Installation & Maintenance Instructions

2-WAY INTERNAL PILOT-OPERATED SOLENOID VALVES NORMALLY OPEN OPERATION - 3/4", 1", 1-1/4", 1-1/2" OR 2" NPT HIGH FLOW AIR OR FUEL GAS SERVICE

SERIES 8215

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

DESCRIPTION

Series 8215 valves are 2-way normally open diaphragm type, solenoid valves designed for high flow air or fuel gas service. Valve bodies are made of rugged aluminum with trim and internal parts made of steel and stainless steel. Series 8215 valves may be provided with a general purpose or explosionproof solenoid enclosure.

OPERATION

Normally Open: Valve is open when solenoid is de-energized; closed when energized.

IMPORTANT: 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.

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

For maximum valve ambient and fluid temperatures, refer to chart below. Check catalog number prefix on nameplate to determine maximum temperatures.

Construction	Coil Class	Catalog Number Prefix	Maximum Ambient Temp. °F	Maximum Fluid Temp. °F
AC	F	None	125	125
	H	HT	140	140
8215C DC	B or H	None or HT	77	77
8215G DC	F or H	None or HT	104	104

Positioning

Valves of AC construction with 3/4", 1", 1-1/4", or 1-1/2", NPT connections are designed to perform properly when mounted in any position. The 2" NPT valves of AC construction may be mounted with solenoid in any position from horizontal to vertical and upright. However, for optimum life and performance, the solenoid on all sizes should be mounted vertically and upright to reduce the possibility of foreign matter accumulating in the solenoid base sub-assembly area. **IMPORTANT: All valves of DC construction must be mounted with solenoid vertical and upright.**

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 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 avoid damage to the valve body, DO NOT OVERTIGHTEN PIPE CONNECTIONS. If PTFE tape, paste, spray or similar lubricant is used, use extra care when tightening due to reduced friction.

IMPORTANT: 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 and 8601 for strainers.

MAINTENANCE

⚠ WARNING: To prevent the possibility of death, serious injury or property damage, turn off electrical power, depressurize valve, extinguish all open flames and avoid any type of sparking or ignition. Vent hazardous or combustible fluid to a safe area before servicing the valve.

NOTE: It is not necessary to remove the valve from the pipeline for repairs. See ***Service Note*** under ***Valve Disassembly and Reassembly.***

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 valve 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. In many cases, solenoid valves are periodically exercised during normal system use or as part of routine maintenance or surveillance activities and no additional exercise is necessary. 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 ASCO Rebuild Kit.

Causes of Improper Operation

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

Valve Disassembly

⚠ WARNING: To prevent the possibility of death, serious injury or property damage, turn off electrical power, depressurize valve, extinguish all open flames and avoid any type of sparking or ignition. Vent hazardous or combustible fluid to a safe area before servicing the valve.

—Service Note—

It is not necessary to remove the valve from the pipeline for inspecting, cleaning or rebuilding. However, for ease of valve reassembly (after maintenance), the solenoid valve should be temporarily in the upside-down position with the solenoid portion completely assembled. Electrical hookup to the solenoid is also required. This upside-down position allows easy alignment of parts through bottom cavity of the valve and a free hand to help in parts alignment. Therefore, it is recommended that whenever possible the valve be removed from the pipeline or inverted to the upside-down position, in the pipeline for reassembly. This is the preferred method and position for valve reassembly.

NOTE: Determine valve construction AC and 8215G DC (Figure 1) or 8215C DC (Figure 2) and proceed as follows:

1. Remove solenoid enclosure, see separate installation and maintenance instructions.
2. For AC and 8215G DC constructions, unscrew solenoid base sub-assembly. Then remove spring retainer, core spring, core assembly and bonnet gasket. For 8215C DC construction, unscrew solenoid base sub-assembly with special wrench adapter provided in ASCO Rebuild Kit. For wrench adapter kit only, order No. K218-949.

NOTE: An alternate type open end wrench, Order No. K168-146-1 is available for solenoid base sub-assembly removal or replacement.

