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I & M JRPL Series

Installation Instructions for JRPL Low Range Series Gas Pressure Reducing Valves

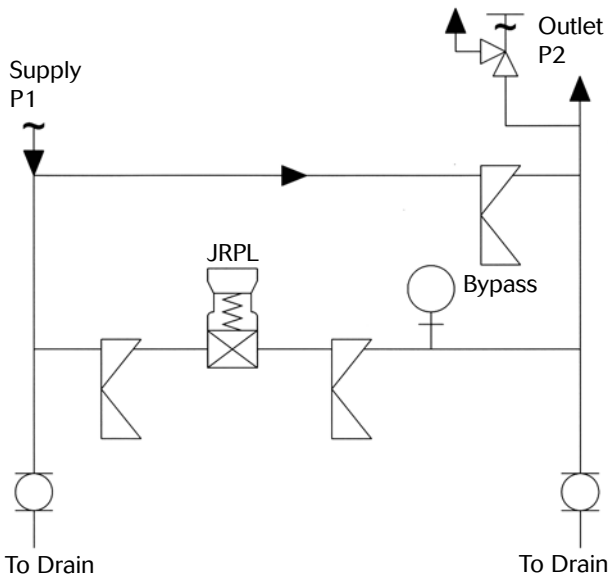
Warning: Low Flow Regulators must only be used, installed and repaired in accordance with these Installation & Maintenance Instructions. Observe all applicable public and company codes and regulations. In the event of leakage or other malfunction, call a qualified service person; continued operation 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 LowFlow/Jordan 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 LowFlow Valve parts, available for immediate shipment from the factory.

Ideal Installation

Note: Do not use the regulator as a shut off device!



Preferred Installation

Caution! Installation of adequate overpressure protection is recommended to protect the regulator from overpressure and all downstream equipment from damage in the event of regulator failure.

1. An inlet block valve should always be installed.
2. If service application is continuous such that shut-down is not readily accomplished, it is recommended that an inlet block valve, outlet block valve, and a manual bypass valve be installed.
3. An outlet pressure gauge should be located approximately ten pipe diameters downstream, and within sight. If you have ordered your JR with outlet

gauge option on the valve outlet, please note that the outlet pressure as registered on the gauge may be slightly higher than a gauge located downstream.

4. All installations should include a downstream relief device if the inlet pressure could exceed the pressure rating of any downstream equipment or the maximum outlet pressure rating of the unit.
5. Flow Direction: install so that the flow direction matches the inlet/outlet marking on the main regulator body (1).
6. For best performance, install in well drained horizontal pipe.
7. Basic regulator - regulator may be rotated around the pipe axis 360°. Recommended position is with adjusting screw (24) vertical upwards.
8. Regulators are not to be buried underground.
9. For insulated piping systems, recommendation is to not insulate regulator.

Principles of Operation

1. Movement occurs as pressure variations register on the piston (4). The registering pressure is the outlet, P2, or downstream pressure. The range spring (12) opposes piston (4) movement. As outlet pressure drops, the range spring (12) pushes the piston (4) down, opening the port; as outlet pressure increases, the piston (4) pushes up and the port opening closes.
2. A complete piston seal (20 & 21) failure will cause the regulator to fail open.

Start Up

Caution! Don't not exceed the maximum rated pressure of the regulator if installed for a hydrostatic test. Isolate the unit if the test is above the valve rating.

1. Start with the block valves closed. A bypass valve may be used to maintain outlet pressure in the downstream system without changing the following steps.
2. Relax the range spring (12) by turning the adjusting screw (24) counter-clockwise (CCW) until there is no noticeable spring tension.

