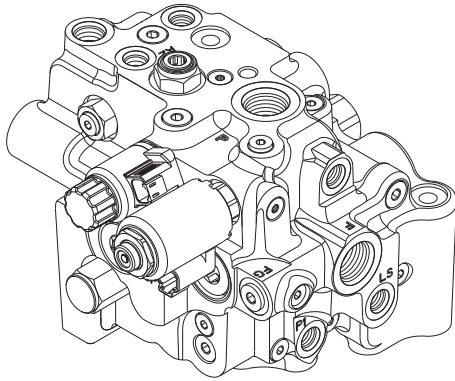




ACCUMULATOR CHARGING VALVE AND FAN SPEED CONTROL

**Caterpillar Part Number:
370-8735 and 467-3081**

Product Explanation, Operating Information, and Service Instructions

PRODUCT EXPLANATION

The accumulator charging and fan speed control valve is designed for installation in a load sensing hydraulic system. The valve senses pressure at the lower pressure of two accumulator ports. If the lower pressure is below a specified limit a load sense signal is sent to command flow to the accumulator ports. When pressure at the accumulator ports reaches a specified upper limit the load sense command signal ends.

The accumulator charging and fan speed control valve controls speed of a hydraulic motor used to drive a fan. This is done with an electrohydraulic pilot valve. The pilot valve sends a load sense signal to command flow to the fan port. Fan speed is reverse modulated. With the pilot valve off, load sense signal and fan speed are at maximum. Minimum fan speed is with the pilot valve fully energized.

Priority is given to sending flow to the accumulator ports. Flow to the fan port passes through a flow compensation spool valve to maintain fan speed at commanded level as system pressure changes.

The accumulator charging and fan speed control valve has a full flow pressure relief valve.

The accumulator charging and fan speed control valve includes one pressure reducing valve for pilot pressure. The pressure reducing valve provides a pressure signal to an external port.

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 2 for proper repair kit number. Observe Service Instruction procedures on the following pages. See Warnings A, B, and C 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.

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.

SERVICE INSTRUCTIONS

⚠ WARNING

Be sure system energy is relieved from accumulator charge valve before removing from machine. See machine service manual for procedures to relieve system energy.

Disassembly

(Refer to Figure 1)

1. Disconnect fluid lines and electrical connections and remove accumulator charging valve from the machine as recommended in the machine service manual.
2. Remove plug (2), spring (6), and retainer assembly (7) from housing (16), cavity 1a. Remove o-ring (3) from plug (2).
3. Loosen nut on set screw (1). Use a hex key wrench and remove set screw (1) from plug (2). For reassembly purposes, count and record the number rotations required to remove set screw (1).
4. Using a small diameter tool through set screw (1) threaded opening in plug (2), push retainer (5) out plug (2) bore. Remove o-ring (4) from retainer (5).
5. Remove plug (8) from housing (16), cavity 1b. Remove o-ring (9) from plug (8).
6. Using a 6.35 mm (0.25 in) diameter wood or plastic dowel, carefully remove spool (10) from cavity 1b side of housing (16).
7. Remove plug (11) from housing (16), cavity 2. Remove o-ring (9) from plug (11).
8. Using a hex key wrench remove shuttle valve assembly (12) from housing (16), cavity 2. Turn hex key wrench counter-clockwise. Remove two back-up rings (14) and o-ring (15) from shuttle valve (13).

TABLE 1 (Specifications)

Caterpillar Part Number	Repair Kit Number	Nominal Pilot Pressures at Ports P1 and P2	
		bar	(PSI)
370-8735	373-1986	38 ± 1.7	(550 ± 25)
467-3081	373-1986	38 ± 1.7	(550 ± 25)

Assembly

(Refer to Figure 1)

