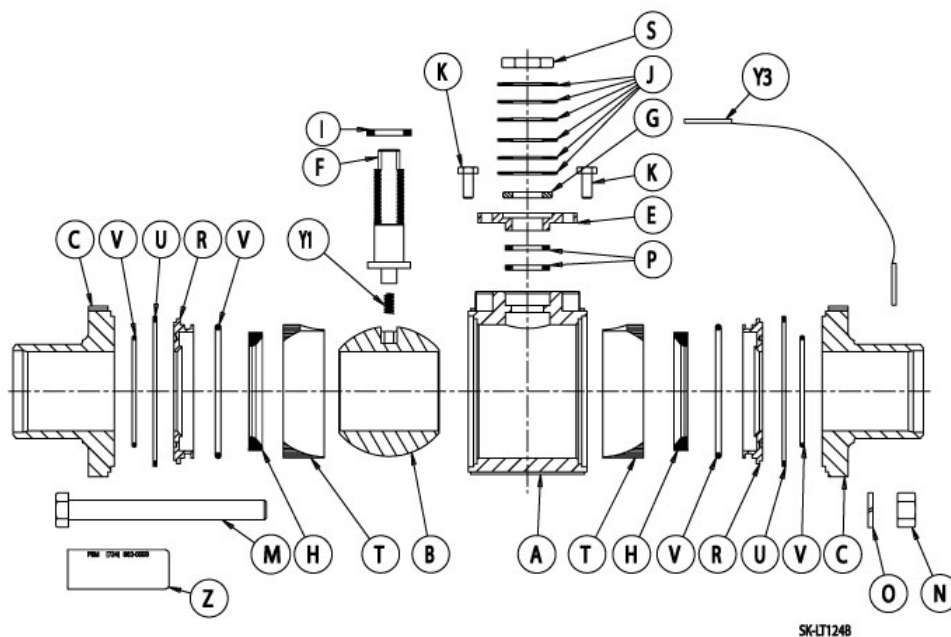


# MAINTENANCE INSTRUCTIONS

## 2-Way and Flush Tank Ball Valves API-607 Edition 4, Fire-Test, Series 6 SI, SP & FI, FT Series ½" - 3" Factory Actuated



COMPONENT LIST	
Item	Description
A	Body
B	Ball
C	End Fitting
E	Gland Plate
F	Stem
G	Gland Bearing
H	Seat
I	Stem Packing
J	Spring Washers
K	Gland Bolt
M	End Fitting Fastener
N	Hex Nut
O	Lock Washer
P	Graphite Packings
R	Metal Seat Ring
S	Jam Nut
T	Cavity Filler
U	Graphite Gasket
V	O-ring
Y1	Internal Ground Spring
Y3	External Ground Wire
Z	Tag



SK-LT1248

Follow instructions to ensure optimum performance:

### Adjusting for Packing Wear

Should packing leakage occur in service, the following adjustment can be performed. The piping need not be depressurized to perform this adjustment.

1. Remove the actuator, mounting adapter and insert from the valve body.
2. For valves 2" and smaller, tighten the jam nut on the stem to completely compress the spring washers then back the nut off 1/2 turn. For 2-1/2" and 3" valves, tighten this jam nut until the gap between adjacent spring washers is 0.05" (1.3 mm).
3. Reinstall the actuator, insert, and mounting adapter.
4. If this adjustment does not stop the leakage, the packing should be replaced.

### Installing Replacement Parts

1. Depressurize the piping at the valve then cycle the valve to ensure there is no trapped pressure or fluid in the valve cavity. Remove the actuator, mounting adapter, and insert from the valve body.
2. If:
  - a) **The entire valve**, including end fittings, is to be removed from the piping, disconnect the end fitting connections from the piping and remove the valve. Then loosen and remove the body fasteners, lock washers, and tag.
  - b) **Only the body section of the valve** is to be removed, loosen and remove the body fasteners, lock washers, and tag. Spring the piping away from the valve about 0.125" (3.2 mm), then remove the body section from between the end fittings.
  - c) **The body is to be swung out** from between the end fittings loosen and remove all but one fastener with lock washer and remove the tag. Then loosen, but do not remove, the remaining fastener. Spring the piping about

