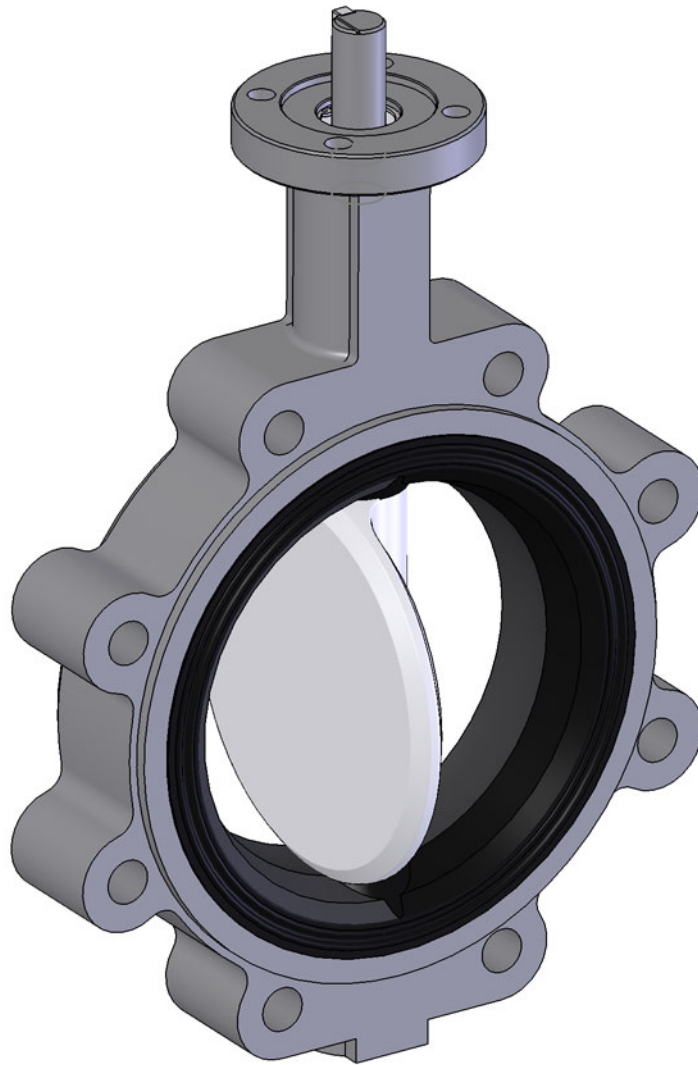




APCO | WILLAMETTE

DeZURIK 2-20" BOS BUTTERFLY VALVES



Instruction D10459
June 2011

DeZURIK

2-20" BOS Butterfly Valves

Instructions

These instructions provide information about BOS Butterfly Valves. They are for use by personnel who are responsible for installation, operation and maintenance of BOS Butterfly Valves.

Safety Messages

All safety messages in the instructions are flagged with an exclamation symbol and the word Caution, Warning or Danger. These messages indicate procedures that must be followed exactly to avoid equipment damage, personal injury or death.

Safety label(s) on the product indicate hazards that can cause equipment damage, personal injury or death. If a safety label becomes difficult to see or read, or if a label has been removed, please contact DeZURIK for replacement label(s).



WARNING!

Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of pipeline material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous pipeline materials. Handle valves, which have been removed from service with suitable protection for any potential pipeline material in the valve.

Inspection

Your BOS Butterfly Valve has been packaged to provide protection during shipment, however, it can be damaged in transport. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

Parts

Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime.

Order parts from your DeZURIK sales representative, or directly from DeZURIK. When ordering parts, please include the 7-digit part number and 4-digit revision number (example: **9999999R000**) located on the data plate attached to the valve assembly. Also include the part name, the assembly drawing number, the balloon number and the quantity stated on the assembly drawing.

DeZURIK Service

DeZURIK service personnel are available to install, maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services.

For more information, contact your local DeZURIK sales representative or visit our website at www.dezurik.com.

Table of Contents

Description - - - - -	4
Installation - - - - -	4
Operation - - - - -	5
Lubrication - - - - -	5
Parts Identification - - - - -	7
Removing Valve from Pipeline - - - - -	8
Disassembling the Valve - - - - -	8
Reassembling the Valve - - - - -	9
Troubleshooting - - - - -	10



This Drinking Water System Component is tested and certified by WQA against NSF/ANSI Standard 61.

