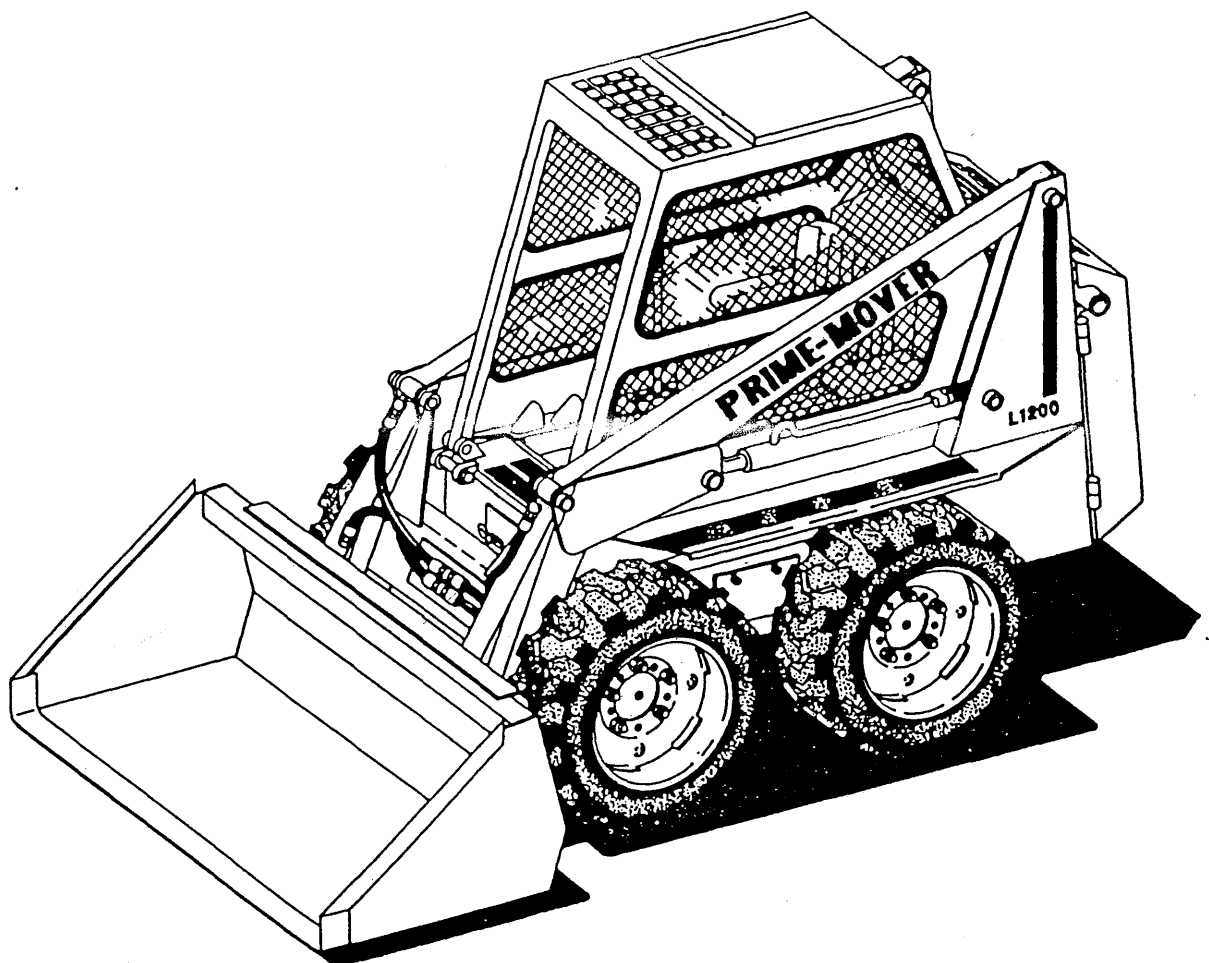


Parts Manual

Skid Steer Loader

L-1200



Issued February, 1982

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FIGURE 6 HYDROSTATIC PUMP ASSEMBLY (Sundstrand) (02081016)

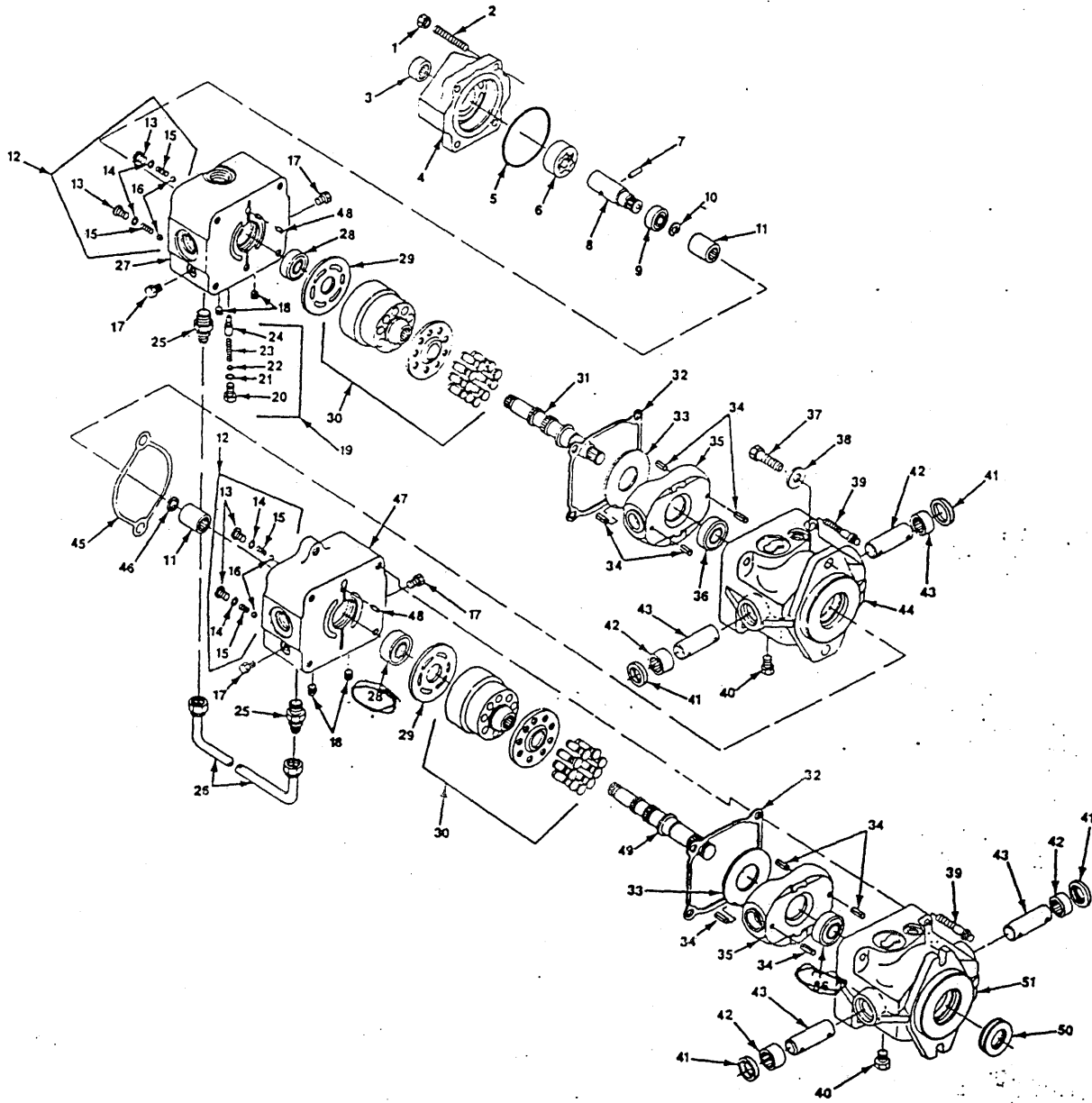


Fig. #	Item #	Part #	Name	# for Assy.
6	1	F9003530-3100	Nut, Hex	4
6	2	F3102320	Stud	4
6	3	F9001465-0004	Bearing, Needle	1
6	4	F3102304-02	Housing, Charge Pump	1
6	*	F3102307	Gasket	1
6	5	F9004101-1530	O Ring	1
6	6	F3102515-0002	Gerotor Assembly	1
6	7	F9004875-0023	Pin	1
6	8	F3102309	Shaft, Charge Pump	1
6	9	F9001310-0010	Bearing, Ball	1
6	10	F9006300-0078	Ring, Retaining	1
6	11	F3102305	Coupling	2
6	12	F9510248	Valve, Check	4

