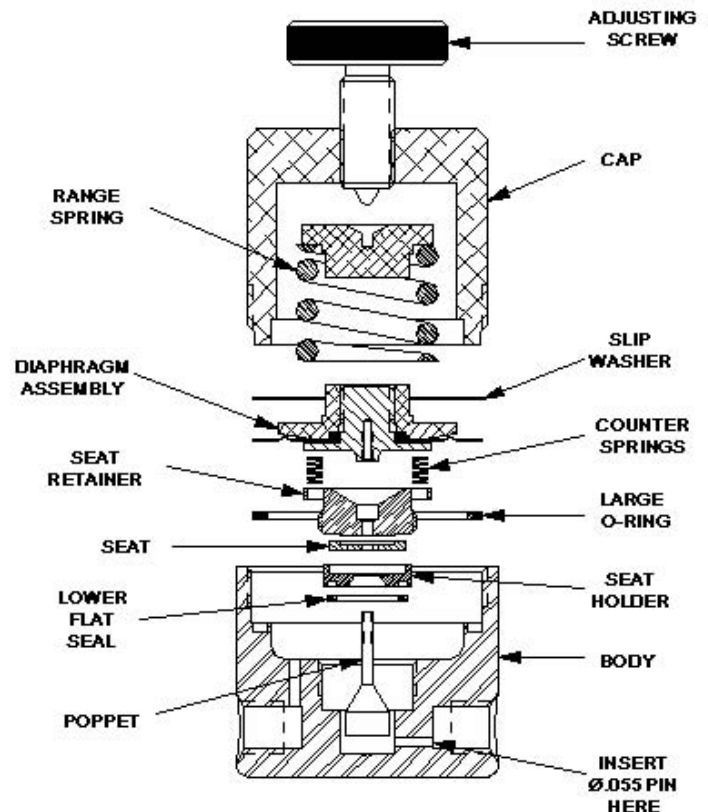


MV-1 Series Vaporizing Regulator Poppet, Seat & Spring Replacement Instructions

**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.**

1. Disconnect unit from DC power supply or terminate DC power supply at its source. **FAILURE TO DO THIS WILL RESULT IN SERIOUS PERSONAL INJURY. DO NOT PROCEED UNTIL DC POWER HAS BEEN REMOVED AND/OR TERMINATED.**
2. Remove the two screws that hold the heating plate to the bottom of the regulator.
3. Securely clamp the regulator over the flats in a vise.
4. Turn the knob counterclockwise as far as it will go. Remove the cap and adjusting screw as a unit. The range spring will be securely held inside the cap if this unit is equipped with a spring stabilizer.
5. Some models do not have a stabilizer, in which case the range spring will be sitting on top of the diaphragm.
6. Remove the Teflon slip washer.
7. Insert a $\varnothing.055$ pin into the small hole at the bottom of the inlet port.
8. Continue inserting pin until the slot in the bottom of the poppet has been engaged.
9. It may be necessary to rotate the diaphragm assembly while you do this.
10. Once the slot in the bottom of the poppet has been engaged with the driving pin, the diaphragm can be unscrewed.
11. Continue turning the diaphragm in a counter-clockwise direction until it is free.
12. Remove the $\varnothing.055$ pin
13. Remove the large Viton O-ring in the cavity.
14. Carefully remove the three small counter springs from the holes in the seat retainer.
15. Set aside for use later.
16. Remove the seat retainer, seat holder, seat, lower flat seal, and poppet.
17. Thoroughly blow out the inside of regulator body using clean, dry compressed air.
18. Clean sealing surface with a cotton swab moistened with isopropyl alcohol.
19. Place new poppet into hole in body
20. Install new lower flat seal into groove of new seat holder.
21. Install new seat into cavity of seat holder.
22. Place the seat holder over the nose of the poppet, with the seat facing up.
23. Place the seat retainer over the poppet and tighten the threads by hand.
24. Finish tightening seat retainer to 25 lbf "ft (34 N " m).
25. Attach primary pressure supply to inlet with suitable fittings.



26. Apply a small amount of leak detecting fluid, such as "Leak Detective"
27. or soapy water, around poppet stem and seat retainer.
28. As you gently lift up on the poppet, slowly apply pressure to unit. As soon as the inlet pressure is sufficient to seal the poppet (about 1000 psig) you can let go of it. Continue increasing inlet pressure up to one-half the maximum rated pressure for this unit. Let stand for 30 seconds.
29. If there is evidence of leaking, such as bubbles or frothing, immediately relieve the primary pressure. The unit must be disassembled and inspected for foreign debris.
30. If there is no evidence of leaking, clean out the leak detecting fluid and proceed to the next step.
31. Vent inlet and disconnect from pressure source.
32. Remove fitting from inlet port.
33. Insert a Ø.055 pin into the small hole at the bottom of the inlet port.
34. Continue inserting pin until the slot in the bottom of the poppet has been engaged.
35. It may be necessary to rotate the poppet while you do this.
36. Coat the new o-ring with a suitable lubricant, such as Krytox, and place it in the groove inside the cavity.
37. Carefully place the three small counter springs back into the small holes in the seat retainer.
38. Place new diaphragm over the threaded end of the poppet and carefully start the threads by hand.
39. Continue tightening the diaphragm assembly until the edges of the diaphragm are just flush with the O-Ring that is in the cavity.
40. Remove Ø .055 pin.
41. Place new slip washer inside the cavity on top of the diaphragm assembly.
42. Place range spring and spring button onto diaphragm assembly unless it was equipped with a stabilizer and is inside the cap.
43. Place a small amount of Krytox or other lubricant on the outer threads of the cap.
44. Put the cap over the regulator and engage threads by hand. Tighten hand tight.
45. Finish tightening cap to 40 lbf "ft (54 N " m).
46. Attach primary pressure supply to inlet with suitable fittings.
47. Slowly apply pressure to the unit. Continue increasing inlet pressure up to one-half the maximum rated pressure for this unit. Let stand for 30 seconds.
48. If there is evidence of leaking, such as bubbles or frothing, immediately relieve the primary pressure. The unit must be disassembled and inspected for foreign debris.
49. Attach a pressure gauge and quarter-turn valve to the outlet port. Leave the valve in the open position.
50. Reinstall the knob on the adjusting screw if it has been removed, being careful to line up the flat on the adjusting screw with the set screw in the knob.
51. Slowly turn the knob clockwise. When there is evidence of flow at the quarter-turn valve close it.
52. Squirt a leak detecting fluid around the base of the cap where it meets the body. Agitate the fluid to form foam and apply around the 0.125 (3.1mm) leak detection port in the bonnet of the cap.
53. Slowly continue turning 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.
54. If no leaks are noticed, adjust control pressure to a value that is 110% of the maximum rating for this regulator.
55. Reapply the leak detecting fluid as needed.
56. 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.
57. Relieve the outlet pressure while backing off on the adjusting knob. Continue backing off on adjustment knob until it is all the way out and will turn no further.
58. The regulator is now ready for service.

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