



LOWFLOW
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I & M JRDL Series

Installation Instructions for JRDL Low Range Series Gas Pressure Reducing Valves

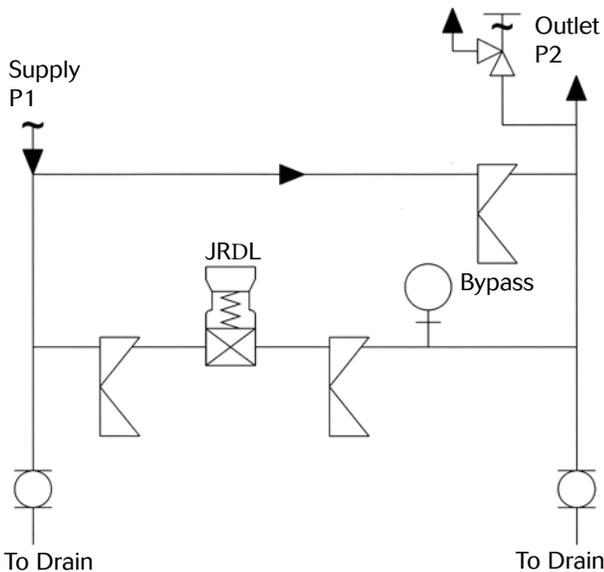
Warning: Low Flow Regulators must only be used, installed and repaired in accordance with these Installation & Maintenance Instructions. Observe all applicable public and company codes and regulations. In the event of leakage or other malfunction, call a qualified service person; continued operation 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 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 JRDL 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 diaphragm (10). The registering pressure is the outlet, P2, or downstream pressure. The range spring (12) opposes diaphragm (10) movement. As outlet pressure drops, the range spring (12) pushes the diaphragm (10) down, opening the port; as outlet pressure increases, the diaphragm (10) pushes up and the port opening closes.
2. A complete diaphragm (10) 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 knob (23) 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 knob (23) 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 knob (23) 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 (23).
2. Remove SHCS (16), and lift off spring housing (2).
3. Remove upper spring guide (9), range spring (12), and upper diaphragm guide (3).
4. Lift diaphragm (10) out of body (1).
5. Remove the bottom cap (7).
6. Remove the plug (8, 24), return spring (13), return spring guide (11), o-ring (19), and back up ring (22) from the bottom cap.
7. Turn the body (1) upside down and remove the seat holder (5), soft seat (6), and o-ring (18).

Valve Reassembly

1. Place the Body (1) in a soft jaws vice with the diaphragm casing facing vertically up.
2. Place Lower Diaphragm Plate (4) into the Body (1).
3. Place Diaphragm (10) on top of Lower Diaphragm Plate (4).
4. Place Upper Diaphragm Guide (3) on top of Diaphragm (10).
5. Place Range Spring (12) on top of Upper Diaphragm Guide (3).
6. Place Upper Spring Guide (9) on top of Range Spring (12).
7. Place Spring Housing (2) onto Body (1) of valve.
8. Apply a small amount of anti-seize lubricant to the threads of the (6) SHCS (16). Secure the Spring Housing (2) to the Body (1) by tightening the hex head bolts in a star pattern to 200 in-lbs.
9. Place a small amount of anti-seize lubricant on the threads of the Adjusting Knob (23) and screw it into the tapped hole in the top of the Spring Housing (2) until you can feel the Range Spring (12) start to compress.
10. Remove Body (1) from vice and flip upside down, so that the Spring Housing (2) is pointing downwards.
11. Orient the Bottom Cap (7) so that the hole is facing up.
12. Slide the Bottom Cap Back-Up Ring (21) around the threads of the Bottom Cap (7).
13. Slide the O-Ring (20) around the threads of the Bottom Cap (7).
14. Place the Split Type Backup Ring (22) into the Bottom Cap (7).
15. Place the O-Ring (19) into the Bottom Cap (7).
16. Place the Return Spring Guide (11) into the Bottom Cap (7).

17. Place the Return Spring (13) into the Bottom Cap (7).
18. Place Soft Seat (6) over threaded portion of Upper Plug (8) until it seats against the shoulder.
19. Thread Upper Plug (8)/Soft Seat (6) sub-assembly into the Lower Plug (24). Be careful not to over-tighten or seat will begin spilling out, causing a potential leak path.
20. Drop the 3 piece plug assembly into the Return Spring (13) in the Bottom Cap (7).
21. Place the O-Ring (18) around the large end of the Seat Holder (5).
22. Place the Seat Holder (5) sub-assembly into the Body (1).
23. Slide the entire bottom cap assembly into the Body (1) and tighten.
24. Test per SP-81125.

