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BU-3089

Page 1 of 10
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**MAINTENANCE INSTRUCTIONS FOR AIR OPERATED BALL VALVE
CATALOG NUMBER: K108-XX-XX-RC**DA**

1.0 REFERENCE:

1.1 Butech assembly drawing number: C-1642 and C-2044.

2.0 DISASSEMBLY:

Note: Before making any adjustments on the valves, relieve system pressure. Cycle valve completely to relieve any trapped pressure.

2.1 Remove valve assembly with side connection adapters intact from system.

2.2 Place valve assembly in vise equipped with "soft jaws" and tighten vise.

2.3 Remove the four (4) bottom hex jam nuts (item #14) along with the lock-washers (item #24) located under the bottom plate (item #19). Pull up on the actuator assembly (item #1) to remove it from the valve.

2.4 Remove the two hex socket cap screws (item #23) and then remove the bottom plate (item #19) by lifting straight up.

2.5 Remove the hex socket set screw (item #12) from the coupling (item #11) and slide the coupling off the stem.

2.6 Place a 13/16" wrench on the packing gland (item #15) and turn counter-clockwise to loosen. Continue to turn packing gland until disengaged from the valve body (item # 2) and remove by lifting it over the stem (item # 5).

2.7 After removing the valve assembly from the vise, place the top portion of the stem (item #5) back in the vise and tighten. Pull the valve body (item #2) away from the stem leaving the stem, packing, support washers and the bottom washer (items 5, 8, 9, and 13) in the vise.

- 2.8 Place the valve body back in the vise so that the end adapters can rotate, and tighten vise. Place appropriate wrench on the side adapter (item #3 & #4) and turn counter-clockwise to loosen. Continue to turn the side adapter until adapter and gasket (item#16) are disengaged from the valve body (item #2). Repeat this step for the remaining adapter.

NOTE: If the valve has the locking device (-LD) option, you must first remove the hex socket cap screw and the locking device so that the adapter can rotate.

- 2.9 To remove the ball (item #6), seat retainers (item #7), seals (item #17), and o-rings (item #10), insert a wooden dowel into the body and tap gently, pushing these items out through the opposite end connection opening.
- 2.10 Inspect all components for wear or damage. Replace any defective items.

3.0 REASSEMBLY:

- 3.1 Collect all components, including repair parts required to re-assemble valve as per parts list. Check quantity and condition of items for shortage or defects.
- 3.2 Lightly lubricate the stem (item #5) in the area where there is contact with the bottom washer (item #8) with “Christo-lube” or “Dow Corning #33” lubricant.
- 3.3 Assemble bottom washer (item #8) on stem (item #5) with the raised end facing the packing as shown, followed by a packing ring (item #13), a packing support washer (item #9), 2nd packing ring and 2nd packing support washer.
- 3.4 Place a tapered dowel or similar object into orifice of ball (item #6) and insert into valve side connection. Align slot in ball with center of stem engagement hole in top of valve body.
- 3.5 Insert stem and packing sub-assembly into the valve body (item #2) and rotate the stem (item #5) until the slotted end engages the female slot in the ball (item #6).
- 3.6 Lubricate the threads of the packing gland (item #15). Slide the packing gland over the stem (item #5) and rotate clockwise to engage the threads. Tighten the packing gland finger tight to hold the ball (item #6) in place. Remove the tapered dowel from the ball.
- 3.7 Lightly lubricate the seal (item #17) and seat retainer (item #7) sub-assembly, on the exterior surface of the seals.
- 3.8 Place the appropriate O-ring (item #10) onto the shoulder of the seat retainer (item #7) as shown. Repeat this step for the other seal and seat retainer sub-assembly.

- 3.9 Insert the seal and seat retainer sub-assembly into the side connection of the valve body, making sure that the seal makes contact with the ball (item #6). Repeat this step for the other side.
- 3.10 Place new gasket (item #16) on the shoulder of the side adapter (item #3) as shown. Lightly lubricate the exterior threads of the side adapter (item #3) and turning clockwise, engage the threads into the valve body (item #2). Rotate the side adapter clockwise until you feel it touch the seat retainer O-ring (item #10). Repeat this step for other side.
- 3.11 Rotate the stem (item #5) 90 degrees so that the ball (item #6) is in the closed position. *****This important step will prevent damage to the seals during the final steps of assembly.***
- 3.12 Rotate both side adapters (items #3 & #4) clockwise until finger tight.
- 3.13 Place appropriate wrench on side adapter (item #3) and tighten. Torque the side adapter to approximately 185 ft.-lbs. Repeat this step for the other side adapter (item #4).
- 3.14 Place a 13/16" wrench on the packing gland (item #15) and tighten. Torque packing gland to approximately 50 ft.-lbs.
- 3.15 Place the coupling (item #11) back on top of the stem (item #5) and align the threaded hole with the flat on the stem.
- 3.16 Thread the hex socket set screw (item #12) into the coupling (item #11) and tighten firmly. The valve is now ready to be pressure tested.

4.0 PRESSURE TEST:

- 4.1 With the ball in the closed position, connect pressure source to side adapter (item #3 or #4) and pressurize to 10,000 PSI. Dwell time is five (5) to ten (10) seconds.
- 4.2 Release pressure in the ball valve, and with the use of a wrench, turn the coupling (item #11) approximately 120 degrees back and forth several times to assure free movement of the ball.
- 4.3 If valve has passed the PRESSURE TEST it is now time to re-assemble the actuator to the ball valve.

5.0 ATTACH ACTUATOR:

- 5.1 Place the bottom plate (item #19) down over the coupling (item #11) until it rests on the top of the valve body (item #2).
- 5.2 Place the two hex socket cap screws (item #23) through the bottom plate (item #19) and thread into the valve body. Tighten the two screws firmly into place.
- 5.3 Locate the four (4) spacers (item #22) onto the bottom plate (item #19) being sure they line up over the holes.
- 5.4 With the actuator (item #1) sub-assembly in hand, guide the connecting rods (item #21) down through the four (4) spacers (item #22) until the top plate (item #18) comes to rest on the top of the spacers.
- 5.5 Place the lock-washer (item #24) along with the hex jam nut (item #14) onto the bottom of the connecting rod (item #21) and tighten into place. Repeat this step for the remaining three connecting rods.
- 5.6 Loosen vise and remove valve assembly.
- 5.7 The refurbished valve is now ready to be returned to service.

REPAIR KIT:

Catalog Number: RK-K108

Consists of the following:

1. Qty. – 1: A-3094-02 – Ball
2. Qty. – 2: A-3279-01 – Packing (teflon glass)
3. Qty. – 2: A-3280-01 – Packing support washer
4. Qty. – 1: A-3281-01 – Bottom washer
5. Qty. – 1: A-3283-01 – Stem
6. Qty. – 2: A-3426-01 – Gasket
7. Qty. – 2: PH-1326 – O-ring
8. Qty. – 2: A-3092-01 – Seat Retainer
9. Qty. – 2: A-3093-01 – Seal

Note: Item #8 and Item #9 will be assembled together.