

## INSTALLATION INSTRUCTIONS

The gasket seal located between the main body casting and the lid casting is a cork-rubber composition which is subject to a slight creep for a short period after application of initial clamping load. All gaskets are properly clamped before shipment; however, during shipping and storage, the gasket may compress, allowing the body-lid clamp bolts to become slightly loose. Tighten these bolts before assembling the flow switch in your system.

No further creep of the gasket will occur after the second tightening. The Q-1 fluid flow switch is supplied with tapped holes for standard 1/2" pipe. Insert in line with arrow on the side of the casting pointed in the direction of flow.

NOTE: Care should be exercised to prevent pipe thread sealant (putty, Teflon tape, etc.) from entering the flow switch and restricting flow through the calibrated orifice.

## ELECTRICAL WIRING

FIGURE 1: Wiring schematic for power applied to load when flow is GREATER than the set point (power to load interrupted when flow is LESS than set point).

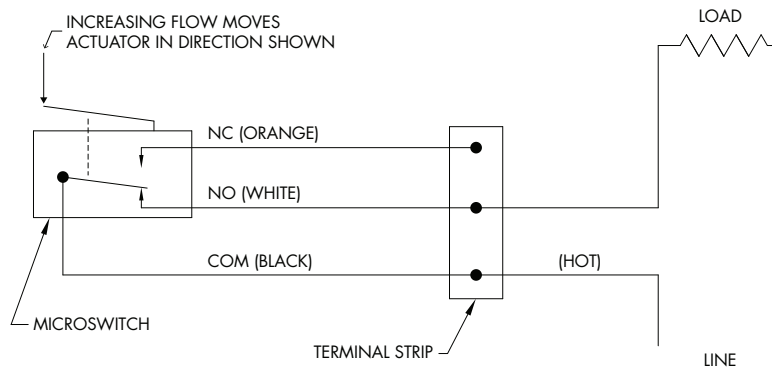
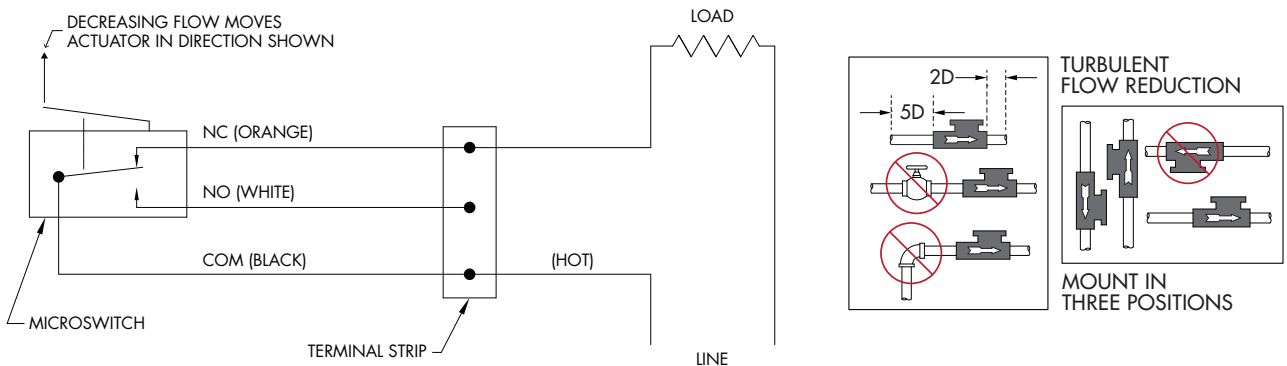
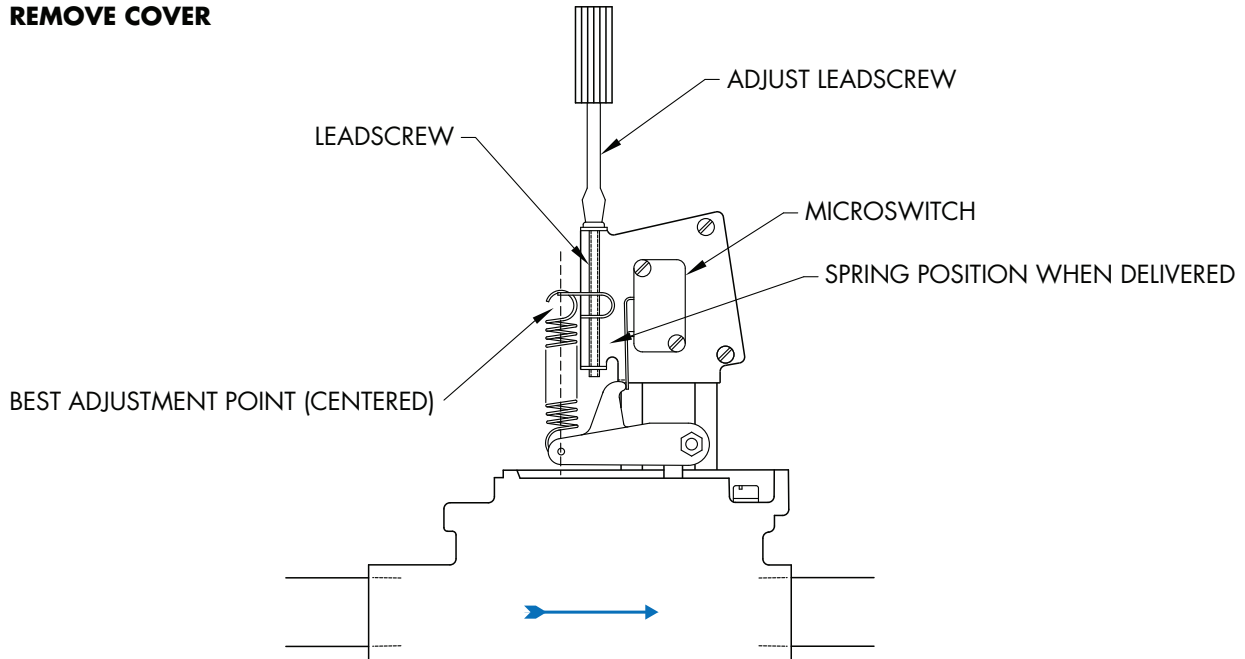


