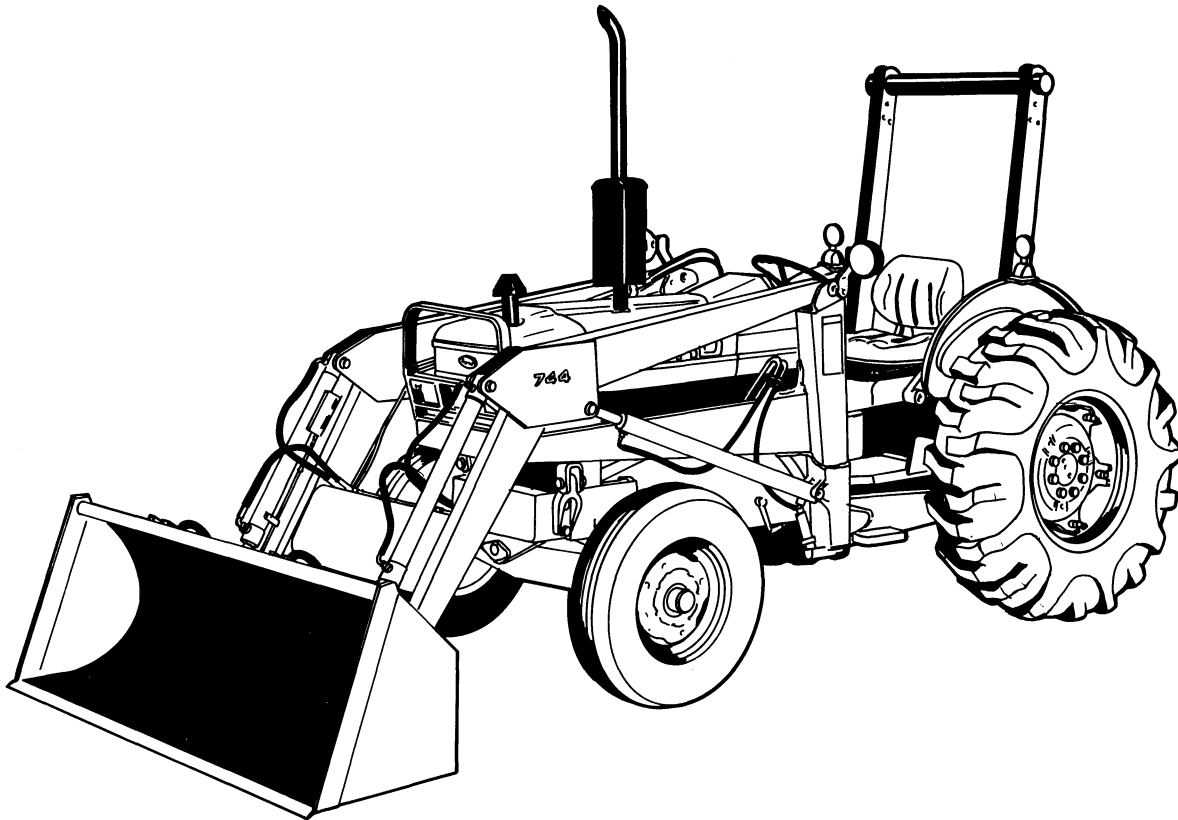


FORD



Service Manual

Series 744 Loader



Reprinted

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DESCRIPTION AND OPERATION

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The loader consists of a loader frame, lift arm assembly, double acting lift and bucket cylinders, control valve with float position, hydraulic pump and pump drive, hydraulic tubes and hoses and attaching hardware.

The Ford 744 loader, may be mounted on a Ford 250C or 260C tractor. Figure 1 illustrates the major load components.

LOADER FRAME

The loader frame for the Ford 744 loader is welded box type construction. Serviceable bushings are used in the loader lift arms and cylinders. The loader frame also acts as the hydraulic system reservoir. A hydraulic oil filter which has safety by-pass is located in the bottom of the left-hand loader frame post.

The loader frame is secured to the tractor at the rear axle and front axle support casting.

