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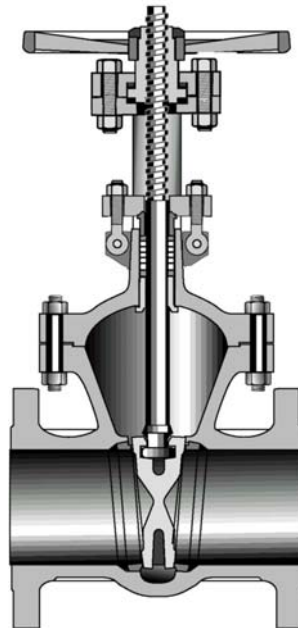
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Bolted Bonnet Valves
XA-BBV-001 Rev. 1

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Section 1

General Valve Operation & Maintenance Information

- **THEORY OF OPERATION**

Gate Valve. Gate Valve is designed to close off or open up the flow in a pipeline. The wedge is designed to completely stop flow and form a tight seal against pressure in either direction. In the open position, the wedge is completely out of the flow stream. Gate Valves are not recommended for throttling use.

Globe Valve. Globe Valves are designed to close off, open up or throttle the flow in a pipeline. The Disc is designed to completely stop flow and form a tight seal with pressure under the Disc. From the 10% open position to full open position, globe Valves are effective in throttling line pressure.

NOTE: Continuous throttling at less than 10% open may cause excessive vibration, noise, wear and damage to Discs and seats.

The Globe Valve is also available in a stop-check configuration. Stop check Valves (sometimes called non-return Valves) are designed to be opened by the flow of system pressure in one direction and close automatically when the system flows in the opposite direction. In addition, stop check Valves can throttle the flow in the open direction or close the flow off completely.

Y-Globe Valves. Y-Globe Valves are designed to close off, open up or throttle the flow in a pipeline. The Disc is designed to completely stop flow and form a tight seal with pressure under the Disc. From the 10% open position to full open position, globe Valves are effective in throttling line pressure. These Valves typically offer better flow characteristics than standard globe Valves.

NOTE: Continuous throttling at less than 10% open may cause excessive vibration, noise, wear and damage to Discs and seats.

The Y-Globe is also available in a stop-check configuration. Stop check Valves (sometimes called non-return Valves) are designed to be opened by the flow of system pressure in one direction and close automatically when the system flows in the opposite direction. In addition, stop check Valves can throttle the flow in the open direction or close the flow off completely.

Check Valves. Swing check Valves are designed to open by the system pressure in a line. The desired direction of flow in the line will open the Valve, and any attempt by the flow to reverse will close the Valve completely. The check Valve typically does not require any outside force or signal to operate properly. Check Valves allow flow in one direction only. This type of Check Valve can be installed in vertical and horizontal lines in the way that the gravity force helps the Disc to close. The Swing Check Valves can be obtained in two configurations: Traditional Swing Check type and Tilting Disc Type.

Tilting Disc Check Valve. Is similar to a Swing Check Valve, but it can close faster than that Valve, preventing the back flow to gain high reverse velocity. This capability can prevent pressure surges in the system, when fast flow decelerations occur.



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Lift Check Valves. Lift Check Valves are designed to be opened by the flow of system pressure in one direction and close automatically when the system flows in the opposite direction. The lift Check Valves can be obtained in two configurations: "T" pattern and "Y" pattern. The Flow Coefficients are similar to the globe Valves in the equivalent configurations. These Valves are normally installed in horizontal lines in the way that the gravity force helps the Disc to close.

Parallel Disc Gate Valves. Parallel Disc Valves utilize a special free floating Disc arrangement to provide positive shutoff. Unlike standard wedge Gates, the parallel Disc Valve is seated by position and not input torque. This system uses upstream pressure to effects a positive seal.

- **DESCRIPTION**

This manual covers Xanik Bolted Bonnet Valves. These Valves are designed within the limits of ASME B16.34. For the operator and mounting top-works of these Valves, the user is referred to the section "8" in this manual.

This manual is for reference purposes only. Disassembly and maintenance of Valves should only be performed by qualified personnel. Consult xanor de Mexico s.a. de c.v. for specific technical support. For Specific information regarding a particular style of Valve, please refer to the corresponding detailed section.

- **INSTALLATION**

When unpacking, care should be exercised in lifting and handling to avoid damage to Valves or injury to personnel. Do not lift any Valve by the hand wheel or stem. Use lifting lugs or straps around the Valve body.

When installing, ensure that all foreign material is removed from the interior of the Valve, including desiccants. Note: Do not remove protective end coverings until immediately prior to Valve installation.

Note: Do not disassemble or modify a Xanik Valve in any way prior to installation. This will void the Factory warranty if it occurs.

When installing weld-end, flex wedge Gate or globe Valves into the line, it is advisable to have the Valve slightly open to prevent the wedge from becoming "stuck" due to thermal expansion and to Discourage damage to the seating surfaces.

A protective paint has been applied to the weld ends on some Valves and it should be removed before welding.



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Check the temperature of surrounding areas to avoid heating Valve body excessively, especially with small sizes, where a heat sink may be necessary.

Use the smallest electrodes and the minimum amperage possible consistent with approved welding procedures. This will help to minimize warp age in the seat areas. Tack welds should be ground out before completing the root pass in that area.

Valves of carbon steel should be allowed to cool slowly. The Valve may be covered with a heat-insulating blanket to promote slow cooling and limit the heat-affected zone. Appropriate industry standards should be followed for all PWHT.

Certain Valve types are designed to function in a single direction (check Valves, etc.) All markings should be noted on the Valves. Arrows on the Valves indicating flow direction should correspond with the system flow direction.

Note: Ensure that all foreign material (dirt, weld slag, etc) has been removed from the Valve prior to and after installation. Foreign material is the primary cause of premature seat failures.

- **WARRANTY**

All Xanik Valves are backed by a full manufacturer's warranty against defects in materials or workmanship. It should be noted that any work or modification performed on a Xanik Valve must be authorized by xanor de México s.a. de c.v. in order to retain the original factory warranty.

- **OPERATING INSTRUCTIONS**

Xanik Valves are designed for simplicity and ease of operation. To open a Gate, globe or stop check Valve, turn the hand wheel in a counter clockwise direction; continue turning until interference is felt; at this point, the Valve will be fully open. To close the Valve, turn the hand wheel in a clockwise direction; continue turning until interference is felt; at this point, the Valve will be fully closed.

Note that Parallel Disc Gate Valves are not seated by torque. The Disc is position seated and will stop when it contacts the factory set travel limits. Further tightening will not improve the seal and could lead to Valve damage if excessive torque is applied.

Swing, Lift and Tilting Disc Check Valves, are designed to be actuated by line pressure only. When the upstream line is pressurized, flow will open the Disc. When the pressure is reduced upstream, or if there is back-pressure, the Disc will close.

With some larger Valves under conditions of high pressure, a rim pull of more than 250 lbs. in hand wheel may be required to achieve proper seating.

CAUTION! – All Xanik Valves were designed to operate within the pressure and temperature limits of ASME B16.34. Do not exceed these limits.



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6.0 MAINTENANCE

- Preventative Maintenance and Periodic Inspection

xanor de méxico s.a. de c.v. Recommends that's periodic inspections is made of all Valves. The frequency of these inspections will vary, depending upon the severity of service and frequency of operation of the Valve. As a minimum, all Valves should be checked quarterly to ensure proper operation and discourage the damage compounding effects of leakage. The following list details the specific Valve types and areas requiring inspection and maintenance.

Item to inspect	GATE	GLOBE	Y-GLOBE	CHECK SWING & LIFT.	TILTING CHECK	STOP CHECK "T" or "Y"
Check Stem threads for wear	X	X	X			X
Check for Packing leaks	X	X	X			X
Check body/bonnet join for leaks	X	X	X	X	X	X
Check for leaks on Side plugs or lateral caps when applicable				X	X	
If conditions permit:						
Operate Valve.	X	X	X			X
Inspect all external connections	X	X	X	X	X	X
Ensure Stem and seal areas are free from debris	X	X	X			X
Inspect condition of motor and/or gear operators (when used)	X	X	X			X
Inspect Valve for obvious damage	X	X	X	X	X	X

Warning! Do not remove or loosen the packing gland or bonnet bolts while the Valve is pressurized.



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6.2 Maintenance of Valve under pressure

If the above listed inspections reveal any indications, the following procedures are recommended:

Note: Extreme care should be taken when working on any pressurized system!

6.2.1 If the stem packing is leaking, the eyebolt nuts on the gland flange should be tightened uniformly until the leakage stops. If the leakage continues or there is no adjustment remaining, additional packing must be installed or the packing must be replaced. (See disassembly procedure for appropriate Valve or Packing and Gasket maintenance section) It should also be noted that the Valve should be able to operate freely at all times. If the Valve cannot operate due to excessive packing force, the packing has become worn and must be replaced during a system shutdown.

