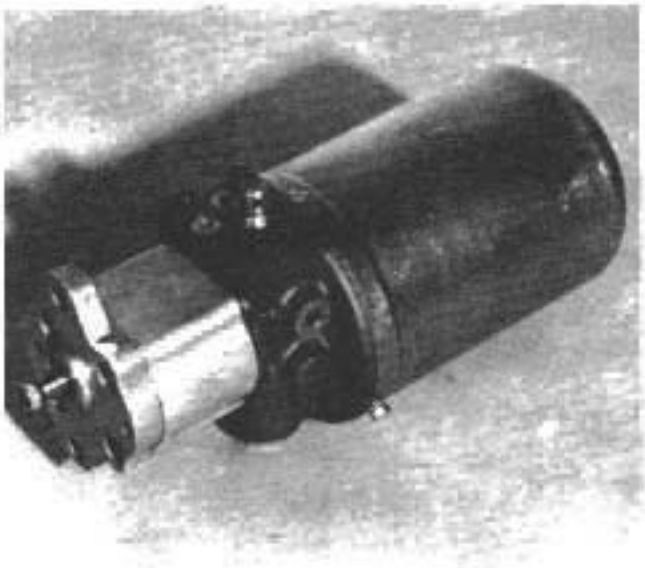
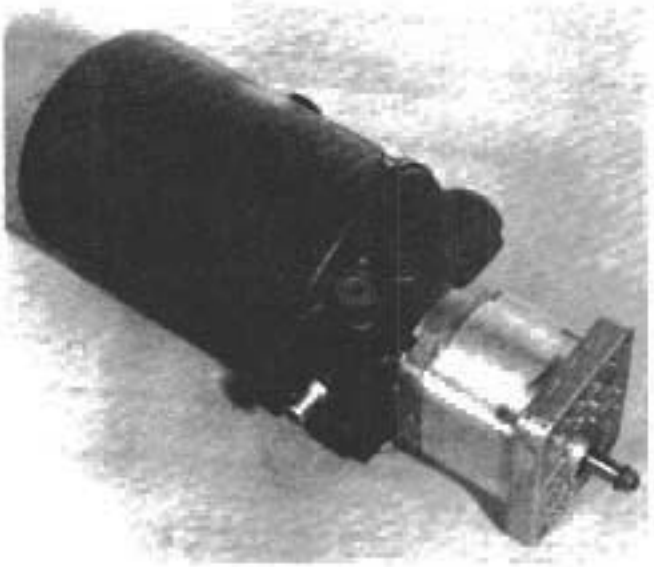
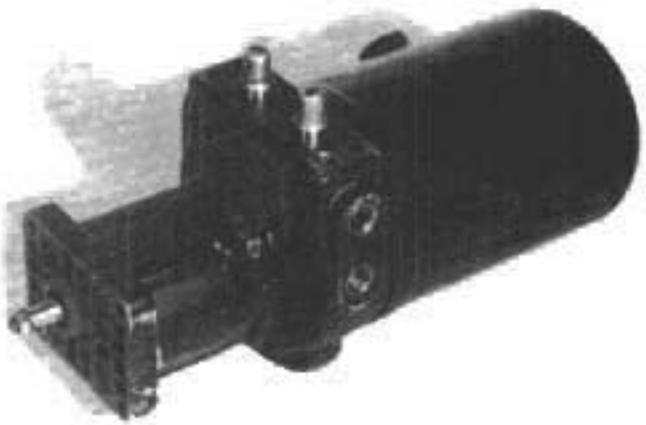


