

Bendix® TW-N™ Two Way Control Valve

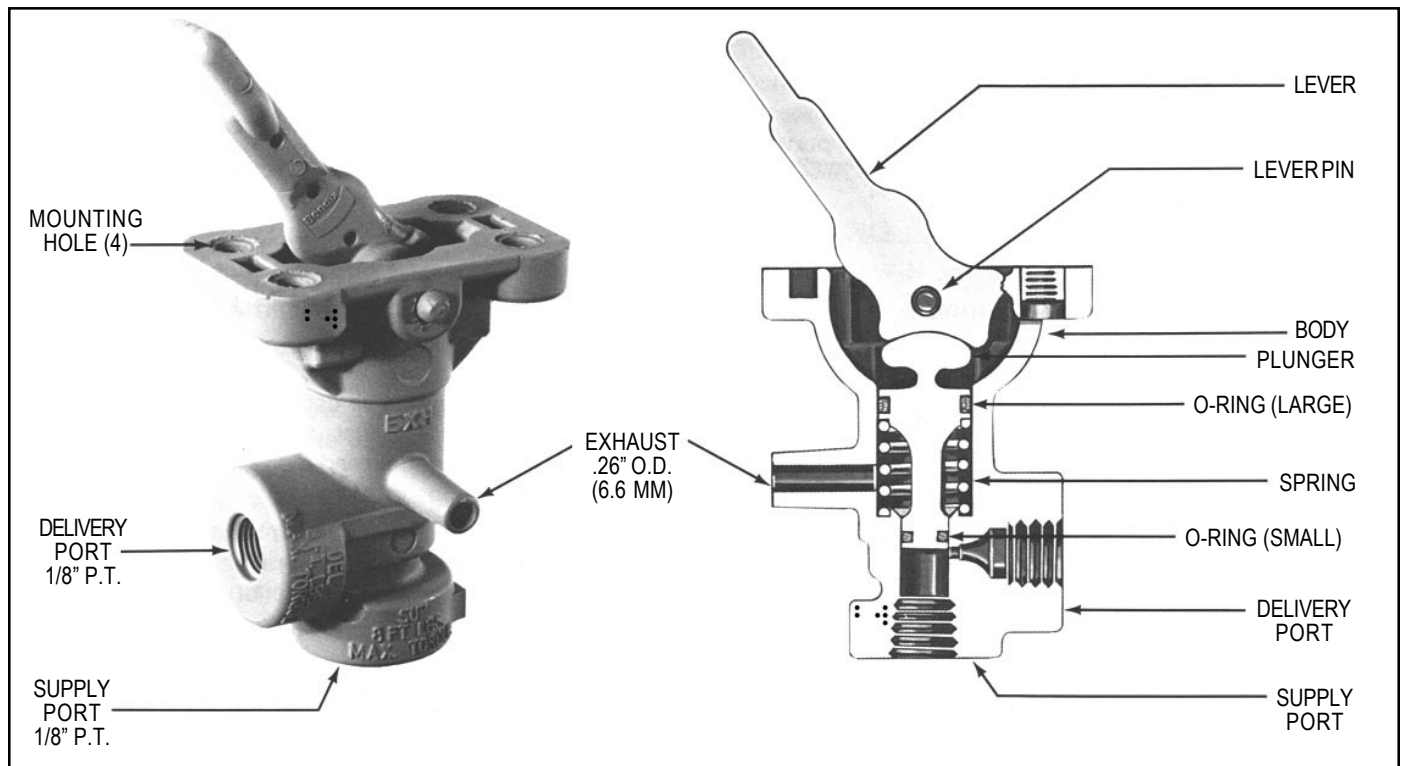


FIGURE 1

DESCRIPTION

The TW-N™ valve is a manually operated two position control valve. It is normally dash or panel mounted and incorporates a manually operated control lever. The TW-N™ valve was designed for use as a control for non-modulating air system devices.

With the exception of the plunger return spring, lever pin and lever reinforcement the TW-N™ valve is constructed of nonmetallic material.

