

Dual ACCUMULATOR CHARGING VALVE with Relief Valve

Product Explanation, Operating Information, and Service Instructions

PRODUCT EXPLANATION

The accumulator charging valve is designed for installation in an open center hydraulic system. It supplies oil on demand to the accumulators from an open center circuit and isolates the pressure at each of its accumulator ports from one another. Accumulator charging is accomplished at a preset rate (GPM) and is relatively constant within the preset pressure limits.

The excess flow at the tank port is routed directly to the reservoir with no restriction. Some models have separate tank and flow through ports to get oil back to the reservoir.

The accumulator charging valve incorporates an internal relief valve to limit the maximum pressure in the hydraulic system at machine startup.

The accumulator charging flow rate, upper and lower accumulator pressure limits and relief valve setting are set at the time of manufacture.

OPERATING INFORMATION

End user must provide proper maintenance of valve, should it become inoperable, by replacing the valve or servicing it with the proper repair kit. See TABLE 1 for on page 3 for the proper repair kit number. Observe service instruction procedures on following pages. See Warnings A, B, C, and D below.

IMPORTANT INFORMATION

A **⚠ WARNING**

Due to allowable operating temperature of accumulator charging valve avoid contact or burn injury may occur.

C **⚠ WARNING**

Relief valve is preset at the factory. DO NOT READJUST or system damage or failure may occur.

B **⚠ WARNING**

Be sure system energy is relieved from accumulator charging valve before removing from machine. See machine operating instructions for procedures to relieve system energy.

D **⚠ WARNING**

Do not exceed the high limit pressure setting indicated in TABLE 1 or system damage or failure may occur.

NOTE

Locate the part number on the accumulator charging valve and compare it to the part number in TABLE 1. Be sure you have the proper service instructions and repair kit.

SERVICE INSTRUCTIONS

⚠ WARNING

Be sure system energy is relieved from accumulator charging valve before removing from machine. See machine operating instructions for procedures to relieve system energy.

Disassembly

(Refer to Figure 1)

1. Remove end plug (1) from housing (47). Remove o-ring (2) from end plug (1). **NOTE: End plug is under spring tension.**
2. Remove shim(s) (3) and springs (4 & 5) from housing (47). Note the number of shim(s) removed for reassembly purposes. **NOTE: Not all models use spring (5) or shim(s) (3).**
3. Remove plug (10) from housing (47) and remove o-ring (9) from plug (10).
4. Using a 6.35 mm (0.25 in) diameter wooden or plastic dowel, carefully push relief valve (7) and stop (6) from bore out plug (1) side of housing (47). **NOTE: Do not tamper with relief valve setting. Be careful not to scratch or mar relief valve or housing bore.**

⚠ WARNING

Relief valve is preset at the factory. DO NOT READJUST or system damage or failure may occur.

5. Remove o-ring (8) from relief valve (7).
6. Loosen nut (11) and remove screw assembly (12) from housing (47). Remove o-ring (13) from screw assembly.
7. Remove spring (14), poppet (15), seat (16), o-ring (17), washer (18) and washers (19) from housing (47). Be careful not to mar inside surfaces of seat (16).
8. Remove end plug (20) from housing and remove o-ring (21) from end plug (20).
9. Remove spring (22), poppet (23), sleeve (25), poppet (27) and spring (28). Remove o-rings (24 & 26) from sleeve. **NOTE: Be careful not to scratch or mar housing bore or sleeve.**
10. Remove plug (44) from housing and remove o-ring (43) from plug. **NOTE: Not all models use plug (44) and o-ring (43).**
11. BEFORE moving screw (41), ACCURATELY MEASURE ITS DEPTH from the end of housing and record for reassembly purposes. Remove screw (41) from housing.
12. Remove spring (40), retainer (39) and ball (38). Be sure to keep ball (38) separate from ball (33) for reassembly purposes.
13. Remove pin (42) from screw (41) using a drive pin punch. Be careful not to damage screw threads.
14. Remove plug (29) from housing and remove o-ring (30) from plug (29).
15. Remove spring (31), stop (32) and ball (33) from housing.
16. Using a 6.35 mm (0.25 in) diameter wooden or plastic dowel, carefully push insert (35) and spool (34) from bore out plug (29) side of housing (47). **NOTE: Be careful not to scratch or mar valve seats on insert (35).**
17. Remove spool (34) from insert (35). Remove o-rings (36 & 37) from insert (35).
18. Remove plug (45) from housing and remove o-ring (46) from plug (45).

