

# Seal Replacement Kit 65990001

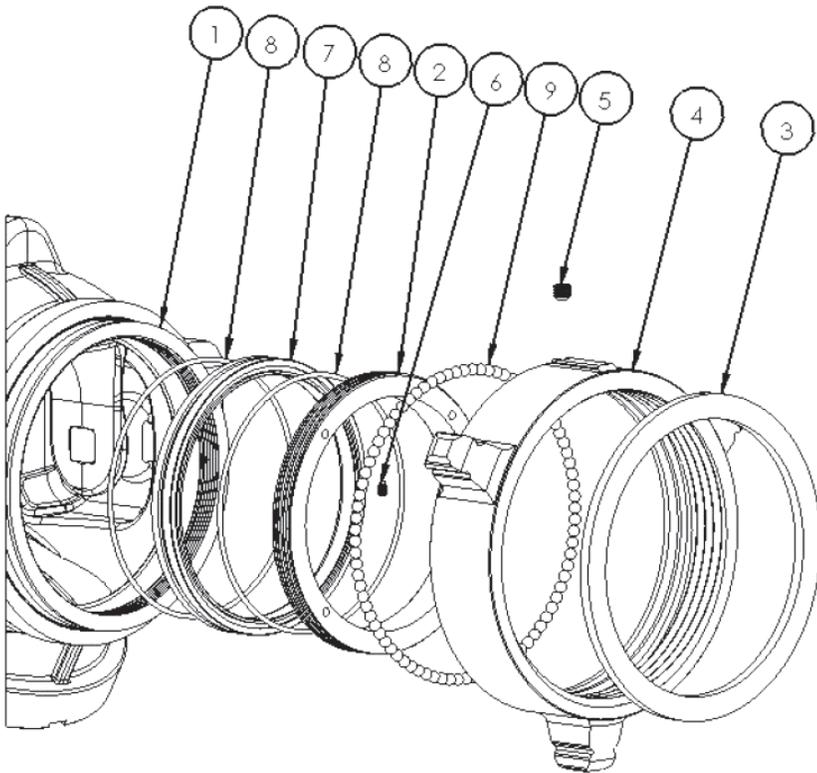
For Elkhart Brass 1902 Intake Valve

This service kit includes the parts required to replace the valve seat, common o-ring, swivel gasket of an Elkhart Brass 1902 intake valve.

## Valve Seat Replacement

I. DISASSEMBLY (If intake seat tool 81993001 is used, skip steps 3-5)

1. Turn the valve to the open position.
2. Remove the swivel gasket (33184000).
3. Loosen the set screw (65262000) that secures ring adapter (12106007) to the outlet adapter (12105007).
4. Remove the set screw (65264000) that secures the 0.250 ball bearings (15036000) in the ball groove of the swivel (636116007).
5. Using a cup or container, rotate the swivel until all the ball bearings (15036000) have been removed. Remove the swivel from the assembly.
6. Using a 3/16" face spanner wrench or an Elkhart Brass seat removal tool (81993001), remove the ring adapter (12106007) from the assembly by turning counterclockwise. Clean ring adapter (12106007) and set aside.
7. Remove the old seat (61373000) and seat o-rings (59237000) from the assembly.
8. Clean the internal threads of the outlet adapter (12105007).



9	15036000	BALL (0.250 DIA) TORLOH	84
8	59237000	O-RING AS-568-161	2
7	61373000	SEAT-BIV	1
6	65262000	SCREW-10-32 SET BRASS TIP	1
5	65264000	.375-16X.312 18-8 SS Cup-Point Set Screw	1
4	63116007	SWIVEL-6" ALUM BM	1
3	33184000	GASKET-6" NH	1
2	12106007	RING-ADAPTER	1
1	12105007	ADAPTER-OUTLET	1
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

## II. REASSEMBLY

NOTE: Lubricate all O-rings with Parker O-Ring Lube or equivalent lubricant. (If intake seat tool 81993001 is used, skip steps 6-7)

1. 1. Verify that the valve is in the open position.
2. 2. Install the new seat o-ring (59237000) on the outer diameter of the seat (61373000). Place a thin layer of lubricant or Parker O-ring Lube on the rear seat o-ring face groove. This aids in keeping the o-ring in place during installation. Install the rear seat o-ring (59237000) in the face groove.
3. 3. Install the new seat (61373000) in the outlet adapter (12105007) being careful not to damage the o-ring (59237000).
4. 4. Install the ring adapter (12106007) into the outlet adapter (12105007).
5. 5. Using a 3/16" face spanner wrench or the Elkhart Brass seat removal tool (81993001), tighten the ring adapter (12106007) by turning clockwise until the ring adapter face is flush with the face of the outlet adapter (12105007).
6. 6. Install the swivel (63116007) onto the outlet adapter (12105007) and secure using the 0.250 ball bearings (15036000). Install the set screw (65264000) that secures the ball bearings in the assembly using Loctite 243 or equivalent. Tighten the set screw down and down back off ¼ to ½ turn.
7. 7. Tighten the set screw (65262000) that that secures the ring adapter (12106007) to the outlet adapter (12105007). Torque to 14-16 in-lbs.
8. 8. Install the swivel gasket (33184000) in the swivel.
9. 9. Actuate the valve open to close, close to open a few times. If the valve has increased opening or closing force, minor adjustments can be made by turning the ring adapter clockwise (increase) or counter clockwise (decrease). Make sure to loosen the set screw (65262000) before any adjustment is made.