D-250 HYDRAULIC UNIT REPAIR MANUAL





HYDRAULIC UNIT AND PARTS IDENTIFICATION

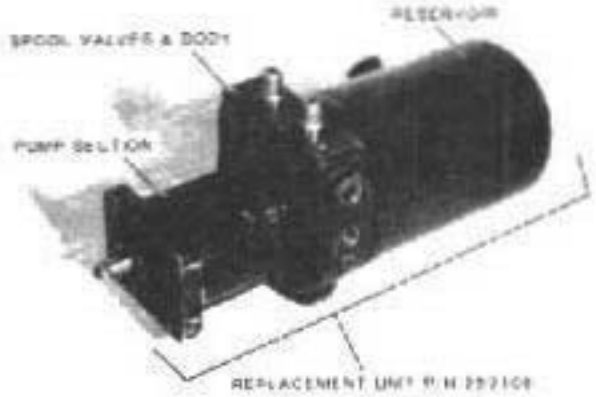


FIG. 1. Dual Hydraulic Unit -
VIN 81 & 91-20RG01

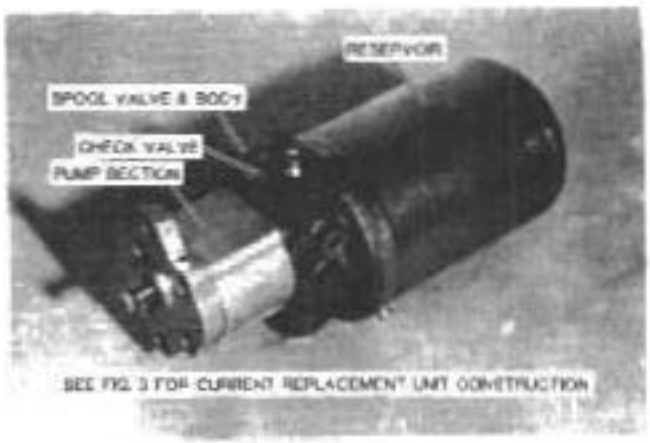


FIG. 2. Single Hydraulic Unit -
Original Equipment, VIN 61-20RG01

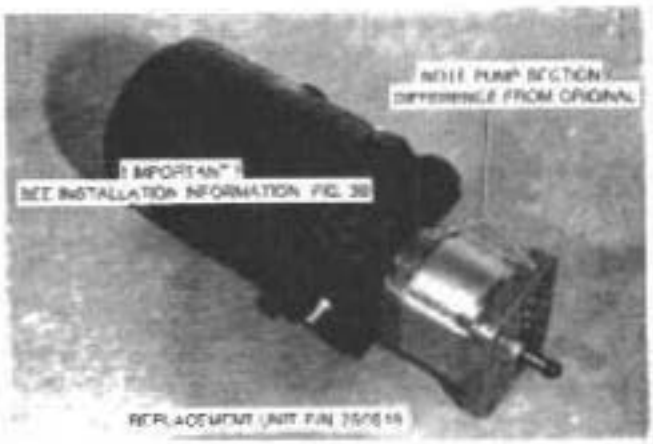


FIG. 3A. Replacement Single Hydraulic
Unit, VIN 61-20RG01

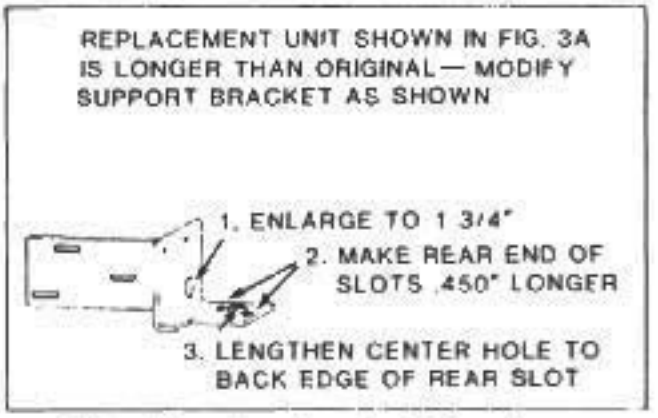


FIG. 3B. Bracket Modification

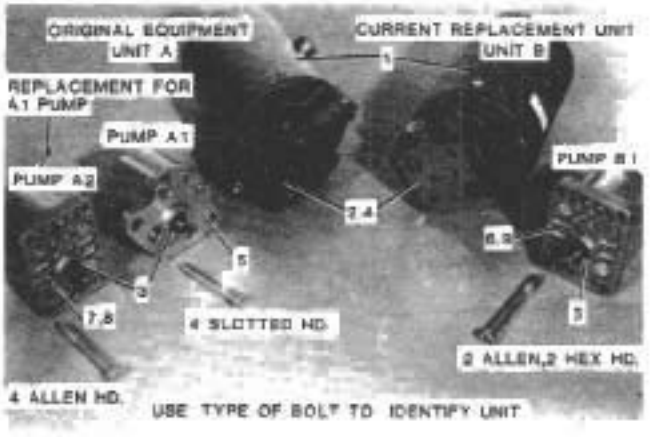


FIG. 4. Single Hydraulic Unit Repair Parts

Ref. No.	P/N	Description	Used On (Fig. 4)
1	252321	Filter (Inside Reservoir)*	ALL
2	252316	Reservoir/Valve Seal Set *	ALL
3	252322	Pump Shaft Seal*	ALL
4	252317	Check Valve Repair Kit*	ALL
5	252318	Pump Section Seal Set*	PUMP A1
6	252324	Pump Section Seal Set*	PUMP B1
7	See Note	Pump Section Seal Set*	PUMP A2
8	252319	Pump Section Complete**	UNIT A
9	252325	Pump Section Complete***	UNIT B

* Required for complete overhaul.
** Also order seal set 252316, 252318.
*** Also order seal set 252326.

