



Installation Instructions

KIT
PC. No. 289286 &
289287

AH-4 MASTER CYLINDER REBUILD

| Key No. | Quan. | Description |
|---------|-------|-----------------|
| 1 | 1 | Piston Assembly |
| 2 | 1 | O-Ring |
| 3 | 1 | Poppet |
| 4 | 1 | Spring |
| 5 | 1 | Seal |
| 6 | 1 | Washer |
| 7 | 1 | Retaining Ring |

The diagram shows a cross-section of the master cylinder. Callout 1 points to the piston assembly, 2 to an O-ring, 3 to the poppet, 4 to a spring, 5 to a seal, 6 to a washer, and 7 to a retaining ring. Dimension lines indicate a 3.12 REF STROKE, a 3.10 MAX distance, a .60 distance, and a .74 distance.

The maintenance kits for the AH-4 master cylinders are piece number 289286 for brake fluid and 289287 for mineral oil.

Items included in kit are circled in Figure 1.

Figure 1 This kit consists of the parts listed above.

IMPORTANT! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY AND DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times.

1. Park the vehicle on a level surface, apply the parking brakes, and always block the wheels.
2. Stop the engine when working around the vehicle.
3. If the vehicle is equipped with air brakes, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle.
4. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in manner that removes all electrical power from the vehicle.
5. When working in the engine compartment the engine should be shut off. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated, or electrically charged components.

6. Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.
7. Never exceed recommended pressures and always wear safety glasses.
8. Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
9. Use only genuine Bendix replacement parts, components, and kits. Replacement hardware, tubing, hose, fittings, etc. should be of equivalent size, type, and strength as original equipment and be designed specifically for such applications and systems.
10. Components with stripped threads or damaged parts should be replaced rather than repaired. Repairs requiring machining or welding should not be attempted unless specifically approved and stated by the vehicle or component manufacturer.
11. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.

A. DISASSEMBLY

1. Disconnect fluid lines and plug ports. In the case of remote mounted reservoirs drain and clean the reservoir.
2. Remove four 3/8 inch cap screws securing master cylinder to rotochamber. Remove master cylinder. If rotochamber has not been serviced recently, the diaphragm should be examined for abrasions or worn spots and replaced if necessary. Refer to Bendix Service Data Sheet SD-02-2 for details.

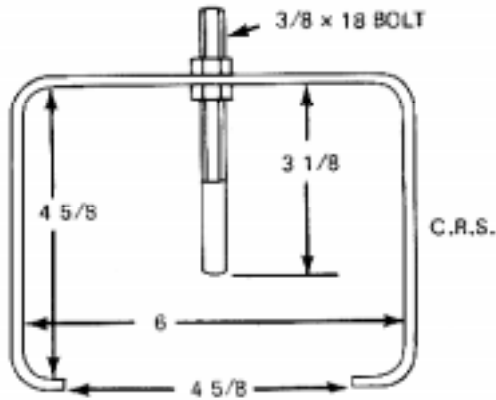


Fig. 2

3. Clean exterior of master cylinder and drain oil fluid.
4. Secure master cylinder in a vise. Depress piston (1) Fig.1 at least 1/2 inch and hold. This may be done with a simple tool as shown in Figures 2 and 4. Remove the four self-threading bolts (9) securing the adapter block or the reservoir to the master cylinder. Remove the adapter block or reservoir and the compensating valve (3) and spring (4). See Fig. 3. **CAUTION!!! The compensating valve must be removed before any attempt is made to remove the hydraulic piston assembly.**
5. Remove retaining ring (7) and stop washer (6).
6. Remove piston holding tool and remove piston (1) and spring (11).
7. Remove cap nut (10) from adapter block. Remove O-Ring (2) from cap nut and compensating valve seal (5) from adapter block or reservoir.