6.2.2 The stem threads that are exposed to atmosphere should be periodically lubricated to reduce wear, operating torque, and to deter corrosion. Care should be taken to ensure that only the threaded portion of the stem is lubricated. xanor de México s.a. de c.v. does not recommend the practice of lubricating the sealing area of the stem. This practice tends to attract debris and foreign material, which can lead to stem or stuffing box damage.

6.2.3 The yoke sleeve should be lubricated periodically through the grease fitting to ensure smooth operation.

6.2.4 If leakage develops at the body/bonnet joint of a bolted bonnet Valve, the bonnet stud nuts should be tightened uniformly. This tightening should be done in accordance with the bolting torque section of this manual.

CAUTION! Does not overstress the bolting leakage continue the gasket should be replaced?
(See the bolting torque section "8" and the appropriate Valve disassembly procedure)

6.2.5 If normal inspection reveals a binding or galling action of Valve operating parts, it is advisable to dismantle and inspect the Valve parts during a system shutdown. (See appropriate Valve disassembly procedure)



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- IDENTIFICATION

All Xanik Valves are identified with a metal Tag that is riveted to the Valve. This tag is usually found on the Body/Bonnet joint area, or on the top plate area near the hand wheel.

When ordering spare parts, or requesting technical support, please have the tag information available. The Serial number and Stock number are the keys to proper Valve identification.

XANIK VALVES	
SIZL	<input type="text"/>
BODY	<input type="text"/>
STIM	<input type="text"/>
DISC	<input type="text"/>
SEAT	<input type="text"/>
FIG. NO.	<input type="text"/>
ANSI B16.34 CLASS	<input type="text"/>
<input type="text"/> PSI @ 100 F	MAX. <input type="text"/> "F
STOCK NO	<input type="text"/>
SERIAL NO.	<input type="text"/>



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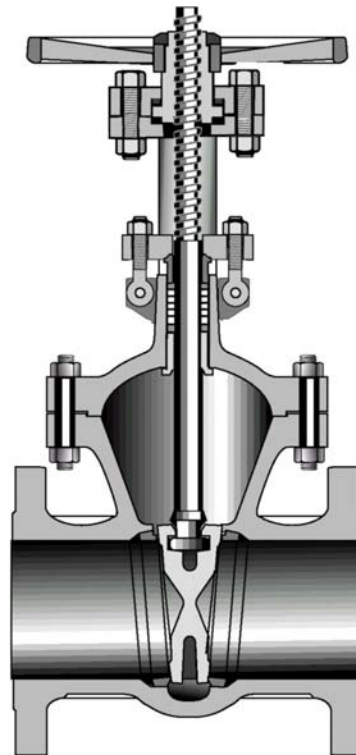
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Section 2
Bolted Bonnet, Gates Valves, Flexible or Solid Wedge





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BOLTED BONNET GATE VALVES, FLEXIBLE WEDGE OR SOLID WEDGE

1.0 General Information

For general operation & maintenance information regarding this Valve or any other Xanik Valve please refer to section "1" of this manual.

For specific information pertaining to Parallel Disc Gate Valves, please refer to section "3" of this manual.

2.0 Complete Disassembly

CAUTION! Before disassembling any Valve, ensure that all pressure has been removed from the line and from any cavities within the Valve.

2.1 Hand wheel operated Valves

Upon completion of the disassembly procedure listed below, the hand wheel 1 may be separated from the yoke sleeve 4, by removing the hand wheel nut 2.

2.2 Gear and motor operated Valves

Refer to section "8" of this manual for specific gear and motor information.

2.3 The following page contains a general disassembly and re-assembly procedure. These procedures cover the bulk of the disassembly and re-assembly process; however special attention should be paid to the following:

2.3.1 xanor de méxico s.a. de c.v. recommends to replace the Body/Bonnet gasket 8 when servicing any Valve.

Some times, if the gasket is all metal Ring Thigh Joint (RTJ), and did not suffer any scratch or galling, it can be used again, but experienced personnel have to make that choice.



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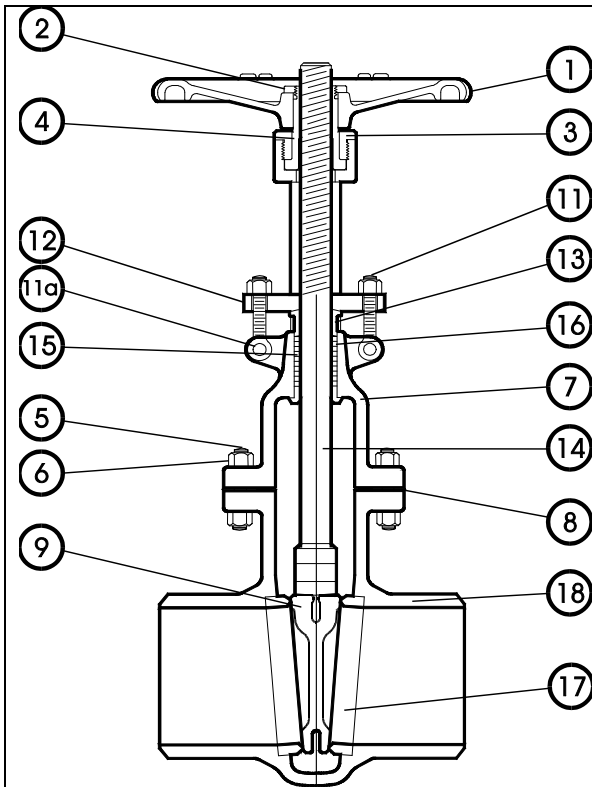
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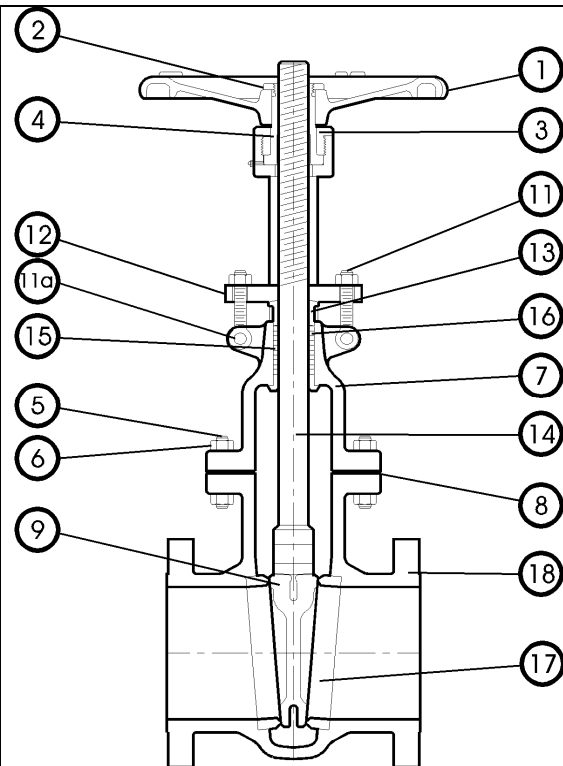
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BOLTED BONNET WEDGE GATE VALVES CLASS 150, 300, 600, 900, 1500 & 2500, ALL SIZES



WELDED ENDS



FLANGED ENDS

DISASSEMBLY

- Read the warning notice in section 2.0 of these instructions.
- Loosen and remove the packing gland bolts 11
- Loosen and remove the bonnet nuts 6 and studs 5.
- 2 Using a strap or similar device (when necessary) lifts the bonnet assembly 7 up and away from the Valve body 18. Note and mark the orientation of the wedge to the Valve body.
- Remove the wedge 9 from the stem 14.
- While holding the stem 14, turn the hand wheel 1 in a clockwise direction to draw out the stem.
- Once the stem has been removed, the gland 13 and the gland flange 12 may be removed.
- Remove the packing 15 using a packing hook or similar tool. Care should be taken to ensure that there is no damage to the stuffing box surface.
- Remove the gasket 8 from the Valve body.
- If necessary, remove the wheel nut 2 and the hand wheel 1.
- Remove the jam nut 3. This may require the removal of set screws or the removal of tack welds, depending upon the Valve configuration.



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- Remove the yoke sleeve 4 and bearings (when installed).

Note: In Larger Valves, instead of a Jam nut 2, there is a bolted cover. Remove the nuts and the cover, and the yoke sleeve 3 and bearings can be taken apart.

- Unless there is significant damage; the bonnet stem bushing 7 should not be removed.

RE-ASSEMBLY

- Clean all parts thoroughly. Lubricate the seating surfaces with a light oil to discourage galling during re-assembly.
- Install a new gasket 8.
- Install new packing 15, if necessary. Also install gland 13 and gland flange 12.
- 3 Install stem 14 into bonnet assembly.
- Reinstall the packing gland nuts 11.
- Replace wedge 9 onto stem 14.
- Install bonnet and wedge assembly into Valve body 18, noting the previously made marks to indicate the wedge orientation in the body.
- Reinstall bonnet studs 5 and nuts 6.
- Tighten the bonnet studs to the values listed in section "7" of this manual.

