Installation & Maintenance Instructions

2–WAY INTERNAL PILOT–OPERATED SOLENOID VALVES
NORMALLY CLOSED OPERATION — CRYOGENIC SERVICE
3/8″, 1/2″ OR 3/4″ NPT

SERIES 8222
SUFFIX "LT"
I&M No.V6983R2

NOTICE: See separate solenoid installation and maintenance instructions for information on: Wiring, Solenoid Temperature, Causes of Improper Operation, and Solenoid Replacement.

DESCRIPTION

Series 8222 valves with suffix "LT" are 2–way normally closed, internal pilot operated solenoid valves designed for cryogenic service. Valves may be provided with a general purpose/watertight or explosionproof/watertight solenoid enclosure.

OPERATION

Normally Closed: Valve is closed when solenoid is de–energized; open when energized.

NOTICE: No minimum operating pressure differential required.

INSTALLATION

Check nameplate for correct catalog number, pressure, voltage, frequency, and service. Never apply incompatible fluids or exceed pressure rating of the valve. Installation and valve maintenance to be performed by qualified personnel.

IMPORTANT: Prior to operating the valve at cryogenic temperatures, the system must be free of moisture and contamination.

Future Service Considerations

Provision should be made for performing seat leakage, external leakage, and operational tests on the valve with a nonhazardous, noncombustible fluid after disassembly and reassembly.

Temperature Limitations

Nominal Ambient Temperature Range:

- AC Construction 32°F (0°C) to 125°F (52°C)
- DC Construction 32°F (0°C) to 104°F (40°C)

Minimum Fluid Temperature

- AC and DC Construction –320°F (–195.56°C)

Maximum Fluid Temperature

- AC Construction 150°F (66°C)
- DC Construction 120°F (49°C)

Positioning

Valve must be mounted with solenoid vertical and upright.

Piping

Connect piping or tubing to valve according to markings on valve body. Apply pipe compound compatible with valve media sparingly to male pipe threads only. If applied to valve threads, the compound may enter the valve and cause operational difficulty. Avoid pipe strain by properly supporting and aligning piping. When tightening the pipe, do not use valve or solenoid as a lever. Locate wrenches applied to valve body or piping as close as possible to connection point.

⚠ CAUTION: To protect the solenoid valve, install a strainer or filter suitable for the service involved in the inlet side as close to the valve as possible. Clean periodically depending on service conditions. See ASCO Series 8600, 8601 and 8602 for strainers.

MAINTENANCE

⚠ WARNING: To prevent the possibility of death, personal injury or property damage, turn off electrical power, depressurize valve, and vent fluid to a safe area before servicing the valve.

⚠ WARNING: Hazardous cryogenic fluid. Wear suitable protective clothing, gloves, and eye protection to prevent the possibility of personal injury.

NOTE: It is not necessary to remove the valve from the pipeline for repairs.

Cleaning

All solenoid valves should be cleaned periodically. The time between cleanings will vary depending on the medium and service conditions. In general, if the voltage to the coil is correct, sluggish valve operation, excessive noise, or leakage will indicate that cleaning is required. In the extreme case, faulty valve operation will occur and the valve may fail to open or close. Clean strainer or filter when cleaning the valve.

Preventive Maintenance

- Keep the medium flowing through the valve as free from dirt and foreign material as possible.

- Periodic exercise of the valve should be considered if ambient or fluid conditions are such that corrosion, elastomer degradation, fluid contamination build up, or other conditions that could impede solenoid valve shifting are possible. The actual frequency of exercise necessary will depend on specific operating conditions. A successful operating history is the best indication of a proper interval between exercise cycles.
- Depending on the medium and service conditions, periodic inspection of internal valve parts for damage or excessive wear is recommended. Thoroughly clean all parts. If parts are worn or damaged, install a complete rebuild kit.

Causes of Improper Operation

- **Incorrect Pressure**: Check valve pressure. Pressure to valve must be within range specified on nameplate.
- **Excessive Leakage**: Disassemble valve and clean all parts. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

Valve Disassembly (Refer to Figure 1)

1. Disassemble valve in an orderly fashion. Use exploded view for identification and placement of parts.
2. Remove solenoid, see separate instructions.

NOTE: Do not unscrew solenoid base sub−assembly unless installing an ASCO Rebuild Kit containing a new solenoid base sub−assembly and solenoid base gasket. If inspection and cleaning are the only requirements, remove bonnet screws to gain access to internal parts.

3. Unscrew solenoid base sub−assembly from valve bonnet.
4. Remove bonnet screws, lockwashers and valve bonnet with solenoid base gasket from valve body.
5. Remove core/piston sub−assembly and body gasket from valve body.
6. All parts are now accessible for cleaning or replacement. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

− Service Notice −

When installing a new ASCO Rebuild Kit, the parts supplied are shown in Figure 1. The parts supplied are new, improved and a direct replacement for the present parts providing all new parts are installed.

⚠ CAUTION: To ensure proper valve operation, install all parts supplied in ASCO Rebuild Kit.

Valve Reassembly

1. Reassemble using exploded view for identification and placement of parts.

⚠ WARNING: Hazard of combustion. To prevent the possibility of death, personal injury or property damage, do not lubricate valve gaskets or internal parts.

2. Install valve body gasket in valve body.
3. Install core/piston sub−assembly in valve bonnet by compressing the piston and rider rings slightly, to allow insertion.
4. Position valve bonnet with core/piston sub−assembly on valve body.
5. Hand thread bonnet screws into valve body as far as possible. Torque bonnet screws in a crisscross manner in two steps. First torque bonnet screws evenly to 50 in−lbs [5,6 Nm]; then to 135 in−lbs [15,2 Nm].

