



JORDAN VALVE

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I & M Mark 33 Series

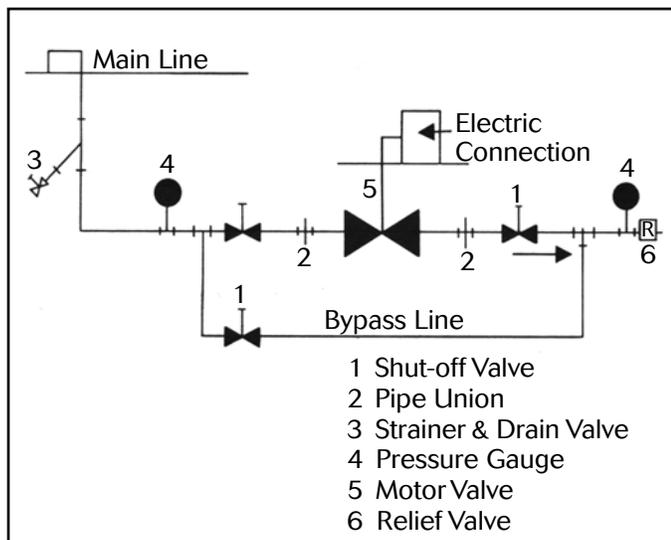
Installation & Maintenance Instructions for Mark 33 Electric Motor Control Valves

Warning: Jordan Valve electric motor 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



4. should be used sparingly, leaving the two lead threads clean.
4. A line strainer should be installed on the inlet side of the regulator to protect it from grit, scale and other foreign matter. A 0.033 perforated screen is usually suitable. Line strainers are available for immediate shipment from Jordan Valve.
5. Install the valve in the highest horizontal line of piping to provide drainage for inlet and outlet piping, to prevent water hammer and to obtain faster response.
6. The flow arrow on the regulator body must be pointed in the direction of flow. The valve may be installed in any direction, but damage to the seating surfaces may occur if installed in a vertical line with the flow upwards.
7. To minimize condensation in hot vapor lines and to protect the motor from excessive heat, piping near the valve should be insulated.
8. If possible, install a relief valve downstream from the regulator. Set at 15 psi above the control point of the valve.
9. Expand the outlet piping at least one pipe size if the downstream pressure is 25% of the inlet pressure or less. A standard tapered expander connected to the outlet of the valve is recommended.
10. Where surges are severe, a piping accumulator is recommended.
11. For best control, 3' straight sections of pipe should be installed on either side of the valve.

Installation

1. To protect the valve from grit, scale, thread chips, and other foreign matter, all pipe lines and piping components should be blown out and thoroughly cleaned before the valve is installed.
2. Shutoff valves, pressure gauges, and bypass piping should be installed as indicated in the diagram to provide easier adjustment, operation, and testing.
3. In preparing threaded pipe connections, care should be exercised to prevent pipe sealing compound from getting into the pipe lines. Pipe sealing compound

Wiring

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.

See the Motor Manufacturer's literature, supplied with the valve, for wiring connections and instructions.

Start-Up

1. Be sure that the action of the control valve and of the controller are such as to give the desired results.
 2. With the inlet, outlet and bypass shutoff valves closed, and no pressure in the downstream line, fully open the outlet shutoff valve. Slowly open the inlet valve just enough to start flow through the control valve. Increase flow gradually by slowly opening the inlet shutoff valve. Do not fully open the inlet valve until you are sure that the controller and control valve have control of the system. Usually the hand-wheel on the inlet valve will turn freely when this point is reached.
 3. To shutoff the line fluid, close the inlet shutoff valve first, then the outlet shutoff valve.
1. Close the shutoff valve on each side of the control valve, and remove the valve from line.
 2. Note scribed "<" on the side of the valve body and cap. Secure the body outlet flats in a vise. Remove the cap bolts and two nuts, and lift the cap straight up.
 3. Before removing, check the valve disc for a stamped arrow. This arrow points to the "<" on the body. Remove the disc guide and the valve disc. Place the valve disc on the bench with lapped surface facing up. Protect the lapped surfaces on both sides of the disc guide.

It is imperative that the disc pin is not rotated when disassembling, cleaning or reassembling, since this affects the stroke adjustment of the valve.

Maintenance

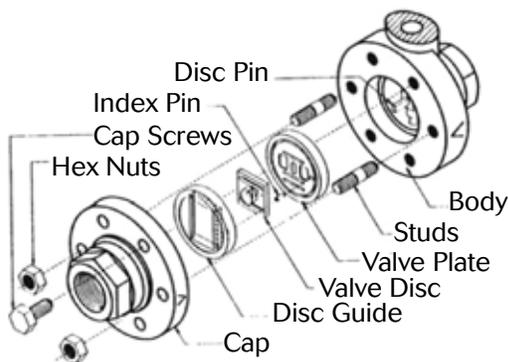
Caution: Make certain that there is no pressure in the valve before loosening any fittings or joints. The following steps are recommended:

1. Close inlet shutoff valve.
2. Allow pressure to bleed off through downstream piping. Do not attempt to reverse the flow through 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.