Assembly

(Refer to Figure 1)

NOTE

Observe torque specifications as indicated in assembly procedures or system damage or failure may occur.

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

1. Thoroughly clean housing 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 (9) on plug (10) and install plug (10) in housing (47). Torque plug (10) 56.2-61.0 N·m (40-45 lb·ft).
3. Install new o-ring (8) on relief valve (7) and carefully install relief valve (7) into housing (47). Note direction of relief valve. **NOTE: Do not tamper with relief valve setting.**

⚠ WARNING

Relief valve is preset at the factory. DO NOT READJUST or system damage or failure may occur.

4. Install stop (6) and springs (5 & 4) into housing (47). **NOTE: Not all models use spring (5).**
5. Install o-ring (2) on end plug (1). Install shim(s) (3) into end plug (1). Be sure to install the same number of shim(s) as were removed during disassembly. **NOTE: Not all models use shim(s) (3).**
6. Carefully install end plug (1) into housing (47). Torque 95.0-101.7 N·m (70-75 lb·ft).
7. Install washers (19), washer (18) and new o-ring (17) into housing (47). Be sure o-ring properly seats against washer (18).
8. Install seat (16), new poppet (15) and spring (14) into housing (47).
9. Install new o-ring (13) on screw assembly (12) and install screw assembly (12) into housing (47). Torque screw assembly 24.4-29.8 N·m (18-22 lb·ft). Torque nut (11) 43.3-51.5 N·m (32-38 lb·ft).
10. Install new o-rings (24 & 26) on sleeve (25). Install spring (28), new poppet (27), sleeve (25), new poppet (23), and spring (22) into housing (47).
11. Install new o-ring (21) on plug (20) and install plug into housing (47). Torque plug 95.0-101.7 N·m (70-75 lb·ft).
12. Install new o-rings (36 & 37) on insert (35).
13. Install spool (34) into insert (35). Note direction of insert (35) and spool (34). Carefully install insert (35) into bore from plug (29) side of housing (47).
14. Install new o-ring (30) on plug (29).
15. Install ball (33), stop (32), spring (31) and plug (29) into housing (47). Torque plug (29) 47.5-54.2 N·m (35-40 lb·ft).
16. Position housing so plug (44) housing bore faces up. Drop ball (38), retainer (39), and spring (40) into housing.
17. Insert new pin (42) in screw (41). Be sure pin (42) is properly aligned and evenly driven into screw (41). Do not damage screw threads.
18. Thread screw (41) into housing (47) TO THE DEPTH RECORDED during disassembly.
19. Install new o-ring (43) on plug (44) and install plug (44) into housing (47). Torque plug 47.5-54.2 N·m (35-40 lb·ft). **NOTE: Not all models use plug (44) and o-ring (43).**
20. Install new o-ring (46) on plug (45) and install plug (46) into housing (47). Torque plug 24.4-29.8 N·m (18-22 lb·ft).

See page 4 for Accumulator Charging Valve Adjustment.

