

# DUAL ACCUMULATOR CHARGING VALVE

## Product Explanation, Operating Information, and Service Instructions

### PRODUCT EXPLANATION

This accumulator charge valve is a closed center load sensing valve. It directs operating fluid to the pressure accumulators for the purpose of storing energy. The stored energy is used for operation of hydraulic brakes.

This accumulator charge valve monitors the lowest pressure in the pressure accumulator and takes action to maintain that pressure within the specified range. At the inlet of the valve is a pressure reducing valve to limit pressure to downstream components. It also includes an unloading valve to turn off the charging function in specific situations, mainly during engine start-up.

Also included in this accumulator charge valve are two solenoid valves used for control of the park brake and other secondary brakes. These solenoids valves are preceded by a pressure reducing valve that reduces

pressure to the specified pressure for the brakes. Sensor ports for accumulator pressure, pressure accumulator pressures, and park break pressure are also included.

### 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 proper repair kit number. Observe service instruction procedures on following pages. See Warnings A, B, and C.

### IMPORTANT INFORMATION

#### **A** **⚠ WARNING**

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

#### **C** **⚠ WARNING**

Do not exceed the high limit pressure setting indicated in TABLE 1 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.

### 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. Directional spring (4) is attached to screw (3) by means of the small diameter end of spring (4) being snapped into a groove on the nose end of screw assembly (3). See Figure 1b. Remove nut (1) and remove screw (3)/spring (4) from housing (59). Remove o-ring (2) from screw assembly (3) from nut (1) side of screw (3). Remove ball (5), seat (6), o-ring (7), orifice (8), and spacer (9) from housing (59).
2. Remove cartridge valve (10) from housing (59) using a wrench on the hex flats. Remove back-up rings (12 & 14) and o-rings (11, 13, & 15) from cartridge valve (10).

### ⚠ WARNING

Cartridge valve (10) is preset at the factory. DO NOT READJUST or system damage or failure may occur.

3. Remove plug (16) and spring (18) from housing (59). Remove o-ring (17) from plug (16).
4. Remove plug (20) and spring (21) from housing (59). Remove o-ring (17) from plug (20).
5. Carefully remove two poppets (19) from housing (59).  
**NOTE: Be careful not to scratch or mar housing bore.**
6. Remove plug (32) housing (59). Remove o-ring (33) from plug (32).
7. BEFORE moving screw (34), ACCURATELY MEASURE ITS DEPTH from the end of housing (59) and record for reassembly purposes. Remove screw (34) from housing (59).
8. Remove spring (36), retainer (37), and ball (38). Be sure to keep ball (38) separate from balls (5 & 25) for reassembly purposes.
9. Remove pin (35) from screw (34) using a drive pin punch. Be careful not to damage screw threads.
10. Remove plug (22) from housing (59) and remove o-ring (7) from plug (22).
11. Remove spring (23), stop (24), and ball (25) from housing (59).
12. Using a 6.35 mm (0.25 in) diameter wooden or plastic dowel, carefully push insert (27) and spool (26) from bore out plug (22) side of housing (59). **NOTE: Be careful not to scratch or mar valve seats on insert (27).**
13. Remove spool (26) from insert (27). Remove o-rings (28 & 30) and back-up rings (29 & 31) from insert (27).
14. Remove pressure reducing valve (39) from housing (59) using wrench on the hex flats. Remove back-up rings (12 & 14) and o-rings (11, 13, & 15) from cartridge valve (39).

### ⚠ WARNING

Pressure reducing valve (39) is preset at the factory. DO NOT READJUST or system damage or failure may occur.

15. Remove nut (40) and coil (41) from solenoid valve (42). Remove back-up rings (44 & 46) and o-rings (43, 45, & 47) from solenoid valve (42).
16. Remove nut (48) and coil (49) from solenoid valve (50). Remove back-up rings (52 & 54) and o-rings (51, 53, & 55) from solenoid valve (50).
17. Remove nut (56) and coil (57) from solenoid valve (58). Remove back-up rings (44 & 46) and o-rings (43, 45, & 47) from solenoid valve (58).
18. Refer to Figure 2 on page 4 and remove eight #4 plugs (62) and three #2 plugs (60) from housing (59). Remove o-rings (63) from plugs (62) and o-rings (61) from plugs (60).

