



JORDAN VALVE

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I & M Mark 39/39MX

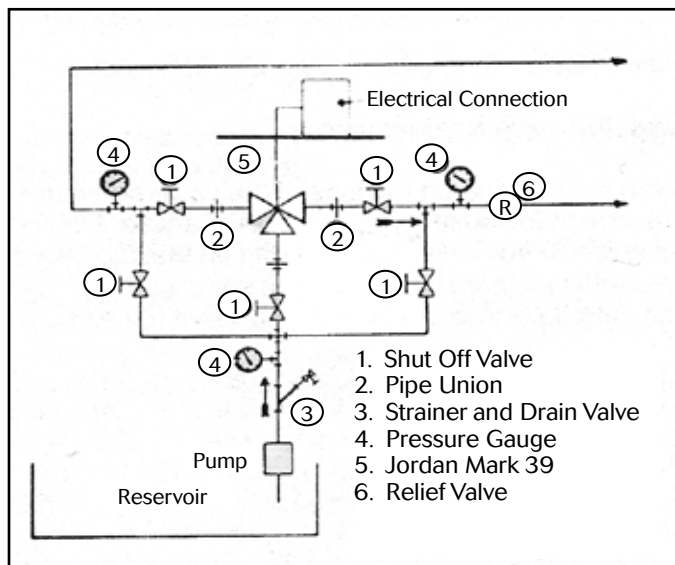
Installation & Maintenance Instructions for Mark 39 Electric Motor Actuated 3 Way Valve

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.

Ideal Installation



1. Shut Off Valve
2. Pipe Union
3. Strainer and Drain Valve
4. Pressure Gauge
5. Jordan Mark 39
6. Relief Valve

1. To protect the valve from grit, scale, thread chips and other foreign matter, ALL pipelines and piping components should be blown out and thoroughly cleaned before the installation process begins.
2. Shutoff valves, pressure gauges and by-pass piping should be installed as indicated in the Ideal Installation Schematic to provide easier adjustment, operation, and testing.
3. A line strainer should be installed on the inlet side of the valve to protect it from grit, scale and other foreign matter. A 0.033 perforated screen is usually suitable for this purpose. Line strainers are available from Jordan Valve.
4. For best control, 3' 0" straight sections of pipe

5. should be installed on either side of the valve.
5. In preparing threaded pipe connections, care should be exercised to prevent pipe-sealing compound from getting into the pipelines. Pipe-sealing compound should be used sparingly, leaving the two end threads clean. Jordan uses, and recommends, thread sealer Teflon ribbon.
6. The flow arrow on the valve body must be pointed in the direction of flow. Ideally, the valve should be installed in the highest horizontal line of piping to provide drainage for inlet and outlet piping, to prevent water hammer, and to obtain faster response.
7. If possible, install a relief valve downstream from the valve. Set at 15 psi above the control point of the valve.
8. In hot vapor lines, upstream and downstream piping near the valve should be insulated to minimize condensation.
9. In gas service, if the control pressure (downstream) is 25% of the inlet pressure or less, expand the outlet piping at least one pipe size. A standard tapered expander connected to the outlet of the valve is recommended.
10. Where surges are severe, a piping accumulator is recommended.
11. On steam control applications, install a steam trap with sufficient capacity to drain the coil or condenser. Be sure to have a good fall to the trap, and no backpressure. Best control is maintained if the coil or condenser is kept dry.

Trouble Shooting

If You Experience Erratic Control:

- Oversizing causes cycling and hunting and reduces the rangeability of the valve. Make certain that your sizing is correct.
- Steam traps downstream may need attention.
- Excessive foreign matter on seats. Clean them.
- Valve stroke out of adjustment. Check and readjust if necessary.
- Valve disc may not be moving freely.

PROTECT VALVES WITH LINE STRAINERS

If Valve Will Not Operate:

- Electrical power off or loose connection.
- Defective control device.
- Defective motor

Wiring

See the motor manufacturer's literature, supplied with the valve, for wiring connections and instructions.

Caution: Disconnect electrical power supply before wiring motor into circuit to avoid electrical shock or possible damage to equipment. Always disconnect power supply before attempting any wiring changes.

Start-Up

1. Fully open the outlet shutoff valve.
2. Slowly open the inlet shutoff valve.
3. Do not fully open the inlet shutoff valve until you are sure that the controller and control valve have control of the system.

