

# KENCO ENGINEERING COMPANY

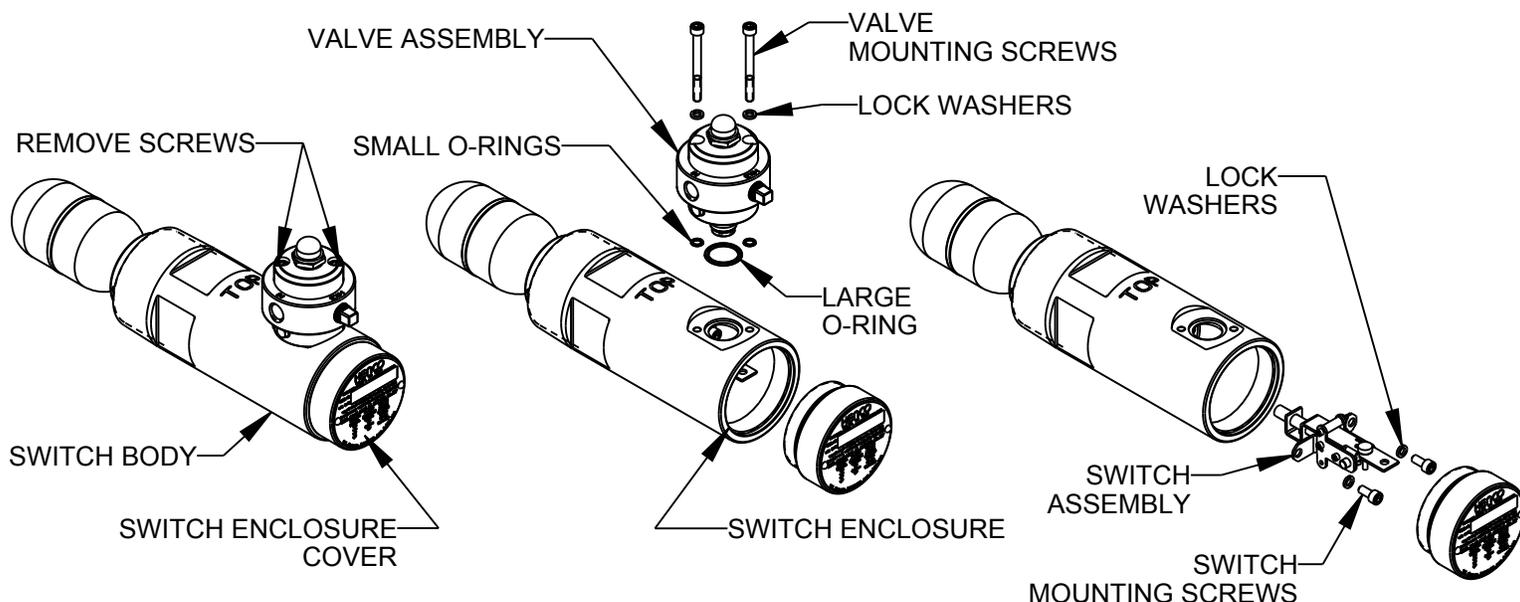
P.O. BOX 470426 TULSA, OK 74147-0426  
PHONE (918) 663-4406 FAX: (918) 663-4480  
Web: www.kenco-eng.com email: info@kenco-eng.com

## VALVE REPLACEMENT KIT INSTRUCTIONS FOR MODEL KPFS LIQUID LEVEL FLOAT SWITCH WITH THE ELASTOMERIC PAD STYLE BLEED VALVE

**NOTE:** Two styles of bleed valves have been produced for model KPFS Float Switches, a needle valve style and an elastomeric pad style. These instructions and the RK-VALVE-KPFS-PAD valve replacement kit are for the elastomeric pad style bleed valve. If your KPFS has a needle valve style bleed valve, an RK-VALVE-KPFS-NEEDLE kit is required along with the RK-VALVE-KPFS-NEEDLE instructions.

### RK-VALVE-KPFS-PAD VALVE REPLACEMENT KIT

The RK-VALVE-KPFS-PAD is the valve replacement kit for the Kenco pneumatic float switch model KPFS with the elastomeric pad style bleed valve. The kit includes the one piece valve assembly, mounting screws, lock washers, o-rings and elastomeric pad bleed valve seal. These components are shown in the middle view of figure 1. The KPFS was not always configured with the one piece valve assembly shown. For several years the three main components of the valve were individually assembled to the switch body and were held together with the mounting screws. The three piece configuration did not affect the performance of the valve, but did complicate maintenance. The new one piece valve is a direct replacement for all KPFS switches and greatly simplifies the maintenance of the KPFS. To get started with assembly, the old valve and switch assembly must be removed.

