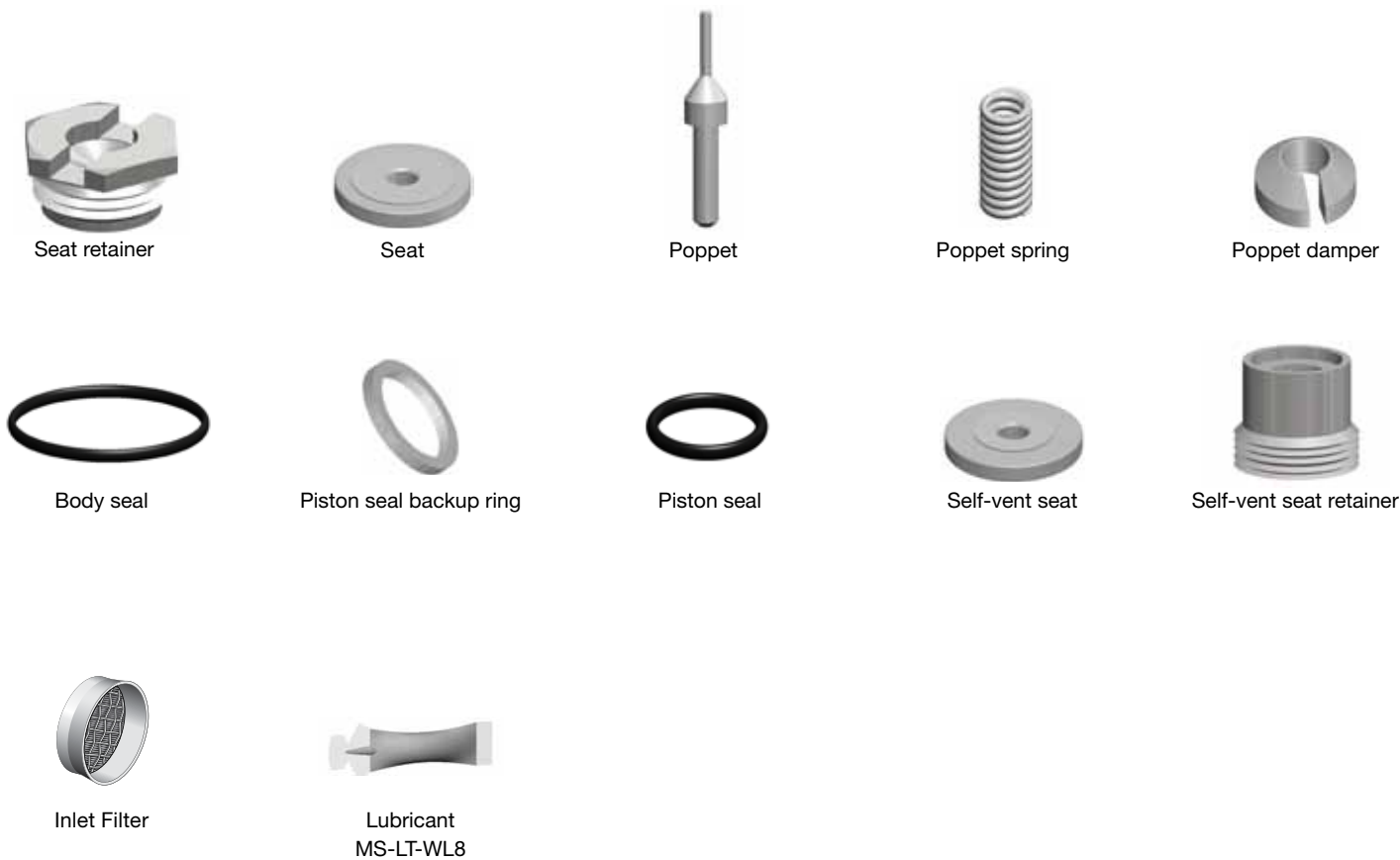


KHP Series Regulators

Maintenance Instructions



Kit Contents



Note: Kits for regulators with a self-vent contain a self-vent poppet and self-vent poppet spring.