3. If it is a "hot" piping system, and equipped with a bypass valve, slowly open the bypass valve to pre-heat the system piping and to allow slow expansion of the piping. Closely monitor outlet (downstream) pressure via gauge to ensure no over-pressurizing. Note: if no bypass valve is installed, extra caution should be used in starting up a cold system; i.e. do everything slowly.
4. Crack open the outlet (downstream) block valve.
5. Slowly open the inlet (upstream) block valve observing the outlet (downstream) pressure gauge. Determine if the regulator is flowing. If not, slowly rotate the regulator adjusting screw (24) clockwise (CW) until flow begins.
6. Continue to slowly open the inlet (upstream) block valve until fully open.
7. Continue to slowly open the outlet (downstream) block valve, especially when the downstream piping isn't pressurized. If the outlet (downstream) pressure exceeds the desired pressure, close the block valve and go to Step 2, then return to Step 4.
8. When flow is established steady enough that the outlet (downstream) block is fully open, begin to slowly close the bypass valve if installed.
9. Develop system flow to a level near its expected normal rate, and reset the regulator set point by turning the adjusting screw (24) CW to increase outlet pressure, or CCW to reduce outlet pressure.
10. Reduce system flow to a minimum level and observe set point. Outlet pressure will rise from the set point of Step 9.

Shutdown

1. On systems with a bypass valve, and where system pressure is to be maintained as the regulator is shutdown, slowly open the bypass valve while closing the inlet (upstream) block valve. (When on bypass, the system pressure must be constantly observed and manually regulated.) Close the outlet (downstream) block valve. **CAUTION! Do not walk away and leave a bypassed regulator unattended.**
2. If the regulator and system are to both be shut down, slowly close the inlet (upstream) block valve. Close the outlet (downstream) valve only if regulator removal is required.

Maintenance

Standard Repair Kit Parts are identified on the parts listing by an ** after the item number. LowFlow Valve recommends that all of these parts be replaced during servicing.

Valve Disassembly

1. Remove adjusting knob (24).
2. Remove SHCS (16), and lift off spring housing (2).
3. Remove upper spring guide (9), range spring (12), and lower spring guide (10).
4. Lift piston (4) and cylinder (3) out of body (1).
5. Remove piston (4) by pushing downward through the cylinder (3).
6. Remove all o-rings (17, 20) and back up ring (21) from the cylinder(3).
7. Remove the bottom cap (7).
8. Remove the plug (8), return spring (13), return spring guide (11), o-ring (19), and back up ring (22) from the bottom cap.
9. Turn the body (1) upside down and remove the seat holder (5), soft seat (6), and o-ring (18).

Valve Reassembly

1. Install the backup ring (21), and o-ring (20) into the cylinder (3). The back up ring should be toward the smallest I.D. Bore and the o-ring toward the largest I.D. bore.
2. Install the piston (4) into the cylinder (3). Install the large o-ring (17) into the groove in the bottom of the cylinder (4).
3. Place the piston/cylinder into the body (1).
4. Place the lower spring guide (10) over the top of the piston (4).
5. Place the range spring (12) and upper spring guide (9) onto the lower spring guide (10).
6. Replace the spring housing (2) and thread the SHCS (16) into the body (1).
7. Cross torque to 200 in/lbs.
8. Install the o-ring (18) onto the seat holder (5), and the soft seat (with the red dot facing down) (6) into the seat holder. Turn body upside down and install the seat assembly into the body (1).
9. Set the bottom cap (7) upright. Install the outer back up ring (23), and the outer o-ring (20) onto the O.D. of the part.
10. Install the back up ring (22), o-ring (19), return spring guide (11), and return spring (13).
11. Carefully install the plug (8) in the bottom cap making sure the tail (big end) of the plug slides through the I.D. of all the parts that have been assembled into the bottom cap.
12. Carefully install the bottom cap assembly into the valve making sure the top of the plug passes through the hole in the body, and that the outer o-ring and back up ring pass into the body bore evenly.

13. Tighten the bottom cap (7) until a positive mechanical stop is felt.
14. Thread the adjusting knob (24) into the spring housing (2). The valve is now ready for service.

