

Installation & Maintenance Instructions

2-WAY DIRECT-ACTING SOLENOID VALVES
NORMALLY CLOSED OPERATION — 1/8", 1/4", OR 3/8" NPT — 3/8" ORIFICE
AIR OR FUEL GAS SERVICE

SERIES

8040

Form No.V6602R5

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

DESCRIPTION

Series 8040 valves are 2-way normally closed direct-acting solenoid valves designed for air or fuel gas service. Valve bodies are made of rugged aluminum with trim and internal parts made of steel and stainless steel. Series 8040 valves are provided with a general purpose solenoid.

Series EF8040 valves are the same as Series 8040 except they are provided with an explosionproof/watertight solenoid.

Provisions for Seat Leakage Testing

Series 8040H valves are provided with a 1/8" NPT downstream side tap and pipe plug for checking seat leakage. Leakage testing frequency shall be at least annually in accordance with NFPA-86 or original equipment manufacturer recommendations. Testing is also required after valve disassembly and reassembly for inspection, cleaning or rebuilding.

OPERATION

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

NOTE: 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.

Temperature Limitations

For ambient and fluid temperatures, refer to chart below.

Catalog Number †	Catalog Number Prefix	Minimum and Maximum Ambient and Fluid Temperatures
8040G6 8040G7 8040G8	None, KF, SF or SC	-20°F (-29°C) to 125°F (54°C)
	HT, KH, ST or SU	-20°F (-29°C) to 140°F (60°C)
8040H6 8040H7 8040H8	None, KF, SF or SC	-40°F (-40°C) to 125°F (54°C)
	HT, KH, ST or SU	-40°F (-40°C) to 140°F (60°C)

† Includes catalog numbers with Prefix "EF"

Positioning

This valve is designed to perform properly when mounted in any position. However, for optimum life and performance, the solenoid should be mounted vertically and upright to reduce the possibility of foreign matter accumulating in the plugnut/core tube sub-assembly area.

Mounting

For mounting dimension of body boss or optional mounting bracket, refer to Figure 2.

Piping

▲ CAUTION: Piping must comply with applicable local and national codes and ordinances, including the National Fuel Gas Code ANSI Z223.1/NFPA No. 54.

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. Valves should be checked for external leakage at piping connections after installation, see *Testing for External Leakage* section.

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

▲ 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.

Testing for External Leakage

▲ WARNING: To prevent the death, serious injury or property damage, extinguish all open flames and avoid any type of sparking or ignition.

1. Block gas flow on downstream side of valve.
2. Apply pressure to valve within nameplate rating and energize solenoid.
3. Apply a soapy solution or a commercially available leak detecting solution to the pipe connections and check for bubbles. If the valve has been tested for seat leakage or disassembled and reassembled for inspecting, cleaning or rebuilding, then apply the solution around the base of the retainer plate and pipe plug.

*DuPont Co. Registered Trademark

4. If leakage exists, depressurize valve and turn off electrical power supply. Tighten pipe connections, pipe plug or retaining plate screws evenly (when valve has been rebuilt) and retest following the above steps.

MAINTENANCE

⚠ WARNING: To prevent the 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.

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.
- While in service, the valve should be operated at least once a month to insure proper opening and closing.
- 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

- **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 2)

1. Disassemble valve in an orderly fashion.
2. Remove solenoid enclosure, see separate instructions.
3. Remove retaining plate screws, then remove retaining plate, retaining plate gasket, plugnut/core tube sub-assembly, core spring, core assembly, body gasket, and support.
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 view for identification and placement of parts.
2. Lubricate all gaskets with DOW CORNING® 111 Compound lubricant or an equivalent high-grade silicone grease.
3. Position support, flat side down into valve body. Position body gasket on support between bevel and side wall of valve body.

4. Install core spring in core assembly. Put wide end of core spring into core first, closed end protrudes from top of core.
5. Position retaining plate gasket over plugnut/core tube sub-assembly.
6. Install plugnut/core tube sub-assembly with core spring and core assembly into the support in the valve body.
7. Replace retaining plate and retaining plate screws. Torque retaining plate screws in a crisscross manner to 16 ± 2 in-lbs [$1,8 \pm 0,2$ Nm].
8. Replace solenoid, see separate instructions.

⚠ WARNING: To prevent the 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 if practical).

9. Check valve for external leakage as indicated under the *Piping* section, and for internal (seat) leakage as follows.

Testing for Internal (Seat) Leakage (Refer to Figure 1)

⚠ CAUTION: Be sure valve can be tested without affecting other equipment.

1. Shut off both the upstream and downstream manual gas cocks. The downstream manual gas cock should remain closed throughout the entire test procedure.
2. Program the control system to operate the valve through five cycles. Listen carefully for the solenoid coil to *click* indicating proper operation.
3. Open the upstream manual gas cock. Program the control system to energize and maintain the valve in the open (energized) position. Check all valve and piping connections for external leaks with rich soap and water solution or a commercially available leak detecting solution.
4. Shut off the upstream manual gas cock and de-energize valve. Remove the plug from the leak test tap or downstream pressure tap in the valve body. Connect leak test equipment with the test petcock in the closed position, see Figure 1.

⚠ WARNING: Some gas will be released to the atmosphere when the 1/8" NPT pipe plug is removed.

5. Open the upstream manual gas cock. Program the control system to energize the valve to the full open position, then immediately de-energize it to seat the valve operationally.
6. Immerse the 1/4" leak test tubing vertically into a jar of water to a depth of about 1/2". Slowly open the test petcock. Bubbles may appear in the water as the pressure equalizes.

