

INSTALLATION AND MAINTENANCE INSTRUCTIONS

3-WAY QUICK EXHAUST SOLENOID VALVE

DESCRIPTION

Bulletin 8317's are direct acting, packless, 3-way solenoid valves. Valve bodies are either brass or stainless steel with integral seats. A core/disc/spring assembly and diaphragm are the only moving parts. The standard valves have a General Purpose, NEMA Type 1 Solenoid Enclosure. Valves may also be equipped with an enclosure which is designed to meet NEMA Type 4 - Watertight, NEMA Type 7 (C or D) Hazardous Locations - Class I, Group C or D and NEMA Type 9 (E, F or G) Hazardous Locations - Class II, Group E, F or G.

OPERATION

The solenoid pilots the "quick exhaust" diaphragm by using the unbalanced pressure principle. When the pressure orifice is open, the main and pilot exhaust orifices are closed. When the pressure orifice is closed, the main and pilot exhaust orifices are open.

Normally Closed (Refer to Figure 1)

Pressure at '2' - When solenoid is de-energized, pressure (2) is closed. Flow is from Cylinder (1) to Main Exhaust (4). Pilot Exhaust (3) is open. When solenoid is energized, flow is from Pressure (2) to Cylinder (1). Main Exhaust (4) and Pilot Exhaust (3) are closed.

Normally Open (Refer to Figure 1)

Pressure at '3' - When solenoid is de-energized, flow is from Pressure (3) to Cylinder (1). Main Exhaust (4) and Pilot Exhaust (2) are closed. When solenoid is energized, Pressure (3) is closed. Flow is from Cylinder (1) to Main Exhaust (4). Pilot Exhaust (2) is open.

Universal (Refer to Figure 1)

Pressure at '2' - Refer to Normally Closed write-up. Pressure at '3' - Refer to Normally Open write-up. Universal construction is interchangeable from Normally Closed to Normally Open (or vice versa) in the field by merely changing the pipe connections.

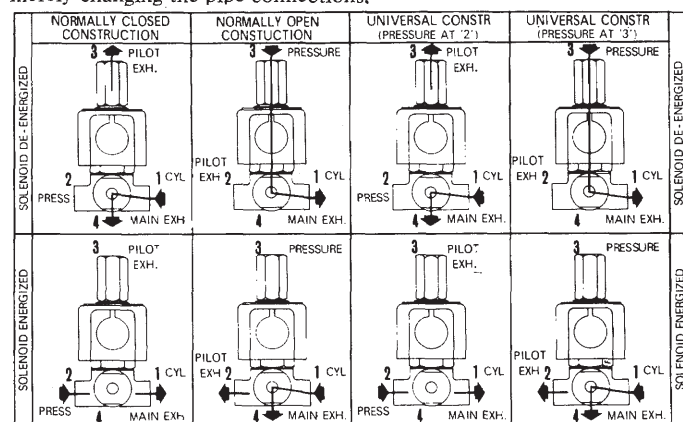


Figure 1 NOTE: PORT MARKINGS 1, 2, 3 AND 4 CORRESPOND DIRECTLY TO A, B, C, AND C2.

INSTALLATION

Check nameplate for correct catalog number, pressure, voltage and service.

POSITIONING

Valve may be mounted in any position.

PIPING

The pressure and exhaust lines must be connected as indicated in the flow diagram for the particular application. Full size piping must be used. On Normally Closed Valves, '3' is a Pilot Exhaust and may be connected to a Common Exhaust with '4'.

On Normally Open Valves, '2' is a Pilot Exhaust and may be connected to a Common Exhaust with '4'.

IMPORTANT: Pilot Exhaust '3' on Normally Closed form and '2' on Normally Open form must be connected at the installation into the piping to the Main Exhaust '4' when controlling fluids such as liquids or flammable gases that are not permissible to exhaust to atmosphere.

Apply pipe compound sparingly to male pipe threads only; if applied to valve threads, it may enter valve and cause operational difficulty. Pipe strain should be avoided by proper support and alignment of piping. When tightening pipe, do not use valve as a lever.

IMPORTANT: For protection of the solenoid valve, install strainers or filters suitable for the service involved in the inlet side as close to the valve as possible. Periodic cleaning is required, depending on the service conditions. See Bulletins 8600, 8601 and 8602 for strainers.

