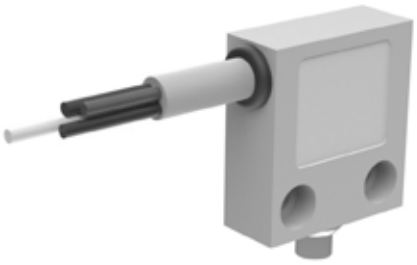
Assembling a Microswitch to an Actuated B Series Bellows Valve

Kit Contents



Microswitch

Microswitch plate
(Kit will contain 1 plate)

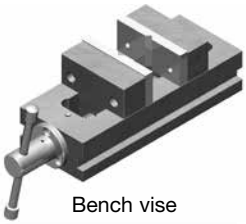
Mounting bracket

M5×0.8 cap screw (2)

Spring washer

M6×1.0 cap screw

Tools Required

Tool	Size	Part
 Bench vise	—	Valve body
 Torque wrench	Capable of 210 in.·lb (23.7 N·m)	Jam nut Panel mount nut
 Crow's foot adapter	7/16 in. 7/8 in.	Jam nut Panel mount nut
 Open-ended wrench	7/16 in. 7/8 in.	Jam nut/actuator coupling flats Panel mount nut
 Hex key	4 mm 5 mm	M5×0.8 cap screws M6×1.0 cap screw

Note: A continuity tester will be needed to complete assembly of the microswitch.

⚠ WARNING

Before removing the valve from service, to avoid personal injury, you must:

- **Depressurize the system**
- **Cycle the valve**
- **Purge system to remove any residual system media left in valve**

Instructions

1. Place the valve in a vise.
2. Apply actuation pressure as specified.

   Normally closed: apply 50 psig (3.4 bar)

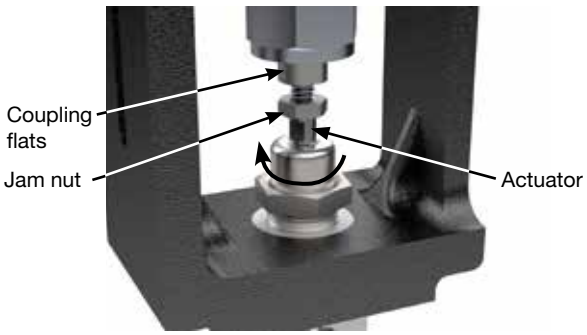
   Normally open: no action needed

   Dual-acting: no action needed

Note: Normally closed 4B series valve shown in illustrations.

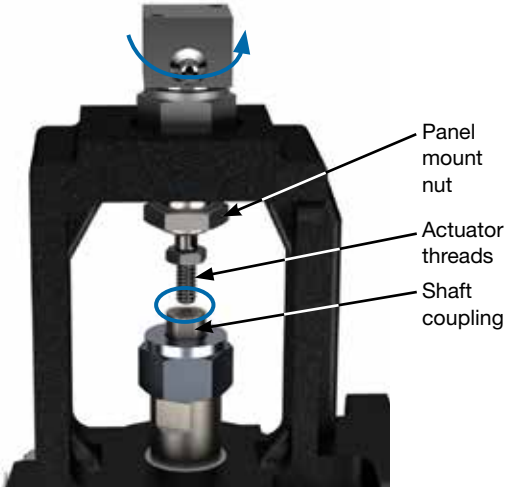
3. Loosen the **panel mount nut** using a wrench.

4. Place a wrench on both the **jam nut** and **shaft coupling flats**. Loosen the jam nut until it is bottomed out on the actuator threads.



5. While maintaining actuation pressure from step 2 (if applied), remove valve from the vise. Rotate the valve body until the **actuator threads** are completely disengaged from the **shaft coupling**.

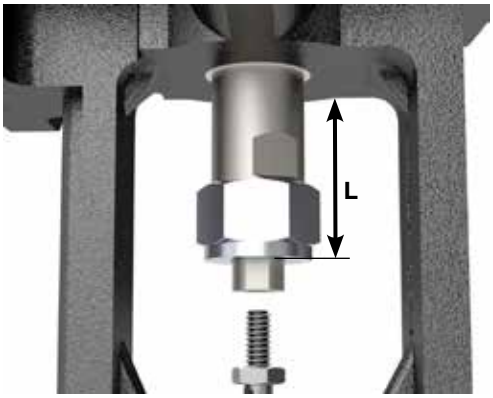
   Note: The **panel mount nut** must be completely disengaged from the bonnet threads.



