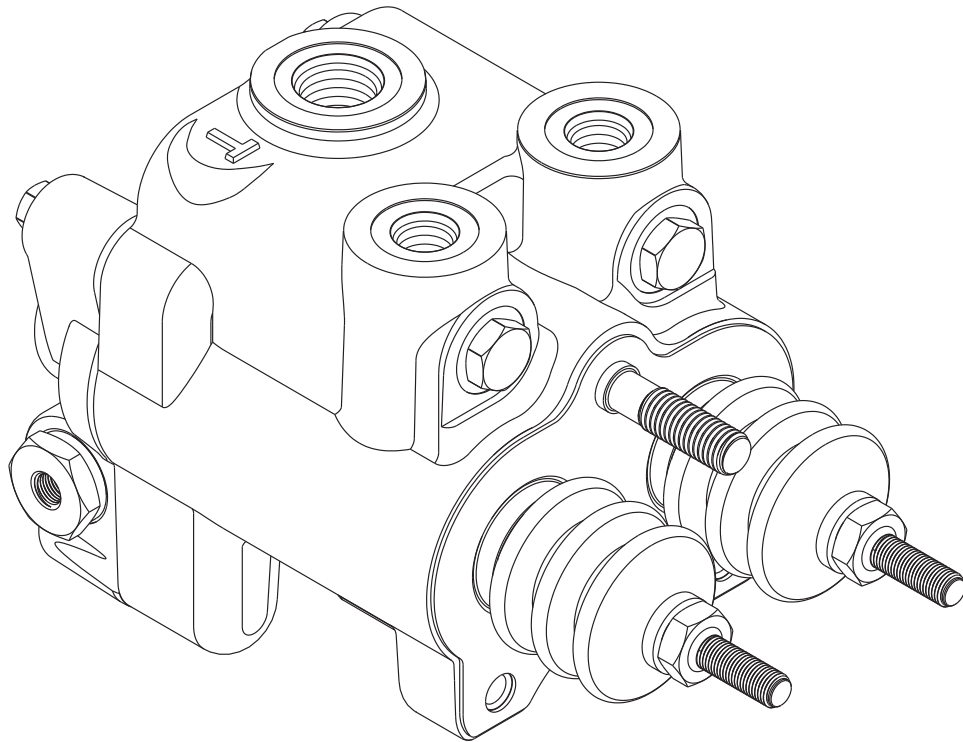


John Deere DUAL BRAKE VALVE Service Instructions



John Deere Part Number AT471156, AT540895

REFER TO MACHINE MANUFACTURE PROCEDURES AND RECOMMENDATIONS BEFORE REMOVING VALVE FROM MACHINE. PREVENT CONTAMINATION TO THE HYDRAULIC SYSTEM AND VALVE BY THOROUGHLY CLEANING THE VALVE AND SURROUNDING AREA OF ALL DIRT, GREASE, OIL, ETC. BEFORE REMOVING VALVE FROM MACHINE. AFTER REMOVAL, CAP HOSE AND LINE ENDS TO PREVENT ENTRY OF DIRT INTO THE HYDRAULIC SYSTEM.

NOTE

For reassembly purposes, arrange the parts in the order in which they are removed while disassembling this valve.

DISASSEMBLY

(Refer to Figure 1)

1. Remove valve assembly from machine by disconnecting necessary fluid lines. Remove mounting bolts and drain fluid from assembly.
2. Remove push rods (1) from boots (4).
3. Remove cap screw (2), plate (3), and boots (4) from housing (5).
4. Housings (5 & 22) are under spring tension. To separate housing halves, position mounting flange on housing (5) face down and clamp in a vise. Apply downward pressure on housing (22) while evenly loosening four cap screws (24). It may be necessary to twist on housing (22) to break the two sections apart. Remove four cap screws (24) and four washers (23) while carefully separating housing halves. **NOTE: Be careful not to damage pistons (7).**
5. Remove springs (8), piston assemblies (9), springs (19), retainers (20), and o-rings (21).
6. Remove retaining rings (16), retainers (15), springs (14), balls (13), and o-rings (12) from pistons (11).
7. Remove piston rings (10), seal rings (18), and o-rings (17) from pistons (11).
8. Remove pistons (7) from housing (5). Remove cups (6) from pistons (7). **NOTE: Be careful not to scratch or mar pistons (7) or housing (5) bores.**
9. Remove plugs (31) and balls (33) from housing (5). Remove o-rings (32) from plugs (31).
10. Remove plugs (25), springs (27), and washers (28) from housing (22). Remove o-rings (26) from plugs (25).
11. Use a wooden dowel to carefully remove spool (30) from housing (22). Remove o-ring (29) from spool (30). **NOTE: Be careful not to scratch or mar spool (30) or housing (5) bore.**

