Service Instructions

HYDRAULIC BRAKE VALVE

Power Assist Section

Service Instructions

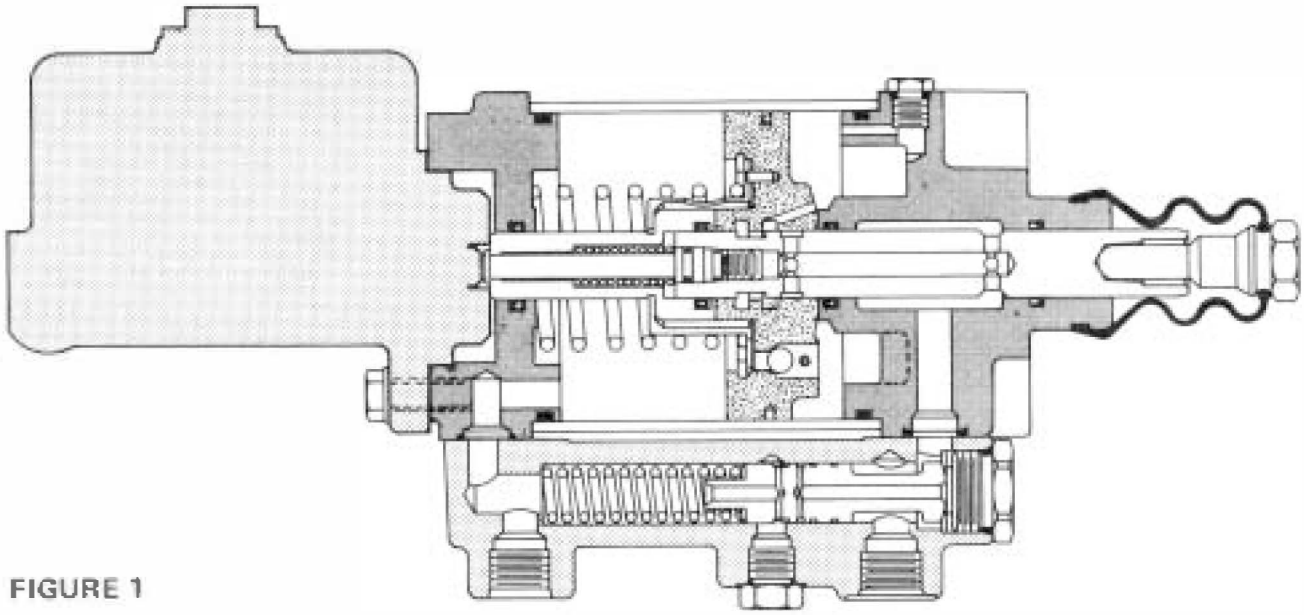

FIGURE 1

This instruction sheet services the Power Assist Sections for these model numbers:

02-460-282
02-460-316
02-460-366

TYPICAL SYSTEM SCHEMATIC (Closed Center)

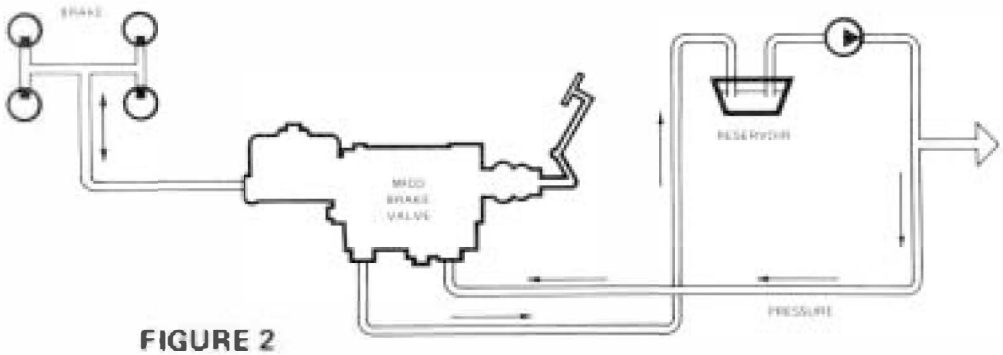

FIGURE 2

(This circuit may not apply to your installation)