NOTE - Service this pump with one each 252318 & 252324. See Fig. 12 for location of unavailable O-ring.

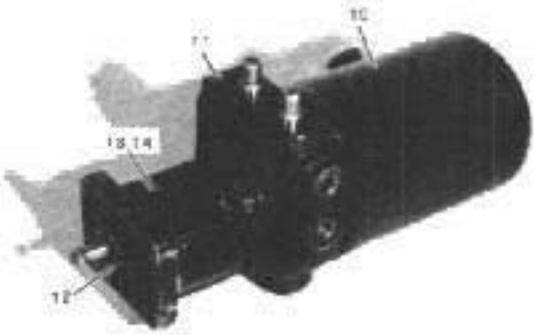


FIG. 5. Dual Hydraulic Unit Repair Parts

Ref. No.	P/N	Description
10	252321	Filter (Inside Reservoir)*
11	252326	Reservoir/Valve Seal Set*
12	252322	Pump Shaft Seal*
13	252324	Pump Section Seal Set*
14	252325	Replacement Pump Section**

* Required for complete overhaul.
** Also order seal set 252326.

TROUBLESHOOTING

Unless the problem is obviously the hydraulic unit (oil leaks, noisy operation, etc.), follow this troubleshooting procedure to find the source of the problem.

1. Check oil supply and condition - Correct fluid is a straight 10 weight engine oil. Check the oil level and observe the condition of the oil for signs of overheating and contamination.

2. Inspect the lift cylinder, hoses and lift linkage. Check for oil leaks, kinked hoses or mechanical problems that could prevent proper lift system operation.

3. Test operate the system. If the reported problem is that an attachment will not remain in the raised position once the lift control is released, the problem can be due to a lift cylinder with an internal leak, leaking hoses, leaking hydraulic unit spool valve, or leaking check valve (61-20RG01 only). The lift cylinder can be checked by raising an attachment and sealing off the hydraulic hose or hoses connected to it. The cylinder is leaking internally if the attachment does not remain in the raised position. The valve section of the hydraulic unit is leaking if the lift cylinder and hydraulic lines are OK.

4. When the lift system does not operate at all, measure system pressure (Requires metric fittings). Operating pressure is 2100 PSI. If measurement is not possible, seal off a pressure hose and operate the lift control. If the pump begins to "load" when the handle is operated, indicating the pump is pressurizing the hose, the lift cylinder is faulty.

5. If the lift system operates very slowly or not at all, and the lift cylinder is OK, a clogged oil filter, damaged or leaking pump section, or leaking valve section are possible causes.

General

Unless the problem is obvious, the first item to check is the oil filter. The condition of the filter will give an indication of what to expect inside the unit. The filter is located inside the hydraulic unit reservoir, which can be removed while the unit is still installed in the tractor (Fig. 6 or 7). The reservoir is filled with oil - place a pan underneath it. Carefully remove the reservoir by tapping on opposite sides with a mallet. Do not pry it off.

FIG. 6. Single Hydraulic Unit

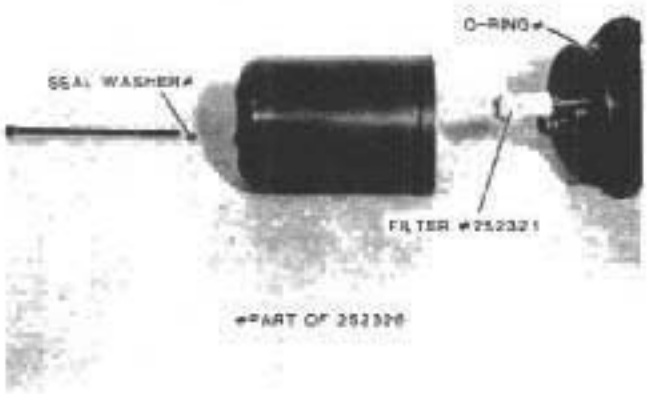


FIG. 7. Dual Hydraulic Unit

Inspect the filter. If it is clean and in good condition, suspect an internal leak or mechanical problem. If it is clogged with dirt but has not torn open, clean the filter and reinstall it. Reinstall the reservoir and refill the system with oil. Test operate the system. If it now operates properly, replace the oil filter and reservoir O-ring with new parts (Drain and flush the entire system if the oil is dirty).

