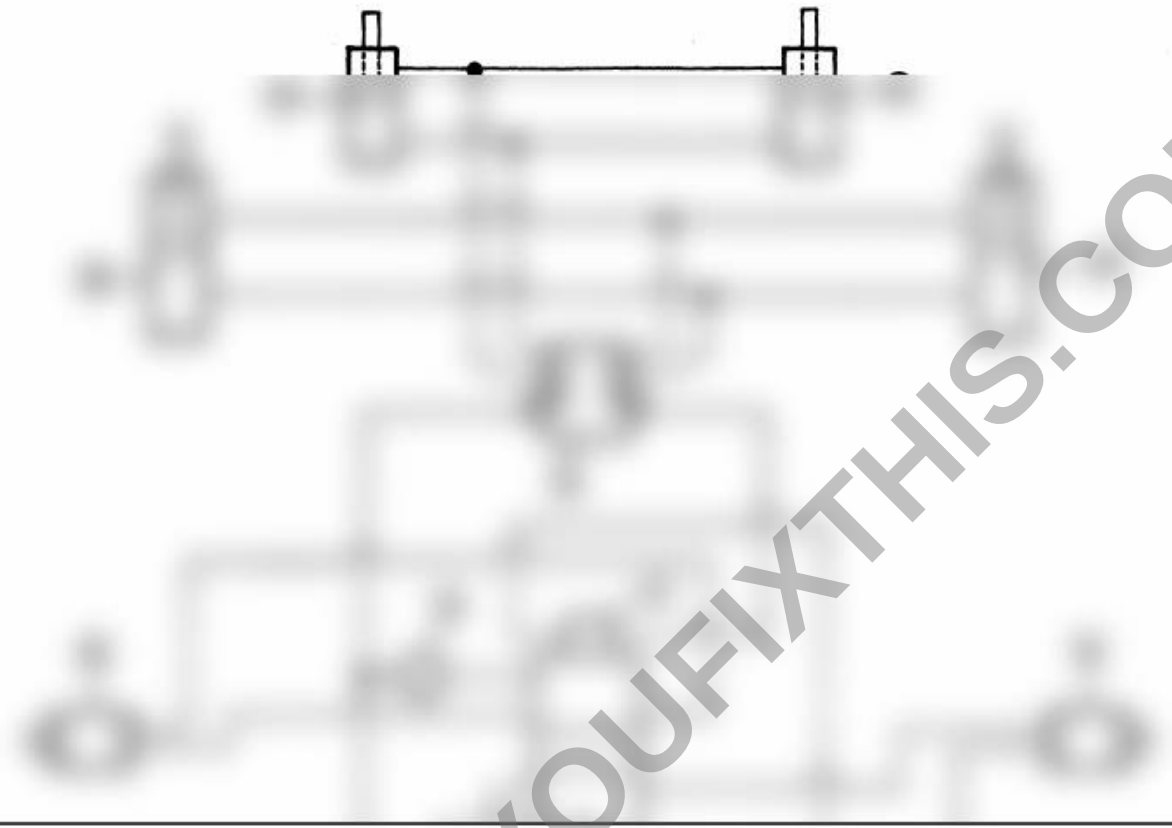
TROUBLE SHOOTING

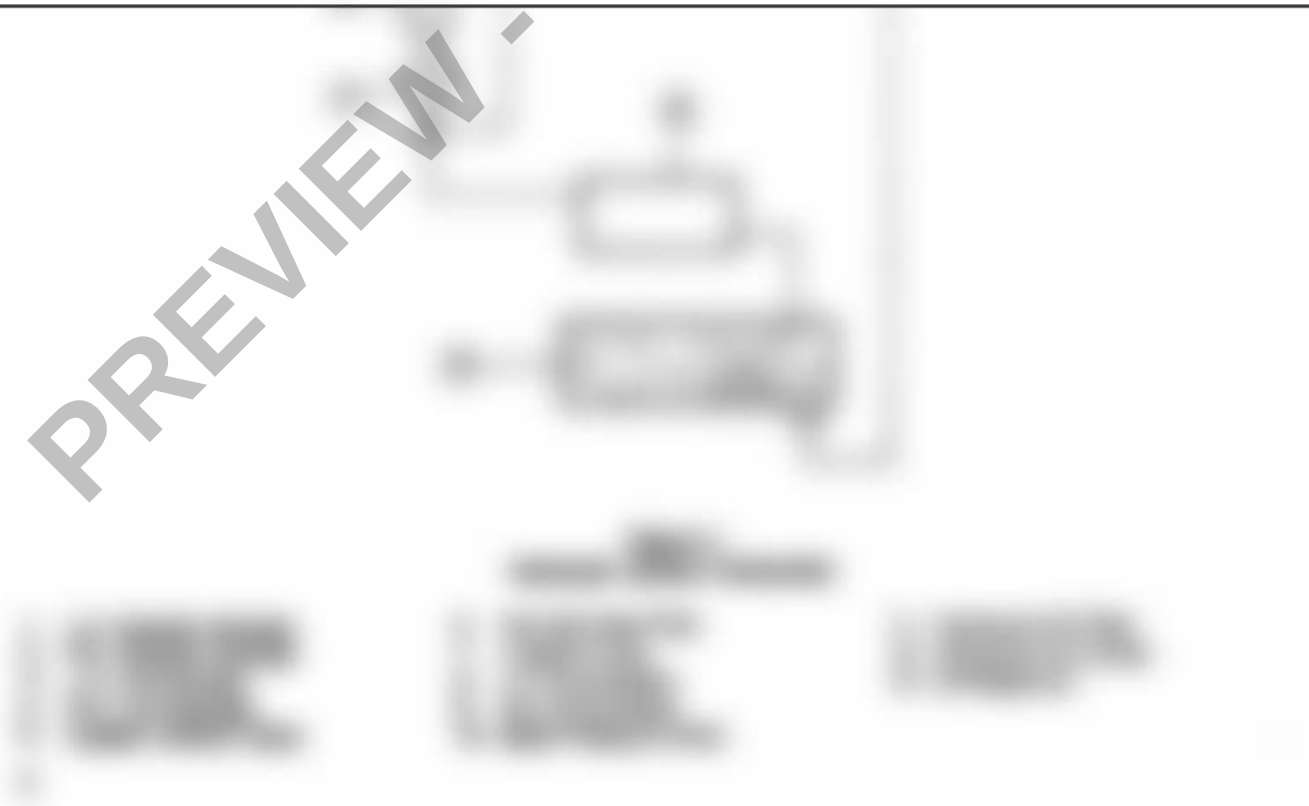
SYMPTOM	CAUSE	CORRECTIVE ACTION
DRIVE SYSTEM		
A. System Noisy	1. Air in system	1. Check reservoir oil level, replenish if required, and purge system of air.
	2. Loose suction line	2. Tighten connections.
	3. Clogged suction filter	3. Replace filter element.
	4. Oil too thick	4. Replace with correct grade of oil.
	5. Oil cold and stiff	5. Run system at low speed and no load until warm.
	6. Internal pump or motor damage	6. Disassemble, inspect and repair.
B. System Overheating	1. Internal leakage	1. Isolate and repair.
	2. Fluid level low	2. Replenish reservoir oil level.
	3. Oil cooler blocked	3. Clean oil cooler externally and flush internally.
C. System Not Developing Pressure	1. Relief valve damaged or malfunctioning	1. Install a new relief valve.
	2. Internal leakage in pump or motor	2. Isolate and repair.
	3. Pump drive failure	3. Locate and repair.
	4. Control linkage failure	4. Locate and repair.
	5. Charge pump defective or worn	5. Repair or replace charge pump components.
D. Loss of Fluid	1. Loose fittings	1. Check and tighten hose and tube connections.
	2. Ruptured hydraulic line	2. Locate and repair.
	3. Leaking gaskets or seals in pump or motor	3. Visually inspect mating sections of pump, shaft seal areas, etc., for signs of leakage. Repair as required.
E. Pump Vibration	1. Clogged pump	1. Clean.
	2. Loose pump mounts	2. Tighten.
	3. Defective bearings	3. Repair or replace.
F. Warning Light Glows Red	1. Non-bypass filter clogged.	1. Install new filter cartridge.

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7. Determine pump efficiency by dividing the no load psi volume into the volume under 1750 psi (123.0 kg/cm²) system pressure. The efficiency must be approximately 65% or more. A pump that is less than 65% efficient will generate sufficient heat to be detrimental to the system and should be replaced.
8. To determine if the loader pump is cavitating (not receiving sufficient oil to charge the pump at all speeds), set the load valve at no load psi and the throttle at 1000 rpm, then record the flow. Increase the speed to 2000 rpm and record the flow. The pump is a positive displacement pump and when it is capable of producing system pressure, the no load volume at 2000 rpm should be twice the no load volume at 1000 rpm. If the volume is not doubled, a restriction in the suction line or filter is evident because sufficient oil is not entering the pump.

Cylinder Packing Leakage Test

If cylinder leakage at the packing is suspected, a simple test can be performed to determine if oil is leaking to the low pressure side of the cylinder.