3.0 Maintenance of disassembled Valves

3.1 Following the disassembly procedures listed below, examine the body cavity 18 for deposits of foreign material.

3.2 Examine seating surfaces of seat rings 17 and wedge 9 for wear.

3.3 Examine stem 14, seal area and threads for excessive wear.

3.4 If excessive wear is evident, worn parts, or if necessary, the entire Valve should be reconditioned or replaced.

3.5 xanor de México s.a. de c.v. offers a complete replacement seal kits and spare parts for reconditioning. When ordering, always state the figure number of the Valve and the body material.

3.6 xanor de México s.a. de c.v. also offers complete re-manufacturing services to rework your Valve. If you find this

Necessary, our Valve Service Centers will remanufacture your Valve to factory specifications. Ask for the authorized repair facility for Xanik Valves close to you.



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4.0 Lubrication

4.1 Parts requiring lubrication are stem threads 14, entire gasket 8, and under all nuts 6 before torquing. Bonnet studs and nuts should be lubricated with an antisieze lubricant to promote ease of future disassembly.

5.0 Special tools and instructions

5.1 Recommended bolting torques are shown in section "7" of this manual

5.2 No special tools are required for general Valve maintenance.

6.0 Preventative Maintenance

6.1 Refer to section "1" of this manual for general Valve maintenance information.



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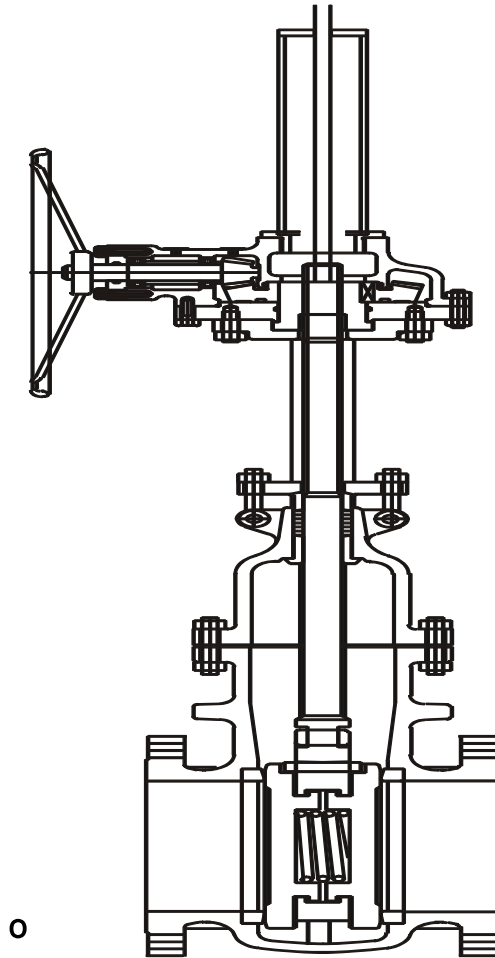
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Section 3 Bolted Bonnet Gate Valves, Parallel Slide Disc





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BOLTED BONNET PARALLEL DISC GATE VALVES

- **General Information**

For general operation & maintenance information regarding this or any other Xanik Valve please Refer to section "1" of this manual.

- Complete Disassembly

CAUTION! Before disassembling any Valve, ensure that all pressure has been removed from the line and from any cavities within the Valve.

- Hand wheel operated Valves

Upon completion of the disassembly procedure listed below, the hand wheel 26 may be separated from the yoke sleeve 19, by removing the hand wheel nut 27.

- Gear and motor operated Valves refer to section "8" of this manual for specific gear and motor information.
- The following page contains a general disassembly and re-assembly procedure. These procedures cover the bulk of the disassembly and re-assembly process, however special attention should be paid to the following:

2.3.1 xanor de mexico s.a. de c.v. recommends to replace the Body/Bonnet gasket 8 when servicing any Valve.

Some times, if the gasket is all metal Ring Thigh Joint (RTJ), and did not suffer any scratch or galling, it can be used again, but experienced personnel have to make that choice.



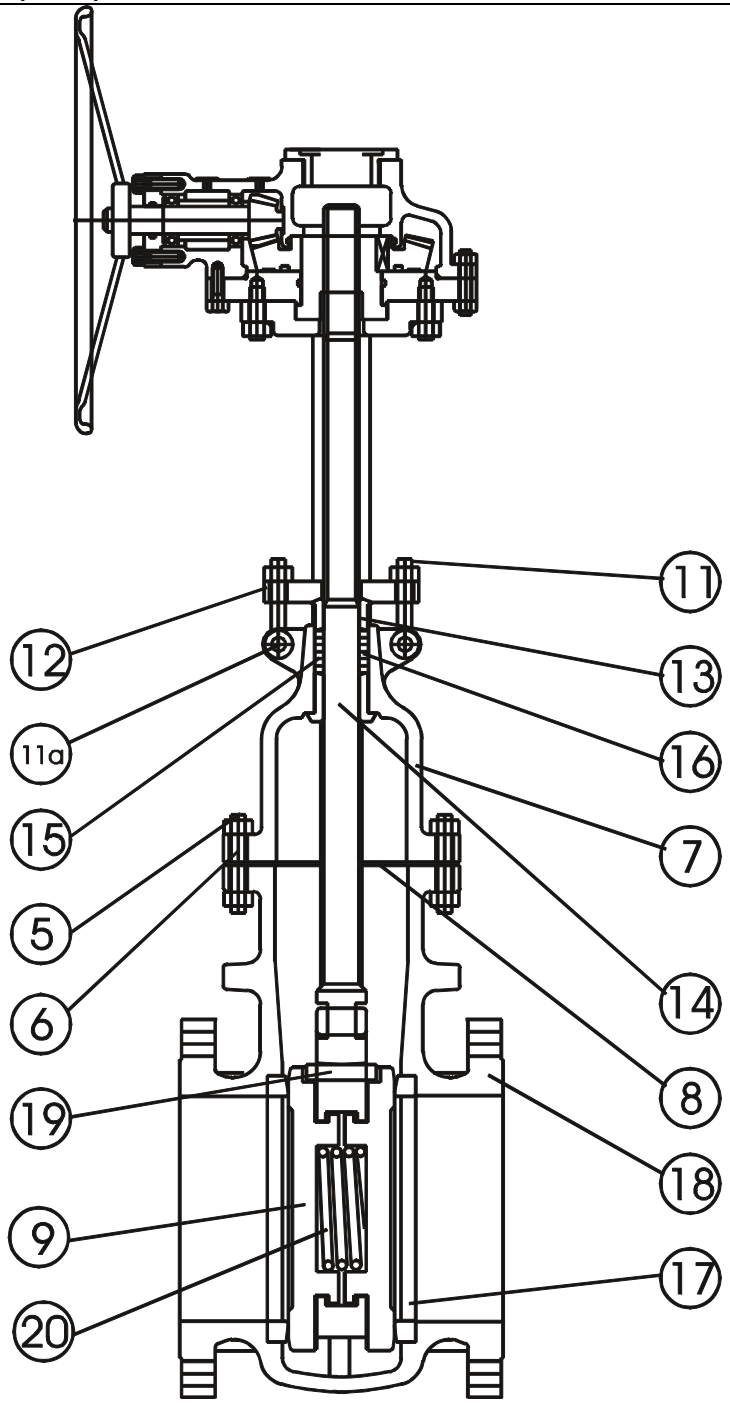
BOLTED BONNET GATE VALVES PARALLEL SLIDE CLASS 150, 300, 600, 900, 1500 & 2500 ALL SIZES

DISASSEMBLY

- Read the warning notice in section 2.0 of these instructions.
- Loosen and remove the packing gland bolts 11
- Loosen and remove the bonnet nuts 6 and studs 5.
- Using a strap or similar device (when necessary) lifts the bonnet assembly 7 up and away from the Valve body 18. Note and mark the orientation of the wedge to the Valve body. Pull the yoke assembly, bonnet 7 stem 14, and the discs 9 from the body 1. Use caution while lifting the stem/disc assembly off the seats as the disc will "pop" open at the bottom when free of the seating.
- While holding the stem 14, turn the hand wheel 1 in a clockwise direction to draw out the stem.
- Once the stem has been removed, the gland 13 and the gland flange 12 may be removed.
- Remove the packing 15 using a packing hook or similar tool. Care should be taken to ensure that there is no damage to the stuffing box surface.
- Remove the gasket 8 from the Valve body.
- To remove the jam nut 3, refer to disassembly instructions in previous section (Wedge Gates). This may require the removal of set -screws or the removal of tack welds, depending upon the Valve configuration.
- To Remove the yoke sleeve 4 and bearings, when installed, refer to disassembly instructions in previous section (Wedge Gates).

Note: In Larger Valves, instead of a Jam nut 2, there is a bolted cover. Remove the nuts and the cover, and the yoke sleeve 3 and bearings can be taken apart.