Symbols














Discard



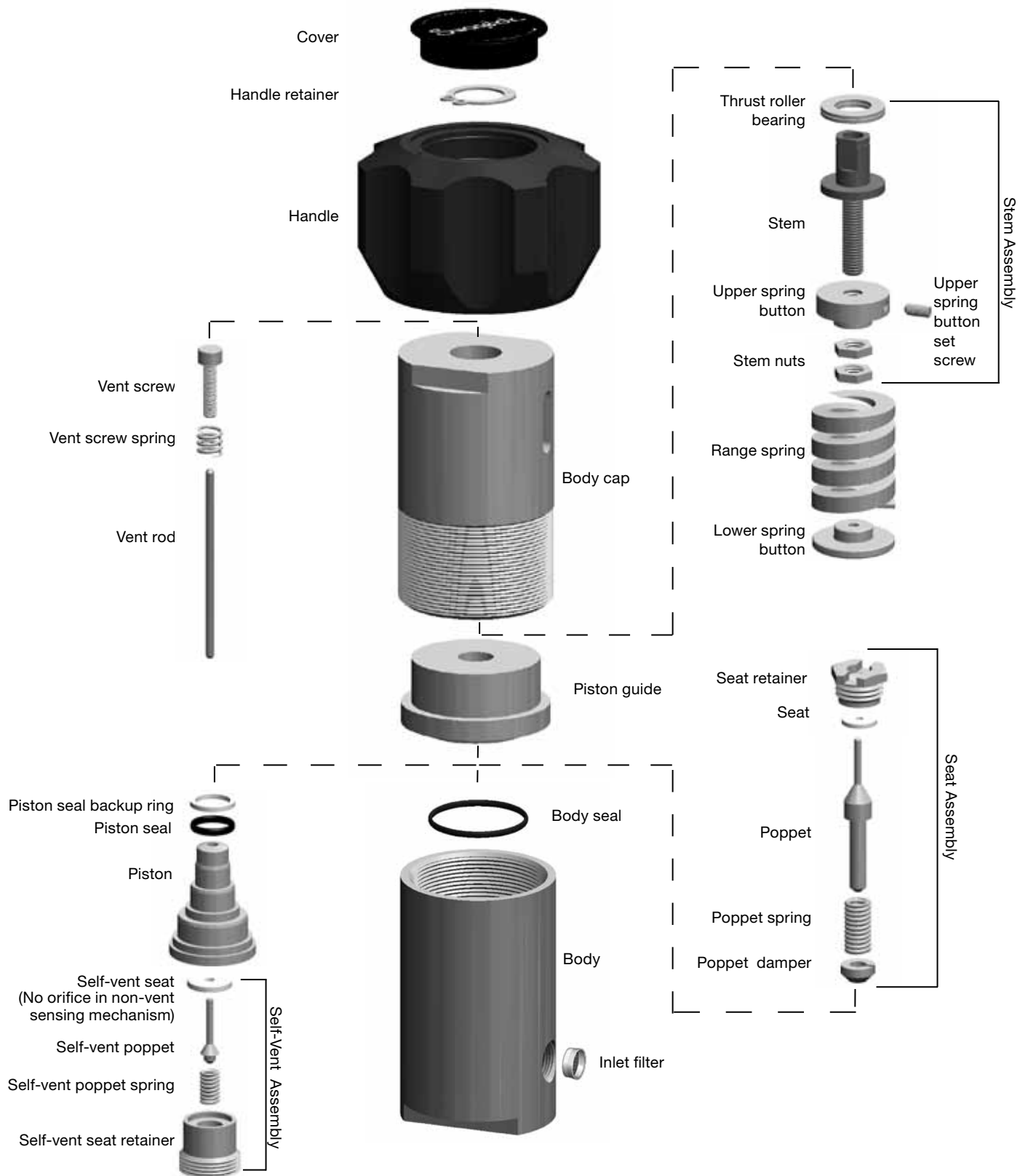
Lightly lubricate

Tools Required

Tool	Size	Component
Vise 	-	Body
Socket 	5/8 in. or 16 mm	Seat retainer
Crow's foot 	3/4 in. or 19 mm	Vent assembly retainer nut
	1 5/8 in. or 41 mm	Body cap
Open-ended wrench 	3/4 in. or 19 mm	Vent assembly retainer nut
	1 5/8 in. or 41 mm	Body cap
Torque wrench 	Capable of 129 ft·lb (175 N·m, 17.8 m·kg)	Seat retainer, Body cap
Hex key 	1/8 in. or 3 mm	Vent screw
Needle-nose pliers 	-	Knob handle retainer
Swagelok Tools Available		
Vent retainer tool 	-	Poppet retainer
Piston assembly bar 	-	Piston
Filter insertion tool 	—	Inlet filter
Filter pick tool 	—	Inlet filter

NOTE: See *Pressure Regulators*, MS-02-230, for tool ordering information.