FIGURE 16 POWER COMPONENT HYDRAULIC

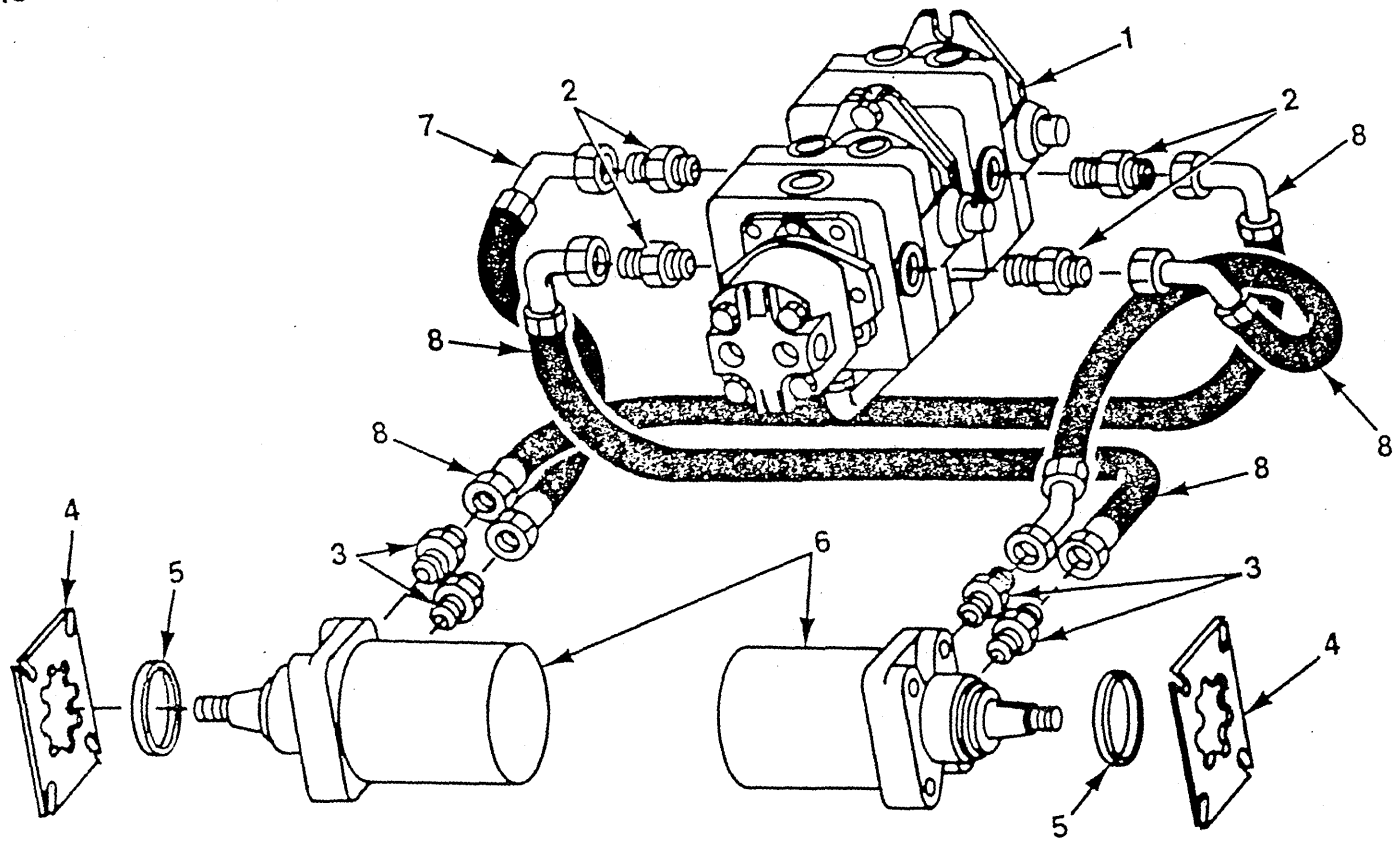


Fig. #	Item #	Part #	Name	# for Assy.
16	1	94001329	Transmission Assembly (See Fig. #6)	1
16	2	94001189	Fitting	4
16	3	03281011	Fitting	4
16	4	03481017	Plate	2
16	5	03062015	Spacer	2
16	6	02776013	Motor Assembly(See Fig. #17)	2
16	7	02775023	Hose Assembly	1
16	8		Hose Assembly	3

FIGURE 20 REXROTH IMPLEMENT PUMP S15S-9-DH-1-2-R (02082014)

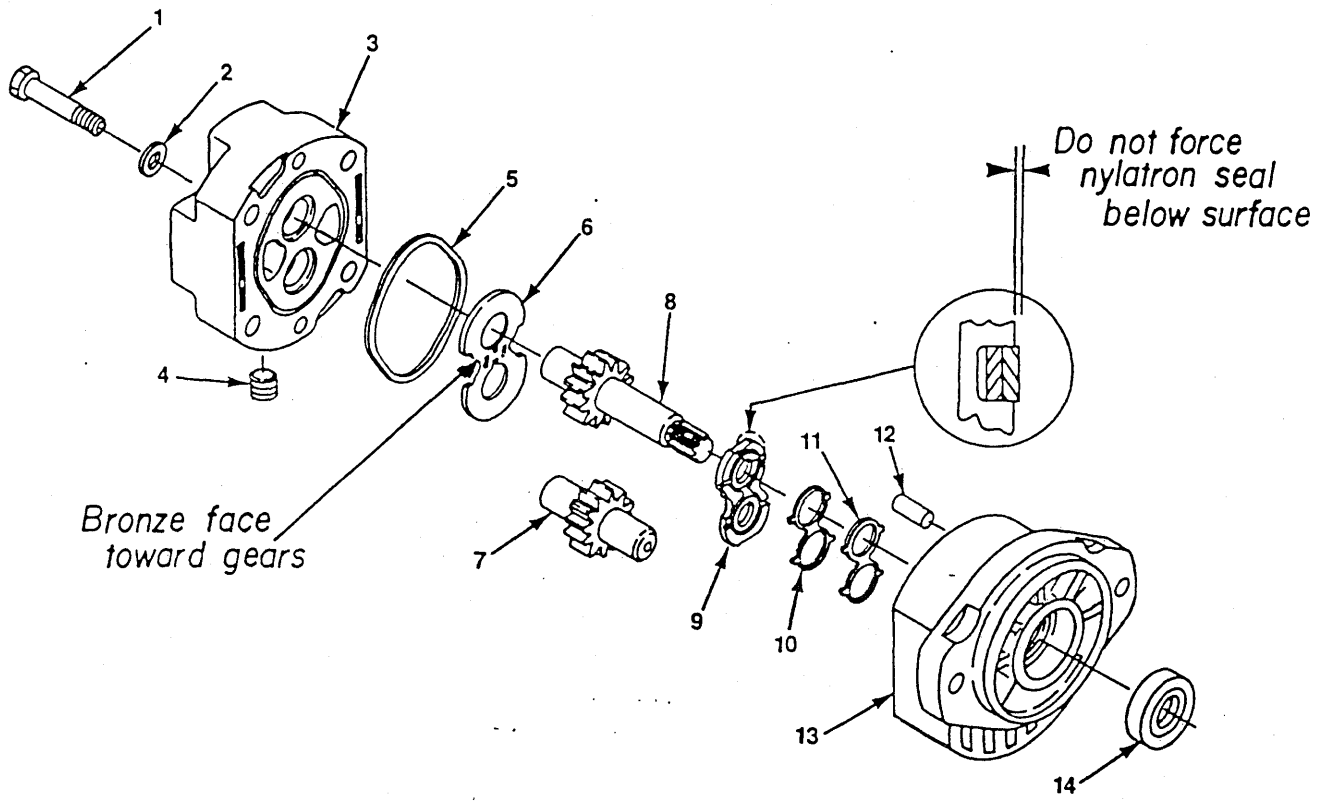


Fig. #	Item #	Part #	Name	# for Assy.
20	1	VF60101-038	Screw, Cap	4
20	2	VF61201-003	Washer	4
20	3	VF1501-542-002	Cover, Rear part	1
20	4	VF76105-003	Plug, Pipe	1
20	5K	NSS	Seal, Gasket	1
20	6	VF1501-047-001	Plate, Thrust	1
20	7	VF1501-032-008	Gear, Driven	1
20	8	VF1501-031-004	Gear, Drive	1
20	9	VF1501-048-001	Plate, Wear	1
20	10K	NSS	Spacer	1
20	11K	NSS	Nylatron	1
20	12	VF6901-001	Pin, Dowel	2
20	13	VF1501-553-005	Body	1
20	14	VF1501-076-001	Seal, Shaft	1
20	K	VF1501-635-007	Kit, Seal	1