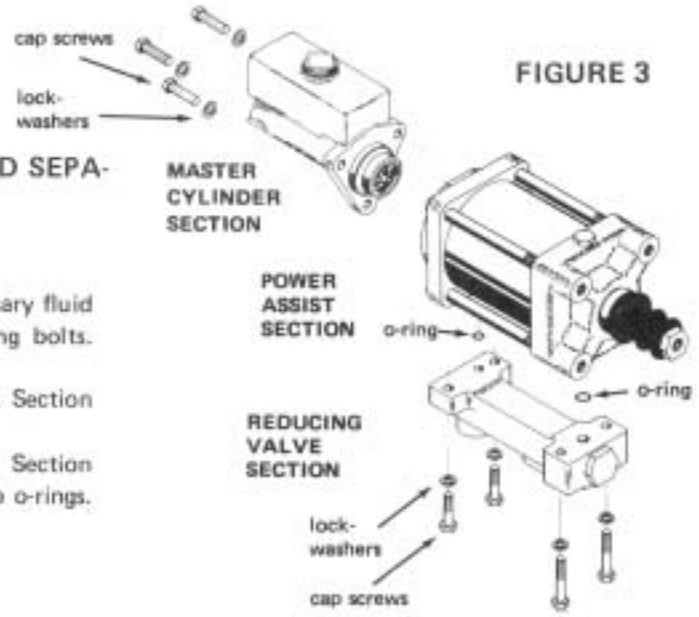

FIGURE 3

REMOVING BRAKE VALVE FROM VEHICLE AND SEPARATING SECTIONS

(Refer to Figures 1 and 3)

1. Remove brake valve from vehicle by disconnecting necessary fluid lines, disconnecting push rod, and removing mounting bolts. Drain fluid from assembly.
2. Separate Master Cylinder Section from Power Assist Section by removing three cap screws and three lockwashers.
3. Separate Reducing Valve Section from Power Assist Section by removing four cap screws, four lockwashers and two o-rings.

POWER ASSIST DISASSEMBLY

(Refer to Figures 1 and 4)

1. Drain fluid from unit before disassembling.
2. Remove push rod (item 1) and boot (item 2) from Power Assist Section.
3. Remove the four (4) bolts and lockwashers (items 24 & 23) at an even rate.

   CAUTION: End caps (items 4 & 22) are under tension of spring (item 18).

4. Separate end caps, tube (item 19), spring (item 18), and internal parts assembly (item 25).
5. Remove o-ring (item 20) and cup (item 21) from end cap (item 22). NOTE: Care must be taken not to mar or scratch bore.
6. Remove o-ring (item 7), cups (items 3 & 8), o-ring (item 5) and plug (item 6) from end cap (item 4). NOTE: Care must be taken not to mar or scratch bore.
7. Separate piston (item 14) from piston (item 10) by removing retaining ring (item 17) and retainer (item 16).
8. Remove ring (item 9) from piston (item 10).
9. Remove retaining ring (item 15) from rod and piston assembly (item 11).

   CAUTION: Piston (item 14) is under tension of spring (item 12).

10. Separate piston (item 14) from rod and piston assembly (item 11) and remove cup (item 13) and spring (item 12).

POWER ASSIST ASSEMBLY

(Refer to Figures 1 and 4) Use only hydraulic oil in Power Assist Section.

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 cup (item 13) in piston (item 14). Note direction of cup.
3. Slide spring (item 12) and piston (item 14) on rod and piston assembly (item 11). Then hold in place by installing new retaining ring (item 15) on end of rod and piston assembly.
4. Install new ring (item 9) on piston (item 10) and then install piston and ring on rod and piston assembly (item 11). Note direction of piston (item 10).
5. Install retainer (item 16) on piston (item 14) with wide end of retainer inside piston (item 10).
6. Hold retainer (item 16) inside piston (item 10) by installing retaining ring (item 17) in piston (item 10). NOTE: The hole on retainer (item 16) should be aligned with pin inside piston (item 10).
7. Install new cup (item 21) and new o-ring (item 20) on end cap (item 22). NOTE: Care must be taken not to mar or scratch bore.
8. Install new cups (items 3 & 8), new o-ring (item 7) and plug (item 6) with new o-ring (item 5) on end cap (item 4). NOTE: Care must be taken not to mar or scratch bore.
9. Insert internal parts assembly (item 25) in tube (item 19).
10. Install end cap (item 4) on internal parts assembly (item 25).
11. Install end cap (item 22) and spring (item 18) on internal parts assembly (item 25).
12. Install four (4) bolts and lockwashers (items 23 & 24) at an even rate.
13. Install new boot (item 2) on end cap (item 4) and push rod (item 1) into boot.

