Bendix® RV-3™ Pressure Reducing Valve

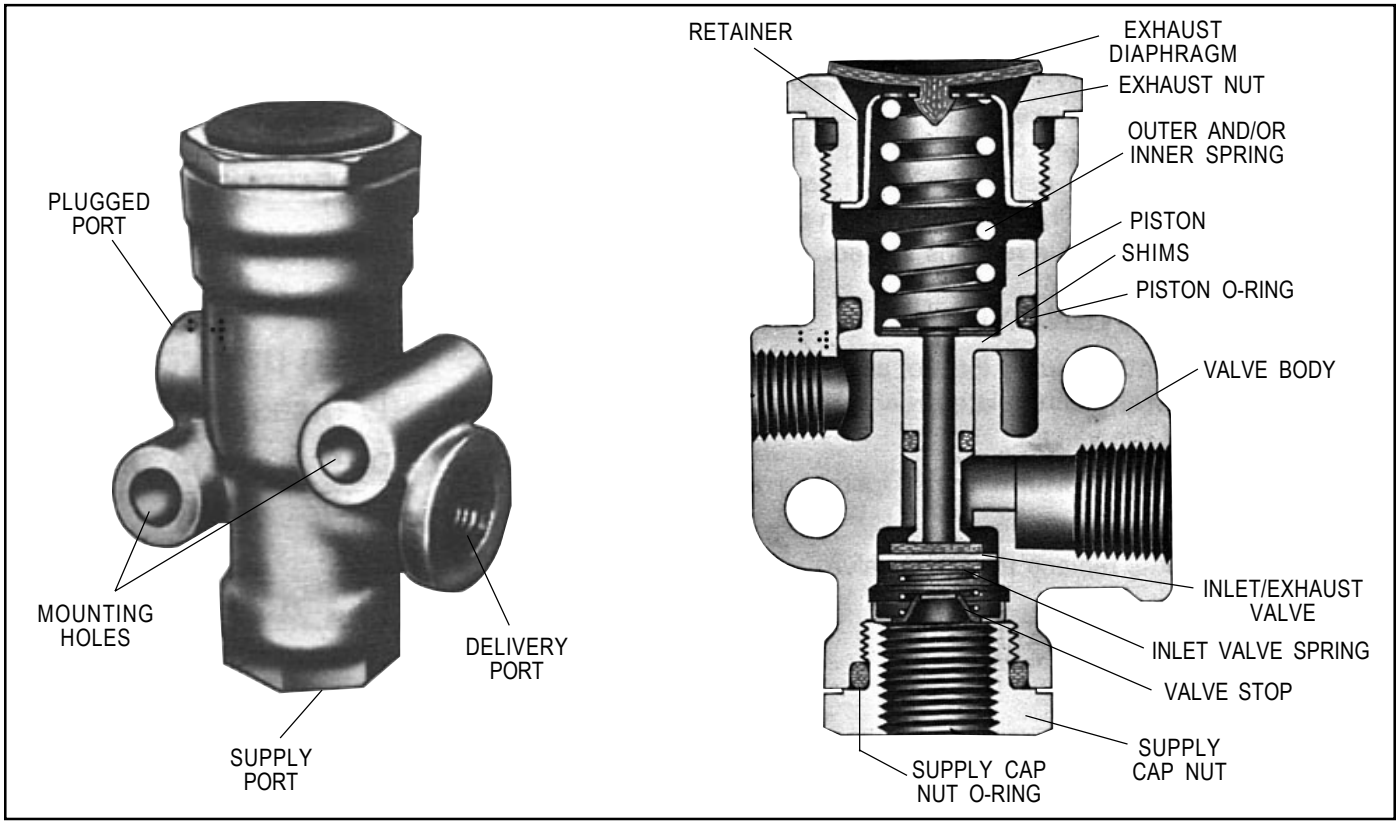

FIGURE 1

GENERAL DESCRIPTION

The RV-3™ pressure reducing valve is a normally open pressure control device. The function of the RV-3™ valve is to reduce system air pressure and maintain a constant specified pre-set pressure below that of system pressure. Various pressure settings can be obtained through the use of springs and shims in combination.

The RV-3™ valve has one supply port and one delivery port. A single pipe plug is installed in the control port and should remain in place for most applications of the RV-3™ valve. A rubber exhaust diaphragm is installed in the end of the valve opposite the supply port. Two .28" (7.1mm) mounting holes are cast into the valve body.

OPERATION

The spring force exerted on the piston determines the delivery pressure of the valve. With no air pressure present at the supply port, the inlet valve is unseated and open while the exhaust passage through the center of the piston is sealed by the exhaust valve. Compressed air entering the supply port flows out the delivery port. Air simultaneously flows between the piston stem and valve body to the underside of the piston. When air pressure on the piston overcomes spring force, the piston moves and the valve spring forces the inlet valve on its seat, closing off the supply of air. The exhaust remains closed. If air pressure in the delivery line drops, spring force on the piston overcomes air pressure. Subsequent piston movement will unseat the inlet valve allowing additional air pressure into the delivery line. If pressure in the delivery line exceeds the pressure setting of the valve, the force exerted by the air pressure will be greater than the spring force. The piston will move away from the exhaust valve, permitting air to flow past the exhaust valve, through the hollow piston stem and out the exhaust port. The inlet valve remains seated.

OPERATING & LEAKAGE TESTS

OPERATING

Connect an accurate test gauge in the supply and delivery lines of the RV-3™ valve. Make certain that supply air pressure is at the vehicle manufacturers recommended level. Delivery pressure should be within plus or minus 5 p.s.i. of the delivery pressure specified for the RV-3™ valve. If not, the valve should be replaced. If the valve meets this operating test, proceed to the leakage tests. Do not remove the gauges at this time.

LEAKAGE

With supply pressure at the level recommended by the vehicle manufacturer, apply a soap solution to the 1/8" N.P.T. plug, around the supply port cap nut and to the exhaust port. Leakage should not exceed 100 SCCM or a 1" diameter bubble in 5 seconds. If leakage is excessive, the valve should be replaced and the operating and leakage tests performed at the time of replacement. Proceed to the "Removal and Installation" instructions. This concludes the operation and leakage tests and the test gauges should be removed.

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 an 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® 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.**

REMOVAL & INSTALLATION

REMOVAL

1. Hold the vehicle on a level surface by means other than the air brakes.
2. Remove all air pressure from all reservoirs.
3. Identify, mark and then disconnect all air lines attached to the valves.
4. Remove the valve.

INSTALLATION

1. Inspect and clean all air lines that connect to the valve.
2. Clean the vehicle valve mounting area and mount the valve.
3. Reconnect the air lines according to the identification marks made during removal.

PREVENTIVE MAINTENANCE

Important: Review the Bendix Warranty Policy before performing any intrusive maintenance procedures. A warranty may be voided if intrusive maintenance is performed during the warranty period.

No two vehicles operate under identical conditions, as a result, maintenance intervals may vary. Experience is a valuable guide in determining the best maintenance interval for air brake system components. At a minimum, the RV-3™ valve should be inspected every 6 months or 1500 operating hours, whichever comes first, for proper operation. Should the RV-3™ valve not meet the elements of the operational tests noted in this document, further investigation and service of the valve may be required.