



**BU-3181**

**MAINTENANCE INSTRUCTIONS FOR AIR-OPERATED BALL VALVE**  
**CATALOG NUMBER C-2872-01**

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## 1.0 References

- 1.1 BuTech Assembly Drawing C-2872, latest revision.

## 2.0 Disassembly Instructions

- 2.1 Remove Valve Assembly from system.

- 2.1.1 Important Note: Vent all pressure before removing valve from system.

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

- 2.3 Loosen and the hex jam nut (item 33) and set screw (item 32) holding the coupling (item 23) to the stem. Loosen and remove the two socket head cap screws (items 31) that hold the bottom plate (item 27) and actuator assembly on the body. Lift and remove the actuator assembly from the valve body.

- 2.4 Place an appropriate open ended wrench on the side adapter (item 3) and remove the side adapter and the attached gasket (item 16 ) and components of the seat assembly (items 14, 15, 17, 20, 21 and 22. Repeat this step for the other side adapter.

- 2.5 Carefully loosen and remove the bottom adapter (item 7). The trunnion (item 9) may drop out of the body with the removal of the bottom adapter.

- 2.6 Use a wrench to loosen and remove the packing gland (item 13) from the body. Pull the stem (item 8) and attached packing components (items 10, 11 and 12) from the body

- 2.7 Use a wooden dowel to lightly tap and remove trunnion (item 9) if it is still in the valve body.

- 2.8 Examine the condition of the top bearing (item 18) and the bottom bearing (item 19). Remove and replace if necessary.

- 2.9 Inspect and replace any worn or damaged components.



### 3.0 Assembly Instructions

- 3.1 Lightly lubricate the stem (item 5) on all surfaces that come in contact with the packing components "Christolube" or equivalent lubricant.
- 3.2 Install the bottom washer (item 10), packings (items 12) support washers (items 11) on the stem (Item 5).
- 3.3 Insert the stem and packing sub-assembly into valve. Lubricate the packing gland (item 13) with anti-seize. Slip the packing gland over the stem, engage the body threads, and tighten "finger tight".
- 3.4 Press the top bearing (item 18) into valve body using a brass rod of the same diameter. Lightly lubricate the outside bearing surface of the trunnion (item 9) and insert it into the valve body. Turn the trunnion until it engages the slot in the stem.
- 3.5 Press the bottom bearing (item 19) it into the bottom adapter (item 7).
- 3.6 Lightly lubricate the external threads of the bottom adapter (item 3) and the internal surface of the bottom bearing with anti-seize. Install gasket (item 16) and thread the bottom adapter into the valve body, "finger tight".
- 3.7 Rotate the stem (item 8) and trunnion (item 9) until the port in trunnion is exactly axial to the centerline of the valve body.
- 3.8 Tighten the bottom adapter (item 7) to approximately 200-225 ft. lbs.
- 3.9 Tighten the packing gland (item 13) to approximately 50-55 ft. lbs.
- 3.10 Use "Christolube" to lightly lubricate the outside surface of the smallest diameter of the seat retainer (item 15) and slide the spring washers (items 17), follower (item 21), back up washers (items 22) and "O" ring (item 20) onto the seat retainer. Insert the seat retainer sub-assembly into the side adapter (item 3).
- 3.11 Lightly lubricate the peek seal (item 14) with "Christolube" and thread the side adapter sub-assembly into the valve body (item 1) "finger tight".
- 3.12 Repeat paragraph 3.10 and 3.11 for remaining side adapter. Torque both side adapters to approximately 200-225 ft. lbs

**CAUTION:** Trunnion port must be exactly axial within the valve body prior to the application of the final torque.



- 3.13 Re-install the coupling (item 23) and secure it to the milled flat on the stem (item 8) using the set screw (item 32) and hex jam nut (item 33). Return the actuator assembly to the valve body and tighten the socket head cap screws (items 31) that hold the bottom plate (item 27) and actuator assembly on the body.
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- 4.0 Pressure Test
    - 4.1 Connect pressure source to the upstream connection. Plug the downstream connection.
    - 4.2 Pressurize valve to 530 bar in the open position and dwell for 30 seconds. Release the pressure and close the valve. Remove the downstream plug. Pressurize valve to 530 bar in the closed position and dwell for 30 seconds. A pressure drop may occur as seals form to trunnion. Cycle the valve open to relieve the pressure. Open and close valve a few more times without pressure to blend in the new seals.
    - 4.3 With the valve in the open position and the downstream port plugged, pressurize the valve to 827 bar and hold for 30 seconds to complete the hydrostatic test. De-pressurize and cycle valve.



**RECORD OF REVISION**

REV NO	DESCRIPTION OF CHANGES	DATE	BY	APPR
0	Original document	03-Sep-04	DTG	DTG