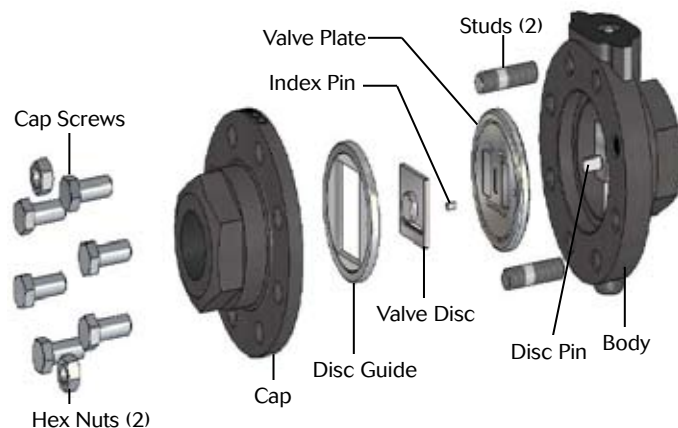
Valve Maintenance

Caution: Make certain that there is no pressure in the valve before loosening any fittings or joints. The following steps are recommended:

1. Close the inlet shutoff valve.
2. Allow pressure to bleed off through downstream piping. Do not attempt to reverse the valve by bleeding pressure from the upstream side of the valve.
3. When the pressure gauges indicate that all pressure has been removed from the system, close the outlet shutoff valve, and the valve may be serviced.

Note: refer to the drawing at the end of this document for description and proper orientation of parts.

Valve Seats



A. DISASSEMBLY

The sliding gate seats of Jordan Valves are lapped to light band flatness. Maintaining such tolerances is of paramount importance for your assurance of excellent control and tight shutoff. DO NOT use metallic objects in removing the seats. Care in handling is imperative.

1. Follow the Maintenance Procedure and remove the valve from line.
2. Note the scribes "<" on the side of the valve body and cap. Secure the body flats in a vise. Remove the cap bolts and two nuts. Lift the cap straight up.
3. Before removing, check the disc for a stamped arrow. This arrow points to the "<" on the body. (NOTE: certain discs that can be rotated 180° without affecting the stroke might not have an arrow.)
4. Remove the disc guide (18) by lifting straight up. Also lift straight up on the disc. Place the disc on the bench, lapped surface facing up. Protect the lapped surfaces on both sides of the disc guide.
5. Invert the body and lightly tap on the exterior to remove the plate. Let the plate drop out into your hand, and place it on the bench with the lapped surface facing up.
6. Clean all of the parts, body and cap with solvent. Place a piece of 4/0 polishing cloth or jewelers cloth on a smooth, flat surface, and polish the lapped seating surfaces of the disc, plate, and disc guide using a figure "8" motion. If the parts are scarred, do not attempt to re-lap them, but return them to the factory for repair or replacement. Often parts can be repaired at a minimal cost if the parts are not scarred too deeply.
7. The vertical sections of the disc guide serve as guides for the disc while stroking. A 0.005 feeler gauge should be used to check for clearance between this surface and the side of the disc. If the clearance is less, clean the guide surfaces in the disc guide with a fine file.

B. REASSEMBLY

1. Place the plate in the body, lapped surface facing the cap. The index pin hole should be on the same side of the body as the "<" on the body. Align the disc pin so that it is centered in the body bore and that it protrudes through the center slot in the valve plate (this should be the longer of the two extensions if the disc pin is cast).
2. Place the disc on the valve plate, engaging the disc pin. The arrow on the disc should point to the index pinhole. Insert the index pin in the hole.
3. Place the disc guide onto the valve plate, engaging the index pin. Rotate the assembly slightly until the slot openings in the disc are parallel to the openings in the plate and perpendicular to the stem.

Stroking the valve will aid in this alignment.

4. Align the ">" on the cap with the "<" on the body, and place the cap over the two studs in the body.
5. Install the nuts and cap bolts. Tighten uniformly. See TORQUE VALUES section for torque requirements and tightening procedures. Repeat disassembly and reassembly per "A" and "B" above for the second set of seats.