ASSEMBLY

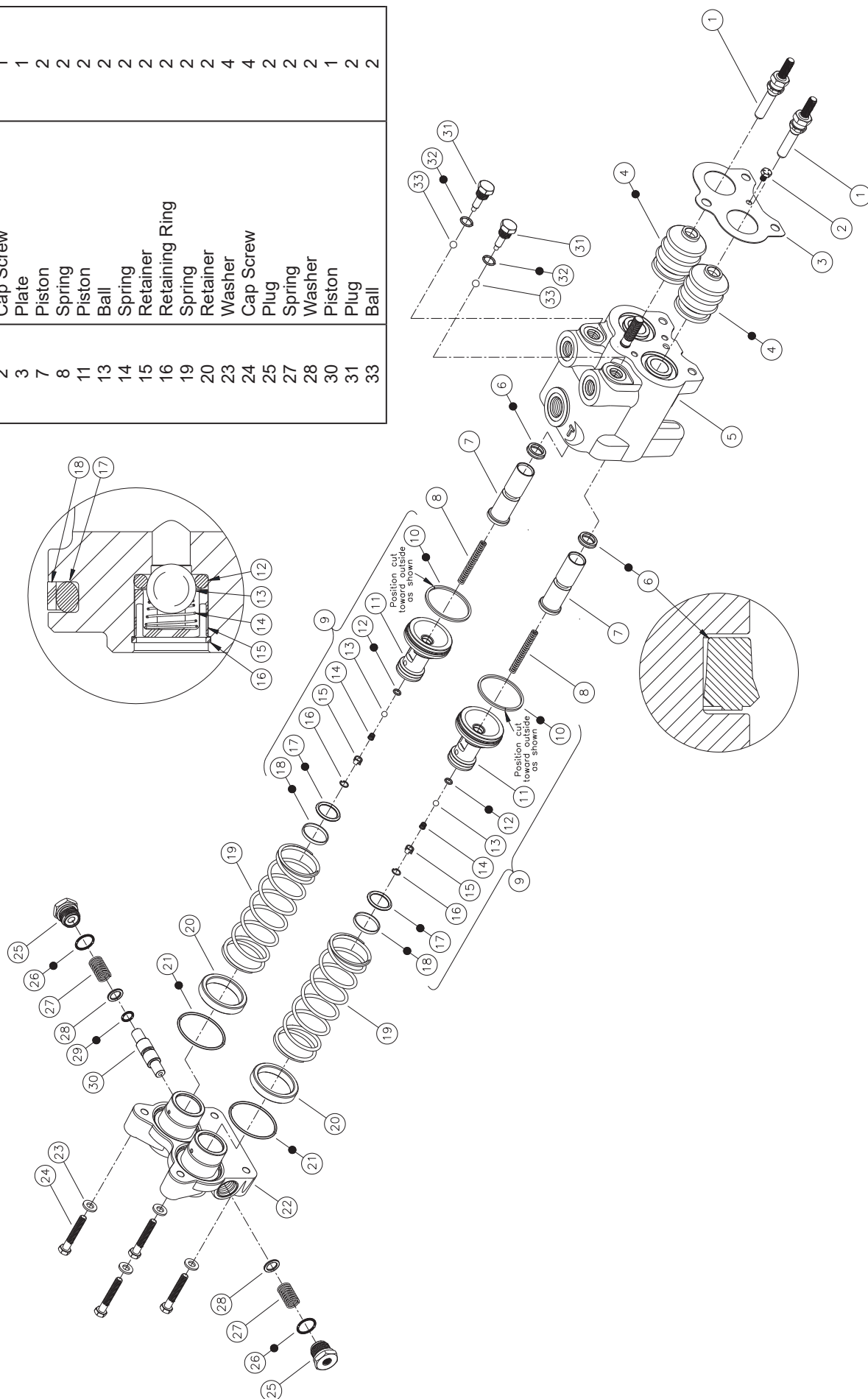
(Refer to Figure 1)

LUBRICATE ALL RUBBER COMPONENTS IN THE SEAL KIT WITH CLEAN TYPE FLUID USED IN THE SYSTEM.

