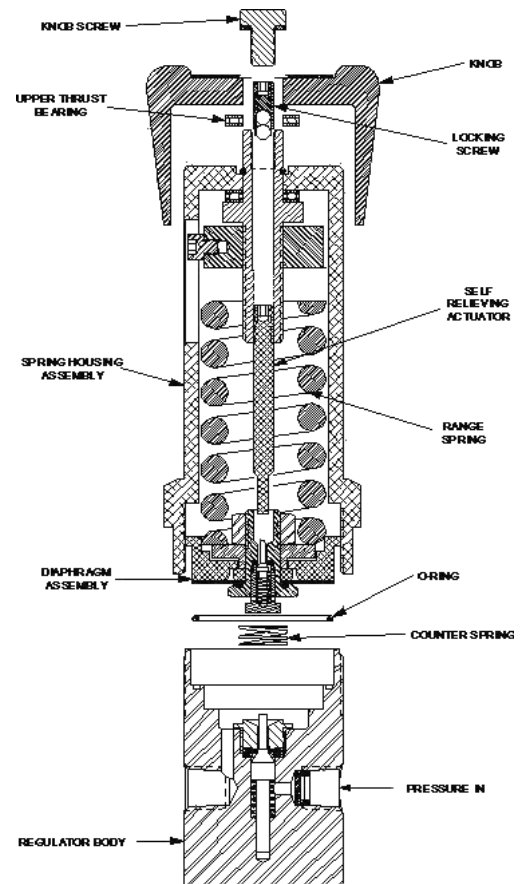


## PR-50 Series High Pressure Regulator Self Relieving Diaphragm Replacement Instructions

**Make sure you thoroughly understand these directions before proceeding  
MAKE SURE THE REGULATOR IS DISCONNECTED FROM AIR SOURCE  
MAKE SURE ANY RESIDUAL PRESSURE IS BLED OFF FROM REGULATOR.**

### Instructions

1. Completely read these instructions before performing any of the operations.
2. Make sure the regulator is disconnected from pressure source; make sure any residual pressure is bled off from the regulator. **FAILURE TO DO THIS WILL RESULT IN SERIOUS PERSONAL INJURY. DO NOT PROCEED UNTIL PRESSURE HAS BEEN REMOVED AND/OR TERMINATED**
3. Securely clamp the regulator body over the flats in a vise.
4. Turn the adjustment knob counterclockwise, as looking from the top of the regulator, until it will turn no further.
5. Using a 1/2" wrench, remove the knob screw.
6. Remove knob.
7. Remove upper thrust bearing. (Top washer may be in knob).
8. Using a 2 1/4" wrench, remove the spring housing assembly from the body.
9. Remove the range spring.
10. Remove the diaphragm assembly and counter spring.
11. Carefully remove large O-ring from regulator body.
12. Thoroughly blow out the inside of regulator body using clean, dry compressed air.
13. Clean O-ring surface with a cotton swab moistened with isopropyl alcohol.
14. Apply O-ring lubricant, such as Krytox grease, into groove in regulator body if new O-ring is dark color. Do not apply lubricant to groove if new O-ring is white color.
15. Install new O-ring into groove.
16. Place counter spring onto seat retainer.
17. Place diaphragm assembly into regulator cavity.
18. Place range spring on the diaphragm assembly.
19. Place a small amount of Krytox or other lubricant on the outer threads of the body.
20. Remove the locking screw on the self relieving actuator.
21. Engage the socket of the self-relieving actuator with a 1/8" hex key. Turn the screw counterclockwise, as you look down on the spring housing assembly, as far as it will go.
22. Put the spring housing assembly over the regulator and engage threads by hand. Tighten hand tight.
23. Finish tightening spring housing assembly to 80 lbf·ft (108 N·m).
24. Attach a pressure gauge and quarter-turn valve to the outlet port. Leave the valve in the closed position.
25. Squirt a leak detecting fluid around the base of the spring housing assembly where it meets the body. Agitate the leak detecting fluid to form a foam. Apply this foam around the slot in the spring housing assembly while watching for signs of escaping gas.



26. Slowly turn the knob while watching and listening for any leaks. It may be necessary to re-apply the liquid. If leaks are noticed, immediately back off adjusting screw and repair unit as needed. Continue turning knob to a value that is 50% of the maximum rating for this regulator.
27. Engage the socket of the self-relieving actuator with a 1/8" hex key. Slowly turn the hex key clockwise until it makes contact with the self-relieving poppet. You will hear escaping gas when this happens, or notice a drop in outlet pressure.
28. Turn the hex key counterclockwise 1/4 to 1/2 of a turn. Remove the hex key.
29. Drop the lock screw assembly down the hole in the adjusting screw. Lightly tighten with the 1/8" hex key, being careful not to change the position of the self-relieving actuator.
30. Turn the adjusting screw counter-clockwise. You should hear the outlet pressure venting through the spring housing and notice the outlet pressure drop to zero. If the outlet pressure does not fall completely to zero, it will be necessary to re-adjust the self-relieving actuator.
31. Make sure the adjusting screw is turned counterclockwise as far as it will go and all the outlet pressure has been relieved.
32. Place one of the thrust plates of the thrust washer over the hexagonal end of the adjusting screw. Apply a liberal amount of grease.
33. Place the bearing race on top of the thrust plate. Apply a liberal amount of grease.
34. Place the other plate over the bearing race (this may have remained in the knob).
35. Place the knob on the end of the adjusting screw. Push down by hand as far as it will go.
36. Place the washer and knob screw on top of adjusting screw.
37. Tighten the hex screw to a value of 20 lbf·in (2 N·m). DO NOT OVER TIGHTEN. Over tightening will cause excessive load on the upper thrust bearing which will make the knob very hard to turn.
38. Slowly turn the knob clockwise until there is evidence of flow at the outlet port.
39. Squirt a leak detecting fluid around the base of the spring housing assembly where it meets the body. Agitate the leak detecting fluid to form a foam. Apply this foam around the slot in the spring housing assembly while watching for signs of escaping gas.
40. If no leaks are noticed, adjust control pressure to a value that is 110% of the maximum rating for this regulator. Reapply the leak detecting fluid as needed.
41. Note the pressure reading on the gauge. Wait for 5 minutes. Increasing pressure indicates a leak across the seat or flat seal. Decreasing pressure indicates a possible diaphragm leak. If the pressure does not remain stable, the unit must be disassembled and the cause of leakage repaired.
42. Back off the adjustment knob until it is all the way out and will turn no further. Make sure all of the outlet pressure has vented and there is no trapped residual pressure.
43. The regulator is now ready for service.

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