Stem, Disc & Pin Replacement

1. Remove the disc and plate, following the procedure outlined under VALVE SEATS.
2. Loosen the stem connector nut and bolt and remove connector.
3. Back out the four allen head yoke screws, which will allow the body to be separated from the yoke.
4. Remove the packing flange nuts and the packing flange.
5. Loosen the stem locknut and rotate the disc pin counterclockwise, pulling the valve stem upward while doing so.
6. When pulling the stem completely out of the body you will remove most of the packing assembly also. The remaining parts of the packing assembly can "fished" out with a small screwdriver.
7. Clean the packing bore in the body with solvent and blow dry.
8. The disc pin may be removed through the body bore.
9. Clean the stem and disc pin with solvent if they are to be reused.
10. Reassemble the disc pin, stem and locknut in the valve body as they originally were.
11. Replace the packing spring and packing retainer in the packing bore.
12. Reassemble the new packing on the stem with the open part of the "V" downward (^). There will be a flat on the top and bottom of the stack. Place the packing follower on top of the packing.
13. Gently push the packing into the packing bore and place the packing flange on the stem and over the packing studs.
14. Put on the flange nuts and tighten them partially. At this point it is recommended that you gently move the stem up and down three or four times to align the assembly.
15. Tighten the flange nuts until the packing follower bottoms out on the top of the body.
16. Replace actuator in reverse order. Reassemble the valve by inserting seats as outlined in Valve Assembly Section for the size valve you are working with. Then follow instructions for STROKE ADJUSTMENT.

Valve Stroke Adjustment

The valve stroke is set at the factory and no field

adjustments are necessary. The position of the seats can be adjusted by starting from the normally open position (when the orifice in the plate and disc are perfectly aligned). For direct acting service, adjust the motor rotation to the full CCW position (as viewed from the power end). For reverse acting service, adjust the motor rotation to the CW position. If the seats are not properly full open, loosen the nut that locks the actuator stem to the rod bearing and loosen the stem connector assembly just enough to rotate the actuator stem. Carefully thread the actuator stem in or out of the rod end bearing until the seats are full open and in perfect alignment. If further adjustments are necessary, consult factory.

Motor Replacement

1. Follow procedures under the Maintenance Section to remove the valve from line.
2. Remove socket head screw and lockwasher.
3. **Important - Note the position of the cam on the motor shaft.**
4. **Do Not attempt to remove the socket set screws.**
5. Remove the four motor mounting bolts, lockwashers, and nuts,
6. Slide motor back off of the mounting plate.
7. Install new motor on mounting plate.
8. **Important - Make sure cam is in the same lobe position as described in step 2.**
9. Replace and tighten mounting bolts, lockwashers, and nuts.
10. Replace and tighten socket head screw and lockwasher on motor shaft.
11. Check valve stroke as described in STROKE ADJUSTMENT.

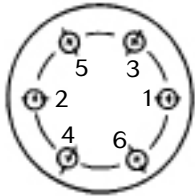
Motor Maintenance

The drive motor and gear train are immersed in oil and sealed in a die cast enclosure and thus, periodic maintenance is not required. **Field repairs must not be made.** Replacement actuators may be obtained through the nearest Jordan Valve representative. When ordering a replacement actuator, please provide the serial number of the valve as shown on the valve name plate.

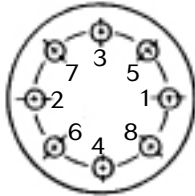
Torque Values

**Torque for bolts connecting valve cap to valve body
(in. - lbs.)**

Valve Size	Valve Body Material	
	Cast Iron, Ductile Iron, Bronze	Cast Steel, Stainless Steel
1-1/2" & 2"	140	150



6 bolts
(or multiples)



