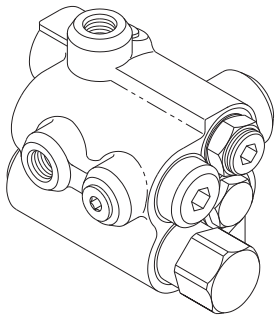

Single ACCUMULATOR CHARGING VALVE with Relief Valve

Product Explanation, Operating Information, and Service Instructions

PRODUCT EXPLANATION

The accumulator charging valve is designed for installation in an open center hydraulic system. The accumulator charging valve supplies oil on demand to the accumulator from the open center circuit. Accumulator charging is accomplished at a preset rate (GPM) and is relatively constant within the preset pressure limits. Excess flow is directed back to the hydraulic system reservoir.

The accumulator charging valve incorporates a full flow relief valve to limit the maximum pressure in the hydraulic system.

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 the valve, should it become inoperable, by replacing the valve or servicing it with the proper repair kit. See TABLE 1 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.

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.

C **⚠ WARNING**

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

D **⚠ WARNING**

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

NOTE

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

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 (42) and remove o-ring (2) from end plug (1). **NOTE: End plug (1) is under spring tension.**
2. Remove shim(s) (3) and springs (4 & 5) from housing (42). Note the number of shim(s) (3) removed for reassembly purposes.
3. Remove plug (10) from housing (42) 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) out plug (1) side of housing (42). **NOTE: Do not tamper with relief valve setting. Be careful not to scratch or mar relief valve (7) or housing (42) bore.**

⚠ WARNING

Relief valve (7) 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 (42). Remove o-ring (13) from screw assembly (12).
7. Remove spring (14), poppet (15), seat (16), o-ring (17), washer (18), and washers (19) from housing (42). Be careful not to mar inside surfaces of seat (16). **NOTE: Some models used a filter in this bore next to washer (18). Remove and discard this filter as it is no longer used.**
8. Remove end plug (20) from housing (42) and remove o-ring (21) from end plug (20).
9. Remove plug (37) from housing (42) and remove o-ring (36) from plug (37).
10. BEFORE moving screw (34), ACCURATELY MEASURE ITS DEPTH from the end of housing (42) bore and record for reassembly purposes. Remove screw (34) from housing (42).
11. Remove spring (33), retainer (32), and ball (31). Be sure to keep ball (31) separate from ball (26) for reassembly purposes.
12. Remove pin (35) from screw (34) using a drive pin punch. Be careful not to damage screw threads.
13. Remove plug (22) from housing (42) and remove o-ring (23) from plug (22).
14. Remove spring (24), stop (25), and ball (26) from housing (42).
15. Using a 6.35 mm (0.25 in) diameter wooden or plastic dowel, carefully push insert (28) and spool (27) out plug (22) side of housing (42). **NOTE: Be careful not to scratch or mar valve seats on insert (28).**
16. Remove spool (27) from insert (28). Remove o-rings (29 & 30) from insert (28).
17. Remove plug (40) from housing (42) and remove o-ring (41) from plug (42).
18. Remove plug (38) from housing (42) and remove o-ring (39) from plug (38).

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 wash housing and all parts with clean solvent and allow to dry before proceeding. Lubricate all rubber 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 (42). Torque plug (10) 54.2-61.0 N·m (40-45 lb·ft).
3. Install new o-ring (8) on relief valve (7) and carefully install relief valve (7) in housing (42). Note direction of relief valve (7).

⚠ WARNING

Relief valve (8) 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 (42).
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) (3) as were removed during disassembly.
6. Carefully install end plug (1) into housing (42) and torque 95.0-101.7 N·m (70-75 lb·ft).
7. Install two washers (19), washer (18), and new o-ring (17) into housing (42). Be sure o-ring properly seats against washer (18). **NOTE: Some models used a filter in this bore. Install washer (19) found in repair kit in place of filter.**
8. Install seat (16), new poppet (15), and spring (14) into housing (42).
9. Install new o-ring (13) on screw assembly (12) and install screw assembly (12) into housing (42). Torque screw assembly (12) 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-ring (21) on plug (20) and install plug into housing (42). Torque plug (20) 95.0-101.7 N·m (70-75 lb·ft).
11. Install new o-rings (29 & 30) on insert (28).
12. Install spool (27) into insert (28). Note direction of insert (28) and spool (27). Carefully install insert (28) into housing (42) bore from plug (22) side of housing (42).
13. Install new o-ring (23) on plug (22).
14. Install ball (26), stop (25), spring (24), and plug (22) into housing (42). Torque plug (22) 47.5-54.2 N·m (35-40 lb·ft).
15. Position housing (42) so plug (37) housing bore faces up. Drop ball (31), retainer (32), and spring (33) into housing (42).
16. Insert new pin (35) in screw (34). Be sure pin is properly aligned and evenly driven into screw (34). Do not damage screw threads.
17. Thread screw (34) into housing (42) TO THE DEPTH RECORDED during disassembly.
18. Install new o-ring (36) on plug (37) and install plug (37) in housing (42). Torque plug (37) 47.5-54.2 N·m (35-40 lb·ft).
19. Install new o-ring (41) on plug (40) and install plug (40) into housing (42). Torque plug (40) 13.6-19.0 N·m (10-14 lb·ft).
20. Install new o-ring (39) on plug (38) and install plug (38) in housing (42). Torque plug (38) 24.4-29.8 N·m (18-22 lb·ft).