If the filter is clogged and has torn open, contaminants have entered the pump and valve section. A complete tear down, inspection and cleaning is required. It is likely the pump section will show damage from the contamination and require replacement. If the valve body or spool valve is damaged, the entire hydraulic unit must be replaced.

Front Seal Replacement (All Pumps)

The hydraulic unit does not have to be removed to replace the front seal. When a seal puller is used, no disassembly other than the snap ring in front of the seal is required.

When the pump section is removed for front seal replacement, a pump section seal set and reservoir/valve seal set are also necessary, in order to have all the O-rings that will be needed.

Mark all pump castings and the valve body to assure assembling parts in their original positions. If the pump section is secured to the valve body with slotted screws (A1, Fig. 4) use an impact driver or a correct-size screwdriver to break the screws loose. Use of under-size tools will probably result in damaged screw heads, preventing their removal.

If the pump is removed, use new O-rings wherever a joint has been broken.

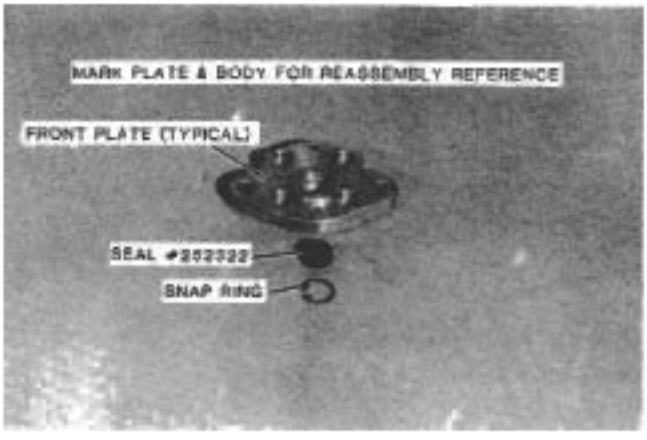


FIG. 8. Front Seal Replacement

Pump Section Overhaul (Pump A1, Fig. 4)

Disassembly/assembly information for the pump labeled "A1" in Fig. 4 is given in the following photos.

- Mark all castings for reassembly reference.
- All parts must be reassembled in original positions.
- Clean and lightly oil all parts before reassembly.
- Parts other than O-rings and seals are not available.

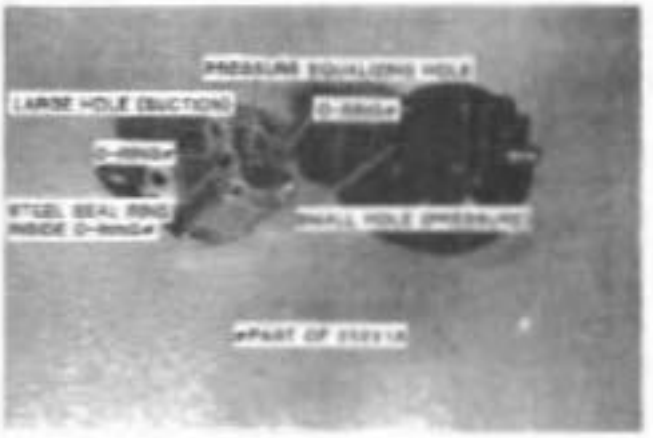


FIG. 9. Pump A1 & Valve Body

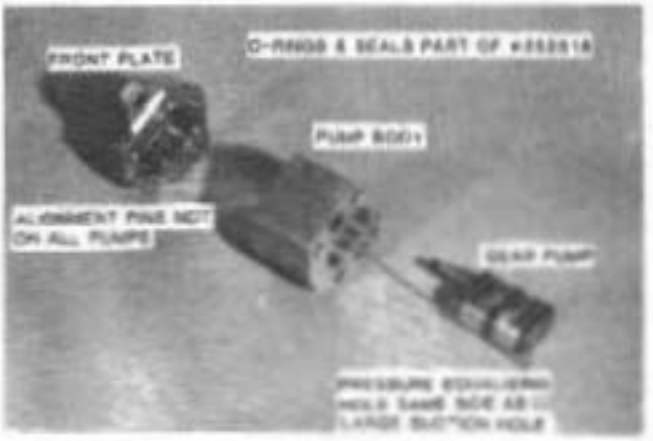


FIG. 10. Pump A1 Components

FIG. 11. Pump A1 Disassembled

Pump Section Overhaul (Pump A2, Fig. 4)

Disassembly/assembly information for the service replacement pump labeled "A2" in Fig. 4 is given in the following photos.

