

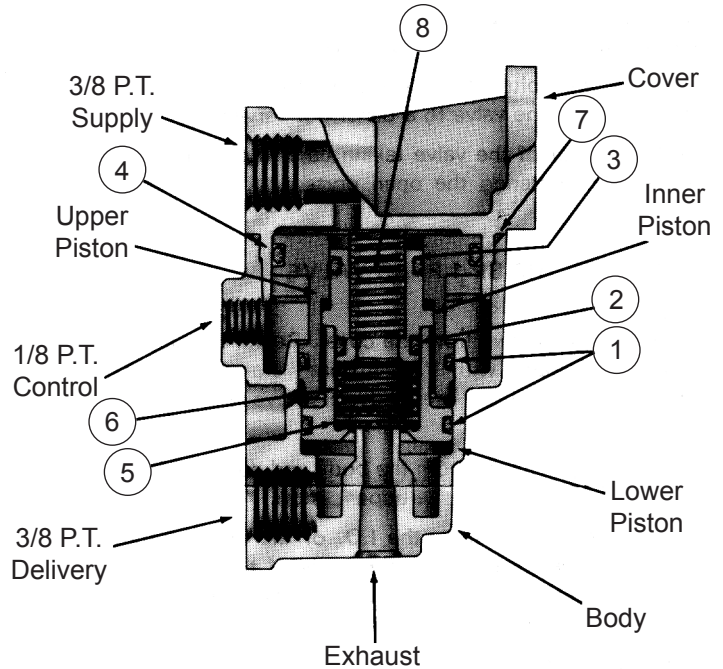
# Installation Instructions



## BENDIX® BP-1™ REAR BRAKE PROPORTIONING VALVE MAINTENANCE KIT



**Figure 1**



**Figure 2**



Kit Contents		
Item No.	Description	Qty.
1	O-Ring	2
2	O-Ring	1
3	O-Ring	1
4	O-Ring	1
5	Valve	1
6	Spring	1
7	O-Ring	1
8	Spring	1
9	Tube of Lubricant	1

**Figures 1 and 2 – Bendix® BP-1™ Rear Brake Proportioning Valve Maintenance Kit**

## 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 guidelines should be observed **AT ALL TIMES**:

- ▲ Park the vehicle on a level surface, apply the parking brakes and always block the wheels. Always wear personal protection equipment.
- ▲ Stop the engine and remove the 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.
- ▲ 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.
- ▲ 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, a Bendix® DRM™ dryer reservoir module, or a Bendix® AD-9si® air dryer, be sure to drain the purge reservoir.
- ▲ Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
- ▲ Never exceed manufacturer's recommended pressures.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.
- ▲ Never connect or disconnect a hose or line containing pressure; it may whip and/or cause hazardous airborne dust and dirt particles. Wear eye protection. Slowly open connections with care, and verify that no pressure is present. Never remove a component or plug unless you are certain all system pressure has been depleted.
- ▲ Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, wiring, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
- ▲ 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.
- ▲ Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
- ▲ 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.
- ▲ The power **MUST** be temporarily disconnected from the radar sensor whenever any tests **USING A DYNAMOMETER** are conducted on a vehicle equipped with a Bendix® Wingman® system.

## REMOVAL OF THE BENDIX® BP-1™ REAR VALVE FROM THE VEHICLE

1. Secure the vehicle on a level surface by means other than the brakes.
2. Drain the air system completely, making sure all reservoirs are at atmospheric pressure.
3. Remove and identify the air lines from the "BP-1 Rear" valve. This valve is usually located along the frame rail between the brake valve and the rear axle.
4. Remove the two bolts attaching the BP-1 rear valve to the vehicle and move the valve to a bench for servicing.
5. Clean the exterior of the valve; take care to prevent contaminants from entering the open ports of the BP-1 rear valve.

## DISASSEMBLY OF THE BP-1 REAR VALVE (See Figure 2)

1. Remove the four screws from the cover. Retain the screws and the metal band with "BP-1 Rear" stamped on it. Separate the cover from the body. Remove and discard the o-ring (7).
2. Remove the upper piston from the body and push the inner piston out of the center of the upper piston.
3. Remove the spring (8) from the I.D. of the inner piston. Remove the lower piston from the body of the BP-1 rear valve and tip the piston over to remove the spring (6) and the inlet/exhaust valve (5).
4. Remove the o-rings (1), (2), (3), and (4) from the pistons. Discard items 1 through 8. (See Figure 2). (New parts for these items are provided in the kit.)

