

1. Disassembly - Check Valves

- a. Close inlet and outlet gate valves. Bleed residual pressure by opening No. 2,3 and 4 testcocks.
- b. Unscrew bonnet using appropriate size wrench.
- c. Using pliers (or similar tool), grasp the retainer either by the center boss or cross support member (depends on device size).  
  
Lift upstream edge above its positioning groove and pull in the upstream direction to free the positioning tab from its groove.  
  
While pulling in an upstream direction to slightly compress the spring, pivot the retainer out of the valve body.
- d. Remove the spring and check assembly.

2. Check Valve Seal Replacement

- a. Hold check assembly in one hand and rotate the disc retainer until the cutouts are aligned with the tabs on the guide and remove. **CAUTION**; The use of pliers or other tools may damage the parts and require unnecessary replacement.
- b. Remove old seal and install new.

NOTE: On 3/4" and 1" sizes the seal is not symmetrical and can only be installed in one direction.

- c. Position disc retainer on guide and rotate to locked position.

Insure the seal is properly seated and has not been lifted during disc retainer installation.

3. Assembly - Check Valves

- a. Use reverse procedure for assembly with the following special instructions.
- b. After positioning the check assembly, insert the spring into the recessed area of the check assembly. Hold the other spring end, bending slightly upward and position the retainer over the spring end. Insert the retainer into position. Insure the spring is straight and properly seated. The use of a screw driver to pull/push on the spring is helpful to align the spring.
- c. To ease bonnet installation, apply a thin coating of o-ring lubricant or white petroleum jelly to the o-ring prior to assembly.
- d. Test unit to insure proper operation.

1. Check Valve Disassembly

- a. Close outlet gate valve then close inlet gate valve. Bleed residual pressure by opening No. 2,3 and 4 testcocks.
- b. Remove cover bolts and cover.
- c. Lift inlet side of the spring retainer slightly above the top surface and pull in the upstream direction to free the positioning tab from its groove. Pivot the retainer out of the valve body. It is advisable to wear gloves during this operation to avoid accidental injury to hands.
- d. Remove spring and check assembly.
- e. Remove guide retaining screw, guide and seal disc

2. Check Valve Assembly

- a. Use reverse procedure for assembly.
- b. When positioning the check assembly, care should be exercised to avoid damage to the valve body seal edge.
- e. Position spring around the raised area of check assembly. While holding spring in position, pivot the retainer into the valve body. Insure the spring is centered and straight.
- d. After completing assembly, open the inlet gate then the outlet gate valve. Bleed air from device

# SERVICE PROCEDURES

Models 805Y, 805YD, 806, 806YD, 825, 825D, 825YD (2 1/2" - 3")

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## 1. Check Valve Disassembly Model 825, 825D and 825YD (Sizes 2 1/2" - 3")

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a. Slowly close outlet shut-off valve and inlet shut-off valve. Bleed residual pressure by opening #4, #3, and #2 testcocks.

b. Remove cover bolts uniformly while holding cover in place. Remove cover.

**CAUTION: Spring is retained in body by cover.**

c. Lift check assembly from body being careful not to damage internal epoxy coating.

d. If necessary, unthread bushing (item 4A) from cover.

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## 2. Check Assembly Repair Models 825, 825D and 825YD (Sizes 2 1/2"-3")

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a. Unthread nut on stem and remove disc washer and seat disc.

b. Inspect seat disc for wear or damage. Replace with new seat disc or turn used disc over if new disc is not available.

**NOTE: The discs are symmetrical. It is usually possible to turn the disc over and obtain an effective seal.**

c. If the seat disc has been severely cut along the seat disc ring diameter, the assembly is being subjected to extremely high back pressure from thermal water expansion, water hammer, or other causes of excessive water pressure. A disc damaged in such a manner should be replaced and not turned over to be re-used.

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## 3a. Valve Seat Removal (Sizes 2 1/2"-3") Threaded-in Seat Ring Type Models Model 825

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1. Remove seat ring by unthreading in counter-clockwise direction being careful not to damage the internal epoxy coating in valve. A tool to aid in this process is available.