- Unless there is significant damage; the bonnet stem bushing 7 should not be removed.
- To disassemble the Disc 9 from the carrier, 19, and the internal spring 20, ask for directions from a xanor de méxico s.a. de c.v. Representative. This assembly can be considered as a unit and, unless evident damage, there is not need to disassemble.





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RE-ASSEMBLY

- Clean all parts thoroughly. Lubricate the seating surfaces with a light oil to discourage galling during re-assembly.
- Install a new gasket 8.
- Install new packing 15, if necessary. Also install gland 13 and gland flange 12.
- 4 Install stem 14 into bonnet assembly.
- Reinstall the packing gland nuts 11.
- Replace disc assembly 9 onto stem 14.
- Install bonnet 7 and disc/stem assembly into Valve body 18, noting the previously made marks to indicate the discs orientation in the body, Insert the disc 9 / stem 14 assembly into the body 18, note that it is necessary to clamp the bottom of the discs together so, they will fit between the seat rings. Once between the seat rings the clamp can be removed and assembly completed.
- Reinstall bonnet studs 5 and nuts 6.
- Tighten the bonnet studs to the values listed in section "7" of this manual.

NOTE: After system pressure has been re-established, retighten all bolting to the TORQUE values given in section "7" of this manual.

• Maintenance of Disassembled Valves

- Following the above listed disassembly procedures, examine the body cavity 1 for deposits of foreign material.
- Examine seating surfaces of seat rings 17 and discs 9 for wear.
- Inspect disc 9 spring holes for wear.
- Examine carrier 19 guide surfaces for wear.
- Examine stem 14, seal area and threads for excessive wear.
- Inspect springs 20, and pin for signs of wear.
- If excessive wear is evident, worn parts, or if necessary, the entire Valve should be reconditioned or replaced.
- xanor de mexico s.a. de c.v. offers a complete replacement seal kits and spare parts for reconditioning. When ordering, always state the figure number and serial number of the Valve and the body material.
- xanor de mexico s.a. de c.v. also offers complete re-manufacturing services to rework your Valve. If you find this necessary, our Service Centers will remanufacture your Valve to factory specifications. Ask for your closest Service Center or repair facility for Xanik Valves



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- **Lubrication**

- Parts requiring lubrication are stem threads 14, entire gasket 8 and under all nuts 5, for torquing. Bonnet studs should be lubricated with an antisieze lubricant to promote ease of future disassembly.

- **Special tools and instructions**

- Recommended bolting torques are shown in section "" of this manual
- A clamping device is recommended to prevent the disc halves from springing open during installation/removal. This clamp can be a commercially available unit, or contact xanor de mexico s.a. de c.v. for more information. Certain large Valve styles may require the use of a hydraulic torque device to achieve optimum bolt torque.

- **Preventative Maintenance**

6.1 Refer to section "1" of this manual for general Valve maintenance information.



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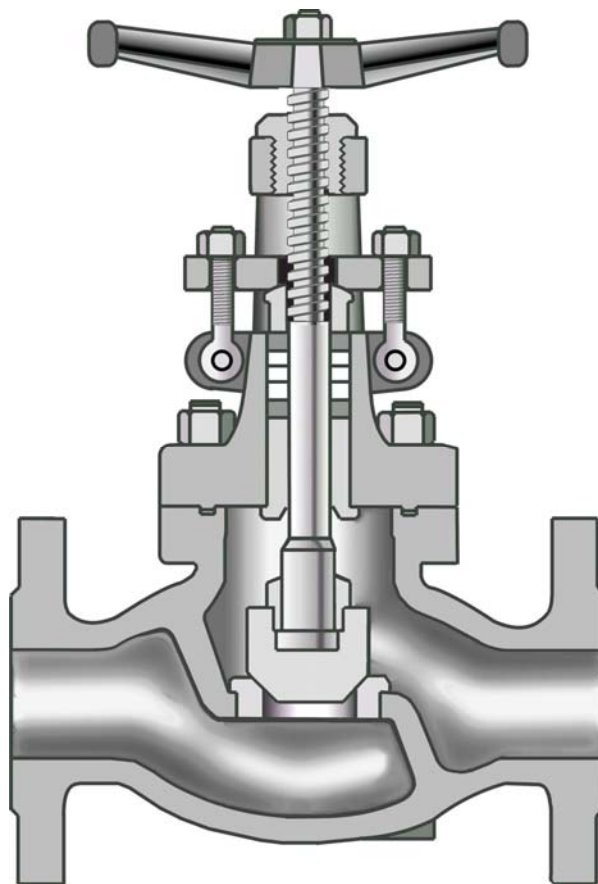
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Section 4

Bolted Bonnet Globe & Stop Check Valves, "T" Pattern





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BOLTED BONNET GLOBE & STOP CHECK VALVES

1.0 General Information

For general operation and maintenance information regarding this or any other Valve please refer to section "1" of this manual.

2.0 Complete Disassembly

CAUTION! Before disassembling any Valve, ensure that all pressure has been removed from the line and from any cavities within the Valve.

- Hand wheel operated Valves

Upon completion of the disassembly procedure listed below, the hand wheel 1 may be separated from the stem 14, by removing the hand wheel nut 2.

2.2 Gear and motor operated Valves

Refer to section "" of this manual for specific gear and motor information.

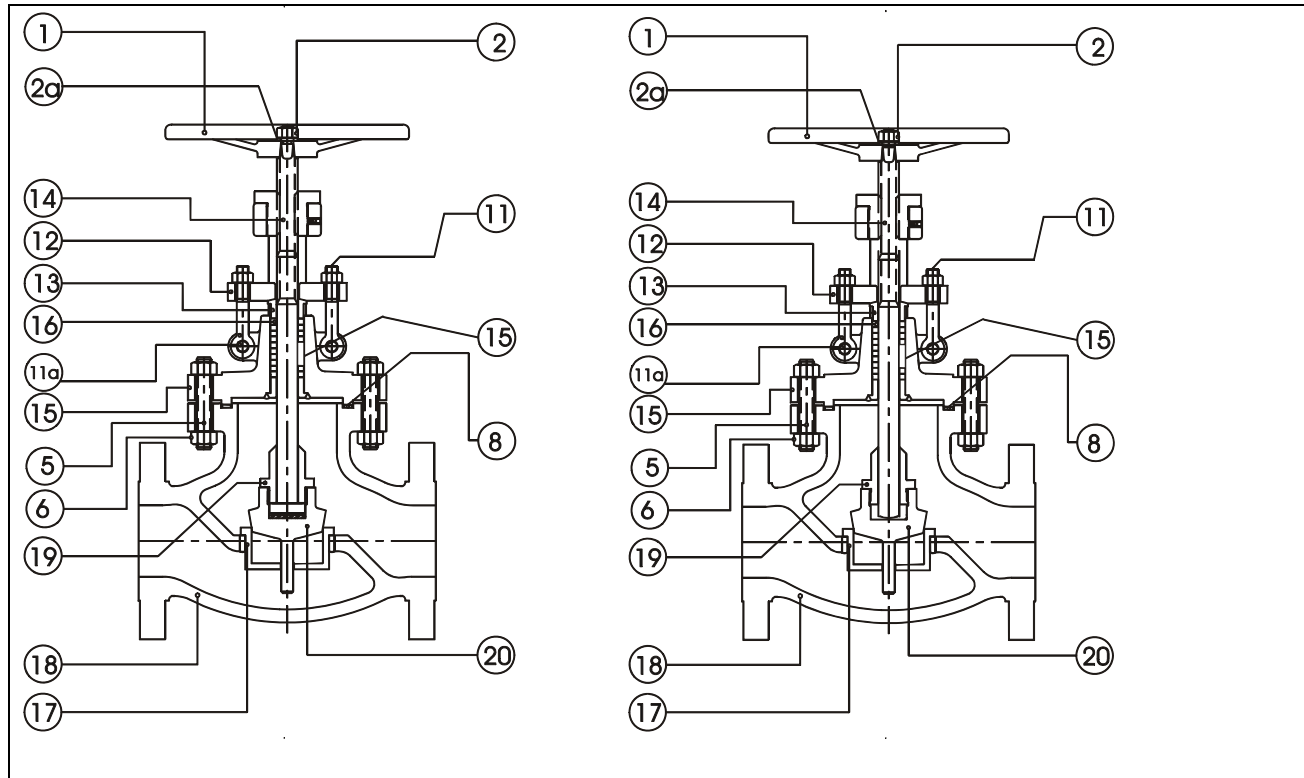
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2.3.1 xanor de mexico s.a. de c.v. recommends to replace the Body/Bonnet gasket 8 when servicing any Valve.

Some times, if the gasket is all metal Ring Thigh Joint (RTJ), and did not suffer any scratch or galling, It can be used again, but experienced personnel have to make that choice.



