direction until a hand lever pull of 35 to 40 pounds (engine stopped) is obtained. Turning the adjusting ring counterclockwise decreases hand lever pull.

7. Re-engage the lock plate in the lugs of the back plate and tighten the locknuts securely.

NOTE: If necessary, the lock plate can be revolved 180 degrees to engage the back plate lugs for a finer adjustment.

8. Engage the clutch. Check the clearance between the finished surface of the clutch brake disc and the externally tapered clutch brake plate (Fig. 29). This clearance should be approximately 31.8mm (1-1/4 in.). Adjustment can be made, if necessary, by loosening the jam nut (18, Fig. 14) and removing the lockcrew (17), from the brake disc. Then, turn the brake disc clockwise (to increase the clearance) or counterclockwise (to decrease the clearance). Secure the brake disc to the bearing carrier with the lockcrew and jam nut.

NOTE: If after the proper clearance is obtained, the lockcrew opening in the brake disc is not in view, continue to turn the disc clockwise to align the screw opening with the slot in the bearing carrier. If the

ENGINE CLUTCH

CLUTCH ASSEMBLY

9. CLUTCH ADJUSTMENT — Continued

screw opening is in view, back off on the disc to align it with the carrier slot.

9. The clutch hand lever must be positioned so it does not come into contact with the platform at either end of its travel. If necessary, the lever position can be changed by removing the cotter pin and end pin (A, Fig. 31), loosening the locknut (C) and rotating the connecting link (B). Tighten locknut and install and secure the end pin with the cotter pin.

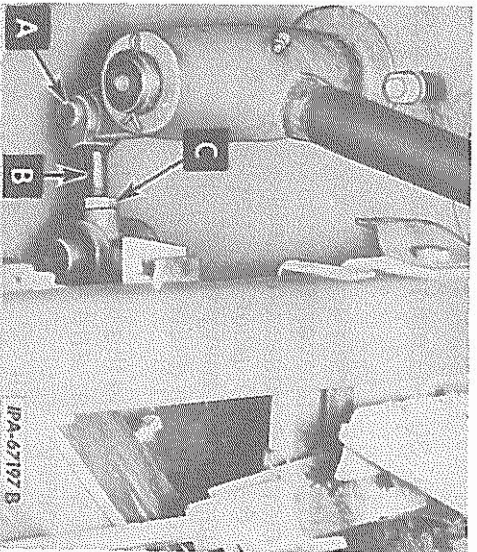


FIG. 31 — Hand Lever Adjustment

10. Install the inspection cover and a new cover gasket in the clutch housing.

11. With the engine stopped, position the clutch hand lever all the way forward (disengaged) and check that the diverter valve spool (3, Fig. 32) is depressed 6.35mm (1/4 in.) by the actuating bolt (5) located in the bottom of the hand lever. If necessary, loosen the diverter valve mounting bolts (2) from the slotted mounting holes in the diverter valve support (1) and move the diverter valve (6) as needed to obtain the 6.35mm (1/4 in.) adjustment. Secure the diverter valve to the support in this location. Start the engine and check to be sure the transmission gears can be shifted when the clutch is disengaged, and cannot be shifted when the clutch is engaged. If either of these conditions are reversed, stop the

engine and readjust the diverter valve position on the support.