Exploded View



Note: Regulators with no self-vent option do not contain a vent screw, vent screw spring, vent rod, self-vent poppet, and self-vent poppet spring.

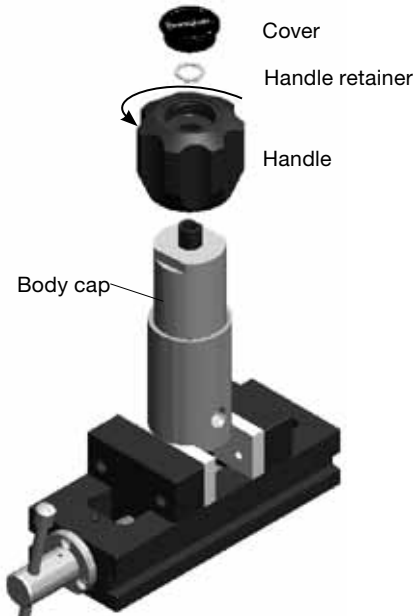
⚠ WARNING

Before removing a regulator from the system for service, you must

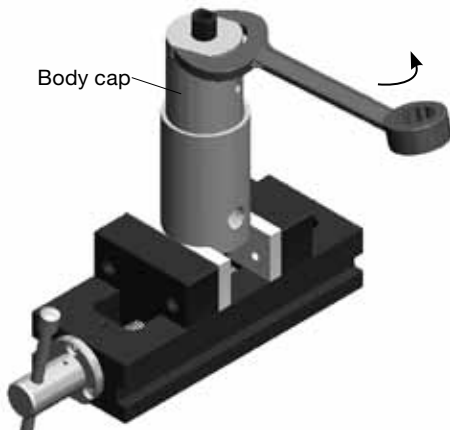
- depressurize system
- purge the system to remove any residual system media left in the regulator.

Disassembly

1. Place the regulator in a vise.
2. Turn the **handle** counterclockwise until it stops. Remove the **cover**, **handle retainer** and the **handle** from the **body cap**.
Note: Use needle-nose pliers to remove the handle retainer.

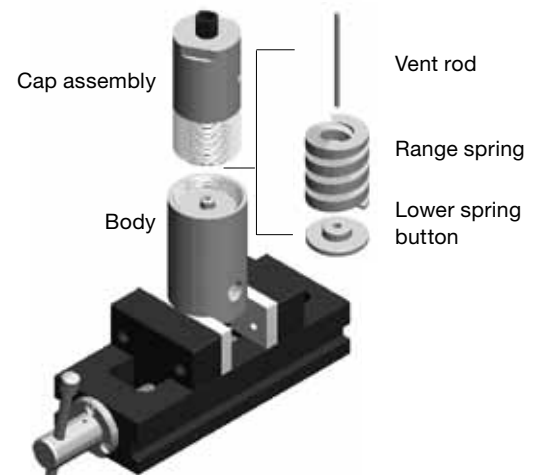


3. Loosen the **body cap**.



4. Remove the **body cap** from the **body**.

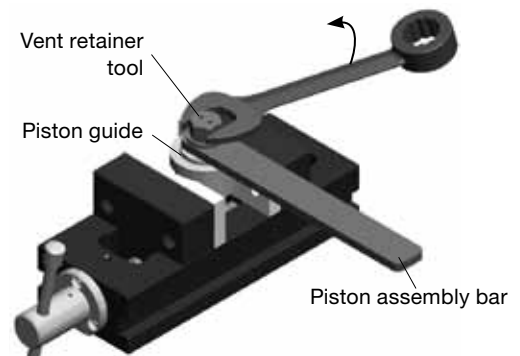
Note: The **vent rod**, **range spring**, and **lower spring button** (self-vent only) may fall from the body cap. Set aside for later use.



