



Installation Instructions

BENDIX® PC-1™ PULL-TYPE BRAKE VALVE

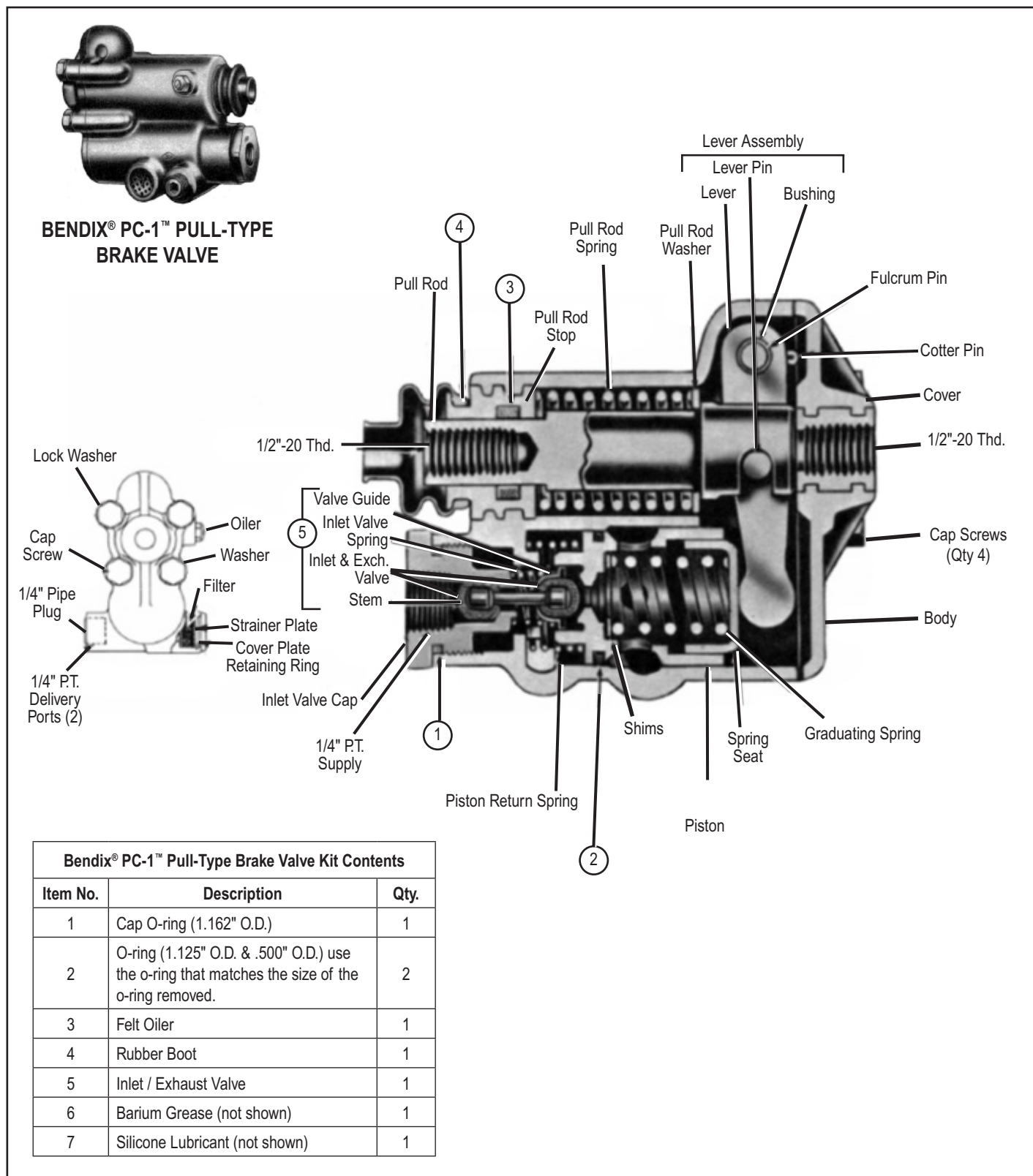


Figure 1 Bendix® PC-1™ Pull-Type Brake Valve Kit Contents

GENERAL SAFETY GUIDELINES

WARNING!

PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR 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. Always wear safety glasses.
2. Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. 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.
3. 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.
4. If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning **ANY** work on the vehicle. If the vehicle is equipped

- with a Bendix® AD-IS® air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.
5. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
6. Never exceed manufacturer's recommended pressures.
7. 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.
8. Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
9. Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
10. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
11. For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.