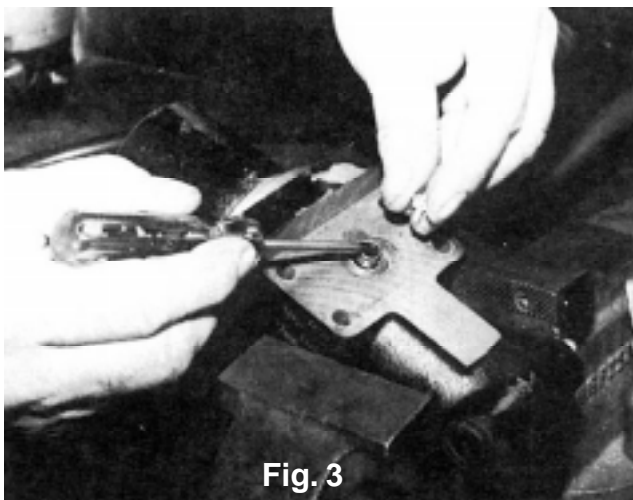


Fig. 3

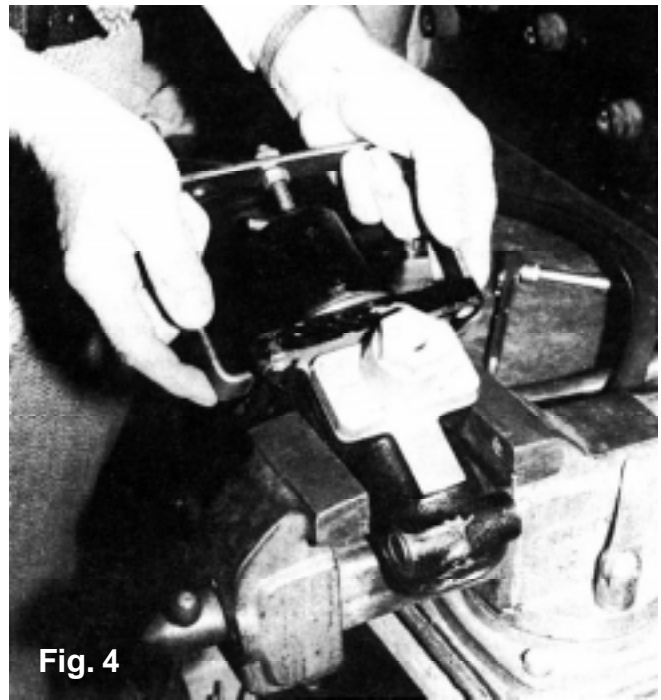


Fig. 4

B. RE-ASSEMBLY

1. Wash the cap nut, adapter block and cylinder casting with alcohol or mineral spirits and dry thoroughly.
2. Carefully wash and blow out the filter screen (8).
3. Install the new O-Ring (2) on the cap nut after lubricating with the fluid to be used in the master cylinder or Dow Corning 55-M pneumatic grease. Thread the cap nut in the adapter block and torque to 300 inch pounds.
4. Coat the new compensating seal (5) with fluid or Dow Corning 55-M pneumatic grease and install in mating grooves in bottom of adapter block or reservoir.
5. Coat bore in master cylinder with fluid to be used, place spring (11) in piston assembly (1) and slide both into bore of master cylinder (Fig. 5).
6. Place the stop washer (6) and retaining ring (7) over the center post of the retaining tool, depress the piston (1) in the bore and retain with the retaining tool. (See Fig. 6). Make certain the retaining ring is properly seated in its corresponding groove in the master cylinder casting. (See Fig. 7) **CAUTION: Keep retaining tool in place until Step 7 is completed!!**

