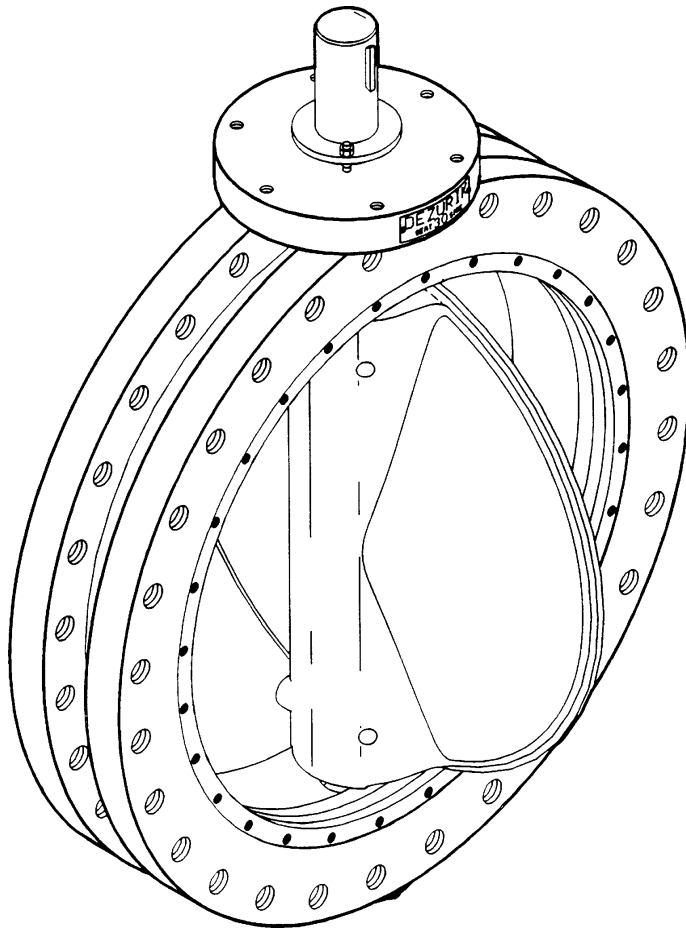




24" THRU 36"

BRS BUTTERFLY VALVES



Instruction **D10348**

March 2009

DeZURIK

24" thru 36" BRS Butterfly Valves

INSTRUCTIONS

These instructions provide information about DeZURIK 24" thru 36" BRS Butterfly Valves. They are for use by personnel who are responsible for installation, operation and maintenance of DeZURIK 24" thru 36" BRS 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 DeZURIK BRS 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.

REPLACEMENT 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.

DESCRIPTION The DeZURIK 24" thru 36" BRS Butterfly Valve is a resilient-seated bi-directional valve for general industrial applications. Lugged or wafer end connections are offered, with a choice of disc and seat materials. Pressure and temperature ratings are shown on the valve data plate.

INSTALLATION Installation requirements are shown below. Refer to the Installation Drawing for dimensional information.

- Lift the valve with slings, chains, or cables fastened around the valve body, or fastened to bolts or rods through bolt holes in the flanges. Do not fasten lifting devices to the actuator or disc, or through the seat opening in the body. Failure to lift the valve properly may cause damage during handling and installation.
- Mount the actuator on the valve if the valve has been ordered without an actuator. 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.
- Before installation, remove all foreign material such as weld spatter, oil, grease, and dirt from the valve, flanges, and pipeline. Open the valve, and clean the seat and the sealing edge of the disc. Apply a light coating of silicone lubricant to the seat, and close the valve.
- To minimize the possibility of excessive dynamic torque in the valve, select a pipeline location which is at least 8 pipe diameters downstream from the nearest pump or elbow. The valve is bi-directional, and may be installed in any position; if possible, however, install the valve with the shaft horizontal to provide a self-cleaning action on the seat.
- Use mating flanges that comply with ASME/ANSI B16.1 Class 125 or ASME/ANSI B16.5 Class 150. Flange gaskets are required.
- Place the valve in the pipeline with the valve closed. Ensure that the valve, the pipeline, and the mating connections are concentric before tightening the pipeline bolts. Tighten the bolts evenly, in a crisscross pattern.
- Due to varying conditions during shipment, storage, handling, and installation, valve testing is recommended while the valve is fully accessible in the pipeline.

