

Installation Operation and Maintenance Manual

SPRUNG LOADED PRESSURE REDCUING VALVE A9 & A10



THIS DOCUMENT is only applicable to the service of the A9 & A10 valves only. General instructions regarding installation, operation and maintenance for all types of hand wheel pressure reducing valves must be read prior.

PRESSURE REDUCING VALVES INSTRUCTIONS.

These instructions are confined to the replacement of the Valve Seat and O-Ring seal only. Any damage caused to other components would require the units return to the manufacturer.

Before undertaking any servicing of the regulator, ensure the valve is completely isolated from the supply and outlet pressures, and any pressure in the valve has been removed.

Before commencing the valve refurbishment, it is recommended that the valve be removed from the line and worked on in a clean environment.

Cleanliness during assembly is most important, particularly on all sealing surfaces.

BEFORE SERVICE, REFER TO THE SPRUNG LOADED PRESSURE REDUCING VALVES GENERAL INSTRUCTIONS

A9 & A10 SERVICING

DISMANTLING

1. Ensure the loading spring (13) is not being compressed. Do this by unscrewing the Handwheel (3) counter clockwise until a positive stop is met.
2. Unscrew the Handwheel Retaining Screw (1) and remove the Handwheel (3) and Washer (2).
3. Loosen the Spring Housing Retaining Screw (28) by 2 to 3 turns.
4. Unscrew the Spring Housing (4) and remove the Spring (13) and the Spring carrier (14).
5. Remove the spindle assembly (5,6,7,8,9,10,11,12) from the spring housing (4) and remove the bearing (6) from the spindle (7).
6. Remove O-Ring (5) if applicable.
7. If the spindle assembly is to be dismantled further, the position of the two Lock Nuts (10) along the threaded shaft of the Spindle (7) must be recorded. Unscrew the lock nuts and Spring Locator (9) in a clockwise direction as these components have left hand threads.
8. To dismantle the Relieving Adjuster Stem (12) if fitted, use a flat head screw driver with a maximum blade width of 4.75 mm and screw the adjuster out through the bottom of the Spindle (7).
9. Remove O-Ring (11).
10. Lift out the diaphragm assembly (15 – 26).
11. If a relieving valve is fitted unscrew the upper Seat Retainer (16) and remove with the Seat (18) and Seat Support (17) and pin (15). Also remove the ball, washer and spring (19,20, 21)
12. To remove the diaphragm unscrew the Lock Nut (26) from Piston (22)
13. Unscrew the Lower Seat Retainer (16) from the Body (27) and remove the Seat (18) and Seat Support (17), and pin (15). Also remove the ball washer and spring (19,20, 21)
14. Check all parts for wear or damage.
- 15.

REASSEMBLY

- 1) Assemble the Spring, Washer and Ball (19,20,21) into the Body (27).
- 2) Fit the new lower Valve Seat Support (17) and Valve Seat (18) into the lower Seat Retainer (16) ensuring the recess of the Seat Support (17) is fitted to the inside of the Retainer (16). Screw the Seat Retainer (16) into the Body (27) and torque – See below for torque values. Insert a new Pin (15) and check for smooth pin action.
 - a) Polymer seats and Aluminium or Brass components: 12 - 15 Nm.
 - b) Metallic seats and Stainless Steel components: 40 - 45 Nm.
- 3) If a Relieving Valve is fitted, follow steps 1 and 2 above to assemble the Relieving Valve assembly into the piston (22).
- 4) Fit a new Diaphragm (24) onto the Piston (22) and secure using Nut (26). Torque Nut to 8 – 10 Nm. Care must be taken not to trap and damage the rubber diaphragm between the metallic parts.
- 5) Assemble the piston assembly (15-26) into the Body (27).
- 6) Lubricate the thread of the Loading Stem (7) with an anti-seize compound and assemble the Loading Nut (9) and lock nuts (10), position the lock nuts and lock in the recorded position.
- 7) Replace the O-Ring (11) on the Relieving Valve Adjuster (12) and push the Adjuster (12) into the Loading Stem (7). Screw Adjuster (12) into the Loading Stem (7) until it is level with the bottom of the Stem. This must be carried out immediately prior to finishing the assembly, setting and testing the valve.
- 8) Replace O-Ring (5) if applicable.
- 9) Fit the lower Spring Carrier (14) and Spring (13) to the Piston (22).
- 10) Lubricate the Bearing (6) with suitable lubricant and fit to the Loading Stem (7),
- 11) Place the loading stem assembly into the spring (13). Loading Nut (9) should now be resting on top of the spring(13).
- 12) Screw the Spring Housing (4) into the Valve Body (27) ensuring the Guide Pin (8) is located in the spring housing guide slot. Torque to 40 - 45 Nm. Lock with the Securing Screw (28).
- 13) Refit the Handwheel (3) and secure with the Bolt (1) and Washer (2).