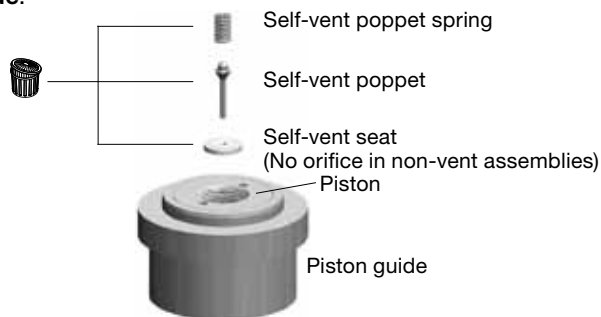
5. Remove the **piston guide** from the **body** by pinching the **piston** top with your fingers and gently rocking it.



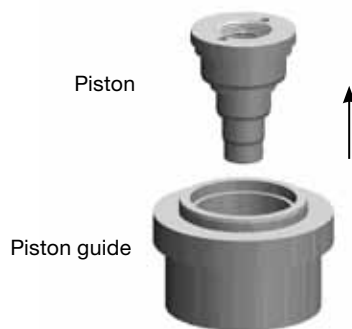
6. Lightly grip the **piston guide** in the vise and loosen the self-vent seat retainer from the piston guide using the **piston assembly bar** and **vent retainer tool**. The piston assembly bar must be held still.



7. For regulators with a self vent, remove the **self-vent poppet spring** and the **self-vent poppet**. For all regulators, remove the **self-vent seat** from the **piston guide**.



8. Push the **piston** out of the **piston guide**.



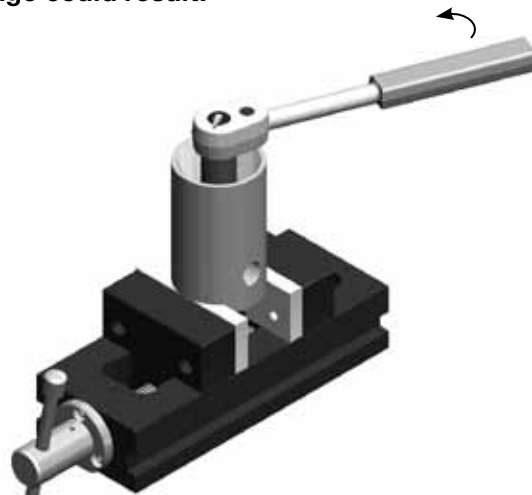
9. Remove the **piston seal** and the **backup ring** from the **piston guide**, and the **body seal** from the **body**.



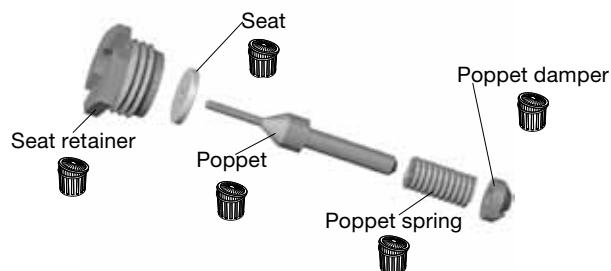
10. Loosen the **seat assembly**.

NOTICE

Be careful not to scratch the inside of the body. Leakage could result.



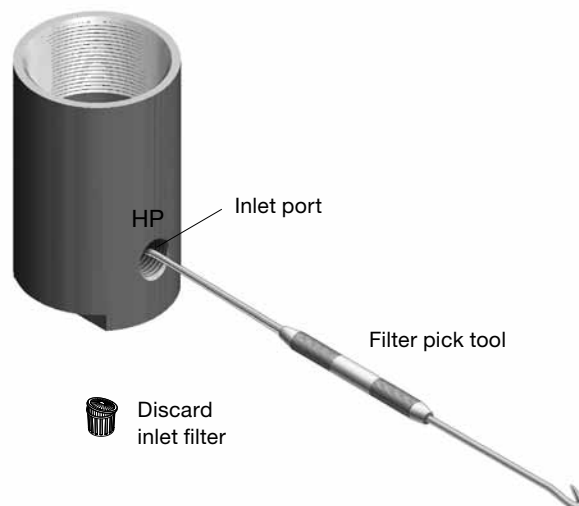
11. Invert the body and remove the **seat retainer**. Then remove the **poppet damper**, the **poppet spring**, **poppet** and the **seat** from the **seat retainer**.