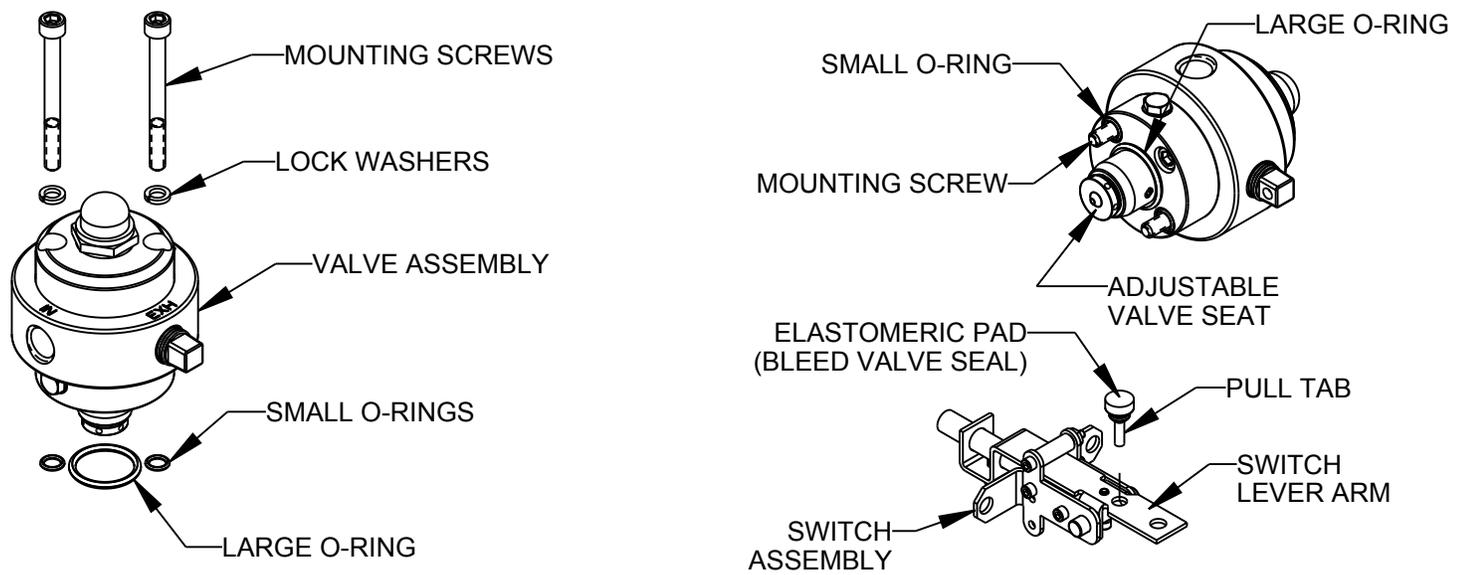


**FIGURE 1**

Refer to the illustrations in figure 1 for the valve removal process.

### **REMOVE VALVE AND SWITCH ASSEMBLY:**

1. Turn off the supply line pressure to the valve if the system is pressurized.
2. Disconnect the supply and outlet lines. Disconnect the exhaust line if equipped.
3. Remove the switch enclosure cover.
4. Remove the two mounting screws holding the valve assembly in place and discard.
5. Remove the valve assembly. Remove all of the o-rings and discard.
6. Remove the two mounting screws holding the switch assembly in place and discard.
7. Remove the switch assembly.
8. Make sure the valve mounting surface on the switch body is clean and free of any dirt or debris. The KPFS is now ready to have the new valve installed.