Note: Steps 6 & 7 apply only when installing a new ASCO Rebuild Kit.

6. Install solenoid base gasket in valve bonnet.
7. Install solenoid base sub−assembly over core and hand thread into valve bonnet as far as possible. Then torque solenoid base sub−assembly to 40 ft−lbs [54,2 Nm].
8. Attach solenoid to valve, see separate instructions.

⚠ WARNING: To prevent the possibility of death, personal injury or property damage, check valve for proper operation before returning to service. Also perform internal seat and external leakage tests with a nonhazardous, noncombustible fluid.

9. Restore line pressure and electrical power supply to valve.
10. After maintenance is completed, operate the valve a few times to be sure of proper operation. A metallic *click* indicates the solenoid is operating.

ORDERING INFORMATION FOR ASCO REBUILD KITS

Parts marked with an asterisk (*) in the exploded view are supplied in Rebuild Kits. When Ordering Rebuild Kits for ASCO valves, order the Rebuild Kit number stamped on the valve nameplate. If the number of the kit is not visible, order by indicating the number of kits required, and the Catalog Number and Serial Number of the valve(s) for which they are intended.

Torque Chart

Part Name	Torque Value	Torque Value Nm
Solenoid base sub−assembly	40 ft−lbs	54,2 Nm
Bonnet screws	First to 50 in−lbs then to 135 in−lbs	First to 5,7 Nm then to 15,3 Nm

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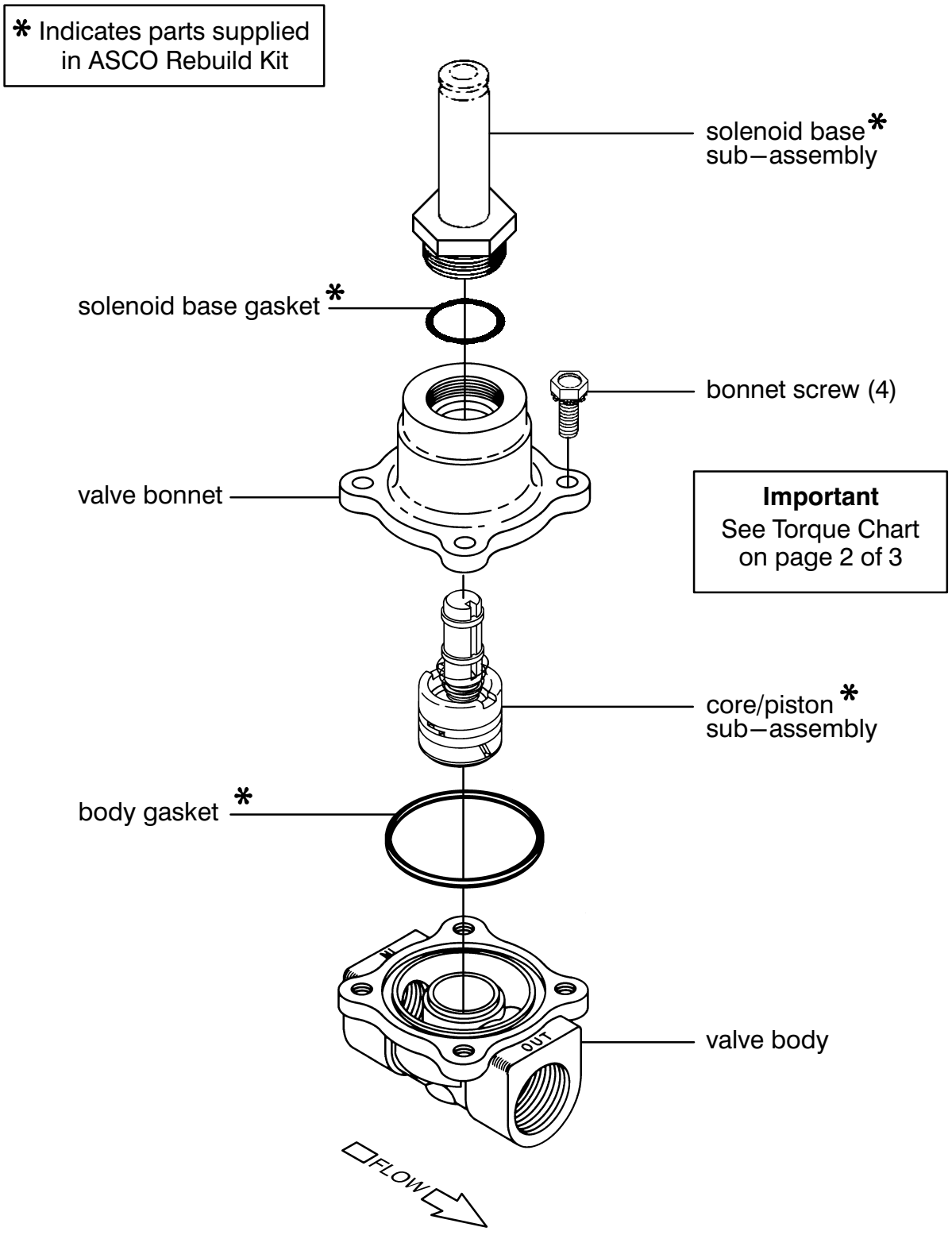

Figure 1. Series 8222 valve without solenoid.

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