- Mark all castings for reassembly reference.
- All parts must be reassembled in original positions.
- Clean and lightly oil all parts before reassembly.
- Parts other than O-rings and seals are not available.

FIG. 12. Pump A2 Components

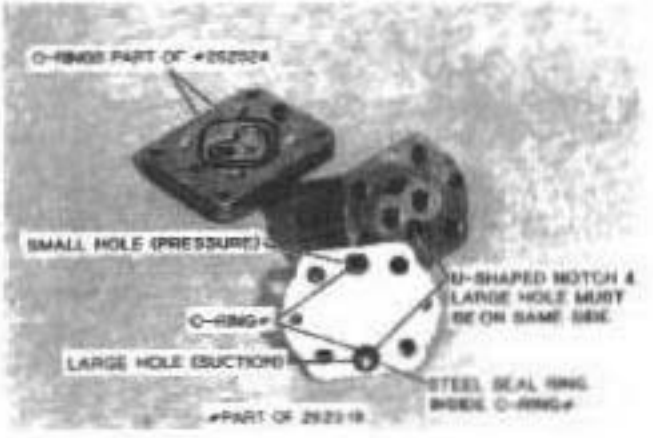


FIG. 13. Pump A2 Assembly Relationships

Pump Section Overhaul (Pump B1, Fig. 4 & Dual Hydraulic Pump, Fig. 5)

The pump section labeled "B1" in Fig. 4 and the pump section for the dual hydraulic unit are identical. Disassembly/assembly information is given in the following photos.

- Mark all castings for reassembly reference.
- All parts must be reassembled in original positions.
- Clean and lightly oil all parts before reassembly.
- Parts other than O-rings and seals are not available.

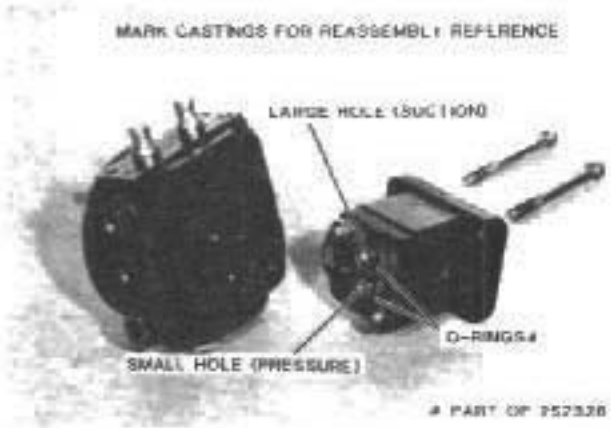


FIG. 14. Pump B1/Dual Hydraulic Pump & Valve Body (Dual Hydraulic Shown)

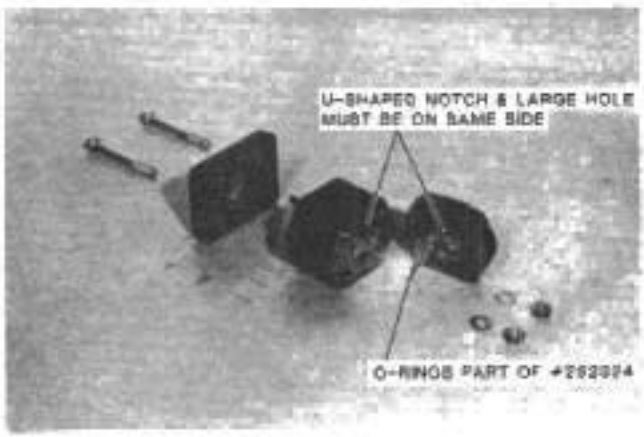


FIG. 15. Pump B1/Dual Hydraulic Pump Components

FIG. 16. Pump B1/Dual Hydraulic Pump Disassembled

Valve Body Overhaul - Single Hydraulic Unit

Disassembly/assembly information for servicing the single hydraulic valve body is given in the following photos.

- Clean and lightly oil all parts before reassembly.
- Parts other than O-rings and seals are not available.

