

IMO-302

ISSUE 5/96

16" - 30" 815W

16" - 60" 815L

14" - 16" 830W AND 830L

14" - 24" 860W AND 860L

WAFER-SPHERE® BUTTERFLY VALVES

INSTALLATION, MAINTENANCE
AND OPERATING INSTRUCTIONS

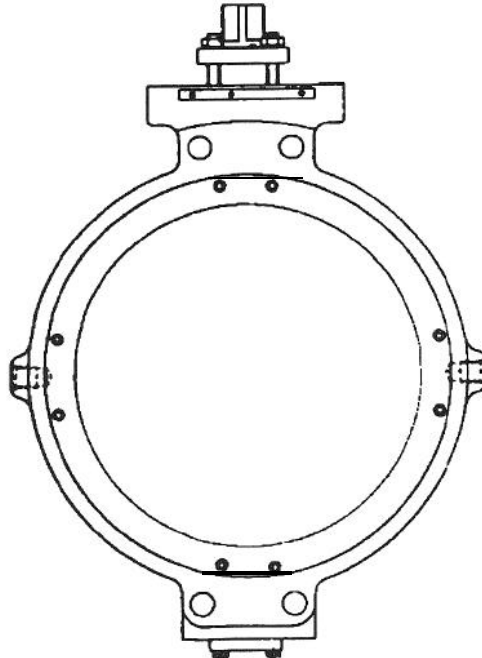


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READ THESE INSTRUCTIONS FIRST!

These instructions provide information about safe handling and operation of the valve.

If you require additional assistance, please contact your authorized Neles-Jamesbury distributor or representative.

For address and phone number, call Neles-Jamesbury at (508) 852-0200.

SAVE THESE INSTRUCTIONS!

Subject to change without notice.

1 GENERAL

1.1 WARNING

SAFETY FIRST: FOR YOUR SAFETY, TAKE THE FOLLOWING PRECAUTIONS BEFORE REMOVING THE VALVE FROM THE LINE. OR BEFORE ANY DISASSEMBLY:

1. WHAT'S IN THE LINE?

BE SURE YOU KNOW WHAT FLUID IS IN THE LINE. IF THERE IS ANY DOUBT, DOUBLE-CHECK WITH THE PROPER SUPERVISOR

2. ARE YOU PROTECTED?

WEAR ANY PROTECTIVE CLOTHING AND EQUIPMENT NORMALLY REQUIRED TO AVOID INJURY FROM THE PARTICULAR FLUID IN THE LINE.

3. IS THE LINE DEPRESSURIZED?

DEPRESSURIZE THE LINE AND DRAIN THE SYSTEM FLUID. THE WAFER-SPHERE® OFFSET SHAFT CREATES GREATER DISC AREA ON ONE SIDE OF THE SHAFT. THIS MEANS

THAT A WAFER-SPHERE® VALVE TENDS TO OPEN WHEN PRESSURIZED ON THE INSERT SIDE WITHOUT AN ACTUATOR ON THE VALVE. **NOTE:** DO NOT PRESSURIZE THE VALVE WITHOUT AN ACTUATOR MOUNTED ON IT. DO NOT REMOVE AN ACTUATOR FROM A VALVE UNDER PRESSURE.

4. IS THE VALVE CLOSED?

BEFORE YOU INSTALL A WAFER-SPHERE® VALVE IN, OR REMOVE IT FROM THE LINE, CYCLE THE VALVE FULLY CLOSED. THE WAFER-SPHERE® VALVE MUST BE REMOVED FROM THE LINE IN THE CLOSED POSITION. THIS WILL PREVENT MECHANICAL DAMAGE TO THE DISC SEALING EDGE.

WARNING: AT ALL TIMES KEEP HANDS OUT OF THE WATERWAY OF THE VALVE. A VALVE WITH AN ACTUATOR COULD CLOSE UNEXPECTEDLY AT ANY TIME AND RESULT IN SERIOUS INJURY.

