



# WILKINS REGULATOR CO.

A Division of Zurn Industries, Inc.



## MODEL 575 REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER

Sizes  $\frac{3}{4}$ " — 2"

## MODEL 550 DOUBLE CHECK VALVE ASSEMBLY

# MAINTENANCE INSTRUCTIONS

### CAUTION:

Proper performance is dependent upon licensed, qualified personnel performing regular, periodic testing according to WILKINS' specifications and prevailing governmental and industry standards and codes. Failure to do so could result in an improperly functioning device.

All Model 575 Backflow Preventers and Model 550 Double Check Valve units must be inspected and maintained by licensed personnel at least once a year or more frequently as specified by local codes. Replacement of worn or damaged parts must only be made with genuine "WILKINS" parts. The WILKINS Certificate of Limited Warranty provides that failure to do so "releases WILKINS of any Liability that it might otherwise have with respect to that device." Such failure could also result in an improperly functioning device.

Model 575 devices should be thoroughly flushed after backflow conditions occur to prevent any type of corrosive deterioration to its components. Failure to do so could result in malfunction of the device.

### 1. GENERAL

Maintenance of either the Model 575 Backflow Preventer or the Model 550 Double Check Valve Unit can be performed without removing the device from the line. There are NO SPECIAL TOOLS required.

### 2. CHECK VALVES

To service the Check Valves, proceed as follows:

- Shut off the No. 2 gate valve, then shut off the No. 1 gate valve.
- Open the No. 2, No. 3 and No. 4 test cocks to release pressure and drain water from the backflow preventer.
- On the Model 575, loosen the sensing tube nuts and remove the sensing tube from the top of the check valve and the relief valve.

**CAUTION:** Take care in removing the cover in the following steps. The cover is spring loaded.

- Holding the cover down firmly, loosen and remove the four (4) bolts which mount the cover of the check valve.
- Slowly ease the cover outward to relieve the spring tension.
- Remove the cover, spring and poppet assembly from the check valve.
- Inspect the rubber seat of the poppet assembly for cuts or embedded debris.
- If damage is noted, loosen and remove the screw holding the retaining washer in place.
- Remove seal ring.

- If reverse side of seal is unused, invert seal and reassemble, otherwise replace with proper "WILKINS" seal. In reassembly, be sure seal is fully seated and "flat" in poppet.
- Inspect valve cavity and seating area. Remove any debris. Check for possible damage to seat, if seat is damaged body assembly should be replaced.
- Inspect cover and cover sealing area. Replace O-ring seal with proper "WILKINS" part.
- Reassemble the check valves. Install the covers with the bleed screws in the highest possible position.
- Reassemble the sensing line removed in (c.). Be sure clamping collars are tight. (See "Relief Valve" before reassembling.)
- Refer to "Placing Device in Service" section above to reuse device.
- Inspect device after water is turned on and before testing to eliminate leaks.

### 3. RELIEF VALVE

The relief valve is more easily serviced if it is dismounted from the valve body.

#### To dismantle:

- Close No. 1 and No. 2 gate valves and open test cocks No. 2 and No. 3 to relieve pressure.
- Loosen and unscrew the sensing tube nuts. (On the  $\frac{3}{4}$ " and 1" there is only one tube. The  $\frac{1}{4}$ ",  $\frac{1}{2}$ " and 2" units have two tubes).
- Remove and inspect tubes for possible deposits of debris. Clear out tubes and their connectors on the check valve unit (the sensing opening on the  $\frac{3}{4}$ " and 1" units is in the mounting surface).
- Hold the valve to keep it from falling. Loosen and remove the two mounting bolts.

#### To service the relief valve:

- Remove four of the six bolts that secure the cover to the relief valve. Loosen the two remaining bolts a few turns, but leave these two bolts loosely in place.
- Using a screwdriver, pry the cover loose.  
**CAUTION:** The cover is spring loaded. Hold down firmly and remove the two loosened bolts. **Ease cover away from valve body** to relieve spring tension.
- Carefully lift the cover, spring and spring retainer from unit.

