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I & M Mark 62

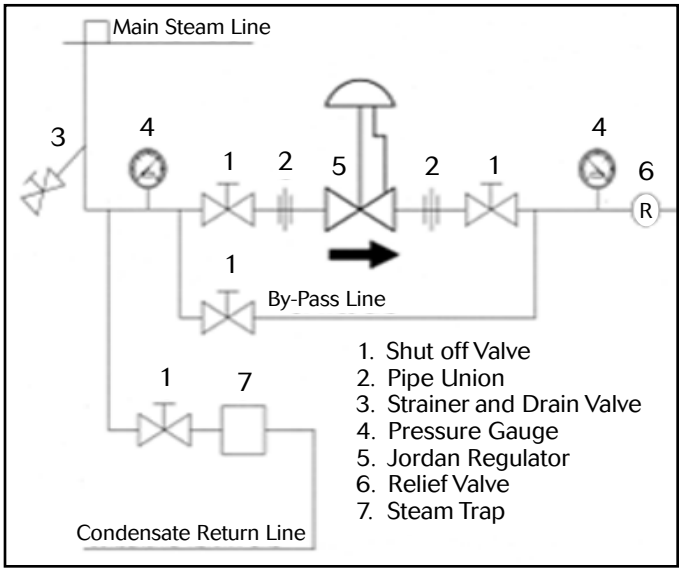
Installation & Maintenance Instructions for Mark 62 Piloted Pressure Regulators 1/2″ to 2″ (PPRV)

Warning: Jordan Valve pressure regulators 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. 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 diagram above 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 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 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 the 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, expand the outlet piping at least one pipe size, if the control pressure (downstream) is 25 percent 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. 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.
- Safety valve may be jammed open.
- Excessive foreign matter on seats.
- Valve stroke out of adjustment. Check and readjust if necessary.
- Valve disc may not be moving freely. Check disc guide clearance.

If valve will not operate:

- Diaphragm ruptured.
- Adjusting Spring broken.
- Improper Spring setting.
- Upstream Pilot Tube Clogged.

Start Up

1. A minimum of 15 psi deferential is required between the upstream and downstream pressures for operation of the PPRV.
2. Open the inlet shut-off valve.
3. Slowly open and close the outlet shut-off valve several times to stroke the valve and insure satisfactory operation.
4. To change the controlled pressure, turn the adjusting screw counterclockwise to decrease the pressure and clockwise to increase the pressure.
5. Body and cap bolts should be retightened per torque procedures after valve reaches operating temperature.

Maintenance

Caution: Make certain that there in 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 the 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.

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. Remove the inlet pilot tube and the outlet pilot tube.
3. 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.
4. 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.)* 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.

It is imperative that the disc pin assembly (disc pin, stem and locknut) is not rotated when disassembling, cleaning or reassembling, since this will affect the stroke adjustment of the valve.

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 seats 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 and Stroke Adjustment

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 aide in this alignment.
4. Turn the adjusting screw to compress the spring and open the pilot valve.
5. To check the stroke adjustment, blow air into the inlet pilot connection (at the strainer). The main valve will stroke to the open position, and the orifices should be in perfect alignment. If they are not, then an adjustment is required.

6. To obtain the proper adjustment, remove the seats, (plate, disc, and disc-guide) from the valve and loosen the locknut. Adjustment is obtained by rotating the disc pin on the stem. To raise the disc, rotate the stem so that it rises out of the disc pin and vice versa.
7. When the preliminary adjustment has been made, tighten the locknut while holding the disc pin with an open end wrench.
8. Now rotate the disc pin so that the seats may be repositioned in the valve.
9. Reinstall the seats as outlined in steps one through four.
10. If the orifices are not aligned properly, repeat steps six through ten until proper alignment is achieved. (*Note: The total stroke length of this valve is equal to the orifice width plus 1/32" overlap. Consequently perfect adjustment is required for proper operation.)*
11. Align the ">" on the cap with the "<" on the body, and place the cap over the two studs in the body.
12. Install the nuts and cap bolts. Tighten uniformly following the Torque Pattern instructions of this I&M.
13. Reinstall the pilot tubing.