SERIES 815W 16" - 30" VALVES

ANSI CLASS 150 WAFER DESIGN

SERIES 830W 14" AND 16" VALVES

ANSI CLASS 300 WAFER DESIGN

SERIES 860W 14" - 24" VALVES

ANSI CLASS 600 WAFER DESIGN

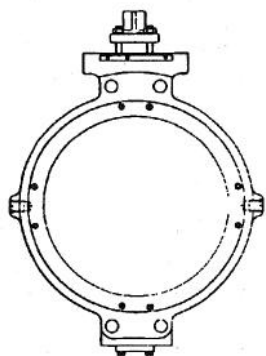


Figure 1

SERIES 815L 16" - 60" VALVES

ANSI CLASS 150 SINGLE FLANGE LUGGED DESIGN

SERIES 830L 14" AND 16" VALVES

ANSI CLASS 300 SINGLE LUGGED DESIGN

SERIES 860L 14" - 24" VALVES

ANSI CLASS 600 FLANGE LUGGED DESIGN

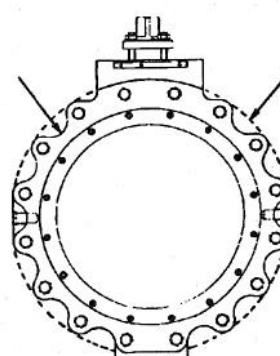
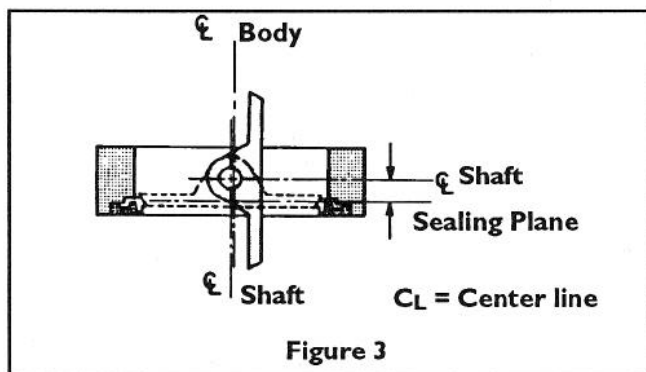


Figure 2

1.2 Description

The Neles-Jamesbury Wafer-Sphere® valve is a high performance butterfly valve design. **IMPORTANT NOTE:** Maximum shut-off pressure rating depends on the materials chosen. Refer to the tag attached to each valve for this rating. Do not use a valve at service conditions that exceed the rating of the tag.



Eccentric Shaft Design

One of the design features of the Wafer-Sphere® valve that is responsible for its' superior performance is the valve's eccentric shaft design. The shaft is offset in two planes: (1) away from the valve disc center line; and (2) behind the disc sealing plane (See Figure 3). The offset shaft design makes the disc lift completely off the seat as the valve starts to open, eliminating wear points at the top and bottom of the seat. Because the disc rotates in an eccentric arc, it operates in one quadrant only (See Figure 3).

Positive Stop Feature

To prevent seat damage from over-travel of the disc beyond the closed position (primarily during field mounting of a handle or actuator), a "positive stop" feature has been designed into the Wafer-Sphere® butterfly valve. The positive stop feature also makes it possible to adjust the actuator travel stops in-line. The location of this feature is in the body, See Figure 5.

2 INSTALLATION

1. WAFER-SPHERE VALVES WITH TFE OR POLYMERIC SEAT

For lowest torque requirements, these Wafer-Sphere® butterfly valves should be installed with the insert toward the higher pressure (shaft downstream).

II. GENERAL INFORMATION

1. Read the **WARNING** section carefully.
2. **IMPORTANT:** ONLY the operating actuator stop set screws must be used to stop the disc in position. **DO NOT** use the "positive stop" by itself to limit actuator travel.
3. Visually check the position of the disc when the valve is in the **closed** position and the insert is fully compressed. There should be .010" to .040" clearance between the disc and the "positive stop" in the body.
4. Before installing the closed valve in the line, be sure that the actuator is attached so that a counterclockwise rotation, viewed from above, opens the valve (See Figure 3). Again, fully close the valve before installing it in the line.
5. **CAUTION:** The Wafer-Sphere® butterfly valve should be centered between flanges to prevent any damage to the disc or shaft which will be caused by the disc striking the pipe wall.

6. The valve should be installed with 1/16" thick gasket material having a minimum durometer hardness of 70 shore D. **NOTE.** **DO NOT** use thick rubber or other gaskets of a "spongy" consistency.

7. For optimum performance, compress the gasket uniformly. Tighten the flange bolts in a sequence such as that shown in Figure 4. Recommended torque values for bolting are listed in Table I.

If there is weepage past the shaft seal upon installation, it means the valve may have been subject to wide temperature variations in shipment. Leak tight performance will be restored by a simple packing adjustment described in the **MAINTENANCE** section.

Table I		
Flange Bolt Torque Table		
Valve Size	Bolt Diameter (INCHES)	Torque Grade 5 Bolts* (lb. - Ft.)
14" Class 300	1 1/8	780
14" Class 600	1 3/8	1460
16" Class 150	1	580
16" Class 300	1 1/4	1100
16" Class 600	1 1/2	1750
18" Class 150	1 1/8	780
18" Class 600	1 5/8	2390
20" Class 150	1 1/8	780
20" Class 600	1 5/8	2390
24" Class 150	1 1/4	1100
24" Class 600	1 7/8	4190
30" Class 150	1 1/4	1100
36" Class 150	1 1/2	1750
42" Class 150	1 1/2	1750
48" Class 150	1 1/2	1750
54" Class 150	1 3/4	3150
60" Class 150	1 3/4	3150

* USE 50% OF THESE VALUES FOR STAINLESS STEEL BOLTS.