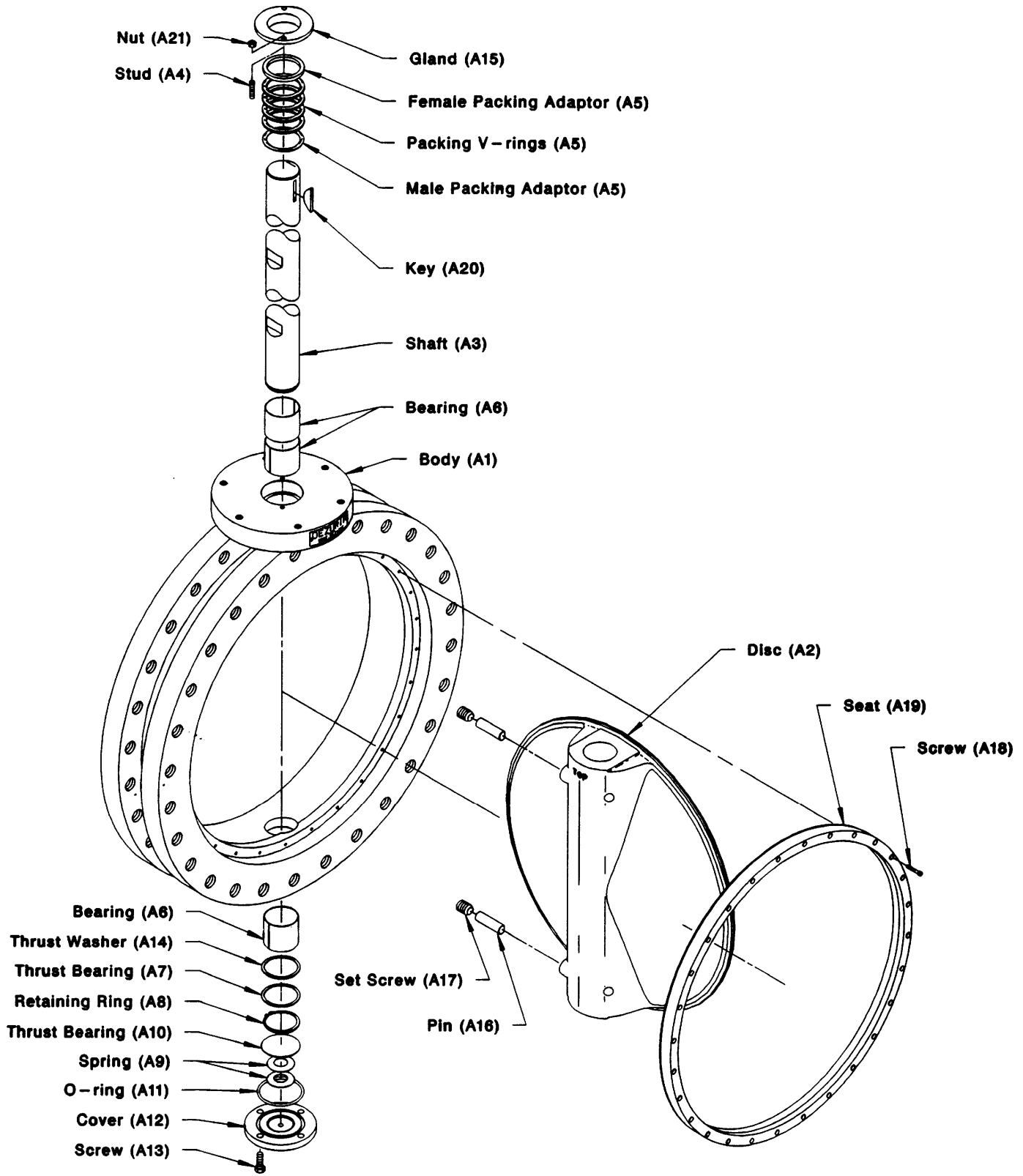
OPERATION Clockwise rotation of the valve shaft closes the disc in the seat. The valve is fully closed when the flat side of the disc is parallel with the flange sealing surface on the body; the valve is fully open when the disc is 90 degrees counterclockwise from the closed position. A line located on the top of the valve shaft 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.

