

ORDERING INFORMATION FOR COIL REPLACEMENT

When ordering coils, specify valve catalog number, voltage and coil number, if possible.

TORQUE CHART

Part Name	Torque Value	Torque Value, Newton-meters
Bonnet screws	110 ± 10 inch-lbs	12.4 ± 1.1
Solenoid base sub-assembly	175 ± 25 inch-lbs	19.8 ± 2.8

NOTE:
Provisions (tapped & plugged holes) for pressure and seat leakage testing not shown in this view. See Figure 1.

CAUTION
Do not damage valve seat in any manner
ATTENTION
N'endommager d'aucune manière le siège de la vanne.

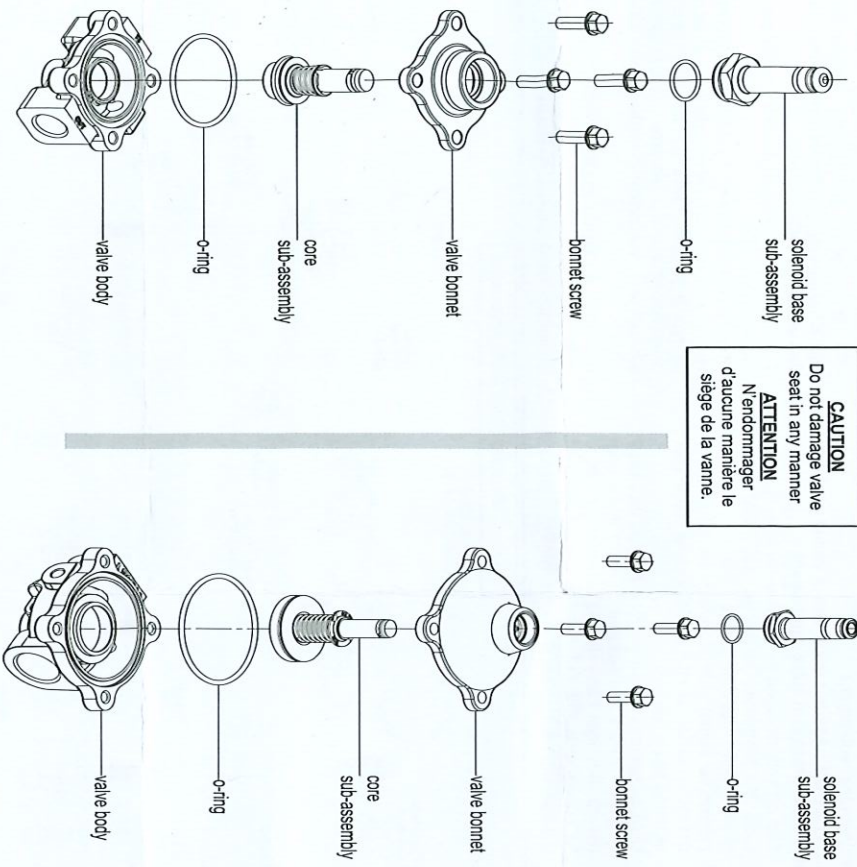


Figure 3. Series K3A4 and K3A5 exploded views

Installation & Maintenance Instructions

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

I&M V 9934

SERIES
K3A4
K3A5

Service Notice

Except for coil replacement, the Series K3A4 and K3A5 are not repairable. When any performance problems are detected during routine inspection, replace valve immediately.

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

DESCRIPTION

Series K3A4 and K3A5 valves are 2-way normally closed direct-acting solenoid valves designed for fuel gas service. Valve bodies are made of rugged aluminum with trim and internal parts made of steel and stainless steel. Series K3A4 valves are designed for low pressure, while Series K3A5 are designed for medium pressure. These valves are provided with a general purpose junction box solenoid enclosure.

Provision for Pressure and Seat Leakage Testing (See Figure 1)

Valves with connection 3/8" to 3/4" NPT are provided with two 1/8" NPT tapped and plugged holes (pressure taps). The upstream tapped and plugged hole is on the side of the valve body; downstream on the bottom of the valve body. One upstream for pressure rating, one downstream for seat leakage testing. Valves with connection 1" NPT are provided with four 1/8" NPT tapped and plugged holes, two on either side of valve body. Two upstream for pressure rating, two downstream for seat leakage testing. Leakage testing frequency shall be at least annually in accordance with NPPA-86 or original equipment manufacturer recommendations. Testing is also required after valve disassembly and reassembly for inspection and cleaning. For instructions, refer to section on *Testing for Internal (Seat) Leakage* and Figure 2.

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

Catalog Number	Pipe Size	Weightage/ Coil Class	Fluid Temperature Range	Ambient Temperature Range
K3A4	3/8" to 3/4" NPT	10.5 / F	-40°F (-40°C) to 140°F (60°C)	-40°F (-40°C) to 170°F (77°C)
				-40°F (-40°C) to 167°F (75°C)
K3A5	3/8" to 3/4" NPT	16.7 / H	-40°F (-40°C) to 140°F (60°C)	-40°F (-40°C) to 140°F (60°C)
				-40°F (-40°C) to 160°F (71°C)
	1" NPT	20 / H		

Positioning

1" NPT Valve must be mounted with solenoid vertical and upright or in a horizontal position only.
3/8" to 3/4" NPT Valve is mountable in any position

Partial side view of valve body showing location of tapped and plugged holes for pressure and seat leakage testing