3 MAINTENANCE

3.1 General

Routine maintenance consists of tightening down the compression plate periodically to compensate for seal wear. The valve should be closed during tightening. The compression plate, however, should not be tightened down too severely, since this will shorten the life of the seals. More extensive maintenance such as seat, seal and bearing replacement is described below. Numbers in () refer to items shown in Figure 5. See page 11 for Service Kits.

3.2 Valve Removal

1. Read the **WARNING** Section carefully.
2. Valve must be fully closed before sliding it out of the pipeline.
3. **CAUTION:** Valves equipped with fail-open (air-to-close) spring-return actuators must be disconnected from the actuators and then closed, or there must be sufficient air pressure supplied to the actuator to close the valve while removing it from the pipeline. After valve removal, slowly relieve the pressure in the actuator.

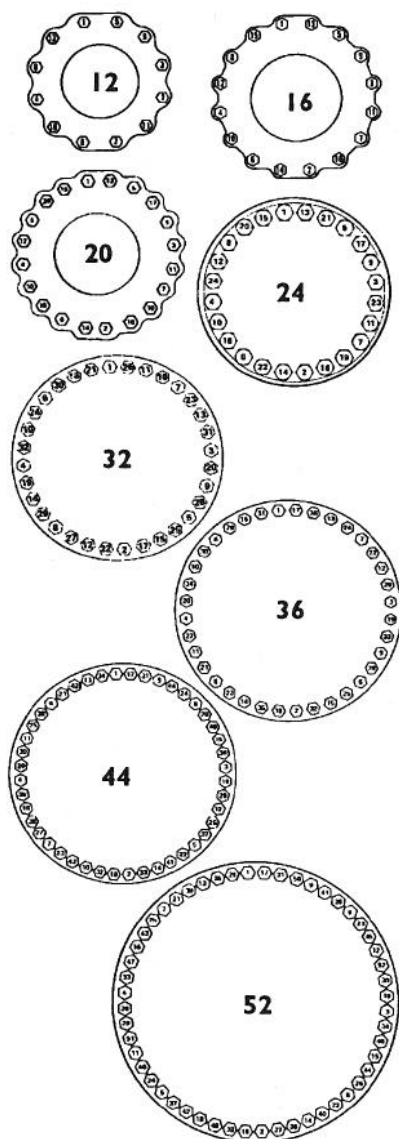


Figure 4

Table 2

Insert Screw Torque Table
(LB. - FT. Unless Otherwise Spec.)

Valve Size- ANSI CL. 150/300/600	Screw Size	Torque C'Stl.	Torque St. Stl.
14	3/8"	37/55	15/22
16 (150,300)	3/8"	37/55	15/22
16 (600)	1/2"	90/132	30/44
18	1/2"	90/132	30/44
20	1/2"	90/132	30/44
24	1/2"	90/132	30/44
30	1/2"	90/132	30/44
36	1/2"	90/132	30/44
42	1/2"	90/132	30/44
54	1/2"	90/132	30/44
60	1/2"	90/132	30/44

Torque values shown are lower/upper limits.

3.3 Seat Replacement Non-FIRE-TITE® Valves

1. After removing the valve from the line, place it on a bench and cycle it open. Take care not to damage the sealing edge of the valve disc.
2. Remove the insert screws (21) and the insert (2). If the insert does not lift out easily, tap it out from the shaft side using a wooden or plastic rod and a hammer. Don't strike the valve directly with the hammer.
3. Remove the seat (5) and discard it.
4. Clean the valve.
5. Carefully clean and polish the disc sealing surface. It should be free of all grooves and scratches.
6. If the disc is slightly damaged it may be possible to smooth the sealing surface with crocus cloth, a fine stone, or the equivalent. If deep scratches are present replace the disc or return the valve to the factory for service.
7. Cycle the valve closed.
8. Install the seat into the insert.
9. Replace the insert and seat together using the insert screws. Tighten the screws uniformly in a sequence such as shown in Figure 4. Torque values are given in Table 2. Whenever possible, open valve and retorque the insert screws per Fig. 4 and Table 2. Take care not to damage the sealing edge of the disc. Close the valve.
10. Set the actuator stops as described in the appropriate actuator IMO listed on page 9.

NOTE: After the installation of a new seat, the torque will be higher for a few cycles. Valve Testing Procedures are outlined on page 8.