Description

The BOS Butterfly Valve is a resilient-seated valve for general industrial applications. Lugged or wafer end connections are offered, with a choice of disc, seat, and shaft materials. Pressure and temperature ratings are shown on the valve data plate.

Installation

Refer to the valve installation drawing for dimensional information.

- Installing the valve in the wrong location may cause excessive dynamic torque and damage the valve. Install the valve at least 8 pipe diameters downstream from the nearest pump or elbow.
- Pipeline flow may be in either direction through the valve. For optimum performance, install the valve with the higher pressure on the seat side of the valve (flat side of disc). If possible, install the valve with the shaft horizontal to provide a self-cleaning action on the seat.
- Use pipeline flanges that conform to ASME/ANSI B16.1 Class 125 or ASME/ANSI B16.5 Class 150.
- Mount wafer body valves to the pipeline flanges with either bolts or studs that extend through both flanges:
- Mount lugged body valves to the pipeline flanges with bolts only. Studs are not recommended.



CAUTION!

Lifting a larger size valve incorrectly can damage it. Do not fasten lifting devices to the actuator or disc, or through the seat opening in the body. Lift the valve with slings fastened around the valve body, or attach them to bolts or rods run through holes for the pipeline flanges.

1. If the valve has been ordered without an actuator, mount the actuator on the valve.
 - For a DeZURIK actuator, refer to the Actuator Instructions.
 - For an actuator other than DeZURIK, the dimensional requirements for the actuator interface are shown on the Installation Drawing for the valve.
2. Before installation, remove all foreign material such as weld spatter, oil, grease, and dirt from the valve, flanges, and pipeline.
3. Open the valve, and clean the seat and the sealing edge of the disc.
4. Place the valve in the pipeline with the valve closed. Handle the valve carefully so that the flange gasket sealing surfaces do not get scratched or damaged.
5. Ensure that the valve, the pipeline and the mating connections are aligned and centered before tightening the pipeline bolts.
6. Open the valve slowly to ensure that there is adequate clearance between the open disc and the pipeline.
7. Tighten the bolts evenly, in a crisscross pattern.

Operation

Clockwise rotation of the valve shaft closes the disc into the seat. The valve is fully closed when the flat side of the disc is parallel with the flange sealing surface on the body. The valve is fully open when the disc is 90° counterclockwise from the closed position. A machined flat on the top of the valve shaft corresponds to the flat side of the disc. The machined flat may be used to determine the approximate position of the disc when the disc is not visible.

The valve actuator is connected to the valve shaft, and positions the disc at the open, closed, or intermediate positions. The adjustable open and closed position stops in the valve actuator are set to match the open and closed positions of the valve. Refer to the Actuator Instructions for actuator stop adjustment information.

Lubrication

The valve is lubricated at the factory, and does not require routine lubrication. Refer to the actuator instructions for actuator lubrication requirements.

If the valve is disassembled, apply a paint-like coating of the below lubricant to the following surfaces (see Figure 1 for each area listed below):

- A. The two shaft holes and lip seals in the seat.
 - B. The area of the seat adjacent to the two shaft holes.
 - C. The upper shaft seal (A6).
 - D. The inside diameters of the four shaft bearings (A4, A5 & A12).
 - E. The chamfer on the bottom end of the shaft (A3).
 - F. The spline of the shaft (A3).
 - G. The spline of the disc (A2).
 - H. The area of shaft just above the spline.
- For oxygen service valves, use Hooker Fluorolube GR-362 (no substitutes are allowed).
 - For other valves with EPDM, NBR or FKM seat material, use Dow Corning 111 (no substitutes are allowed).