## CLEAN AND INSPECT

1. Wipe the interior of the cover, body, and the pistons with a clean dry cloth to remove any contaminants.
2. Visually inspect all components for cracks, scoring, or damage of any kind. If any of these conditions exist, the valve should be replaced.

## ASSEMBLY

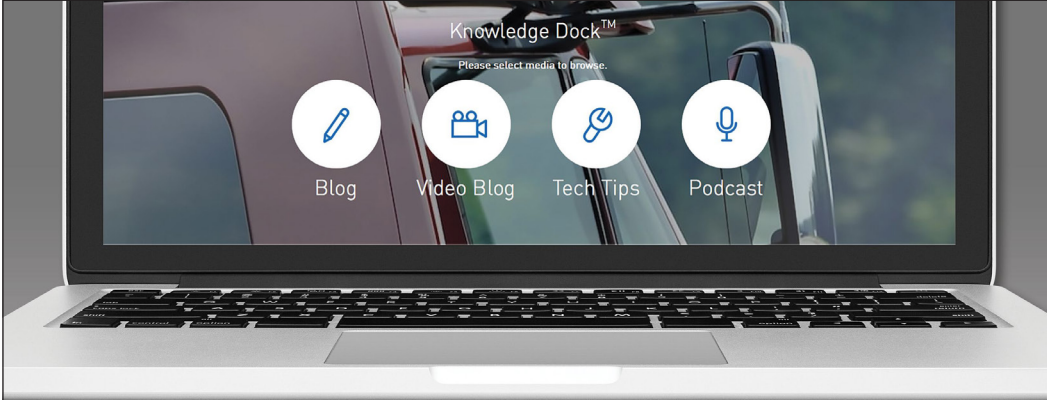
1. Coat the bore surfaces of the cover, body, and upper piston with a light coating of silicone lubricant (9) provided in the kit.
2. Lubricate the six o-rings in the kit with the same material used in Step 1.
3. Install the o-rings onto the pistons and the cover as shown in Figure 2.
4. Install the inlet/exhaust valve into the bore of the lower piston. Place the spring (6) on top of the inlet/exhaust valve.

5. Install the inner piston into the bore of the upper piston and then place the lower piston into the bottom of the upper piston.
6. Place the piston assemblies into the body of the BP-1 valve and install the spring (8) into the I.D. of the inner piston as shown in Figure 2.
7. Place the cover with the o-ring (7) in place onto the body with the supply port directly above the control port.
8. Install the four cover screws and torque to 50-80 in-lbs. NOTE: Be sure that the identification band stamped "BP-1 Rear" has been reinstalled on one of the screws.
9. Reinstall the "BP-1 Rear" valve on the vehicle and reconnect the air lines as identified in the "Removal" instructions.

## OPERATIONAL CHECKS

After components have been installed and all connections made, perform the following checks.


1. With the trailer supply valve pulled out (Bobtail running position) install two air gauges in the service system; one at an actuator on the front axle and one at an actuator on a rear axle.
2. Build system pressure to governor cut-out setting.
3. Make a service brake application with the foot valve and have another person or persons observe the gauges. When the front axle gauge reaches a 40 psi application the rear axle gauge should read approximately 10 psi. This differential will decrease as the application pressure is increased.
4. For vehicles without a BP-1 front valve, push the trailer supply valve in (applied position) and repeat check made in Step 3. The gauges should read approximately equal throughout the range of service applications.  
For vehicles with a BP-1 front valve, push the trailer supply valve in (tractor/trailer running) and repeat check made in Step 3. When the front axle gauge reads 20 psi, the rear axle gauge should read approximately 40 psi. As system pressure increases, the differential between the front and rear axles diminishes.
5. Test drive the vehicle in a safe area at slow speed and with the trailer supply valve in the Bobtail position make several brake applications to become familiar with the brake characteristics prior to placing the unit back into service.



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