3.4 Shaft Seal (Packing) Replacement

1. Remove the actuator.
2. Remove the indicator pointer (29) from the shaft. Pull it straight out with a pair of pliers to avoid breaking it off.
3. Remove the nuts (15) and washers (16) from above the compression plate (10). Remove the compression plate. The studs (14) do not have to be removed.
4. Remove the compression ring (9) (30" - 60" Type 815, 14" - 16" Type 830, 14" - 24" Type 860 only).
5. Remove the old shaft packing (8) with a packing tool.
6. The spacer (7) need not be removed for shaft packing replacement.
7. Replace the old packing with new packing. **NOTE:** If the packing is of the TFE chevron type, keep the packing rings stacked in the same order as removed from the kit. Note orientation in Figure 5.
8. Reinstall the compression ring (9) (30" - 60" Type 815, 14" - 16" Type 830, 14" - 24" Type 860 only), the compression plate (10), the lockwashers (16) nuts (15) and the indicator pointer (29). Be sure that the indicator plate is under the pointer.
9. Close the valve (the seat and insert should be installed in the valve at this point).
10. Tighten the nuts (15) evenly until the packing is adequately compressed to prevent leakage. This should require tightening the nuts approximately 1-1/2 to 2 full turns past the "finger-tight" position.

Exploded View

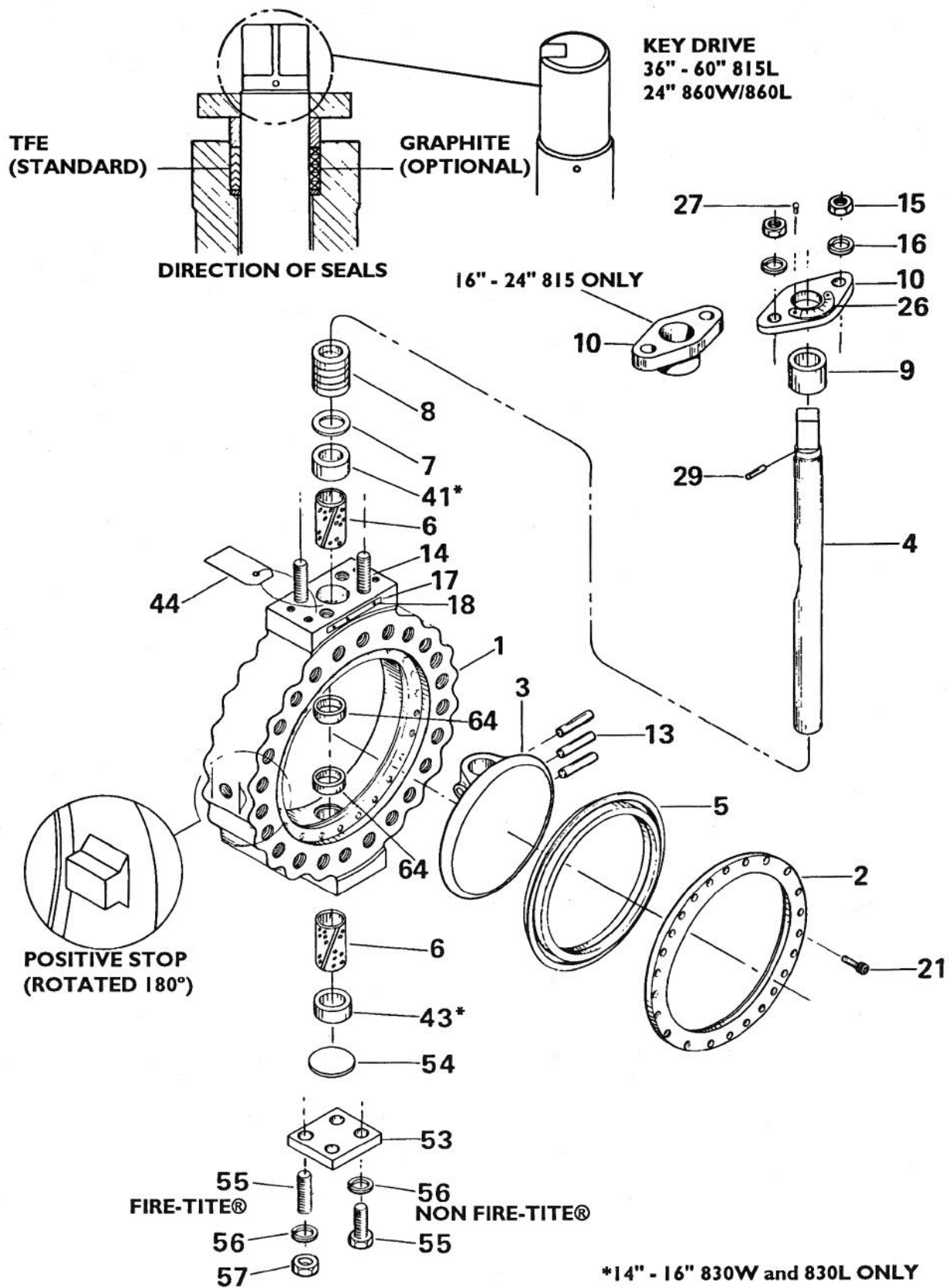


Figure 5

Valve Parts		
Item No.	Part Name	Qty.
1	BODY	1
2	INSERT	1
3	DISC	1
4	SHAFT	1
5	SEAT	1
6	SHAFT BEARING	2
7	SPACER	1
8	SHAFT SEAL	1
9	COMPRESSION RING**	1
10	COMPRESSION PLATE**	1
13	WEDGE PIN	2 - 3 - 4
14	STUD	2
15	JAM NUT	2
16	LOCKWASHER	2
17	NAMEPLATE	1
18	DRIVE SCREW	3
21	SOCKET HEAD CAP SCREW	AS REQ'D.
26	INDICATOR PLATE**	1
27	DRIVE SCREW**	2
29	INDICATOR POINTER	1
41	TOP BEARING SPACER*	1
43	BOTTOM BEARING SPACER*	1
44	TAG	1
53	COVER PLATE	1
54	GASKET	1
55	CAP SCREW/STUD	AS REQ'D.
56	LOCKWASHER	AS REQ'D.
57	NUT, HEAVY HEX	AS REQ'D.
64	THRUST BEARING	2

* 14" - 16" 830W AND 830L ONLY.
 ** ON 16" - 24" TYPE 815 OMIT ITEMS 26 AND 27.
 ITEMS 9 AND 10 ARE ONE PIECE.

3.5 Valve Disassembly

- Place the valve on a bench or other suitable working space.
- If the seat is to be replaced, follow steps 2 and 3 in the SEAT REPLACEMENT section.
- Remove the shaft packing compression hardware as detailed in steps 1 through 4 in the SHAFT SEAL REPLACEMENT section. The packing material itself can be removed more easily after the shaft has been removed from the valve.
- Remove the disc pin welds by grinding or machining off the weld. Drive out the pins in the direction shown in Figure 5. Remove the cap screws (55) and lo&washers (56). Remove the cover plate (53) and gasket (54).
- Use a soft rod and hammer to tap the bottom of the shaft (4). Remove it through the top of the valve. NOTE: In doing so, and freeing the disc, be careful not to scratch the sealing surface of the disc.
- Remove the packing (8) and the spacer (7) (also the spacer (41) in 14" - 16" 830W and 830L valves).
- Remove the top bearing (6) either through the top of the valve or the waterway.