2. Remove bushing and bushing nut (item 2A & 2B).

3. Remove o-ring.

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## 3b. Valve Seat Removal (Sizes 2 1/2"-3") Bolted in Seat Ring Type Models Models 825D & 825YD

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1. Remove the three capscrews and washers retaining the seat ring.

2. Pull the seat ring from the valve body being careful not to damage the internal epoxy coating of valve.

3. If necessary, unthread the bushing (Item 2A) from the seat ring.

4. Remove the o-ring.

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## 4a. Valve Seat Reassembly (Sizes 2 1/2"-3") Threaded-in Seat Ring Type Models Model 825

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1. Lubricate o-ring with FDA approved lubricant and replace on seat ring.

2. Reinsert bushing into seat ring center.

3. Thread seat ring into valve body in clockwise direction being careful not to damage the internal epoxy coating of valve.

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## 4b. Valve Seat Reassembly (Sizes 2 1/2"-3") Bolted-in Seat Ring Type Models Model 825D & 825YD

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1. Lubricate o-ring with FDA approved lubricant and replace in seat ring.

2. Thread bushing into seat ring.

3. Place the seat ring carefully into body and retain with three capscrews and washers being careful not to damage the internal epoxy coating of valve.

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## 5. Check Valve Reassembly (Sizes 2 1/2"-3")

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a. Position the disc in the cleaned holder and retain with disc washer. Insert stem into disc holder, replace the nut on stem and tighten.

**NOTE: On older Model 825 valves, the disc holder is sealed to the stem with a sealant. If the seal is broken, the stem and holder must be cleaned and new sealant applied. Newer valves, Models 825D and 825YD, use an o-ring so a sealant is not required.**

b. Thread bushing into cover.

# SERVICE PROCEDURES

## 805Y, 805YD, 806, 806YD, 825, 825D, 825YD

c. Carefully place stem of check assembly into seat ring bushing. Replace spring centering diameter on the disc washer. **NOTE: Be sure the heavier spring (6 PSI) is placed in first check and lighter spring (2 PSI) is placed in second check or the unit will not operate properly and discharge from the relief valve could occur.** The wire diameter is visibly thicker on the heavier spring and thinner on the lighter spring. Care should be taken to avoid damaging internal epoxy coating of valve.

d. Place cover on check body securing spring and stem into cover.

e. Bolt cover onto check body while holding cover in place with appropriate hand force. Spring will be retained in body by cover.

f. Slowly open inlet shut-off valve. Bleed air from valve by opening first the #4 testcock, then the #3, #2 and #1 testcocks and air bleeds on all covers.

g. Slowly open outlet shut-off valve and return the valve to service.

h. Test the assembly to insure it is operating properly.

**(4" - 10")**

### 1. Check Valve Disassembly (Sizes 4"-10")

a. Slowly close outlet gate valve then slowly close inlet gate valve. Bleed residual pressure by opening first the #4 testcock, then #3, and #2 testcocks.

b. Remove cover bolts and cover. Unscrew bolts uniformly to avoid binding of the cover. The spring will push the cover approximately 1/2 inch off the top of the valve body.

### 2. Seat Disc Removal (Sizes 4"-10")

**CAUTION: The newer model 825 cast iron units have threaded disc holders with four (4) cast lugs, (6 lugs on 10" assemblies), 1/2" high located on back side, outside the spring diameter. If the Model 825 you are servicing does not have these lugs, SPRING TENSION MUST BE RELEASED BY USING THE SPRING REMOVAL TOOL BEFORE FURTHER DISASSEMBLY. DO NOT ATTEMPT TO REMOVE SPRING TENSION ON OLDER MODEL 825'S WITHOUT THE USE OF THIS TOOL. SEE SPRING REMOVAL INSTRUCTIONS. Newer Models 825, 825D and 825YD assemblies have the disc holder threaded on the stem. Therefore, the seat disc can be removed without releasing spring tension on these newer models.**

a. Unthread retaining nut from stem and remove disc washer and seat disc.

b. Inspect seat disc for wear or damage. Replace with new seat disc or turn used disc over if new disc is not available.

**NOTE: The discs are symmetrical. It is usually possible to turn the disc over and obtain an effective seal.**

c. If the seat disc has been severely cut along the seat disc ring diameter, the assembly is being subjected to extremely high back pressure from thermal water expansion, water hammer, or other causes of excessive water pressure. A seat disc damaged in this manner should be replaced and not turned over for re-use.

d. Remove disc holder from stem.

