TABLE 1 (Specifications)

Caterpillar Part Number	Repair Kit Number	Nominal Pilot Pressures at Ports P1 and P2		Refer to Pages
		bar	(PSI)	
360-0505	360-0518	35.0 ± 3.5	(508 ± 50)	2 and 3
366-0678	360-0518	37.9 ± 1.7	(550 ± 25)	3 and 4
373-1565	360-0518	37.9 ± 1.7	(550 ± 25)	3 and 4
384-9314	360-0518	37.9 ± 1.7	(550 ± 25)	2 and 3
486-1155	360-0518	(see NOTE below)		3 and 4

NOTE: 486-1155 Pilot Pressure at Port P1 is 41.4 ± 1.0 bar (600 ± 15 PSI) and Port P2 is 37.9 ± 1.0 bar (550 ± 15 PSI)

ACCUMULATOR CHARGING VALVE AND FAN SPEED CONTROL

Caterpillar Part Numbers: 360-0505, 366-0678, 373-1565, 384-9314, 486-1155

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 two pressure reducing valves for external pilot pressure. Each pressure reducing valve provides a pressure signal to an external port. One of the pressure reducing valves has a supplemental supply. Pressure and flow from the supplemental supply is used until supply pressure reaches a set threshold. This ensures there is an external pilot pressure when system pressure is not sufficient.

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 1 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.

Part Numbers: 360-0505, 384-9314

NOTE

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

This literature services similar designs of this charging valve. The components shown in Figure 1 may appear different than what is found in your valve.

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 machine as recommended in the machine service manual.
2. Remove plug (1) from housing (32), cavity 1. Remove o-ring (2) from plug (1).
3. Remove plug (4), spring (8), and retainer assembly (9) from housing (32), cavity 2a. Remove o-ring (5) from plug (4).
4. Loosen nut on set screw (3). Use a hex key wrench and remove set screw (3) from plug (4). For reassembly purposes, count and record the number rotations it takes to remove set screw (3).
5. Using a small diameter tool through set screw (3) threaded opening in plug (4), push retainer (7) out plug (4) bore. Remove o-ring (6) from retainer (7).
6. Remove plug (10) from housing (32), cavity 2b. Remove o-ring (11) from plug (10).
7. Using a 6.35 mm (0.25 in) diameter wood or plastic dowel, carefully remove spool (12) from cavity 2b side of housing (32).
8. Remove plug (16), shim(s) (17), spring (18), and washer (19) from housing (32), cavity 3b. Remove o-ring (5) and shim(s) (17) from plug (16). Be aware of the number of shim(s) (17) removed for reassembly purposes.
9. Remove plug (13) from housing (32), cavity 3a. Remove o-ring (14) from plug (13).
10. Using a 6.35 mm (0.25 in) diameter wood or plastic dowel, carefully remove spool (15) from cavity 3a side of housing (32).
11. Remove plug (21), spring (23), and retainer assembly (24) from housing (32), cavity 4a. Remove o-ring (5) from plug (21).
12. Loosen nut on set screw (20). Use a hex key wrench and remove set screw (20) from plug (21). For reassembly purposes, count and record the number rotations it takes to remove set screw (20).
13. Using a small diameter tool through set screw (20) threaded opening in plug (21), push retainer (22) out plug (21) bore. Remove o-ring (6) from retainer (22).
14. Remove plug (25) from housing (32), cavity 4b. Remove o-ring (11) from plug (25).
15. Using a 6.35 mm (0.25 in) diameter wood or plastic dowel, carefully remove spool (26) from cavity 4b side of housing (32).
16. Remove plug (28) from housing (32), cavity 5. Remove o-ring (11) from plug (28).
17. Using a hex key wrench remove shuttle valve assembly (27) from housing (32), cavity 5. Turn hex key wrench counter-clockwise. Remove two back-up rings (30) and o-ring (31) from shuttle valve (29).