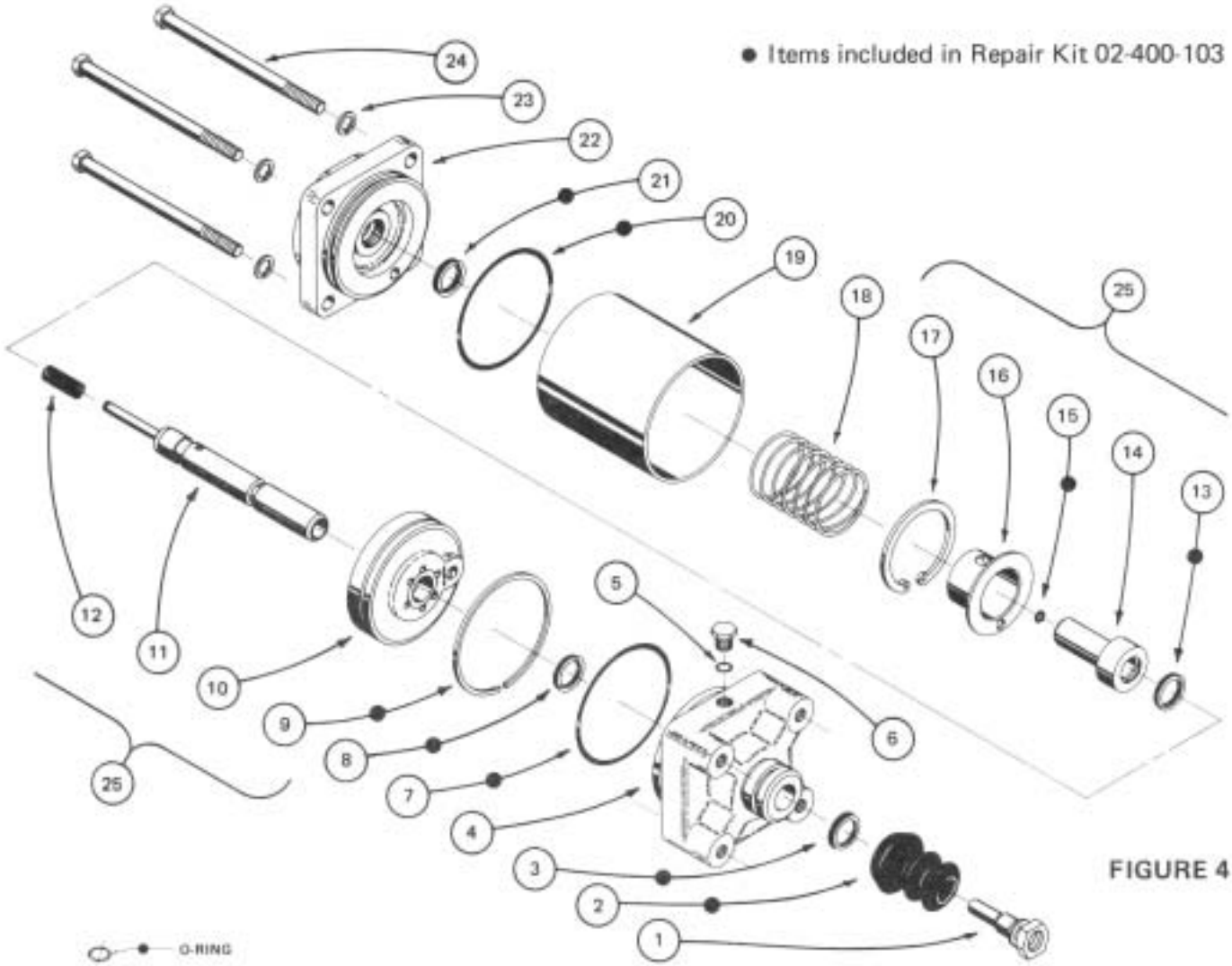

FIGURE 4

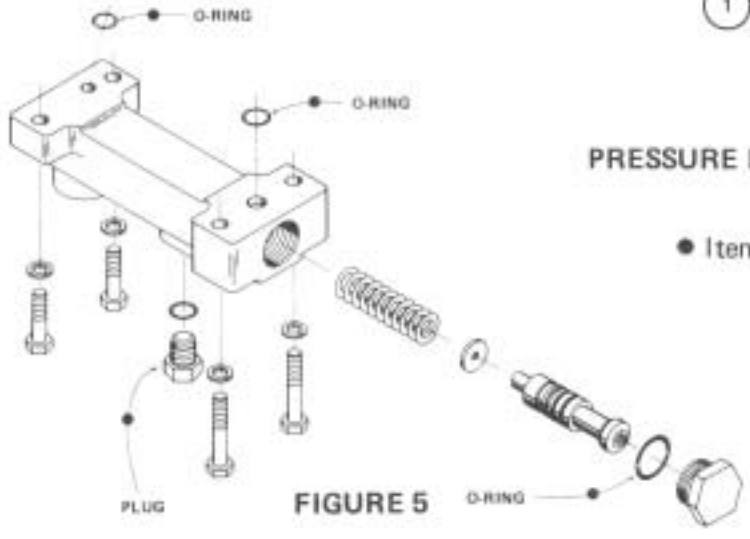

FIGURE 5

PRESSURE REDUCING VALVE SECTION

● Items included in Repair Kit 02-400-103

The Pressure Reducing Valve is not field serviceable.

