



BU-3077

**MAINTENANCE INSTRUCTIONS FOR 3K106
3-WAY BALL VALVES**

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1.0 REFERENCE

- 1.1 Applicable valve assembly drawing C-1375, latest revision.

2.0 PURPOSE

- 2.1 To establish maintenance instructions for all 3K106 ball valves.

3.0 SCOPE

- 3.1 These maintenance instructions are to be used for all 3K106 ball valves.

4.0 INSTRUCTIONS

CAUTION: Vent all pressure from system before removing valve for maintenance.

4.1 DISASSEMBLE

- 4.1.1 Remove valve from system.
- 4.1.2 Place valve assembly in a vise equipped with "Soft Jaws" and tighten vise.

NOTE: Orient bottom connection at 3 o'clock position and one side connection at 12 o'clock position.

- 4.1.3 Place appropriate open ended wrench on side adapter, loosen and turn counterclockwise until threads are disengaged. Repeat for other side adapter.
- 4.1.4 Loosen vise and remove valve. Orient the bottom connection at the 12 o'clock position. Loosen and remove the bottom adapter.
- 4.1.5 Remove valve from vise and invert to disengage and remove trunnion.
- 4.1.6 Place remaining valve assembly in vise equipped with "Soft Jaws," align handle and stem at 12 o'clock position, and tighten vise.
- 4.1.7 Insert appropriate hex wrench into the hex socket set screw and turn counterclockwise until disengaged from handle. Remove hub and handle from stem assembly.



- 4.1.8 Remove valve assembly from vise and invert. Push the stem through the valve body and remove.
- 4.1.9 Inspect all components for wear and/or defects. Replace all defective or worn components.

4.2 REASSEMBLY

- 4.2.1 Assemble all valve components, including all new replacement ones that are required to reassemble valve. All components are to be checked for quantity and quality.
- 4.2.2 Place valve body, with the bottom opening in the 12 o'clock position and the body etching facing away from you. Tighten vise.
- 4.2.3 Lightly lubricate the stem, with the approved lubricant, in the area of the o-ring and bearing washer.
- 4.2.4 Insert the stem into the opening of the valve. Rotate stem while gently pulling stem through the body opening. Be careful not to damage the o-ring.
- 4.2.5 Rotate the stem so the detent on the shaft is in the 12 o'clock position facing the body etching.
- 4.2.6 Lubricate the top of the trunnion and install it through the bottom opening so that the slot in the trunnion engages the tab on the bottom of the stem, and the trunnion port is facing the body etching.
- 4.2.7 Lightly lubricate the external threads of the bottom adapter, the o-ring and the bearing. Install and tighten to 110-120 foot pounds.
- 4.2.8 Lightly lubricate external threads of side adapter and o-ring. Grasp the seal and seal retainer subassembly with your fingers and lightly lubricate the smallest diameter.
- 4.2.9 Using C-1375 as a reference, orient the two spring washers (parallel) and slide them onto the small diameter of the seat retainer subassembly. Slide the follower, (with the largest diameter toward the springs) one (1) backup washer, one (1) o-ring and the second backup washer onto the seat retainer. Lightly lubricate o-ring and seat valve.



- 4.2.10 Insert the seat retainer subassembly into the adapter (repeat step 4.2.9 for other side adapter).
 - 4.2.11 Loosen vise and remove valve body and stem subassembly. Orient one (1) side connection at 12 o'clock position and tighten vise.
 - 4.2.12 Being sure to keep the detent on the shaft facing the body etching, insert side adapter subassembly into valve body and engage threads. Turn side adapter until finger tight. Loosen vise, remove valve body and install second side adapter in the same fashion. This is important to prevent damage to valve seats.
 - 4.2.13 Place valve assembly in vise, and with the side adapters in the 12 o'clock and 6 o'clock positions, close vise until the "Soft Jaws" make contact with the hex surfaces of the 6 o'clock positioned side adapter. Tighten vise.
 - 4.2.14 Place an appropriate open ended wrench on the 12 o'clock positioned side adapter, turn wrench clockwise until both side adapters are tightened. Place torque wrench on side adapter and torque to 110 to 120 lb-ft. Tighten second side adapter to 110 to 120 lb-ft.
- NOTE: When valve and side adapters are assembled as noted, equal pressure between the seals and trunnion will achieve optimum seal formation.
- 4.2.15 Place valve assembly in vise, equipped with "Soft Jaws," with the stem and handle in the 12 o'clock position and tighten vise.
 - 4.2.16 Reattach handle and hub and engage hex socket set screw with stem detent and tighten.
 - 4.2.17 Grasp handle and rotate slowly 360 degrees. Rotate handle 3 times to complete optimum formation of seals.

GENERAL NOTE: The ball valve, assembled with the replacement packing, seals and new components, is now ready to be pressure tested.

RECORD OF REVISIONS

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0	Original document	3/27/98	DTG	DTG