NSS — Not Sold Separately

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**ROLL-OVER PROTECTION —
OVERHEAD GUARD (Figs. 9, 10, 11, 12 & 13)**

The Operator's Compartment of the Skid Steer Loader is protected by a high-strength Overhead Guard. By removing the rear Overhead Guard Hold Down pins the guard may be tilted forward for major service work.

⚠ WARNING NEVER operate the Loader with the Overhead Guard tilted forward. All routine service and maintenance can be done with the Overhead Guard in the down and locked position and the Seat Pan Assembly locked up (Fig. 11 & 12).

For major service work always chain the Overhead Guard to the Lift Arm preventing it from falling backward (Figure 13).

DO NOT START THE LOADER WITH THE OVERHEAD GUARD TILTED FORWARD OR THE SEAT ASSEMBLY UP.

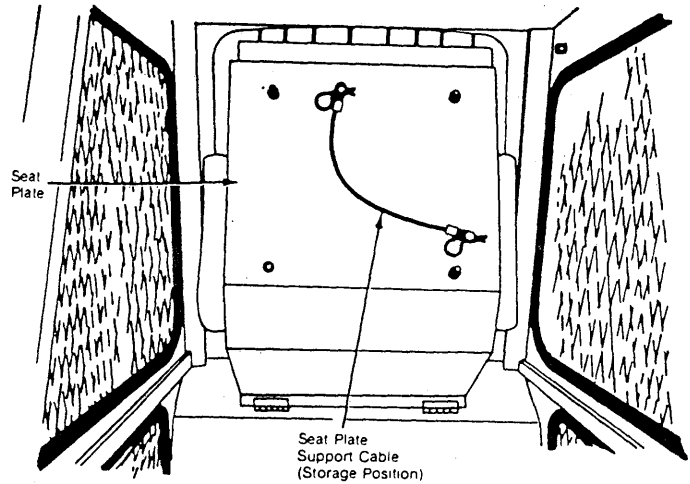


Figure #11 Seat Plate Up-Cable Assembly

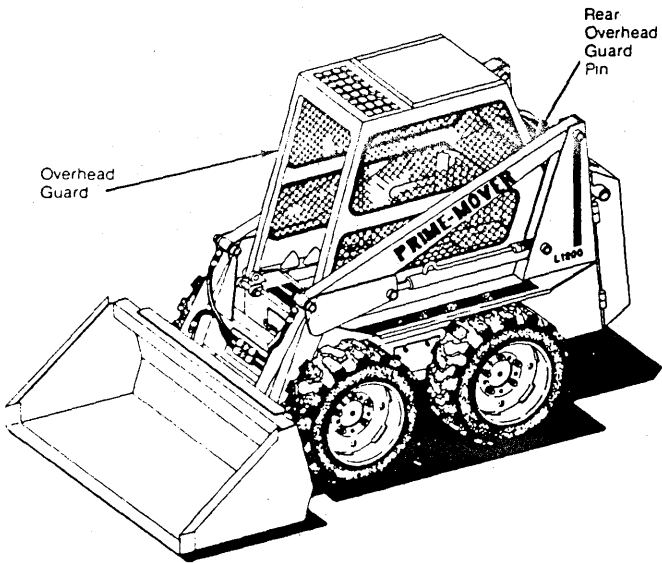


Figure #9 Overhead Guard

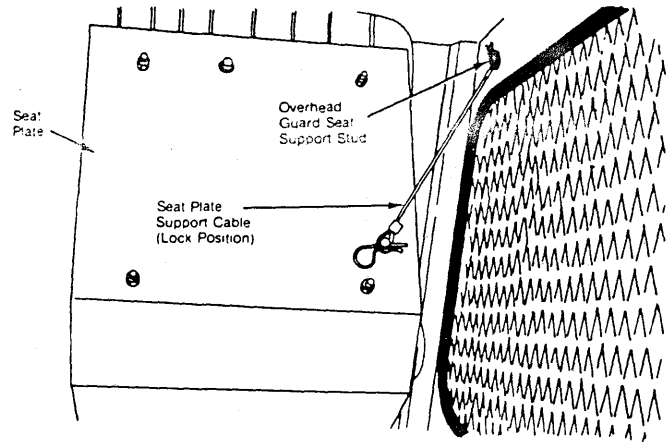


Figure #12 Seat Plate Locked In UP Position

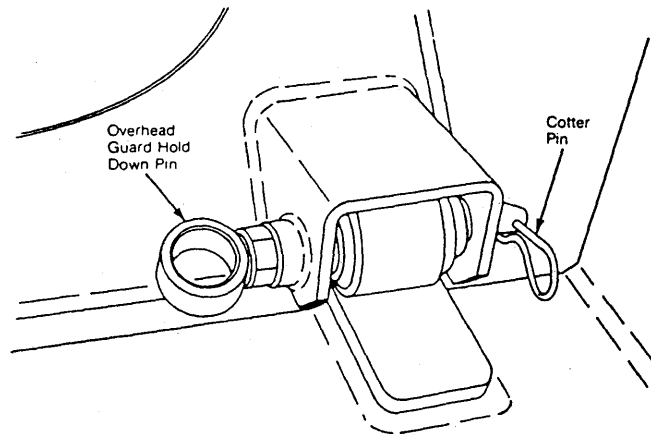


Figure #10 Rear Overhead Guard Pin

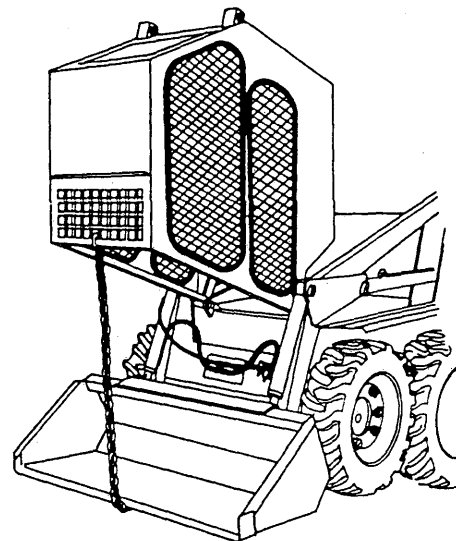


Figure #13 Chain the Overhead Guard.

Allow the Loader to recharge the Battery for approximately 10 minutes before attempting to operate the Loader.

NOTE: If Loader Battery discharging becomes a reoccurring problem, have Battery checked for possible dead cell and/or troubleshoot Electrical System for possible shorted wire or damaged insulation.

Recharging Weak Battery

If Loader Battery becomes run-down and weak, it may be desirable to recharge it with a plug-in 120 volt AC battery charger unit. Follow operating instructions given with recharger unit and exercise all prescribed precautions.

WARNING DO NOT attempt to recharge a frozen Battery; this may cause it to rupture or explode. DO NOT attempt to recharge the Battery in an area of sparks or near an open flame.