Lubrication *(Continued)*

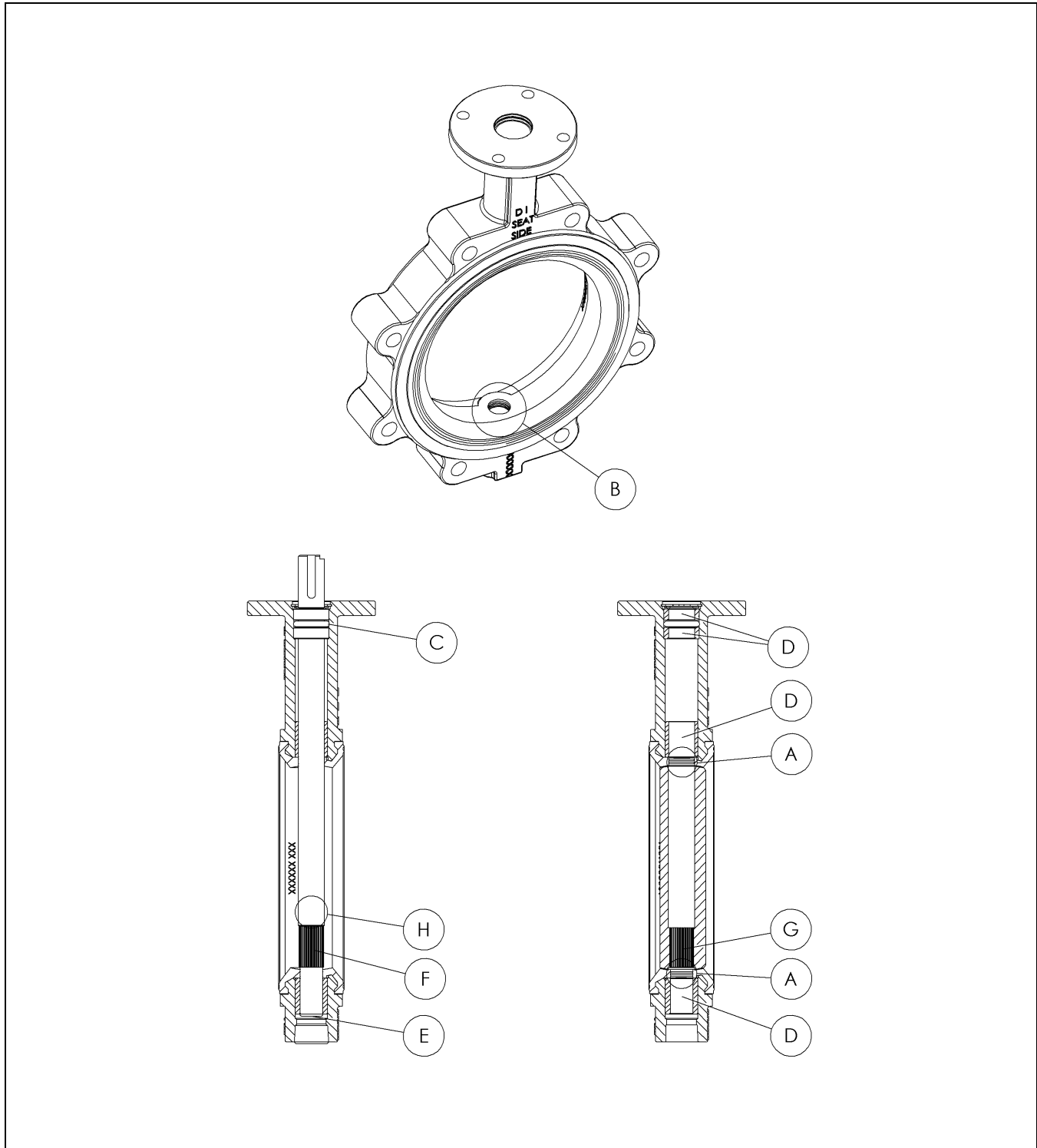


Figure 1—Areas to Lubricate

Parts Identification

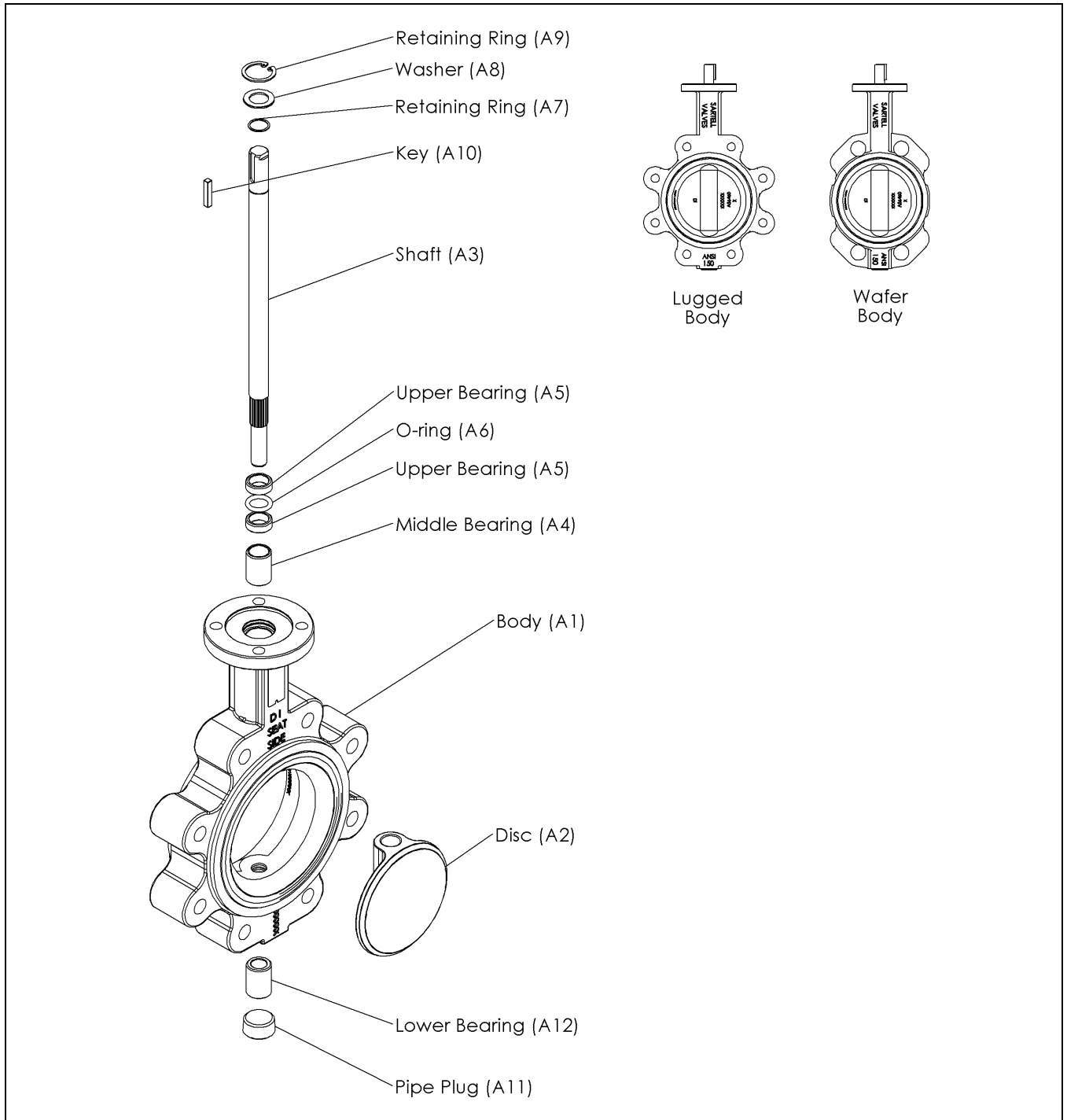


Figure 2—Parts Identification

Removing Valve from Pipeline

Follow the steps below to remove the valve from the pipeline.



WARNING!

Loosening the flange bolts on a pressurized valve can allow the valve to suddenly shift position and release uncontrolled pipeline fluid. To avoid personal injury or pipeline damage, relieve the pressure in the pipeline before loosening the pipeline flange bolts.

1. Relieve pressure in the pipeline, and drain the pipeline.
2. Close the valve.



WARNING!

Moving parts from accidental operation of a powered actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.

3. If the actuator is powered, disconnect and lock out the pneumatic, hydraulic, or electrical power to prevent accidental operation.
4. Support the valve, remove the flange bolting, and remove the valve from the pipeline. Refer to the lifting requirements in the *"Installation"* section.

Disassembling the Valve

Refer to Figure 2 for parts identification.

1. Remove the valve from the pipeline as described in the *"Removing Valve From Pipeline"* section.
2. Remove the actuator as described in the Actuator Instructions.
3. Remove the pipe plug (A11) from threaded lower end of body (A1).
4. Remove the retaining ring (A9) from the groove in the upper end of body (A1).
5. Remove the washer (A8).
6. To remove the shaft (A3) from the disc (A2), tap the lower end of the shaft (A3) towards the upper end of the body (A1) and remove the shaft from the body.
7. Remove the disc (A2) from the body (A1).
8. Remove the two upper bearings (A5) and o-ring (A6) from the upper body shaft bore.

Reassembling the Valve

Clean and inspect all parts, and replace worn parts. Refer to Figure 2 for parts identification. Lubricate the valve as noted in the "*Lubrication*" section.