- Remove the bottom bearing (6) either from the bottom of the valve or the waterway (also the spacer (43) in 14" - 16" 830W and 830L valves).

3.6 Valve Assembly

- Clean all valve components.
- Inspect all components for damage before starting to assemble the valve. Look especially for damage to sealing areas on the disc, shaft, and body, and for wear in the bearing areas of the shaft and body.
- Carefully clean and polish the disc sealing surface. It should be free of all grooves and scratches.
- If the disc is slightly damaged it may be possible to smooth the sealing surface with crocus cloth, a fine stone. or the equivalent. If deep scratches are present replace the disc or return the valve to the factory for service.
- Install the bearings (6) into the body bores.
- Coat the shaft and the disc bore lightly with a lubricant compatible with the fluid to be handled by the valve.
- Position the disc (3) in the body between the thrust bearings (64) and slide the shaft (4) through the body and disc. Use caution to prevent damage to the bearings. An arrow and the word "bonnet" on the disc indicates correct orientation with the compression plate (10).
- Insert the disc pins (13) and drive them into place. The pins must be driven so that all pins are the same depth within $\pm 1/16"$. Be certain that the pins are installed from the direction shown in Figure 5. Weld both ends of the pins, small end first. After the disc cools, clean the welds with a wire brush. CAUTION: Use care to keep contamination out of the valve.
- Install the upper bearing spacer (41) in 14" - 16" 830W and 830L valves only, the spacer (7) the packing (8) the compression ring (9) (30" - 60" Type 815, 14" - 16" Type 830, 14" - 24" Type 860 only). If the packing is of the TFE chevron type, be certain that it is installed in the orientation shown in Figure 5.
- If the studs (14) have been removed from the valve, reinstall them in the holes shown in Figure 5.
- Place the compression plate (10) over the shaft (4) and studs (14). Orient the plate so that the indicator pointer will be over the indicator plate. Install the lo&washers (16) and nuts (15). but do not tighten. Install the indicator pointer in the shaft.
- On valves with cover plates, install bottom bearing spacer (43) in 14" - 16" 830W and 830L valves only. Assemble the cover plate (53) and gasket (54) to the cap screws (55) and lo&washers (56). Torque the cap screws per Table 3.
- Cycle the valve fully closed. If the seat is to be replaced as recommended, do so at this point. See the SEAT REPLACEMENT section as applicable for details.
- Install the seat (5) and insert (2) and insert screws (21) as shown in Figure 5. TORQUE VALUES ARE GIVEN IN TABLE 2.
- With the valve still closed, tighten the nuts (15) on the compression plate evenly until the packing is adequately compressed to prevent leakage. This should require tightening the nuts approximately 1-1/2 to 2 full turns past the "finger-tight" position.