DRIVE CHAINS (Figs. 36 & 37)

Both Wheels on each side of the Loader are Chain-driven directly off of independent Hydraulic Motors. Double Sprockets on the Motor Output Shafts drive both Wheels through individual Drive Chains which are running continuously in oil. Drive Chain tension is adjustable. After every 100 hours of operation, visually inspect the Drive Chains. Access to the Chains is obtained by removing the front tire and the Side Tank Access Cover (Fig. 37). Chain deflection at the midway point of the chain should be $\frac{1}{4}$ " with light pressure applied.

Drive Chain Tension Adjustment

Drive Chain Tension must be adjusted if chain deflection at the midway point of the chain is greater than $\frac{1}{4}$ " or less than $\frac{1}{16}$ " with light pressure applied.

1. Lower the Lift Arms, stop Loader and remove Ignition Key.

2. Securely block the Loader off the floor (Fig. 37) Blocks or jack stands should be placed under the Chain Case Side Tanks, both in the front and in the back. Be sure all four tires are off the floor.
3. Remove wheels and Side Tank Access Covers (Fig. 37).
4. Loosen axle assembly mounting nuts (8 per axle).
5. Before attempting to tighten or loosen chains, be sure the axle assemblies are free and not sticking to the gaskets on the Side Tanks. A hydraulic jack and a 2" x 4" may be used to hold axle assemblies in place while adjusting the tension (Fig. 37).
6. Once the proper chain tension is adjusted, tighten axle assembly mounting nuts to 55 ft. lbs. of torque and recheck chain tension.
7. Replace Side Tank Access Cover, wheels and remove jack stands or blocks from beneath the Loader.

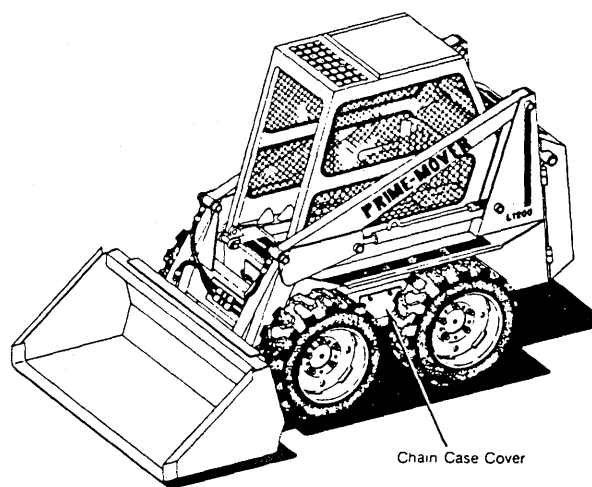


Figure #36 Chain Case Cover

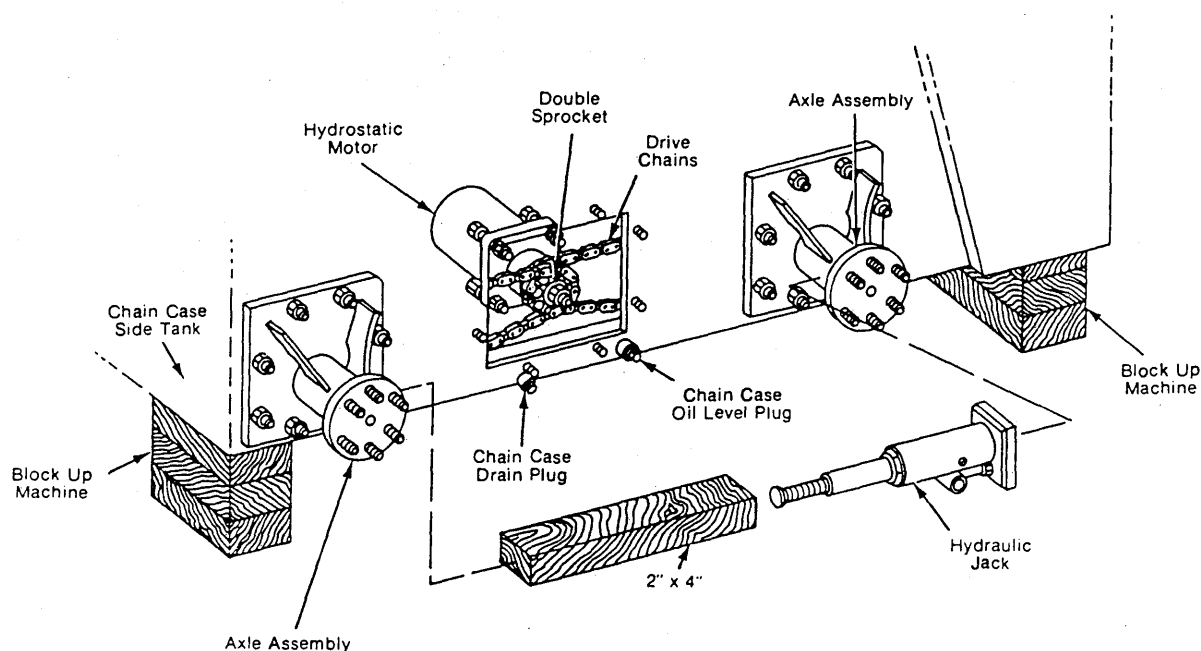
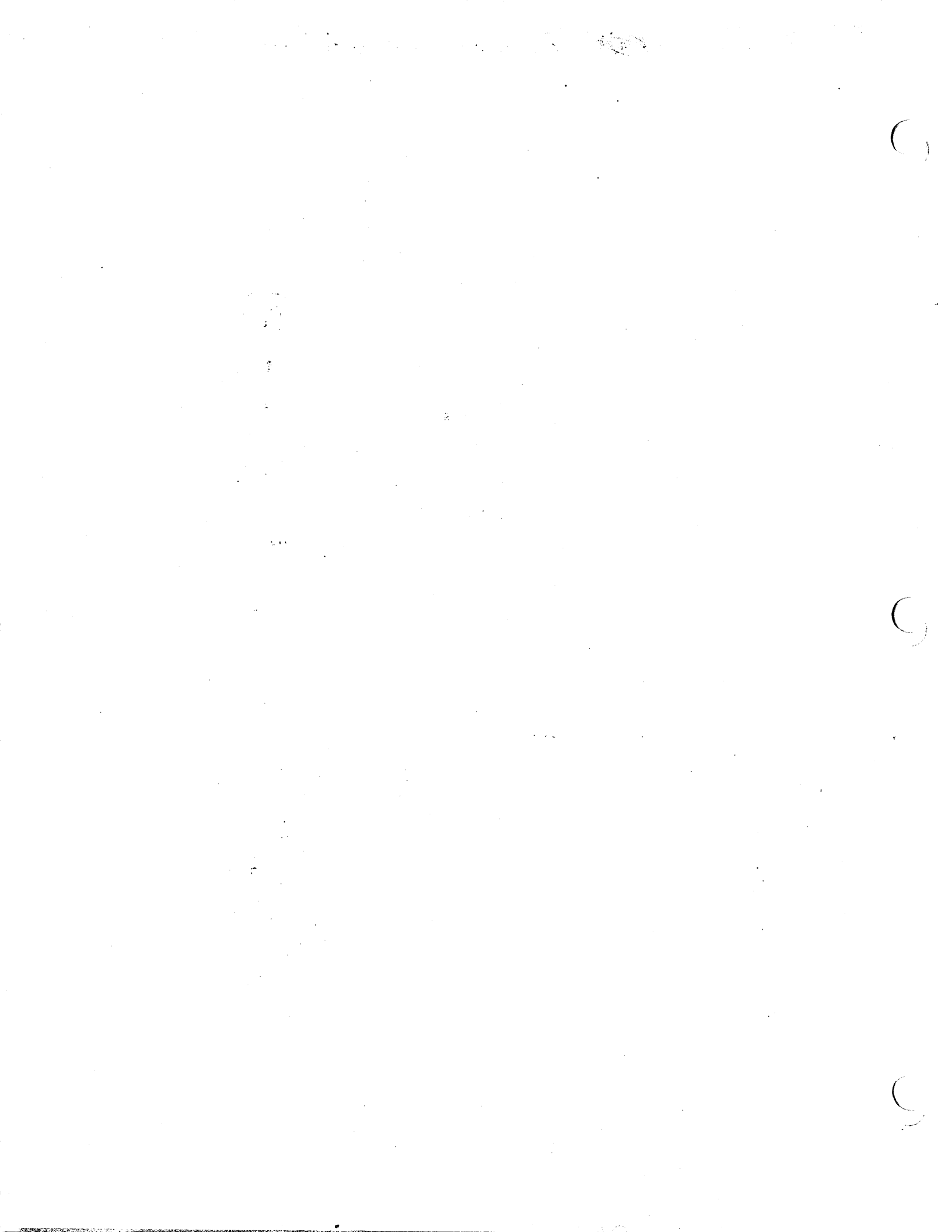