Assembly

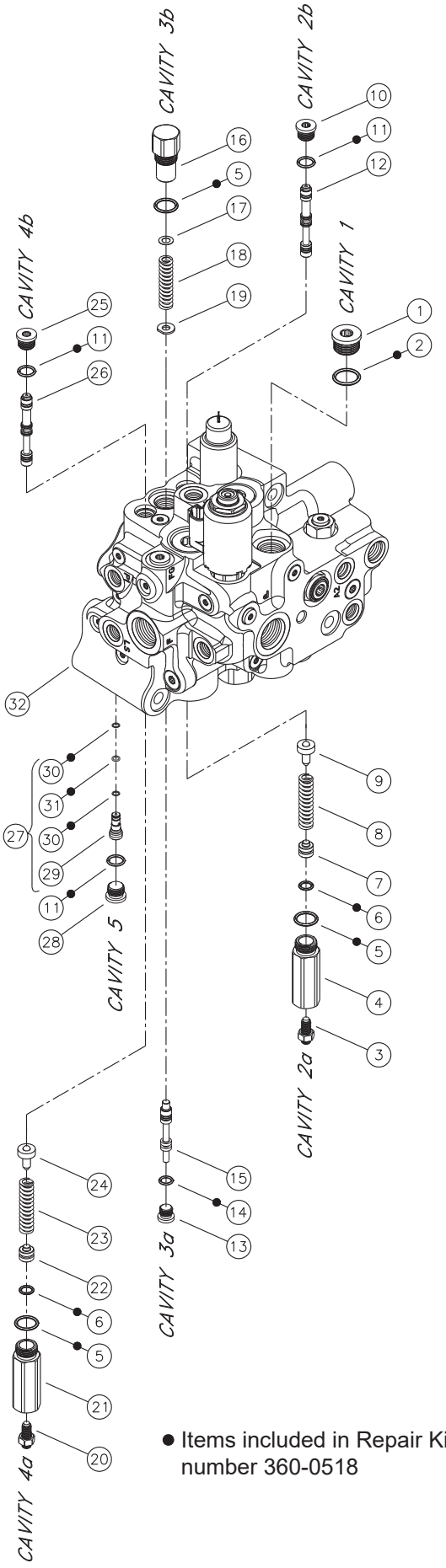
(Refer to Figure 1)

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. Install two new back-up rings (30) and new o-ring (31) on shuttle valve (29). New back-up rings (30) and o-ring (31) are in a separate bag within the repair kit.
2. Install shuttle valve assembly (27) in housing (32), cavity 5. Use a hex key wrench and torque shuttle valve assembly (27) 5.4-6.8 N·m (4-5 lb·ft).
3. Install new o-ring (11) on plug (28). Install plug (28) in housing (32), cavity 5, and torque 27.1-32.5 N·m (20-24 lb·ft).
4. Install spool (26) in housing (32), cavity 4b. Note direction of spool (26).
5. Install new o-ring (11) on plug (25). Install plug (25) in housing (32), cavity 4b, and torque 27.1-32.5 N·m (20-24 lb·ft).
6. Install new o-ring (6) on retainer (22). Install new o-ring (5) on plug (21).
7. Install retainer (22) and spring (23) in plug (21). Install retainer assembly (24) in spring (23) and install plug (21) in housing (32), cavity 4a. Torque plug (21) 47.5-54.2 N·m (35-40 lb·ft).
8. Install set screw (20) in plug (21). Turn set screw into plug (21) the same number of rotations as were recorded during disassembly. While holding set screw (21) with a hex key wrench, torque nut 17.6-23.1 N·m (13-17 lb·ft).
9. Install new o-ring (5) on plug (16). Install washer (19), spring (18), shim(s) (17), and plug (16) in housing (32), cavity 3b. Torque plug (16) 47.5-54.2 N·m (35-40 lb·ft). Be sure to install the same number of shim(s) (17) as were removed.
10. Install spool (15) in housing (32), cavity 3a. Note direction of spool (15).
11. Install new o-ring (14) on plug (13). Install plug (13) in housing (32), cavity 3a, and torque 13.6-19.0 N·m (10-14 lb·ft).
12. Install spool (12) in housing (32), cavity 2b. Note direction of spool (12).
13. Install new o-ring (11) on plug (10). Install plug (10) in housing (32), cavity 2b, and torque 27.1-32.5 N·m (20-24 lb·ft).
14. Install new o-ring (6) on retainer (7). Install new o-ring (5) on plug (4).
15. Install retainer (7) and spring (8) in plug (4). Install retainer assembly (9) in spring (8) and install plug (4) in housing (32), cavity 2a. Torque plug (4) 47.5-54.2 N·m (35-40 lb·ft).
16. Install set screw (3) in plug (4). Turn set screw into plug (3) the same number of rotations as were recorded during disassembly. While holding set screw (3) with a hex key wrench, torque nut 17.6-23.1 N·m (13-17 lb·ft).
17. Install new o-ring (2) on plug (1). Install plug (1) in housing (32), cavity 1, and torque 54.2-61.0-6 N·m (40-45 lb·ft).
18. See machine servicing instructions to properly reinstall accumulator charging valve. See machine manufacturer for additional service kits and replacement components for the accumulator charging valve.