Pilot Valve Maintenance

1. If the regulator should fail to operate properly, pipeline foreign matter may have clogged the pilot valve mechanism.
2. Close the upstream and downstream shut-off valves.
3. Turn the adjusting screw counter-clockwise to release spring compression, allowing pilot valve and main valve to fully close.
4. Remove outlet pilot tube and then slowly open the upstream shut-off valve. If line fluid flows from the tube connector into the bonnet, the pilot valve is leaking. If line fluid flows from the tube connector into the body, the main valve seats are leaking. Be sure to close the upstream shut-off and bleed off the pressure before proceeding with maintenance.
5. Loosen ring nut and remove spring case assembly, which includes hand-wheel, adjusting screw, thumblock, spring case, and ring nut.
6. Remove the upper spring guide from the adjusting spring. Remove the spring, pilot diaphragm plate, and pilot diaphragm.
7. Note that the pilot stem protrudes slightly above the pilot seat.
8. Remove the pilot assembly, using a ¾" socket wrench.
9. Use a small piece of steel wool and solvent on the Teflon pilot seat to remove pipe scale and foreign matter. If, after cleaning, the Teflon pilot seat is scarred, the pilot seat assembly must be replaced.
10. Install the pilot seat assembly carefully so that no burrs are raised on the hex. Burrs could puncture the diaphragm.
11. At this time, IT IS IMPORTANT TO CHECK THE STROKE OF THE PILOT VALVE. Place a straight edge across the pilot diaphragm seat. If the pilot stem extends above the straight edge, the pilot stem should be filed lightly so that it is flush with, or slightly below, the straight edge. Excessive filing of the pilot stem will cause short stroking and will starve the supply pressure to the main valve diaphragm.
12. Reassemble in reserve order, making certain that the pilot diaphragm and pilot diaphragm plate is positioned properly in the spring case.

Main Valve Stem, Disc Pin and Lower Spring Replacement

1. Remove the strainer inlet pilot tube and outlet pilot tube. Follow the procedure outlined under Valve Seats and remove the valve disc and plate.
2. Unscrew the bottom cap and remove the lower spring and lower spring guide.
3. Remove the bonnet screws and lift the bonnet assembly from the main valve body.
4. The main diaphragm can now be removed and replaced if necessary.
5. To remove the disc pin, unscrew the stem locknut and the disc pin from the valve stem. The stem can now be removed upward through the body flange.
6. The disc pin can now be removed through the valve body bore by lifting up and out.
7. Clean all parts of the valve body and cap with solvent, and replace any part which appears to be worn or defective.
8. Reassemble in reverse order. Insert the stem through the body flange and the disc pin into the body bore.
9. Thread the stem locknut and the disc pin all the way on the valve stem and back off one-half turn.
10. Place the main diaphragm plate on the valve stem, making certain that the valve stem is positioned properly in the hole of the main diaphragm plate.
11. Replace the main diaphragm, making sure that it is installed properly in the recess of the valve body.
12. Place the valve bonnet assembly on the valve body and tighten the cap screws uniformly and diagonally.
13. Insert the return spring guide (14) and the return spring in the bottom cap making certain that the spring guide engages the disc pin properly.
14. A stroke adjustment will probably be required. Please note the procedure outlined under VALVE SEATS.
15. Replace the strainer, inlet pilot tube, and outlet pilot tube.
16. Valve is now ready for installation and start up.

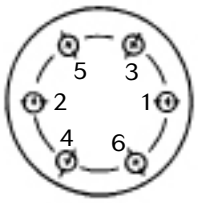
Ordering Spare Parts

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.

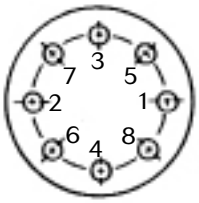
NOTE: Any parts ordered without a valve serial number that are found to be incorrect are subject to up to a minimum 25% restock charge when returned.

