TANDEM MASTER CYLINDER

Service Instructions

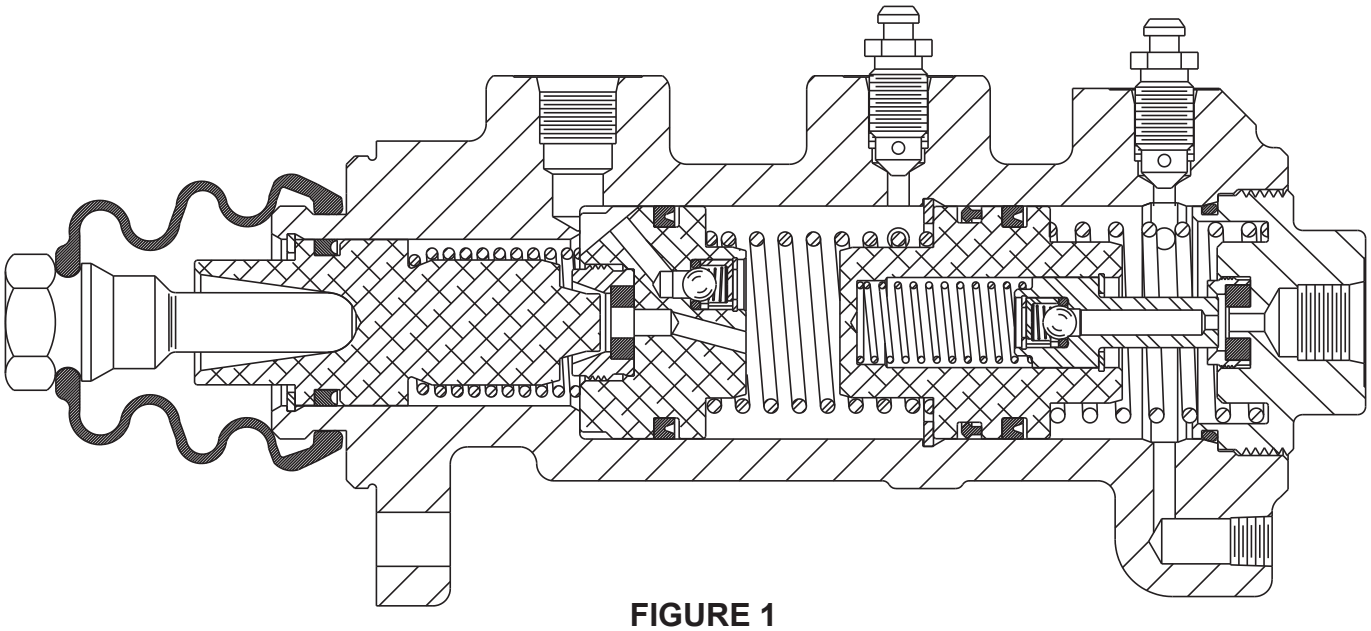

FIGURE 1

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DISASSEMBLY

(Refer to Figures 1, 2, and 3)

1. Remove the master cylinder from the machine by disconnecting the necessary fluid lines. Disconnect the push rod and remove the mounting bolts. Drain the fluid from the assembly.
2. Remove push rod (1) and boot (2) from housing (7).
3. Remove retaining ring (3) and piston assembly (5) from housing (7). Remove cup (4) from piston (5). Note the direction of cup (4).

⚠ CAUTION

Piston assembly (5) is under tension of spring (6).

4. Remove spring (6) from housing (7).
5. Remove end cap (28) from housing (7). Spring (24) and piston assembly (11) may also come out of the housing bore. Remove spring (24) and piston assembly (11).
6. Remove o-ring (25), retainer (26), and seat (27) from end cap (28).
7. Remove cups (12 & 14) from piston (13). Remove retaining ring (23), stem assembly (16), and spring (15) from piston (13).
8. Remove retaining ring (17), cage (18), tapered spring (19), ball (20) and o-ring (21) from stem (22). Note direction of tapered spring (19) for reassembly. See Figure 3.
9. Remove spring (10) and retaining ring (9) from housing (7) bore.
10. Use a wooden dowel to push piston assembly (8) out of end cap (28) side of housing (7).

