

Maintenance Instructions For R60 Series Ball Valves

MS-INS-R60-1
CP Revl
July, 2023

Kit Contents:

- Seat subassemblies (2)
- Stem bearing
- Stem spring
- Quad ring (o-ring for 63 Series)
- Lower quad ring support
- Upper quad ring support
- Flange Seals (2)
- Lubricants (2)
- Instruction sheet
- Spacer ring
- Material safety data sheet

NOTE:

- Handle all parts carefully and clean before reassembly.
- DO NOT drop, nick or scratch ball or stem.
- Check ball, stem, and body studs/bolts for wear, corrosion or damage.
- Refer to exploded view, Figure #1, throughout the disassembly and reassembly instructions.

WARNING: Before servicing any installed valve, you must

- depressurize system
- cycle valve

WARNING: Residual material may be left in the valve and system.

1. **2-way valves:** Place and leave the valve handle in the open position.
- 3-way valves:** Place and leave the handle and ball orifice in line with either side port. *Note position of handle relative to system flow before continuing, as it must be reassembled in same way to indicate proper direction of system flow.*

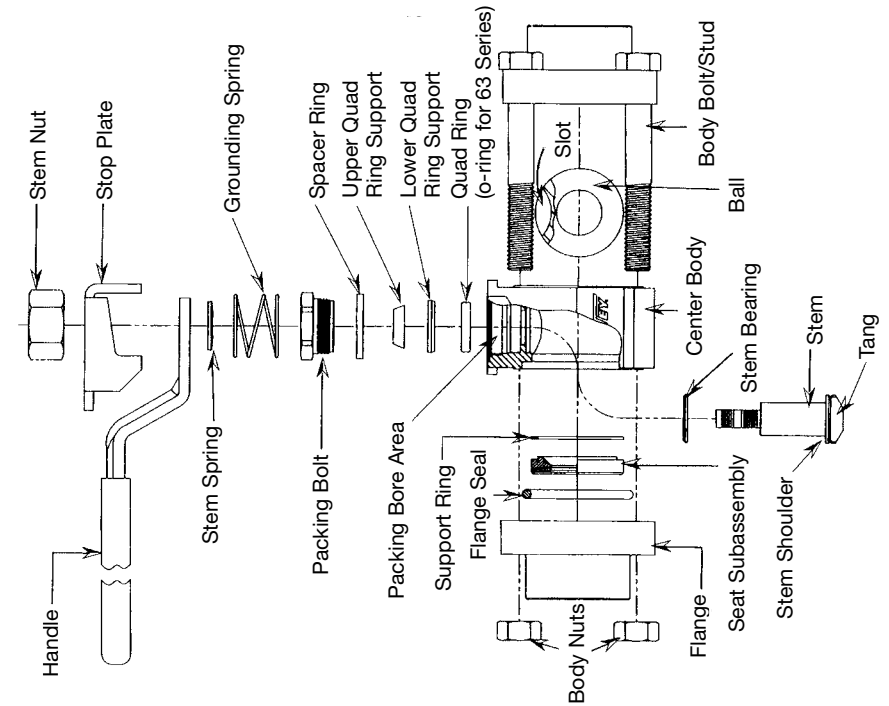
NOTE:

