

Two Stage MASTER CYLINDER



Service Instructions

DISASSEMBLY

(Refer to Figure 1)

1. Drain fluid from unit before disassembling.
2. Remove push rod (30) and boot (31) from housing (19).
3. Remove upper tube nut on tubing assembly (25) from elbow fitting (26).
4. Remove line bolt (1), gaskets (2 & 4) and fitting block (3). Tubing assembly (25) need not be removed from fitting block.

⚠ CAUTION

End plug assembly is under tension of spring (9).

5. Remove end plug (5).
6. Spacer (7) should follow end plug assembly (5) as it is removed. Remove o-ring (8) from housing (19) and o-ring (6) from spacer (7).
7. Remove spring (9) from housing (19).
8. Remove piston assembly (18) from housing (19) by pushing on piston assembly with a wooden dowel from the small diameter end of housing.
9. Remove cups (15 & 17) from piston (16). Note direction of cups (15 & 17). **NOTE: Be careful not to scratch or mar piston (16).**
10. Depress piston (11) and remove retaining ring (10). Spring (14) will force piston (11) out of piston (16) bore. Hold firmly as piston (11) is preloaded. Remove cup (12) from piston.
11. Remove retainer (13) and spring (14) from piston (16).
12. Remove relief valve assembly (24) from housing (19). Remove end cap (23). Remove o-ring (22) from end cap. **NOTE: End cap is under tension of spring (21).**
13. Remove spring (21).
14. Remove filler cap (28) and gasket (27) from housing (19).

ASSEMBLY

(Refer to Figure 1)

LUBRICATE ALL RUBBER COMPONENTS FROM REPAIR KIT WITH CLEAN TYPE FLUID USED IN THE SYSTEM.

1. Clean all parts thoroughly before assembling.
2. Install retainer (13) on end of new spring (14). Install new spring (14) into piston (16).
3. Install new cup (12) on piston (11).
4. Insert piston (11) into piston (16) with cup (12) against retainer (13). Depress piston and install new retaining ring (10).
5. Install new cup (15) and new cup (17) on piston (16). Note direction of cups. **NOTE: Be careful not to scratch or mar piston (16).**

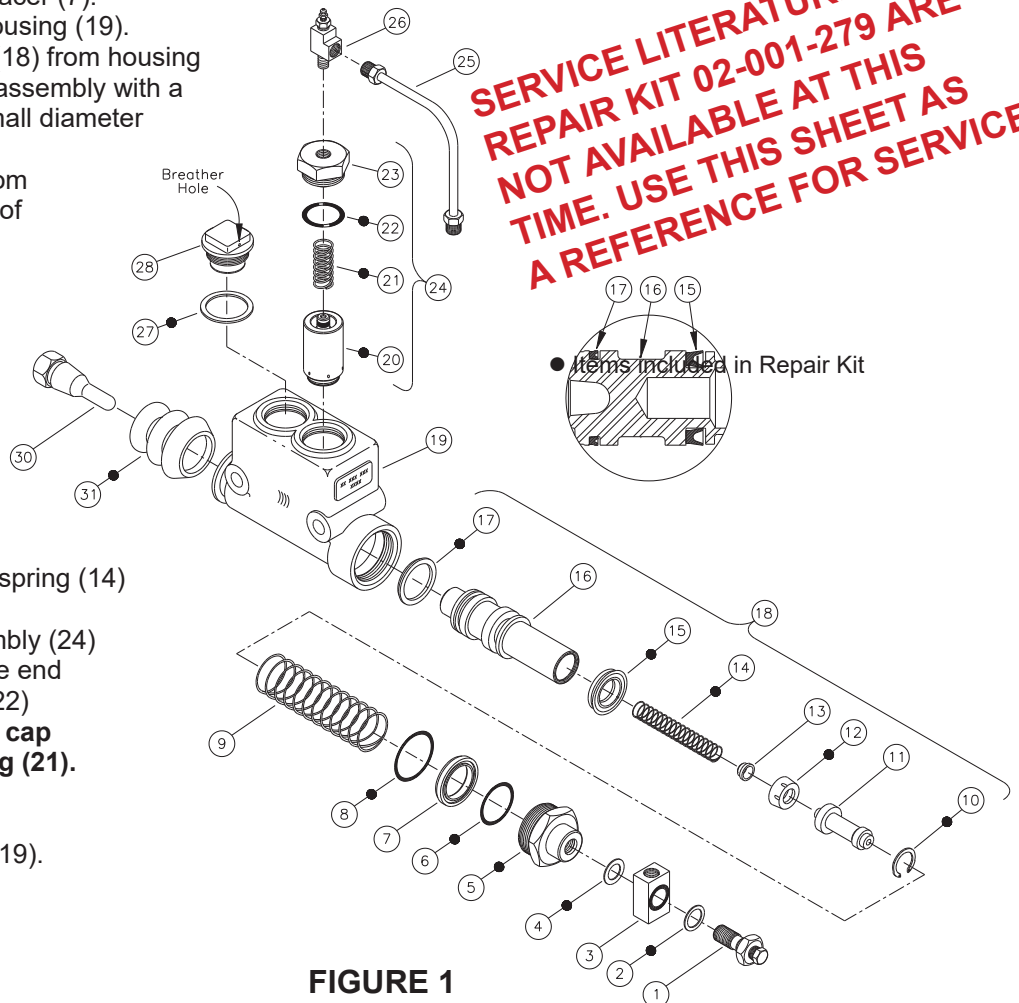


FIGURE 1

6. Install piston assembly (18) into housing (19).
Note direction of piston assembly.
7. Install spring (9) over piston assembly (18).
8. Install new o-ring (8) into pocket of housing (19).
9. Install new o-ring (6) on spacer (7).
10. Position spacer (7) on spring (9) inside of housing (19). Note direction of spacer (7).
11. Carefully guide spacer (7) into housing (19) and begin threading new end plug assembly (5) by hand.
12. Torque new end plug assembly 67.8-108.5 N·m (50-80 lb·ft).
13. Insert new piston and body assembly (20) into housing (19).
14. Install new spring (21).
15. Install new o-ring (22) on end cap (23).
16. Install end cap (23) into housing (19) and torque end cap 88.1-101.7 N·m (65-75 lb·ft).
17. Assemble new gaskets (2 & 4), fitting block (3) and line bolt (1) into new end plug assembly (5). Torque line bolt 47.5-61.0 N·m (35-45 lb·ft).
NOTE: Hold fitting block (3) in upright fixed position while tightening line bolt.
18. Install upper tube nut on tubing assembly (25) into elbow fitting (26). Torque upper and lower tube nuts 12.2-20.3 N·m (9-15 lb·ft).
19. **NOTE: Before installing filler plug (28) be sure the filler plug breather hole is free of all contaminants. Use air pressure to clean and dry this hole.** Install new gasket (27) and filler plug (28) on housing (19).
20. Install push rod (30) and new boot (31) on housing (19).

This publication is not subject to any update service. Information contained in this publication was in effect at the time the publication was approved for printing and is subject to change without notice or liability. ZF Off-Highway Solutions Minnesota Inc. reserves the right to revise the information presented or to discontinue the production of parts described at any time.