HYDRAULIC SYSTEM

The loader hydraulic system consists of a hydraulic pump, pump drive, loader control valve with float, hydraulic fluid reservoir and double acting lift and bucket cylinders. The hydraulic pump is mounted to the lower front support casting inside the radiator shell and is driven by the engine crankshaft.

The loader control valve incorporates double acting lift and bucket spools and a float mechanism. The valve is mounted to the right hand loader frame post and uses one control lever to actuate both the lift and bucket circuits. The return oil tube from the control valve is welded to the outside of the control valve mounting plate and at the loader frame side member. The loader frame

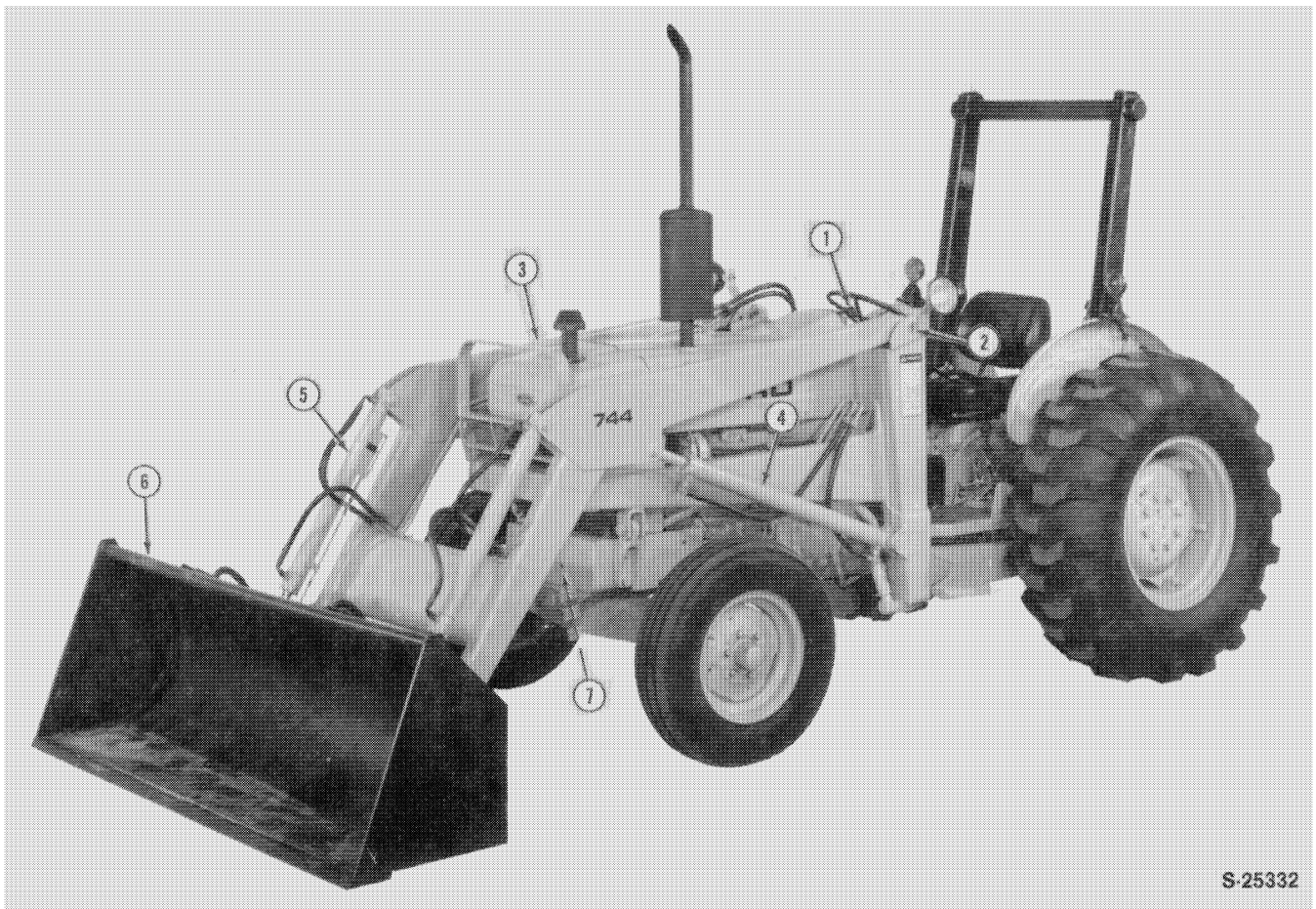


Figure 1
Loader Components

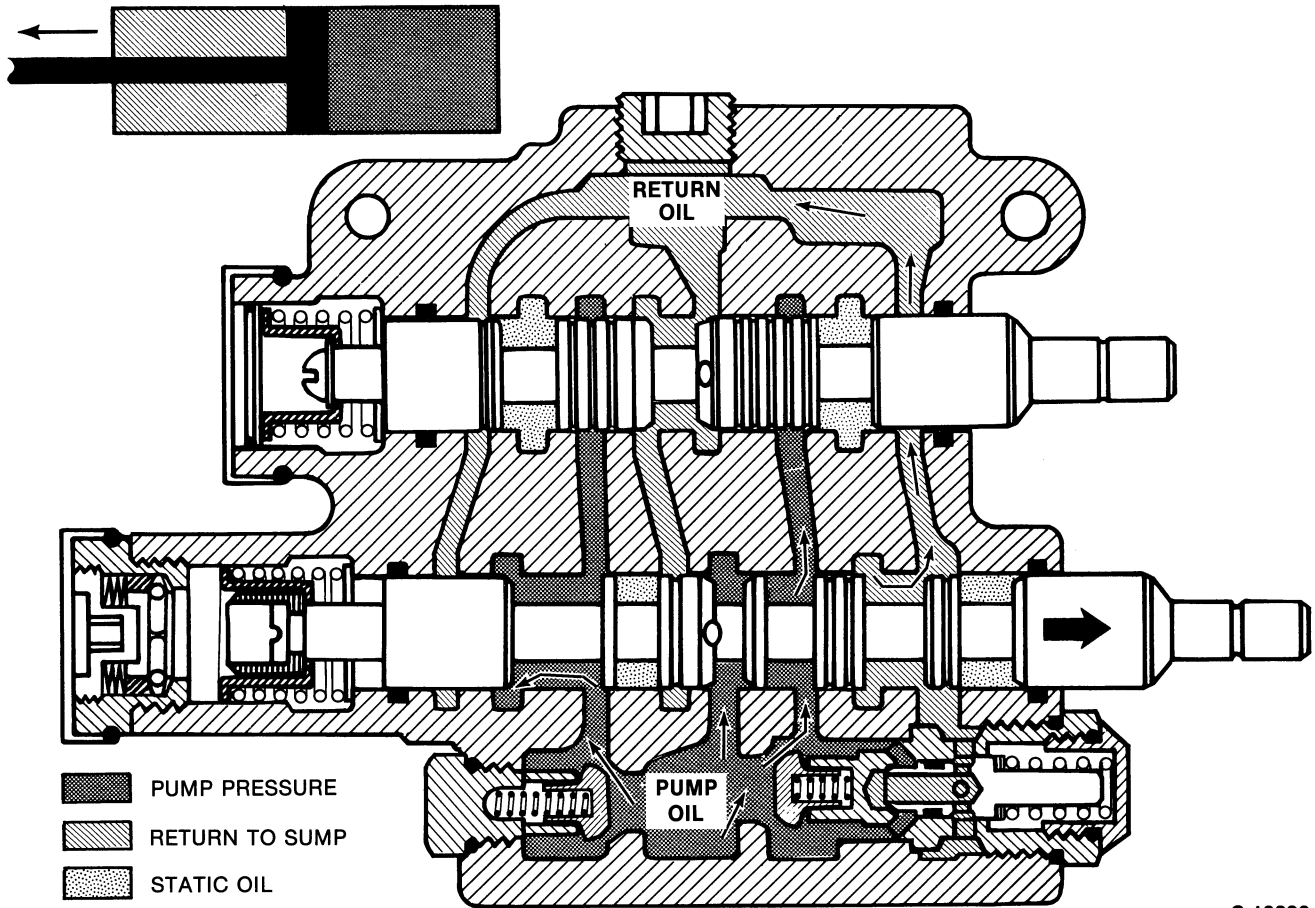
- | | |
|-------------------|---------------------|
| 1. Control Valve | 5. Bucket Cylinders |
| 2. Loader Frame | 6. Bucket |
| 3. Lift Arms | 7. Hydraulic Pump |
| 4. Lift Cylinders | Location |