Troubleshooting

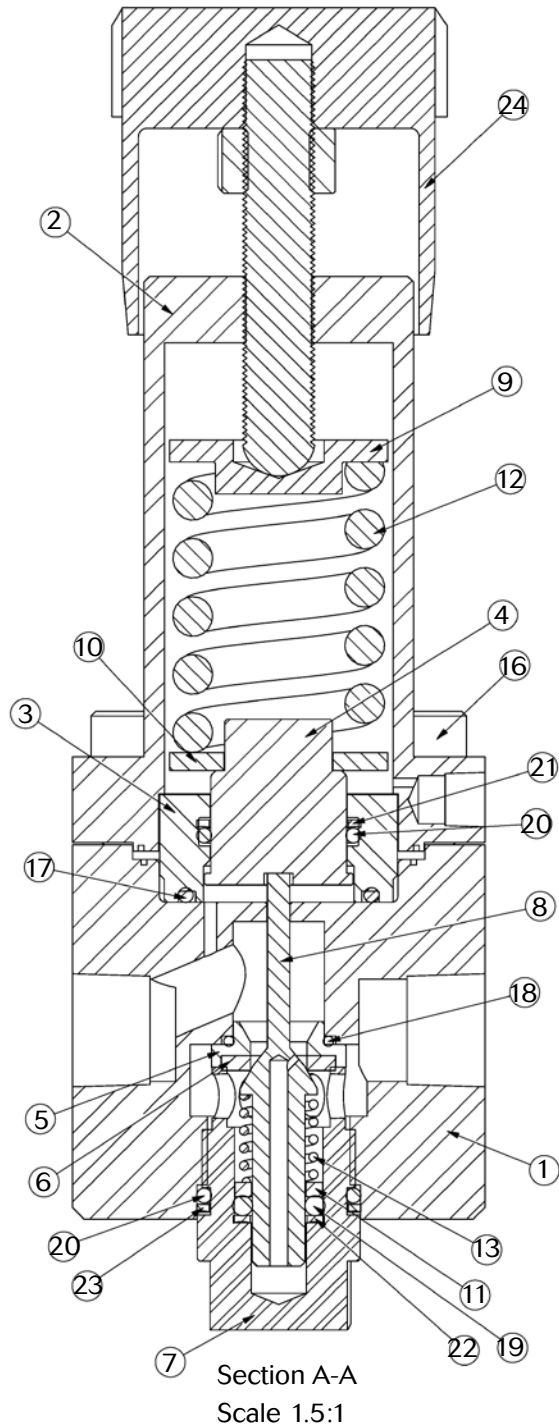
If You Experience Erratic Operation; Chattering:

- A. Oversize regulator; inadequate rangeability
 1. Check actuator flow conditions, re-size regulator for minimum and maximum flow.
 2. Increase flow rate.
 3. Decrease regulator pressure drop; decrease inlet pressure by placing a throttling orifice in inlet piping.
 4. Install next step higher range spring. Before replacing regulator, contact factory.
- B. Worn plug or seat; inadequate guiding. Replace trim (possible body replacement).
- C. Weakened/broken return spring. Determine if corrosion is causing plug to not move freely. Replace return spring.

If the Regulator can't pass sufficient flow:

- A. Regulator not closing tightly. Inspect plug and seat sub-assembly, replace if worn.
- B. Downstream blockage
 1. Check system; isolate (block flow at regulator inlet not outlet).
 2. Relocate regulator if necessary
- C. No pressure relief protection. Install safety relief valve, or rupture disc.
- D. Restricted piston movement. Ensure no moisture in spring chamber at temperature below free point.

Illustration & Parts List



Item No.	Description	Quantity
1	Body	1
2	Spring Housing	1
3	Cylinder	1
4	Piston	1
5**	Seat	1
6**	Soft Seat	1
7	Bottom Cap	1
8**	Plug	1
9	Upper Spring Guide	1
10	Lower Spring Guide	1
11**	Returning Spring Guide	1
12	Range Spring	1
13**	Return Spring	1
16	SHCS	6*
17**	O-Ring, 123	1
18**	O-Ring, 016	1
19**	O-Ring, 204	1
20**	O-Ring, 119	2
21**	Back-up Ring, 1.099 OD x 0.937 ID	1
22**	Back-up Ring, 0.608 OD x 0.364 ID	1
23**	Back-up Ring, 1.123 OD x 0.937 ID	1
24	Adjusting Knob	1

* Quantity of 8 on 1" Model

** Standard Repair Kit Parts