## Assembly

(Refer to Figure 1)

### NOTE

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

WASH ALL PARTS WITH CLEAN SOLVENT AND ALLOW TO DRY. LUBRICATE ALL RUBBER PARTS WITH CLEAN SYSTEM FLUID PRIOR TO ASSEMBLY. BE SURE ENTIRE ASSEMBLY PROCEDURE IS DONE USING CONTAMINATION FREE METHODS.

1. Directional spring (4) is attached to screw (3) by means of the small diameter end of spring (4) being snapped into a groove on the nose end of screw (3). If necessary, reattach the small diameter end of spring (4) into the groove on the nose end of screw (3) using a slight twisting motion. See Figure 1b. Install new o-ring (2) on screw (3) from nut (1) side of screw (3). Install spacer (9), orifice (8), new o-ring (7), seat (6), and steel ball (5) in housing (59). Install screw (3)/spring (4) in housing (59). Torque screw (3) 24.4-29.8 N·m (18-22 lb·ft). Then install nut (1) on screw (3) and torque 43.4-51.5 N·m (32-38 lb·ft).
2. Install new o-rings (11, 13, & 15) and new back-up rings (12 & 14) on cartridge valve (10). Install cartridge valve (10) in housing (59). Torque with a wrench on the hex flats 67.8-74.6 N·m (50-55 lb·ft). **NOTE: O-rings and back-up rings are included in the repair kit in a separate package marked 040.**
3. Install new o-ring (17) on plug (16). Install new poppet (19), spring (18), and plug (16) in housing (59). Torque plug (16) 27.1-32.5 N·m (20-24 lb·ft).
4. Install new o-ring (17) on plug (20). Install new poppet (19), spring (21), and plug (20) in housing (59). Torque plug (20) 27.1-32.5 N·m (20-24 lb·ft).
5. Install new o-rings (28 & 30) and new back-up rings (29 & 31) on insert (27). See Figure 1a.
6. Install spool (26) into insert (27). Note direction of insert (27) and spool (26). Carefully install insert (27) in housing (59) from plug (22) side of housing (59). See Figure 1a.
7. Install new o-ring (7) on plug (22). Install ball (25), stop (24), spring (23), and plug (22) in housing (59). Torque plug (22) 47.5-54.2 N·m (35-40 lb·ft).
8. Position housing (59) so plug (32) housing bore faces up. Install ball (38). Look to make sure ball (38) is centered on the end of insert (27). Then install retainer (37) and spring (36) into housing (59).
9. Insert new pin (35) in screw (34). Be sure pin is properly aligned and evenly driven into screw (34). **NOTE: Be careful not to damage threads.**
10. Thread screw (34) into housing (59) to the depth recorded during disassembly.
11. Install new o-ring (33) on plug (32) and install plug (32) in housing (59). Torque plug (32) 47.5-54.2 N·m (35-40 lb·ft).
12. Install new o-rings (11, 13, & 15) and new back-up rings (12 & 14) on pressure reducing valve (39). Install pressure reducing valve (39) in housing (59). Torque with a wrench on the hex flats 67.8-74.6 N·m (50-55 lb·ft). **NOTE: O-rings and back-up rings are included in the repair kit in a separate package marked 040.**

### ⚠ WARNING

Pressure reducing valve (39) is preset at the factory. DO NOT READJUST or system damage or failure may occur.

13. Install new o-rings (43, 45, & 47) and new back-up rings (44 & 46) on solenoid valve (58). Install solenoid valve in housing (59). Torque with a wrench on the hex flats 24.4-27.1 N·m (18-20 lb·ft). Install coil (57) and nut (56) on solenoid valve (58) and torque 3.4-6.8 N·m (30-60 lb·in). **NOTE: O-rings and back-up rings are included in the repair kit in a separate package marked 043.**
14. Install new o-rings (51, 53, & 55) and new back-up rings (52 & 54) on solenoid valve (50). Install solenoid valve in housing (59). Torque with a wrench on the hex flats 24.4-27.1 N·m (18-20 lb·ft). Install coil (49) and nut (48) on solenoid valve (50) and torque