Table 3

Standard Torque Table										
BOLT SIZE	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
TORQUE LB. - FT.	10/7	20/14	33/23	55/38	83/56	121/83	165/113	275/188	413/281	638/435

4 VALVE TESTING PROCEDURE

Should it become necessary to perform a leak test of the valve prior to its installation in the pipeline, follow the procedure outlined below.

1. In the following test suitable gaskets or seals are required between the faces of the valve and the test hardware. These gaskets must be hard like asbestos, urethane, or spiral wound metal gaskets with centering rings.

2. Before pressurizing the valve be sure all actuator linkage fasteners are tight, and that the power or pressure is applied to the actuator to maintain the valve in the closed position. The offset design of the valve will cause it to rotate when pressure is applied to one side of the disc.

3. The valve should be installed between flanges or in a testing apparatus using suitable gaskets as described above. If using flanges, use all of the required fasteners tightened in the sequence shown in Figure 4 to the torque levels prescribed in Table I. If a testing device other than flanges is used, the clamping force of the device must be comparable with flange bolt loads on the valve.

4. Cycle the valve slightly open. Verify that you do not have a seal between the seat and disc. Exercise caution when cycling a valve in the test apparatus to avoid possible disc damage from striking the test fixture.

5. Cap the downstream vent and apply 100 psig to the valve. Check the shaft seals, pressure plug or cover plate, and flange gaskets for leakage. This can be done by applying a liquid mixture of soap and water at all seal joints and watching for bubbles.

IMPORTANT: If leakage is detected between the valve and flanges STOP IMMEDIATELY. Mark the area of leakage. Vent the valve, and when it has returned to 0 psig, retighten the flange bolts in that area. Repressurize the valve, checking the whole gasket again. If leakage persists, disassemble and inspect for damage.

6. If leakage is detected at the shaft seals, tighten only enough to stop the leak. Cover plate fasteners may be tightened to the values listed in Table 2.

7. Vent the valve, and when it has returned to 0 psig, cycle the valve closed.

8. Attach a small tube or hose to the downstream flange (shaft side of valve).

9. Be sure power/pressure is still applied to the actuator. Pressurize the upstream flange (insert side of valve) to 100 psig. Check for leakage passing through the free end of the tube/hose.

10. If leakage is detected, vent the valve and make an actuator close-stop adjustment as described in the appropriate IMO listed on page 9.

11. Repressurize the valve and check the leakage. If the valve still leaks, repeat step 10. If leakage cannot be stopped, adjust the actuator stop so that leakage is minimized.

12. Rebuilt valves may have some minor leakage due to damage to the disc. With the valve still pressurized, insert the free end of the tube/hose into a beaker of water and check for bubbles. In the absence of other test standards, observe leakage after it has reached a stable condition. Because of the volume of air that must be exhausted from a cycled valve, it may be necessary to wait several minutes for the leakage to stabilize or stop. One bubble per inch of valve diameter per minute may be considered acceptable for rebuilt valves.

5 ACTUATOR MOUNTING

5.1 WARNINGS

BEFORE INSTALLING THE VALVE AND ACTUATOR, BE SURE THAT THE INDICATOR POINTER ON TOP OF THE ACTUATOR IS CORRECTLY INDICATING THE VALVES POSITION. FAILURE TO ASSEMBLE THESE PRODUCTS TO INDICATE CORRECT VALVE POSITION COULD RESULT IN PERSONAL INJURY.

CAUTION: WHEN INSTALLING A LINKAGE OR SERVICING A VALVE/ACTUATOR ASSEMBLY, THE BEST PRACTICE IS TO REMOVE THE ENTIRE ASSEMBLY FROM SERVICE.

CAUTION: AN ACTUATOR SHOULD BE REMOUNTED ON THE SAME VALVE FROM WHICH IT WAS REMOVED. THE ACTUATOR MUST BE READJUSTED FOR PROPER OPEN AND CLOSE POSITION EACH TIME IT IS REMOUNTED.

CAUTION: THE LINKAGE HAS BEEN DESIGNED TO SUPPORT THE WEIGHT OF THE NELES-JAMESBURY ACTUATORS AND RECOMMENDED ACCESSORIES. USE OF THIS LINKAGE TO SUPPORT ADDITIONAL EQUIPMENT SUCH AS PEOPLE, LADDERS, ETC. MAY RESULT IN THE FAILURE OF THE LINKAGE, VALVE OR ACTUATOR, AND MAY CAUSE PERSONAL INJURY.