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

1. Install two new back-up rings (14) and new o-ring (15) on shuttle valve (13). New back-up rings (14) and o-ring (15) are in a separate bag within the repair kit.
2. Install shuttle valve assembly (12) in housing (16), cavity 2. Use a hex key wrench and torque shuttle valve assembly (12) 5.4-6.8 N·m (4-5 lb·ft).
3. Install new o-ring (9) on plug (11). Install plug (11) in housing (16), cavity 2, and torque 27.1-32.5 N·m (20-24 lb·ft).
4. Install spool (10) in housing (16), cavity 1b. Note direction of spool (10).
5. Install new o-ring (9) on plug (8). Install plug (8) in housing (16), cavity 1b, and torque 27.1-32.5 N·m (20-24 lb·ft).
6. Install new o-ring (4) on retainer (5). Install new o-ring (3) on plug (2).
7. Install retainer (5) and spring (6) in plug (2). Install retainer assembly (7) in spring (6) and install plug (2) in housing (16), cavity 1a. Torque plug (2) 47.5-54.2 N·m (35-40 lb·ft).
8. Install set screw (1) in plug (2). Turn set screw into plug (2) the same number of rotations as were recorded during disassembly. While holding set screw (1) with a hex key wrench, torque nut 17.6-23.1 N·m (13-17 lb·ft).
9. See machine servicing instructions to properly reinstall accumulator charging valve. See machine manufacture for additional service kits and replacement components for the accumulator charging valve.

Pressure Reducing Valve Adjustment

1. See machine servicing instructions to properly reinstall accumulator charging valve. Tee an accurate pressure gauge on each of the pilot pressure lines.
2. Start pump. Pressure at the pilot port should be as shown in TABLE 1.
3. If pilot pressure is out of tolerance, loosen the nut on set screw (1) and adjust the set screw clockwise to increase pilot pressure and counter-clockwise to decrease pressure.
4. When pilot pressure is set, torque the nut on set screw (1) 17.6-23.1 N·m (13-17 lb·ft).
5. Repeat adjustment procedure as needed.

● Items included in Repair Kit

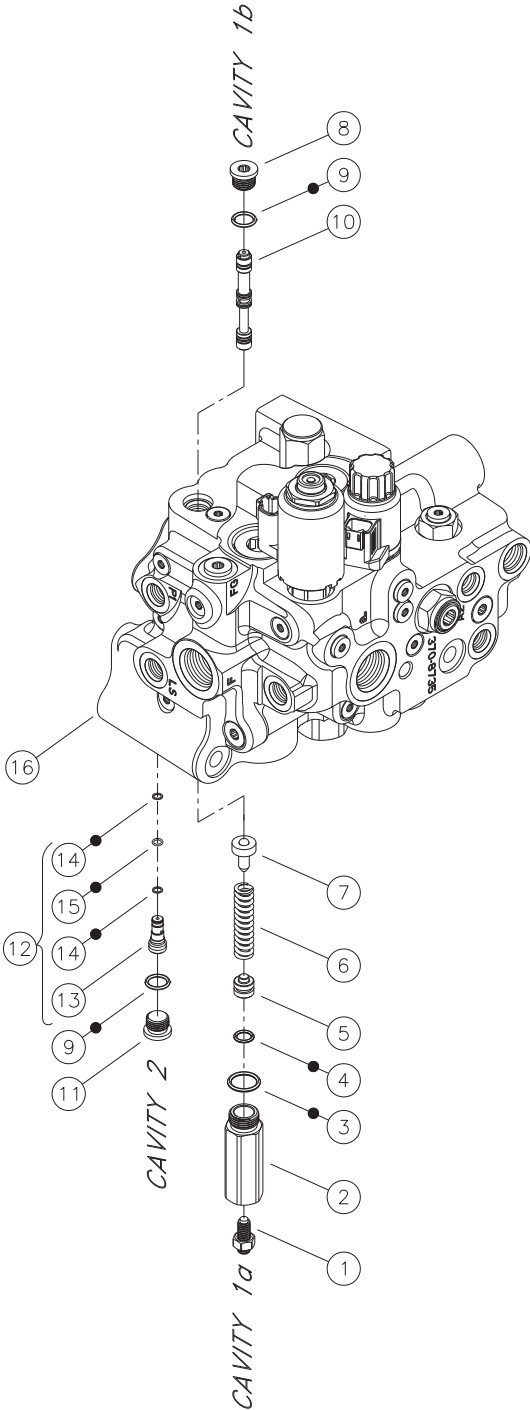


FIGURE 1

