



**BU-3017**

**MAINTENANCE INSTRUCTIONS FOR MANUAL BALL VALVE**  
**CATALOG NUMBER 3K108**

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1.0	References	2
2.0	Disassembly Instructions	2
3.0	Assembly Instructions	3
4.0	Pressure Test	4
5.0	Record of Revision	5



## 1.0 References

- 1.1 Standard 3-way ball valve assembly C-1380, latest revision.
- 1.2 Special 3-way ball valve assembly (socked weld adapters) C-1568, latest revision.
- 1.3 Special 3-way Ball valve assembly (butt-weld adapters) C-1664, 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 Place appropriate open ended wrench on side adapter (example: Item 3) and turn the side adapter counter clockwise to loosen. Continue to turn side adapter until disengages from valve body (Item 1). Repeat step (2.3) for remaining side adapter and bottom adapter.
- 2.4 Insert standard 3/16" hex wrench into the hex socket set screw (Item 11). Loosen and remove set screw from handle and hub sub-assembly. Repeat step (2.4) for second set screw (Item 11).
- 2.5 Remove handles (Item 16) and hub (Item 17) from the stem (Item 5).
- 2.6 Place appropriate open ended wrench on packing gland (item 13) and turn the packing gland counter clockwise to loosen. Continue to turn the packing gland until disengages from the valve body (Item 1).
- 2.7 Lightly tap stem (Item 5) with leather and/or rubber mallet to remove stem and trunnion sub-assembly from the valve body (Item 1).
- 2.8 Utilizing a small hook like device, remove the bearing (Item 20) from the valve body (Item 1).
- 2.9 Loosen vise and remove valve body. Inspect valve body (Item 1), side adapters (Item 2) and bottom adapter (Item 3) for wear, nicks, scratches, etc., on all sealing surfaces after removing sealing components.



### 3.0 Assembly Instructions

- 3.1 Place valve body (Item 1) in vise equipped with "soft jaws" and tighten vise.
  - 3.2 Lightly lubricate the stem (Item 5) on all surfaces that come in contact with the packing components.
  - 3.3 Place the new bottom washer (Item 8), support washer (Item 9), and packing (Item 12) on the lightly lubricated stem (Item 5).
- Notes:
1. See applicable assembly drawing for correct component orientation.
  2. Lubricate with "Christolube", "Dow Corning #33" and/or approved lubricant.
- 3.4 Insert stem and packing sub-assembly into valve. Slide packing gland (Item 13) over stem, engage threads, and tighten packing gland "finger tight" only.
  - 3.5 Insert new top bearing (Item 20) into valve body (Item 1). Lightly lubricate large diameter of new trunnion (Item 6) and insert into valve body (Item 1). Turn trunnion and/or stem until "tongue and groove" connection is made.
  - 3.6 Lightly lubricate the exterior surface of the new bottom bearing (Item 21) and insert it into the bottom adapter (Item 3).
  - 3.7 Lightly lubricate the external threads of the bottom adapter (Item 3) and the internal surface of the bottom bearing (Item 21).
  - 3.8 Place new gasket (Item 14) on the lubricated bottom adapter (Item 3) and insert them into the valve body (Item 1) and engage threads. Rotate the bottom adapter (Item 3) until "finger tight".
  - 3.9 Rotate stem (Item 5) and trunnion (Item 6) until port in trunnion is centered between the side connections.
  - 3.10 Place a 1 3/4" open ended wrench on the bottom adapter (Item 3) and tighten. Torque bottom adapter (Item 3) to approximately 200-225 ft. lbs.
  - 3.11 Place a 13/16" open ended wrench on the packing gland (Item 13) and tighten. Torque packing gland (Item 13) to approximately 50-55 ft. lbs.
  - 3.12 Lightly lubricate the outside surface of the smallest diameter of the seat retainer (Item 7) and slide the spring washers (Item 18), the follower (Item 4), the back up washers (Item 22) and "O" ring (Item 10) onto the seat retainer. Insert the seat retainer sub-assembly into the side adapter (Item 2).



- 3.13 Lightly lubricate the peek seal (Item 15) and insert the side adapter sub-assembly into the valve body (Item 1) and engage threads. Rotate the side adapter (Item 2) until finger tight. Place a 1 3/4" open end wrench on the side adapter (Item 2) and tighten.

**CAUTION:** Do not torque side adapter at this time.

- 3.14 Repeat paragraph (3.13) for remaining side adapter.

- 3.15 Torque both side adapters (Item 2) to approximately 200-225 ft. lbs.

**CAUTION:** Trunnion opening must be centered between side adapters prior to the final torque.

- 3.16 Slide hub (Item 17) and handle (Item 16) sub-assembly onto the stem (Item 5). Insert standard 3/16" hex wrench into the hex socket set screw (Item 11). Insert set screw (Item 11) into the hub and tighten. Repeat for second set screw.

- 3.17 Open and close valve assembly to blend in new seals.

#### 4.0 Pressure Test

- 4.1 Connect pressure source to side adapter and plug other side adapter and bottom adapter.

- 4.2 Pressurize valve to 10,000 psi with a dwell time of 30 seconds. A pressure drop may occur as seals form to trunnion.

- 4.3 Release pressure, open and close valve several time to assure free movement of trunnion.

#### General Note:

BPS recommends that all refurbished valves be pressure tested to working pressure before being returned to service.



**RECORD OF REVISION**

REV NO	DESCRIPTION OF CHANGES	DATE	BY	APPR
0	Original document	14-Aug-95	RAC	RAC