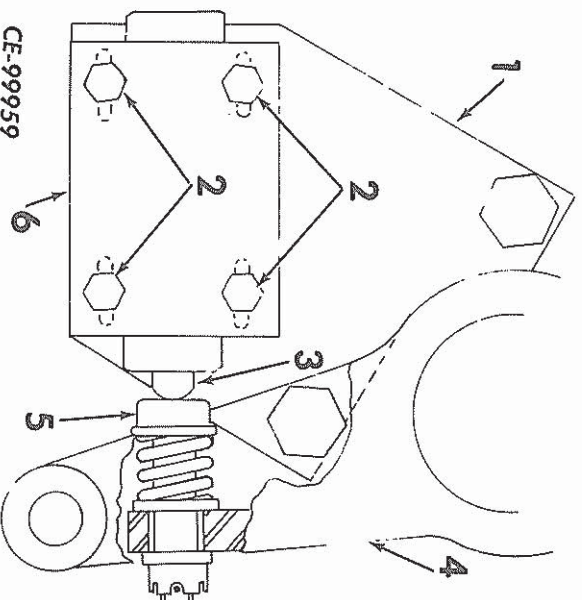


FIG. 32 — Diverter Valve Adjustment Points

1. Valve support
2. Valve mounting bolts
3. Valve spool
4. Clutch hand lever hub
5. Actuating bolt
6. Diverter valve

12. Start the engine and operate at low idle speed (approximately the second notch in the engine speed control lever ratchet).

Engage the clutch. Then disengage the clutch and check to be sure that the universal joint stops rotating. Perform the same operation at high idle speed.

NOTE: If the clutch brake does not stop the universal joint at either high idle or low idle engine speeds, the clutch brake adjustment should be checked (Fig. 29) and the gearshifter lock system checked once again. The clutch brake action must be satisfactory at both high and low engine speeds.

13. With the engine stopped and the clutch disengaged, place the transmission in third gear. Then move the forward-reverse lever

CLUTCH ASSEMBLY

9. CLUTCH ADJUSTMENT — Continued

back and forth to be sure a minimum clearance of 3mm (1/8 in.) exists between the lock out lever (1, Fig. 33) and the top of the pivot lever (2). If necessary, adjust the location of the lock out lever on the gearshift hand lever in fifth gear and the forward-reverse lever in the forward position. Check that the tab (3) on the forward-reverse lever engages the machined notch in the lockout lever (1). If necessary, bend the tab (3) as required to obtain this engagement.

14. Install the platforms.

Legend for Fig. 33

1. Lock out lever
2. Pivot lever
3. Tab (welded to forward-reverse lever)

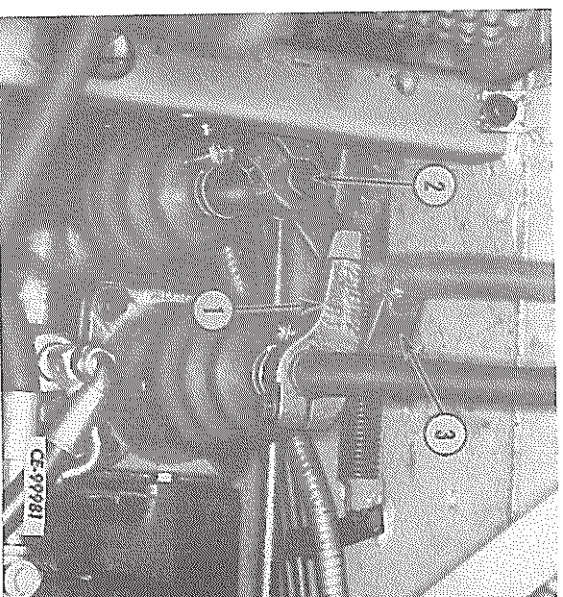


FIG. 33 — Gear Shift Lock Out Lever
Adjustment Points

CHARGING PUMP

10. REMOVAL (REFER TO FIG. 34)

1. Remove the decelerator pedal, pedal support and platforms.

NOTE: When disconnecting hydraulic lines for any reason, they should be properly capped with the correct size plastic cap. If these caps are not available, tape or 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 of the tractor.

2. Disconnect hoses (2 through 5).
3. Remove the clutch inspection cover (6).
4. Loosen the two pump mounting cap-screws. Reach inside the clutch housing and hold the pump drive shaft while removing the pump from the clutch housing.

5. Cover the clutch housing inspection and the charging pump mounting openings to keep out dirt.

11. DISASSEMBLY
(REFER TO FIGS. 35 AND 36)

1. Thoroughly clean the pump exterior with a suitable solvent to remove accumulated grime.
2. Scribe a line or draw one with a marking pen, the length of the pump, to provide mating lines for reassembly. This link should be made on an angle to prevent the components from being assembled backwards.
3. EARLIER AND INTERMEDIATE MODELS: Remove seal retainer (1), seal ring (2, if equipped) and oil seal (3) from body (6).