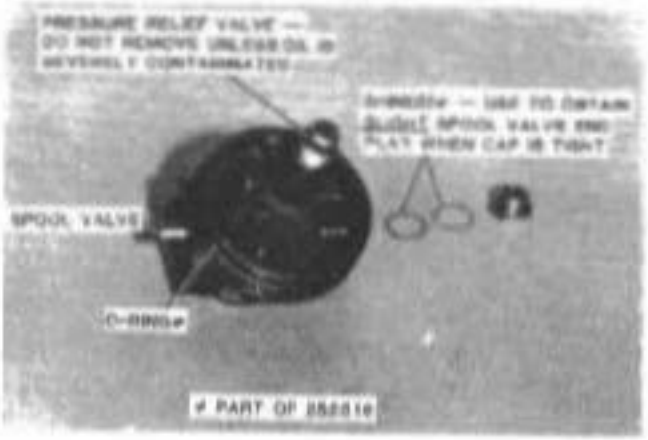


FIG. 17. Single Hydraulic Valve Body Assembly

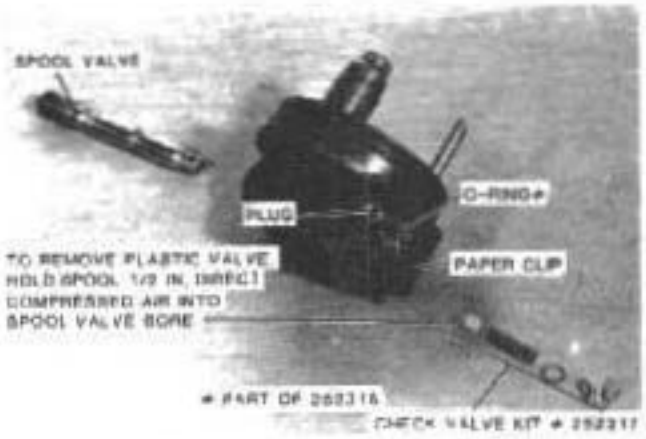


FIG. 18. Spool Valve & Check Valve Removed

FIG. 19. Pressure Relief Valve

Valve Body Overhaul - Dual Hydraulic Unit

Disassembly/assembly information for servicing the dual hydraulic valve body is given in the following photos.

- Clean and lightly oil all parts before reassembly.
- Parts other than O-rings and seals are not available.

FIG. 20. Dual Hydraulic Valve Body Assembly

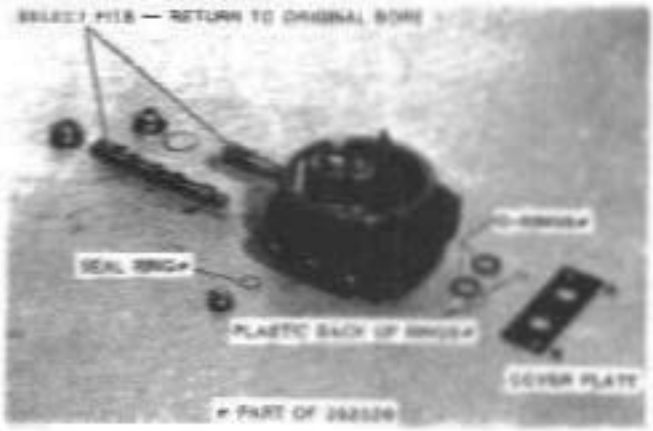


FIG. 21. Dual Hydraulic Spool Valves & Seals

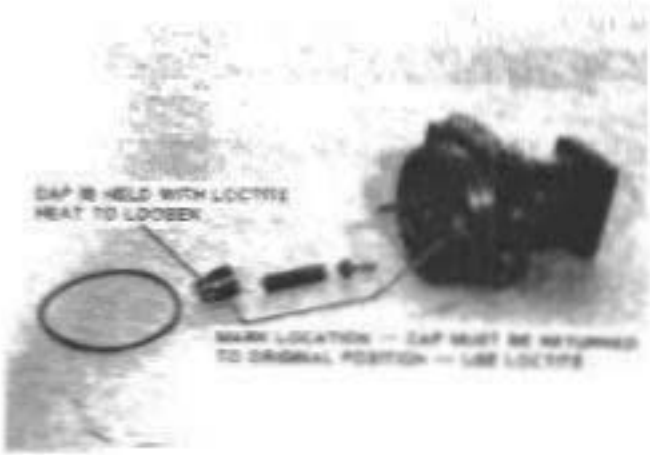


FIG. 22. Dual Hydraulic Pressure Relief Valve

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WHEEL HORSE
lawn & garden tractors

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