The single supply port and delivery port are both tapped with a 1/8" female pipe thread to accommodate air connections. A single .26" (6.6 mm) O.D., unthreaded exhaust nipple is located on the side and midway down the valve body. Each port is identified with embossed letters; SUP for supply, DEL for delivery and EXH for the exhaust.

The TW-N™ valve is generally mounted using two of the four mounting holes that are provided. All four mounting holes are tapped with a 10-24 thread.

The TW-N™ valve is interchangeable with the TW-1™ two-way control valve with respect to vehicle fit and function. Dial plates and attaching screws can be used interchangeably on either the TW-N™ and TW-1™ valves, however other detail components are not interchangeable.

OPERATION

With the TW-N™ valve in the exhaust position, air at the supply port is prevented from flowing to the delivery port by the lower o-ring on the plunger. (Figure 2) When the lever is moved to the delivery position, (Figure 3) the return spring and air pressure moves the plunger allowing the lower plunger o-ring to slide past the delivery port passage. With the plunger in this position (Figure 3), air flows from the supply port and out the delivery port.

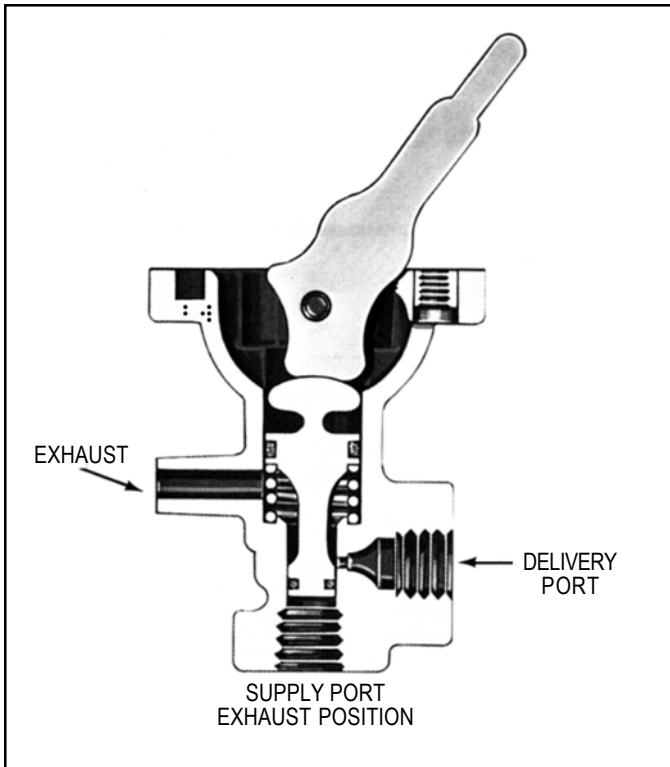


FIGURE 2

Moving the lever to the exhaust position, forces the plunger toward the supply port, causing the lower plunger o-ring to slide past the delivery port passage sealing the supply from the delivery. Air at the delivery flows through the valve body, around the plunger and out the exhaust.

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

OPERATION AND LEAKAGE TESTS

1. With vehicle air pressure at governor cut-out and the engine turned off, place the TW-N™ valve control lever in the air delivery position. Note that the device being controlled promptly responds. Place the control lever in the air exhaust position and note that air is promptly and completely exhausted from the TW-N™ valve.