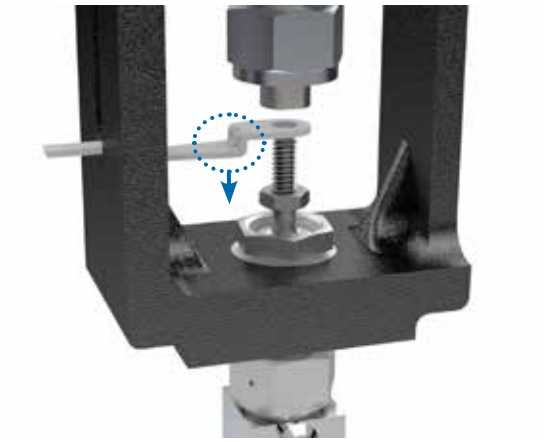
6. Pressurize pneumatic actuator per the table below, cycle, and measure shaft to air-operator distance as shown below.

   Note: For double acting assemblies, push or pull the piston rod to the specified dimension.

Valve Series	**Configuration**	**Air Pressure** (approximate), psig (bar)	**Air-operator Distance (L)** (approximate), in. (mm)
4B	Normally closed	42 (2.8)	1.75 (44.4)
	Normally open	9 (0.62)	
	Double acting	0	
6B/8B	Normally closed	42 (2.8)	1.25 (31.8)
	Normally open	9 (0.62)	
	Double acting	0	

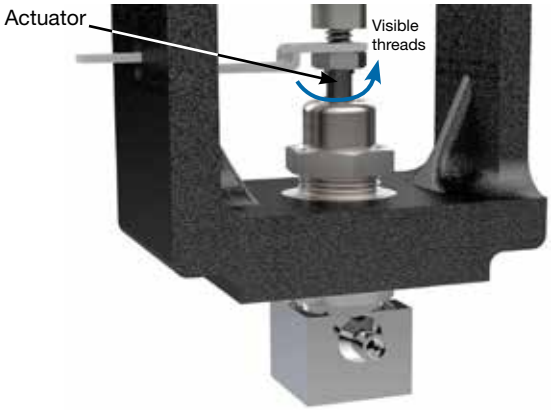


7. Insert the flat portion of the microswitch plate through the slot with the bend facing towards the body as shown. Line up the hole in the plate with the actuator threads.

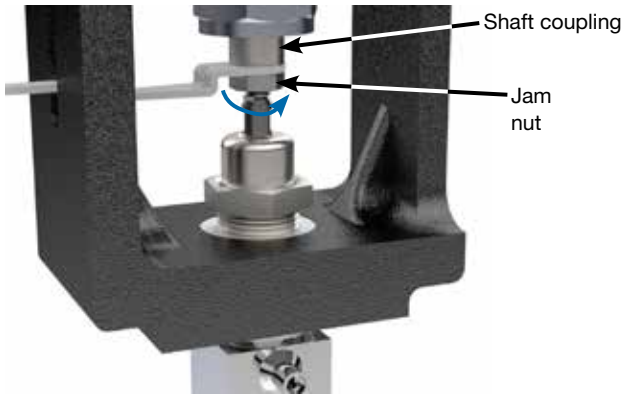


Note: 4B series microswitch plate shown in illustrations.

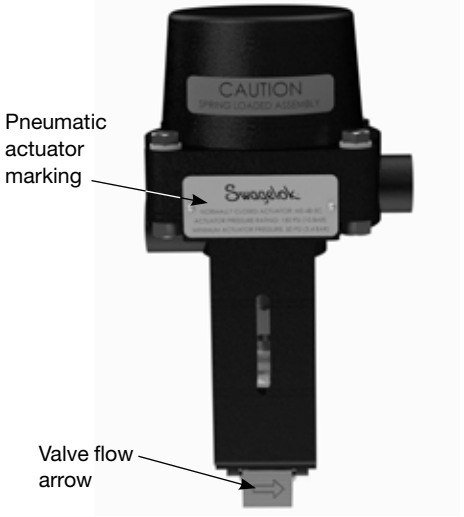
8. Maintain pneumatic actuator pressure from step 6 (if applied). Rotate the actuator until finger-tight. The bonnet nut will contact the air operator. Two to four threads should be visible between the shaft coupling and the microswitch plate.