1. Start the loader and extend or retract the cylinder to its full length.
2. Remove the hose from the low pressure side of the cylinder.
3. Actuate the control lever and hold. This will exert system pressure on the packings.
4. Note the quantity of oil leaking from the hose port of the cylinder.



CAUTION: *Do not get under the bucket or reach through the lift arms when the loader is raised.*

Various factors contribute to the volume of packing leakage. Each of these factors should be considered prior to installation of new packings.

- Leakage increases proportionally with an increase in temperature and pressure.
- Cylinders containing single piston packings will leak more in one direction, depending on the direction of the V-facing of the packing.
- All cylinder packings leak in small quantities for packing-to-cylinder barrel lubricating purposes.
- Cylinder dimensions must be considered because an increase in the surface provides additional area for leakage.

CONTROL VALVES

Valve Removal

The control valve is secured to its mounting plate with mounting bolts. Depending upon the service required, it may not be necessary to remove the complete valve body. The relief valve in the lift bucket control valve, for example, may be serviced with the valve body in place.

1. Relieve hydraulic pressure by actuating the control levers.
2. Disconnect the pump pressure hose at the valve coupling.
3. Tag and disconnect the cylinder-to-valve hoses at the control valve.
4. Disconnect the oil return hose at the valve coupling.

   NOTE: Cap all valve hose openings with suitable plugs or caps to prevent the entry of dirt.

5. Remove the valve mounting bolts and the valve.

Disassembly

The lift bucket control valve and auxiliary control valve are disassembled in a similar manner. Refer to Figure 6.

1. Plug the control valve inlet and outlet ports. Clean the body in a suitable solvent and dry with compressed air.
2. Remove the bonnet, snap ring, and stop disc from the valve body. Remove the parts connected to the spool.
3. Remove all parts connected to the front of the spool.
4. Push the spool into the housing from the front of the valve until the front seal is exposed. Remove the front seal. Pull the spool out of the housing from the front end.

   NOTE: Be careful not to scratch or damage the spool or bore when removing the spool.

5. Remove the back seal.

Inspection

The majority of valve failures occur because of dirt and other foreign matter entering the valve, causing marring and erosion. Inspect the valve body bores and poppet seats for evidence of scoring and distortion. Minor imperfections can be corrected using crocus cloth, emery cloth, or fine lapping compound. Use extreme care when using burnishing materials to assure that all particles are removed from the valve body.

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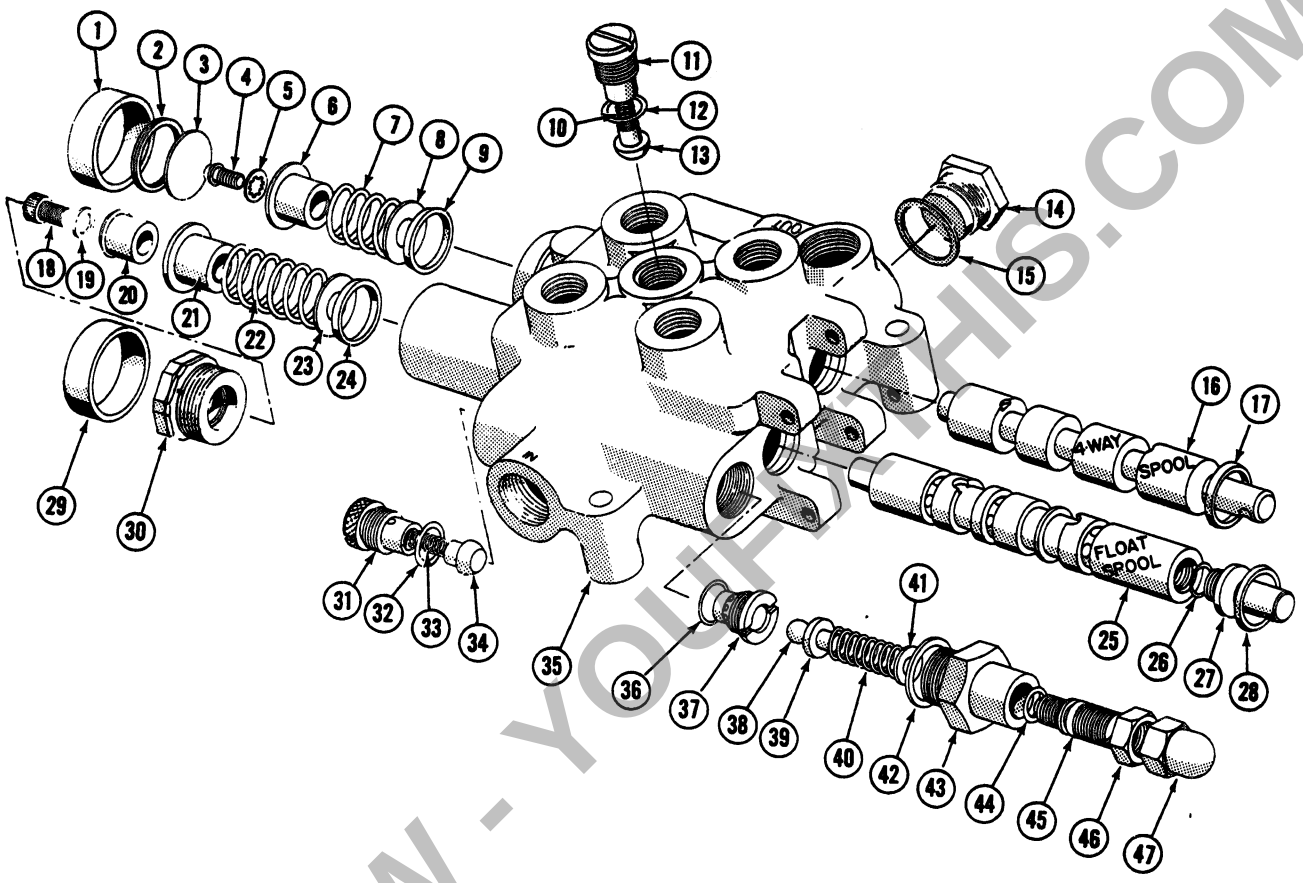