BOLTED BONNET "T" GLOBE & STOP CHECK VALVES CLASS 150, 300, 600, 900, 1500 & 2500 ALL SIZES



DISASSEMBLY

1.0 Read the warning notice in section 2.0 page of these instructions.

- Loosen and remove the packing gland bolts 11
- Loosen and remove the bonnet nuts 6 and studs 5.
- Using a strap or similar device (when necessary) lift the bonnet assembly 15 up and away from the Valve body 18.
- Remove the disc 20 from the stem 14 by grinding off the tack welds on the lock nut 19
- Remove the hand wheel nut 2 and the hand wheel 1.
- Remove the stem 14 by turning it until it is free of the yoke sleeve.
- Once the stem has been removed, the gland 13 and the gland flange 12 may be removed.
- Remove the packing 16 using a packing hook or similar tool. Care should be taken to ensure that there is no damage to the stuffing box surface.
- Remove the gasket 8 from the Valve body.
- If necessary, remove the yoke sleeve by unscrewing it counter clockwise. Note it may be necessary to remove set screws, depending upon Valve configuration.
- The bonnet stem bushing should not be removed unless damaged.

**REASSEMBLY**

- Clean all parts thoroughly. Lubricate the seating surfaces with a light oil to discourage galling during re-assembly.

1.0 Install a new gasket 8.

1.0 Install new packing 16, if necessary. Also install gland 13 and gland flange 12.

1.0 Install stem 14 into bonnet assembly.

- Reinstall the packing gland nuts 11.
- Replace disc 20 and lock nut 19 on to stem.
- Replace tack welds, if provided (Ask for the welding electrode used to make the tack welds)
- Install bonnet and disc assembly into Valve body 18.
- Reinstall bonnet studs 5 and nuts 6.
- Tighten the bonnet studs to the values listed in section "7" of this manual.

3.0 Maintenance of disassembled Valves

3.1 Following disassembly procedures in Section 2.0, examine body cavity 1 for deposits of foreign material.

3.2 Examine seating surfaces of seat ring 17 and disc 20 for wear.

3.3 Examine stem 14, seal area and threads for excessive wear.

3.4 If excessive wear is evident, worn parts, or if necessary, entire Valve should be reconditioned or replaced.

3.5 xanor de Mexico s.a. de c.v. recommends to replace the body/bonnet gasket 8 when servicing any Valve

- It should be noted that the Xanik pressure seal globe Valve is available in a standard globe and stop check (non return) configuration. Each configuration utilizes a specific disc retention system.

3.7 xanor de Mexico s.a. de c.v. offers complete replacement seal kits and spare parts for reconditioning. When ordering, always state the figure number, serial number of the Valve and the body material.

- xanor de Mexico s.a. de c.v. also offers complete re-manufacturing services to rework your Valve. If you find this necessary, our Service Centers will remanufacture your Valve to factory specifications. Ask for the closest authorized repair facility in your location.

• Lubrication

4.1 Parts requiring lubrication are stem threads 14, entire gasket 8, and under all nuts 6 and bolts 5 before torquing. Bonnet bolts should be lubricated with an antisieze lubricant to promote ease of future disassembly.

5.0 Special tools and instructions

5.1 Recommended bolting torques is shown in section "7" of this manual.

5.2 No special tools are required for general Valve maintenance. However, in certain large Valve styles, the use of a hydraulic torque device may be necessary to achieve optimum bolt torque.

6.0 Preventative maintenance

- Refer to section "1" for general maintenance data



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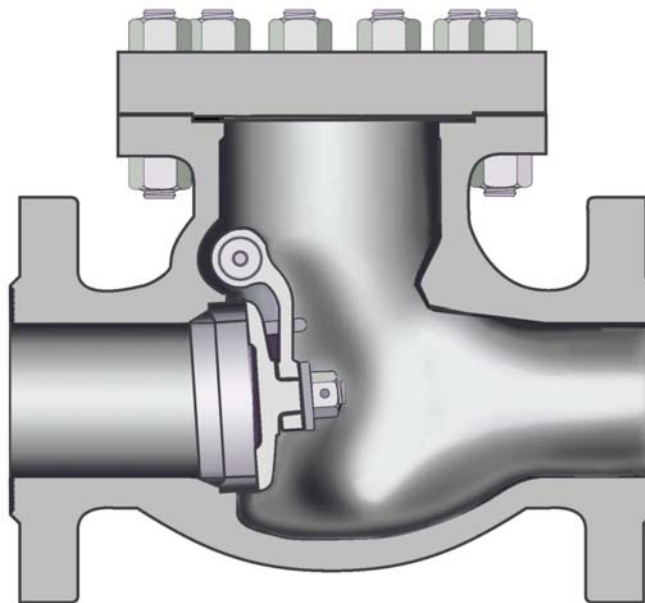
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Section 5

Bolted Bonnet Swing Check Valves





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BOLTED BONNET SWING CHECK VALVES

- **General Information**

For general operation and maintenance information regarding this or any other Valve please refer to section "1" of this manual.

- **Complete Disassembly**

CAUTION! Before disassembling any Valve, ensure that all pressure has been removed from the line and from any cavities within the Valve.

2.1 The following page contains a general disassembly and re-assembly procedure. These procedures cover the bulk of the disassembly and re-assembly process; however special attention should be paid to the following:

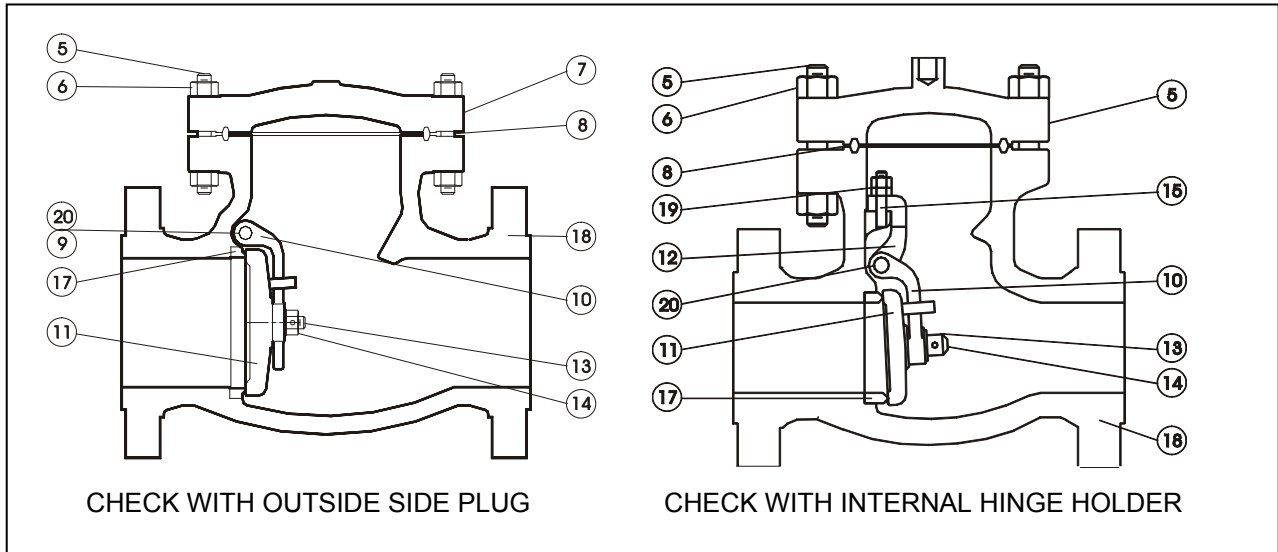
This manual does not include information for repair of the seat and disk of Swing Check Valves. Consult your Xanor de México S.A. de C.V. Representative.

2.1.1 xanor de méxico s.a. de c.v. recommends to replace the Body/Bonnet gasket 8 when servicing any Valve.

Some times, if the gasket is all metal Ring Thigh Joint (RTJ), and did not suffer any scratch or galling, it can be used again, but experienced personnel have to make that choice.



BOLTED BONNET SWING CHECK VALVES CLASS 150, 300, 600, 900, 1500 & 2500 ALL SIZES



DISASSEMBLY

- Read the warning notice in section 2.0 of these instructions.
- Loosen and remove the bonnet nuts 6 and studs 5.
- Remove and discard the gasket 8.
- Remove the disc nut retention system 13. This may include the disc nut pin and or a tack weld.
- Remove the disc nut 14 disc washer (bellow nut) and disc 11. Care should be taken to ensure that the disc is not damaged upon removal.
- Remove the hinge pin side plug 9. Note that some Valves have side plug, others have internal hinge holder assembled to the body by studs and nuts 15 and 19. Removing these bolts, the internal hinge holder can be taken out.
- Remove the hinge and disc assembly from the Valve. Note the position and quantity of any shims or spacers (when used).
- If necessary, remove the hinge pin 20 from the hinge 10.

RE-ASSEMBLY

- Clean all parts thoroughly.
- Reinstall hinge/disc assembly in reverse order
- Care should be taken to reinstall/apply any lock devices on the disc to disc nut connection.
- Install a new gasket 8.
- 6 Tighten bonnet fasteners to the values listed in section "7" of this manual.