Figure #37 Drive Chain Adjustment

Symptom	Probable Cause	Remarks
HYDRAULIC DRIVE		
Hydraulic cylinder action is slow.	Low engine RPM.	Increase engine RPM.
	Oil is too heavy.	Allow oil to warm-up by rolling bucket back and forth and going over relief.
	Oil is leaking past cylinder packing.	Check packing condition and O-rings and replace if worn excessively.
	Systems Valve Spools are NOT opening completely.	Adjust Linkage Rod lengths for a full 1/4" Spool travel.
	Systems Pump is malfunctioning	Contact dealer for troubleshooting directives.
Lift Arms do NOT maintain a raised position when the Foot Pedal is moved to "Neutral" or Load Arm operations are occurring very slowly.	Oil is leaking past Control Spools.	Valve Housing or Spools defective; contact dealer for repair.
	Leakage of oil past Seals in cylinder.	Check and replace Seals.
	Spool NOT Centered in Valve.	Adjust Foot Pedal Linkage Rod length or repair Valve Spool with dealer's directive.
	Oil is leaking past Control Spools.	Valve Housing or Spools defective; contact dealer for repair.
Bucket or Fork drifts downward (rolls slowly forward) with Foot Pedal in "Neutral", or Bucket roll forward or roll back operation occurs very slowly.	Leaking Fittings or Hoses.	Inspect Tighten or replace as necessary.
	(See immediate preceding causes and remedies)	
	Lift Arm Lock engaged.	Release Lock.
Lift Arms will NOT lower.		
Jerky Lift Arm or Bucket action.	Air in Hydraulic System.	Cycle the Cylinders and maintain full-pressure for a short time to purge the air.
	Low oil level in Reservoir.	Check Level Indicator and replenish.
	Sticking Systems Control Valve.	Contact dealer for further directive.



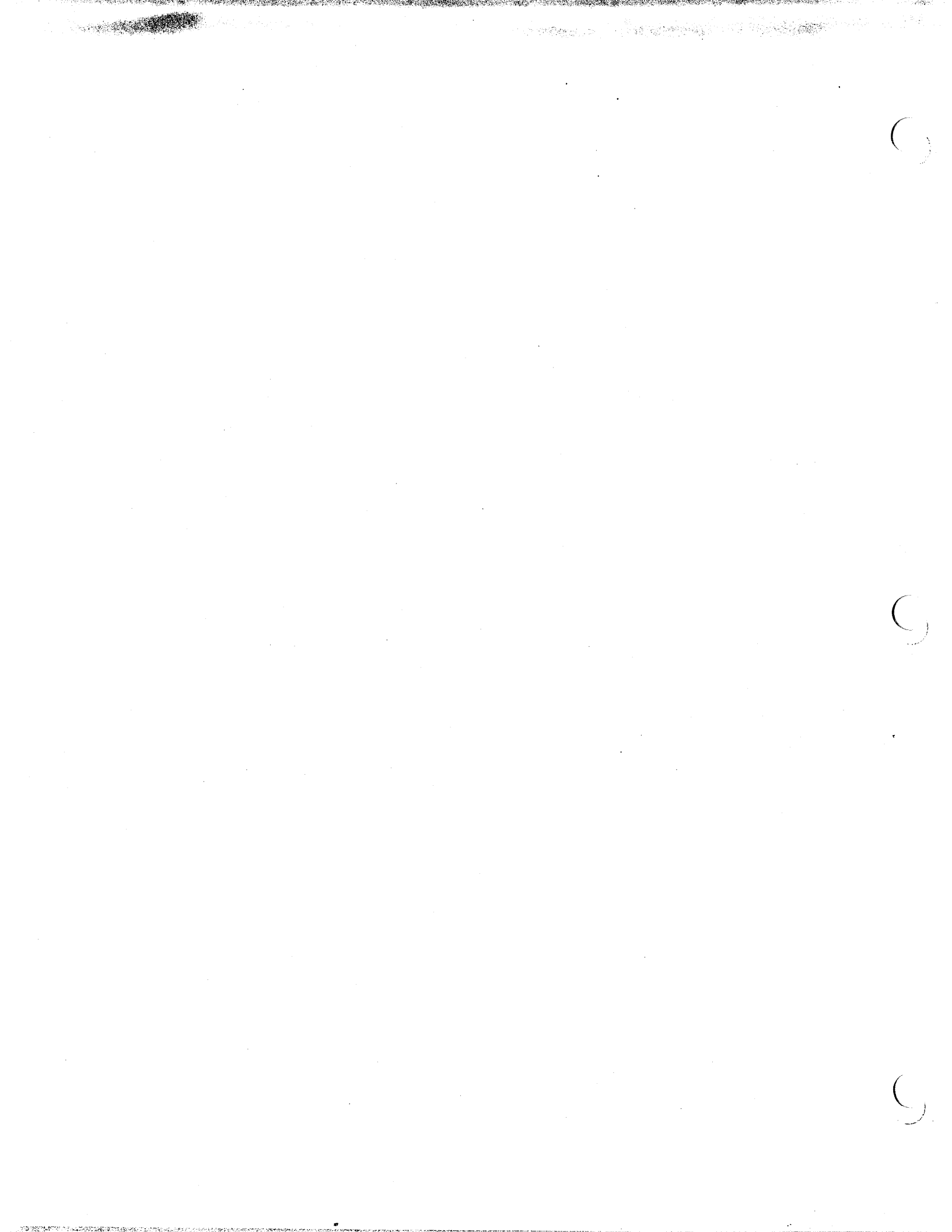
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Disassembly and Inspection Procedures

PREPARATION BEFORE DISASSEMBLY

Before disconnecting hoses, thoroughly clean off all outside dirt around fittings. (After disconnecting hoses and before removing from vehicle, IMMEDIATELY plug portholes.) Drain fluid and finish cleaning and drying assembly before placing on a clean work surface. (A piece of clean paper makes an excellent disposable top.) All disassembled parts should be cleaned separately in clean petroleum-based solvent and blown dry with air to avoid nicks and burrs. Discard all seal and seal rings as they are removed from Torqmotor. Use Ross Gear Division or OEM approved service parts.

WARNING: SINCE THEY ARE FLAMMABLE, BE EXTREMELY CAREFUL WHEN USING ANY SOLVENT. EVEN A SMALL EXPLOSION OR FIRE COULD CAUSE INJURY OR DEATH.

WARNING: WEAR EYE PROTECTION AND BE SURE TO COMPLY WITH OSHA OR OTHER MAXIMUM AIR PRESSURE REQUIREMENTS.

CAUTION: Never steam or high pressure wash hydraulic components. Do not force or abuse closely fitted parts.

REPLACEMENT OF HIGH PRESSURE SEAL (5) WITHOUT COMPLETE TORQMOTOR™ DISASSEMBLY

(Reference Exploded Assembly View)

1. Remove and discard dirt seal (1) and retaining ring (2) from Torqmotor. [Some applications may not require dirt seal (1).]
2. Completely fill Torqmotor with oil. Plug "A" and "B" ports and set Torqmotor in a clean pan. Place a clean rag around the coupling shaft seal area of the housing to prevent oil spray. Carefully grip coupling shaft with appropriate wrench and rotate coupling shaft rapidly in a counter-clockwise direction. Oil pressure generated by Torqmotor will eject backup washer (3), washer (4) and seal (5).
3. Select the proper seal assembly tools for the 1¼ inch (31.8 mm) or 1½ inch (38.1 mm) seal diameter coupling shaft involved. See Figures 1, 2 and 3, page 2.