12. Remove the **inlet filter** from the **inlet port (marked 'HP')** using the **filter pick tool**.

NOTICE

Be careful not to scratch the sides of the inlet port. Leakage could result.

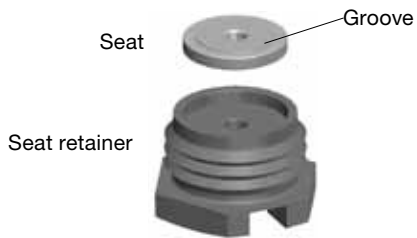


Reassembly

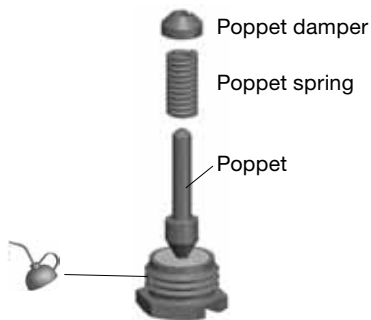
NOTICE

Ensure all parts and tools are free of debris or damage.

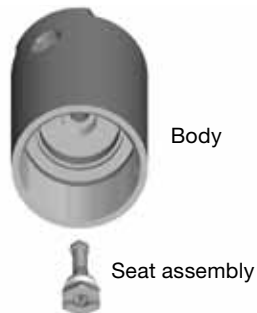
13. Insert the **seat** into the **seat retainer** with the groove away from the seat retainer.



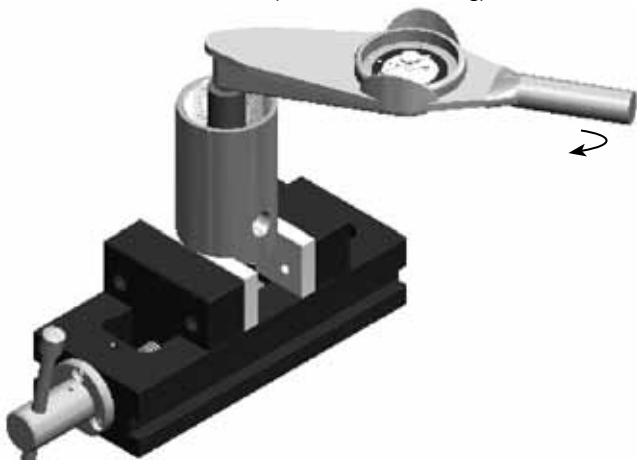
14. Place the **poppet** through the **seat**. Place the **poppet spring** and the **poppet damper** onto the exposed end of the **poppet**.



15. Invert the **body** and **seat assembly** and thread the seat assembly into the body.



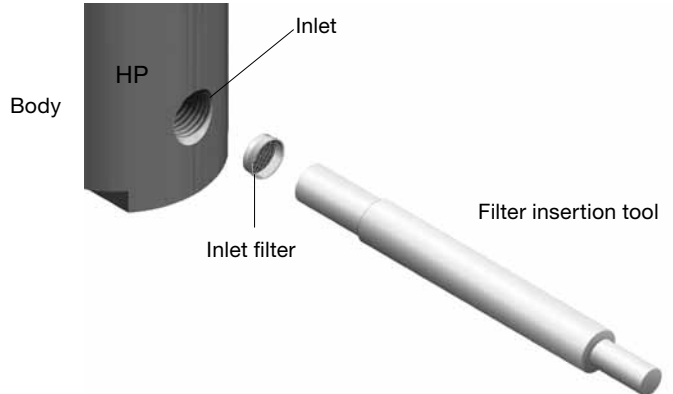
16. Tighten the **seat assembly** to:
for non-metallic seat: 13 ft·lb (17.5 N·m, 1.8 m·kg)
for metallic seat: 26 ft·lb (35.0 N·m, 3.7 m·kg)