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WIRING

Wiring must comply with Local and National Electrical Codes. For valves equipped with an explosion-proof, watertight enclosure (NEMA 4, 7 & 9) the electrical fittings must be approved for use in the approved hazardous locations. Housings for all solenoids are made with connections for 1/2 inch conduit. The General Purpose Enclosure (NEMA 1) may be rotated to facilitate wiring by removing the retaining cap. After rotating to desired position, be certain to replace the cap before operating.

NOTE: Alternating Current (A-C) and Direct Current (D-C) Solenoids are built differently. To convert from one to the other, it is necessary to change the complete solenoid, not just the coil.

SOLENOID TEMPERATURE

Standard catalog valves are supplied with coils designed for continuous duty service. When the solenoid is energized for a long period, the solenoid enclosure becomes hot and can be touched by hand for only an instant. This is a safe operating temperature. Any excessive heating will be indicated by the smoke and odor of burning coil insulation.

TEMPERATURE LIMITATIONS

For maximum valve ambient and fluid temperatures, refer to chart below. For higher ambient and fluid temperatures, consult factory. Check catalog number and watt rating on nameplate to determine the maximum temperatures.

WATTAGE	CATALOG NUMBER COIL PREFIX	COIL CLASS	MAXIMUM AMBIENT TEMP. °F	MAXIMUM FLUID TEMP. °F
11	none	A	77	180
11	FT	F	122	200
11	HT	H	140	200
11.2	none, FT or HT	A, F or H	77	104

MAINTENANCE

WARNING: Turn off electrical power and line pressure to valve before making repairs. It is not necessary to remove valve from pipe line for repairs.

CLEANING

A periodic cleaning of all solenoid valves is desirable. The time between cleanings will vary, depending on the media and service conditions. In general, if the voltage to the coil is correct, sluggish valve operation or excessive leakage will indicate that cleaning is required.

IMPROPER OPERATION

- Faulty Control Circuit:** Check the electrical system by energizing the solenoid. A metallic click signifies the solenoid is operating. Absence of the click indicates loss of power supply. Check for loose or blown-out fuses, open circuited or grounded coil, broken lead wires or splice connections.
- Burned-Out Coil:** Check for open circuited coil. Replace coil if necessary.
- Low Voltage:** Check voltage across the coil leads. Voltage must be at least 85% of nameplate rating.
- Incorrect Pressure:** Check valve pressure. Pressure to the valve must be within the range indicated on the nameplate.
- Excessive Leakage:** Disassemble valve and clean all parts and passageways. Replace worn or damaged parts with a complete "Spare Parts Kit" for best results.

COIL REPLACEMENT (Refer to Figures 1 & 2)

Turn off electrical power. Disconnect lead wires.

- Disconnect tubing or pipe connected to pipe adapter at Connection '3'.
- Unscrew pipe adapter or snap off retaining cap.
- Remove plugnut gasket and spring washer (upper).

NOTE: On air only construction - gasket and spring washer (upper) are not required.

- Remove nameplate.
- Remove solenoid housing/cover.
- Remove spring washer (lower).
- Remove insulating washer (when used).
- Remove coil.

9. Reassemble parts in reverse order of disassembly.

WARNING: When reassembling pipe adapter, do not apply more than 90 inch pounds of torque or damage to the coil may result.

CAUTION: The solenoid must be fully reassembled as the housing and internal parts are part of and complete the magnetic circuit. Be careful to place insulating washers at each end of the coil if required.

ASCO Valves

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VALVE DISASSEMBLY (Refer to Figures 1 & 2)

Depressurize valve and turn off electrical power.

1. Disconnect tubing or pipe connected to pipe adapter at Connection '3' and to seat (end plug) at Connection '4' (main exhaust).
2. Solenoid may be removed intact by loosening and removing solenoid base sub-assembly from body.
3. Remove core/core spring/disc assembly.
4. Remove body gasket ('O' ring).
5. Remove seat (end plug), end plug gasket ('O' ring) and diaphragm.
6. All parts and passageways are accessible for cleaning or replacement. Replace worn or damaged parts with a complete "Spare Parts Kit" for best results.

VALVE REASSEMBLY (Refer to Figures 1 & 2)

1. Clean all parts and passageways thoroughly.

2. Reassemble parts in reverse order of disassembly. Parts should be installed in same cavity that they were removed from.
3. Lubricate all rubber parts with Dow Corning's Valve Seal or equivalent silicone grease.