Insert the selected seal compression ring tool (Figure 3), with chamfered end inward, into housing (6) until it bottoms out. Assemble the selected seal thimble tool (Figure 1) over coupling shaft (11). Coat new seal (5) with clean grease and assemble over seal thimble with lip side inward. Push new seal (5) into housing (6) with the appropriate seal driver tool (Figure 2). Remove seal driver, thimble and compression tools.

4. Hold washer (4) between thumb and index finger and slightly collapse washer and assemble into housing (6). Assemble back-up washer (3) tab side out, and retaining ring (2). Be sure rounded edge of retaining ring is faced inward, and that back-up washer tab is between ends of retaining ring. Be sure the new retaining ring (2) is the same thickness as the one removed. (Seal kit contains

two retaining rings to select from.) Apply a small amount of clean grease to the back side of new seal (1) and assemble into housing (6) if required.

TORQMOTOR DISASSEMBLY

(Reference Exploded Assembly View)

1. Place Torqmotor in a vise, clamping down on the housing (6) port bosses with the coupling shaft (11) pointed down.

WARNING: IF THE TORQMOTOR IS NOT FIRMLY HELD IN THE VISE, IT COULD BE DISLODGED DURING THE SERVICE PROCEDURES, CAUSING INJURY.

2. If the end cover assembly (23) has a valve (28), scribe a line on housing (6) in some manner in line with the port in the end cover for reassembly orientation. Loosen the two plugs (25) with a 3/16 inch Allen wrench, for later disassembly. Remove the seven special bolts (24) using a 9/16 inch thin wall socket. Inspect bolts for damaged threads, or the sealing ring under the bolt head. Replace damaged bolts.
3. Remove end cover assembly (23) and seal ring (7) by inserting screwdriver between end cover assembly and sleeve (22). Pry up end cover assembly and lift from unit with seal ring attached. Discard seal ring (7). It may be necessary to use a chisel and hammer to break the end cover loose.
4. If the end cover (23) has valve (28) and the previously loosened plugs (25), remove the two plugs and O-rings (26).

CAUTION: Be ready to catch two springs (27) and valve (28) that will fall out of the end cover valve cavity when the plug assemblies are removed.

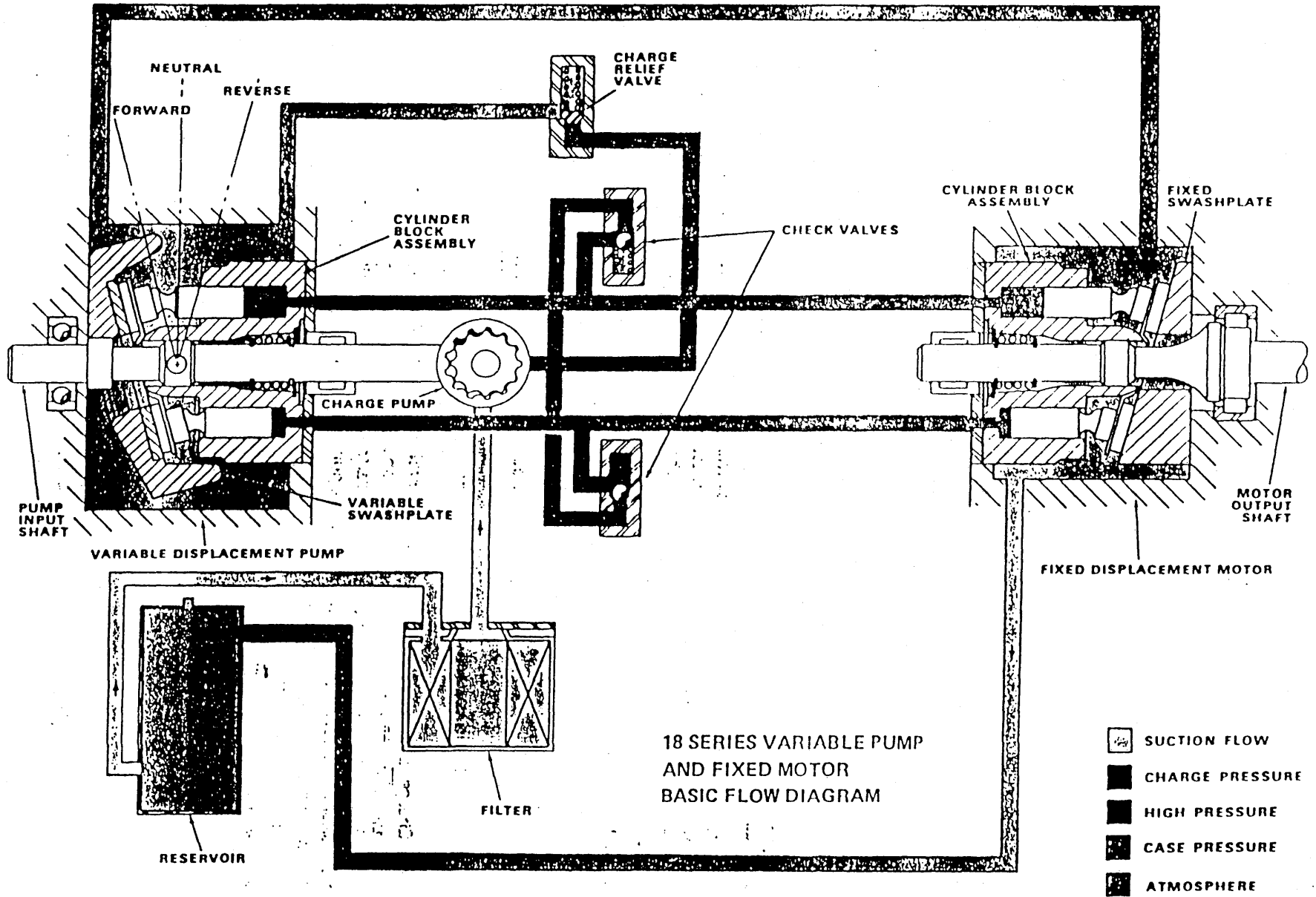
Thoroughly wash cover in proper solvent and blow dry. Be sure the cover valve apertures, including the internal orifice plug, are free of contamination. Inspect end cover for cracks and the bolt head recesses for good bolt head sealing surfaces. Replace cover as necessary.

NOTE: O-ring (26) is not included in seal kits but is serviced separately if required.

5. Remove commutator ring (21), commutator (19), seal ring (20), and manifold (18) by using two of the special bolts (24) as a lifting tool—insert the two special bolts into two holes and lift out the previously mentioned parts.
6. Remove seal ring (20) from commutator (19), using an air hose to blow air into ring groove until seal ring is lifted out and discard seal ring. Inspect commutator and commutator ring (21) for cracks or burrs. Inspect commutator for wear, scoring, spalling or brinelling. If any of these conditions exist, replace commutator and commutator ring as a matched set.
7. Remove manifold plate (17) by again using two special

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SECTION VII: MINOR REPAIR PROCEDURES

