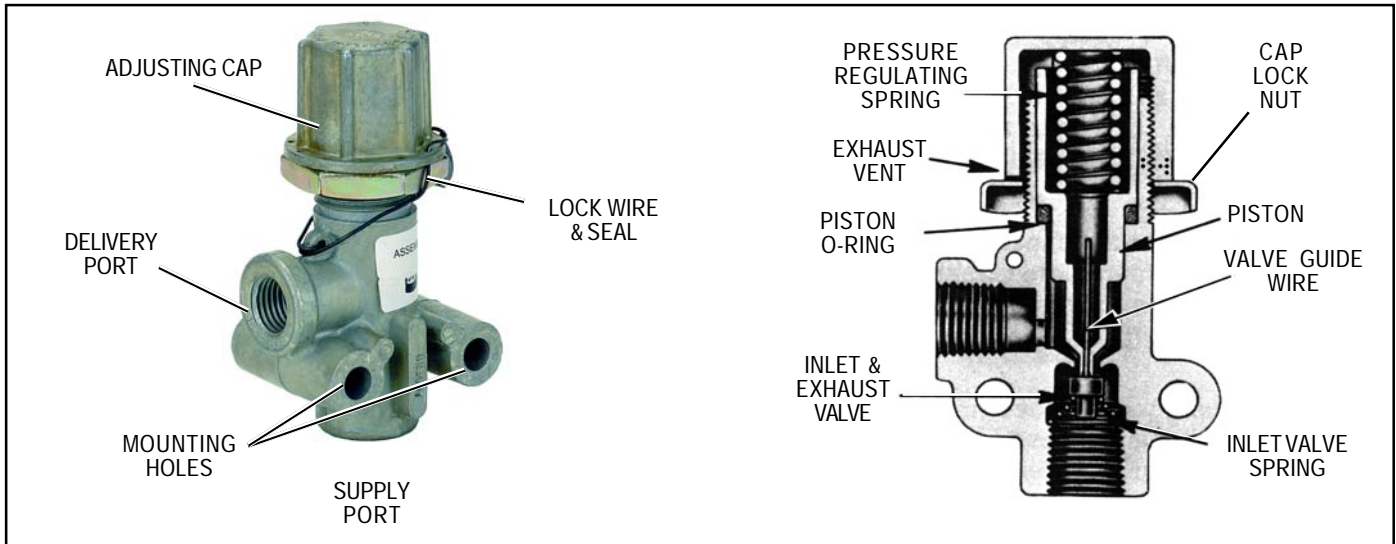




Service Data

SD-03-3510

Bendix® RV-1™ Pressure Reducing Valve



DESCRIPTION

The RV-1™ pressure reducing valve is used to reduce air pressure and maintain it at a constant specified pre-set pressure below that of the supply pressure. The pressure reducing valve has a 1/4" delivery port on the side and a 1/4" supply port on the bottom. Two 9/32" mounting holes are cast into the body. A lockwire and seal are optional for a tamper proof setting.

OPERATION

The pressure setting of the pressure reducing valve is determined by the setting of the adjusting cap, which exerts a force on the spring on top of the piston. Compressed air enters the supply port and passes out the delivery port. When the air pressure on the bottom of the piston overcomes the force of the spring on top of the piston, the piston moves upward and the inlet valve spring forces the inlet valve on its seat, closing off the supply of air. As the pressure in the delivery line drops, the force of the spring above the piston becomes greater than the air pressure below the piston, allowing the piston to move downward, moving the inlet valve off its seat and allowing air to pass out the delivery port.

If pressure in the delivery line exceeds the pressure setting of the pressure reducing valve, the force exerted by the air pressure below the piston will be greater than the spring force above the piston. The piston will move up from the exhaust valve, permitting air to pass by the exhaust valve,

through the hollow piston and valve guide and escape through the slot in the adjusting cap. When the force of the spring above the piston overcomes that of the air pressure below the piston, the exhaust valve is seated, and the pressure in the delivery line is the same as the setting of the pressure reducing valve.

Note: The RV-1™ valve should be used in light duty applications where the supply and delivery pressure is stable and constant. A rapid or pulsed supply and/or delivery pressure is not recommended. Please consult Bendix Engineering with specific application requirements.

OPERATING AND LEAKAGE TESTS

Connect a 120 psi pressure source to the supply port and connect an accurate test gauge to the delivery. Observe the gauge with the supply pressure applied, this is the delivery pressure (the inlet valve is closed). If the pressure delivered is more than ± 5 psi from the pressure indicated on the tag attached to the valve or vehicle manual, the valve can be readjusted. Momentarily bleed off some of the delivery pressure. Discontinue bleed off and recheck the delivery pressure. The delivery pressure should again be within ± 5 psi of the pressure indicated on the tag.

Check for leakage at the adjustment cap base with soap solution. Leakage should not exceed 100 SCCM or a 1" bubble in 5 or less seconds. Excessive leakage may indicate a leaking piston o-ring or inlet/exhaust valve.

VALVE ADJUSTMENT

If the RV-1™ valve does not deliver as described, and leakage is minimal, the valve can be readjusted as follows.

1. Remove lockwire (if used).
2. Loosen the cap lock nut while holding the adjusting cap stationary.
3. Turn the adjusting cap clockwise to increase pressure, counter clockwise to reduce pressure.
4. The lock nut should be tightened after readjustment, while holding the adjustment cap stationary.
5. Recheck the delivery pressure as described.
6. Reattach the lockwire and replace the seal if used.

If the RV-1™ valve does not function as described or if excessive leakage occurs, it is recommended that it be repaired/replaced with genuine Bendix parts.

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-1™ valve should be inspected every 6 months or 1500 operating hours, whichever comes first, for proper operation. Should the RV-1™ valve not meet the elements of the operational tests noted in this document, further investigation and service of the valve may be required.

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 AND INSTALLATION

REMOVAL

1. Block and hold the vehicle by means other than air brakes.
2. Drain the service and isolated reservoirs.
3. Disconnect the air lines from the pressure reducing valve.
4. Loosen the valve mounting bolts and remove the valve.

INSTALLATION

1. Check and clean air lines to valve.
2. Mount the valve securely with bolts and lockwashers.
3. Reconnect the lines to the valve.

VALVE DISASSEMBLY

1. Loosen lock nut, hold the adjusting cap stationary and remove lockwire if used.
2. Remove the adjusting cap and lock nut.
3. Remove the pressure regulating spring.
4. Remove the piston assembly and o-ring.
5. Using needle-nose pliers grab the end of the inlet valve spring and rotate it to dislodge the inlet and exhaust valve spring from groove of supply port. Remove the spring and inlet/exhaust valve.

CLEANING AND INSPECTION

Wash all metal and plastic parts in mineral spirits. Rubber parts should be wiped clean. Inspect all parts for wear or deterioration. Check springs for cracks, corrosion or distortion. Inspect all rubber parts and replace if they show signs of cracks, wear, deterioration, or are swollen. Ensure that the valve guide wire is fully inserted into rubber inlet/exhaust valve.

ASSEMBLY

Before assembling the valve, lubricate the piston, o-ring and body bores with Bendix barium base grease part number 246671.

1. Replace the lock nut on body.
2. Install the o-ring in body bore.
3. Insert the piston into valve body and place the spring inside the piston.
4. Replace the adjusting cap.
5. Carefully insert the inlet/exhaust valve guide into small opening in piston.
6. Using needle-nose pliers, grab end of inlet/exhaust valve spring and twist the end into the groove of valve body. Assure proper centering of inlet/exhaust valve and spring.
7. Adjust and test valve as outlined in "Operating and Leakage Tests" section.