3. Remove solenoid base sub-assembly, housing, core assembly (with core spring and rider rings attached) and bonnet gasket.
4. All parts are now accessible to clean or replace. If parts are worn or damaged, install a complete ASCO Rebuild kit.

Valve Reassembly

1. Reassemble using exploded views for identification and placement of parts.
2. Lubricate bonnet gasket and body gasket with a light coat of DOW CORNING® 111 Compound lubricant or an equivalent high grade grease.
3. Apply a light coat of TFL 50® Dry Lube to:
   - Valve seat
   - Valve body flange where diaphragm assembly seats against valve body and body gasket.
   - Internal surface of valve bonnet where diaphragm assembly seats when valve is in the de-energized (open) position.
   - Seating surface of disc on diaphragm assembly.
4. Position bonnet gasket in valve body.
5. For AC and 8215G DC constructions, thread solenoid base sub-assembly into valve body. Torque solenoid base sub-assembly to 45 ± 5 ft-lbs (61,1 ± 6,8Nm). For 8215C DC construction, position solenoid base sub-assembly into housing and then engage with valve body using special wrench adapter. Torque solenoid base sub-assembly to 30 ± 5 ft-lbs (40,7 ± 6,8Nm).
6. Reassemble solenoid, see separate installation and maintenance instruction.

NOTE: If possible position valve in upside-down position.

7. For AC and 8215G DC constructions, install core spring and spring retainer in core assembly.
8. Position core assembly through valve body and into the solenoid base sub-assembly.
9. Make a temporary electrical hookup to the solenoid. Then energize the solenoid. The core assembly will pull into the solenoid base sub-assembly.

IMPORTANT: Solenoid should remain energized until valve is completely assembled and bonnet screws are tightened.

⚠ WARNING: If solenoid is accidentally de-energized before complete valve assembly, core assembly could disengage and fly outward. To prevent eye injury wear eye protection.

10. Install body gasket in valve body.
11. Install diaphragm assembly onto stem portion of core assembly and into valve body. Locate bleed hole in diaphragm assembly approximately 30° from valve inlet. Be sure all bonnet screw holes in diaphragm assembly are in alignment with holes in valve body.
12. Install diaphragm spring with wide end of spring facing valve bonnet.

13. Replace valve bonnet and bonnet screws, start all bonnet screws by hand. Torque bonnet screws in a crisscross manner to 100 ± 10 in-lbs (11,3, ± 1, 1Nm). If necessary, make up piping and final electrical hookup.

⚠ WARNING: To prevent the possibility of death, serious 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.

14. Restore line pressure and electrical power supply to valve.
15. After maintenance is completed, operate the valve a few times to be sure of proper operation. A metallic "click" signifies 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 Rebuild Kit is not visible order them and specify your valve's Catalog Number and Serial Number.

Torque Chart		
Part Name	Torque Value	Torque Value Newton-Meters
Solenoid Base Sub-Assembly	45±5 ft-lbs	61±1 6,8
Bonnet Screws	100±10 in-lbs	11,3±1,1

