Accumulator Charging Valve

0 to 20 700 kPa (0 to 3000 psi) pressure gauge.

**WARNING**

Make reference to the WARNINGS on the first page of the Brake System Testing And Adjusting section.

**NOTE:** There are two separate procedures that may be used to check the operation of the accumulator charging valve and several associated components.

Procedure 1 is a quick method to check for correct cutout pressure, and indicate whether or not the low brake oil pressure switch and alert indicator are working correctly. It will also provide an estimate of the accumulator pre-charge level, and indicate approximately how many brake applications an operator may have before the low brake oil pressure alert indicator turns on (providing the service brake system is operating correctly).

Procedure 2 determines if the cut-in and cutout pressures for the accumulator charging valve are correct. It also provides the steps required to adjust the accumulator charging valve.

**Procedure 1**

1. Stop the engine and completely remove all oil pressure from the brake circuit by this method: Engage the parking brake. Push on the brake pedal many times until there is no brake pressure.
Accumulator Charging Valve Pressure Test Port Location
(1) Accumulator charging valve. (2) Pressure test port. (3) Brake pump.

2. Install a 0 to 20 700 kPa (0 to 3000 psi) pressure gauge to test port (2) on the accumulator charging valve.

3. Look at the pressure gauge. Before the engine is started, the oil pressure must be 0 kPa (0 psi).

4. Start the engine. Allow the oil pressure to increase to the cutout pressure. The correct cutout pressure should equal 14 485 ± 345 kPa (2100 ± 50 psi).

5. After the service brake accumulators have been completely charged and the correct cutout pressure has been obtained, stop the engine.

6. Turn the engine start switch key back to the run position without starting the engine.

7. Apply the service brakes, pausing for a second or two between each brake application. Also, count the number of brake applications while watching the pressure gauge.

8. When the pressure on the gauge decreases to 8960 ± 345 kPa (1300 ± 50 psi), the low brake pressure alert indicator on the dash should turn on. This will indicate the operational status of the low brake pressure switch and the alert indicator.

9. Continue applying the service brakes and pausing for a second or two between each brake application. Also continue counting the number of applications and observing the pressure gauge. There will be a point where the pressure drops rapidly. The point where the pressure drops off rapidly is the approximate accumulator pre-charge pressure.

10. Determine the number of brake applications that were required before the pressure dropped off rapidly in Step 9. The number of service brake applications should be at least six times.

11. If the accumulator charging valve cutout pressure is not within specification, complete Steps 7 through 12 in Procedure 2. If the pre-charge pressure is not within specification, see the section Test And Charge The Accumulator.

Procedure 2

1. Stop the engine and completely remove all oil pressure from the brake circuit by this method: Engage the parking brake. Repeatedly push on the brake pedal until there is no brake pressure.
Accumulator Charging Valve Pressure Test Port Location
(1) Accumulator charging valve. (2) Pressure test port. (3) Brake pump.

2. Install a 0 to 20 700 kPa (0 to 3000 psi) pressure gauge to test port (2) on the accumulator charging valve.

3. Look at the pressure gauge. Before the engine is started, the oil pressure must be 0 kPa (0 psi).

4. Start the engine. Look for a stop (pause) in the increase of oil pressure. Make a record of the oil pressure at this point. This is the approximate nitrogen charge (pre-charge) pressure in the accumulator. If the pre-charge pressure is not within specification, see the section Test And Charge The Accumulator.

5. The oil pressure must increase to a maximum. Make a record of this pressure also. This is the cutout pressure of the accumulator charging valve. The correct cutout pressure equals 14 485 ± 345 kPa (2100 ± 50 psi).

6. Apply the service brakes several times while the engine is running. Confirm that pressure drops consistently, and at the point of specified cut-in, the pressure begins to increase quickly.

7. If the cut-in and cutout pressures are not within specification, stop the engine and completely remove all oil pressure from the brake circuit by pushing on the brake pedal many times until there is no brake pressure. Be sure there is no residual pressure in the hydraulic oil tank by loosening the hydraulic oil tank filler cap.
Accumulator Charging Valve
(2) Pressure port. (4) Accumulator ports. (5) Adjustment cover.

8. Remove adjustment cover (5).

NOTE: The charge limits will move together. The range between the cut-in and cutout pressures is not adjustable.

9. Turn the hex plug that is located under cover (5), one quarter of a turn. Turning the hex plug clockwise will increase the cut-in and cutout pressure. Turning the hex plug counterclockwise will decrease the cut-in and cutout pressure.

10. Install adjustment cover (5) on the accumulator charging valve, and tighten the hydraulic tank filler cap that was loosened in Step 7.

11. Start the machine and verify that the cut-in and cutout pressures are within specification. If they are not, repeat Steps 7 through 11.
12. If the cut-in and/or cutout pressures are not within specification, and the pump has been checked for correct pump output, replace the accumulator charging valve assembly with a new one.