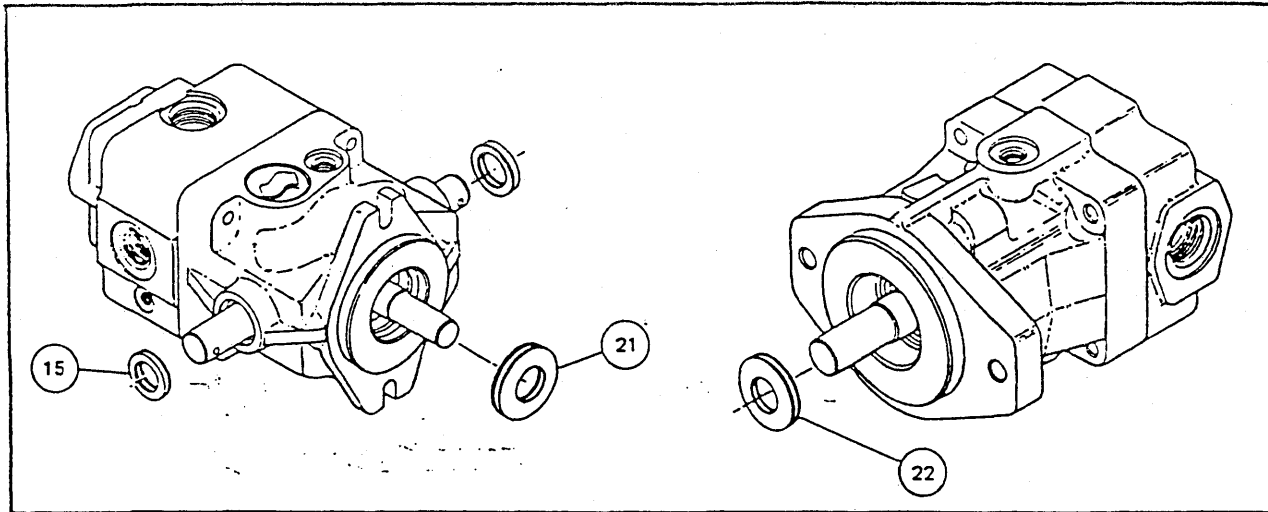
Replacement of Shaft & Trunnion Seals

Lip type seals are used throughout these transmissions. These seals can be replaced without major disassembly of the transmission; however, replacement of either the input or output seal requires removal of the transmission from the machine.

Pry the seal carefully out of the housing bore, using care not to distort the housing or damage

the bore or shaft. Once removed the seal is not reusable.

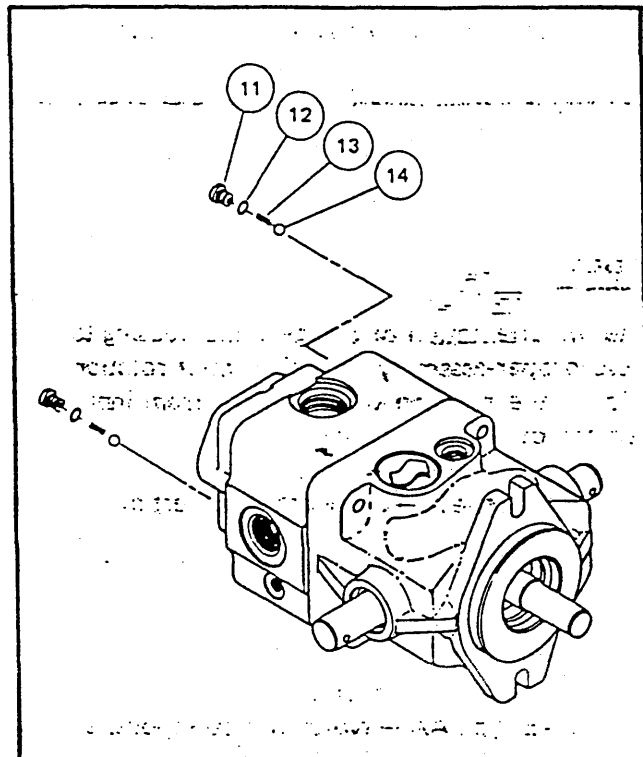
Prior to installing the new seal, polish the shaft extension, wrap it in thin plastic and lubricate with clean hydraulic oil to insure the seal is not damaged during assembly. Slide the seal over the shaft and press into housing bore.



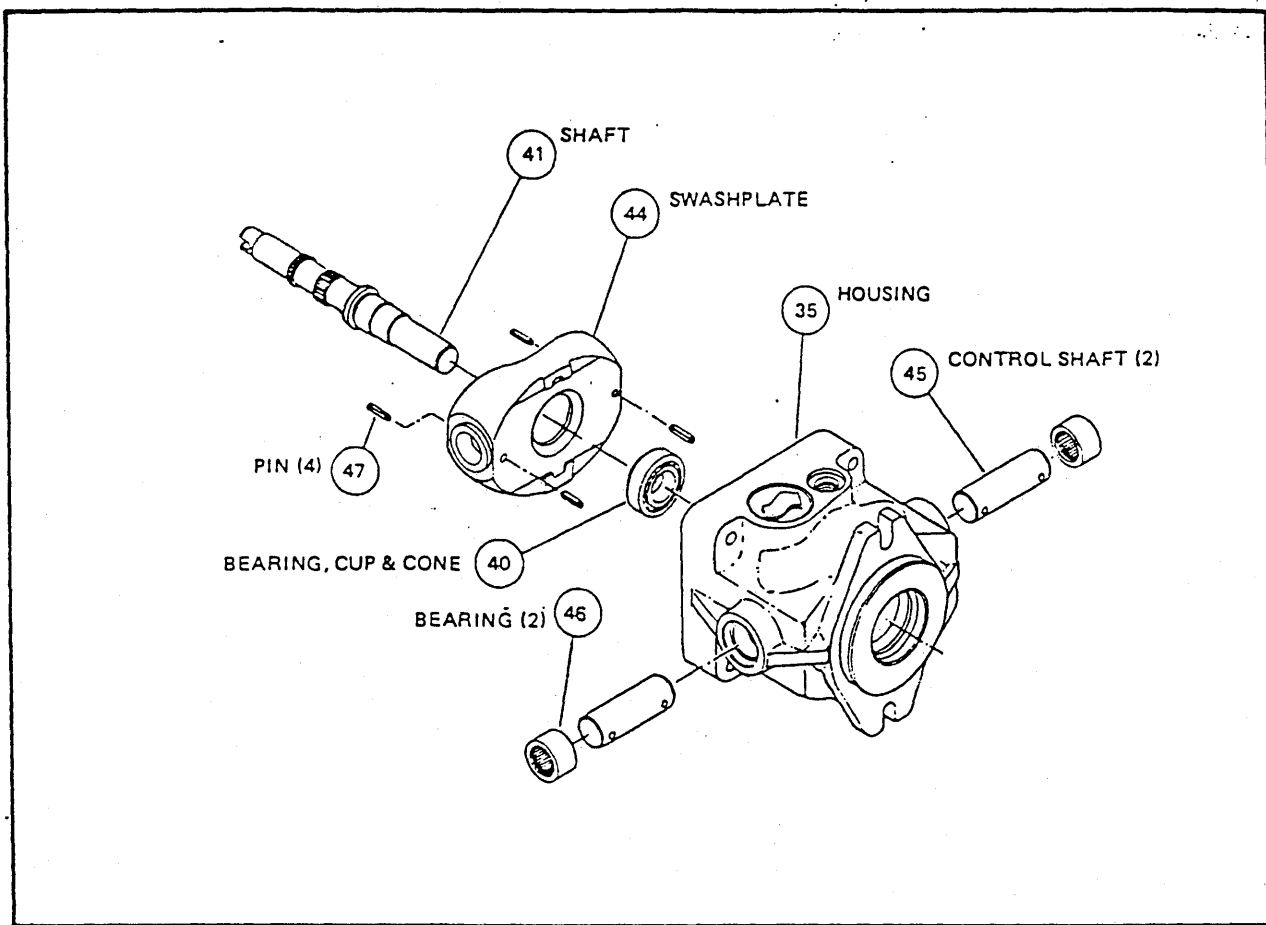
Charge Check Valves

Remove slotted head plug (11) then slide the spring (13) and ball (14) out of the end cap. Inspect the ball and the mating seat in the end cap for damage. Remove any foreign material in the valve area. Replace parts as required and reinstall into end cap. In some instances the plugs (11) may not clear the charge pump housing. If this happens, remove the four (4) screws holding the housing to the pump and rotate it out of the way. Be certain to keep proper orientation of charge pump housing to insure correct rotation.

NOTE: Later production pumps have high pressure relief valves which incorporate the charge check function into their operation.



SECTION VIII: MAJOR REPAIR PROCEDURES



VARIABLE DISPLACEMENT PUMP ASSEMBLY

Prior to reassembly all parts, used and new, should be cleaned. Cleaning with solvent and air drying is adequate, providing that clean solvent is used.