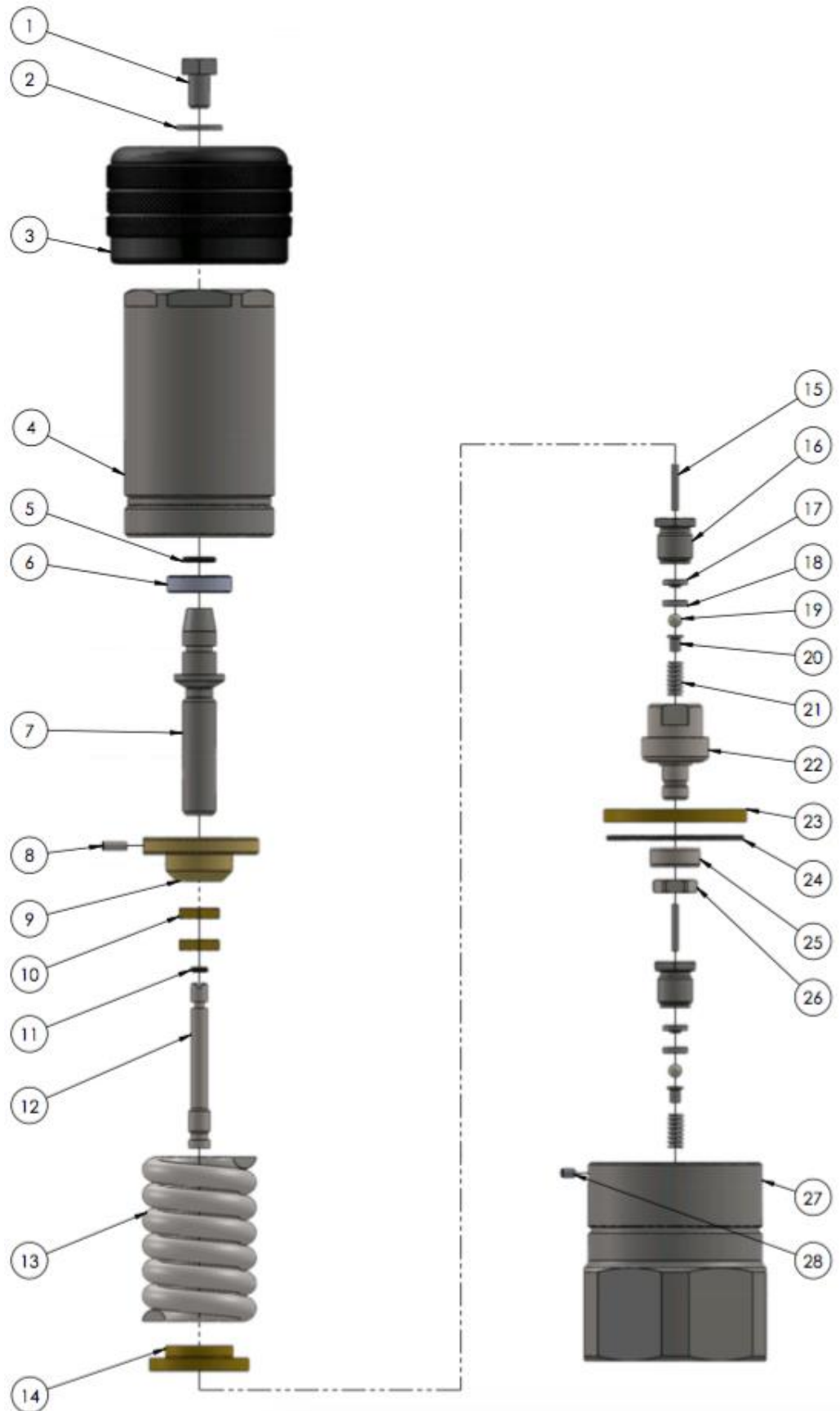
NOTE: Ensure lubricants are compatible with the system medium.

SETTING OF THE RELIVING VALVE

If your regulator has a self-venting function, then post service the relieving valve will need to be reset to ensure optimum performance.

- 1) With the handwheel wound fully counter clockwise apply pressure to the inlet. Anywhere between 500 – 1,500 Psi will be acceptable.
- 2) No leak should be detected from the outlet port. If bubble tight reduce the inlet pressure down to zero.
- 3) Fit a suitable pressure gauge to the outlet port.
- 4) Apply between 500 – 1,500 Psi to the inlet port, then slowly turn the regulator handwheel clockwise. You should see the outlet pressure rise.
- 5) Remove Screw (1) and Washer (2).
- 6) Use a flat head screw driver with a maximum blade width of 4.75 mm and screw the Adjuster (9) in clockwise until you feel some resistance. Carefully continue to wind in the Adjuster until gas begins to vent from the regulator.
- 7) Once you have determined the point of vent back the Adjuster off 0.5 turn.
- 8) Replace the Screw (1) and Washer (2)
- 9) Wind the handwheel counter clockwise to reduce the outlet pressure.
- 10) To test the venting function increase and decrease the outlet pressure three times.

A9 & A10 EXPLODED VIEW



RECOMMENDED SPARES KIT

A9 & 10 STANDARD BACK PRESSURE MAINTAINING VALVE

ITEM	DESCRIPTION	QUANTITY
11	O-Ring	1
24	Diaphragm	1
18	Valve Seat	2
17	Valve Seat Support	2
15	Valve Pin	2
19	Ball	2
20	Washer	2
21	Spring	2