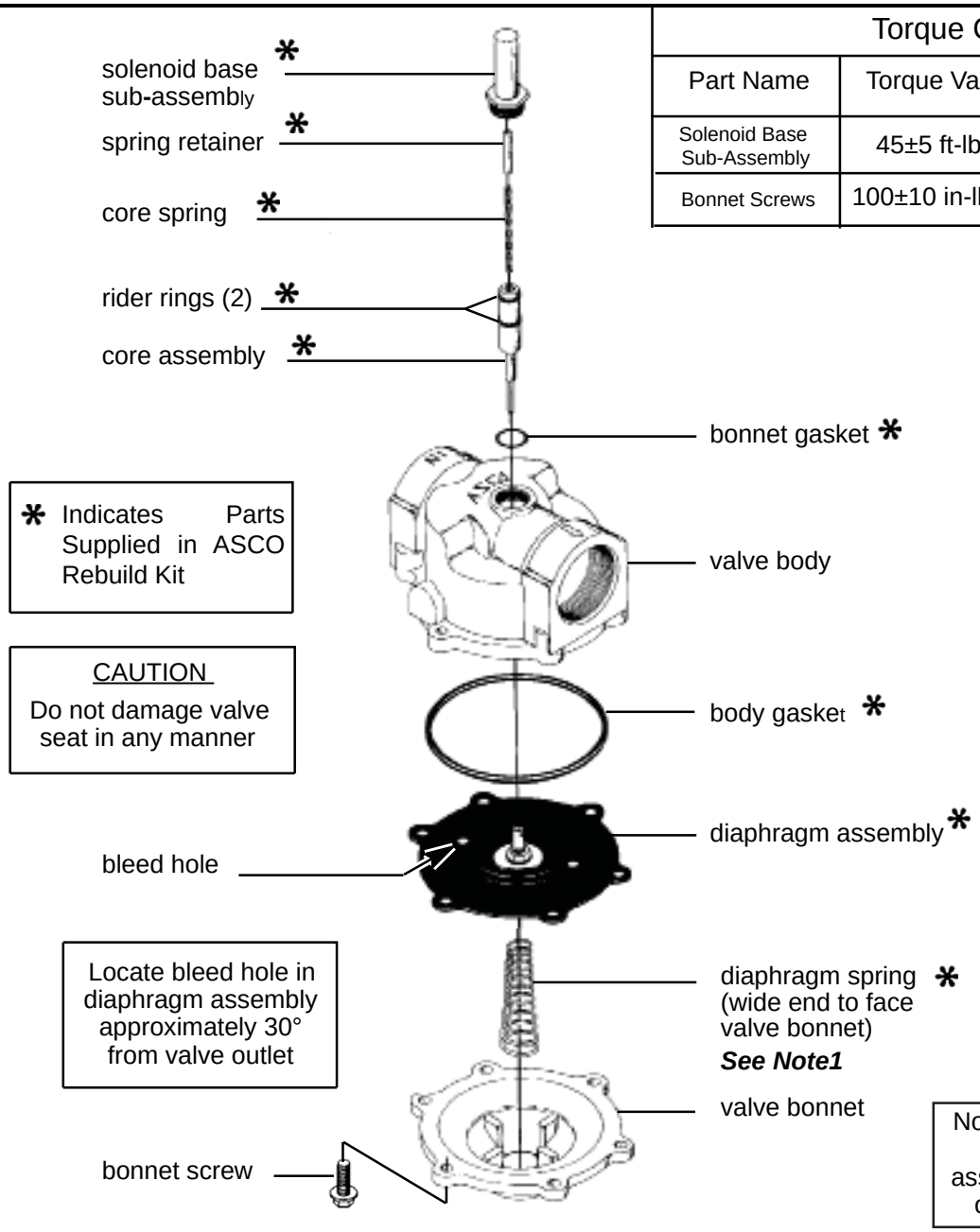
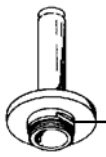


Figure 1. For Series 8215 AC and 8215G DC Constructions (AC shown)

TorqueChart		
Part Name	Torque Value	Torque Value Newton-Meters
Solenoid Base Sub-Assembly	30±5 ft-lbs	40,7±6,8
Bonnet Screws	100±10 in-lbs	11,3±1,1



Wrenching flats for special open end wrench order No. 168-146-1 (Alternate Wrench)

solenoid valve * sub-assembly

housing

wrenching flats

core assembly with core * spring and rider rings (2)

Pin holes for special wrench adapter supplied in ASCO Rebuild Kit. For wrench adapter only, order No. K218-949 (Standard Wrench)

1/2" NPT conduit connection

bonnet gasket *

valve body

CAUTION

Do not damage valve seat in any manner

body gasket *

diaphragm assembly *

bleed hole

Locate bleed hole in diaphragm assembly approximately 30° from valve outlet

diaphragm spring * (wide end to face valve bonnet) ***See Note1***

valve bonnet

bonnet screw

* Indicates Parts Supplied in ASCO Rebuild Kit

Note1: For 8215083, the spring is assembled in reverse of what is shown.

Figure 2. Series 8215C DC Construction