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- **Maintenance of disassembled Valves**

- Following disassembly procedures in Section 2.0, examine body cavity 18 for deposits of foreign material.
- Examine seating surfaces of seat ring 17 and disc 3 for wear
- If excessive wear is evident, worn parts, or if necessary, entire Valve should be reconditioned or replaced.
- Speciality Valves recommends to replace the body/bonnet gasket 8 when servicing any Valve
- xanor de Mexico s.a. de c.v. offers complete replacement seal kits and spare parts for reconditioning. When ordering, always state the figure number, serial number of the Valve and the body material
- xanor de Mexico s.a. de c.v. also offers complete re-manufacturing services to rework your Valve. If you find this necessary, our Service Centers will remanufacture your Valve to factory specifications. Ask for the closest authorized repair facility in your location

- **Lubrication**

- Parts requiring lubrication are: entire gasket 8, and under all nuts and bolts 5, 6 before torquing. Bonnet bolts should be lubricated with an antisieze lubricant to promote ease of future disassembly.

- **Special tools and instructions**

5.1 Recommended bolting torques is shown in section "7" of this manual.

5.2 No special tools are required for general Valve maintenance. However, in certain large Valve styles, the use of a hydraulic torque device may be necessary to achieve optimum bolt torque.

6.0 Preventative Maintenance

6.1 Refer to section "1" for general maintenance data



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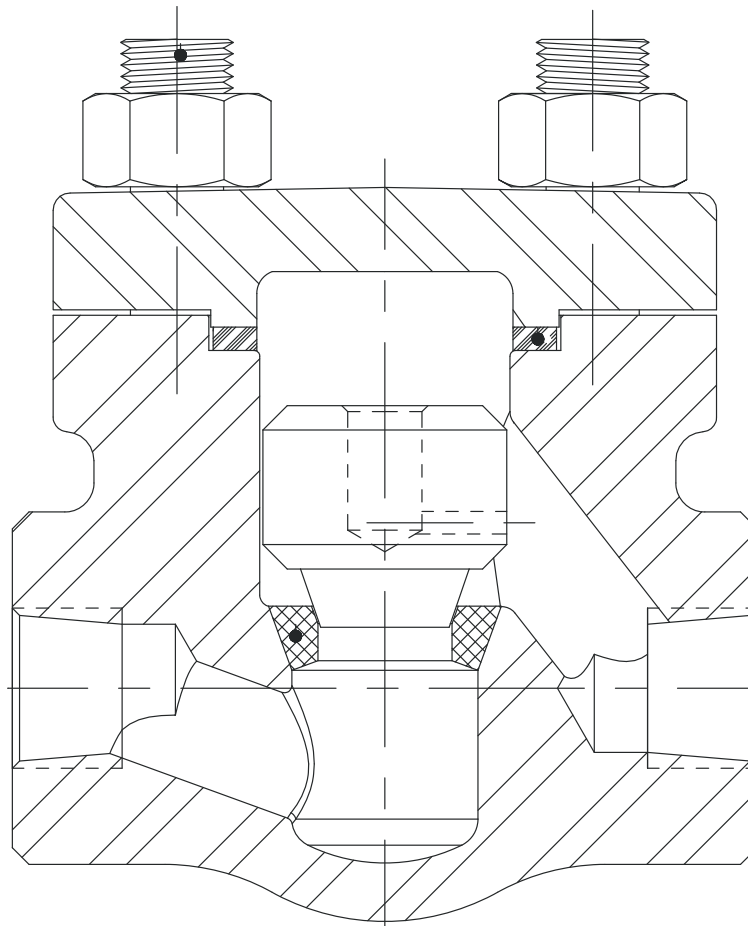
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Section 6

Bolted Bonnet Lift Check Valves





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BOLTED BONNET LIFT CHECK VALVES

1.0 General Information

For general operation and maintenance information regarding this or any other Valve please refer to section "1" of this manual.

2.0 Complete Disassembly

CAUTION! Before disassembling any Valve, ensure that all pressure has been removed from the line and from any cavities within the Valve.

2.1 The following page contains a general disassembly and re-assembly procedure. These procedures cover the bulk of the disassembly and re-assembly process; however special attention should be paid to the following:

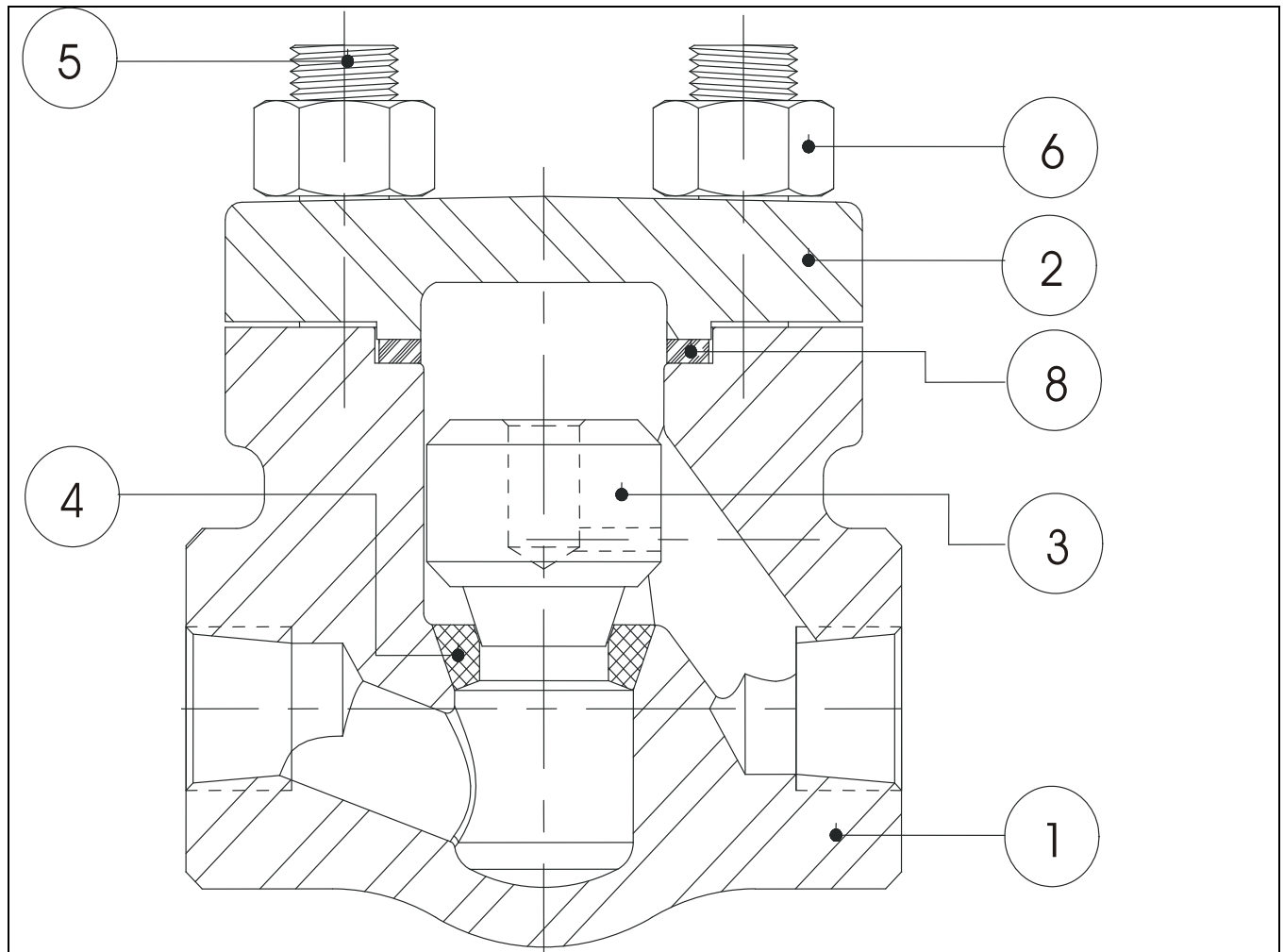
This manual does not include information for repair of the seat and disk of Lift Check Valves. Consult your xanor de méxico s.a. de c.v. Representative.

2.1.1 xanor de méxico s.a. de c.v. recommends to replace the Body/Bonnet gasket 8 when servicing any Valve.

Some times, if the gasket is all metal Ring Thigh Joint (RTJ), and did not suffer any scratch or galling, it can be used again, but experienced personnel have to make that choice.



**BOLTED BONNET LIFT CHECK VALVES
CLASS 150, 300, 600, 900, 1500 & 2500 ALL SIZES**



DISASSEMBLY

Read the warning notice in section 2.0 page of these instructions.

Loosen and remove the bonnet studs and nuts 6 & 5.

Remove the cap 2.

Remove the gasket 8.

Remove the disc 3 from the Valve.

Use extreme caution to not scratch or damage the seating surfaces of the disc, seat ring, body, gasket, or bonnet.