- To replace **only the seats**, disregard steps 3 through 30 and proceed to step 31.
 - To replace **both stem packing and seats**, follow all steps with the exception of steps 31 through 34.
2. Using a wrench, remove the stem nut, stem spring, stop plate, handle, and grounding spring. Discard stem spring. Set aside other components for reuse.
 3. Carefully remove the packing bolt and set aside for reuse.
 4. Remove and discard the spacer ring.
 5. Loosen and remove the body studs/bolts. Remove the center body from between the flanges.
 6. Remove flange seals, seat subassemblies, and support rings. Discard flange seals and seat subassemblies. Set aside support rings for reuse.
 7. Rotate stem until ball is in the closed position.
For 3-way valves, note position of ball orifice for reassembly reference.
 8. Gently slide the stem down into the body as far as possible.
 9. Remove the upper quad ring support and pry out the lower quad ring support using an awl or screw driver, being careful not to scratch or nick the packing bore area. Damage to this area may result in a leak path requiring valve replacement.
 10. Discard both the upper and lower quad ring supports.
 11. Keeping the stem flats parallel to the flange sealing surfaces, gently tilt the stem and remove it from the center body.
 12. Remove and discard the quad ring (o-ring for 63 Series) from the packing bore area and the stem bearing from the stem.
 13. Clean the stem, ball, and body bore area. DO NOT scratch or nick them.

14. Lubricate the stem shoulder, center body packing bore area, and both sides of the stem bearing with MS-LT-8-1 lubricant.
 15. Slide the stem bearing (chamfer side up) onto the stem shoulder.
 16. Tilt the stem with the stem flats parallel to the flange sealing surfaces and insert the stem up into the center body.
- NOTE: The R62 series stem has one stem flat longer than the other to aid in stem insertion.
17. **2-way valves:** Place the ball into the center body until the stem tang is engaged. Rotate the stem until the ball orifice is exposed.
 - 3-way valves:** Place the ball into the center body and rotate 90° to position the ball as noted in step #7.
 18. Lubricate the quad ring (o-ring for 63 Series) with MS-LT-8-1 lubricant.
 19. Slide the quad ring (o-ring for 63 Series) over the stem and into the center body packing bore area, being careful not to cut the quad ring on the stem threads.
 20. Lubricate the lower and the upper quad ring supports with the MS-LT-8-1 lubricant.
 21. Place the lower quad ring support (chamfer side down) onto the stem. Gently push into the packing bore area.
 22. Place the upper quad ring support onto the stem oriented with the cone side facing up.
 23. Press the spacer ring into the recessed area at the top of the valve center body.
 24. Lubricate the inner diameter of the packing bolt with the MS-LT-8-1 lubricant and thread it into the valve center body.

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Figure #1



25. Torque the packing bolt to the appropriate value listed in the chart below

Valve Series	62	63	65, H65	67	68
Torque Value in.·lb (N·m)	100 (11.3)	200 (22.6)	300 (33.9)	400 (45.2)	400 (45.2)

26. Place the grounding spring over the packing bolt. The grounding spring must be stretched over the packing bolt to properly rest against the valve body.
27. Place the new stem spring over the stem (concave side up). Note: 62 series does not have a stem spring.
28. Place the handle*, stop plate, and stem nut on the stem. Note: 62 series does not have a stem spring. * Handle must be in the same position as before valve was disassembled as noted in step 2.
29. Torque the stem nut to the appropriate value listed in the chart below. **Skip to step #33.**

Valve Series	62	63	65, H65	67	68
Torque Value in.·lb (N·m)	25 (2.8)	50 (5.7)	100 (11.3)	150 (17.0)	150 (17.0)

NOTE: Steps 30 through 38 cover replacement of seats only.

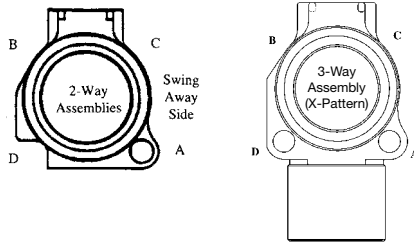
30. Remove the black stud/bolt and swing out the center body from between the flanges.
- 3-way valves:** Loosen and remove the body studs/bolts. Remove the center body from between the flanges.
31. Remove and discard the seat subassemblies and flange seals.

32. Remove the support rings and ball. Set them aside for reuse.
33. To ensure correct valve operation, carefully clean the body, support rings, and sealing surfaces of the flanges.
34. Lubricate the new flange seals with the MS-LT-1 lubricant. Lubricate the seat subassembly face (non-metal side) with MS-LT-8-1 for PEEK seats, and MS-LT-1 for all other seat materials.
35. Insert the support rings, flange seals, and seat subassemblies (metal side away from ball) into the center body.