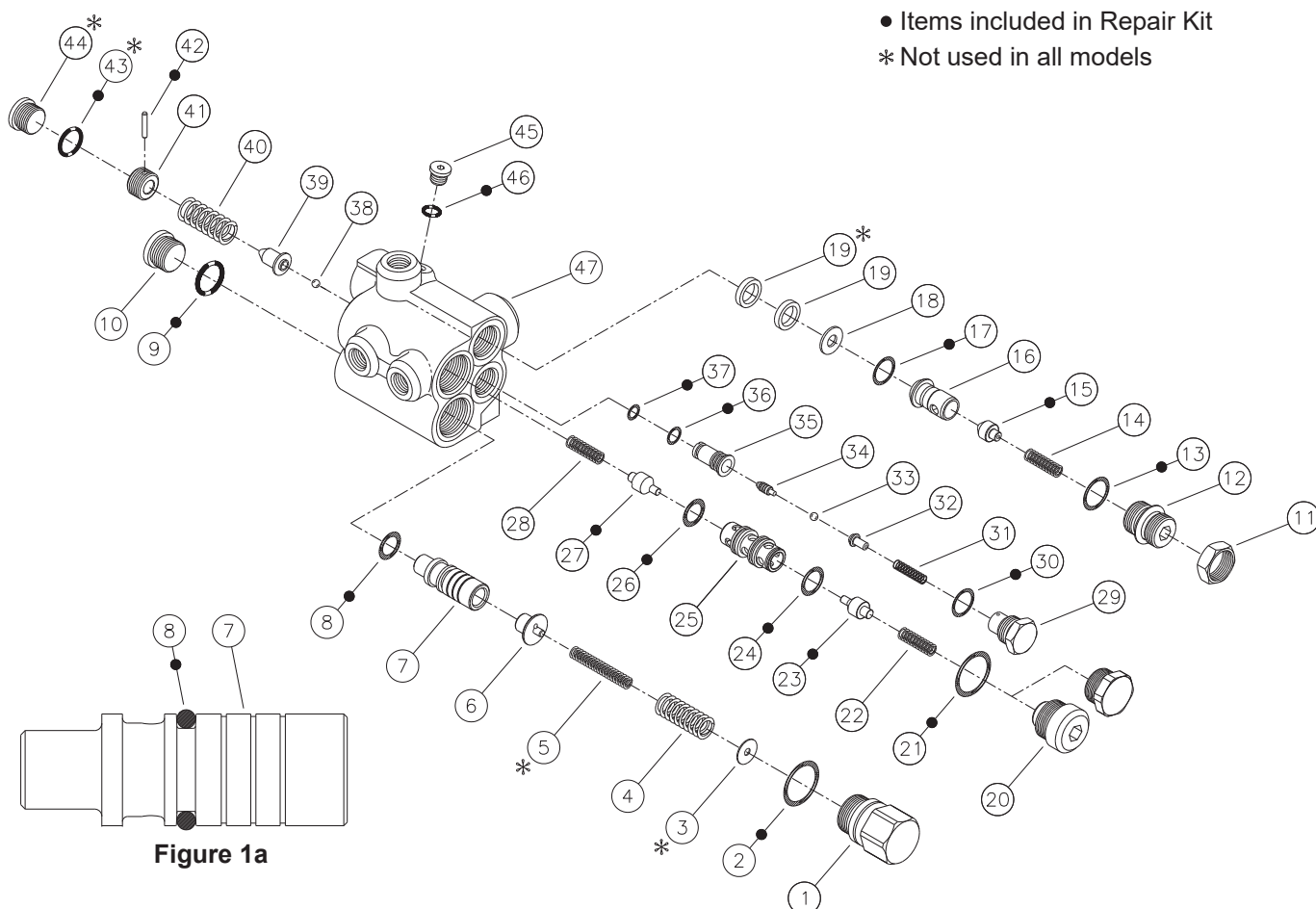


FIGURE 1

TABLE 1 (Specifications)

Caterpillar Part Number	Repair Kit Number	Accumulator High Limit (cut out)		Accumulator Low Limit (cut in)	
		bar	(PSI)	bar	(PSI)
134-5106	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
138-6875	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
135-4391	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
138-6157	139-3285	94.8 ± 3.4	(1375 ± 50)	67.2 ± 3.4	(975 ± 50)
172-6144	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
202-0202	218-2271	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
229-9984	218-2271	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
235-0253	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
235-0254	139-3285	152.4 ± 2.4	(2210 ± 35)	124.1 ± 1.7	(1800 ± 25)
235-0255	218-2271	152.4 ± 2.4	(2210 ± 35)	124.1 ± 1.7	(1800 ± 25)
244-3183	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
256-0247	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
263-7303	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
289-9972	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
589-7097	255-4490	170.0 ± 3.4	(2465 ± 50)	137.5 ± 3.4	(1994 ± 50)
628-8379	218-2271	152.4 ± 2.4	(2210 ± 35)	124.1 ± 1.7	(1800 ± 25)
628-8383	139-3285	152.4 ± 2.4	(2210 ± 35)	124.1 ± 1.7	(1800 ± 25)
628-8386	139-3285	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)

Accumulator Charging Valve Adjustment

(Refer to Figure 1)

1. See machine servicing instructions to properly reinstall accumulator charging valve. Tee an accurate pressure gauge on an accumulator line.
2. Start pump and allow approximately one minute for charging to start (pressure in gauge will read accumulator precharge plus). If valve does not begin to charge remove plug (44) and turn screw (41) in, stopping when gauge shows an increase in pressure. Check the high limit specifications (see TABLE 1) and adjust screw (41) until the high limit setting is met. Reinstall plug (44). This pressure can be checked correctly only if after each adjustment of screw (41)

the accumulator pressure is reduced below the low limit setting and the system recharges the accumulator pressure to its high limit. Repeat process until high pressure setting is accurately adjusted. **NOTE: Be sure to reinstall plug (44) before starting pump.**

WARNING

Do not exceed the high limit pressure setting indicated in TABLE 1 or system damage or failure may occur.

3. Torque plug (44) 47.5-54.2 N·m (35-40 lb·ft).