- After the rate of bubbles coming through the water stabilizes, count the number of bubbles appearing in a 10 second period. The allowable leakage in 10 seconds for an orifice diameter of 1 inch (25.4 mm) or less is 6 bubbles (3 cc/min). If leakage exceeds this rate, replace valve.

NOTE: The leakage rate above recognizes that some wear and contamination from use can result in a slight amount of leakage. The allowable leakage rate is well within the leakage limits as recognized by applicable approval agencies.

- Close the upstream manual gas cock and the test petcock. Then remove the test equipment. Apply a small amount of Loctite Corporation's PST® Pipe Sealant 567 (or equivalent) to the pipe plug threads. Reinstall the pipe plug and tighten securely.

⚠ WARNING: Some gas will be released to the atmosphere when the test equipment is removed.

- Turn on the gas supply at the upstream manual gas cock and energize the valve.

- Open the upstream manual gas cock. Program the control system to energize and maintain the valve in the open (energized) position. Check the 1/8" NPT pipe plug connection for external leaks with rich soap and water solution or a commercially available leak detecting solution.
- De-energize the valve. Open the downstream manual gas cock.
- Restore the system to normal operation.

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.

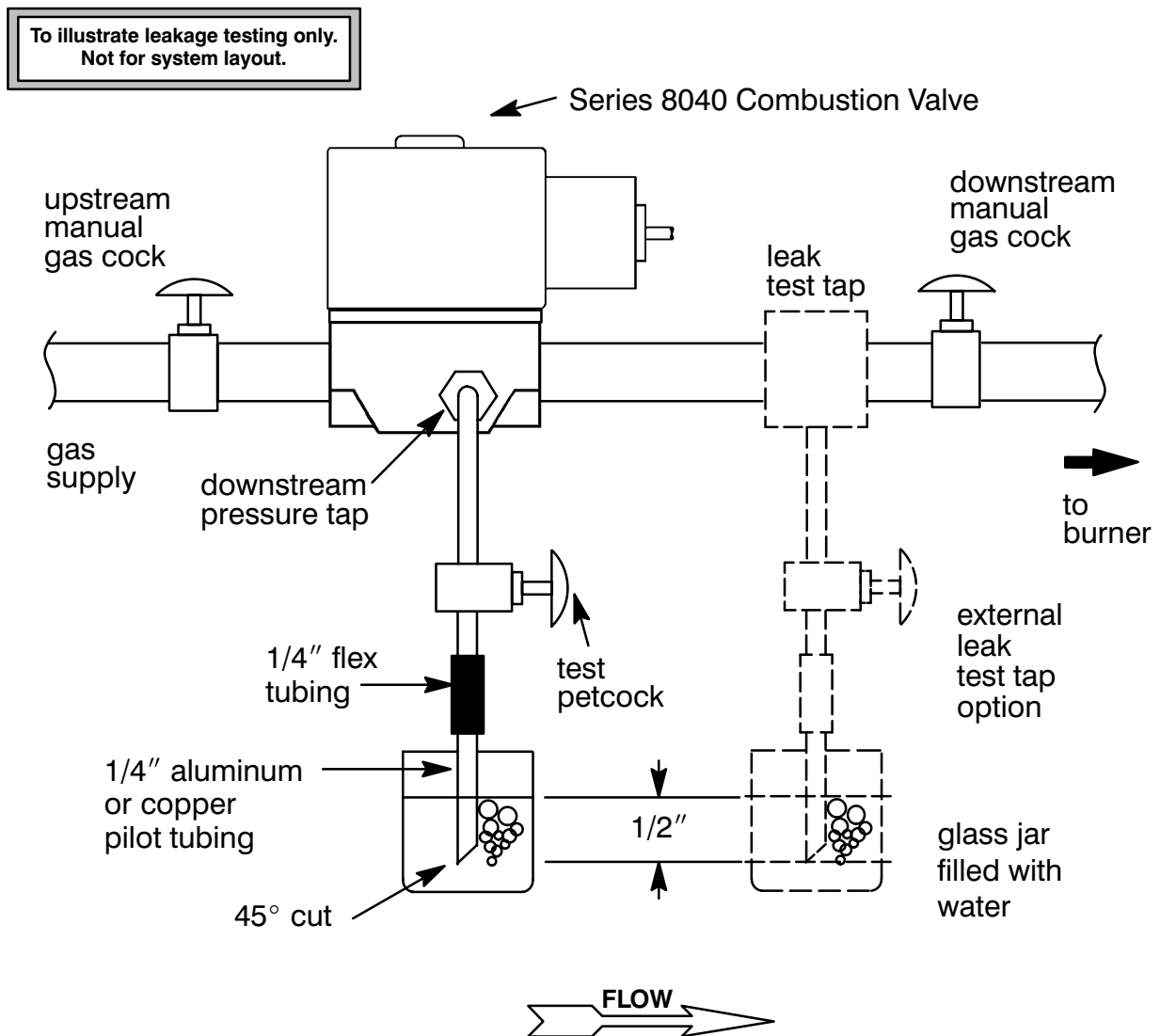


Figure 1. Testing for internal seat leakage.

Torque Chart

Part Name	Torque Value Inch—Pounds	Torque Value Newton—Meters
Retaining plate screws	16 ± 2	$1,8 \pm 0,2$