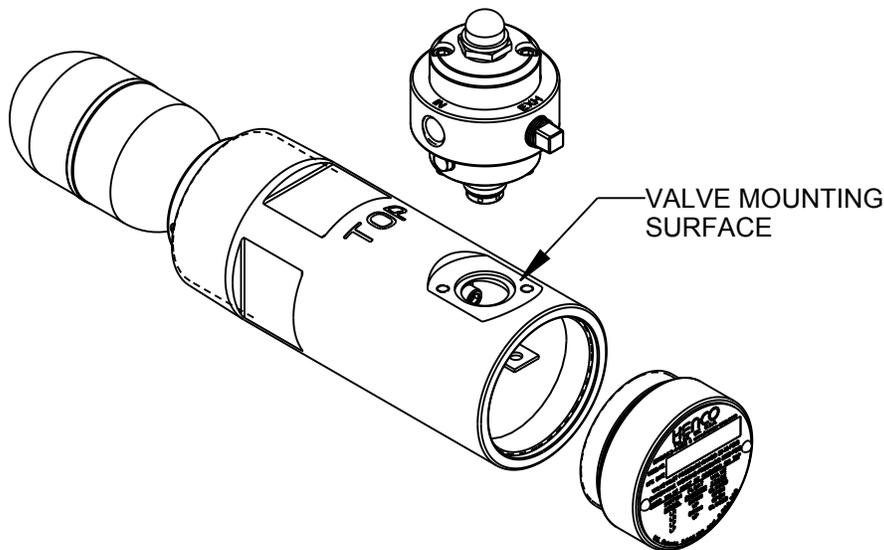


**NOTE:** -LR Switch assembly shown but instructions apply to -LF version as well

**FIGURE 2**

**INSTALL REPLACEMENT ELASTOMERIC PAD AND VALVE**

1. Remove the old elastomeric pad bleed valve seal from the switch assembly by simply pulling it out. Be careful here as it is easy to bend the switch lever arm which could prevent the KPFS from functioning properly.
2. Install the new elastomeric pad bleed valve seal by inserting it into the hole on the switch lever arm as shown in figure 2 and pulling on the pull tab from the bottom side of the switch lever arm.
3. Reinstall the switch assembly using the two new screws and lockwashers in the RK-VALVE-KPFS-PAD valve replacement kit.
4. Install lock washers on mounting screws and insert mounting screws into valve assembly.
5. Slide the large o-ring over the adjustable valve seat portion of the valve as shown in figure 2.
6. The two small o-rings can be assembled by applying a small amount of o-ring lubricant or grease to the o-rings and then sliding them over the end of the mounting screws that is protruding out the bottom of the valve. Note that there is a small counterbore in the base of the valve that these o-rings will fit into. The grease will hold the o-rings in place as the valve is installed.
7. Before installing the valve, screw the adjustable valve seat all the way in. You can leave this as a starting point or back it off from this point no more than 1/2 a revolution. This will ensure the valve seat is not protruding out so far that it interferes with and possibly damages the elastomeric pad (bleed valve seal) and/or switch lever arm.
8. With the exhaust port facing the back of the KPFS switch body as shown in Figure 3, insert the valve into the KPFS switch body. Screw in and torque the mounting screws to approximately 20 in-lbs to secure the valve assembly in place.
9. Gently toggle the switch lever arm by hand to ensure it is not in a jam. It is okay for it to be too loose as this will be dealt with during the valve adjustment but it cannot be too tight as damage to the switch assembly may occur.
10. Plumb the outlet port of the valve to the Kenco KDV or other pneumatically operated device. Adjust the valve according to the valve setup procedures on page 3 of these instructions.