This kit is intended for use when servicing a Bendix® PC-1™ pull-type brake valve. The PC-1 pull-type brake valve is obsolete and no longer available. The parts included in this kit are the only items available for servicing this valve.

BENDIX® PC-1™ PULL-TYPE BRAKE VALVE REMOVAL

1. Park the vehicle on a level surface and prevent movement by means other than the brakes. Exhaust the air pressure from the reservoirs.
2. Disconnect the pedal rod from the pull rod.
3. Disconnect the air lines at the valve. Be sure to mark the air lines for ease of reassembly.
4. Remove and discard the boot (4) and unscrew the pull rod stop from the body.
5. Remove and discard the felt oiler (3) from the pull rod stop.
6. Remove the pull rod spring and washer from the pull rod.
7. Unscrew the inlet valve cap and remove and discard the inlet valve cap o-ring (1) and the inlet and exhaust valve assembly (5).
8. Remove the four cover plate cap screws that secure the cover plate to the valve body. Note that early PC-1 pull-type brake valve cover plates were secured with a large retaining ring instead of the four cap screws. For these valves, remove the retaining ring.
9. Remove the cover plate.
10. Remove the cotter pin and fulcrum pin that secures the actuating lever.
11. Remove the actuating lever through the opening where the cover plate was removed.
12. Remove the pull rod.

13. Remove the spring seat, piston, graduating spring, shims, o-ring (2) and piston return spring through the opening where the cover plate was removed.

14. Discard o-ring (2).

CLEANING AND INSPECTION

1. Wash all metal parts that are to be reused in cleaning solvent. Dry all parts thoroughly. Inspect carefully for wear or deterioration.

ASSEMBLY (Refer to Figure 1)

1. Using the barium grease (6), lubricate the o-ring (2) and install it on the piston. Note that there are two different sizes of o-rings to choose from. Select the appropriate size for the valve piston you are servicing and discard the other o-ring in the kit.
2. Using the silicone lubricant (7), lubricate the outer diameter of the piston.
3. Install the piston with o-ring (2), spring seat, graduating spring, shims, and piston return spring into the valve body through the opening where the cover plate was removed. Note there are two different piston o-rings included in this kit. Select the one that fits the valve piston you are servicing and discard the other.
4. Install the inlet and exhaust valve assembly (5) in the inlet port opening.
5. Using the barium grease (6), lubricate the o-ring (1) then install it on the inlet valve cap.
6. Screw the inlet valve cap into the inlet port and tighten to 150–400 in-lbs.
7. Using the silicone lubricant (7), lubricate the inside bore of the valve in the pull rod spring area.
8. Install the pull rod and pull rod washer in the body.
9. Using the silicone lubricant (7), lubricate the fulcrum pin, lever pin, and lever.

10. Insert the actuating lever through the cover plate opening and up into the body recess provided for the fulcrum pin. Insert the fulcrum pin through the hole in the body and through the fulcrum pin hole in the actuating lever. Be sure that the lever pin on the lever fits into the groove of the pull rod. Secure with the cotter pin.
11. Install the pull rod spring over the pull rod.
12. Install the felt oiler (3) in the pull rod stop and lubricate the pull rod stop with the silicone lubricant (7). Place the pull rod stop over the pull rod and screw it into the body. Tighten to 80–120 in-lbs.
13. Install the cover plate and retaining ring. Secure with the four cover screws. Tighten to 80–120 in-lbs. If the cover plate was secured with a retaining ring, reinstall the ring.
14. Install the rubber boot (4) using care not to damage it. Be sure the boot is seated properly.
15. Lubricate the felt oiler by adding engine oil to the oiler port located on the side of the valve.
16. Return the valve to the vehicle and reconnect the pedal rod and air lines.
17. Test the pull type brake valve per the operation and leakage tests.

OPERATION TEST

Check the delivery pressure of the brake valve using a test gauge known to be accurate. Depress the pedal to several positions between the fully released and fully applied positions. Check the delivered pressure on the test gauge to see that the pressure varies proportionately to the movement of the pedal. When the pedal is fully applied, the reading on the gauge should be approximately full reservoir pressure. The gauge reading should fall to 0 psi when the application is released.

LEAKAGE TEST

With the brake valve fully released, check the exhaust for leakage. (Exhaust is located at the screen on the side of the valve.) Leakage should not exceed a one inch bubble in five seconds. Make and hold a brake application. Coat the exhaust with soapsuds; leakage is not to exceed a one inch bubble in three seconds. Also, coat with soapsuds around the plunger (top of mounting plate) and between the mounting plate and valve body. No leakage is permitted.

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