

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.
- ▲ 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.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.

REMOVAL AND INSTALLATION

REMOVAL

1. Block and hold the vehicle by means other than the air brakes.
2. Drain the air brake system reservoirs.
3. If the entire Bendix® R-12DC® valve is to be removed, identify the air lines to facilitate the installation. Prior to disassembly, remove as much contamination as possible from the exterior of the device taking care to keep all contamination from entering the open ports.
4. Disconnect the air lines from the valve*.
5. Remove the valve from the reservoir or if remotely mounted, remove the mounting bolts and then the valve.

*It is generally not necessary to remove the entire valve to service the inlet/exhaust valve. The inlet/exhaust valve insert can be removed by removing the snap ring, exhaust cover assembly, and then the inlet/exhaust valve.



CAUTION

Drain all reservoirs before attempting to remove the inlet exhaust valve.

DISASSEMBLY

NOTE: Prior to disassembly, mark the location of the mounting bracket to the cover and the cover to the body.



CAUTION

The valve body may be lightly clamped in a bench vise during disassembly, however, over-clamping will result in damage to the valve and result in leakage and/or malfunction. If a vise is to be used, position the valve so that the jaws bear on the supply ports on opposing sides of the valve's body. (See Figure 1).

1. Remove the four cap screws securing the mounting bracket and cover to the body. Retain the cap screws for reuse.
2. Discard the mounting bracket.
3. Remove and discard the sealing o-ring (5) from the valve cover.
 - a. Remove the two Torx® screws securing the double check cover to the valve cover.
 - b. Remove the double check cover from the valve cover and remove and discard the valve spring (1), check valve guide (2), check valve (3), and o-ring (4).
4. Remove and discard the sealing o-ring (5) from the cover, and mounting bracket.

5. Remove the relay piston from the valve body and retain for reuse.
6. Remove and discard the o-ring (6) from the relay piston.
7. Depress and hold the exhaust cover (12) and remove and discard the retaining ring (13) from the valve body.
8. Slowly release the holding force on the exhaust cover assembly (12) to relax the spring.
9. Remove and discard the following parts:
 - a. Exhaust cover assembly (12)
 - b. O-rings (10 & 11)
 - c. Spring (9)
 - d. Inlet & exhaust valve (7)
 - e. Valve retainer (8)
5. Install the spring (9) in the valve body.
6. Install the exhaust cover assembly (12) in the valve body. Depress and hold the exhaust cover assembly in the valve body.
7. Install the retaining ring (13) in the body. Make certain the retaining ring is completely seated in the groove in the body.
8. Install the relay piston in the valve body.
9. Install the o-ring (4) on the double check cover. Install the spring (1), check valve guide (2) and check valve (3) in the cover. Install the cover and torque the Torx® head screws to 80–100 in-lbs.
10. Referring to the marks made during disassembly, install the cover.
11. Install the mounting bracket (not shown) on the cover.
12. Install the four cap screws in the cover and torque to 80–100 in-lbs.

CLEANING AND INSPECTION

1. Wash all metal parts in mineral spirits and dry them thoroughly.
(NOTE: When servicing the Bendix® R-12DC® valve, all springs and all rubber parts should be replaced.)
2. Inspect all metal parts for deterioration and wear, as evidenced by scratches, scoring, and corrosion.
3. Inspect the exhaust valve seat on the relay piston for nicks and scratches which could cause excessive leakage.
4. Inspect the inlet valve seat in the body for scratches and nicks, which could cause excessive leakage.
5. Inspect the check valve seat in the R-12DC valve cover and make sure all internal air passages in this area are open, clean, and free of nicks and scratches.
6. Replace all parts not considered serviceable during these inspections and all springs and rubber parts. Use only genuine Bendix® replacement parts, available from any authorized Bendix parts outlet.

ASSEMBLY

NOTE: All torques specified in this manual are assembly torques and can be expected to fall off slightly after assembly. Do not re-torque after initial assembly torque fall. For assembly, hand wrenches are recommended.

Prior to assembly, lubricate all o-rings, o-ring bores and any sliding surface with the lubricant (14) provided.

Wash all remaining parts in mineral spirits and dry thoroughly. Lightly lubricate all o-rings, o-ring grooves, body bores and sliding surfaces.

1. Install the o-rings (10 & 11) in the exhaust cover (12).
2. Install the o-ring (6) on the relay piston.
3. Install the sealing o-ring (5) on the valve cover.
4. Install the valve retainer (8) on the inlet and exhaust valve (7) and insert both in the valve body.

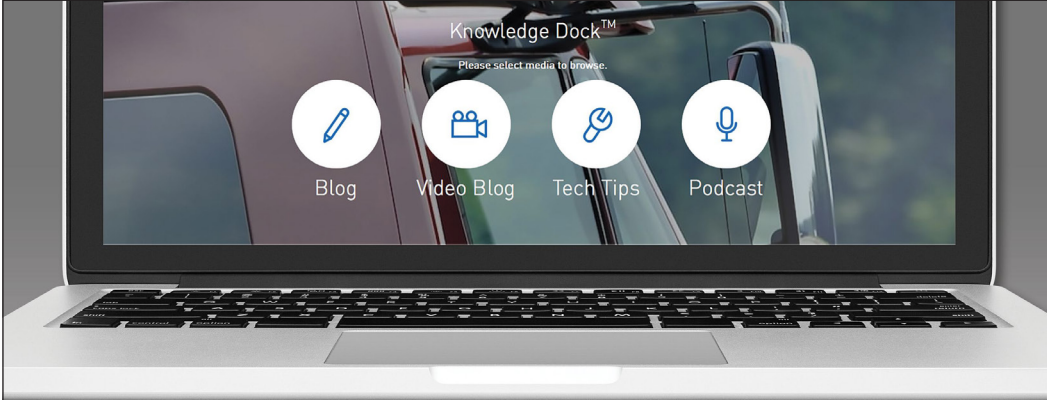
INSTALLATION

1. Clean the air lines.
2. Inspect all lines and/or hoses for damage and replace as necessary.
3. Install the valve and tighten the mounting bolts.
4. Connect the air lines to the valve (plug any unused ports).
5. Test the valve as outlined in Operational and Leakage Test.


OPERATIONAL AND LEAKAGE TEST

1. Chock the wheels, fully charge the air brake system, and adjust the brakes.
2. Make several brake applications and check for prompt application and release at each wheel.
3. Check for inlet valve and o-ring leakage. Make this check with the service brakes released. Coat the exhaust port and the area around the retaining ring with a soap solution; a one inch bubble in three seconds leakage is permitted.
4. Check for exhaust valve leakage. Make this check with the service brakes fully applied. Coat the outside of the valve where the cover joins the body to check for seal ring leakage; no leakage is permitted.

If the valves do not function as described above, or if leakage is excessive, it is recommended that the valves be replaced with new or remanufactured units or repaired with genuine Bendix® parts, available at any authorized Bendix parts outlet.



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