PRODUCT EXPLANATION

The accumulator charging valve is designed for installation in an open center hydraulic system between the pump and the downstream secondary hydraulic devices.

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.

The flow to the downstream secondary hydraulic devices will be reduced fractionally for a short time when the accumulator is charging. This does not noticeably affect the operation of these components. Full system pressure is available to the downstream secondary hydraulic devices at all times provided oil delivery and pressure from the pump is not impeded.

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 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.
Disassembly
(Refer to Figure 1)
1. Disconnect fluid lines and remove accumulator charging valve from machine as recommended in the machine operating instructions.
2. Remove relief valve assembly (32) from housing (7).
   **NOTE:** Repair kit does not include new seals for relief valve assembly (32).

**WARNING**

Relief valve is preset at the factory. DO NOT READJUST 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.

Assembly
(Refer to Figure 1)
CLEAN ALL PARTS WITH CLEAN SOLVENT AND DRY.
LUBRICATE ALL RUBBER PARTS WITH CLEAN SYSTEM FLUID PRIOR TO ASSEMBLY. BE SURE ENTIRE ASSEMBLY PROCEDURE IS DONE WITH CONTAMINATION FREE METHODS.

1. Install new o-ring (2) on plug (8). Install plug (8) into housing (7) and torque 67.8-81.4 N·m (50-60 lb-ft).
2. Install new quad ring (5) on spool (6). Be sure quad ring does not twist in groove.
3. Lubricate plug (6) and install in housing (7) through plug (1) end of housing. Note direction of spool (6).
4. Install spring (4) and rod (3) in housing (7).
5. Install new o-ring (2) on plug (1). Install plug (1) in housing (7) and torque 67.8-81.4 N·m (50-60 lb-ft).
6. Install new o-rings (24 & 25) on insert (23) and install insert (23) in housing (7). Note direction of assembly. Seat insert (23) with a 12.7 mm (0.50 in) diameter wood or plastic dowel.
7. Install spool (22) into insert (23) in housing. Note direction of spool, long shoulder end is up toward end plug (18), see Figure 1a.
8. Install ball (21) on insert (23) in housing (7). Install stop (20) over ball (21) and spring (19) on stop (20).
9. Install new o-ring (15) on plug (18). Carefully install plug (18) into housing (7) and torque 47.4-54.2 N·m (35-40 lb-ft).
10. Turn housing so plug (30) is vertically upward. Install ball (21) on insert (23) in housing (7). Install stop (20) over ball (21) and spring (19) on stop (20).
11. Insert new pin (31) in screw (29). Be sure plug is aligned properly and is evenly driven into screw. **NOTE:** Be careful not to damage threads.
12. Thread screw (29) in housing (7) to the depth recorded during disassembly.
13. Install new o-ring (15) on plug (30). Install plug (30) in housing (7) and torque 47.5-54.2 N·m (35-40 lb-ft).
15. Directional spring (12) is attached to screw assembly (11) by means of the small diameter end of spring (12) being snapped into a groove on the nose end of screw assembly (11). See Figure 1b. Be sure that the small diameter of spring (12) is not binding on the nose end of screw assembly (11).
16. Directional spring (12) is attached to screw assembly (11) by means of the small diameter end of spring (12) being snapped into a groove on the nose end of screw assembly (11). If necessary, reattach the small diameter of spring (12) into the groove on the nose end of screw assembly (11) using a slight twisting motion. See Figure 1b. Install new o-ring (10) on screw assembly (11) from nut (9) side of screw assembly.
17. Install relief valve assembly (32) in housing (7) and torque 67.8-74.6 N·m (50-60 lb-ft). **NOTE:** Repair kit does not include new seals for relief valve assembly (32).

