SEAL KIT REPLACEMENT INSTRUCTIONS
SERIES BSDA/M AIR-OPERATED DIAPHRAGM SHUT-OFF VALVES

1. **IMPORTANT:** Before disassembling the valve, be certain there is no pressure acting on the inlet or outlet of the valve, including residual or head pressure. Also, assure there is no air pressure at the air head fitting. The air head has to be removed and could cause personal injury if the air pressure is not relieved.

2. **CAUTION:** *there are two springs inside the air head which could cause the air head to fly off when the last screw is removed. Do not place your face over the air head (item 01) when removing the screws. Hold the air head down when removing the last screws. Remove air head (item 01) by removing the screws (items 10, 11) and in the case of the BSDA100-TF or -PP, the nuts (item 13).*

3. Remove the air head (item 01). If it appears stuck on the body, tap it on the sides with a soft mallet until it becomes free. See caution in step 2 above.

4. Remove the piston (item 02) and the seal ring (item 03) as an assembly. If stuck, try wiggling the assembly side to side. Prying with a screw driver can easily damage the plastic parts so use extreme caution. Scratches in the plastic will cause leakage.

5. Remove the U-cup (item 08) from the piston noting its orientation because the new seal must have the same orientation. Avoid use of metal tools because a slight scratch on the piston surface will result in air leakage past the new U-cup seal.

6. With the piston in one hand grasp the diaphragm (item 05) with the other and rotate counter clockwise (as viewed looking at the diaphragm), to remove it.

7. In the unlikely event that the diaphragm tears away from the screw, the screw can be removed from the piston with a screwdriver.

8. Separate the seal ring (item 03) from the piston (item 02).

9. Remove the U-cup (item 06), noting its orientation because the new seal must have the same orientation, and the O-ring (item 07). Again avoid the use of metal tools (see step 5). Wipe off old lubricant which will most likely be blackened by bits of elastomer from the seals.

10. Check all sealing surfaces for scratches. Using the appropriate lubricant (the factory uses silicone on all BSDA valves for superior lubrication and operation), replace the U-cups and O-ring carefully noting the orientation of the U-cups. It is imperative that they be installed oriented as shown on the drawing 5321, or they will not seal. Take precautions not to "roll" the O-ring when installing it.

11. Replace the diaphragm on the piston, turning it clockwise. Screw it in as far as it will go without using excessive force. Excessive force could cause the diaphragm to tear away from the screw. Ideally the diaphragm should lie flat against the piston surface. With older pistons this may not be possible. In this case the slight "hump" at the center of the diaphragm where the screw head lies should be flush against the piston with the outer part of the diaphragm lying within about .005 to .010 inches from the piston surface.

12. Replace the piston/seal ring assembly into the body, with the springs. Install the screws and tighten. It is best to tighten the head down evenly i.e. turn the first screw down but don't fully tighten. Then turn the screw directly opposite the first and don't fully tighten. Turn down the third screw in between the first two and then the one opposite it. When all screws are down, finish tightening "snugly".

At the factory, the screws are torqued as follows:
¼", ½" BSDA: 9-12 In-lbs
¾", 1", 1½" BSDA: 10-13 In-lbs.

SEE NEXT PAGE FOR PARTS DRAWING

#	Qty	Description	Material
1	1	AIR HEAD	PLASTIC
2	1	PISTON	PLASTIC
3	1	SEAL RING	PLASTIC
4	1	BODY	PLASTIC
5	1	DIAPHRAGM	TFE/Viton/stainless
6	2*	U-CUP	RUBBER
7	1	O-RING	RUBBER
8	1	U-CUP	RUBBER
9a/9b	1	SPRING	STEEL
10	4*	SCREWS	Stainless Steel
11	**	SCREW	Stainless Steel
12	**	LOCKWASHER	Stainless Steel
13	**	NUT	Stainless Steel

* Quantity may vary, depending on size.
** These items used on Teflon® and Polypropylene valve bodies only.