**CAUTION:** During disassembly and reassembly take care not to twist or apply torque to the diaphragm. Twisting could tear the diaphragm. Do not remove the relief valve disc while the cover is in place. Damage to the disc could result from such removal.

- Remove the nut at the top of the diaphragm from the stem.
- Inspect the diaphragm for pinholes, tears and frayed fabric edges. Replace the diaphragm if any damage is noted.
- Remove the nut at the bottom of the stem and remove the seal retainer.
- Inspect the seal ring for tears and embedded debris. If damage is noted, remove seal. If reverse side is unused, invert and reassemble. Otherwise, replace with proper "WILKINS" part.
- Remove the three screws that secure the seat and remove the stem assembly. Inspect the sealing surface on seat. Slight nicks or dents may cause the relief valve to leak. If the sealing surface is damaged, replace the seat.
- Replace the seat O-ring with proper "WILKINS" part.
- Remove all stem O-rings. Replace the O-rings with proper "WILKINS" parts.

**NOTE:** Use caution when reinserting the stem assembly to avoid damaging the stem O-rings. When replacing the spring retainer, make sure that the small point is centered over the stem. This centering equalizes the spring force required for proper action of the relief valve.

- Reassemble the relief valve following the steps (h) through (a) above, making sure that the bevelled end of the seat is exposed. Tighten all bolts, but not excessively.
- Before remounting the relief valve to the check valve body, replace the sealing gasket or O-ring with proper "WILKINS" part.  
**NOTE:** The  $\frac{1}{4}$ ",  $\frac{1}{2}$ " and 2" devices utilize an outside sensing line for relief valve closure. The  $\frac{3}{4}$ " and 1" devices have an inside sensing line drilled into the body and relief valve. Always check to make sure there is no foreign matter in the sensing line, removing it if there is.
- Open gate valve No. 1 and bleed any entrapped air through the bleed screws located above and below the diaphragm. Do not remove the vent screws when bleeding air.
- Check complete unit for leaks, tighten as required.
- After testing, open gate valves and the device is in service.

# MODEL 575 -550 MAINTENANCE INSTRUCTIONS

Sizes 2 1/2" — 6"

## CAUTION:

Proper performance is dependent upon licensed, qualified personnel performing regular, periodic testing according to WILKINS' specifications and prevailing governmental and industry standards and codes. Failure to do so could result in an improperly functioning device.

All Model 575 Backflow Preventers and Model 550 Double Check Valve units must be inspected and maintained by licensed personnel at least once a year or more frequently as specified by local codes. Replacement of worn or damaged parts must only be made with genuine "WILKINS" parts. The WILKINS Certificate of Limited Warranty provides that failure to do so "releases WILKINS of any Liability that it might otherwise have with respect to that device." Such failure could also result in an improperly functioning device.

Model 575 devices should be thoroughly flushed after backflow conditions occur to prevent any type of corrosive deterioration to its components. Failure to do so could result in malfunction of the device.

## 1. GENERAL

Maintenance of either the Model 575 Backflow Preventer or the Model 550 Double Check Valve Unit can be performed without removing the device from the line. There are NO SPECIAL TOOLS required.

## 2. CHECK VALVES

To service the Check Valves, proceed as follows:

- Shut off the No. 2 gate valve, then shut off the No. 1 gate valve.
- Open the No. 2, No. 3 and No. 4 test cocks to release pressure and drain water from the backflow preventer.
- On the Model 575, loosen the sensing tube nuts and remove the sensing tube from the top of the check valve and the relief valve.

**CAUTION:** Take care in removing the cover in the following steps. The cover is spring loaded.

- Holding the cover down firmly, loosen and remove the bolts which mount the cover of the check valve.
- Holding the cover firmly, remove the loosened bolts. Dispose of bolts so as to free both hands for component removal.
- Ease cover outward until spring tension has been relieved.
- Reach behind cover and hold spring and/or poppet assembly in place while disposing of cover.
- If spring and poppet are not unitized, for ease of handling, ease spring out, restraining poppet while disposing of spring. Otherwise, remove poppet assembly.