FIGURE 2: Wiring schematic for power applied to load when flow is LESS than the set point (power to load interrupted when flow is GREATER than set point).



## Q-1 FLOW SWITCH OPERATIONAL ADJUSTMENT

### REMOVE COVER



## SWITCH POINT ADJUSTMENT

1. Remove cover.
2. Adjust fluid flow in system to desired rate **WITHOUT** regard to Q-1 switch point setting.
3. The switch point adjusting mechanism consists of an adjusting screw, a "U" shaped leadscrew nut, and a helical spring.

CLOCKWISE rotation of the adjusting screw changes the microswitch actuation point toward **HIGHER** flow rates.

NOTES: All Q-1 units are factory set at the lower end of the flow range, e.g. the adjusting screw is set at the low flow counter-clockwise position.

The leadscrew nut locks the adjusting screw in position, maintaining the flow switch set point under all environmental conditions.

4. Turn the adjusting screw in a clockwise direction until the microswitch is actuated, while maintaining the desired fluid flow rate in the system. Turn the adjusting screw **TWO (2)** additional turns in the clockwise direction and then slowly back off in a counter-clockwise direction, until the microswitch is again actuated. The Q-1 flow switch is now set for maximum sensitivity for detecting small flow changes.
5. When set for maximum sensitivity (100% point) as described above, flow turbulence may cause rapid on/off switching (dithering) of the microswitch contacts, resulting in reduced switch contact life