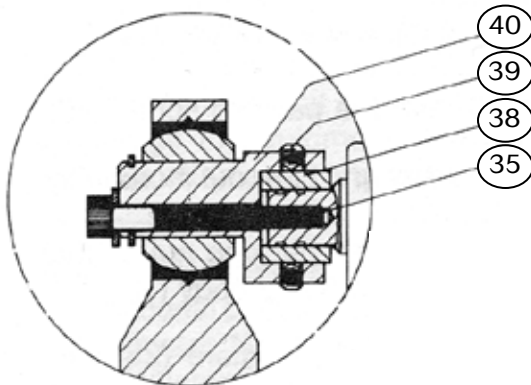
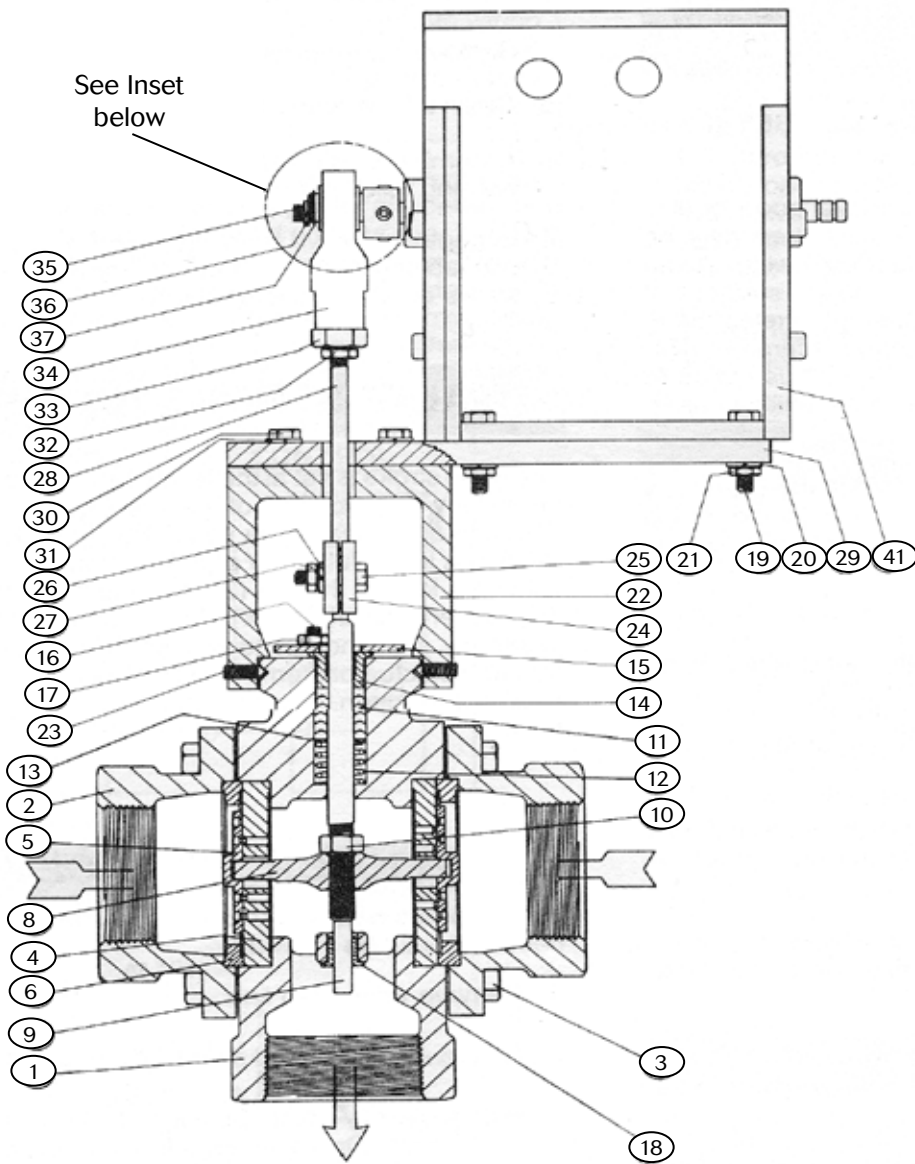
8 bolts
(or multiples)

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.

Illustration and Parts List



Item	Description
1	Body
2	Cap
3	Bolt
4	Plate
5	Disc
6	Disc Guide
7	Index Pin (not shown)
8	Disc Pin
9	Stem
10	Locknut
11	Packing
12	Packing Spring
13	Packing Retainer
14	Packing Follower
15	Packing Flange
16	Packing Stud
17	Packing Nut
18	Stem Bushing
19	Cap Screw
20	Lockwasher
21	Nut
22	Yoke
23	Set Screw
24	Stem Connector
25	Cap Screw
26	Lockwasher
27	Nut
28	Actuator Stem
29	Mounting Plate
30	Bolt
31	Lockwasher
32	Locknut
33	Adaptor
34	Rod End Bearing
35	Socket Screw
36	Lockwasher
37	Retaining Ring
38	Broach Bushing
39	Set Screw
40	Cam
41	Motor
*	Recommended Spare Parts