ASSEMBLY

(Refer to Figures 1, 2, and 3)

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

1. Clean all parts thoroughly before assembling.
2. Install new piston assembly (8) in housing (7).
3. Install retaining ring (9) in housing (7).
4. Install new o-ring (21), new ball (20), new tapered spring (19), new cage (18), and new retaining ring (17) in stem (22). **NOTE: Be sure tapered spring (19) is properly aligned and in the correct position when cage (18) is installed. The small end of tapered spring (19) must be against ball (20). SEE FIGURE 3.**
5. Install spring (15), stem assembly (16), and new retaining ring (23) in piston (13).
6. Install new cups (12 & 14) on piston (13). Note the direction of cups (12 & 14).
7. Install new seat (27), new retainer (26), and new o-ring (25) on end cap (28). Torque retainer (26) 9.5-13.6 N·m (7-10 lb·ft).
8. Lubricate the threads of end cap (28). Install spring (10), piston assembly (11), spring (24), and end cap (28) in housing (7). Torque end cap (28) 54.2-67.8 N·m (40-50 lb·ft).
9. Install new cup (4) on piston (5). Note the direction of cup (4).
10. Install spring (6), piston assembly (5), and new retaining ring (3) in housing (7).
11. Install new boot (2) on housing (7) and push rod (1).
12. Install the master cylinder on the machine. Connect the push rod. Connect the fluid lines. Bleed the system according to machine manufacture recommendations. **NOTE: All fittings must be inspected for leaks and tightened if leaks occur.**