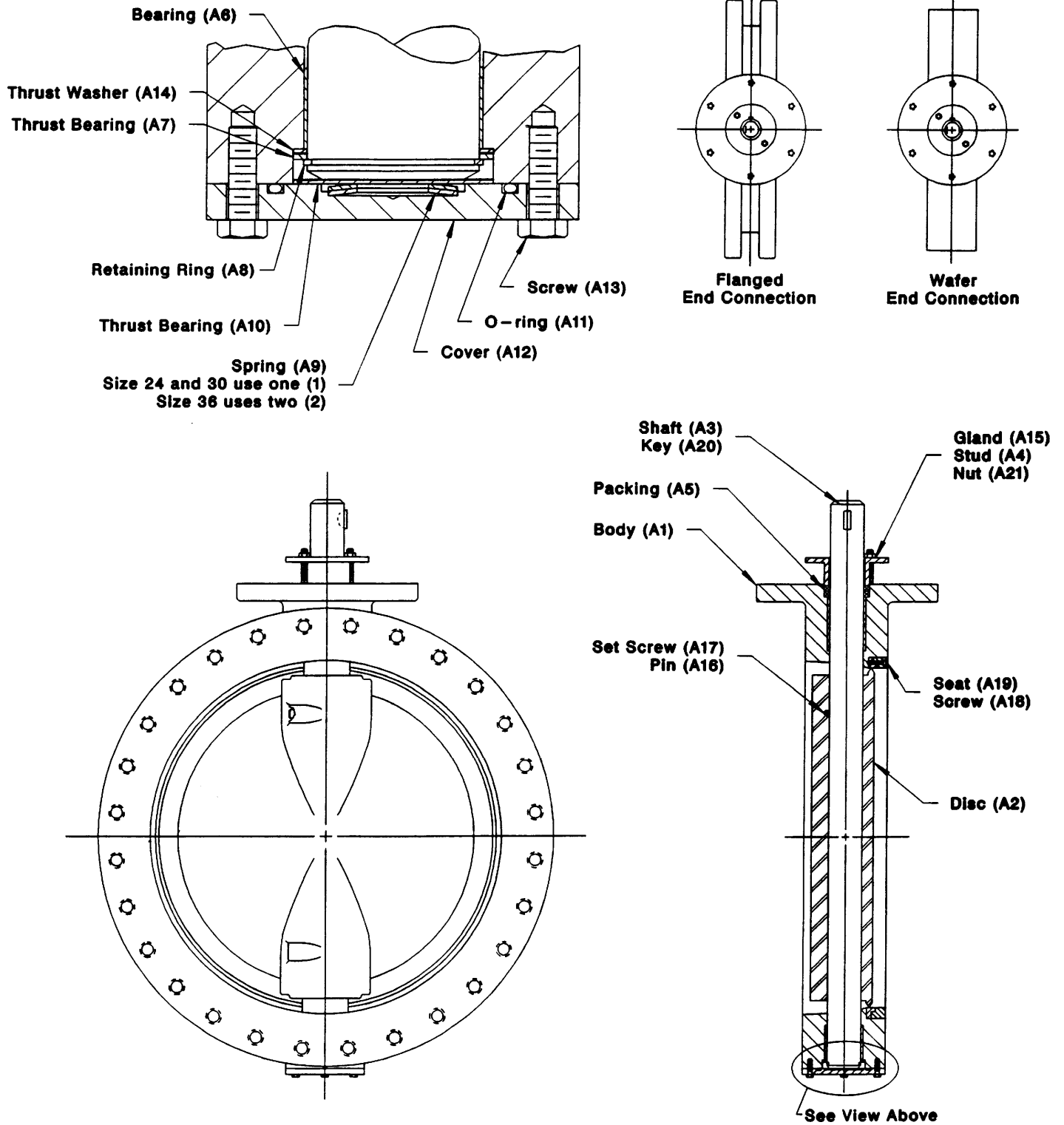
LUBRICATION A light coating of silicone lubricant is recommended on the seat when the valve is installed. Other lubrication requirements are described in the **Packing Replacement** and **Seat Replacement** sections.