Figure 6
Lift and Tilt Valve Assembly

1. Rubber Bonnet
2. Snap Ring
3. Stop Disc
4. 1/4 in. Bolt
5. Lock Washer
6. Stop Collar
7. Centering Spring
8. Stop Washer
9. Seal
10. Check Poppet Spring
11. Check Ball Plug
12. O-Ring
13. Check Poppet
14. Plug
15. Gasket
16. 4-Way Spool
17. Seal
18. Float Detent Adapter
19. 1/4 in. Lock Washer
20. Float Detent Plunger
21. Float Spring Collar
22. Float Centering Spring
23. Stop Washer
24. Seal
25. Float Spool
26. Float Spool Adapter Spool
27. Float Spool Adapter
28. Seal
29. Rubber Bonnet
30. Float Detent
31. Check Ball Plug
32. O-Ring Plug
33. Check Poppet Spring
34. Check Poppet
35. Housing
36. O-Ring
37. Relief Valve Seat
38. Relief Valve Ball
39. Spacer
40. Relief Spring
41. Washer
42. Gasket
43. Relief Valve Body
44. O-Ring Screw
45. Adjusting Screw
46. Jam Nut
47. Acorn Cap

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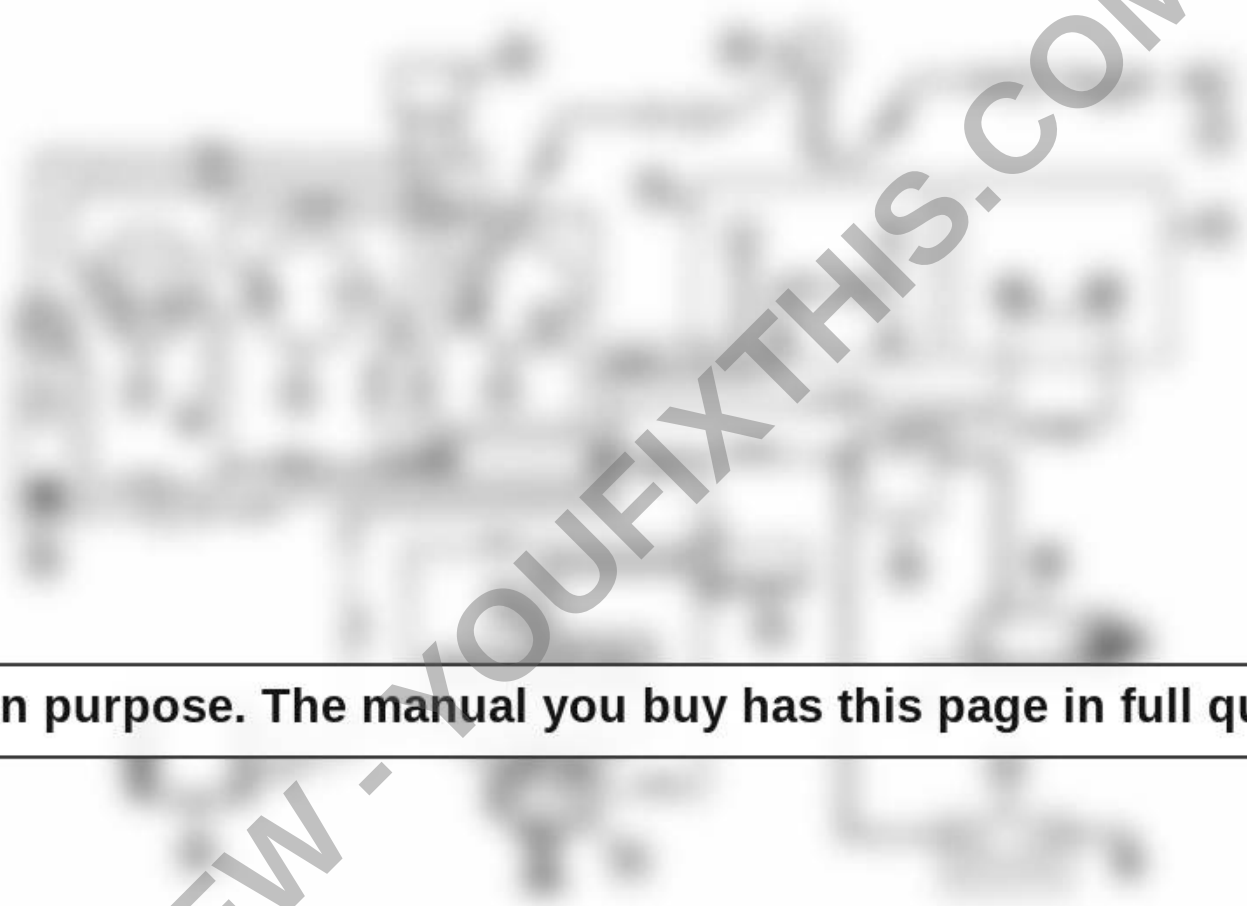
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Key	Lubricant	Item	Interval
1*	All Purpose Grease	Pivots or Bearings	10 Hours
2	Ford Specification M2C48A or API Classification, SE Rated 10W-30 Motor Oil. Do NOT USE ORDINARY HYDRAULIC FLUID.	Hydraulic System	1000 Hours
3*	See Note 1	Chain Case	1000 Hours
4	45 psi	Tires	Weekly
5	Clean	Air Cleaner	Daily
6	Check	Battery	Weekly
7	Change	Engine Oil Filter	100 Hours
8A	Check	Engine Oil Level — CL-30	Daily
8B	Check	Engine Oil Level — CL-40	Daily
8A	Change	Engine Oil — CL-30	50 Hours
8B	Change	Engine Oil — CL-40	50 Hours
9	Change (See Note 2)	Hydraulic Oil Filters, Two	1000 Hours
10	Replenish	Fuel Supply	Daily
11	Clean (See Note 3)	Hydraulic Reservoir Filter	1000 Hours
12	(See Note 4)	Pump Drive Coupling — (CL-30 Only)	250 Hours

