

Maintenance Instructions for Fire Series Ball Valves

MS-INS-F60-1
CP Revision L
June, 2008

Kit Contents:

- Stem bearings (2)
- Packing
- Upper packing support
- Lower packing support
- Material safety data sheets (4)
- Seat subassemblies (2)

- Stem springs (3)
- Flange seals (2)
- Lubricants (3)
- Sealant
- Gland

NOTE:

- **Do not** remove replacement seals from package until ready to use. The MS-LT-RTV103 sealant has a suggested minimum cure time of 24 hours for maximum performance.
- 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. Leave valve in the open position.
2. Loosen and remove the eight body bolts from the center body.
3. Remove center body from between the flange ends.
4. Remove and discard the flange seals and seat subassemblies from both sides of the center body.

5. Remove the support rings and set them aside for reuse.
6. Carefully rotate the ball to the closed position and remove the ball from the center body. Do not nick the ball.
7. Carefully clean the ball, support rings, flange knurling, and sealing surface groove area of the center body.

NOTE: To replace seats only, complete step #7 and skip to step #31.

- (Note handle position, as it must be replaced in the same position).
8. Using a wrench, remove the stem nut, stem spring, stop plate, handle, and grounding spring. Discard the stem spring. Set other components aside for reuse.
 9. Using the handle to retain the stem, loosen the bottom stem nut and remove. Set aside for reuse.
 10. Remove and discard the stem springs and gland.
 11. Push the stem down until the tang rests in the center body cavity. With an awl or screwdriver pry the packing and packing supports out through the top of the valve packing bore area. Be careful not to scratch or nick the packing bore area.
 12. Discard packing and packing supports.
 13. Keeping the stem flats parallel to the flange sealing surfaces, tilt and remove stem.
 14. Remove the stem bearings from the stem and discard.
 15. Carefully clean the stem and stem bore area. *Do not scratch or nick while cleaning.*
 16. Lubricate the packing bore area, where the packing and stem bearings rest against the body, with the MS-LT-WL7 lubricant.
 17. Lubricate each side of the new stem bearings with MS-LT-NNS-1 lubricant.
 18. Lubricate the stem groove area, where the stem bearings rest, with MS-LT-WL7.

19. Place the stem bearings on the stem.
20. Tilt the stem with the stem flats parallel to the flange sealing surfaces and insert, from the center body cavity into the packing bore area.
21. Place the ball into the center body so its slot engages the stem tang.
22. Carefully rotate the ball to the open position.

NOTE: A60T series valves contain a vent hole in the ball. When the ball is in the open position, the vent hole of the ball must be positioned on the same side of the body as the flow arrow.

23. Lubricate the Grafoil® packing with MS-LT-WL7.
24. Place the packing into the packing bore in the following order: *lower packing support, Grafoil packing, upper packing support, and gland.* See diagram for proper orientation
25. Position the gland firmly into the packing bore area.
26. Place two stem springs onto the gland—first one, concave side DOWN; second one, concave side UP.
27. Thread the bottom stem nut onto the stem.
28. Based upon the valve series and using the handle to retain the stem, tighten the stem nut to the following torque value:

Valve Series	63	65	67	68
Torque Value in.·lb (N·m)	75 (8.5)	150 (17.0)	200 (22.6)	200 (22.6)

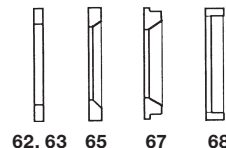
29. Place the grounding spring, handle, stop plate, stem spring (concave side UP), and stem nut on the stem.
30. Based upon the valve series, tighten the stem nut to the following torque value.

Valve Series	63	65	67	68
Torque Value in.·lb (N·m)	75 (8.5)	150 (17.0)	200 (22.6)	200 (22.6)

- Handle must be in the same position as before disassembly. When the ball valve is in the open position, the vent hole of the ball must be positioned on the same side of the body as the flow arrow.
31. If proceeding from step #7 (replacing seats only), position the ball into center body and rotate the ball to the open position.

NOTE: A60T series valves contain a vent hole in the ball.

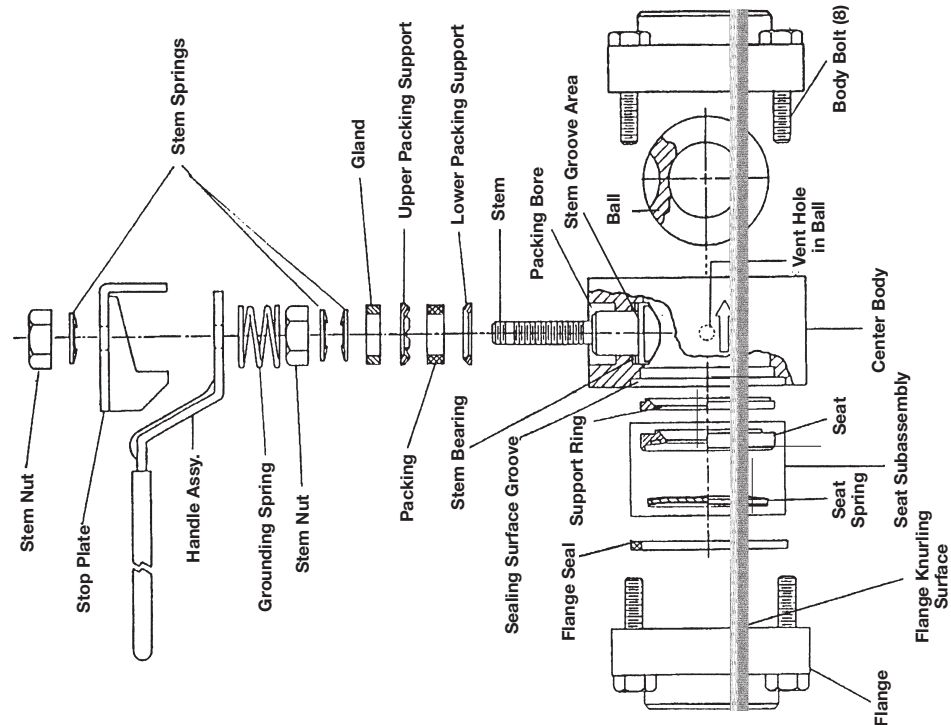
Follow steps #32 through #42 one side at a time.
 32. Position the support ring against the sealing surface groove area of the center body. The 65 & 67 series support rings have a chamfer, the 68 series has a lip. Face the chamfer or lip towards the ball.
 33. Prior to using the syringe contained in the MS-LT-RTV103 sealant package, make sure the syringe is cleared of hardened sealant, and attach the tip to the syringe.