Torque Pattern

Valve Size	Ductile Iron	Bronze
1/2″, 3/4″	200	140
1″, 1-1/4″	200	140
1-1/2″	200	140
2″	200	140

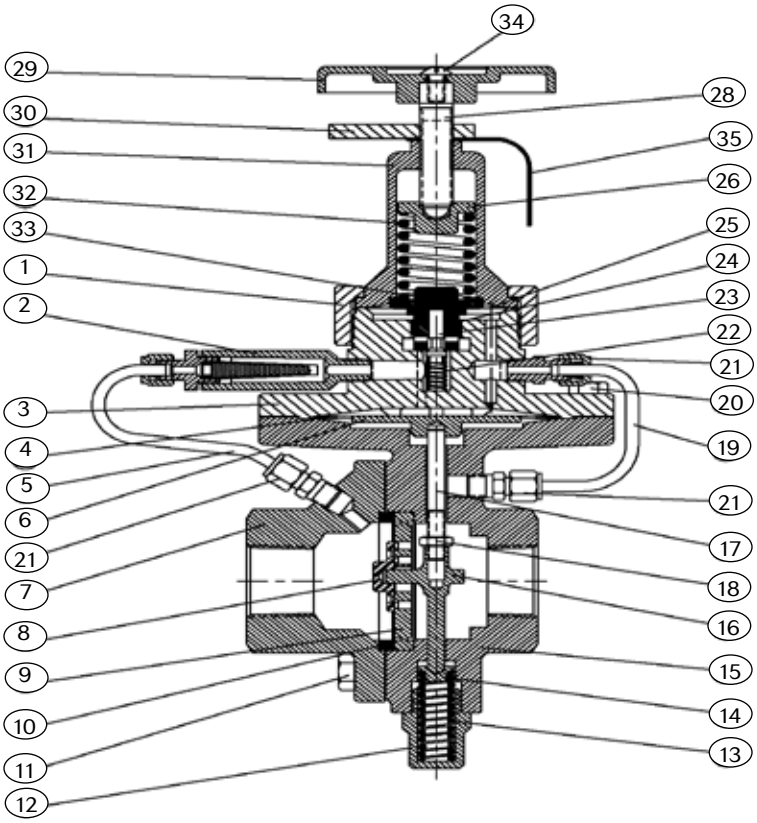


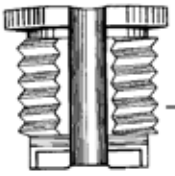
6 bolts
(or multiples)



8 bolts
(or multiples)

Illustration and Parts List





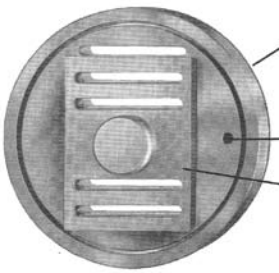
Pilot Seat (24)

Pilot Valve Assembly Exploded View

Pilot Valve Stem (23)

Pilot Spring (22)

Plate and Disc Open Position



Plate

Index Pin Hole

Disc

Item	Description	Qty.
1	Ring Nut	1
2	Strainer Assy	1
3	Bonnet	1
*4	Diaphragm	1
5	Tubing (Inlet)	1
6	Diaphragm Plate	1
7	Cap	1
*8	Disc	1
*9	Plate	1
*10	Disc Guide	1
11	Body Cap Screw	4
12	Bottom Cap	1
13	Spring (Bottom)	1
14	Spring Seat	1
*15	Body	1
16	Disc Pin	1
*17	Stem	1
18	Stem Locknut	1
19	Tubing (Outlet)	1
20	Bottom Cap Screw	8
21	Tube Connector	3
22	Pilot Spring	1
*23	Pilot Stem	1
*24	Pilot Seat Assy	1
*25	Pilot Diaphragm	1
26	Spring Seat (Upper)	1
28	Adjusting Screw	1
29	Handwheel	1
30	Thumblock	1
31	Spring Housing	1
32	Spring	1
33	Pilot Diaphragm Plate	1
34	Handle Screw	1
35	Name Plate	1
36	Stud - Body-Cap (not shown)	2
37	Nut- Body-Cap (not shown)	2
*38	Index Pin (not shown)	1
*	Recommended Spare Parts	

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