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RE-ASSEMBLY

- Clean all parts thoroughly.
- Reinstall disc
- Care should be taken to reinstall the disc for avoiding beats on the seat ring 4.
- Install a new gasket 8.
- 7 Tighten bonnet fasteners to the values listed in section "7" of this manual.

3.0 Maintenance of disassembled Valves

- 3.1 Following disassembly procedures in Section 2.0, examine body cavity 1 for deposits of foreign material.
- 3.2 Examine seating surfaces of seat ring 4 and disc 3 for wear
- 3.3 If excessive wear is evident, worn parts, or if necessary, entire Valve should be reconditioned or replaced.
- 3.4 Speciality Valves recommends to replace the body/bonnet gasket 8 when servicing any Valve
- 3.5 xanor de Mexico s.a. de c.v. offers complete replacement seal kits and spare parts for reconditioning. When ordering, always state the figure number, serial number of the Valve and the body material
- 3.6 xanor de Mexico s.a. de c.v. also offers complete re-manufacturing services to rework your Valve. If you find this necessary, our Service Centers will remanufacture your Valve to factory specifications. Ask for the closest authorized repair facility in your location

4.0 Lubrication

- 4.1 Parts requiring lubrication are: entire gasket 8, and under all nuts and bolts 5, 6 before torquing. Bonnet bolts should be lubricated with an antisieze lubricant to promote ease of future disassembly.

5.0 Special tools and instructions

- 5.1 Recommended bolting torques is shown in section "7" of this manual.
- 5.2 No special tools are required for general Valve maintenance. However, in certain large Valve styles, the use of a hydraulic torque device may be necessary to achieve optimum bolt torque.

6.0 Preventative maintenance

- 6.1 Refer to section "1" for general maintenance data



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Section 7

THEORY OF OPERATION

Tilting Disc Check Valve. Is similar to a Swing Check Valve, but it can close faster than that valve, preventing the back flow to gain high reverse velocity. This capability can prevent pressure surges in the system, when fast flow decelerations occur.

DESCRIPTION

This manual covers Xanik Bolted Bonnet Tilting Disc Check Valves. These valves are designed within the limits of ASME B16.34.

This manual is for reference purposes only. Disassembly and maintenance of valves should only be performed by qualified personnel. Consult xanor de Mexico s.a. de c.v. for specific technical support.

INSTALLATION

When unpacking, care should be exercised in lifting and handling to avoid damage to valves or injury to personnel. Use lifting lugs or straps around the valve body.

When installing, ensure that all foreign material is removed from the interior of the valve, including desiccants.
Note: Do not remove protective end coverings until immediately prior to valve installation.

Note: Do not disassemble or modify a Xanik Valve in any way prior to installation. This will void the Factory warranty if it occurs.

A protective paint has been applied to the weld ends on some valves and it should be removed before welding.

Check the temperature of surrounding areas to avoid heating valve body excessively, especially with small sizes, where a heat sink may be necessary.

Use the smallest electrodes and the minimum amperage possible consistent with approved welding procedures. This will help to minimize warp age in the seat areas. Tack welds should be ground out before completing the root pass in that area.

Valves of carbon steel should be allowed to cool slowly. The valve may be covered with a heat-insulating Blanket to promote slow cooling and limit the heat-affected zone. Appropriate industry standards should be followed for all PWHT.

Tilting Disc Check Valves are designed to function in a single direction. All markings Should be noted on the valves. Arrows on the valves indicating flow direction, should correspond With the system flow direction.

Note: Ensure that all foreign material (dirt, weld slag, etc) has been removed from the valve prior to and after installation. Foreign material is the primary cause of premature seat failures.



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WARRANTY

All Xanik Valves are backed by a full manufacturer's warranty against defects in materials or workmanship. It should be noted that any work or modification performed on a Xanik Valve must be authorized by xanor de mexico s.a. de c.v. in order to retain the original factory warranty.

OPERATING INSTRUCTIONS

Xanik valves are designed for simplicity and ease of operation.

Tilting disc check valves are designed to be actuated by line pressure only. When the upstream line is pressurized, flow will open the disc. When the pressure is reduced upstream, or if there is back-pressure, the disc will close.

CAUTION! – All Xanik valves were designed to operate within the pressure and temperature limits of ASME B16.34. Do not exceed these limits.

6. MAINTENANCE

Preventative Maintenance and Periodic Inspection

xanor de mexico s.a. de c.v. recommends that periodic inspections be made of all valves. The frequency of these inspections will vary, depending upon the severity of service and frequency of operation of the valve. As a minimum, all valves should be checked quarterly to ensure proper operation and discourage the damage compounding effects of leakage. The following list details the specific valve types and Areas requiring inspection and maintenance.

Item to inspect	TILTING CHECK
Check body/bonnet join for leaks	X
Check for leaks on Side plugs or lateral caps when applicable	X
If conditions permit:	
Inspect all external connections	X
Inspect valve for obvious damage	X

Warning! Do not remove or loosen the top and side cap bolts while the valve is pressurized.



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6.2 Maintenance of valve under pressure

If the above listed inspections reveal any indications, the following procedures are recommended:

Note: Extreme care should be taken when working on any pressurized system!

6.2.1 If leakage develops at the body/bonnet joint of a bolted bonnet valve, the bonnet stud nuts should be tightened uniformly. This tightening should be done in accordance with the bolting torque section of this manual.

CAUTION! Do not overstress the bolting if leakage continues, the gasket should be replaced. (See the bolting torque section "3" and the appropriate valve disassembly procedure)

IDENTIFICATION

All Xanik Valves are identified with a metal Tag that is riveted to the valve. This tag is usually found on the body/cap joint area.

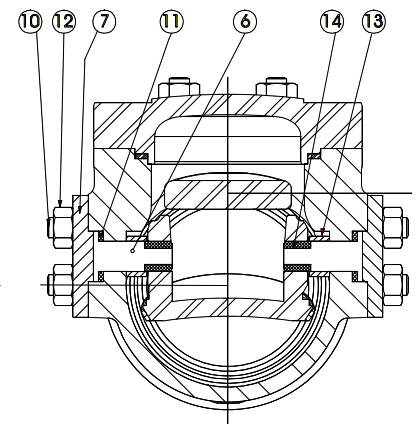
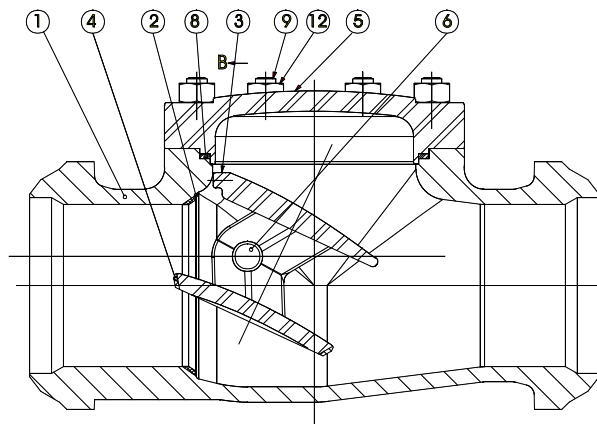
When ordering spare parts, or requesting technical support, please have the tag information available. The Serial number and Stock number are the keys to proper valve identification.



Tilting Disc Check Valves

POS.DESCRPTION

1	BODY
2	INTEGRAL SEAT RING
3	DISC
4	DISC OVERLAY
5	COVER
6	SHAFT (STELLITE OVERLAY)
7	SIDE COVER
8	SPIRAL WOUND GASKET
9	COVER STUD
10	STUD
11	SIDE GASKET SPIRAL WOUND
12	COVER NUT
13	SPACER
14	STELLITE OVERLAY





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BOLTED BONNET TILTING DISC CHECK VALVES

General Information

For general operation and maintenance information regarding this or any other valve please refer to section "1" of this manual.

Complete Disassembly

CAUTION! Before disassembling any valve, ensure that all pressure has been removed from the line and from any cavities within the valve.

2.1 The following page contains a general disassembly and re-assembly procedure. These procedures cover the bulk of the disassembly and re-assembly process; however special attention should be paid to the following:

Extreme care should be taken to ensure that the sealing surfaces of the gasket area 9 do not become damaged during disassembly or re-assembly. This includes scratches caused by misalignment and/or by debris in the seal area.

2.1.2 xanor de méxico s.a. de c.v. recommends replacing the top cover and side cover gasket 8 & 11 when servicing any valve.

2.3.3 Caution should be exercised in handling the new gaskets 8 & 11 to avoid scratching mating surfaces.

This manual does not include information for repair of the seat and disk of Tilting Disk Check Valves. Consult your xanor de méxico s.a. de c.v. Representative.



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BOLTED BONNET TILTING DISC CHECK VALVES CLASS 150, 300 & 600 ALL SIZES

DISASSEMBLY: For Sizes 6" and larger. (For 4" and smaller the only difference is that there are neither torsion springs nor lateral pressure seal gaskets. The lateral gaskets are spiral wound gaskets, that can be removed and assembled in a traditional way, the rest of instructions apply to all sizes)

Read the warning notice listed in section 2.0 of these instructions.