1. Place the two upper bearings (A5) and o-ring (A6) seal in the upper body shaft bore.
2. Assemble the disc (A2) in the body (A1) with the spline towards the bottom of the body aligning the disc shaft bore with the body shaft bores.
3. Assemble the shaft (A3) into the body (A1) and disc (A2) shaft bores until the spline in the shaft just contacts the disc spline (slight resistance will be felt between shaft and disc).

Note: If the retaining ring (A7) in the shaft (A3) is damaged, replace the retaining ring. Verify that the new retaining ring is completely seated in the shaft groove before installing the shaft.

4. Position the flat on shaft (A3) so that it is parallel to and on the same side of the flat on the disc (A2). See Figure 3 for disc/shaft alignment. Then slide and fully engage the shaft spline with the disc spline (shaft will bottom out in disc bore when fully engaged).

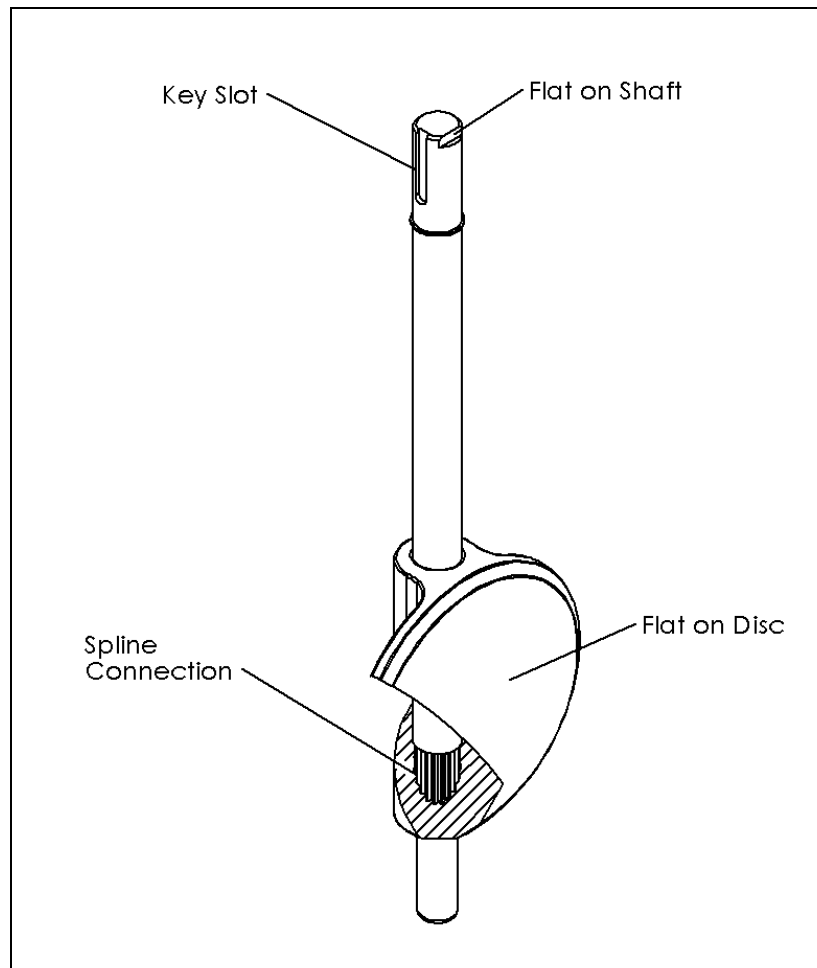


Figure 3—Disc/Shaft Alignment

Reassembling the Valve *(Continued)*

5. Assemble the thrust washer (A8) into the upper body shaft bore and against the snap ring (A7) in the shaft (A3).
6. Assemble the retaining ring (A9) into the retaining ring groove located in the upper body bore.
Note: Verify that the retaining ring is completely seated in the retaining ring body groove.
7. Assemble the pipe plug (A11) into the threaded lower body.
8. Mount the actuator on the valve as described in the “*Actuator*” instructions.
9. Install the valve as described in the “*Installation*” section. If the actuator is a powered actuator, re-connect the power and other connections.