NOTE 1. Remove drain plugs at rear of both chain cases, raise the front end to drain, flush out the chain cases, replace the plugs and fill both chain cases with one gallon each of SAE 80 - 90 axle lube.

NOTE 2. Change both filters after the first 50 hours of operation and every 250 hours thereafter.

NOTE 3. Wash reservoir filter in solvent and blow dry. Reinstall only hand-tight.

NOTE 4. Brush oil on chain.

* These lubrication fittings are duplicated on both sides of the machine.

IMPORTANT: Refer to engine manual for complete engine lubrication and maintenance information.

PERIODIC SERVICE INSPECTIONS

Hydraulic System Oil Breather

The hydraulic system oil breather and fill cap, Figure 12, should be inspected frequently for accumulation of dirt and dust on the filter element. If necessary, the breather and fill cap should be washed in a suitable solvent and blown dry.

Hydraulic System Oil Strainer

The intake line from the tank to the pump is equipped with a wire mesh strainer. The strainer is located in the hydraulic tank and should be removed, washed in solvent and blown dry approximately every 1000 hours.

To gain access to the strainer, remove the cover from the hydraulic tank, Figure 12. After the strainer is cleaned, install it hand tight.

SERVICING THE BATTERY

Specific Gravity Test

Specific gravity testing of the battery electrolyte determines the state of charge in each battery cell. Use a hydrometer and thermometer. Correct the hydrometer reading for temperature (see NOTE below). A corrected specific gravity reading of 1.285 in each cell indicates a fully charged battery. A specific gravity reading of 1.225 or less in any cell indicates that the battery must be recharged or replaced.

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