● Items included in Repair Kit

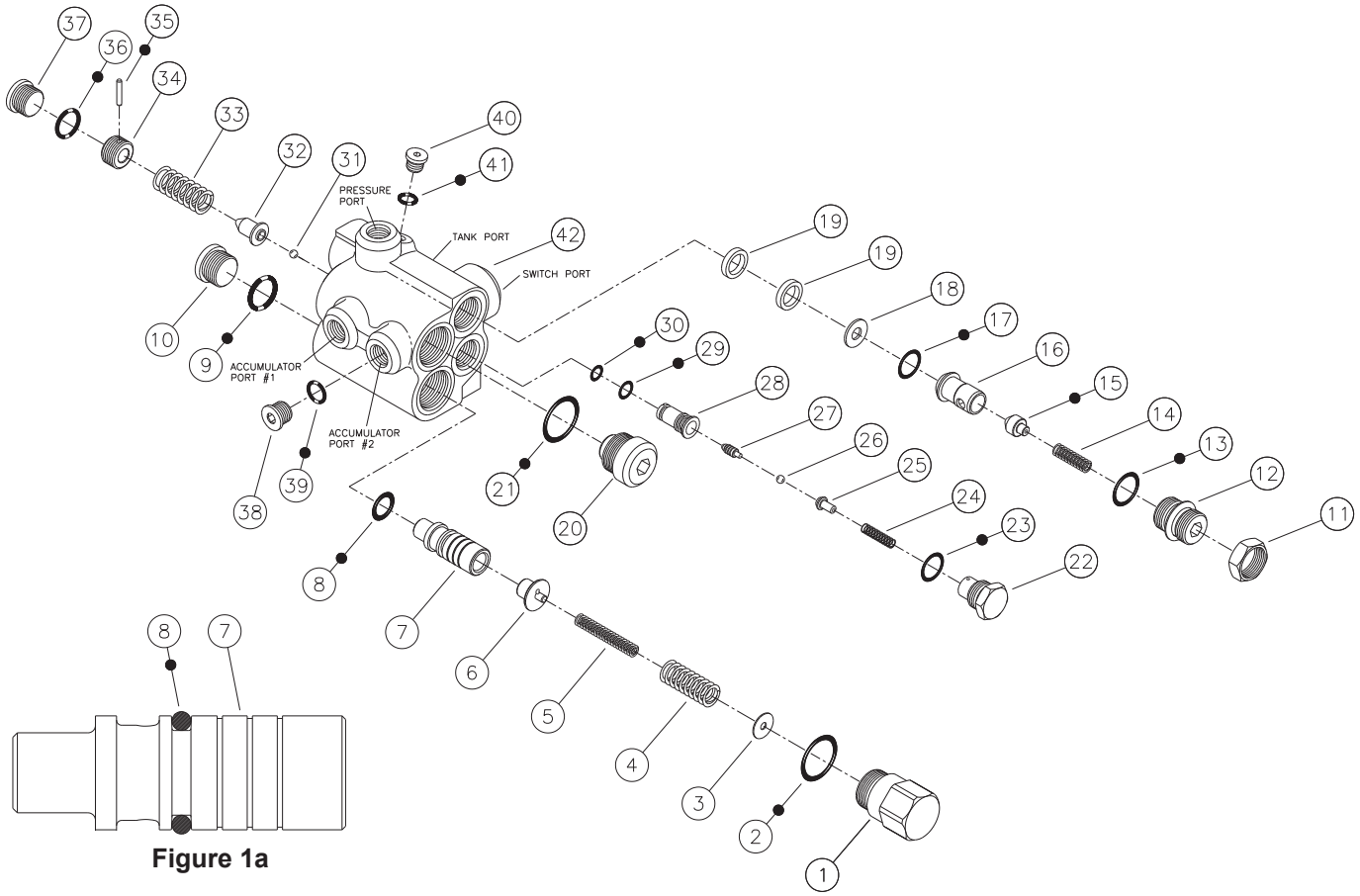

Figure 1a

FIGURE 1

TABLE 1 (Specifications)

Model Number	Repair Kit Number	Nominal High Limit (cut out)		Nominal Low Limit (cut in)	
		bar	(PSI)	bar	(PSI)
117-7796	208-8651	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
208-8650	209-3338	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
235-0323	203-8651	144.8 ± 3.4	(2100 ± 50)	117.2 ± 3.4	(1700 ± 50)
628-8378	203-8651	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 charging to start (pressure in gauge will read accumulator precharge plus). If valve does not begin to charge remove end plug (37) and turn screw (34) in, stopping when gauge shows an increase in pressure. Check high limit specifications (see TABLE 1) and adjust screw (34) until the high limit setting is met. Reinstall end plug (37). This pressure can be checked correctly only if after each adjustment of screw (34) 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 (37) 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 end plug (37) 47.5-54.2 N·m (35-40 lb·ft).