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Component Identification - Disassembled
Figure 1



**Component Identification - Assembled
 Figure 2**

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PACKING ADJUSTMENT

The packing is contained and compressed by the packing gland (A15). If packing leakage occurs, tighten the two adjustment nuts (A21) on the packing gland. Tighten the nuts evenly and gently—just enough to stop the leakage. Over-tightening will cause excessive operating torque, and will decrease the life of the packing. If leakage persists, replace the packing as described in the **Packing Replacement** section.

REMOVING VALVE FROM PIPELINE

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

1. Relieve the pressure in the pipeline, and drain the sections of the pipeline on both sides of the valve.



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.

2. Close the valve.
3. If the valve has a powered actuator, turn off and disconnect the air pressure and/or electricity to 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.

4. While supporting the valve, remove the bolts from the pipeline flanges.
5. Remove the valve from the pipeline. Refer to the lifting requirements in the **Installation** section.

PACKING REPLACEMENT

Refer to Figures 1 and 2 for component identification.

1. Relieve the pressure in the pipeline, and close the valve.



WARNING

Relieve the pipeline pressure before removing the actuator. Pipeline pressure can propel the loose actuator and/or the packing, and can cause personal injury or equipment damage.

2. If the actuator is powered, disconnect and lock out the pneumatic, hydraulic, or electrical power to prevent accidental operation of the actuator.



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. Remove the actuator from the valve as described in the Actuator Instructions.
4. Remove the two nuts (A21) and the gland (A15).
5. Use a hooked tool to remove all of the packing rings (A5) from the packing chamber. Remove all residue and debris so that the sealing surfaces are clean.
6. If the new packing ring material is rubber, apply a light film of silicone grease such as Dow Corning 44 to the inside and outside diameters of each of the packing rings. Do not lubricate PTFE packing rings. Slide the rings, one ring at a time, over the valve shaft and into the packing chamber as shown in Figure 2. Push the rings firmly in place. Do not use a sharp or pointed tool.
7. Replace the gland (A15) and the two nuts (A21). Tighten the nuts evenly and finger tight, plus ½ turn.
8. Replace the actuator as described in the Actuator Instructions.
9. Pressurize the valve and check for packing leakage. If leakage occurs, tighten the two nuts (A21) on the gland (A15). Tighten the nuts evenly and gently — just enough to stop the leakage. Over-tightening will cause excessive operating torque, and will decrease the life of the packing.

**SEAT
REPLACEMENT**

The resilient seat may be replaced by following the steps below. Refer to Figures 1, 2 and 3 for parts identification.

1. Remove the valve from the pipeline as described in the ***Removing Valve From Pipeline*** section.
2. Support the valve in a horizontal position with the seat side up. Open the valve.
3. Remove all of the seat screws (A18) with a 3/16" hex driver.
4. Note that several of the screw holes in the seat (A19) are threaded with 5/16-24 UNF threads. Screw eyebolts into three or four of the threaded holes, approximately equally spaced, and fasten a lifting device to each of the eyebolts. Lift the seat slowly and evenly from the body. As an alternative to the eyebolts, hex head screws may be used. Then remove the seat slowly and evenly with a pry bar or claw hammer on each of the screws.
5. Use a trichlorethane solvent such as Chlorothene to clean surfaces E and D on the body, and surfaces B and C on the new seat as shown in Figure 3.
6. Apply a light film of silicone lubricant such as Dow Corning 44 to seat surface C. Do not get lubricant on seat surface B.
7. Apply one thin, even, paint-like coat of Permatex Hi-Tack 99MA to seat surface B.