**FIGURE 3**

VERIFY SET SCREW IS VISIBLE AND ORIENTED AS SHOWN. HEX PLUG SHOULD BE FACING THE LEFT SIDE AS SHOWN

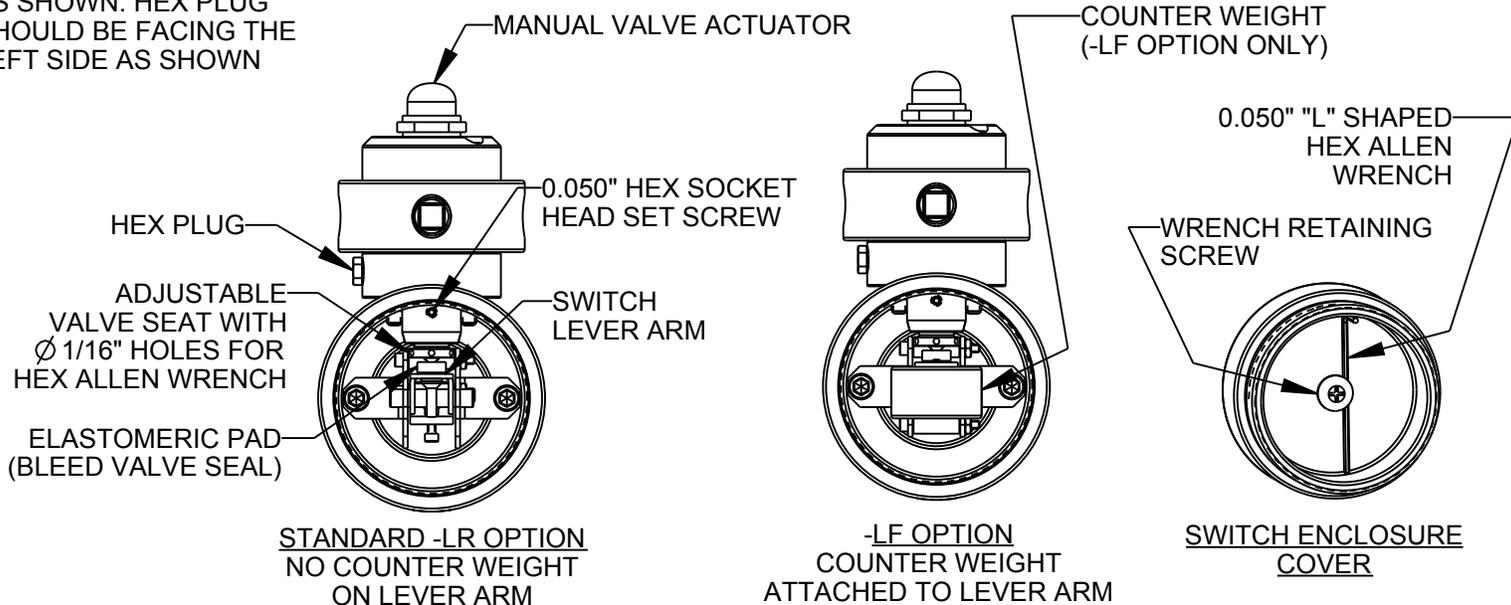


FIGURE 4

### VALVE SETUP

**Note:** For safety reasons, KENCO Engineering recommends the use of air when setting up the valve. If natural gas is being used as the supply gas, temporarily connect a portable tank pressurized with air to the KPFS valve. Make sure the supply pressure is within the rated range of 30-75 PSI and the air is clean and dry. Once the valve is adjusted, disconnect the portable air tank and reconnect the supply gas.

- Make sure the switch float is in the “valve closed” position. On the KPFS-LR model, the switch float will need to be in the down position. On the KPFS-LF model, the switch float will need to be in the up position. You will know which model you have by the model number on the switch enclosure cover name tag. In addition to this, the KPFS-LF has a counter weight attached to the lever arm and the KPFS-LR does not. See illustrations in Figure 4.
- Turn off the air supply line pressure to the valve if system is pressurized.
- Remove the switch enclosure cover on the end of the switch body.
- Remove the 0.050” “L” shaped hex allen wrench from inside the switch enclosure cover by loosening the wrench retaining screw.
- Using the 0.050” “L” shaped hex allen wrench supplied with the switch, loosen the hex socket head set screw located at the 12 o’clock position inside the switch enclosure. **Important:** Only loosen the hex socket head set screw 1/2 to 1 turn. Any more than this may cause the set screw to fall out and become lost.
- The adjustable valve seat is designed to be raised and lowered using the “L” shaped hex allen wrench supplied with the switch. There are six holes in the seat and you can only turn one hole at a time. It takes six turns to rotate the seat one complete revolution. A good starting point for adjustment is to raise the adjustable valve seat until it bottoms out against the valve base and then screw it back out one half of a revolution. To accomplish this insert the long end of the wrench into one of the holes in the adjustable valve seat and turn it to the right as far as possible before moving the wrench to the next hole.
- Once the adjustable valve seat is bottomed out against the valve base, lower the needle valve seat 3 turns to the left or one half of a revolution.
 

**Important:** Great care must be taken here. If the adjustable valve seat is lowered so much that the lever arm is in a bind, damage to the elastomeric pad (bleed valve seal) and/or lever arm can occur. During adjustment, continuously check the movement of the lever arm by gently toggling it with your finger to make sure it moves up and down freely. If the lever arm does not move up and down freely, the adjustable valve seat has been lowered too much and has the lever arm in a bind. If this is the case, raise the adjustable valve seat by turning the wrench to the right until the lever arm moves freely.
- With this starting point established, pressurize the system somewhere within the 30-75 psig switch pressure range.
- Air should be leaking from the adjustable valve seat. If it is not, toggle the lever arm or switch float to verify that the valve is shifting properly.
 

**Note:** If air is still not leaking from the adjustable valve seat, raise the seat by turning the wrench to the right until you hear the air leaking.
- While the air is leaking, pay close attention to the sound it makes as it leaks out.
- Slowly lower the adjustable valve seat by turning the wrench to the left until you hear the air stop leaking.
- When you hear the air stop leaking, lower the adjustable valve seat an additional 1 to 1-1/2 turns. This will put the right amount of preload on the adjustable valve seat to ensure that the valve opens when the switch float is level.
- Gently toggle the lever arm a few times to make sure it moves up and down freely and to verify that the valve is opening and closing properly.
- Tighten the hex socket head set screw.
- Reinstall the hex allen wrench inside the switch enclosure cover and reinstall the switch enclosure cover.
- Your KPFS is now ready for operation.