

INSTALLATION AND MAINTENANCE INSTRUCTIONS

2-WAY INTERNAL PILOT OPERATED SOLENOID VALVES PISTON TYPE — 1/4 AND 3/8 N.P.T. NORMALLY CLOSED OPERATION

BULLETIN

8223

ASCO®

Form No. V-5537

DESCRIPTION

Bulletin 8223's are 2-way, normally closed, piston type solenoid valves, having bodies of forged brass construction. Standard valves have a General Purpose, NEMA Type 1 Solenoid Enclosure. Bulletin 8223's are also provided 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, Groups E, F or G.

OPERATION

Normally Closed: Valve is closed when de-energized and opens when energized.

IMPORTANT: Minimum operating pressure differential is 10 psi.

INSTALLATION

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

POSITIONING

Valve may be mounted in any position.

PIPING

Connect piping to valve according to markings on valve body. 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 a strainer or filter 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.

WIRING

Wiring must comply with Local and National Electrical Codes. For valves equipped with an explosion-proof, watertight enclosure, 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 and the explosion-proof, watertight solenoid enclosure may be rotated to facilitate wiring by loosening the cover or removing the retaining cap. Rotate enclosure to desired position. Tighten cover or replace retaining 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, including the solenoid base sub-assembly and core.

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 with the bare 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.

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

PREVENTIVE MAINTENANCE

1. Keep the medium flowing through the valve as free from dirt and foreign material as possible.
2. Operate the valve periodically to insure proper opening and closing.
3. Periodic inspection (depending on media and service conditions) of internal valve parts for damage or excessive wear is recommended. Thoroughly clean all parts. Replace any parts that are worn or damaged.

IMPROPER OPERATION

1. **Faulty Control Circuit:** Check the electrical system by energizing the solenoid. A metallic click signifies that 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.

2. **Burned-Out Coil:** Check for open-circuited coil. Replace coil if necessary.
3. **Low Voltage:** Check voltage across the coil leads. Voltage must be at least 85% of nameplate rating.
4. **Incorrect Pressure:** Check the valve pressure. Pressure to the valve must be within the range specified on the nameplate.
5. **Excessive Leakage:** Disassemble valve and clean all parts. Replace parts that are worn or damaged with a complete Spare Parts Kit for best results.

COIL REPLACEMENT

Turn off electrical power supply and disconnect coil lead wires. Proceed in the following manner:

GENERAL PURPOSE (Refer to Figure 1)

1. Remove retaining cap, nameplate and housing.
2. Remove spring washer, insulating washer and coil. Insulating washers are omitted when a molded coil is used.
3. Reassemble in reverse order of disassembly paying careful attention to exploded view provided.

EXPLOSION-PROOF, WATERTIGHT (Refer to Figure 2)

1. Unscrew cover with retaining ring and nameplate attached. Two wrenching flats are provided to hold the housing securely in place while the cover is being removed or replaced.
2. Remove take up spring, fluxplate, insulating washers and coil. Insulating washers are omitted when a molded coil is used.
3. Reassemble in reverse order of disassembly.

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

NOTE: Installation and maintenance of explosion-proof equipment requires more than ordinary care to insure safe performance. All finished surfaces of the solenoid are constructed to provide a flameproof seal. Be sure that surfaces are wiped clean before replacing. If watertight, as well as explosion-proof is a requirement, grease the joints of the explosion-proof, watertight solenoid with Humble Oil's Nebula EP 2 grease or equivalent. A high grade silicone grease similar to Dow Corning's Valve Seal may also be used. Grease the joints thoroughly covering all surfaces.

VALVE DISASSEMBLY AND REASSEMBLY (Refer to Figure 1)

Depressurize valve and turn off electrical supply.

1. Remove retaining cap and slip the entire solenoid enclosure off the solenoid base sub-assembly. For explosion-proof, watertight construction follow instructions under "Coil Replacement".
2. Unscrew solenoid base sub-assembly. For explosion-proof, watertight construction a special wrench adapter, Order No. 160-928 is required to remove solenoid base sub-assembly. Remove core assembly, core spring and solenoid base gasket.
3. Unscrew end cap. Remove end cap gasket and piston spring. To remove the piston assembly, a small hole is provided in the back of the piston. Hook a bent piece of wire or similar tool in the hole. Pull piston assembly from valve body.
4. All parts are now accessible for cleaning or replacement. Replace worn or damaged parts with a complete Spare Parts Kit for best results. Clean internal passageways in valve body.
5. Reassemble in reverse order of disassembly paying careful attention to the exploded views provided for identification and placement of parts.