- 0.125" (3.2 mm), then swing the body section around the remaining body fastener until it clears the end fittings.
3. Close the valve, then remove the O-ring (from behind the metal seat ring), the metal seat ring, the graphite gasket, the seat, and the O-ring attached to the O.D. of the metal seat ring from each side of the body.
4. Remove the cavity fillers (if installed) from each side of the body.
5. Carefully remove the ball from the body by pushing it out one of the open ends. Take care not to nick or scratch the ball. Remove the ground spring from the underside of the stem.
6. Loosen and remove the jam nut on the stem.
7. Remove the spring washers, ground wire, and stem bearing.
8. Loosen and remove the two cap screws which secure the gland plate, then remove the gland plate.
9. Push the stem down into the body and remove it through one of the open ends of the body.
10. Remove the bottom packing from the stem or the counterbore at the I.D. of the body.
11. Remove the graphite packings.
12. Before reassembling the valve, examine the parts and repair or replace damaged or worn parts. Clean metal parts, as necessary, using a non-abrasive cloth and a suitable solvent. PBM recommends using new seats, stem packings, and O-rings at each assembly. The graphite packings and gaskets must be replaced at each assembly as they become damaged at disassembly.
13. Place a new packing on the stem, allowing it to rest on the flange of the stem.
14. Insert the stem into the body bore and through the stem bore in the body. While supporting the stem, install the graphite packings over the stem and into the packing bore.
15. Coat the threads of the fasteners that secure the gland plate with Loctite® 242®, or equivalent.

16. Install the gland plate over the stem and secure it by installing and tightening the gland plate fasteners. (Please note that overtightening these fasteners significantly raises stem torque.) There should be a gap between the gland plate and the body.
17. Slide the stem bearing onto the stem until it rests in the counterbore of the gland plate.
18. Install two spring washers with the cupped sides facing each other (series arrangement) then slide the ground wire terminal over the stem. Install the remaining spring washers in this same series arrangement.
19. Coat the stem threads with an anti-galling thread compound, then thread the jam nut onto the stem.
20. For valves 2" and smaller, tighten this jam nut to completely compress the spring washers, then back the nut off 1/2 turn. For 2-1/2" and 3" valves, tighten this jam nut until the gap between adjacent spring washers is 0.05" (1.3 mm).
21. Install the handle such that the right side of the handle contacts the stop pin in both the open and closed positions. Install and tighten the remaining jam nut to secure the handle.
22. Turn the stem to the closed position.
23. Insert the internal ground spring into the hole in the bottom of the stem.
24. Slide the ball into the body, allowing the stem slot in the ball to engage the tang on the stem. Take care not to nick or scratch the ball.
25. Install the cavity fillers, if any, into the ends of the body.
26. Insert the seats into the grooves of the metal seat ring, and install the larger O-ring into the O.D. groove of the metal seat ring.
27. Lubricate the first 0.25" (6.4 mm) of each end of the body bore with a lubricant compatible with the process fluid. This lubricant helps prevent O-ring cutting when installing the metal seat ring.
28. Push a metal seat ring into each end of the body until the seats contact the ball.
29. Lubricate the O-ring groove in the back of each metal seat ring with a lubricant compatible with the process fluid. This lubrication helps hold the O-ring in place.
30. Install the smaller O-rings into the groove in the back of each seat ring.
31. Lubricate the groove for the graphite gasket in the back of each seat ring with a lubricant compatible with the process fluid. This lubrication helps hold the gasket in place.
32. Install the graphite gasket in the groove in the back of each seat ring.
33. Install the body between each end fitting and install all body fasteners, lock washers, and tag while installing the external ground wire between one body fastener and an end fitting.
34. Align the end fittings such that they enter the body bore. Tighten the body fasteners until tight. If the piping is sprung, it should be released before tightening these fasteners.
35. If the valve was removed from the piping it should be reinstalled.
36. If practical, leak test the seats and seals and operate the valve to verify ease of operation.
37. Install the actuator, mounting adapter, and insert.
38. If applicable, insulate the valve

**NOTES:**

1. PBM recommends replacement of a valve exposed to fire.

Valve Size	SP, FT Repair Kit (TFM™, Viton® O-rings)	SI, FI Repair Kit (TFM™, Viton® O-rings)
1/2"	SPTFC6--G--1	SITFC6--G--1
3/4"	SPTFD6--G--1	SITFD6--G--1
1"	SPTFE6--G--1	SITFE6--G--1
1-1/2"	SPTFG6--G--1	SITFG6--G--1
2"	SPTFH6--G--1	SITFH6--G--1
2-1/2"	SPTFJ6--G--1	SITFJ6--G--1
3"	SPTFK6--G--1	SITFK6--G--1

**Notes for Table 1:**

1. Standard repair kits include 2 TFM™ seats, 2 graphite gaskets, 2 graphite packings, 1 TFM™ packing, 1 PEEK™ stem bearing, and 4 Viton® O-rings.
2. Standard repair kits and replacement parts are TFM™.
3. Replacement parts are one each per part number.
4. For materials other than TFM™ substitute the correct material ID and code.

**Material Definitions**

TF	TFM™	Chemically modified polytetrafluoroethylene
RT	RTFE	Glass Reinforced Polytetrafluoroethylene
VT	VTFE	Virgin Polytetrafluoroethylene
HT	S-TEF®	Stainless steel reinforced polytetrafluoroethylene
PK	PEEK™	Polyetheretherketone