ENGINE CLUTCH

CHARGING PUMP

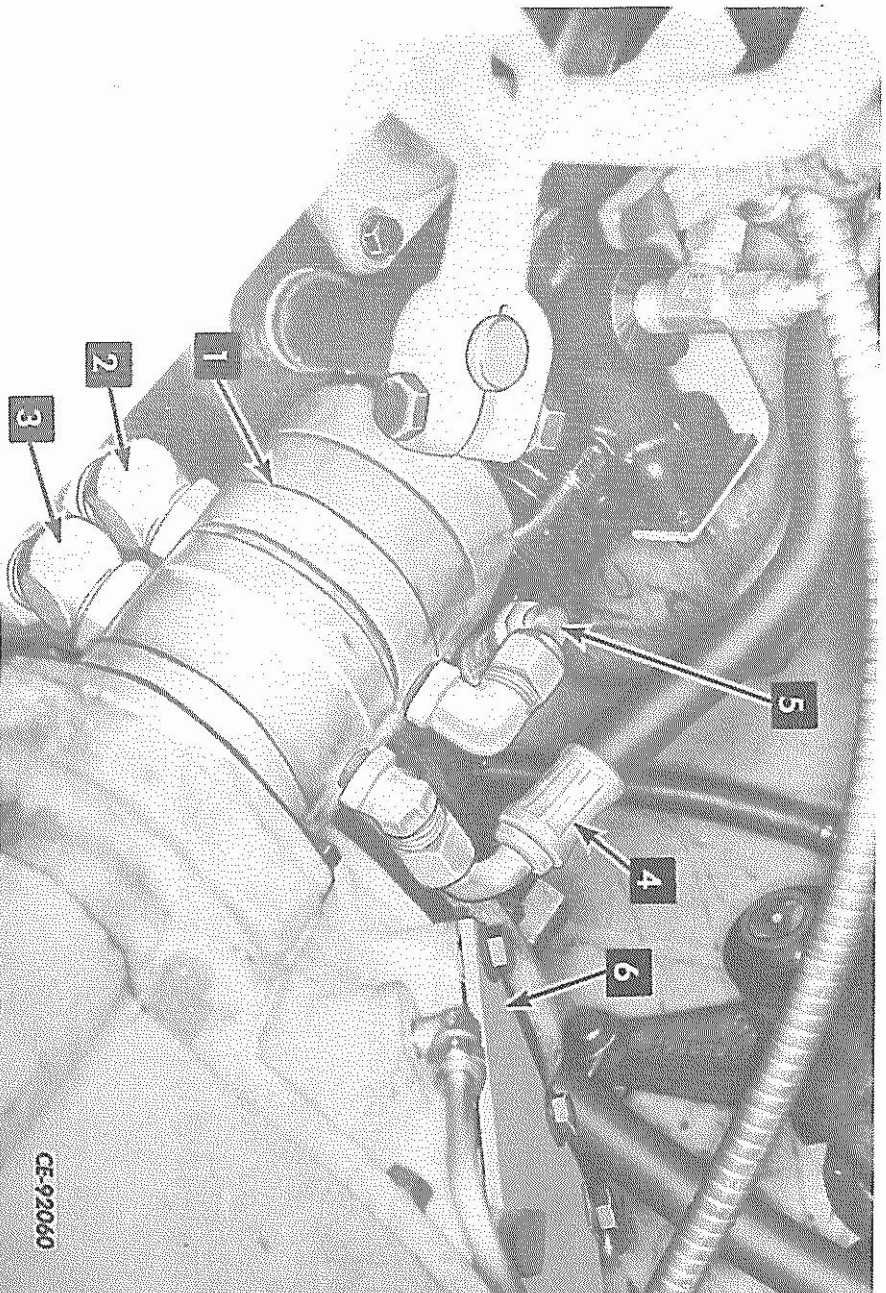


FIG. 34 — Charging Pump

1. Charging pump
2. Suction filter-to-charging pump rear section hose
3. Clutch sump-to-charging pump front section hose
4. Charging pump front section-to-transmission hose
5. Charging pump rear section-to-pressure filter hose
6. Clutch housing inspection cover

4. Remove the capscrews holding the pump sections together.
5. While holding the pump in both hands, bump the drive shaft against a wood block to separate the pump sections.
6. Clamp the pump assembly in a vise with the shaft end up. Use a soft material on the vise jaws to protect the pump castings from being damaged.
7. Remove body (6) with attached parts.