**WARNING**

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

17. Install new o-ring (34) on plugs (33 & 35). Install plugs (33 & 35) in housing (7) and torque 13.6-20.3 N·m (10-15 lb-ft).
Items included in Repair Kit

FIGURE 1

VALVE ADJUSTMENT

(Refer to Table 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 (30) and turn screw (29) in, stopping when gauge shows an increase in pressure. Check the high limit specifications (see TABLE 1) and adjust screw (29) until the high limit setting is met. Reinstall plug (30). This pressure can be checked correctly only if after each adjustment of screw (29) 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 high pressure setting is accurately adjusted. **NOTE: Be sure to reinstall plug (30) before starting pump.**

3. Torque plug (30) 47.5-54.2 N·m (35-40 lb·ft).

TABLE 1 (Specifications)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Repair Kit Number</th>
<th>Nominal High Limit (cut out) bar (PSI)</th>
<th>Nominal Low Limit (cut in) bar (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>06-463-323</td>
<td>06-400-505</td>
<td>137.9 ± 3.5 (2000 ± 50)</td>
<td>113.8 ± 3.5 (1650 ± 50)</td>
</tr>
<tr>
<td>06-463-342</td>
<td>06-400-505</td>
<td>22.1 ± 1.03 (320 ± 15)</td>
<td>17.9 ± 1.03 (260 ± 15)</td>
</tr>
</tbody>
</table>

**NOTE:** If your product number is not listed, please contact MICO, Inc. for information.
SERVICE CHECKS FOR HYDRAULIC SYSTEMS

SERVICE DIAGNOSIS
(Refer to Figure 1)

ACCUMULATOR CHARGING CYCLE
REPEATS FREQUENTLY WHEN
ACCUMULATOR IS NOT NORMALLY
BEING DISCHARGED IN SERVICE
1. Leaking accumulator lines or fittings
2. Incorrect setting of accumulator gas charge
3. Line to accumulator plugged
4. Replace line
5. Inoperative charging valve

ACCUMULATOR STARTS TO CHARGE BUT DOES NOT REACH HIGH LIMIT
1. No oil or low oil level in tank
2. Check oil level
3. Pump worn or inoperative and not delivering full flow or pressure
4. Check pump
5. Inoperative system relief valve (valve leaking or has low setting so full flow and pressure are not available)
6. Check relief valve
7. Inoperative charging valve
8. Replace charging valve

ACCUMULATOR FAILS TO START CHARGING
1. No oil or low oil level in tank
2. Check oil level
3. Worn or defective pump
4. Check pump
5. Inoperative relief valve
6. Check relief valve setting
7. Bleed accumulator line
8. Inoperative charging valve
9. Replace charging valve

ACCUMULATOR CHARGING TIME TOO LONG
1. No oil or low oil level in tank
2. Check oil level
3. Relief valve setting too low
4. Check valve setting
5. Pump worn or inoperative and not delivering full flow or pressure
6. Check pump
7. Inoperative charging valve

ACCUMULATOR FAILS TO START CHARGING
1. No oil or low oil level in tank
2. Check oil level
3. Worn or defective pump
4. Check pump
5. Inoperative relief valve
6. Check relief valve setting
7. Air in accumulator line
8. Inoperative charging valve
9. Replace charging valve

LACK OF ADEQUATE FLOW THROUGH VALVE
1. Inoperative pump
2. Check pump pressure and delivery
3. Check relief valve setting
4. Blocked lines
5. Replace lines
6. Inoperative charging valve
7. Replace charging valve

VERY RAPID CYCLING OF CHARGING VALVE
1. Incorrect setting of accumulator gas charge
2. Inoperative charging valve
3. Replace charging valve

ACCUMULATOR FAILS TO START CHARGING
1. Broken spring (28).
2. Broken spring (4).
3. Seal (5) inoperative.
4. Spool (6) stuck.
5. Dirt in screen assembly (17).

ACCUMULATOR CHARGING TIME TOO LONG
1. Dirt in screen assembly (17).
2. Ball (13) stuck, partially closed.
3. Seat (14) partially plugged

ACCUMULATOR FAILS TO START CHARGING
1. Insert (23) worn.