



**LOWFLOW**  
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## I & M JB Series

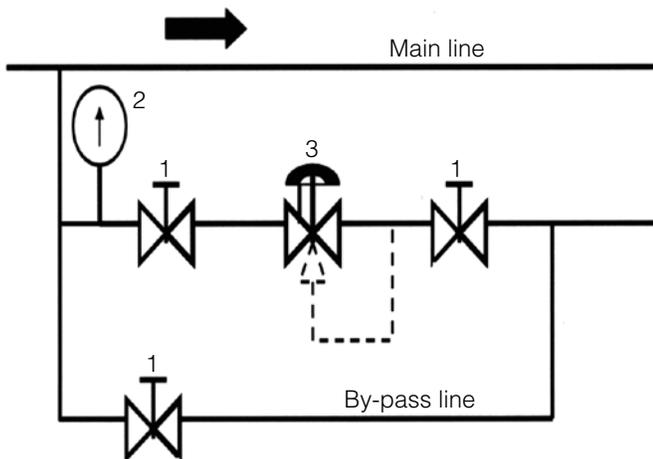
### Installation & Maintenance Instructions for JB Series Back Pressure Regulators

Warning: Low Flow Back 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 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



- 1 Shut off Valve
- 2 Pressure Gauge
- 3 JB Series Regulator

#### 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. An inlet block valve should always be installed.

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 inlet pressure gauge should be located approximately ten pipe diameters upstream, and within sight. If you have ordered your JB with inlet gauge option on the valve body, please note that the pressure as registered on the gauge may be slightly different than a gauge located downstream.
4. All installations should include a upstream relief device if the inlet pressure could exceed the pressure rating of any downstream equipment or the maximum inlet 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 knob (10) 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 (5). The registering pressure is the inlet, P1, or upstream pressure. The range spring (8) opposes diaphragm (5) movement. As inlet pressure rises, the diaphragm (5) pushes up against the spring (8) opening the port; as inlet pressure decreases, the range spring (8) pushes down and closes the port.
2. A complete diaphragm (5) failure will cause the regulator to fail closed.

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## Start Up

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Caution! Do 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 should be used to maintain upstream pressure in the system without changing the following steps.
2. Relax the range spring (8) by turning the adjusting knob (10) counter-clockwise (CCW) until there is no noticeable spring tension.
3. Slowly open the inlet block valve. Note: if no bypass valve is installed, extra caution should be used in starting up a cold system; i.e. do everything slowly.
4. Slowly open the outlet (downstream) block valve.
5. Slowly rotate the regulator adjusting knob (10) clockwise (CW) until flow begins.
6. Develop system flow to a level near its expected normal rate, and reset the regulator set point by turning the adjusting knob (14) CW to increase inlet pressure, or CCW to reduce inlet pressure.
7. Reduce system flow to a minimum level and observe set point. Inlet pressure will rise from the set point of Step 6.

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## Shutdown

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1. On systems with a bypass valve, and where system pressure is to be maintained as the regulator is shut-down, 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.) 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.

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## Maintenance

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**Warning! System Under Pressure.** Prior to performing any maintenance, isolate the regulator from the system and relieve all pressure. Failure to do so could result in personal injury.

### A. General

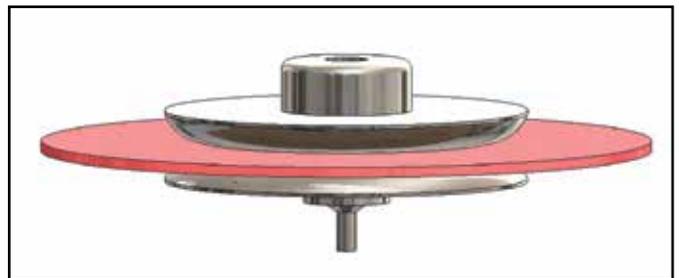
1. Maintenance procedures can be done after removal of the regulator unit from the pipeline where installed, it may be maintained in-line if it is safe to do so.

2. Always follows local or company procedures for removal, handling, cleaning and disposal of non-reuseable parts, i.e. gaskets, etc.

### B. Trim Replacement

Note: One of the features designed into the JR valves is that a complete trim replacement and wet side cleaning can be done with the valve still installed, without complete disassembly. Make sure all upstream and downstream valves are closed and all pressure is relieved prior to beginning work.