8. INTERMEDIATE MODELS: Remove preload seal (10) and load seal (11) from body (6).
- LATEST MODELS: Remove preload seal (10), load seal (11), wear plate (12) and seal ring (13) from body (6).
9. LATEST MODELS: Remove snap ring (4) and oil seal (5) from body (6).
10. EARLIER MODELS: Remove backup plate (8) and plate and seal (9) from front cover (21).

CHARGING PUMP

11. DISASSEMBLY — Continued
(REFER TO FIGS. 35 AND 36)

INTERMEDIATE MODELS: Remove wear plate (12), seal ring (13) and seal plate (14) from front cover (21).

11. Lift the idler gear and shaft (19) from the front cover. Remove the drive gear (18) and drive gear key (17) or drive pin (16) from the drive shaft.

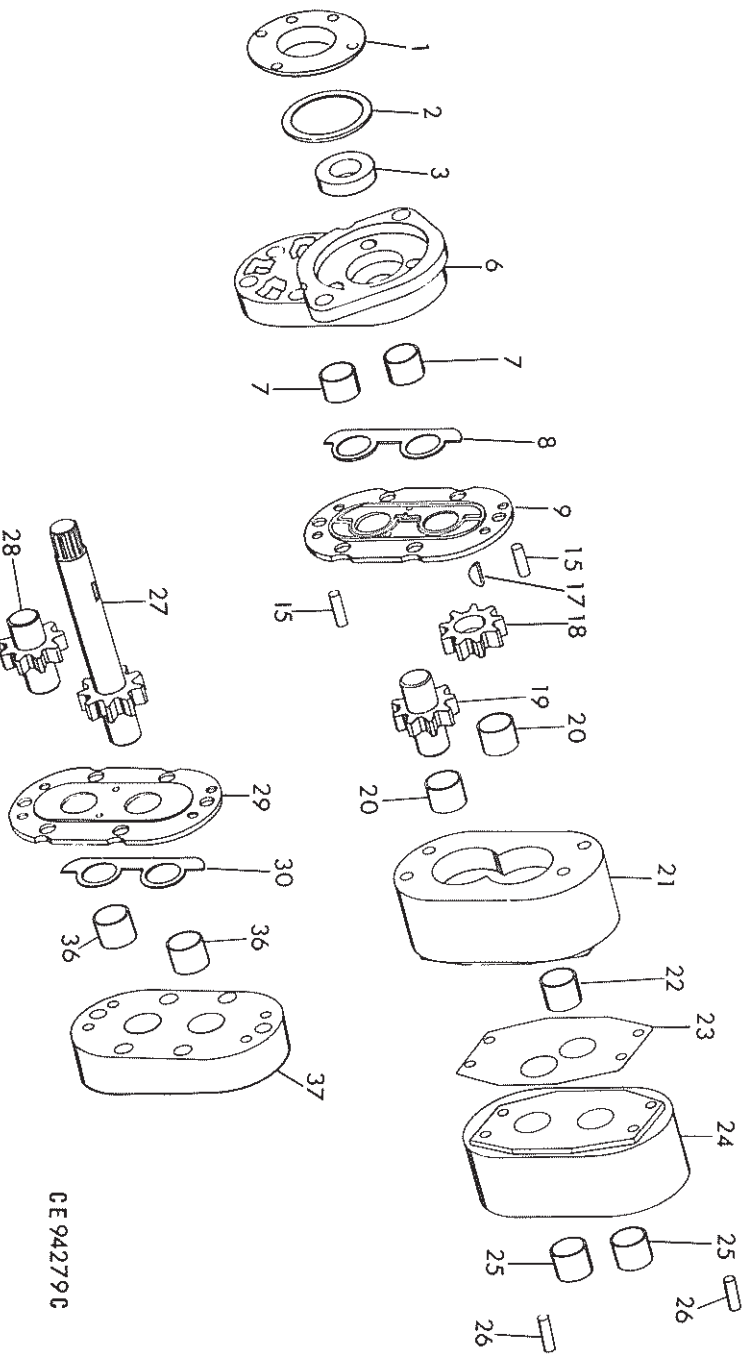
12. Separate the front cover section (21) from the rear cover section (24). Remove the rear cover section (24). A light tap with a

soft mallet may be necessary to separate the rear cover from the rear body (37).