NOTE: 65, 65X, 67, 67X, 68, 68X series support rings are installed with the chamfered side toward the ball.

36. **2-way valves (seat replacement only):** Swing the center body back into position between the flanges and reinstall the body stud/bolt and nut(s). Leave the valve in the open position.
- 3-way & 2 way valves (stem packing & seat replacement):** Reposition the center body between the flanges and reinstall the body studs/bolts and nuts. Place and leave the valve handle in line with either side port. (Refer to step #2)

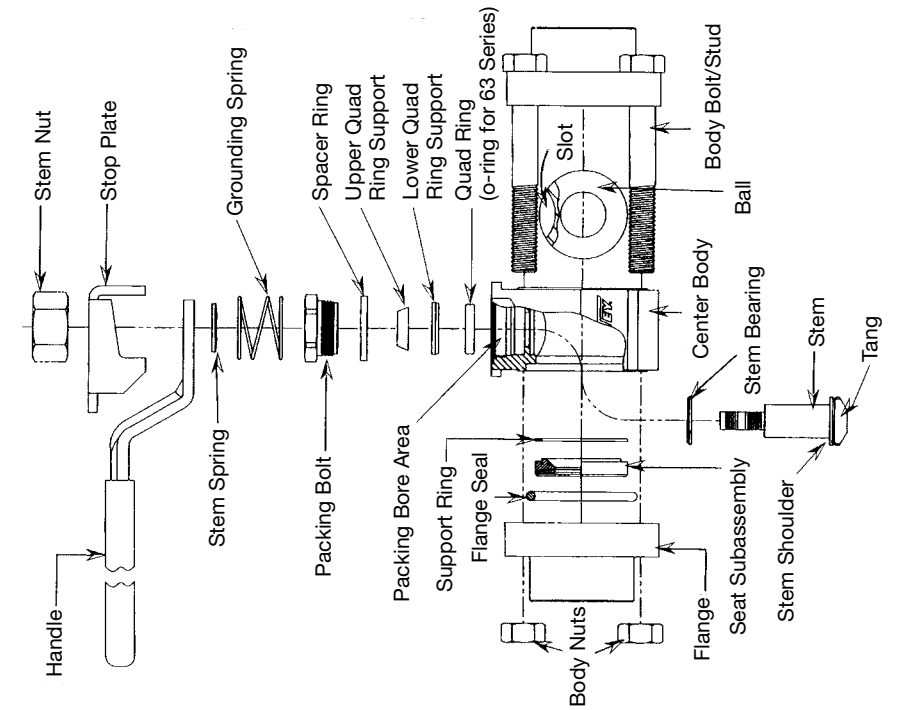
Torque Sequence



37. Torque the body studs/bolts according to the applicable **Torque Sequence** illustration shown (2-way or 3-way). Sequence is alphabetical.
38. Torque the studs/bolts to the value listed in the "1st" column of the **Torque Chart** according to the valve series. Repeat the torque sequence for the 2nd, 3rd, 4th, and 5th torque value.

Valve Series	Torque Value in.·lb (N·m)				
	1st	2nd	3rd	4th	5th
62, 62X	5.00 (0.57)	10 (1.1)	20 (2.3)	40 (4.5)	40 (4.5)
63, 63X	10 (1.1)	20 (2.3)	40 (4.5)	100 (11.3)	100 (11.3)
65, 65X	25 (2.8)	50 (5.7)	100 (11.3)	300 (33.9)	300 (33.9)
67, 67X	35 (4.0)	75 (8.5)	150 (17.0)	300 (33.9)	300 (33.9)
68, 68X H68	40 (4.5)	100 (11.3)	200 (22.6)	500 (56.5)	500 (56.5)

Figure #1



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