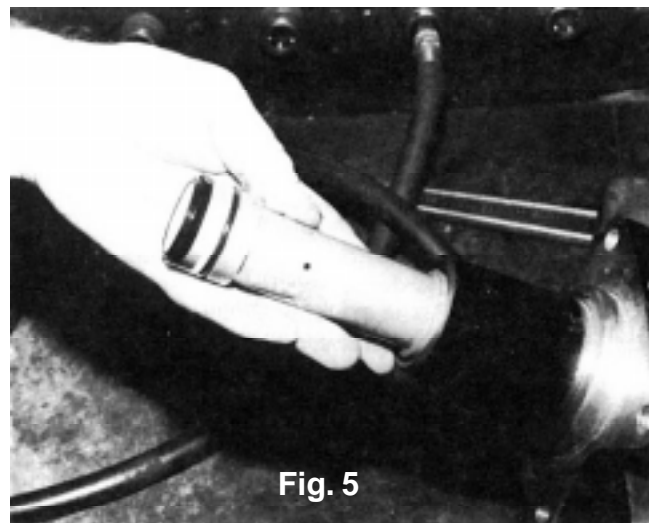


Fig. 5

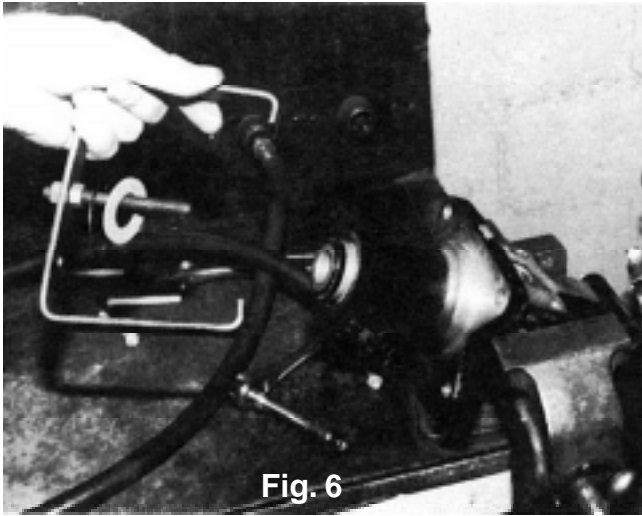


Fig. 6

7. With piston still depressed, install compensating spring (4) and compensating valve (3). Set adapter block (or reservoir) in place. The master cylinder casting should preferably be held in a horizontal position for this operation. Start the four self-threading bolts (9) by hand to prevent cross threading and torque to 150-200 inch pounds. **Care should be taken that the compensating valve is properly located before the adapter block or reservoir is located and snugged down.** (Fig. 8) The piston may now be released by removing the retaining tool.
8. A simple check may be made to determine that the compensating valve is properly installed. Apply air pressure on the discharge port of the master cylinder. With the piston released, air should back-flow through the compensating valve and out the adapter fitting or reservoir. Depress the piston at least 1/4 inch. Air pressure should now be trapped in the master cylinder and there should be no evidence of back flow out the adapter block or reservoir. **CAUTION!!!** 50 psi air pressure will create approximately 100 pounds of additional reactive force on the piston. The piston retaining tool should, therefore, be used for this test.
9. Install the master cylinder on the rotochamber with four 3/8 inch cap screws torqued to 300 inch pounds.

10. Remove plugs, reconnect the fluid lines and bleed the master cylinder. The master cylinder itself may be bled by gravity by filling the reservoir and opening the bleeder fitting opposite the discharge port. When clear fluid flows from the bleeder fitting, it may be closed. If the rest of the system needs bleeding, it may be done by opening the appropriate bleed fitting and cycling the AH-4. Pressure bleeding may also be utilized. Hydraulic brake fluid equivalent to DOT 3 specifications should always be used. Some AH-4 units are designed to be used with mineral oil, in which case, the reservoir cover will clearly so designate. Rubber parts for use with mineral oil are color coded. Reservoir gasket diaphragm is green, seals and O-Rings are brown.

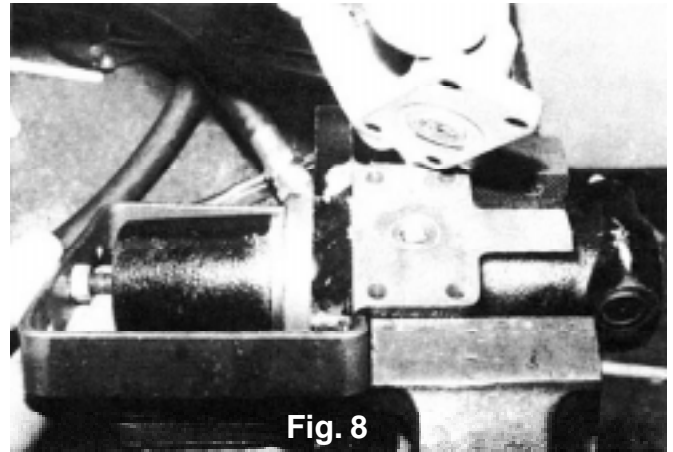


Fig. 8

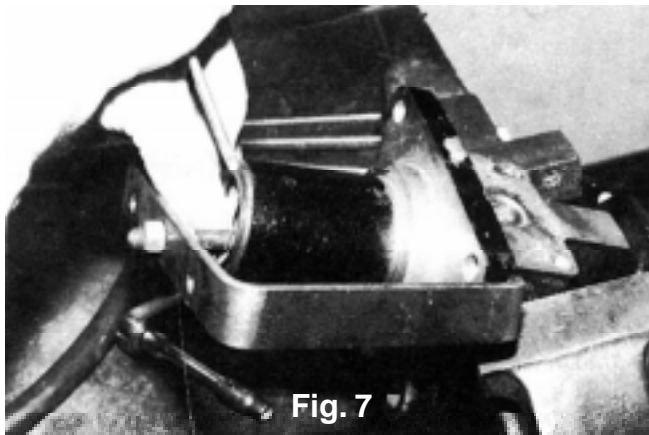


Fig. 7

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