13. Remove the drive shaft and gear (27) and the idler gear and shaft (28) from the rear body (37).

14. EARLIER MODELS: Remove the plate and seal (29) and the backup plate (30) from the rear body (37).

INTERMEDIATE AND LATEST MODELS: Remove seal plate (31), seal ring (32), wear plate (33), load seal (34), and preload seal (35) from rear body (37).

**FIG. 35 — Charging Pump (Earlier Models)**

1. Seal retainer
2. Seal ring
3. Oil seal
6. Body
7. Bearing
8. Backup plate
9. Plate and seal
15. Dowel pin

17. Woodruff key
18. Drive gear
19. Idler gear and shaft
20. Bearing
21. Front cover
22. Cover coupling sleeve
23. Gasket
24. Rear cover

25. Bearing
26. Dowel pin
27. Drive gear and shaft
28. Idler gear and shaft
29. Plate and seal
30. Backup plate
36. Bearing
37. Rear body

ENGINE CLUTCH

CHARGING PUMP

12. INSPECTION AND REPAIR

1. Discard all oil seals, gaskets and wear plates. Replace with new during reassembly.
2. Wash all parts in a suitable solvent. Dry thoroughly with compressed air.
3. Remove nicks and burrs with a crocus cloth.
4. Inspect both the drive gear and idler gear shafts at the bearing points for rough surfaces and wear. If either require replacement, on earlier models, both must be replaced. On intermediate and latest models the pump must be replaced.
5. Measure the thickness of the gears. If the front element gears are less than .746 inch thick or the rear element gears are less than

.496 inch thick, on earlier models all gears should be replaced. On intermediate and latest models the pump must be replaced.

6. Check the gear pockets in the front and rear body sections. If wear or scoring is evident, on earlier models replace the parts with new. On intermediate and latest models the pump must be replaced.

7. EARLIER MODELS: Check the bearings in the pump sections. If they are scored or show signs of wear, the old bearings should be removed and replaced with new as shown under REASSEMBLY.

INTERMEDIATE AND LATEST MODELS:
Check the bearings in the pump section. If they are scored or show signs of wear the pump must be replaced.