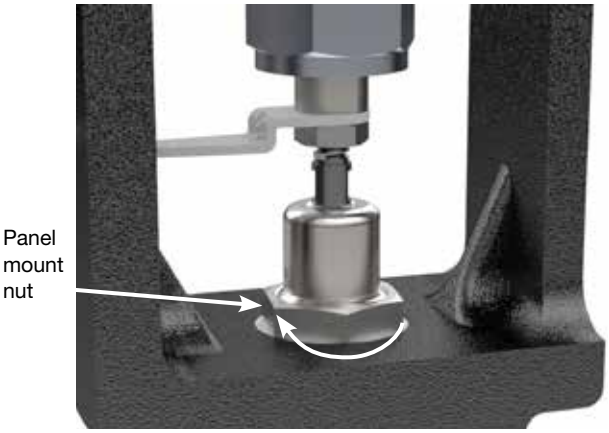
9. Verify air-operator distance from step 6 has been maintained.
10. Torque the jam nut to 25 in.·lb (2.8 N·m) while holding the shaft coupling stationary with a wrench.



11. Place the valve back into the vise. Align the valve flow arrow with the pneumatic actuator marking.



12. Torque the panel mount nut to 210 in.·lb (23.7 N·m).

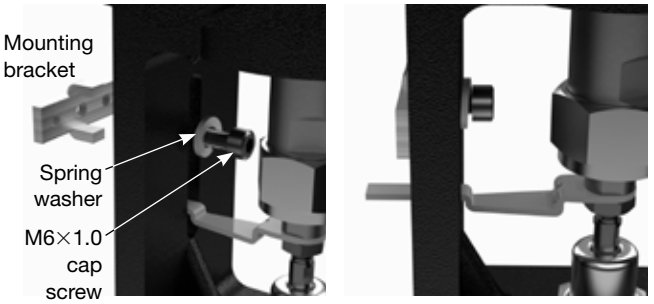


13. Remove air pressure (if applied) and observe actuator movement. Test valve for seat leakage.

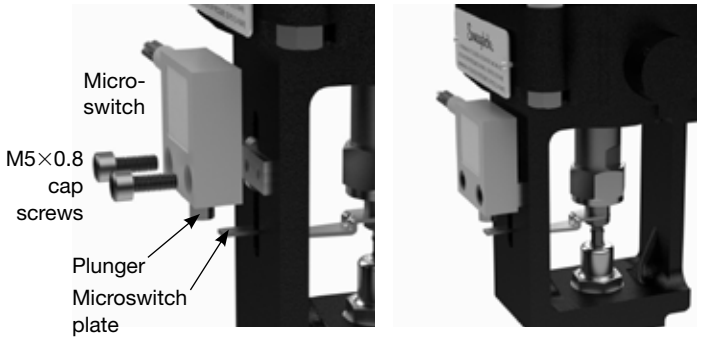
Microswitch Installation

These instructions are the same for all series and configurations.

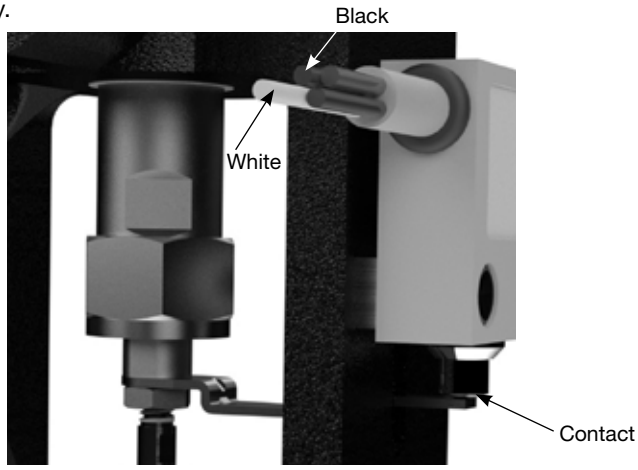
1. Normally closed and double-acting configurations: apply 50 psig (3.4 bar) minimum actuation pressure to open the valve; normally open: no action required.
2. Align the tabs of the mounting bracket with the pneumatic actuator slots. Assemble the spring washer and M6×1.0 cap screw and tighten finger-tight.



3. Orient the microswitch with the plunger pointed towards the microswitch plate. Fasten the microswitch to the mounting bracket with the two M5×0.8 cap screws. Tighten with a hex key.



4. Connect the black and white wires to a continuity tester. Slide the microswitch towards the microswitch plate just past the point where continuity is observed. Tighten the M6×1.0 cap screw with a hex key.



Installation of the microswitch is complete.

*For additional information, see **www.swagelok.com**.*

MS-CRD-0288, Rev-, May 2024