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I & M Mark 76

Installation & Maintenance Instructions for Mark 76 On-Off Control Valves (1/4" - 2")

Warning: Jordan Valve Control Valves must only be used, installed and repaired in accordance with these Installation & Maintenance Instructions. Observe all applicable public and company codes and regulations. In the event of leakage or other malfunction, call a qualified service person; continued operation may cause system failure or a general hazard. Before servicing any valve, disconnect, shut off, or bypass all pressurized fluid. Before disassembling a valve, be sure to release all spring tension.

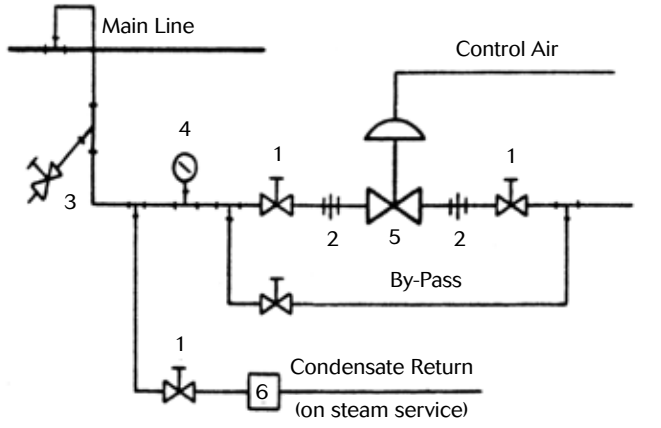
Please read these instructions carefully!

Your Jordan Valve product will provide you with long, trouble-free service if it is correctly installed and maintained. Spending a few minutes now reading these instructions can save hours of trouble and downtime later. When making repairs, use only genuine Jordan Valve parts, available for immediate shipment from the factory.

Jordan's Mark 76 control valve provides straight-through flow and Class IV shutoff for ON-OFF service. The short stroke required to completely open or close the sliding gate seats provides rapid response to an air signal and prevents undue stress on the diaphragm. The wear-resistant elastomer diaphragm has been subjected to rigorous tests of over ten million complete cycles with no indication of excessive wear.

Packing is of the spring-loaded chevron Teflon type to provide long, leak-resistant service. Although the Mark 76 ON-OFF valves are economically priced, the stainless steel seats and other internal parts are the same high quality materials and construction used in Jordan Valve's Mark 70 control valves, and are completely interchangeable with their internal parts.

Ideal Installation



1. Shutoff Valve	4. Pressure Gauge
2. Pipe Union	5. MK76 On-Off Control Valve
3. Strainer & Drain Valve	6. Steam Trap

1. Blow out pipe lines and strainers thoroughly before installation to protect the valve from grit, scale and foreign matter. On new installations, be sure that all thread chips are removed before inserting Mark 76.
2. Flow arrow on valve body must be pointed in the direction of flow. The valve may be installed vertically or horizontally without affecting its operation.
3. Pipe sealing compound should be used sparingly, leaving the two lead threads clean. Do not use red lead or cement for making up the joints.
4. Shutoff valves should be installed on the inlet and outlet side of each Mark 76 installed.
5. Strainers should be installed upstream of all valves to protect them from excessive dirt and scale in pipelines (0.033 perforated screens are usually suitable).

Operation

The valve seats are normally open (or closed) until sufficient air is fed to the top of the diaphragm to overcome the spring and close (or open) the seats. The pressure required to operate the valve will vary according to the pressure drop through the valve. The valve signal can be received from a solenoid valve, a controller, or from any other normal control source.

Trouble Shooting

If You Experience Erratic Operation:

- Ruptured diaphragm: replace.
- Excessive foreign matter may have lodged in the seats: clean and replace.
- Valve stroke may be out of adjustment: follow maintenance procedures on inside pages.
- Valve disc may not be moving freely in the disc guides: follow procedures under Valve Seats on inside pages.
- Insufficient air loading pressure: increase air pressure.

Valve Seats

The valve seats in all Jordan valves are lapped to a critical flatness. Maintaining such tolerances is of paramount importance for your assurance of excellent control and tight shut-off. Do not use metallic objects in removing the seats. Care in handling is imperative.

Note: Reference schematic on back page for positioning and names of parts.