### Intake Seat Tool: 81993001



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# Seal and Valve Ball Replacement Kit 65992001

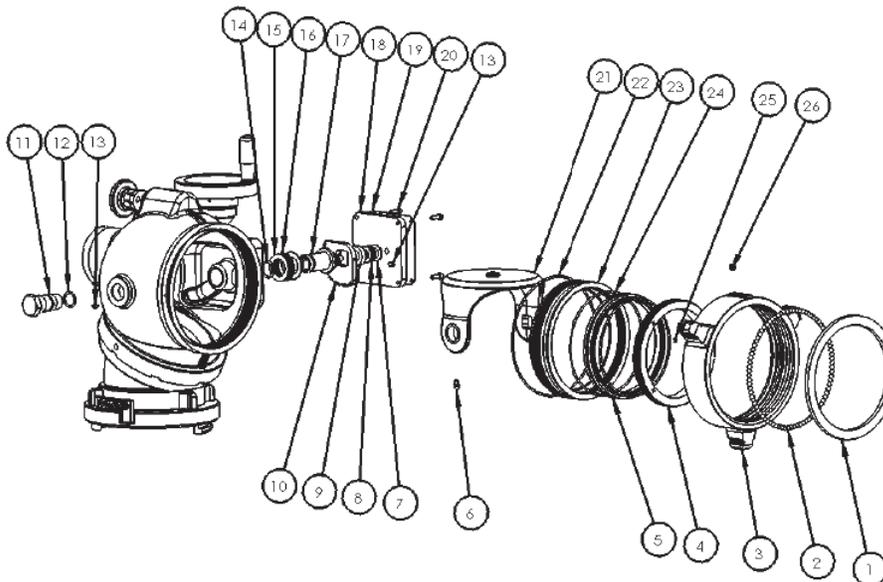
For Elkhart Brass 1902 Intake Valve

This service kit includes the parts required to replace the valve ball and common o-rings of an Elkhart Brass 1902 intake valve.

## Ball Replacement

### I. DISASSEMBLY

1. Turn the valve to the open position.
2. Remove the swivel gasket (33184000).
3. Loosen the set screw (65262000) that secures ring adapter (12106007) to the outlet adapter (12105007).
4. Remove the set screw (65264000) that secures the 0.250 ball bearings (15036000) in the ball groove of the swivel (636116007).
5. Using a cup or container, rotate the swivel until all the ball bearings (15036000) have been removed. Remove the swivel from the assembly.
6. Using a 3/16" face spanner wrench or a Elkhart Brass seat removal tool (81993001), remove the ring adapter (12106007) from the assembly. Clean ring adapter (12106007) and set aside.
7. Remove the seat (61373000) and seat o-rings (59237000) from the assembly.
8. Remove set screw (63691000) in the assembly body. Using a 3/16" pin spanner, remove the outlet adapter (12105007) from the assembly body.
9. Remove the pivot shaft (65946001) from the assembly body. Remove o-ring (57299000) from the pivot shaft (65946001).
10. Remove the four #10-32 screws (61046000) from the gear case cover. Remove thrust washers (71511000), thrust bearing (15698000), and spacer (67704001) from the assembly.
11. Loosen set screw (63691000) from the worm gear (33614001). Remove the worm gear (33614001) from the actuator shaft (65944001).
12. Remove the actuator shaft (65944001) from the assembly. Remove o-ring (57292000) from the actuator shaft (65944001).
13. Remove the valve ball (17345001) from the assembly.
14. Clean all disassembled parts.