1. Thoroughly clean housings and all parts with clean solvent and allow to dry before proceeding. Lubricate all parts and housing bores with clean type fluid used in the system.
2. Install new o-ring (29) on spool (30). Carefully install spool (30) in housing (22). **NOTE: Be careful not to scratch or mar spool (30) or housing (22) bore.**
3. Install new o-rings (26) on plugs (25). Install washers (28), springs (27), and plugs (25) in housing (22). Torque plugs (25) 52.2-61.0 N·m (40-45 lb·ft).
4. Install new o-rings (32) on plugs (31). Install balls (33) and plugs (31) in housing (5). Torque plugs (31) 52.2-61.0 N·m (40-45 lb·ft).
5. Install new cups (6) on pistons (7). Note direction of cups (6). See Figure 1a. Install pistons (7) in housing (5). **NOTE: Be careful not to scratch or mar pistons (7) or housing (5) bores.**
6. Install new o-rings (12), balls (13), springs (14), retainers (15), and retaining rings (16) into pistons (11). Note direction of springs (14), small diameter end of spring faces ball (13). See Figure 1b.
7. Install new o-rings (17), and new piston rings (10) on pistons (11). Be sure the cut on piston rings (10) are positioned to the outside as indicated in Figure 1 when installed into housing (5) bores.
8. Install new seal rings (18) on pistons (11) groove over top o-rings (17). Seal rings (18) will stretch and become oversized when being installed. These seal rings must be resized before final assembly. To resize seal rings (18), lubricate seal rings (18), piston assemblies (9), and housing (22) bores with clean type fluid used in the system. Carefully insert each piston assembly (9) in the proper housing bore being careful not to extrude seal ring (18). Allow each piston (11) assembly to remain in the housing bores for at least 10 minutes. Proceed to the next step while waiting.
9. Place springs (8) into pistons (7).
10. Install new o-rings (21) and retainers (20) on housing (22).
11. Steps 11 & 12 must be done quickly so seals rings (18) remain the proper size and form. Remove piston assemblies (9) from housing (22) and install in housing (5) bores. Be sure the cut on piston rings (10) are positioned to the outside as indicated in Figure 1 when installed into housing (5) bores.
12. Install springs (19). Place housing (22) over springs (19) and align housing (22) bores with pistons (11). Be careful not to damage seal rings (18). While applying downward pressure on housing (22), install two cap screws (24) and washers (23) diagonal from each other and finger tighten to hold the assembly together.
13. Install the remaining two cap screws (24) and washers (23). Evenly torque the four cap screws 24.4-29.8 N·m (18-22 lb·ft).
14. Remove valve assembly from vise. Install new boots (4), plate (3), and cap screw (2) on housing (5). Torque cap screw (2) 9.5-15.0 N·m (7-11 lb·ft).
15. Properly reinstall valve assembly on machine. Be sure all lines are properly connected and do not leak.

TABLE 1 (contact dealer for replacement)

Item Number	Description	Quantity Per Valve
1	Push Rod	2
2	Cap Screw	1
3	Plate	1
7	Piston	2
8	Spring	2
11	Piston	2
13	Ball	2
14	Spring	2
15	Retainer	2
16	Retaining Ring	2
19	Spring	2
20	Retainer	2
23	Washer	4
24	Cap Screw	4
25	Plug	2
27	Spring	2
28	Washer	2
30	Piston	1
31	Plug	2
33	Ball	2



BLEEDING

Primary Method

- a. Use a clear hose of adequate length to run fluid from the axle bleed port into a container. Clear hose will allow the best visibility to see air bubbles being bled. Attach a female hydraulic quick-disconnect to one end of the hose.
- b. Start the engine, run at low idle, and unlink the pedals.
- c. Place one end of the hose into the container and snap the female disconnect onto the LH axle bleed port. Allow fluid to run until it is clear and free of air. Disconnect the hose from the bleed port.
- d. Repeat step c for the RH axle bleed port.
- e. Enter the cab and wait for two minutes to allow any remaining air to naturally percolate upward and out of the axle and brake work port plumbing.
- f. Fully depress the RH pedal, release, then wait two seconds for the master cylinder to depressurize and air to escape.
- g. Repeat step f for the LH pedal.
- h. Repeat steps f and g until both pedals are firm.
- i. A well-bled single pedal must depress less than 4.5" when applied.
- j. If pedal is depressing more than 4.5" after 10 pumps on each pedal, wait for one minute to allow additional air to escape, and then resume alternating pedal pumping process of step f and g.
- k. If pedal is depressing more than 4.5" after 20 pumps on each pedal, repeat the power bleed steps c and d, then restart the bleed process at step e.
- l. Check and refill the transmission fluid level after the bleeding procedure is completed.

Alternate Method

- a. Start the engine, run at low idle, and unlink the pedals.
- b. Wait for two minutes to allow any remaining air to naturally percolate upward and out of the axle and brake work port plumbing.
- c. Fully depress the RH pedal, release, then wait two seconds for the master cylinder to depressurize and air to escape.
- d. Repeat step c for the LH pedal.
- e. Repeat steps c and d until both pedals are firm.
- f. A well-bled single pedal must depress less than 4.5" when applied.
- g. If pedals are depressing more than 4.5" after 10 pumps on each pedal, wait for one minute to allow additional air to escape, and then resume alternating pedal pumping process of step c and d.