5.2 Actuator Mounting Instructions

1. When a spring return actuator is being mounted, the valve should be in the closed position for spring-to-close operation, or in the open position for the spring-to-open operation. When an electric or double acting pneumatic actuator is being mounted, the valve position should correspond to the actuator indicator call out.

2. Assemble bracket to actuator as shown in Figure 6-1,

3. Place the coupling onto the valve shaft. If the linkage contains a split, no-play coupling, assemble the coupling loosely on the valve stem. Use socket head cap screws and lock nuts. See Figure 6-2.

4. Lower actuator and bracket onto the valve while engaging actuator stem driver into coupling. Tighten screws just enough to firmly mate bracket to valve. This should allow the bracket to slip somewhat to align itself. See Figure 6-3, Step 3A.

5. Tighten no-play coupling screws, if appropriate, to torques shown in figure 6, Step 3B. Use alternating sequence shown.

6. Cycle actuator. See actuator IMO's listed on page 9.

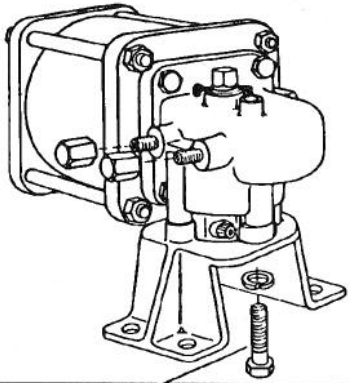
7. Fully tighten screws holding bracket to valve, as shown in Figure 6, Step 3C.

8. Recheck no-play coupling screw torques, to torques in Figure 6, Step 3B.

9. Adjust the actuator travel stops as described in the actuator IMO to the proper valve open and closed positions.

Valve Open: Disc face perpendicular with the flange face.

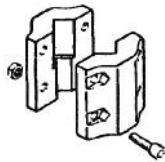
Valve Closed: Disc face parallel to the flange face within 1/32".

**Figure 6-1**

Tighten Screws and Lockwashers

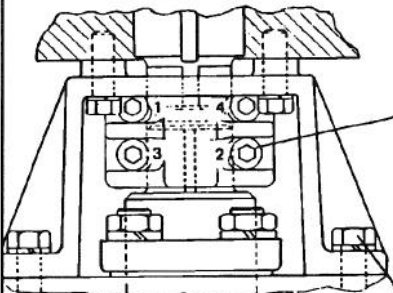
Screw Size	Torque LB. - FT.
1/4"	3
3/8"	10
1/2"	22
5/8"	45

ST AND STMS NORMALLY IN LINE WITH PIPE.
 QUADRA-POWR® NORMALLY AT RIGHT ANGLE TO PIPE.

**Figure 6-2**

Place Coupling On Stem.

Screws of no-play coupling to face in line with pipe with the valve closed.

**Figure 6-3****STEP 3B**

TIGHTEN THESE:

SCREW SIZE	TORQUE LB. - FT.
5/16"	22 - 27
3/8"	35 - 40
1/2"	80 - 90
5/8"	160 - 170

STEM 3A

NO-PLAY COUPLING:

TIGHTEN THESE
 UNTIL BRACKET
 SITS FIRMLY ON
 VALVE.

STEM 3C

TIGHTEN THESE:

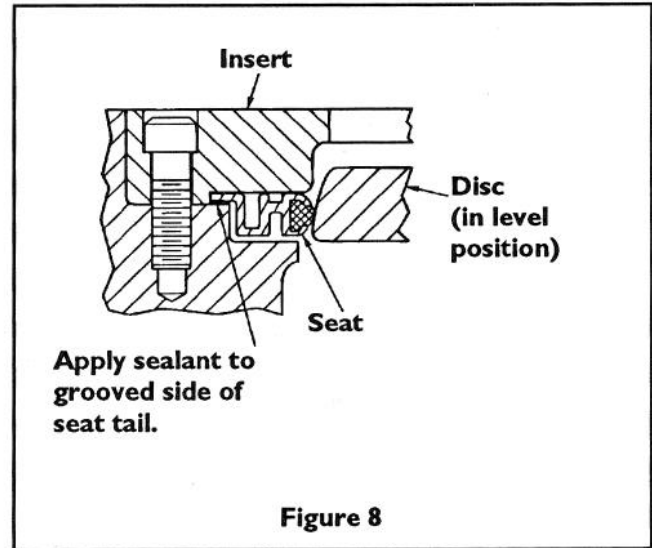
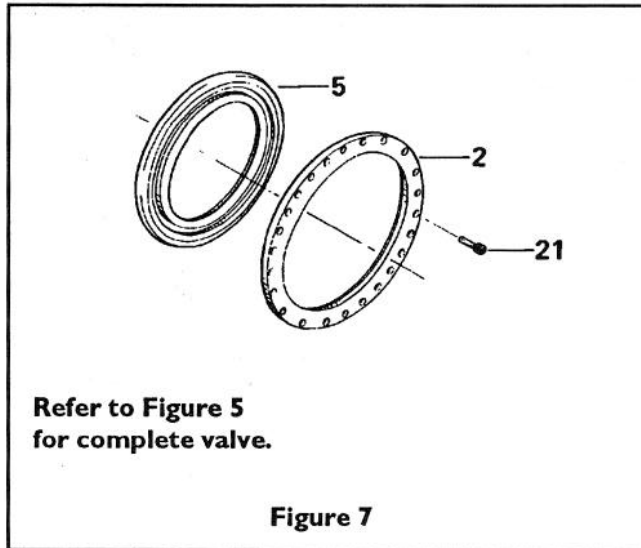
SCREW SIZE	TORQUE LB. - FT.
3/8"	30
1/2"	75