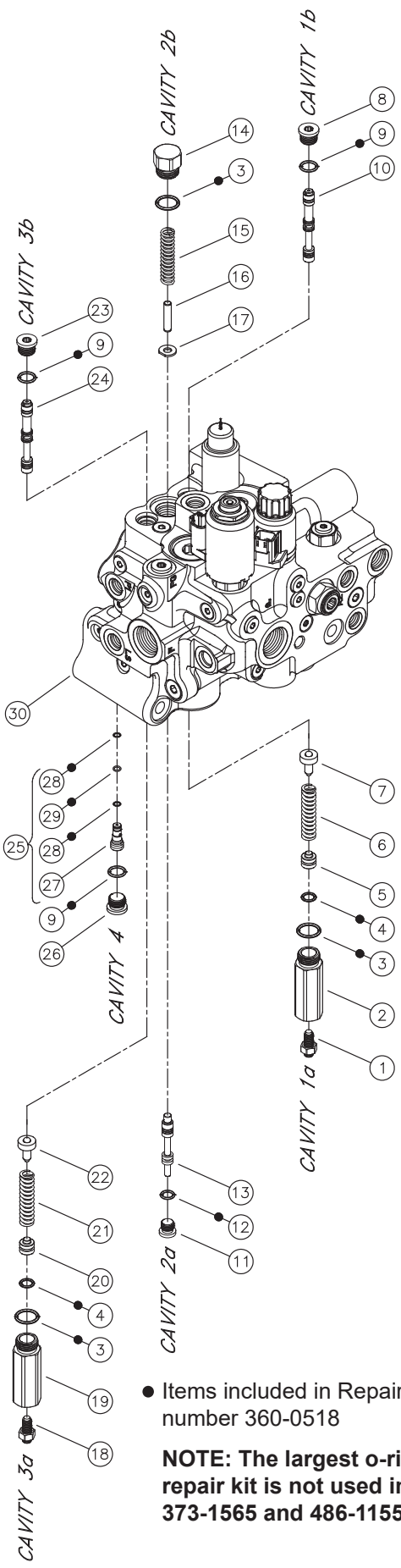
Pressure Reducing Valve Adjustment

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 each pilot port should be as shown in TABLE 1 on page 1.
3. If pilot pressure is out of tolerance, loosen the appropriate nut on set screw (3) or (20) and adjust the set screw clock-wise to increase pilot pressure and counter-clockwise to decrease pressure.
4. When pilot pressure is set, torque the nut on set screw (3) or (20) 17.6-23.1 N·m (13-17 lb·ft).
5. Repeat adjustment procedure as needed.



● Items included in Repair Kit number 360-0518

FIGURE 1



● Items included in Repair Kit number 360-0518

NOTE: The largest o-ring in the repair kit is not used in 366-0678, 373-1565 and 486-1155.

FIGURE 2

Part Numbers: 366-0678, 373-1565, 486-1155

NOTE

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

This literature services similar designs of this charging valve. The components shown in Figure 1 may appear different than what is found in your valve.