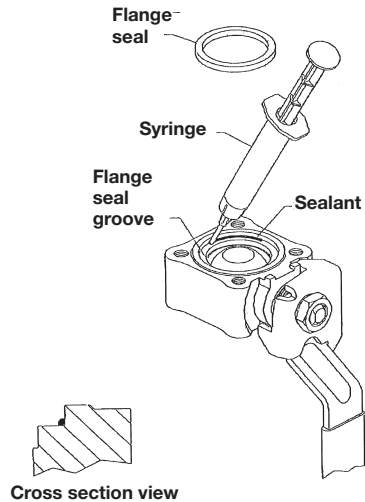
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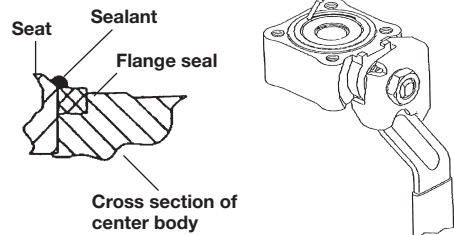
Figure #1



34. Using the syringe, lay a bead of MS-LT-RTV103 sealant in the corner of the flange seal groove in a continuous circle leaving no gaps. Refer to figure below. Approximate bead size is 1/16 in. diameter for all series. Sealant should be no larger than 1/3 the height of the groove and no more than 1/4 the width of the groove.

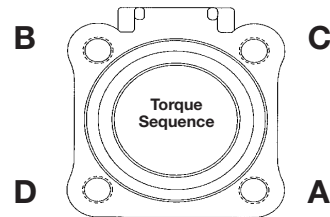


35. Carefully and evenly place and press the flange seal into the flange seal groove in the center body.
 36. Evenly spread any extruded sealant around the internal diameter of the flange seal. DO NOT allow sealant to touch ball.
 37. Lubricate the seat subassembly face with MS-LT-1.
 38. Place the seat subassembly into the center body cavity with the seat spring positioned away from the ball and the lubricated face positioned toward the ball.
 39. Apply another bead of MS-LT-RTV103 sealant to the top of the flange seal groove, leaving no gaps. Refer to figure below. Sealant bead size should be approximately the same size as the bead made in step #34. Be sure the sealant DOES NOT touch the ball.
 40. Position the flange against the center body. DO NOT ALLOW THE FLANGE TO SLIDE AROUND ON THE CENTER BODY.
 41. Lightly lubricate the body bolt threads with MS-LT-NNS-1 lubricant.



42. Thread the body bolts through the flange and into the center body. Tighten finger-tight.
 43. Repeat steps #32 through #42 on the opposite side of the valve.
 44. Incrementally tighten the bolts in the alphabetical sequence shown in the Torque Sequence illustration. Tighten the bolts to the value listed in the "1st" column of the appropriate torque chart, as defined by the valve Body Material, Bolt Material, and Valve Series.
 45. Repeat the torque sequence, in the alphabetical pattern, to the values listed in the 2nd, 3rd, 4th, 5th, 6th & 7th columns of the appropriate torque chart.
 46. Repeat tightening procedure on opposite side of the valve.

Torque Sequence



Stainless Steel Valve Body with B8M Body Bolts

Valve Series	Torque Value in.·lb (N·m)						
	1st	2nd	3rd	4th	5th	6th	7th
63	10 (1.1)	20 (2.3)	40 (4.5)	100 (11.3)	150 (17.0)	150 (17.0)	—
65	25 (2.8)	50 (5.7)	100 (11.3)	200 (22.6)	300 (33.9)	400 (45.2)	400 (45.2)
67	35 (4.0)	75 (8.5)	150 (17.0)	300 (33.9)	400 (45.2)	500 (56.5)	500 (56.5)
68	40 (4.5)	100 (11.3)	200 (22.6)	500 (56.5)	600 (67.8)	700 (79.1)	700 (79.1)

Carbon Steel Valve Body with Carbon Steel B7 Body Bolts

Valve Series	Torque Value in.·lb (N·m)						
	1st	2nd	3rd	4th	5th	6th	7th
63	10 (1.1)	20 (2.3)	40 (4.5)	80 (9.0)	125 (14.1)	125 (14.1)	—
65	25 (2.8)	50 (5.7)	100 (11.3)	200 (22.6)	300 (33.9)	400 (45.2)	400 (45.2)
67	35 (4.0)	75 (8.5)	150 (17.0)	300 (33.9)	375 (42.4)	450 (50.9)	450 (50.9)
68	40 (4.5)	100 (11.3)	200 (22.6)	500 (56.5)	600 (67.8)	700 (79.1)	700 (79.1)

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Figure #1