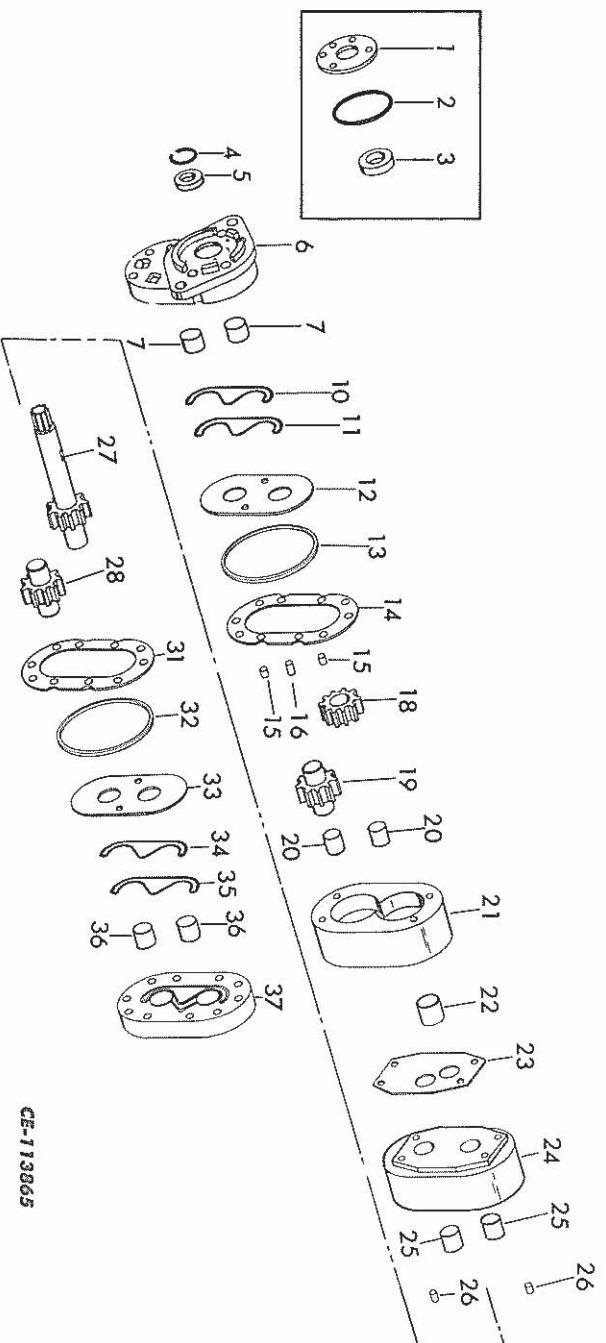


FIG. 36 — Charging Pump (Intermediate and Latest Models)

1. Seal retainer
2. Seal ring
3. Oil seal
4. Snap ring
5. Oil seal
6. Body
7. Bearing
10. Preload seal
11. Load seal
12. Wear plate
13. Seal ring

14. Seal plate
15. Dowel pin
16. Drive pin
18. Drive gear
19. Idler gear and shaft
20. Bearing
21. Front cover
22. Cover coupling sleeve
23. Cover gasket
24. Rear cover
25. Bearing

26. Dowel pin
27. Drive gear and shaft
28. Idler gear and shaft
31. Seal plate
32. Seal ring
33. Wear plate
34. Load seal
35. Preload seal
36. Bearing
37. Rear body

CE-113865

CHARGING PUMP**13. REASSEMBLY
(REFER TO FIGS. 35 AND 36)**

1. **EARLIER MODELS:** If the bearings (7, 20, 25, 36) were removed, install new as follows: Press new bearings into the front and rear bodies (6 and 37) until they bottom. Press new bearings into the front and rear covers (21 and 24) until they are flush with the gear pockets.

2. Press the coupling sleeve (22) into the rear cover (24) until it bottoms on the rear cover bearing. Do not force the rear cover bearing.

3. Clamp the rear body section (37), bearing openings up, in a vise having soft jaws.

4. **EARLIER MODELS:** Install the backup plate (30) onto the rear body section so it is located on the suction side of the pump. Position a new plate and seal (29), bronze face up, over the dowels, onto rear body (37).

INTERMEDIATE AND LATEST MODELS: Install preload seal (35), load seal (34), wear plate (33), seal ring (32), and seal plate (31) onto the rear body (37).

5. Dip the drive gear and shaft assembly (27), and the idler gear and shaft assembly (28) into clean system oil. Install the assemblies into the rear body section (37).

6. Install the rear cover section (24) over the gears to seat on the plate and seal assembly.

7. Position a new gasket (23) on the rear cover section (24). Install the front cover section (21), gear pocket opening up, on the rear cover section (24).

8. Install key (17) or drive pin (16) into the slot in the drive gear shaft.

9. Dip the drive gear (18) and the idler gear and shaft (19) in clean system oil. Install the drive gear over the key or drive pin onto the shaft. Install the idler gear and shaft (19).

10. **EARLIER MODELS:** Position a new plate and seal (9), bronze face down, on top of the gears, on the front cover section (21). Install the backup plate (8) over the plate and seal assembly so it is on the suction side of the pump.

INTERMEDIATE AND LATEST MODELS: Position seal plate (14) on top of the gears on front cover section (21). Position seal ring (13), wear plate (12), load seal (11) and preload seal (10) on top of seal plate (14).