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 2 on page 3)

1. Disconnect fluid lines and electrical connections and remove accumulator charging valve from machine as recommended in the machine service manual.
2. Remove plug (2), spring (6), and retainer assembly (7) from housing (30), 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 it takes 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 (31), 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 (30).
7. Remove plug (14), spring (15), dowel pin (16), and washer (17) from housing (30), cavity 2b. Remove o-ring (3) from plug (14).
8. Remove plug (11) from housing (30), cavity 2a. Remove o-ring (12) from plug (11).
9. Using a 6.35 mm (0.25 in) diameter wood or plastic dowel, carefully remove spool (13) from cavity 2a side of housing (30).
10. Remove plug (19), spring (21), and retainer assembly (22) from housing (30), cavity 3a. Remove o-ring (3) from plug (19).
11. Loosen nut on set screw (18). Use a hex key wrench and remove set screw (18) from plug (19). For reassembly purposes, count and record the number rotations it takes to remove set screw (18).
12. Using a small diameter tool through set screw (18) threaded opening in plug (19), push retainer (20) out plug (19) bore. Remove o-ring (4) from retainer (20).
13. Remove plug (23) from housing (30), cavity 3b. Remove o-ring (9) from plug (23).
14. Using a 6.35 mm (0.25 in) diameter wood or plastic dowel, carefully remove spool (24) from cavity 3b side of housing (30).
15. Remove plug (26) from housing (30), cavity 4. Remove o-ring (9) from plug (26).
16. Using a hex key wrench remove shuttle valve assembly (25) from housing (30), cavity 4. Turn hex key wrench counter-clockwise. Remove two back-up rings (28) and o-ring (29) from shuttle valve (27).

Assembly

(Refer to Figure 2 on page 3)

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. Install two new back-up rings (28) and new o-ring (29) on shuttle valve (27). New back-up rings (28) and o-ring (29) are in a separate bag within the repair kit.
2. Install shuttle valve assembly (25) in housing (30), cavity 4. Use a hex key wrench and torque shuttle valve assembly (25) 5.4-6.8 N·m (4-5 lb·ft).
3. Install new o-ring (9) on plug (26). Install plug (26) in housing (30), cavity 4, and torque 27.1-32.5 N·m (20-24 lb·ft).
4. Install spool (24) in housing (30), cavity 3b. Note direction of spool (24).
5. Install new o-ring (9) on plug (23). Install plug (23) in housing (30), cavity 3b, and torque 27.1-32.5 N·m (20-24 lb·ft).
6. Install new o-ring (4) on retainer (20). Install new o-ring (3) on plug (19).
7. Install retainer (20) and spring (21) in plug (19). Install retainer assembly (22) in spring (21) and install plug (19) in housing (30), cavity 3a. Torque plug (19) 47.5-54.2 N·m (35-40 lb·ft).
8. Install set screw (18) in plug (19). Turn set screw into plug (19) the same number of rotations as were recorded during disassembly. While holding set screw (19) with a hex key wrench, torque nut 17.6-23.1 N·m (13-17 lb·ft).
9. Install new o-ring (3) on plug (14). Install washer (17), dowel pin (16), spring (15), and plug (14) in housing (30), cavity 2b. Torque plug (14) 47.5-54.2 N·m (35-40 lb·ft).
10. Install spool (13) in housing (30), cavity 2a. Note direction of spool (13).
11. Install new o-ring (12) on plug (11). Install plug (11) in housing (30), cavity 2a, and torque 13.6-19.0 N·m (10-14 lb·ft).
12. Install spool (10) in housing (30), cavity 1b. Note direction of spool (10).
13. Install new o-ring (9) on plug (8). Install plug (8) in housing (30), cavity 1b, and torque 27.1-32.5 N·m (20-24 lb·ft).
14. Install new o-ring (4) on retainer (5). Install new o-ring (3) on plug (2).
15. Install retainer (5) and spring (6) in plug (2). Install retainer assembly (7) in spring (6) and install plug (2) in housing (30), cavity 1a. Torque plug (2) 47.5-54.2 N·m (35-40 lb·ft).
16. Install set screw (1) in plug (2). Turn set screw into plug (1) 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).
17. See machine servicing instructions to properly reinstall accumulator charging valve. See machine manufacturer 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 each pilot port should be as shown in TABLE 1 on page 1.
3. If pilot pressure is out of tolerance, loosen the appropriate nut on set screw (1) or (18) and adjust the set screw clock-wise to increase pilot pressure and counter-clockwise to decrease pressure.
4. When pilot pressure is set, torque the nut on set screw (1) or (18) 17.6-23.1 N·m (13-17 lb·ft).
5. Repeat adjustment procedure as needed.