A. DISASSEMBLY

1. Close shutoff valve on each side of the control valve.
2. Remove the control valve from the line.
3. Note the indicator markings on the side of the valve body and cap. Secure the outlet body hex in a vise. Remove the cap screws and lift the cap straight up.
4. Before removing, check the valve disc for a stamped arrow. This arrow points to the indicator markings on the body and cap and the index pin hole in the valve plate. Since the disc can be rotated 180° in some sizes without affecting the stroke adjustment, there may be no arrow on the valve disc. Remove the valve disc and place it on a bench with the lapped surface up.
5. A light tapping on the valve body is normally sufficient to loosen the disc guide and plate. Invert the valve body while holding the disc guide and plate in place; then slowly let them drop out of the body into your hand.

Improper handling of the seats will result in leakage or improper control upon installation.

It is imperative that the disc pin is not rotated in disassembly, cleaning, or reassembly, since this affects the stroke adjustment of the valve.

6. Clean all parts of the body and cap with solvent. The valve disc and plate then may be cleaned. Place a piece of 4/0 polishing paper or jewelers cloth on a smooth, flat surface and polish the components using a figure-eight motion. If the parts are scarred, do not attempt to re-lap them, but return to the factory for repair or replacement. If the seats are not scarred deeply, they can be repaired many times at nominal cost.
7. The vertical milled sections of the disc guide serve as a guide for the disc while stroking. A 0.005 feeler gauge should be used to check the clearance between the sides of the valve disc and the disc guides. To do so, place the valve disc in the disc guide with the lapped surface facing upward and check this clearance. If the clearance is less than 0.005, clean the sides of the disc guides with a fine file.

B. REASSEMBLY

1. Place the valve plate in the body seat recess. In replacing, make certain that the index pin hole is on the same side as the indicator markings on the valve body. Align the disc pin so that it is centered in the body bore and protrudes through the center slot of the valve plate.
2. Place the valve disc with the stamped arrow pointing to the indicator markings on the valve body on the valve plate, engaging the disc pin into the hole of the valve disc.
3. Install the disc guide, engaging the index pin.
4. In replacing the valve cap, note that the indicator markings on the valve cap and body must be in alignment.
5. Install the cap screws and tighten uniformly, diagonally from each other. See back page for torque requirements.

Stroke Adjustment

1. Rotate the disc pin on the stem until the disc pin is located near the upper end of the disc pin slot in the plate.
2. If the action of the valve is “air-to-close” (direct acting), the orifices in the valve disc and plate should be aligned and the valve should be in the full open position. If the action of the valve is “air-to-open” (reverse acting), apply an air signal to the actuator. The disc should stroke down to a fully open position and the orifices in the disc and plate should be in alignment.

CAUTION: the air signal should be applied to the actuator, and the valve fully stroked before placing the disc and plate in the valve body.

3. If minor adjustment is required to align the orifices, remove the disc and plate from the valve body and proceed with step 4.
4. Loosen disc locknut and rotate the disc pin in the desired direction to raise or lower it, and re-tighten the locknut.
5. Remove the spring compression from the diaphragm plate by inserting a screwdriver between the upper coils of the spring, compressing it downward.
6. The stem and disc can then be rotated to center the disc pin in the disc pin slot in the plate.
7. Replace the valve seats and the cap as outlined in “Valve Seats” instructions on previous page.

Packing Replacement

1. Remove the valve disc and plate, following the procedure outlines under “Valve Seats” on the previous page.
2. Loosen the disc pin locknut.
3. Remove the four bracket bolts.
4. Rotate the disc pin counterclockwise and remove the stem and actuator from the valve.
5. Remove the four body bracket bolts and replace the packing.
6. Reassemble body bracket bolts, stem, and actuator on the valve.

Diaphragm Replacement

1. Remove the valve disc and plate, following the procedure outlined under “Valve Seats” on the previous page.
2. Remove actuator assembly, following procedure outlined in “Packing Replacement” above, while omitting step 5 from that section.
3. Remove the four hex head cap screws from the actuator.
4. Remove the four hex head bracket bolts.
5. Replace the diaphragm, and reassemble the parts in the reverse of the order taken out.
6. Enter stem into packing hole and slowly rotate actuator assembly similar to threading a bolt. Do not shove down in actuator as to ruin the packing.

Ordering Spare Parts

Use only genuine Jordan Valve parts to keep your valve in good working order. So that we can supply the parts, which were designed for your valve, we must know exactly which product you are using. The only guarantee to getting the correct replacement parts is to provide your Jordan Representative with the valve serial number. This number is located on the valve identification tag. If the serial number is not available, the parts needed for your valve might be determined using the following information: Model Number, Valve Body Size, Seat Material and Cv Rating, Spring Range and Set Point, Trim Material, Part Name - Number and Quantity.