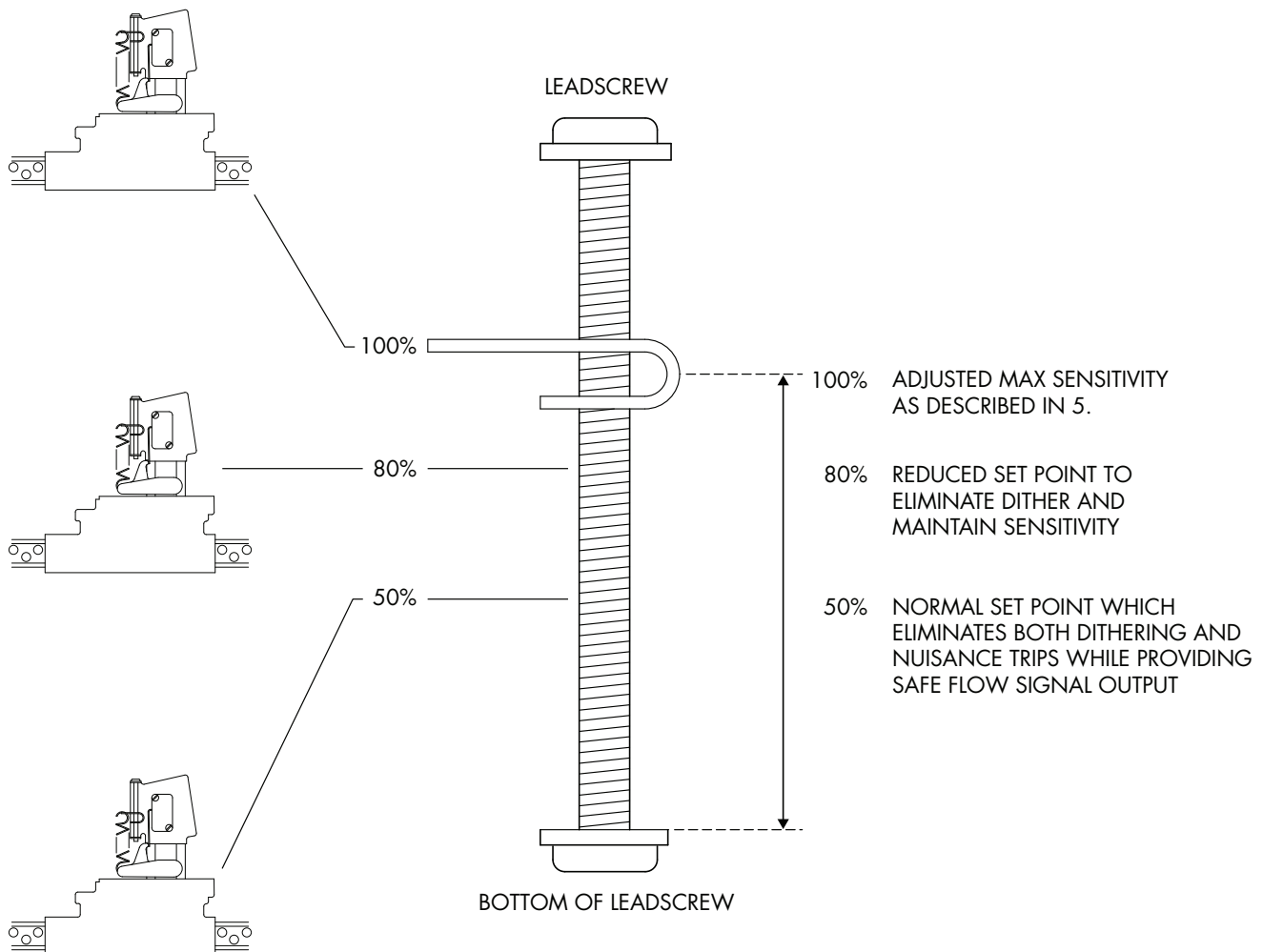
# MODEL Q-1

Q-1, QD-1

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and “noise” in the electrical circuit. This is eliminated by turning the adjusting screw in a counter-clockwise direction until the dithering is eliminated. This results in an operational switch point that is slightly below the normal operating flow rate (80%) of the system. The operational set point is normally well below (i.e. 50% below) the most sensitive set point described in step 4. This eliminates nuisance trips while detecting major reduction in the rate of flow. Care must be taken so as not to set the operational switch point below the minimum flow requirements of the system. Refer to Figure



**FIG. 4**

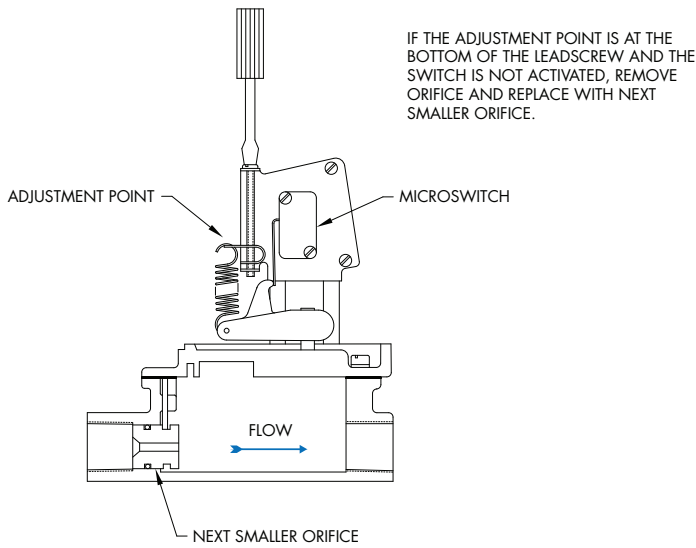
4 below.