17. Insert the **inlet filter** into the inlet port (marked 'HP') using the **filter insertion tool**.

NOTICE

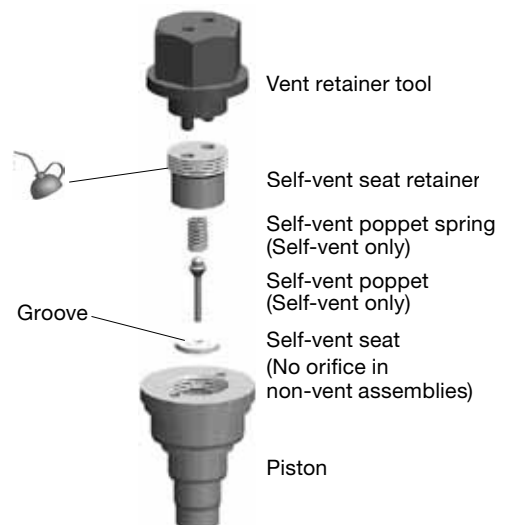
Do not insert the inlet filter with a sharp tool. Damage to the filter could result.



18. Insert **backup ring** followed by the **piston seal** into the **piston guide**. Insert the **body seal** into the **body**.



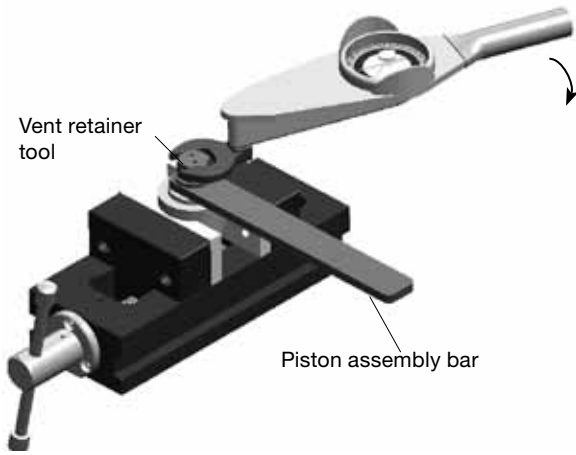
19. Invert the **piston** and insert the **self-vent seat** with groove facing away from the piston. Insert the **self-vent poppet** and the **self-vent poppet spring** into the piston. Finger-tighten the **self-vent seat retainer** into the piston using the **vent retainer tool**.



20. Insert the piston into the piston guide. Lightly grip the piston guide in the vise and tighten the self-vent seat retainer to 7 ft·lb (10 N·m) using the **piston assembly bar** and **vent retainer tool**.

NOTICE

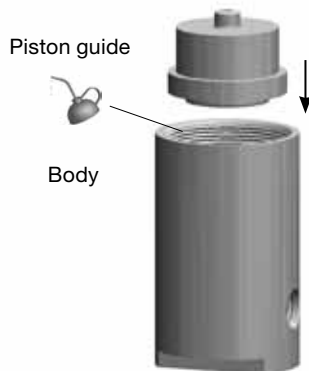
Do not force the piston into the piston guide. Damage to the seals could result.



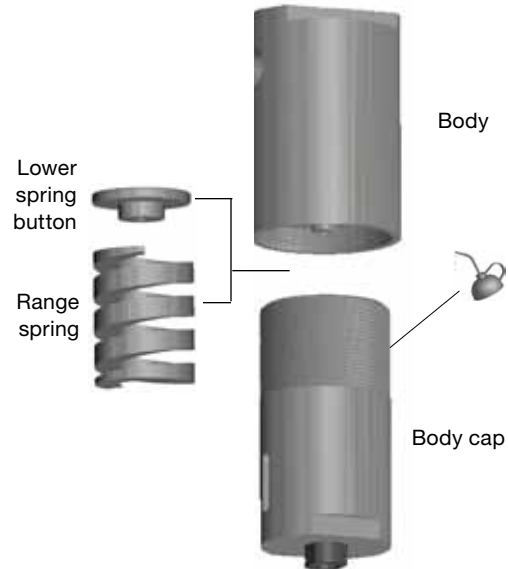
21. Insert the **piston guide** into the **body**. Lightly press down on the piston guide until it is fully seated

NOTICE

Ensure the piston seal is lubricated and do not pinch the piston seal when inserting it into the body. Damage could result.