GENERAL OIL FLOW

LIFT SPOOL — EXTENDING

Figure 15 illustrates oil flow through the control valve with the lift spool moved to direct oil to the piston end of the lift cylinders. Oil entering the valve at the inlet port is blocked by the positioning of the spool land,

causing a pressure increase. As pressure builds, the check valves are unseated allowing oil to flow through the high pressure passages to the cylinder piston end port. Return oil from the cylinder rod port enters the valve and flows to sump as shown.



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Figure 15
Lift Spool — Extending

ADJUSTMENTS AND PRESSURE CHECKS

3. Heat the hydraulic oil by adjusting the tester load valve for 1000 psi. Reduce the valve setting to no-load when the system oil is at $165^{\circ} \pm 15^{\circ}$ F. ($66^{\circ} \pm 82^{\circ}$ C).
4. Record the flow meter gpm reading @ 1700 engine rpm, no-load psi.
5. Gradually apply the load valve to achieve the loader system pressure. Correct the reduced engine speed to 1700 rpm.
6. Record the gpm reading.

NOTE: *The above readings must be taken at a constant 1700 rpm. If the rpm is not constant, the volume readings will not give the desired results when determining pump efficiency.*

7. Determine the pump efficiency as follows:

$$\bullet \text{ Pump Efficiency} = \frac{\text{Sys. pressure vol. (gpm)}}{\text{No-load psi volume (gpm)}}$$

If the pump efficiency is less than 65%, the pump should be replaced. A pump efficiency of less than 65% will generate excess heat and damage the hydraulic system. If the pump is more than 65% efficient and the owner complains of a loss of power, the operational requirements of the loader will determine if the pump should be replaced.

8. To determine if the 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 for 900 rpm. Record the flow. Increase the engine speed to 1800 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 1800 rpm should be twice the no-load volume at 900 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 PISTON SEAL LEAKAGE TEST

If cylinder leakage at the seals 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 tractor and fully extend or retract the cylinder.
2. Remove the hose from the low pressure side of the cylinder.
3. Actuate the control lever and hold it. This will exert system pressure on the piston seals.
4. Note the quantity of oil leaking from the open hose port of the cylinder.

Various factors contribute to the volume of piston seal leakage. Each of these factors should be considered prior to the installation of new piston seals.

- Leakage increases proportionately with an increase in temperature and pressure.
- All cylinder piston seals leak in small quantities for lubricating purposes.
- Cylinder dimensions must be considered because an increase in surface area provides additional area for leakage.