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SEAT REPLACEMENT (CONTINUED)

8. Align the holes in the seat (A19) with the holes in the body, place the seat in the body, and fasten the seat with seat screws (A18). Tighten the seat screws in a crisscross pattern to 30 ± 2 inch pounds. Tighten each screw three times, or until the torque stabilizes at 30 ± 2 inch pounds.
9. Use a trichlorethane solvent such as Chlorothane to clean seat surface A.
10. Wipe seat surface A with a silicone fluid such as Slipmore 71751, manufactured by Pulmore, applied to a clean wiping cloth. Do not spray directly on the seat.

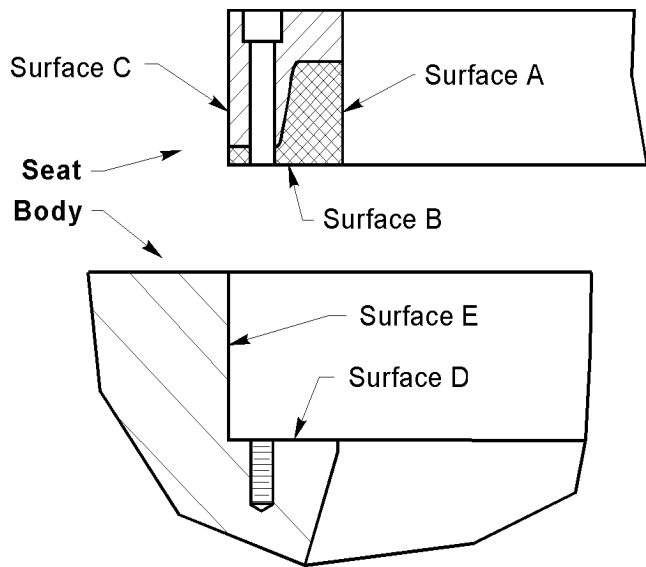


Figure 3
Seat and Body Surface Identification

11. Replace the valve in the pipeline as described in the INSTALLATION section.

VALVE DISASSEMBLY

The valve is disassembled and reassembled by following the steps in the next two sections. Inspect all parts for wear, and replace worn parts. Refer to Figures 1 and 2 for parts identification.

1. Remove the valve from the pipeline as described in the **Removing Valve From Pipeline section**.
2. Remove the actuator from the valve as described in the Actuator Instructions.
3. Remove the seat from the valve as described in steps 2 thru 4 in the **Seat Replacement** section.
4. Turn the valve over so that the seat side of the valve is down.
5. Remove the two disc set screws (A17) with a large slotted screw driver. Remove the two disc pins (A16) by driving each pin on the end opposite the set screw.
6. Remove the four bottom cover screws (A13), the bottom cover (A12), the spring washer(s) (A9), the thrust bearing (A10), and the O-ring (A11).
7. To protect the machined edge of the disc (A2), place a small wooden block or several thicknesses of cloth between the disc and the body at the 12 o'clock and 6 o'clock positions of the opened disc.
8. Remove the two gland nuts (A21) and the gland (A15). Remove all of the packing rings (A5) with a hooked tool.

9. Support the disc (A2) securely with wooden blocks so that the disc does not drop and become damaged during the next step.
10. Push on the top end of the shaft (A3), and slide the shaft out of the bottom of the body. The shaft may instead be removed from the top of the body by first pushing the shaft down far enough to remove the parts in step 11.
11. Remove the retaining ring (A8), the thrust washer (A14), and the thrust bearing (A7) from the shaft.
12. Remove the three bearings (A6) from the body.

**VALVE
REASSEMBLY**

Clean and inspect all parts, and replace worn parts before reassembly. Refer to Figures 1 and 2 for parts identification.

