

Installation Instructions



BENDIX® BP-1™ FRONT BRAKE PROPORTIONING VALVE MAINTENANCE KIT

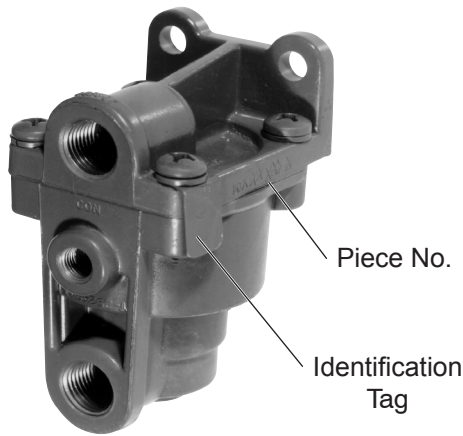


Figure 1

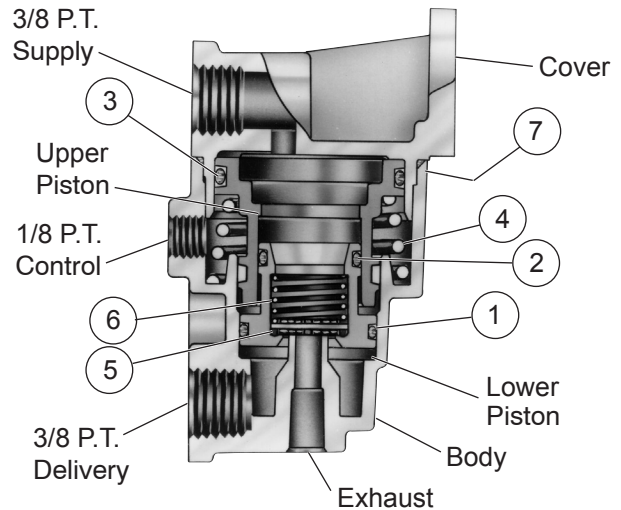


Figure 2



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

Figures 1 and 2 – Bendix® BP-1™ Front Brake Proportioning Valve Maintenance 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 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 BENDIX® BP-1™ FRONT 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 front valve. This valve is usually located along the frame rail between the brake valve and the front axle.
4. Remove the two bolts attaching the BP-1 front valve to the vehicle and move the valve aside to a bench for servicing.
5. Clean the exterior of the valve taking care to prevent contaminants from entering the open ports of the valve.

DISASSEMBLY OF BP-1 FRONT VALVE (See Figure 2)

1. Remove the four screws from the cover. Retain the screws and the metal band with "BP-1 Front" stamped on it. Separate the cover from the body.



The cover is spring loaded. Remove and discard the o-ring (7).

2. Remove the upper piston from the cover and the piston spring (4) and lower piston from the body.
3. With a pair of needle nose pliers grasp the end of the valve spring (6) inside the lower piston and remove it by pulling and turning the spring in a clockwise manner.
4. Remove the inlet/exhaust valve (5) from the lower piston.
5. Remove the o-rings (1), (2), and (3) from the pistons. Discard items 1 through 7 (See Figure 2). (New parts for these items are provided in the kit.)

CLEAN & INSPECT

1. Wipe the interior of the body, cover, 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 bore surfaces of both the cover and the body of the BP-1 valve with a light film of silicone lubricant (8) provided in the kit.
2. Lubricate the four o-rings in the kit with the same material as Step 1.
3. Install the o-rings (1 and 2) on the lower piston, o-ring (3) on the upper piston and o-ring (7) on the cover. (See Figure 2).
4. Install the large end of the upper piston into the bore of the cover of the BP-1 valve.

5. Place the inlet/exhaust valve (5) into the I.D. of the lower piston and retain with valve spring (6). Use needle nose pliers to install the spring (6) by grasping the spring on the bar that intersects the end of the spring and twisting in a clockwise motion while pressing down. The bar end should be up.



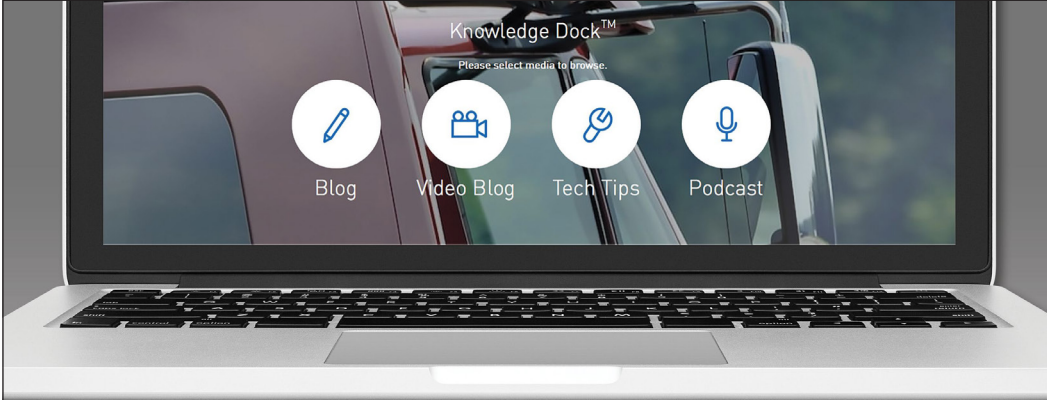
Be sure the inlet/exhaust valve is seated flat against the bottom of the piston and the spring is fully seated below the step on the I.D. of the piston wall. (See Figure 2).

6. Install the lower piston assembly into the body of the BP-1 valve. (Large end to enter the bore first.)
7. Install the piston spring into the body of the BP-1 valve. (Large diameter of the spring to enter first.)
8. Place the cover and upper piston onto the body so that the supply port is directly above the control port. Place the valve on a firm surface and compress the spring by pushing down on the cover. Hold in this position and install two of the four cover screws.
9. Place the metal band stamped "BP-1 Front" onto one of the remaining screws. Install all cover screws and torque to 50-80 in-lbs.
10. Reinstall the "BP-1 Front" valve on the vehicle and reconnect the air lines as identified in "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. 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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