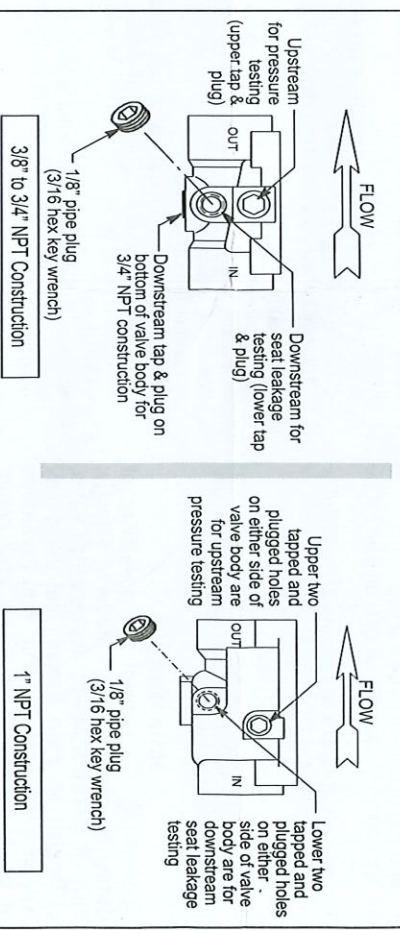


Figure 1. Provision for pressure and seat leakage testing

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.

▲ ATTENTION: La tuyauterie doit être conformes aux règles nationales en vigueur, Code ANSI Z223.1/NFPA No. 54. Inklus.

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 valve as a lever. Locate wrenches applied to valve body or piping as close as possible to connection point. Valve 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 PTFE tape, paste, spray or similar lubricant is used, use extra care when tightening due to reduced friction.

▲ ATTENTION: Afin d'éviter d'endommager le corps de l'électrovanne, ne pas trop serrer les tuyaux de raccordement. Si une bande de spray ou gel de PTFE est utilisée, faire très attention au serrage pour cause de réduction des risques de friction.

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

▲ ATTENTION: Pour protéger l'électrovanne, installez une crépine ou un filtre approprié pour l'utilisation demandée en amont et aussi près que possible de la vanne. Nettoyez périodiquement en fonction des conditions de service. Voir ASCO Séries 8600 et 8601 pour les filtres.

Testing for External Leakage

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

▲ AVERTISSEMENT: Pour éviter tout risque de décès, de blessures graves ou de dommages matériels, éteindre toutes les flammes nues et éviter tout type d'étincelles ou d'inflammation.

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, apply the solution around the pipe plugs.
4. If leakage exists, depressurize valve and turn off electrical power supply. Tighten connections as required and retest following the above steps.

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.

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▲ AVERTISSEMENT: Afin d'éviter le risque de mort, de blessure ou de dommage matériel, couper la source électrique, dépressuriser la vanne, éteindre les flammes et éviter toute type d'étincelle ou d'inflammation. Evacuer le fluide dangereux ou combustible dans une zone sécurisée avant toute maintenance sur la vanne.

6. 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 2)

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

▲ ATTENTION : Assurez-vous que la vanne peut être testée sans affecter un autre équipement.

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 2.

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.
7. 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 is well within the leakage limits as recognized by applicable approval agencies

8. 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 if so equipped. Reinstall the pipe plug and tighten securely.
9. Turn on the gas supply at the upstream manual gas cock and energize the valve.

10. 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.

11. De-energize the valve. Open the downstream manual gas cock.

12. Restore the system to normal operation.

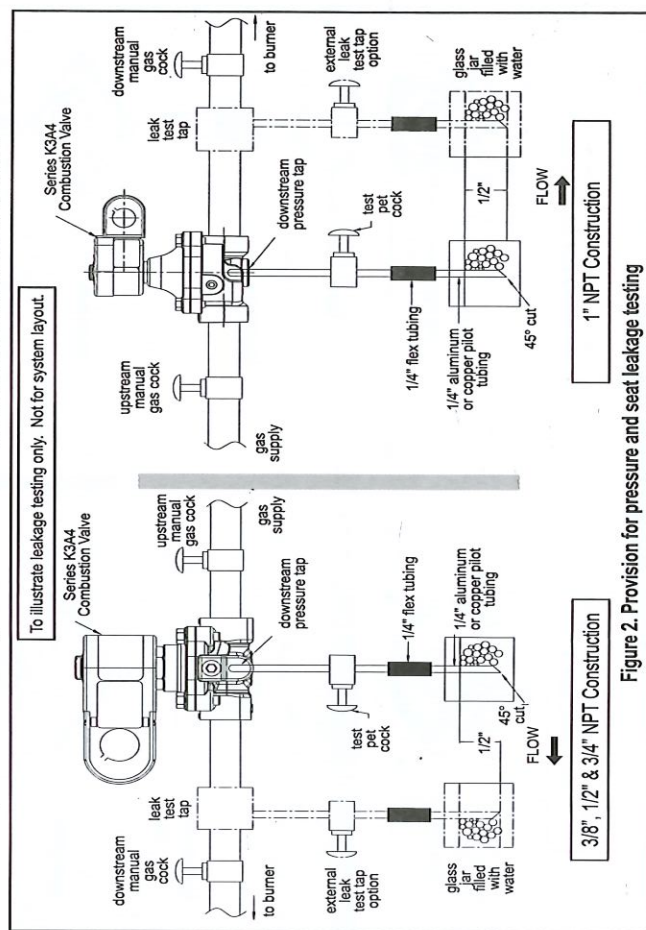


Figure 2. Provision for pressure and seat leakage testing