4. Lightly tap on the body to remove the valve plate. Invert the body, let valve plate drop out into your hand, and place it on the bench with lapped surface facing up.
5. Clean all the parts, body and cap with solvent. Place a piece of 4/0 polishing cloth or jewelers cloth on a smooth, flat surface such as surface plate, 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 relap them, but return them to the factory for repair or replacement. If the seats are not scarred deeply, they can be repaired at a nominal cost.
6. The vertical sections of the disc guide serve as guides for the valve disc while stroking. A 0.005 feeler gauge should be used to check for clearance between this surface and the side of the valve disc. If the clearance is less, clean the guide surfaces in the disc guide with a fine file.

Valve Seats



A. Disassembly

The seats of Jordan valves are precision-lapped. 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.

B. Reassembly

1. Place the valve plate in the body, lapped surface facing the cap. The index pin hole should be on the same side as the "<" on the body. Align the disc pin so that it is centered in the body bore and protrudes through the center slot in the valve plate.
2. Place the valve disc on the valve plate, engaging the disc pin. The arrow on the disc should point to the "<" on the body.
3. Place the disc guide onto the valve plate, engaging the index pin. Rotate the assembly slightly until the slot openings in the valve disc are parallel to the openings in the valve plate, and perpendicular to the valve 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 requirements and tightening procedures.

Stem & Disc Pin Replacement

1. Remove the valve disc and the valve place, following the procedure outlined under VALVE SEATS.
2. Loosen the stem connector nut and bolt and remove connector assembly.
3. Back out the four allen head screws which will allow the valve body to be separated from the valve yoke.
4. Loosen the stem locknut and rotate the disc pin counter-clockwise, pulling the valve stem upward while doing so. Do not remove the valve stem completely, but raise it sufficiently so that the disc pin may be removed by pulling up and out.
5. Replace the disc pin and reassemble in reverse order following the procedure outlined under VALVE SEATS and STROKE ADJUSTMENT.

Packing

1. Remove connector assembly.
2. Remove both packing flange nuts.
3. Remove packing flange and packing follower.
4. Remove packing retainer and the packing spring.
5. Clean the packing bore with solvent and blow out thoroughly.
6. Assemble in reverse order and tighten the packing nut so that the packing follower bottoms out on top of the valve body.
7. Engage the valve stem and actuator stem with connector. Tighten connector nut and bolt. No stroke adjustment is required.

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 in the 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 end 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. If further adjustments are necessary, consult factory.

Motor Replacement

If it becomes necessary to change motors, the following procedure should be followed:

1. Remove the valve from the line.
2. Remove socket head crew and lockwasher.

Important: Note position of lobe of the cam on the motor shaft. Do not attempt to remove the socket set screws.

3. Remove the four motor mounting bolts, lockwashers, and nuts.
4. Slide motor back off of mounting plate.
5. Install new motor on mounting plate. **Important - make sure cam is in the same lobe position as described in step 2.**
6. Replace and tighten mounting bolts, lockwashers, and nuts.
7. Replace and tighten socket head screw and lockwasher on motor shaft.
8. 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, specify product model number and serial number as shown on the valve name plate.

Troubleshooting

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 require maintenance.
- Safety valve may be defective and need repair.
- There may be excessive foreign matter on the seats, and seats should be removed and cleaned. Valve stroke may be readjustment.
- Valve disc may not be moving freely. Check disc guide clearance and correct if needed.

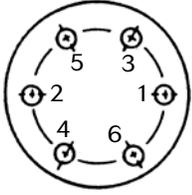
If valve will not operate:

- Electric power may be off or there may be a loose connection.
- There could be a defective control device.
- The motor actuator may be defective and require replacement.

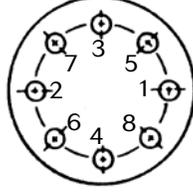
Ordering Spare Parts

Use only genuine Jordan Valve parts to keep your valve in good working order. So we can supply the parts which were designed for your valve, we must know exactly which product you are using. By furnishing the following information with your order, you will prevent delays and errors: Serial number of your existing valve; Model number; Body size; Body material; End connections (flange rating if applicable; Part name and quantity (see chart on back page).