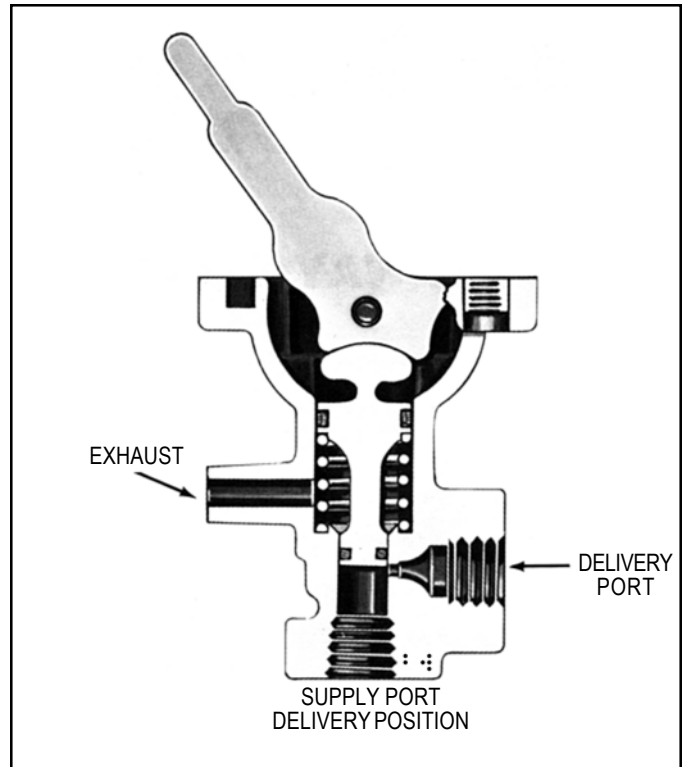


FIGURE 3

2. With the TW-N™ valve in the exhaust position apply a soap solution to the exhaust. Leakage should not exceed a 1" (25.4 mm) bubble in 5 seconds or less.
3. With the TW-N™ valve in the air delivery position apply a soap solution to the exhaust and around the plunger. Leakage should not exceed a 1" (25.4 mm) bubble in 5 seconds or less.

If the TW-N™ valve does not function as described or leaks excessively, it should be replaced or repaired using a genuine Bendix maintenance kit available at authorized Bendix parts outlets.

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.**

REMOVING

1. Secure the vehicle on a level surface by means other than the brakes.
2. Drain all reservoirs to 0 p.s.i. (0 kPa) air pressure.
3. Identify, mark and remove the air lines from the TW-N™ valve.
4. Remove the TW-N™ valve from the vehicle.

DISASSEMBLY

1. Before disassembly, move the TW-N™ valve lever to the air delivery position and note or mark the position of the lever relative to the valve body. NOTE: The TW-N™ valve is in the air delivery position when the plunger is closest to the mounting surface of the body. Confirm that the TW-N™ valve is in the air delivery position by applying air to the supply port and noting that it exits the delivery port.

2. Using a drift punch, drive the lever pin out and remove the lever.
3. Remove the plunger and plunger return spring.
4. Remove both the large and small diameter o-rings from the plunger.

CLEANING AND INSPECTION

1. Clean the valve body, plunger return spring and plunger in a mild solvent such as mineral spirits and dry thoroughly.
2. Inspect the valve body bore and piston for scratches, nicks, cracks and distortion. If noted, the entire TW-N™ valve must be replaced.
3. Inspect the return spring for distortion and corrosion. If noted, the entire TW-N™ valve must be replaced.

ASSEMBLY

Prior to assembly lubricate the valve body bore, plunger and o-rings with Bendix silicone lubricant Pc. Nos. 291126.

1. Install large and small diameter o-rings on plunger.
2. Install plunger return spring in body and install plunger.
3. Note the lever position marked during disassembly. Care should be exercised as lever can be installed in either position. (Lever position is dictated by function marked on dial or dash.) Place lever in body and gently depress the lever and plunger until the lever pin holes in the body and the lever are aligned.
4. Install the lever pin and press into position. It may be necessary to hold the lever to guide the pin into the body hole opposite the press. The lever pin should be flush with the body on one side.

INSTALLING

1. Install the TW-N™ valve on the vehicle.
2. Connect the air lines to the TW-N™ valve according to the markings made during "Removal". IMPORTANT: Fittings installed in the supply and delivery ports of the TW-N™ valve should not be torqued to greater than 8 ft. lbs. (10.85 N.M).
3. Before placing the vehicle in service, perform the "Operation and Leakage Tests".