Troubleshooting

Condition	Possible Cause	Corrective Action
Valve does not fully close.	Object is wedged between disc and seat	Open valve, and allow flow to remove object
	Closed position stop is not adjusted correctly.	Adjust closed stop.
	Disc-to-shaft connection has failed.	Replace shaft and/or disc.
Valve leaks when closed.	Closed position stop is not adjusted correctly.	Adjust closed stop.
	Seat is worn or damaged.	Replace valve or valve body.
	Sealing edge of disc is worn or damaged.	Replace valve or valve body.
Valve does not fully open.	Open position stop is not adjusted correctly.	Adjust open stop.
	Disc-to-shaft connection has failed.	Replace shaft and/or disc.
Opening or closing torque is excessive.	Bearings, shaft, disc or seat are dirty or worn	Clean or replace dirty or worn components.
	Shaft is bent.	Replace shaft.
Valve leaks between body and flanges.	Flange seal is damaged.	Replace valve or valve body.
	Flange bolts are tightened incorrectly.	Tighten the flange bolts evenly, in a crisscross pattern.
Media leaks between actuator and top of valve	O-ring (A6) leaking at top of shaft.	Inspect and replace O-ring (A6).

Guarantee

Products, auxiliaries and parts thereof of DeZURIK, Inc. manufacture are warranted to the original purchaser for a period of twenty-four (24) months from date of shipment from factory, against defective workmanship and material, but only if properly installed, operated and serviced in accordance with DeZURIK, Inc. recommendations. Repair or replacement, at our option, for items of DeZURIK, Inc. manufacture will be made free of charge, (FOB) our facility with removal, transportation and installation at your cost, if proved to be defective within such time, and this is your sole remedy with respect to such products. Equipment or parts manufactured by others but furnished by DeZURIK, Inc. will be repaired or replaced, but only to the extent provided in and honored by the original manufacturers warranty to DeZURIK, Inc., in each case subject to the limitations contained therein. No claim for transportation, labor or special or consequential damages or any other loss, cost or damage shall be allowed. You shall be solely responsible for determining suitability for use and in no event shall DeZURIK, Inc. be liable in this respect. DeZURIK, Inc. does not guarantee resistance to corrosion, erosion, abrasion or other sources of failure, nor does DeZURIK, Inc. guarantee a minimum length of service. Your failure to give written notice to us of any alleged defect under this warranty within twenty (20) days of its discovery, or attempts by someone other than DeZURIK, Inc. or its authorized representatives to remedy the alleged defects therein, or failure to return product or parts for repair or replacement as herein provided, or failure to install and operate said products and parts according to instructions furnished by DeZURIK, Inc., or misuse, modification, abuse or alteration of such product, accident, fire, flood or other Act of God, or failure to pay entire contract price when due shall be a waiver by you of all rights under this warranty.

The foregoing guarantee shall be null and void if, after shipment from our factory, the item is modified in any way or a component of another manufacturer, such as but not limited to, an actuator is attached to the item by anyone other than DeZURIK, Inc. Factory Service personnel. All orders accepted shall be deemed accepted subject to this limited warranty, which shall be exclusive of any other or previous Warranty, and this shall be the only effective guarantee or warranty binding on DeZURIK, Inc., despite anything to the contrary contained in the purchase order or represented by any agent or employee of DeZURIK, Inc., in writing or otherwise, notwithstanding, including but not limited to implied warranties.

THE FOREGOING REPAIR AND REPLACEMENT OBLIGATIONS ARE IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS AND LIABILITIES, INCLUDING ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR OF MERCHANTABILITY OR OTHERWISE, EXPRESSED OR IMPLIED IN FACT OR BY LAW, AND STATE DEZURIK, INC.'S ENTIRE AND EXCLUSIVE LIABILITY AND YOUR EXCLUSIVE REMEDY FOR ANY CLAIM IN CONNECTION WITH THE SALE AND FURNISHING OF SERVICES, GOODS OR PARTS, THEIR DESIGN, SUITABILITY FOR USE, INSTALLATION OR OPERATIONS.

Limitation of liability

LIMITATION OF LIABILITY: IN NO EVENT SHALL DEZURIK, INC. BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES WHATSOEVER, AND DEZURIK, INC.'S LIABILITY, UNDER NO CIRCUMSTANCES, WILL EXCEED THE CONTRACT PRICE FOR THE GOODS AND/OR SERVICES FOR WHICH LIABILITY IS CLAIMED. ANY ACTION BY YOU FOR BREACH OF CONTRACT MUST BE COMMENCED WITHIN 12 MONTHS AFTER THE DATE OF SALE.

Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web site: www.dezurik.com E-Mail: info@dezurik.com



250 Riverside Ave. N., Sartell, MN 56377 • Phone: 320-259-2000 • Fax: 320-259-2227

DeZURIK, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this manual, are provided for your information only and should not be relied upon unless confirmed in writing by DeZURIK, Inc. Certified drawings are available upon request.