11. Position the front body section (6) on the front cover (21). Install the capscrews which secure the sections together. Torque the capscrews evenly to the following values: 3/8 inch capscrews — 46 N.m (34 lbf ft), 5/16 inch capscrews 26 N.m (19 lbf ft).

12. **EARLIER AND INTERMEDIATE MODELS:** Place the seal retainer (1) flat on a bench. Install oil seal (3), closed metal side first into the seal retainer.

13. **EARLIER AND INTERMEDIATE MODELS:** Position the seal ring (2) in the groove of the front body.

14. Generously apply a lubricant such as Dow Corning No. 55 Pneumatic grease or equivalent to the oil seal lips.

15. **EARLIER AND INTERMEDIATE MODELS:** Install the seal retainer (1) with oil seal (3) over the shaft onto the front body, being careful not to damage the seal. Install the seal retainer machine screws.

16. **LATEST MODELS:** Install oil seal (5) over the shaft onto the front body being careful not to damage the seal. Install snap ring (4) onto the shaft.

14. INSTALLATION (REFER TO FIG. 34)

1. Service the suction and pressure filters as described in the Operator's Manual.

2. Remove the coverings from the clutch inspection housing and charging pump mounting openings.

ENGINE CLUTCH

CHARGING PUMP

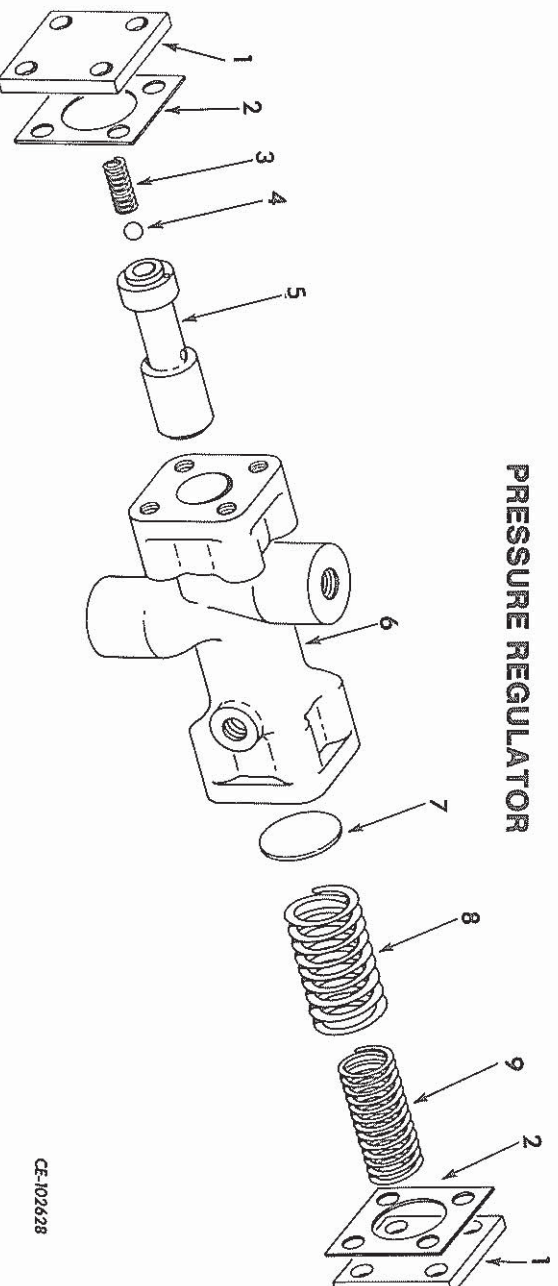
14. INSTALLATION (REFER TO FIG. 34) — Continued

3. Install a new pump gasket (50, Fig. 3). Reach inside the clutch housing and hold the pump drive shaft while engaging the pump splines. Screw the pump to the clutch housing with the two capscrews and washers.
4. Reconnect hoses (2 through 5). Reinstall the clutch inspection cover (6).

5. Operate the engine at low idle and check for leaks. When the system oil has reached operating temperature, check the oil level in the rear main frame and add oil as necessary. Refer to the Operator's Manual for procedure. Stop the engine.