● Items included in Repair Kit

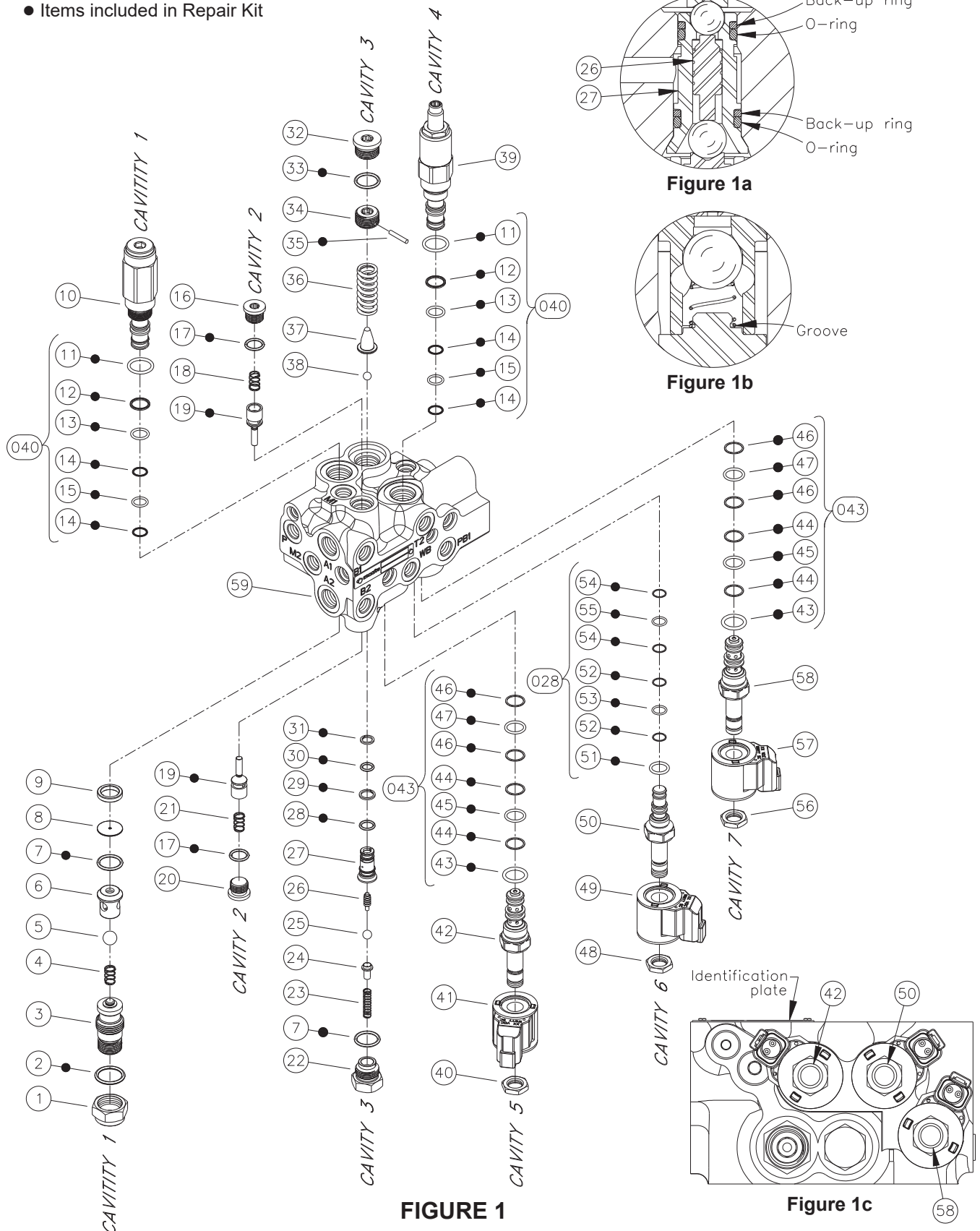


FIGURE 1

3.4-6.8 N·m (30-60 lb·in). **NOTE: O-rings and back-up rings are included in the repair kit in a separate package marked 028.**

15. Install new o-rings (43, 45, & 47) and new back-up rings (44 & 46) on solenoid valve (42). Install solenoid valve in housing (59). Torque with a wrench on the hex flats 24.4-27.1 N·m (18-20 lb·ft). Install coil (41) and nut (40) on solenoid valve (42) and torque 3.4-6.8 N·m (30-60 lb·in). **NOTE: O-rings and back-up rings**

**are included in the repair kit in a separate package marked 043.**

16. Install new o-rings (61) on three #2 plugs (60). Install #2 plugs (60) in housing (59) and torque 3.4-6.8 N·m (30-60 lb·in). See Figure 2 on page 4.
17. Install new o-rings (63) on eight #4 plugs (62). Install #4 plugs (62) in housing (59) and torque 13.6-19.0 N·m (10-14 lb·ft). See Figure 2 on page 4.

