



MASTER CYLINDER

Service Instructions

TABLE 1

Model Number	Repair Kit Number	Uses Items 11 & 12	Model Number	Repair Kit Number	Uses Items 11 & 12
03-020-392 (HO)	02-001-251	No	04-020-063 (BF)	04-001-021	Yes
03-020-592 (HO)	02-001-264	No	04-020-070 (HO)	02-001-106	No
04-020-004 (HO)	02-001-063	Yes	04-020-081 (BF)	02-001-262	No
04-020-005 (BF)	04-001-001	Yes	04-020-084 (HO)	02-001-106	No
04-020-022 (HO)	02-001-106	No	04-020-105 (BF)	04-001-001	Yes
04-020-055 (BF)	04-001-001	Yes	04-020-107 (BF)	02-001-262	No
04-020-061 (BF)	04-001-001	No	04-020-120 (HO)	02-001-106	No

HO = Mineral base hydraulic oil BF = DOT 3, 4, 5, and 5.1 brake fluid

NOTE: If your product number is not listed, contact ZF Off-Highway Solutions Minnesota Inc. for information.

NOTE

The components shown in Figure 1 may appear slightly different than what is found in your master cylinder.

DISASSEMBLY

1. Remove the master cylinder from the machine. Do not attempt to repair the master cylinder while it is installed on the machine. Drain fluid from the master cylinder.
2. Remove push rod (1) and boot (2) from housing (13). Not all models use push rod (1) or boot (2).
3. Remove retaining ring (3) from housing (13). **NOTE: Retaining ring is under tension of springs (9 & 10).**
4. Remove washer (4) from housing (13).
5. Remove piston assembly (6) from housing (13).
6. Remove cup (7), retainer (8), spring (9), and spring (10) from housing (13). **NOTE: Not all models use spring (10).**

7. Remove check valve (11) and seat (12) from housing (13). Not all models use check valve (11) or seat (12).
8. Remove line bolt (17), gasket (16), fitting block (15), and gasket (14) from housing (13). **NOTE: Not all models use line bolt (17), gaskets (14 & 16), or fitting block (15).**
9. Remove filler cap (19) from housing. Remove gasket (18) from filler plug (19).

ASSEMBLY

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

1. Clean all parts thoroughly before assembling.
2. Install new seat (12) and new check valve (11) in housing (13). Not all models use seat (12) and check valve (11).
3. Install new retainer (8) on the small end of new spring (9) by bending tabs on retainer around end of the spring.

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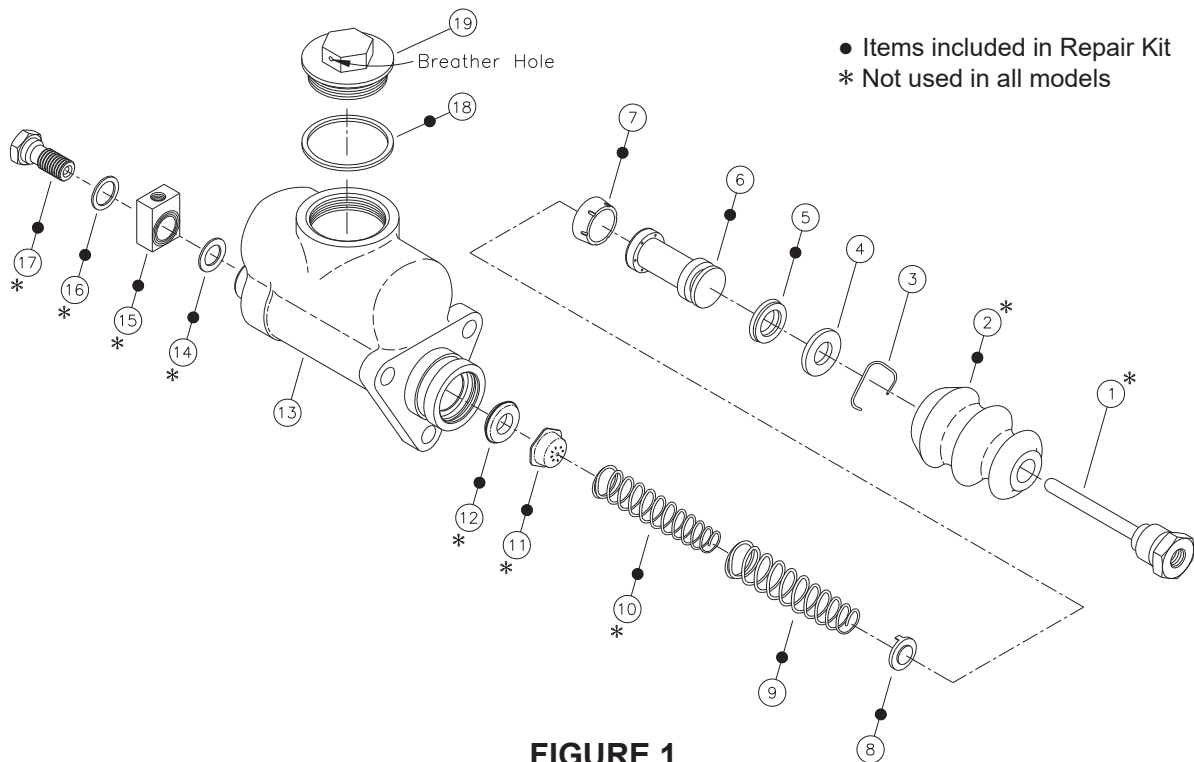


FIGURE 1

4. Place the small end of new spring (10) into new spring (9). Insert spring/retainer assembly into housing (13). Note the direction of spring/retainer assembly. **NOTE: Not all models use spring (10).**
5. Insert new cup (7) into housing (13). Note the direction of cup (7).
6. Install new cup (5) on new piston assembly (6). Note the direction of cup (5). Insert piston assembly in housing (13). Note the direction of piston assembly.
7. Install washer (4) in housing (13).
8. Install retaining ring (3) in housing (13).
9. Install new gaskets (14 & 16), new fitting block (15), and line bolt (17) in housing (13). Finger tighten line bolt (17). **NOTE: Not all models use line bolt (17), gaskets (14 & 16) or fitting block (15).**
10. Install new boot (2) and push rod (1) on housing (13). Not all models use push rod (1) or boot (2).
11. **NOTE: If the master cylinder uses a filler plug with a breather hole, before installing filler plug (19) be sure the breather hole is free of all contaminants. Use air pressure to clean and dry this hole.** Install new gasket (18) and filler plug (19) on housing (13).
12. Install the master cylinder on the machine and connect the fluid lines. Torque line bolt (17) 46.1-16.0 N·m (35-45 lb·ft). Bleed the system of air. Tighten the fittings if leaks occur. Make several applications to be sure the master cylinder is working properly. **NOTE: See form 81-600-001 instructions to bleed this cylinder. Refer to the machine manufacture specifications to bleed the machine brake system. All fittings must be inspected for leaks and tightened if leaks occur.**

⚠ CAUTION

Be careful not to over stroke this cylinder. The cylinder does not incorporate a piston stop. Over stroking this cylinder may cause it to leak from the push rod end of cylinder. Maximum recommended stroke for this cylinder is 31.75 mm (1.25 in).

13. After bleeding is completed, fill the reservoir to within 12.7 mm (0.50 in) of the top. Install the filler plug assembly and torque 33.9-47.5 N·m (25-35 lb·ft).

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