Loose without taking out the cover bolts nuts 12 to remove the cover 5.

Remove all cover stud nuts 12.

- Remove and discard the gasket 8.

Mark the body 1, cover 5 and with adjacent prick punch marks so that their relative position can be restored on re-assembly.

Remove the top cover 5

With clean rags and an air hose, thoroughly clean the top of the valve and all exposed surfaces of the cover and all exposed surfaces of the cover and gasket 8. This is important.

Inspection of the seat and hinge pins can be made without further disassembly.

If removal of the disk is necessary, proceed as follows:

NOTE: Pressure may be trapped in the valve even though the system is down and care must be taken in removing the hinge pin retainer. Once the retainer bolts are completely removed, the hinge pins are held only by the friction of the hinge pin bore. Trapped pressure could cause the hinge pin to be blown out with considerable force. Therefore care must be taken to break the hinge pin and hinge pin gasket loose before the retainer nuts are completely removed.

Carefully loosen but do not remove the hinge pin retainer bolt nuts 12.

Place a suitable spacer between the hinge pin side cover 7 and the body 1. Insert a threaded stud (same thread as the retainer bolts) through the center hole of the hinge pin side cover and thread into the puller hole in the hinge pin 6.

Support the disk 3 inside the body; thread a nut onto the stud, and tighten the nut until the seal gasket 11 and hinge pin 6 is loose and any pressure that may be trapped in the valve is relieved. If the hinge pin will not move, heat the body boss (not more than 300° F) with an acetylene torch.

Remove the hinge pin side cover nuts, hinge pin 6, seal gasket 11. During this process, mark the position of the hinge pin relative to the body with prick punch marks. Tag each hinge pin so that each may be replaced on the proper side of the valve. Remove the other hinge pin.

The disk 3 can now be removed from the body. Use caution not to damage any machined or seating surfaces 4 & 2. In laying the parts aside for inspection, it is imperative that they be placed carefully on a bed of rags or other soft material to avoid damage.

The covers should be kept covered whenever possible.



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RE-ASSEMBLY

Insert the disk through the cover end of the body and hold it against the valve seat.

Checking the tags or parts, place the proper hinge pin with a new gasket and spacers so the tang end enters the small hole in the bottom of the hinge pins.

Observing the relative position of the parts as marked; insert the hinge pin with gasket through the body and into the disk.

Install the top cap and new gasket in the position marked

Tighten the retainer covers nuts in 30% increments to the torque value shown in the section "3" of this manual

All nuts must be tightened uniformly in a star pattern to avoid cocking the covers.

Maintenance of disassembled valves

Following disassembly procedures in Section 2.0, examine body cavity 1 for deposits of foreign material.

Examine seating surfaces of seat ring 2 and disc 3 for wear

If excessive wear is evident, worn parts, or if necessary, entire valve should be reconditioned or replaced.

xanor de Mexico s.a. de c.v. offers complete replacement seal kits and spare parts for reconditioning.

When ordering, always state the figure number, serial number of the valve and the body material

xanor de Mexico s.a. de c.v. also offers complete re-manufacturing services to rework your valve. If you find this necessary, our Service Centers will remanufacture your valve to factory specifications. Ask for the closest authorized repair facility in your location

Lubrication

Parts requiring lubrication are: Under all nuts and bolts 12 before torquing. Bolts should be lubricated with an anti seize lubricant to promote ease of future disassembly.

Special tools and instructions

5.1 Recommended bolting torques is shown in section "3" of this manual.

5.2 No special tools are required for general valve maintenance. However, in certain large valve styles, the use of a hydraulic torque device may be necessary to achieve optimum bolt torque.

6.0 Preventative maintenance

6.1 Refer to section "1" for general maintenance data



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Section 8

Bolting Torque Values



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7.0 General Information

For general Valve Operation & Maintenance information please refer to section "1" of this manual.

This section details the specific torque values recommended by xanor de mexico s.a. de c.v. for bolting used in all Xanik Valves

8.0 Standard Procedures

8.1 Always uses new bolting materials.

8.2 Verify that the materials are compatible with the process system as well as any temperature or pressure requirements. Note that bolting materials can have minor identification changes which may have a substantial impact on performance, i.e. B7M vs. B7

8.3 Whenever allowed by system and process parameters, use appropriate lubrication to ensure even tightening of the bolting materials. For higher temperature applications, the use of an "Antisieze" compound may be necessary to promote future disassembly.

9.0 Torque Values All values are listed in foot/pounds (ft/lbs.)

Bolt Dia.	TPI	ASTM A193 GR B7,B8,B16, B8M bolting & K-500 monel with a bolt stress of 60,000 psi
1/4	20	14
5/16	18	21
3/8	16	30
7/16	14	45
1/2	13	65
9/16	12	95
5/8	11	135
3/4	10	230
7/8	9	360
1	8	535
1 1/8	8	815
1 1/4	8	1,125
1 3/8	8	1,525
1 1/2	8	1,900
1 5/8	8	2,540
1 3/4	8	3,240
1 7/8	8	4,075
2	8	4,990
2 1/4	8	6,665
2 1/2	8	8,525
2 5/8	8	9,525
2 3/4	8	10,525
3	8	13,760



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Section 9

Actuated Valves Section

GEAR & MOTOR OPERATED VALVES



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1.0 THEORY OF OPERATION

Most Valves, which are located in an accessible environment, are operated by a manual hand wheel mounted directly on top of the Valve. When the Valve size or differential pressure is so great that the hand wheel size cannot keep the operating hand wheel pull within customer reasonable limits, then a bevel gear should be mounted on the top works. In addition, many customers require remote operation or operating times that are not possible with manual hand wheels, in this case Electric Motor Operators (EMO's) can be used.

Note! Operator limit and torque settings are factory set during Valve testing. Do not alter these settings without contacting xanor de mexico s.a. de c.v. Failure to do so may void all Valve warranties.

WARNING! Do not use excessive air wrench torque or snipes on hand wheels as the gearing or Valve stem could be damaged!

2.0 INSTALLATION

Warning! Ensure that the electric motor operator is wired correctly and phased properly prior to operation. Do not allow the Valve to travel in the wrong direction (when phased is reversed). This can result in damage to the Valve and void all Valve warranties.

3.0 MAINTENANCE

The gear or electric operator itself should never require disassembly and it is recommended that this be done only by the operator manufacturer. If it becomes necessary to disassemble the Valve, the operator assembly must be removed first.

3.1 Preventive Maintenance

The preferred orientation for gear and motor operated Valves is in horizontal pipelines with the stem in a vertical position. When installed in any other position, motor operated Valves should be supported by means of a support clamp around the motor mounting plate. Please contact xanor de mexico s.a. de c.v. when specifying an operated Valve with an orientation different than that listed above.

3.1.1 With the operator removed from the Valve, examine the stem and operator drive nut for thread wear, galling or binding.

3.1.2 If excessive wear is evident, worn parts should be replaced.



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4.0 DISASSEMBLY

Note: Prior to the disassembly of any Valve equipped with an Electric Motor Operator, ensure that all electrical sources have been disconnected and the appropriate lockout/ tag out procedures have been used.

- 4.1 Remove operator mounting bolts from mounting plate or mounting adapter
- 4.2 Attach a support sling around operator and prevent rotation.
- 4.3 Turn hand wheel closed to turn operator off from stem and then lift gear operator off. In the case of an Electric Motor operator it may be necessary to disengage or “declutch” the motor before using the manual hand wheel. The Electric Motor Operator manufacturer’s manual should detail this procedure.
- 4.4 Remove spacer (when used) and coupling
- 4.5 Proceed with disassembly instructions given in the appropriate Valve maintenance instructions.

5.0 ASSEMBLY

- 5.1 Install spacer if used, and coupling.
- 5.2 Lift gear operator carefully over Valve stem and while preventing operator from rotating, turn hand wheel open until operator aligns over mounting holes.
- 5.3 Loosely install mounting bolts on mounting plate or mounting adapter and then check that stem operation does not bind.
- 5.4 Torque mounting bolts while Valve is in open position.
- 5.5 Set torque and limit switches in accordance with the instruction manual for the applicable operator.
- 5.6 For all gate and globe style Valves (excluding the Parallel Disc Gate Valve) upon Valve closing, the Torque switch should be set to trip first.
- 5.7 For Parallel Disc gate Valves upon Valve closing, only the limit switch should be utilized. The torque switch should not be utilized. Care should be taken to ensure that the torque switch is not engaged as this may apply excessive operator thrust/torque to the Parallel Disc gate Valve.
- 5.8 Upon Valve opening, the limit switch should be the only switch set to trip. The torque switch should not be utilized. The Valve can be back-seated only by turning the operator hand wheel further passed this limit position. Do not allow the motor operator to drive the stem into the backseat position. This operation should be done manually.