26	65264000	375-16X 312 18-8 SS Cup-Point Set Screw	1
25	65262000	SCREW 10-32 SET BRASS TYP	1
24	59237000	O-RING AS-565-161	2
23	12105007	ADAPTER-O-UTLET	1
22	69239000	O-RING-AS-569-166	1
21	17345001	BALL MV	1
20	61046000	SCREW 10-32 NO 625 SOC CAP SS	8
19	51843001	LABEL-PLATE MV	1
18	24747007	COVER-GEAR CASE	1
17	65944001	SHAFT-ACTUATOR MV	1
16	18384000	BEARING-THRUST 1"	1
15	71529500	WASHER-THRUST 1"	2
14	57292000	O-RING AS-569-117 .799 X.103	1
13	63691000	SCREW 10-32 NO.375 SOC SET SS	2
12	67999000	O-RING AS-568-116 .737 X.103	1
11	65946001	SHAFT-PIVOT	1
10	33614001	GEAR WORM MV	1
9	67704001	SPACER	1
8	15698000	BEARING THRUST 1/2"	1
7	71611000	Washer Thrust for 2540 1/2" SS	2
6	31011000	Grease Filling (M16 D.R-SS)	1
5	61373000	SEAT BM	1
4	12106007	RNG-ADAPTER	1
3	636116007	SWIVEL-ALUMINA BV	1
2	18036000	BALL (0.250 DIA) TYPICAL	84
1	33184000	GASKET-O-RH	1
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

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## II. REASSEMBLY

NOTE: Lubricate all O-rings with Parker O-Ring Lube or equivalent lubricant.

1. Press grease fitting (31011000) into valve ball (17345001). A ¼ inch socket can be used for the installation.
2. Install the ball (17345001) into the assembly body. The square on the valve ball (17345001) faces towards the gear case of the valve, the circle faces towards the pivot shaft. Orient the flat face of the ball toward the bleeder valve of the assembly as shown in the drawing above.
3. Install thrust washers (71529000) and thrust bearing (18336000) onto the actuator shaft (65944001). Install o-ring (57292000) onto the actuator shaft (65944001). While aligning the square of the actuator shaft (65944001) to the square of the valve ball (17345001), press the actuator shaft (65944001) into the valve assembly.
4. Install o-ring (57299000) on the pivot shaft (65946001). While aligning with the round hole of valve ball, install the pivot shaft (65946001) into the assembly body using Loctite 243 or equivalent. Torque to 55-60 ft-lbs.
5. Install the worm gear (33614001) on the actuator shaft (65944001). With the flat of the valve ball oriented towards the bleeder valve as shown in the drawing above, the flat of the worm gear should be towards the bottom gearcase as shown in Figure 1 below. Install set screw (63619000) using Loctite 243 or equivalent into the worm gear. Tighten to 14-16 in-lbs.

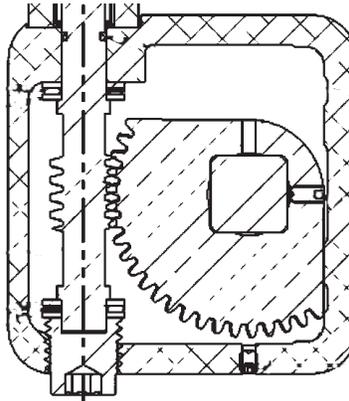


FIGURE 1

6. Install spacer (67704001), thrust washers (71511000), and thrust bearing (15698000) on the actuator shaft (65944001).
7. Install gear case cover (24747001) and label (51843001) onto the actuator shaft (65944001).
8. Align label holes to holes in gear case, install (4) #10-32 screws (61046000) using Loctite 243 or equivalent. Tighten to 20-22 in-lbs.
9. Install o-ring (59238000) into valve assembly body.
10. Using a 3/16" pin spanner, install outlet adapter (12105007) into the valve assembly body. Tighten until the shoulder of the adapter bottoms out in the recess of the assembly body. Make sure to not pinch the o-ring (59238000). Install set screw (63691000) in the valve assembly body using Loctite 243 or equivalent. Tighten to 14-16 in-lbs.
11. Verify that the valve is in the open position.
12. Install the seat o-ring (59237000) on the outer diameter of the seat (61373000). Place a thin layer of grease or Parker O-ring Lube on the rear seat o-ring face groove. This aids in keeping the o-ring in place during installation. Install the rear seat o-ring (59237000) in the face groove.
13. Install the seat (61373000) in the outlet adapter (12105007) being careful not to damage the o-ring (59237000).

14. Install the ring adapter (12106007) into the outlet adapter (12105007).
15. Using a 3/16" face spanner wrench or a Elkhart Brass seat removal tool (81993001), tighten the ring adapter (12106007) until the ring adapter face is flush with the face of the outlet adapter (12105007).
16. Install the swivel (63116007) onto the outlet adapter (12105007) and secure using the 0.250 ball bearings (15036000). Install the set screw (65264000) that secures the ball bearings in the assembly using Loctite 243 or equivalent. Tighten the set screw down and down back off ¼ to ½ turn.
17. Tighten the set screw (65262000) that that secures the ring adapter (12106007) to the outlet adapter (12105007). Tighten to 14-16 in-lbs.
18. Install the swivel gasket (33184000) in the swivel.
19. Actuate the valve open to close, close to open a few times. If the valve has increased opening or closing force, minor adjustments can be made by turning the ring adapter clockwise (increase) or counter clockwise (decrease). Make sure to loosen the set screw (65262000) before any adjustment is made.