1. Support the valve body (A1) in a horizontal position with the seat side down.
2. Place two bearings (A6) in the upper body area with the joints opposed — towards the 3 o'clock and 9 o'clock positions of the body. Place one bearing (A6) in the lower body area with the joint aligned with the joint in either of the upper bearings. Do not lubricate the bearings.
3. If the packing (A5) material is rubber, apply a light film of light grease such as Dow Corning 44 to the inside and outside diameters of each of the packing rings. Do not lubricate PTFE packing rings. Slide the rings one ring at a time into position in the body (A1) as shown in Figure 2.
4. Note the word "top" cast in the disc (A2). With "top" towards the top (or neck) of the body, place and hold the disc in position in the body. Handle the disc carefully so that the edge of the disc does not get scratched or damaged.
5. Slide the top end of the shaft (A3) thru the lower body bearing (A6), thru the disc (A2), and partially thru the upper body bearings. The bottom end of the shaft must extend an inch or two out the bottom of the body so that the groove near the lower end of the shaft is accessible for the next step.
6. Place the thrust washer (A14) and upper thrust bearing (A7) on the bottom of the shaft (A3) with the burr side of the thrust washer towards the body, and the fiber side of the upper thrust bearing towards the thrust washer. Place the retaining ring (A8) in the groove in the shaft, and push the bottom end of the shaft into position in the body so that the retaining ring is bottomed out against the upper thrust bearing, the thrust washer, and the body.
7. Place the fiber side of the lower thrust bearing (A10) against the bottom of the shaft (A3), and place the (A9) spring washer(s)—the 24" and 30" valve have **one** spring washer, and the 36" valve has **two**—against the lower thrust bearing. The spring washer(s) may be adhered in position with a small amount of light grease such as Dow Corning 44. Do not get grease on the thrust bearings.
8. Apply a light film of light grease such as Dow Corning 44 to the O-ring (A11), and place the O-ring in the groove of the bottom cover (A12). Mount the cover to the body (A1) with the four screws (A13). Tighten the screws to 40 ± 3 foot pounds.
9. Place the two disc pins (A16) in the disc (A2) and rotate the disc so that the flats on the pins are against the flats on the shaft. Do not drive the pins until step 11.

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VALVE REASSEMBLY (CONTINUED)

10. Open the disc (A2) and slide the disc on the shaft (A3) so that the disc is approximately centered in the body. Measure the disc-to-body clearance with a feeler gauge at both the 12 o'clock and 6 o'clock positions of the body. Slide the disc on the shaft so that the two measured clearances are equal within .002", and lock the disc in position with two feeler gauges.
11. With the feeler gauges in place, tap the two disc pins (A16) lightly, and secure the pins with the set screws (A17). Tighten the set screws to 100 ± 5 foot pounds, and remove the feeler gauges.
12. Replace the gland (A15) and the two nuts (A21). Tighten the nuts evenly and finger tight, plus $\frac{1}{2}$ turn.
13. Turn the valve over so that the seat side of the valve is up.
14. Install the seat as described in steps 5 thru 10 of the **Seat Replacement** section.
15. Replace the actuator as described in the Actuator Instructions.
16. Install the valve in the pipeline as described in the **Installation** section. Re-connect any pneumatic and electrical lines to the valve actuator and accessories.
17. The pipeline may now be pressurized. If packing leakage occurs, tighten the two nuts (A21) on the gland (A15). Tighten the nuts evenly and gently—just enough to stop the leakage. Over-tightening will cause excessive operating torque, and will decrease the life of the packing.

TROUBLESHOOTING

Condition	Possible Cause	Corrective Action
Packing leaks.	Packing is loose.	Adjust packing. See PACKING ADJUSTMENT section.
	Packing is worn.	Replace packing. See PACKING REPLACEMENT section.
Valve does not close.	Object is wedged between disc and seat.	Open valve and allow flushing action to remove object.
	Closed position stop is not adjusted correctly.	Adjust stop. See Actuator Instructions.
Valve leaks when closed.	Seat is worn or damaged.	Replace seat. See SEAT REPLACEMENT section.
	Disc is worn or damaged.	Replace disc. See VALVE DISASSEMBLY and VALVE REASSEMBLY sections.
	Closed position stop is not adjusted correctly.	Adjust stop. See Actuator Instructions.