SPARE PARTS KITS

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

ASCO Valves

ASCO®

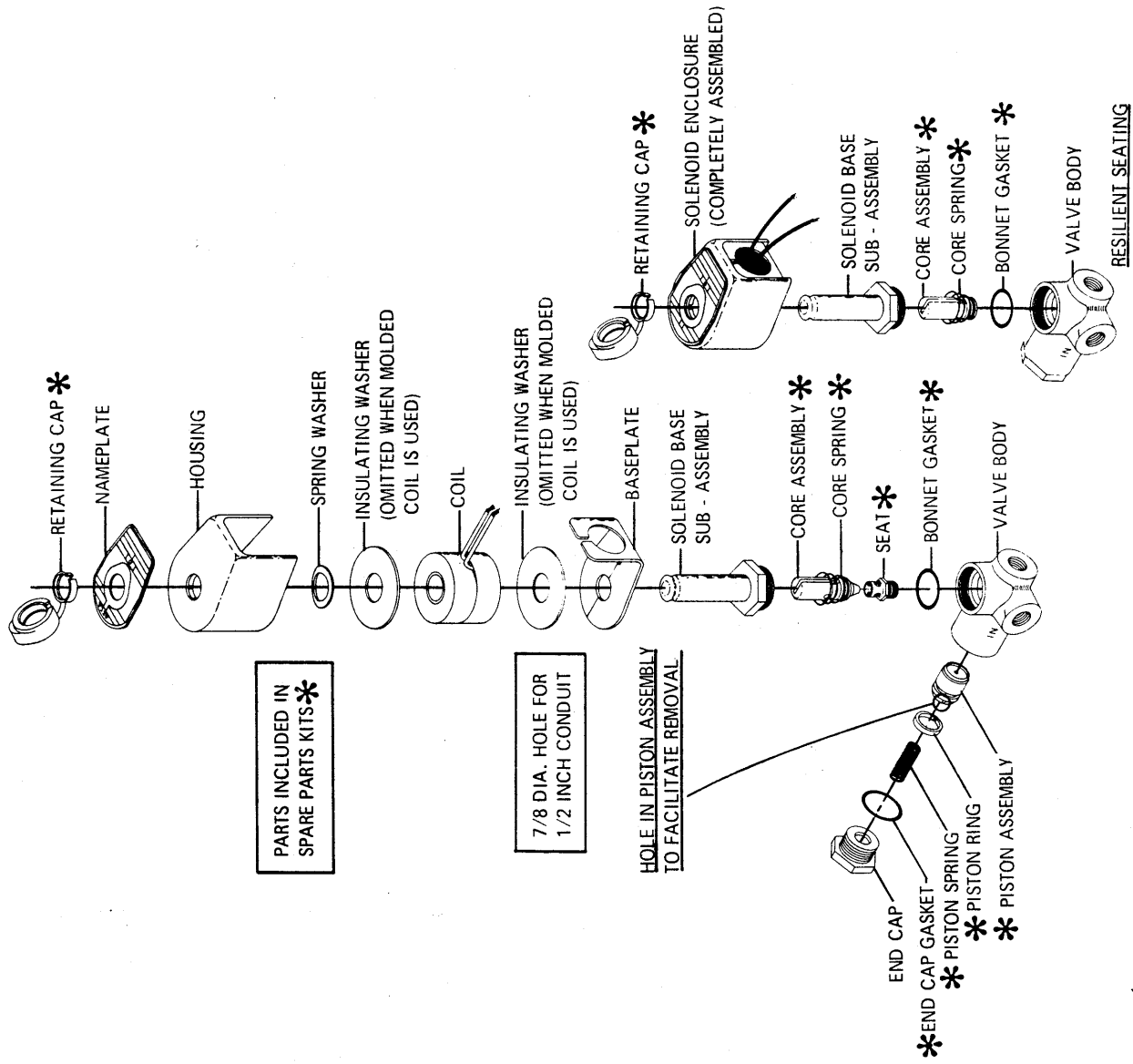
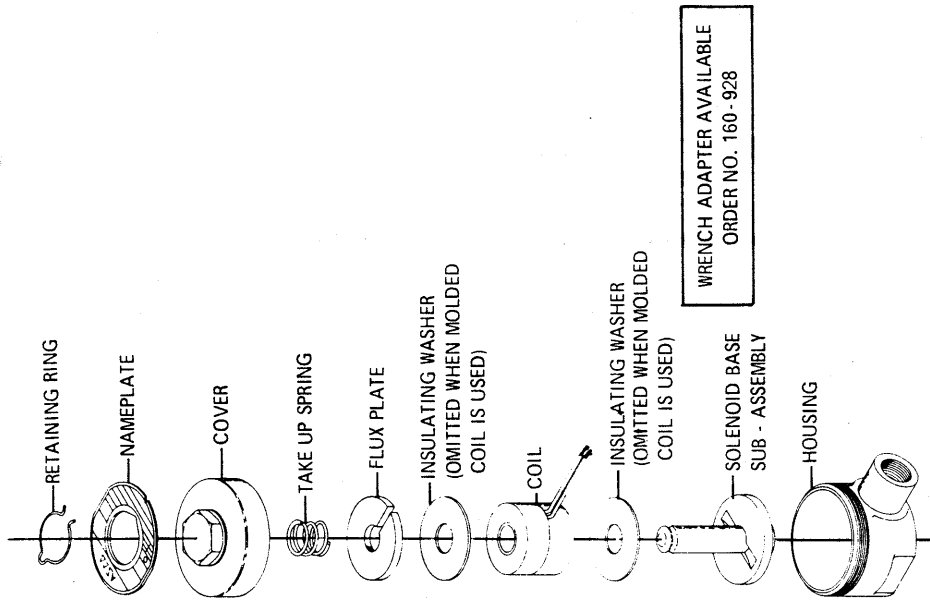


Figure 1. Bulletin 8223 - Normally Closed - 1/4 & 3/8 N.P.T. General purpose solenoid enclosure shown.



IF WATERTIGHT AS WELL AS EXPLOSION - PROOF IS A REQUIREMENT, GREASE THE JOINTS OF THE EXPLOSION - PROOF, WATERTIGHT SOLENOID WITH HUMBLE OIL'S NEBULA EP 2 GREASE OR EQUIVALENT. A HIGH GRADE SILICONE GREASE SIMILAR TO DOW CORNING'S VALVE SEAL MAY ALSO BE USED. GREASE JOINTS THOROUGHLY COVERING ALL SURFACES.

Figure 2. Explosion-Proof, Watertight Solenoid Enclosure