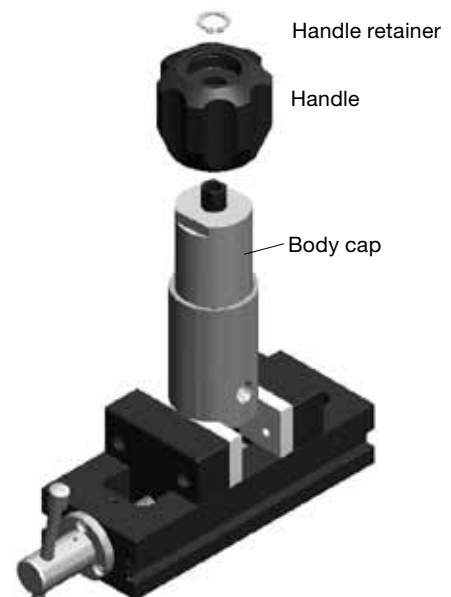
22. Place the **range spring** and the **lower spring button** into the **body cap**. Thread the body cap finger-tight into the **body** in the inverted position.



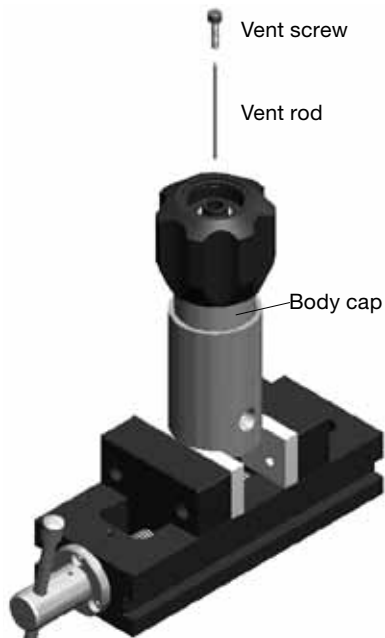
23. Tighten the **body cap** to 129 ft·lb (175 N·m, 17.9 m·kg).



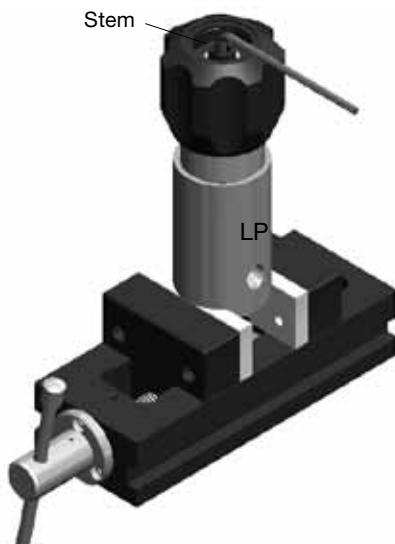
24. Place the **handle** and the **handle retainer** on the **body cap**.



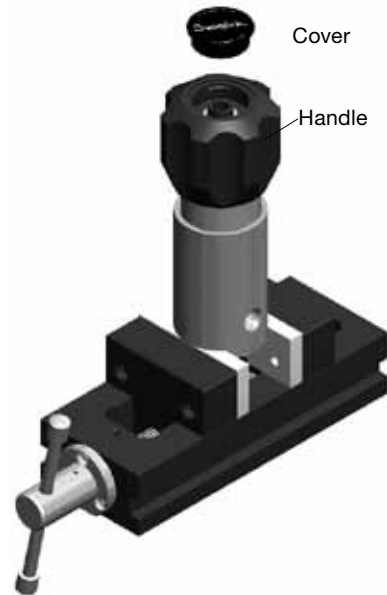
25. For regulators with a self-vent only, loosen the **vent screw** and insert the **vent rod**. Thread the vent screw into the cap assembly.



26. Test the regulator for proper operation.
Note: For non-vent assemblies replace cover according to Step 28.
27. For regulators with a self-vent only, apply 50 to 100 psig (3.4 to 6.8 bar) to the LP port, tighten the vent screw until leakage is heard, and then loosen by one-half turn.



28. Place the **cover** on the **handle**.



For additional information, see www.swagelok.com.