● Items included in Repair Kit

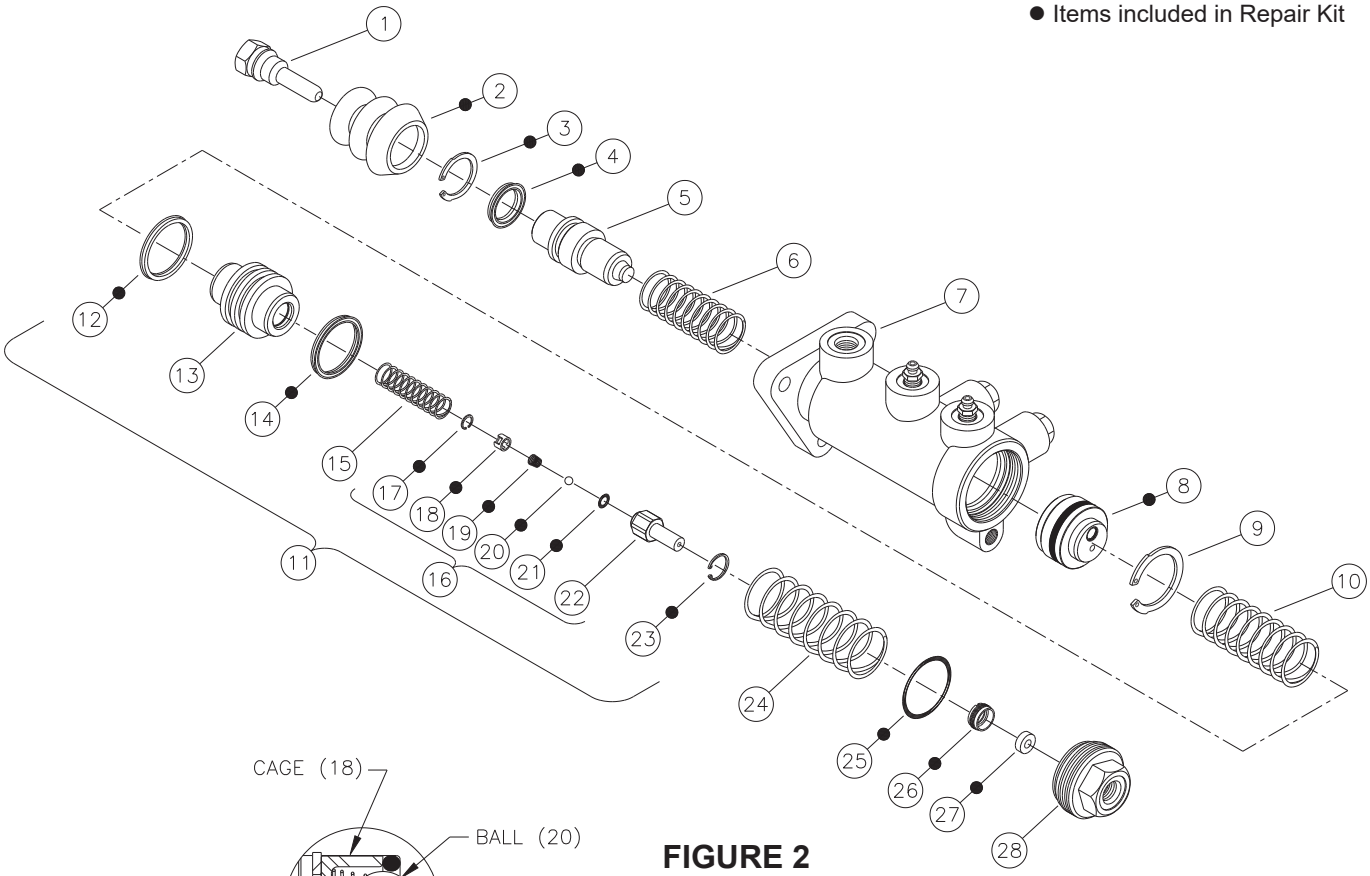

FIGURE 2

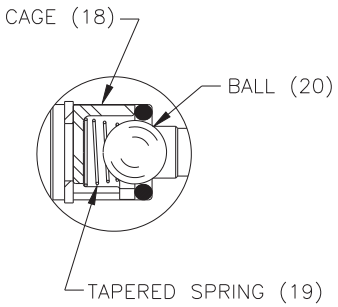

FIGURE 3

BLEEDING PROCEDURE

NOTE

Use only the proper fluid specified by the machine manufacture. Never reuse fluid that has been drained from the system. Be sure to maintain a high level of fluid in the reservoir during and after the entire bleeding process.

PRESSURE BLEEDING INSTRUCTIONS

(Refer to Figure 4)

1. Connect primary and secondary remote reservoir lines and reservoirs.
2. Be sure all fittings are tight to avoid leaking.
3. Fill secondary remote reservoir with the proper fluid. Fill slowly to prevent air entrapment in reservoir lines.
4. Connect the pressure bleeder to secondary reservoir tube nut. Recommended bleeding pressure is 10 PSI maximum. **NOTE: Make sure to use the correct pressure bleeder for the type fluid used in system.**
5. Loosen the bleeder screw for the secondary outlet to brakes on master cylinder. Tighten the bleeder screw when air bubbles have ceased.
6. Working on secondary line only, continue to the next bleeder screw and so on. At each point when air bubbles have ceased, close the bleeder screw.
7. Disconnect the pressure bleeder from secondary reservoir tube nut.
8. Fill the primary remote reservoir with proper fluid. Fill slowly to prevent air entrapment in the reservoir lines.
9. Connect pressure bleeder to primary reservoir tube nut.
10. Loosen the bleeder screw for the primary outlet to brakes on master cylinder. Tighten the bleeder screw when air bubbles have ceased.
11. Working on the primary line only, continue to the next bleeder screw and so on. At each point when air bubbles have ceased, tighten the bleeder screw.
12. Disconnect the pressure bleeder from the primary reservoir tube nut.
13. Loosen the tube nuts at the primary and secondary outlets to brakes on master cylinder. Actuate the master cylinder to remove any residual air. Tighten the tube nuts before permitting the pedal to return.
14. Actuate the pedal several times. If the pedal is spongy, check for system leaks and repeat the bleeding process.

GRAVITY BLEEDING PROCEDURE

(Refer to Figure 4)

1. Fill both primary and secondary reservoirs with the proper fluid.
2. Loosen the primary and secondary bleeder screws to brakes on master cylinder.
3. Tighten both bleeder screws when air bubbles in the fluid have ceased.
4. Open the downstream bleeder screws on both the primary and secondary lines.
5. Close the both bleeder screws when the air bubbles in the fluid have ceased.
6. Open the downstream bleeder screws on the primary and secondary lines.
7. Actuate the master cylinder to remove any residual air. Tighten both bleeder screws before permitting the pedal to return.
8. Actuate the pedal several times. If the pedal is spongy, check for system leaks and repeat the bleeding process.

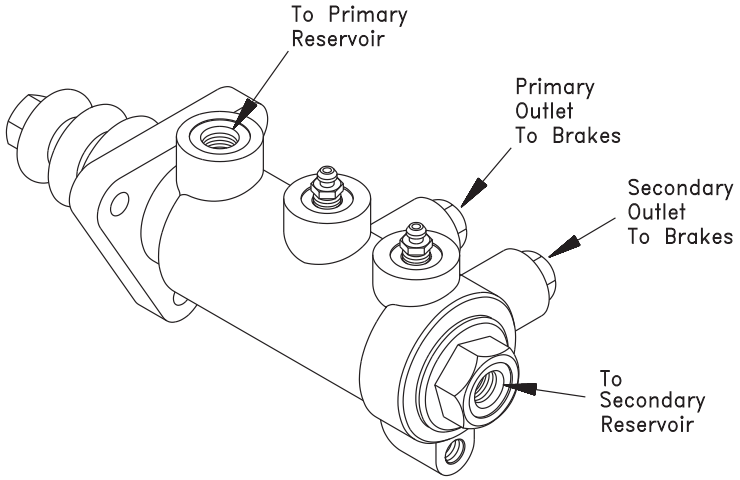

FIGURE 4