● Items included in Repair Kit

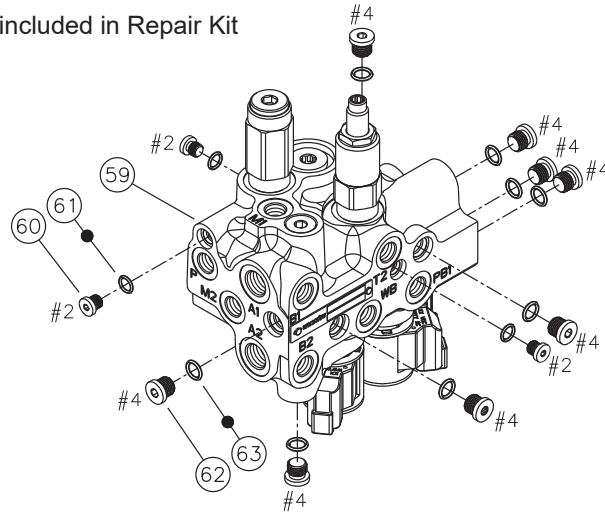


FIGURE 2

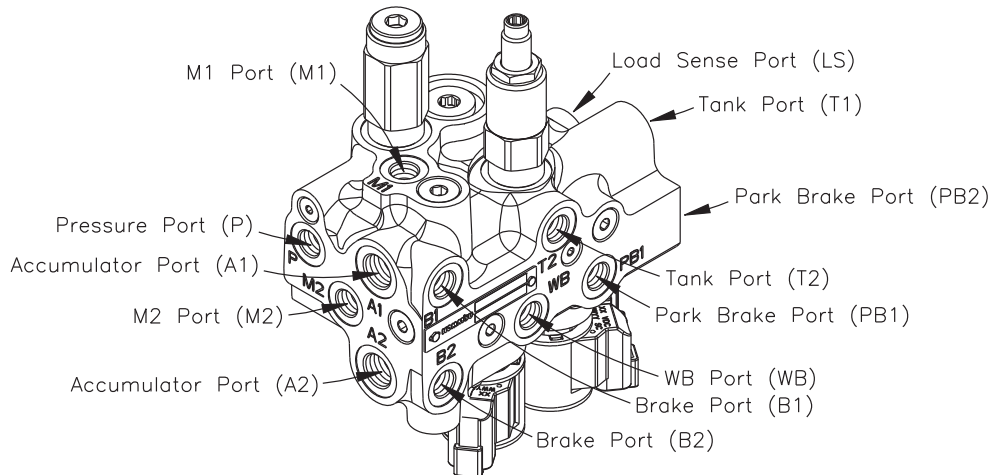


FIGURE 3

TABLE 1 (Specifications)

| Komatsu<br>Part Number | Komatsu<br>Repair Kit<br>Number | Accumulator<br>High Limit (cut out) |             | Accumulator<br>Low Limit (cut in) |             |
|------------------------|---------------------------------|-------------------------------------|-------------|-----------------------------------|-------------|
|                        |                                 | bar                                 | (PSI)       | bar                               | (PSI)       |
| 5318828                | 5319848                         | 167.0 ± 5.0                         | (2420 ± 73) | 120.0 ± 5.0                       | (1740 ± 73) |

## Accumulator Charging Valve Adjustment

(Refer to Figure 1)

1. See machine servicing instructions to properly reinstall the accumulator charging valve. Tee an accurate pressure gauge on an accumulator line.
2. Start the 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 (32) and turn screw (34) in, stopping when the gauge shows an increase in pressure. Check the high limit specifications (see TABLE 1) and adjust screw (34) until the high limit setting is met. Reinstall plug (32).

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 the process until the high pressure setting is accurately adjusted. **NOTE: Be sure to reinstall plug (32) before starting the pump.**

3. Torque plug (32) 47.5-54.2 N·m (35-40 lb·ft).