**NOTE: On older Model 825 valves, the disc holder is sealed to the stem with a sealant. If the seal is broken, the stem and holder must be cleaned and new sealant applied. Newer valves, Models 825D and 825YD use an o-ring so a sealant is not required.**

### 3. Spring Removal (Sizes 4"-10")

**CAUTION: TO AVOID POSSIBLE INJURY, DO NOT ATTEMPT TO REMOVE SPRING TENSION WITHOUT THE USE OF THE SPRING REMOVAL TOOL.**

**ON OLDER MODEL 825 VALVES, IT IS NECESSARY TO REMOVE THE SPRING BEFORE THE RUBBER SEAT DISC CAN BE REMOVED.**

a. Leave check assembly in body.

b. Install long studs in body 180 degrees apart.

# SERVICE PROCEDURES

Models **805Y, 805YD, 806, 806YD, 825, 825D, 825YD**

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c. Place spring removal tool over stud and retain with nuts.

d. Unthread capscrew (Item 7A) using 9/16" hex socket.

e. Release spring tension by unthreading nuts on long studs. Use alternating turns to keep tool parallel to valve body.

f. Remove spring guide and stem assembly.

g. Remove guide bushing by unthreading.

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#### **4a. Valve Seat Removal (Sizes 4"-10") Threaded-in Seat Ring Type Model 825**

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1. Remove check valve as described above.

2. Remove seat ring by unthreading in the counter-clockwise direction.

3. Remove bushing and bushing nut if used (bushing and nut is used on older Model 825).

4. Remove o-ring.

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#### **4b. Valve Seat Removal (Sizes 4"-10") Bolted in Seat Ring Type Model 825D or 825YD**

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1. Remove check valve as described above.

2. Remove the three capscrews and washers retaining the seat ring.

3. Pull the seat ring from the valve body.

4. Unthread the bushing (Item 2A) from the seat ring.

5. Remove the o-ring.

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#### **5a. Valve Seat Reassembly (Sizes 4"-10") Threaded-in Seat Ring Type Models Model 825**

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1. Lubricate o-ring with FDA approved lubricant. Reposition the o-ring in the seat ring groove.

2. Replace the bushing and bushing nut (if used) in the seat ring (the bushing and nut is used on older Model 825).

3. Thread the seat ring into the seating area in a clockwise direction. Be careful not to damage internal epoxy coated surfaces.

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#### **5b. Valve Seat Reassembly (Sizes 4"-10") Bolted-in Seat Ring Type Models Models 825D & 825YD**

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1. Lubricate o-ring with FDA approved lubricant. Reposition the o-ring in the seat ring groove.

2. Thread the bushing into the seat ring.

3. Place the seat ring carefully into the valve body and retain with three capscrews and washers being careful not to damage the internal epoxy coated surfaces.

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#### **6. Check Valve Reassembly Models 825, 825D, and 825YD**

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a. Use reverse procedure for assembly.

b. Make sure the o-ring is properly placed in the groove. Do not force the cover into the body.

c. Do not damage epoxy coated surfaces.

d. Test unit to insure proper operation.

# SERVICE PROCEDURES

## RELIEF VALVE

### MODELS 825, 825D

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#### **1a. Relief Valve Disassembly Non-Modular Type Relief Valve Models 825 & 825D**

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1. Remove copper tubing from relief valve body.

2. Unthread the relief valve completely from the check valve body, leaving the seat ring in the check valve body. NOTE: If the seat ring is removed with the relief valve, the seat ring must be unthreaded from the relief valve diaphragm plate, being careful not to damage the seat ring threads and seating surface.

3. Remove cover bolts and nuts, diaphragm cover and spacer from the relief valve assembly.

4. Turn the relief valve upside down, unthread screw (Item 35) using a 9/16 hex socket, and remove diaphragm assembly, spring button and spring.

5. Unthread screw (Item 48) and remove diaphragm washer and diaphragm from diaphragm button.

6. Push main stem out of bottom of relief valve body.

7. Remove o-ring from body.