Spring assembly varies from unit to unit. Settings are made in the factory and should remain that way.

CONNECTING SECTIONS AND MOUNTING BRAKE VALVE ON VEHICLE

(Refer to Figures 1 and 3)

1. Attach Reducing Valve Section to the Power Assist Section with two o-rings and four cap screws and four lockwashers.
2. Torque Reducing Valve cap screws to 16 - 18 ft. lbs.
3. Torque Power Assist Section tie bolts to 45 ft. lbs.
4. Attach Master Cylinder Section to Power Assist Section with three cap screws and three lockwashers. Torque 22 - 27 ft. lbs.
5. Install unit on vehicle. Connect push rod. Bleed system of air. Tighten fittings if leaks should occur. Make several applications to be sure Brake Valve is working properly.

BLEEDING PROCEDURES

NOTE: BE SURE THAT YOU MAINTAIN A HIGH LEVEL OF FLUID IN THE RESERVOIR DURING AND AFTER THE ENTIRE BLEEDING PROCESS.

CAUTION: USE ONLY HYDRAULIC BRAKE FLUID SAE J1703 OR DOT BRAKE FLUID OR BRAKE FLUID SPECIFIED BY VEHICLE MANUFACTURER.

NEVER REUSE FLUID THAT HAS BEEN DRAINED FROM THE SYSTEM.

PRESSURE BLEEDING INSTRUCTIONS

1. Master Cylinder must be securely mounted to power assist section.
2. Fill reservoir with proper fluid used.
3. Be certain all fittings are tight to avoid leaking.
4. DO NOT DEPRESS PEDAL.
5. Connect pressure bleeder into reservoir adapter. Recommended bleeding pressure is 30 P.S.I. maximum.
6. Open bleeder screw closest to master cylinder outlet. Most of the air contained in the system will escape by this route. Close bleeder screw.
7. Continue to the next bleeder screw and so on. At each point when air bubbles disappear close bleeder screw.
8. Remove pressure bleeder.
9. Open bleeder screw at master cylinder. Actuate cylinder to remove any residual air. Tighten bleeder screw before permitting pedal to return.
10. Actuate pedal several times. If pedal is spongy, check for system leaks and repeat bleeding process.

BENCH BLEEDING INSTRUCTIONS

1. This process can be done in a bench vise or on the vehicle with master cylinder mounted to power assist section.
2. Remove master cylinder filler cap assembly.
3. Connect a length of tubing to an outlet port and immerse the other end below the fluid level in the master cylinder reservoir. Keep reservoir fluid within 1/2" of inside reservoir top.
4. Actuate master cylinder piston with a smooth object large enough to hold the small internal piston from coming out. Slowly stroke and release master cylinder piston 1 3/8 - 1 1/2 inches. Repeat until air bubbles in reservoir have ceased.
5. Remove tubing. This should be done quickly so the loss of brake fluid will be minimized.
6. If cylinder was bench bled in a vise, it must now be attached securely to the power assist section and mounted on vehicle. Finish all plumbing connections before continuing to step 7.
7. Bleed remaining air from system by depressing brake pedal and opening bleeder fitting closest to master cylinder. Close bleeder fitting before brake pedal is released. Continue to next bleeder port. In all cases the bleeder fittings must be closed before the brake pedal is released or air will be pulled in through the bleeder and ingest unwanted air in the system.
8. Fill reservoir to within 1/2" of top and install filler cap assembly.
9. Be certain all fittings are tight to avoid any leaking.
10. Actuate pedal several times. If brake pedal feels spongy, check for system leaks and repeat bleeding process.

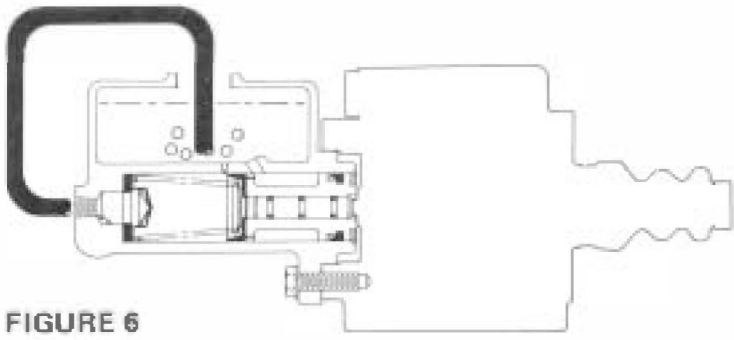

FIGURE 6

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