6. Microswitch actuation point may be monitored during the adjustment procedure detailed in steps 4 and 5 by an audible click or with an ohmmeter before connecting line power to the terminal strip, or by monitoring the voltage supplied to the load through the microswitch.
7. If the system flow rate is changed, the Q-1 can be adjusted to monitor the new flow rate by turning the adjusting screw in a counter-clockwise direction to the minimum flow position and then proceeding as in 4 and 5 above.

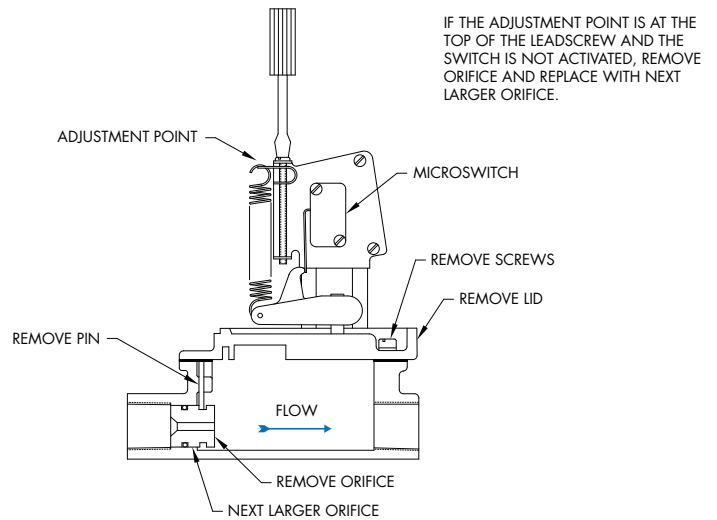
# MODEL Q-1

Q-1, QD-1

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**FIG 5A**

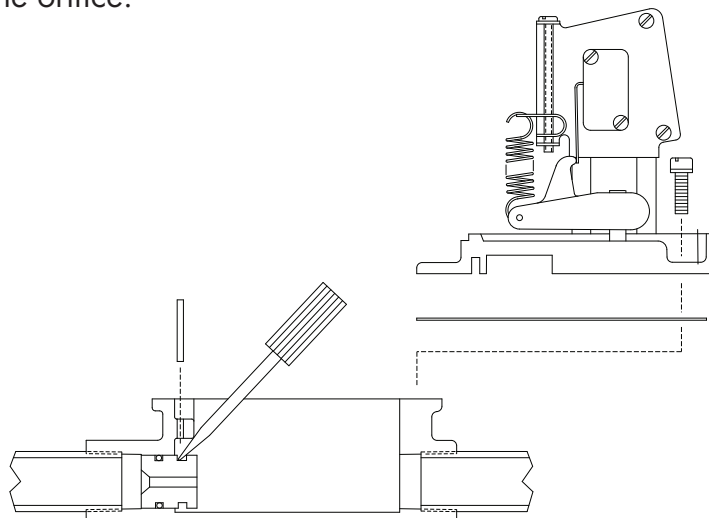


**FIG 5B**

## ORIFICE CHANGE

NOTE: It is not necessary to remove the main body of the switch from the line to change the orifice.

1. Remove the cover.
2. Remove the lid casting from the main body casting.
3. Remove the 1/8" diameter orifice retaining pin.
4. Insert a small screw driver blade into the groove located in the exposed end of the orifice and pry the orifice toward the body cavity. (FIG 6)
5. Drop the new orifice in the body cavity with the O-ring toward the upstream hole and press it into place.
6. Insert the 1/8" orifice retaining pin. NOTE: Be sure to check that the pin is properly located in the groove provided in the orifice.