SPARE PARTS KITS

Spare Parts Kits and Coils are available for ASCO valves. Parts marked with an asterisk (*) are supplied in Spare Parts Kits

ORDERING INFORMATION FOR SPARE PARTS KITS

When Ordering Spare Parts Kits or Coils
Specify Valve Catalog Number,
Serial Number and Voltage.

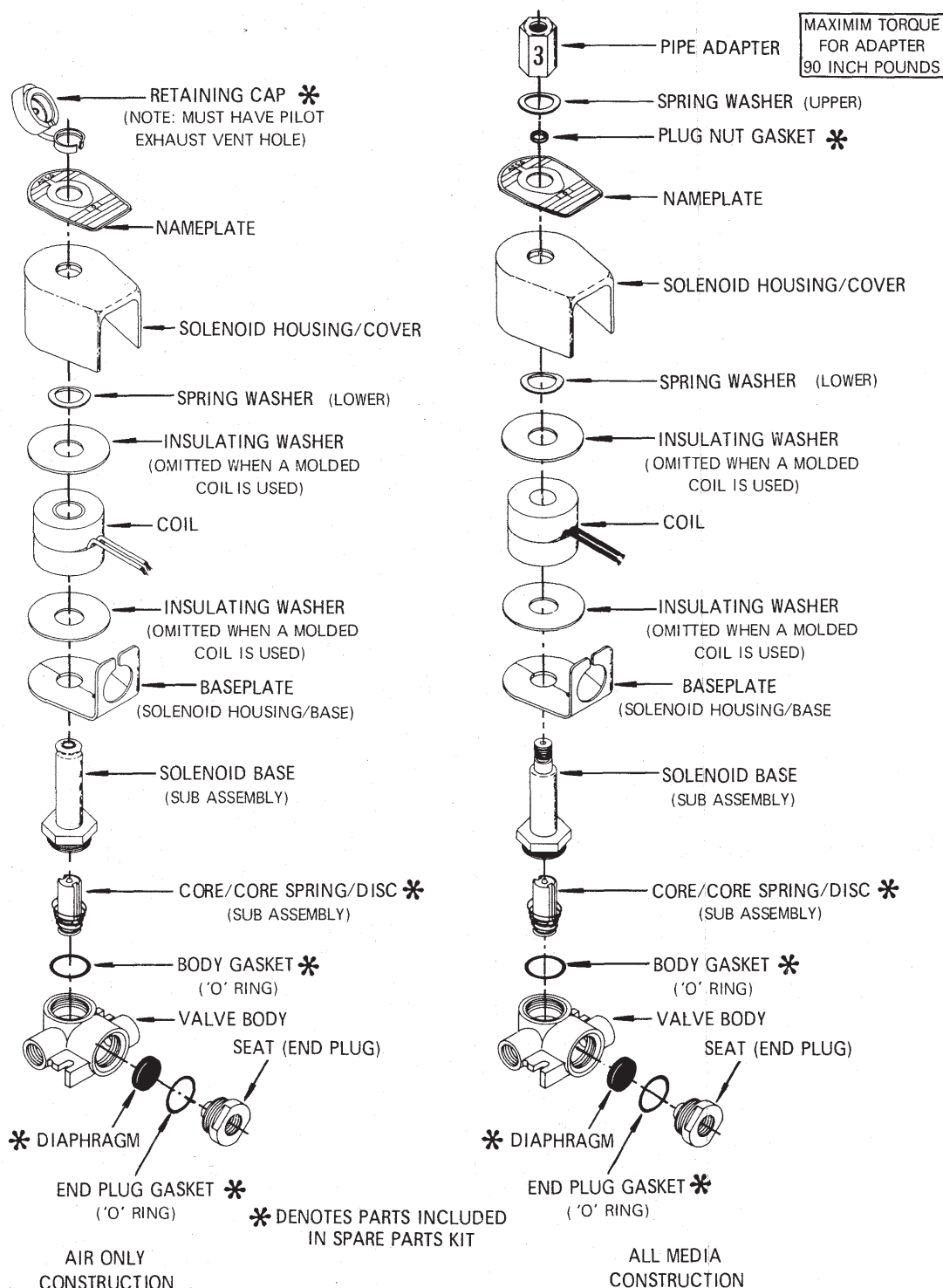


FIGURE 2

BULLETIN 8317

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