Figure 6**ACTUATOR****IMO**

VANE
 QUADRA-POWR® II
 QUADRA-POWR®
 ST60, 90, 115, 175MS
 ST200/400
 ST600/1200
 ST160, 240, 290, 440MS
 ST1800
 RP
 RP-SR
 MANUAL GEAR

IMO510
 IMO 31
 IMO32
 IMO23
 IMO26
 IMO24
 IMO27
 IMO506
 IMO33
 IMO34
 IMO63

6 FIRE-TITE® WAFER-SPHERE VALVES 14" - 60"



6.1 Seat Replacement Fire-Tite® Valves

1. After removing the valve from the line, place it on a bench and cycle it open. Take care not to damage the sealing edge of the valve disc.
2. Remove the insert screws (21) and the insert (2). See Figure 5. If the insert does not lift out easily, tap it out from the shaft side using a wooden or plastic rod and a hammer. Don't strike the valve directly with a hammer.
3. Remove the seat (5) and discard.
4. Carefully clean the gasketing surfaces with solvent. They should be free of all grooves and scratches. If deep scratches are present, polish or repair as required.
5. Clean the valve and insert.
6. Carefully clean and polish the disc. It should be free of all grooves and scratches.
7. If the disc is slightly damaged, it may be possible to smooth the sealing surface with crocus cloth, a fine stone, or the equivalent. If deep scratches are present, replace the disc or return the valve to the factory for service.
8. Cycle the valve closed.
9. A sealant is required between the seat tail and body as shown in Figure 8. The valve uses TFE paste sealant. This is installed in accordance with the following steps:

- (a) Important: Exercise care at all times not to mishandle the seat in such a way as to damage any sealing surfaces.

- (b) The bottom surface of the insert is to be free of all foreign particles. Clean thoroughly with suitable solvent (acetone, 1, 1, 1-trichloroethane).

- (c) Carefully apply the sealant to the concentric grooved side of the seat tail in an even continuous bead completely around the circumference of the seat.

10. Verify that the disc is in the level position. Install new seat and insert. (See Figure 7) Install the insert screws, and tighten them uniformly in a sequence such as shown on Figure 4. **TORQUE VALUES ARE GIVEN IN TABLE 2. See the SEAT REPLACEMENT section as applicable for details.**

11. Set the actuator stops as described in the appropriate actuator IMO (page 9). Do not install and tighten flanges on a newly reseated valve until the actuator stops are properly set and the valve is fully closed. Incorrect disc positioning may cause damage to a new seat when the valve is compressed between flanges for the first time. **NOTE: After installation of a new seat, torque will be higher for a few cycles.**

Valve testing procedures are covered on page 8.

7 SERVICE KITS

Service kits include one seat (seat assembly with Fire-Tite® valves) and a set of shaft seals. When ordering service kits, seat and shaft seal materials must be specified. For example: a kit for a 20" Type 815L Model A valve with filled TFE (M) seat and TFE (T) seals is ordered as RKW-270 MT.

STANDARD VALVES											
VALVE TYPE	VALVE SIZE										
	14	16	18	20	24	30	36	42	48	54	60
815W, 815L MODEL A	-	RKW-268	RKW-269	RKW-270	RKW-271	KITS AVAILABLE ON APPLICATION					
815W, 815L MODEL B	-	RKW-331	RKW-332	RKW-333	RKW-334						
830W, 830L	-	RKW-272	RKW-273	-	-	-	-	-	-	-	-

FIRE-TITE® VALVES											
VALVE TYPE	VALVE SIZE										
	14	16	18	20	24	30	36	42	48	54	60
F815W, F815L	-	RKW-293	RKW-294	RKW-295	RKW-296	KITS AVAILABLE ON APPLICATION					
F830W, F830L	RKW-305	RKW-297	-	-	-	-	-	-	-	-	-
F860W, 860L	KITS AVAILABLE ON APPLICATION					-	-	-	-	-	-

NOTES

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