Torque Requirements



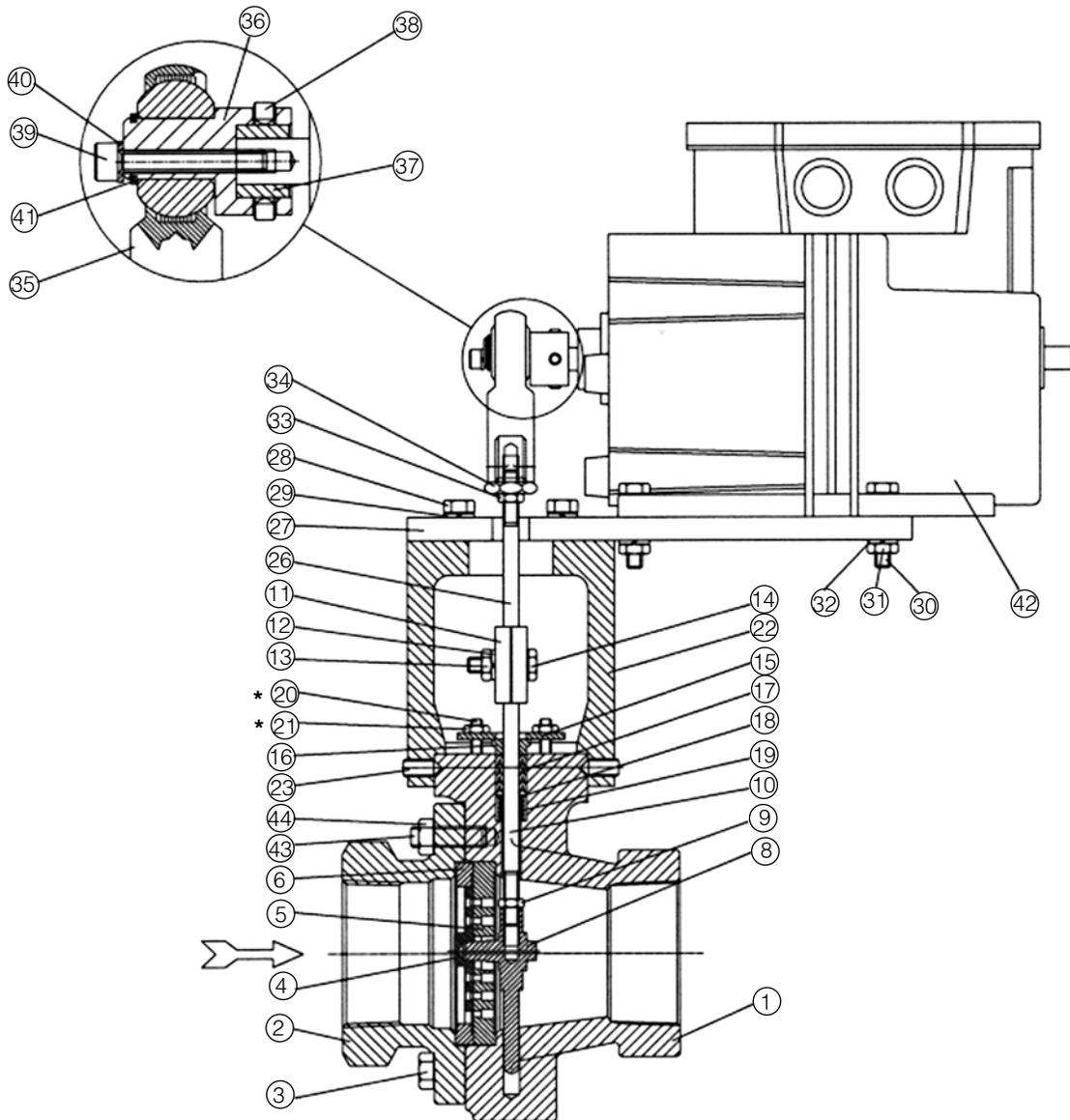
6 bolts (or multiples)



8 bolts (or multiples)

Valve Size	CI or BRZ	DI, CS, SS
1/4" & 3/8"	70 in-lbs	150 in-lbs
1/2" - 2"	140 in-lbs	200 in-lbs

Illustration & Part List



Item	Description	Qty	Item	Description	Qty	Item	Description	Qty
1	Body	1	16	Packing Follower	1	31	Nut	4
2	Cap	1	17	Packing	1	32	Lockwasher	4
3	Cap Screw	4-6	18	Packing Retainer	1	33	Jam Nut	1
4	Disc	1	19	Packing Spring	1	34	Adapter	1
5	Plate	1	20	Packing Stud	2	35	Rod End Bearing	1
6	Disc Guide	1	21	Packing Nut	2	36	Cam	1
7	Index Pin (not shown)	1	22	Yoke	1	37	Bushing	1
8	Disc Pin	1	23	Socket Head Set Screw	4	38	Socket Head Set Screw	4
9	Locknut	1	24	Nameplate (now shown)	1	39	Socket Head Cap Screw	1
10	Stem	1	25	Drive Screw (not shown)	2	40	Lockwasher	1
11	Stem Connector	2	26	Actuator Stem	1	41	Retaining Ring	1
12	Lockwasher	1	27	Mounting Plate	1	42	Motor	1
13	Nut	1	28	Cap Screw	4	43	Stud	2
14	Bolt	1	29	Lockwasher	4	44	Nut	2
15	Packing Flange	1	30	Cap Screw	4			