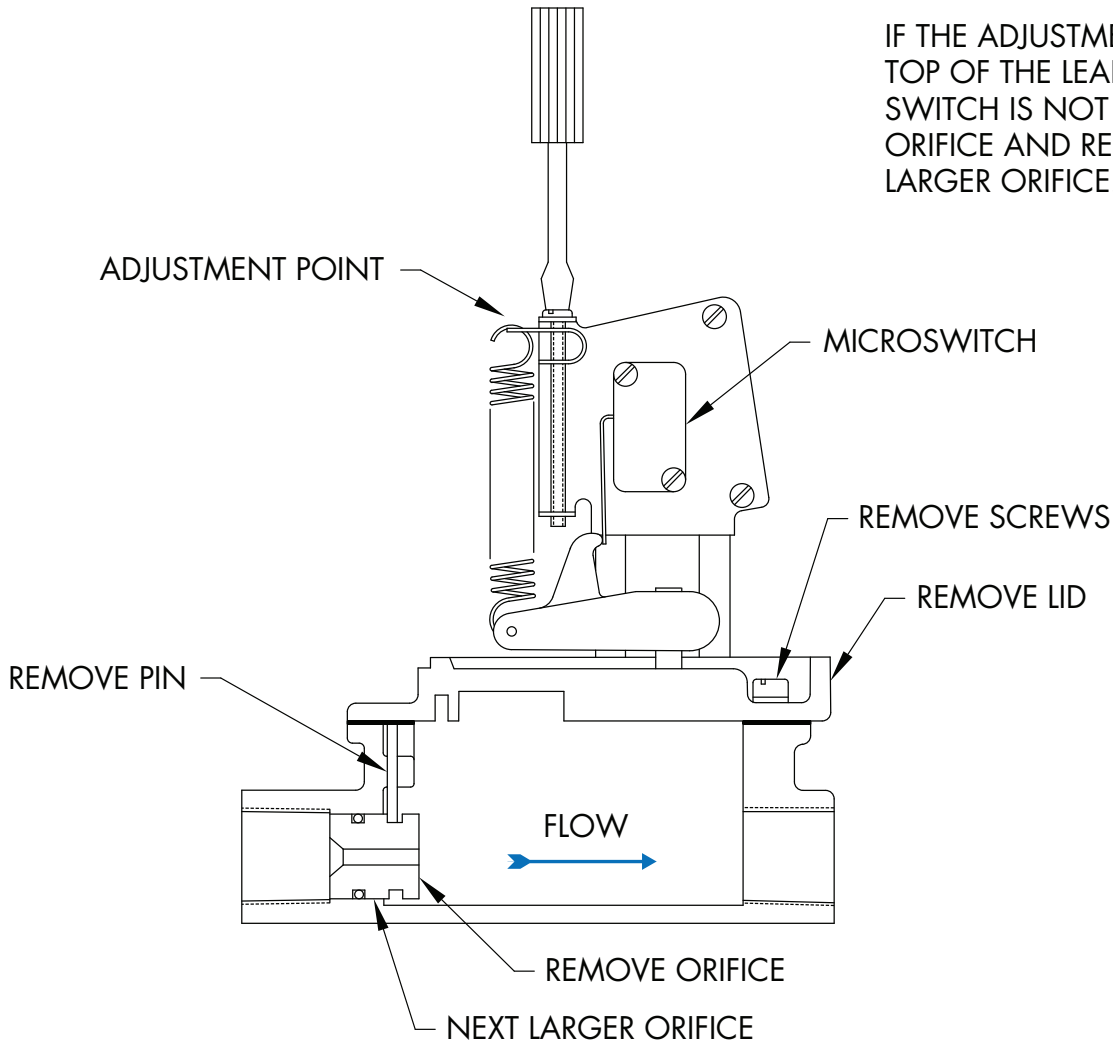
WHEN THE ADJUSTMENT SPRING RUNS OUT OF TRAVEL OR ACTUATES AT EITHER END OF THE LEADSCREW, YOU MUST CHANGE THE ORIFICE AND READJUST SWITCH.

# MODEL Q-1

Q-1, QD-1

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## ORIFICE SELECTION GUIDE



IF THE ADJUSTMENT POINT IS AT THE TOP OF THE LEADSCREW AND THE SWITCH IS NOT ACTIVATED, REMOVE ORIFICE AND REPLACE WITH NEXT LARGER ORIFICE.

Model Q-1 is provided with blank orifices which can be drilled by the user to create customized flow set-point ranges, as illustrated above.