1. Remove adjusting screw assembly (10) completely out of the spring housing (7).
2. If valve is removed from the line, clamp the valve in a vise using the body (1).
3. Remove spring housing (7).
4. Remove range spring (8) and spring seat (9).
5. Remove diaphragm assembly parts (4), (5), and (6). See Figure 1.
6. Inspect all parts for damage and replace if necessary. Note: Use only parts manufactured and supplied by LowFlow Valve for these parts.
7. Remove seat assembly (2) from body (1).
8. Place seat assembly (2) into body (1).
9. Refer to Figure 1. Unscrew the lower diaphragm plate (4) from the upper diaphragm plate (6). Discard the old diaphragm (5) and reassemble with new one. Use LowFlow replacement diaphragm only.



**Figure 1: Diaphragm Subassembly**

10. Place diaphragm assembly parts (2), (3), and (4) back into body cavity (1), making sure the small tip on the bottom of lower diaphragm plate is properly engaged with the seat assembly (2).
11. Replace range spring (8), spring seat (9), centering both on top of the upper diaphragm plate (6). Replace housing (7) and adjusting screw (10).

### C. Diaphragm Replacement

Caution! To prevent damage to body, use soft jaws when placing the body in a vise. Position so that vise closes over the flats on lower end of body.

1. Perform Steps 1 - 6 from Section B, Trim Replacement.
2. Perform steps 9-11 from Section B, Trim Replacement.

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## Troubleshooting

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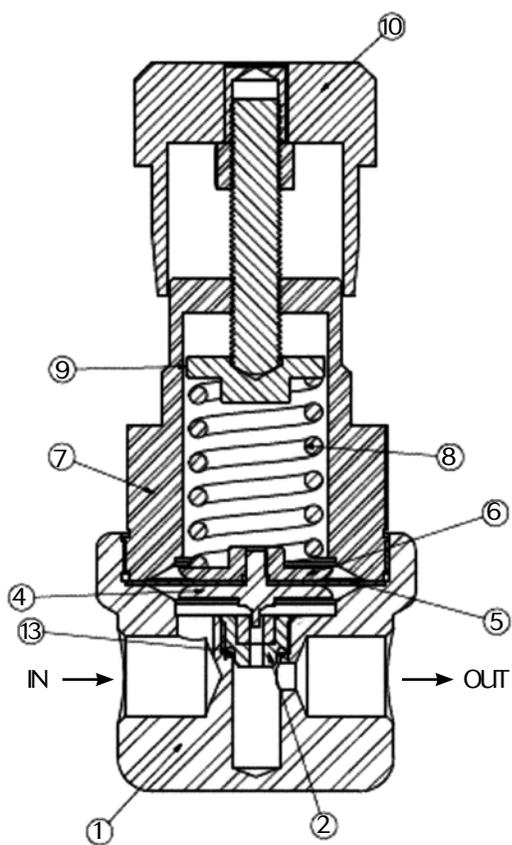
### 1. Erratic Operation; Chattering

- A. Oversize regulator; inadequate rangeability
  1. Check actuator flow conditions, re-size regulator for minimum and maximum flow.
  2. Increase flow rate.
  3. Install next step higher range spring.  
Before replacing regulator, contact factory
- B. Worn plug or seat; inadequate guiding
  1. Replace trim (possible body replacement)
- C. Valve is stuck in position.
  1. Determine if corrosion is causing plug to not move freely. Clean or replace parts as necessary.

### 2. Regulator can't pass sufficient flow

- A. Regulator not closing tightly
  1. Inspect tip of lower diaphragm plate (4) and seat assembly(2), 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
  1. Install safety relief valve, or rupture disc.
- D. Restricted diaphragm movement
  1. Ensure there are no obstructions in the vent hole of the spring housing (7), and check for icing on the spring.

## Cross Section View



Item No.	Description	Quantity
1	Body	1
2	Seat Assembly	1
4	Lower Diaphragm Plate	1
5	Diaphragm	2
6	Upper Diaphragm Plate	1
7	Spring Housing	1
8	Spring	1
9	Spring Seat	1
10	Knob Assembly	1
13	O-Ring	1