

Installation Instructions

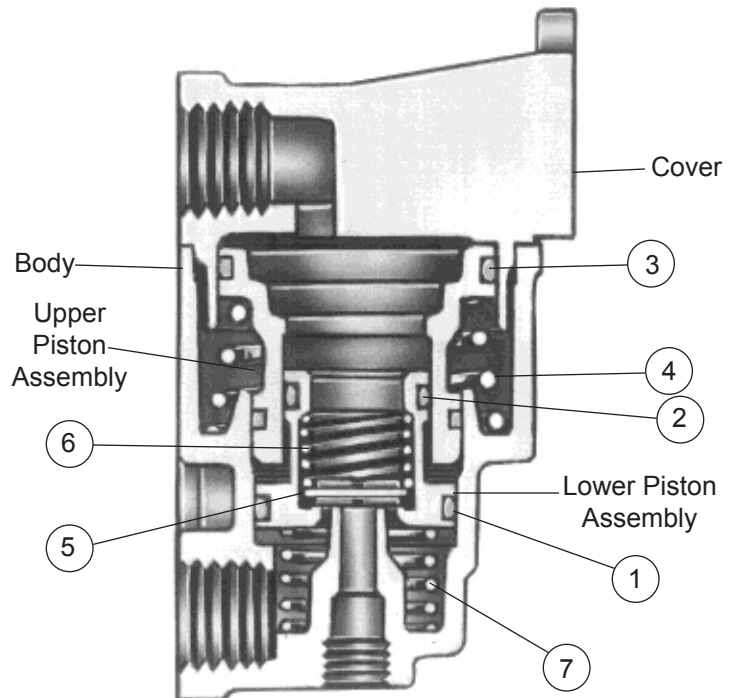


BENDIX® LQ-4™ FRONT AXLE RATIO VALVE MAINTENANCE KIT



Bendix® LQ-4™ Front Axle Ratio Valve

This kit consists of the following parts which are keyed to the sectional view drawing by the circled numbers to the right.



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



*Select proper spring for repair of valve per instructions attached and discard remaining spring.

Figure 1 – Bendix® LQ-4™ Front Axle Ratio 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.

VALVE DISASSEMBLY

1. Note and mark the position of the supply and delivery ports.
2. Remove the four 1/4" machine screws which retain the cover to the body. **Note:** *Caution should be observed when removing the cover as it is spring loaded.*
3. Remove the cover, upper piston assembly, spring (4), and lower piston assembly.
4. Discard o-rings (1, 2, & 3), and spring (4).
5. From the lower piston assembly, remove and discard the spring (6) and valve (5).
6. In some Bendix® LQ-4™ valve assemblies, a spring (7) will be beneath the lower piston. If present, remove and discard.
7. Prior to reassembly, wash all parts in a cleaning solvent equivalent to mineral spirits, making sure all surfaces, bores, and passages are clean and dry.
8. Coat all parts, bores, and surfaces with a film of lubricant (8) supplied in the kit.

If in Step 6 the valve contained a lower piston spring (7), it must be determined which of the two springs provided in this kit will be used. Stamped on the side of the cover of the LQ-4 valve is the piece number and nominal hold-off pressure for that valve.

For a 4 psi hold-off pressure, neither of the two springs should be used.

For a 10 psi hold-off pressure, use the smallest spring. (Approximate free height 1" with 3-3/4 coils).

For a 20 psi hold-off pressure, use the largest of the springs. (Approximate free height 1-7/16" with 3-1/4 coils).

VALVE REASSEMBLY

9. Drop valve (5) into the lower piston making sure it is laying flat.
10. Position spring (6) in the largest opening of the lower piston and wind the spring into the lower piston. Be sure that the spring rests on the four ears of the valve (5) and is seated at the other end in the notch of the lower piston.
11. If the LQ-4 valve requires it, place the proper lower piston spring (7) in the bottom of the valve body.
12. Position the o-rings (1, 2, & 3) in the respective grooves on the upper and lower pistons.
13. Insert the spring (4) and reassemble the valve in reverse order of disassembly, making sure the supply and delivery ports are in their proper position.

SERVICE CHECKS

OPERATIONAL CHECKS

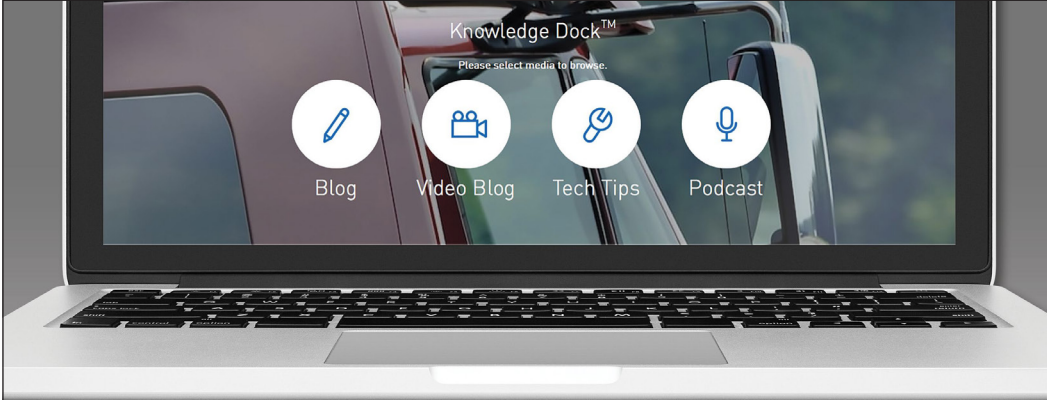
1. Install a test gauge or gauge of known accuracy in the supply and delivery lines of the LQ-4 valve.
2. Build the system air pressure to governor cut-out, turn off the engine and apply the parking brakes.
3. While making a slowly increasing service brake application, note that the pressure registered on the gauge installed in the delivery line from the LQ-4 valve is approximately half the pressure registered on the gauge in the supply line. The 50% reduction will occur while the supply line pressure is below approximately 40 psi.
4. When the supply line pressure exceeds 40 psi, but is below 60 psi, observe that the delivery line pressure is no longer one-half and that the delivery line pressure is "catching up" to the supply pressure.
5. When the supply pressure exceeds 60 psi, note that the delivery line pressure is approximately equal.

Note: *The pressures stated here are examples only. Various piece numbers of the LQ valves may have different pressure settings. For information on a specific installation, consult the vehicle handbook.*


LEAKAGE CHECKS

Make and hold a service brake application. Apply a soap solution to the exhaust port and around the seam between the cover and the body. No leakage is permissible at the seam between the cover and the body. Leakage of greater than a 1" bubble in 3 seconds is not permissible.

For additional information on the LQ-4 valve, see *Service Data sheet SD-03-951*.



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