A supply of clean hydraulic oil is needed to lubricate parts during reassembly, especially the cylinder block assembly, thrust plate and valve plate.

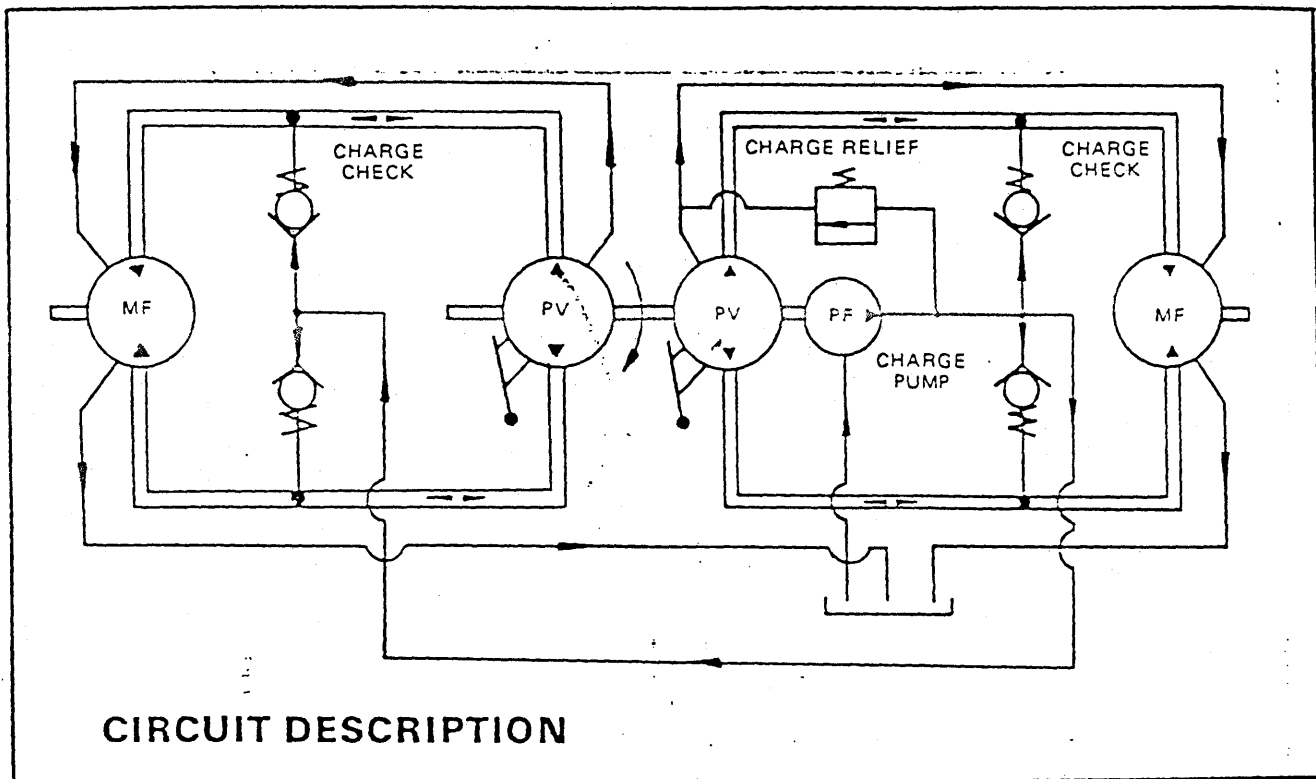
It is recommended that all gaskets, O-rings and seals be replaced in addition to the charge pump drive pin, rear shaft bearing and swashplate pins.

Press the bearing cup into housing (35) then insert the shaft and bearing cone assembly (41 & 40).

Press needle bearings (46) into each side of housing until flush to $1/64$ inch below counterbore for lip seals.

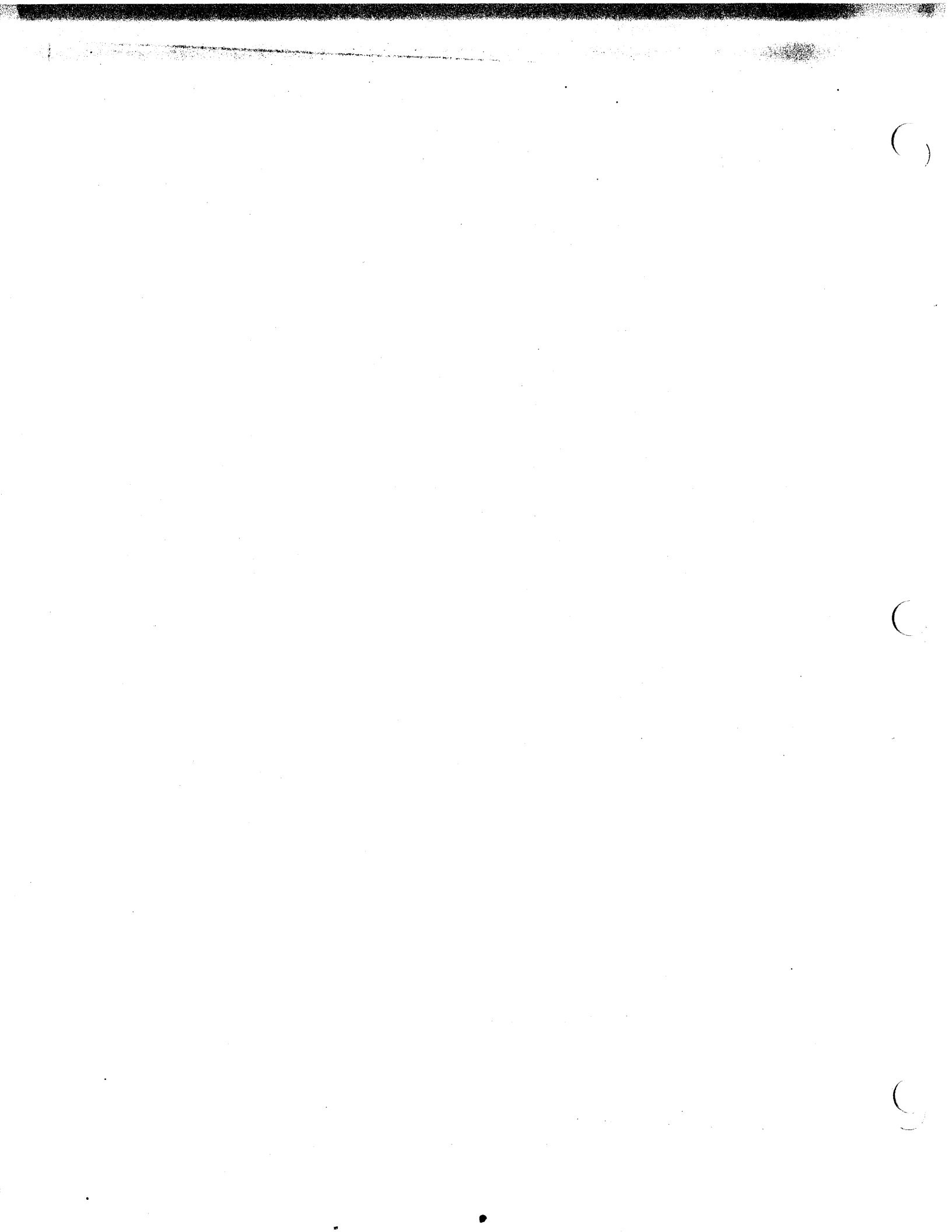
Place swashplate (44) into housing with counterbore for thrust plate up. Install control shafts (45) and align holes for spring pins in swashplate and shafts using $5/16$ drift punch.

18 SERIES TANDEM PUMP



The 18 Series tandem pump consists of two (2) variable displacement axial piston pumps, driven by a common shaft. Each pump is designed to be connected in a closed loop to a fixed displacement motor. Each pump can be controlled independently so that the output speed and direction of rotation of the motors are also independent.

A fixed displacement (gerotor type) Charge Pump is driven by the common shaft and provides fluid to both closed loop circuits, through the Charge Check Valves, to replenish losses and prevent cavitation. The charge pressure is limited by a single Charge Relief Valve.



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