NOTE: Any parts ordered without a valve serial number that are found to be incorrect are subject to up to a minimum 25% restock charge when returned.

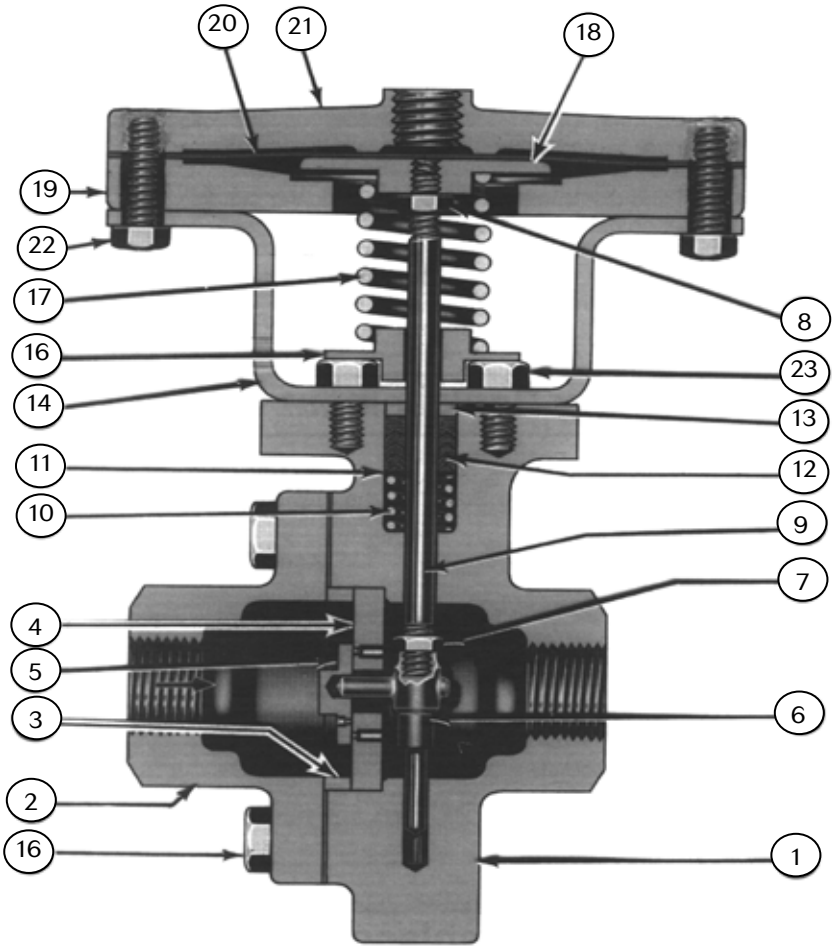
Reversing Valve Action

To reverse the action of the control valve, rotate the disc and plate 180°. A slight stroke adjustment is necessary as outlined on the previous page, depending on the valve action now required.

- **DI**

- **Reverse Acting: down and up**

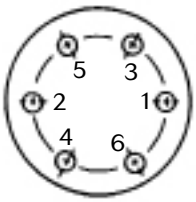
Illustration and Parts List



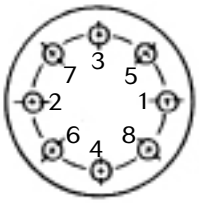
Item	Description
1	Body
2	Cap
*3	Disc Guide
*4	Plate
*5	Disc
*6	Disc Pin
*7	Locknut
8	Upper Locknut
*9	Valve Stem
10	Packing Spring
11	Packing Retainer
*12	Packing
13	Packing Follower
14	Bracket
15	Body Bolt
16	Lower Spring Guide
17	Spring
18	Diaphragm Plate
19	Lower Case
20	Diaphragm
21	Upper Case
22	Bracket Bolt
23	Body Bracket Bolt
*	Recommended Spare Parts

Torque Values

Torque for Bolts Connecting Valve Cap to Valve Body



6 bolts
(or multiples)



8 bolts
(or multiples)

Torque in sequence shown to the following values:

Cast Iron, Ductile Iron or Bronze Valves: 140 in.-lbs.
Carbon Steel or Stainless Steel Valves: 200 in.-lbs.
Torque for diaphragm bolts: 200 in.-lbs.

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