6. Install the platforms, decelerate pedal support and decelerator pedal.

PRESSURE REGULATOR



CE-102628

FIG. 37 — Exploded View of Pressure Regulator Assembly

1. Valve end cover
2. End cover gasket
3. Spool valve spring (internal)
4. Spool ball
5. Valve spool

6. Valve housing
7. Spring support washer
8. Spool valve spring (outer)
9. Spool valve spring (inner)

15. REMOVAL (REFER TO FIG. 38)

1. Remove the decelerator pedal, pedal support and platforms.

NOTE: When disconnecting hydraulic lines for any reason, they should be properly capped with the correct size plastic cap. If these 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 of the tractor.

- NOTE:** Tag all disconnected hydraulic lines to facilitate faster and correct reassembly.
2. Disconnect hoses (1 and 2) from the pressure regulator inlet tee (3).
 3. Disconnect the pressure regulator to oil cooler hose (9) at the pressure regulator.
 4. Disconnect the pressure regulator overflow tube (7) at the pressure regulator and at the adapter on the transmission cover. Remove the tube.

PRESSURE REGULATOR

15. REMOVAL (REFER TO FIG. 38) — Continued

5. Remove the four pressure regulator mounting cap screws and lift the pressure regulator from the machine.

the same type oil that is in the clutch hydraulic system.

1. If the spool valve was disassembled, insert the ball (4) and spring (3) into the opening in the valve and secure with the pin.

16. DISASSEMBLY (REFER TO FIG. 37)

1. Remove the cap screws and washer securing the end cover (1) to the valve housing. Remove the cover and cover gasket.

2. Place the valve housing on the bench in a horizontal position. Insert the spool valve into the housing bore so the small land of the valve is to the outside of the housing. Install and secure the end cover gasket and cover.

2. Tip the housing to allow spool valve (5) to slide from the housing. If it is necessary to disassemble the spool valve, drive out the pin securing the ball (4) and spring (3) in the valve. Tip the valve down to allow the spring and ball to fall free of the valve.

3. Place the housing in a vertical position with the spring opening up. Place the support washers (7) in the spring bore and insert the inner and outer springs. Install and secure the remaining end cover gasket and cover.

3. Remove the end cover and cover from the opposite side of the valve housing. Lift out the valve springs (8 and 9). Tip the housing to remove the support washers (7).

NOTE: Because of the tension exerted by the spring assembly (8 and 9), it will be necessary to use longer cap screws to tighten the cover down until the regular cap screws can be installed.

17. INSPECTION AND REPAIR

1. Clean all parts in a suitable cleaning solution and blow dry with compressed air. Be sure the oil passages in the valve housing and spool valve are free of foreign particles and dirt.

2. Inspect the spool valve and housing bore for excessive wear or burrs. Replace parts as necessary.

3. Inspect the condition of the valve springs. If they are not within the specifications as described in Par. 2, they must be replaced.

18. REASSEMBLY (REFER TO FIG. 37)

NOTE: Use new gasket and lubricate the valve and valve bore upon reassembly using

19. INSTALLATION (REFER TO FIG. 38)

1. Service the suction and pressure filters as described in the Operator's Manual.

2. Position the pressure regulator in the mounting bracket (5) and service in place with the four mounting cap screws (6).

3. Reconnect the pressure regulator overflow tube (7) and hoses (1, 2 and 9).

4. Operate the engine at low idle and check for leaks. When the system oil has reached operating temperature, check the oil level in the rear main frame and add oil as necessary. (Refer to the Operator's Manual for procedure.) Stop the engine.

5. Install the platforms, decelerator pedal support and decelerator pedal.

ENGINE CLUTCH

PRESSURE REGULATOR

19. INSTALLATION (REFER TO FIG. 38) — Continued



FIG. 38 — Pressure Regulator Disconnect Points

1. Pressure filter-to-pressure regulator inlet tee hose
2. Pressure regulator inlet tee-to-steering booster hose
3. Pressure regulator inlet tee
4. Pressure regulator
5. Pressure regulator mounting bracket
6. Pressure regulator mounting cap screws
7. Pressure regulator overflow tube
8. Transmission
9. Pressure regulator-to-oil cooler inlet hose