COMPONENT OVERHAUL

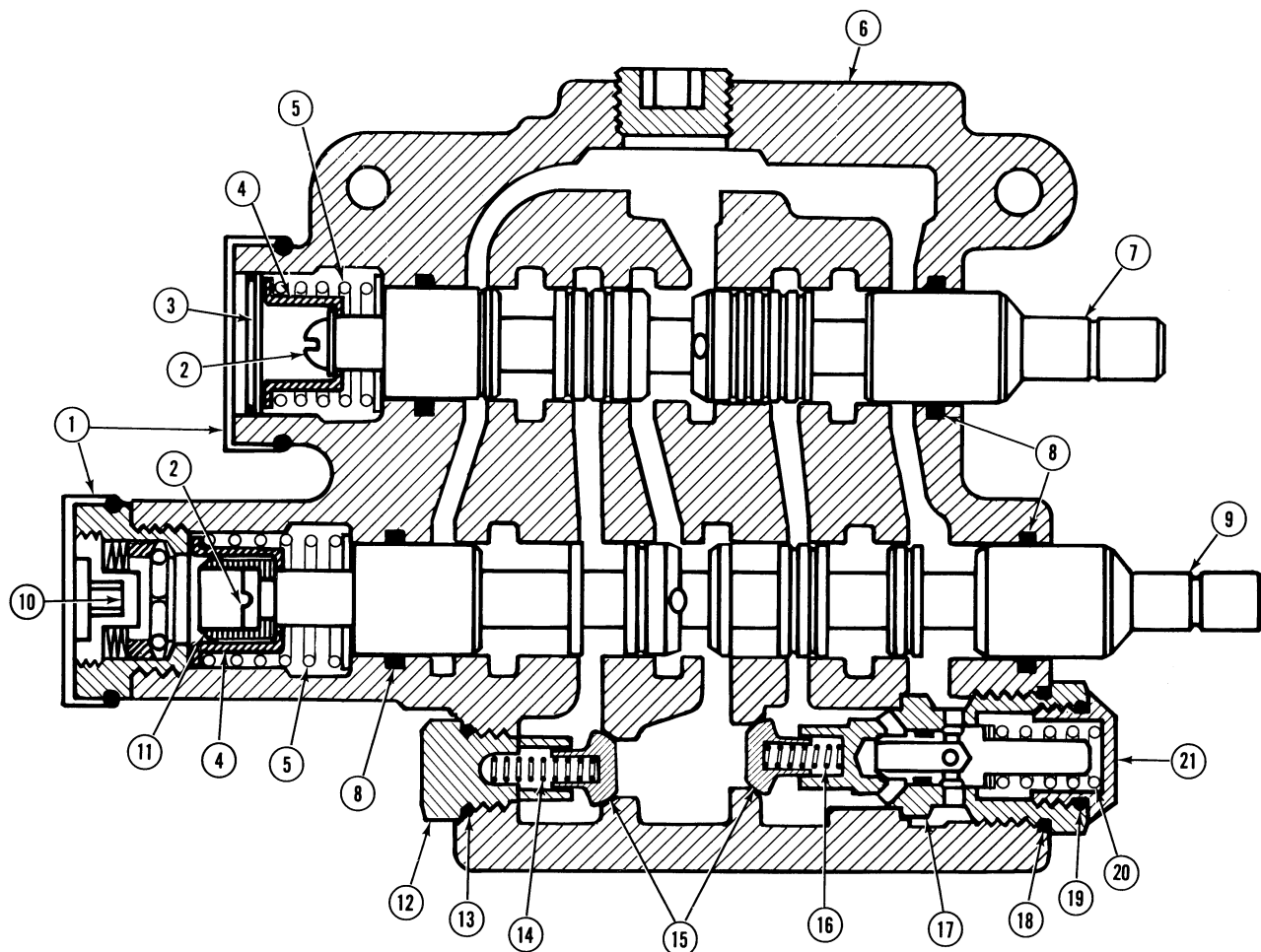
COMPONENT OVERHAUL

HYDRAULIC PUMP

A. Removal

1. Actuate the loader control lever to relieve hydraulic system pressure.
2. Drain the hydraulic reservoir by removing the drain plug from the bottom of the left loader frame post.
3. Remove the grill guard (1), Figure 23, from the front of the loader frame.
4. Remove the tractor grill (2), Figure 23.
5. Remove the hydraulic pump baffle cover plate (3), Figure 23.
6. Clean the hydraulic pump and tube connections with a suitable solvent and blow dry with compressed air not to exceed 30 psi (2.1 bar).
7. Loosen the two hose clamps (1), Figure 24, on the pump inlet line and slide the rubber hose back over the tube.

COMPONENT OVERHAUL



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Figure 33
Control Valve Cutaway

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> 1. Rubber Spool End Caps 2. Centering Spring Retaining Screws 3. Snap Ring and End Cap 4. Centering Spring Collars 5. Spool Centering Springs | <ul style="list-style-type: none"> 6. Control Valve Body 7. Bucket Spool 8. Spool Seals 9. Lift Spool 10. Float Detent Assembly 11. Detent Sleeve 12. Check Valve Plug 13. O-Ring 14. Check Valve Spring | <ul style="list-style-type: none"> 15. Check Valve Poppets 16. Check Valve Spring 17. System Relief Valve Body 18. O-Ring 19. O-Ring 20. Relief Valve Spring 21. Relief Valve Cap |
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