Troubleshooting

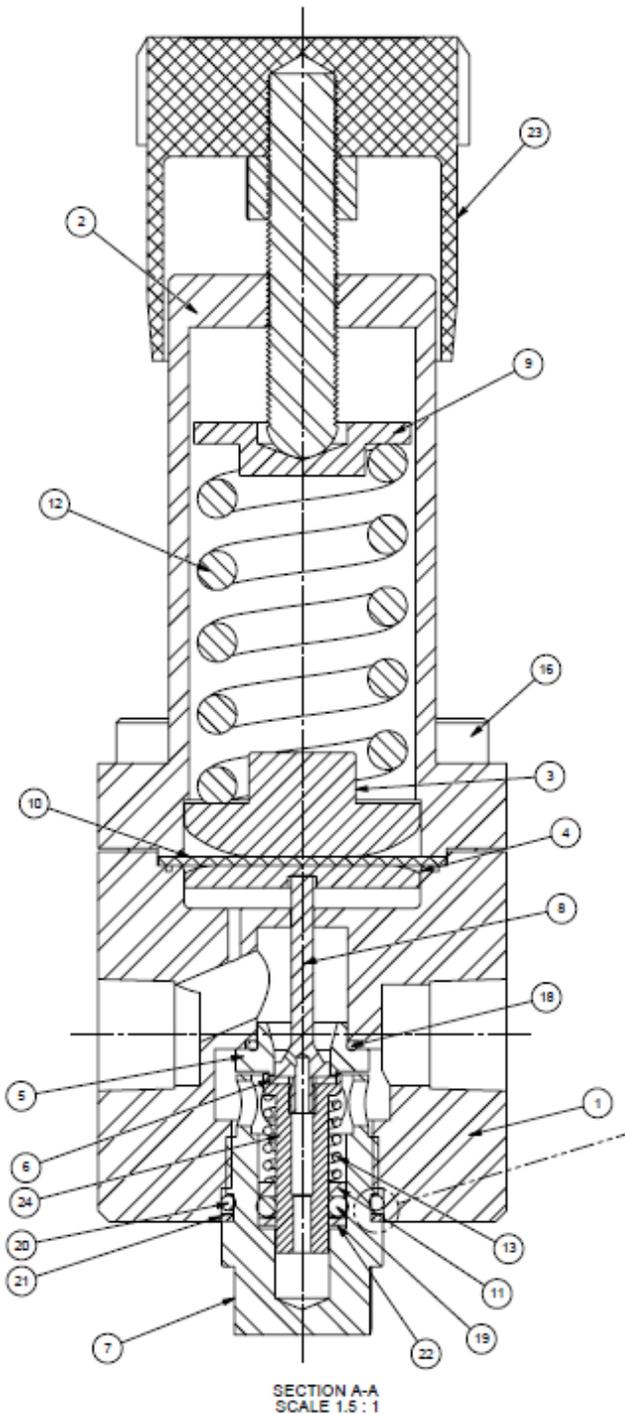
If You Experience Erratic Operation; Chattering:

- 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 diaphragm 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	UPPER DIAPHRAGM GUIDE	1
4	LOWER DIAPHRAGM PLATE	1
5**	SEAT HOLDER	1
6**	SOFT SEAT	1
7	BOTTOM CAP	1
8**	UPPER PLUG	1
9	UPPER SPRING GUIDE	1
10	DIAPHRAGM	1
11**	RETURN SPRING GUIDE	1
12	RANGE SPRING	1
13**	RETURN SPRING	1
16	SHCS	6*
18**	65199-* O-RING, -016	1
19**	24306-* O-RING, -204	1
20**	92423-* O-RING, -119	1
21**	24264-* BOTTOM CAP BACK-UP RING	1
22**	SPLIT TYPE BACK-UP RING 24697-*	1
23	ADJUSTING KNOB	1
24**	LOWER PLUG	1

* QUANTITY 8 SHCS ON 3/4"-1" MODEL

** STANDARD REPAIR KIT (-KIT) PARTS