On some models, the sleeve is not held in place by retaining screws.

Restrain sleeve by holding flange while removing and disposing of poppet.

**NOTE:** If poppet and spring are utilized, sleeve is retained by screws.

- If sleeve is not retained, loosen and remove sleeve. otherwise, loosen screws and withdraw sleeve for inspection.
- ## WARNING
- Unitized poppet assemblies are factory repairable only. Do not attempt to disassemble. Springs are held in compression and injury can result if springs are released.
- Inspect the rubber seal of the poppet assembly for cuts or embedded debris.
  - If damage is noted, loosen and remove the screw holding the seal retaining washer in place.
  - Remove seal ring.
  - If reverse side of seal is unused, invert seal and reassemble, otherwise replace with proper "WILKINS" seal. In reassembly, be sure seal is fully seated and "flat" in poppet.
  - Inspect valve cavity, remove accumulated silt, dirt or debris. Wipe O-ring seats clean.

- Inspect sleeve and valve seat area. Wipe clean. If valve seat has been damaged, sleeve should be replaced.
- Inspect O-ring seals on sleeve. If damaged or cut, replace with proper "WILKINS" part.
- Inspect cover. Wipe O-ring seat clean.
- When inspection and cleaning and repairs are completed, reassemble, check valve following steps j through c above.
- Reassemble the sensing tube removed in (c.). Be sure clamping collars are tight. (See "Relief Valve" before reassembling.)
- Refer to "Placing Device in Service" section to reuse device.
- Inspect device after water is turned on and before testing to eliminate leaks.

## 3. RELIEF VALVE

The relief valve is more easily serviced if it is dismounted from the valve body.

### To dismount:

- Close No. 1 and No. 2 gate valves and open test cocks No. 2 and No. 3 to relieve pressure.
- Loosen and unscrew the sensing tube nuts.
- Remove and inspect tubes for possible deposits of debris. Clear out tubes and their connectors on the check valve unit.
- Hold the valve to keep it from falling. Loosen and remove the two mounting bolts.

### To service the relief valve:

- Loosen and remove the bolts holding the cover in place (cover is not spring loaded).
- CAUTION:** During disassembly and reassembly take care not to twist or apply torque to the diaphragm. Twisting could tear the diaphragm. Do not remove the relief valve disc while the cover is in place. Damage to the disc could result from such removal.
- Remove the O-Ring surrounding the diaphragm. Loosen and free rim of diaphragm from body.
- CAUTION: Spring seat beneath diaphragm is spring loaded.** Hold firmly down while disassembling.
- Pressing and holding diaphragm down loosen and remove retainer nut.
- Slowly ease spring seat upward until spring pressure is relieved.
- Carefully lift off the diaphragm and spring seat.

**NOTE:** In some models the spring seat and diaphragm backing are two separate pieces.

- Inspect the diaphragm for possible pinholes, cuts, tears or frayed fabric. If damage is noted, replace the diaphragm with proper "WILKINS" part.
- Replace the O-ring with new, proper "WILKINS" part.
- Loosen and remove screws holding shaft guide in place. Remove shaft guide.
- With a 3/64" Allen wrench, loosen and remove screws holding lower diaphragm and retainer in place.
- Lift valve stem to expose stainless diaphragm retainer. Carefully loosen and remove retainer.
- Invert valve body. Loosen and remove bolts holding mounting flange in place. Remove flange.

**WARNING: DO NOT NICK OR OTHERWISE DAMAGE THE BEVELLED SEATING SURFACE, EVEN SLIGHT DAMAGE CAN RESULT IN A LEAKING VALVE.**

**NOTE:** In some models, the mounting flange and valve seat are two separate pieces.

- If stainless valve seat is a separate part, press firmly on far end of stem to dislodge seat. Remove seat.
- Remove and replace O-rings on mounting flange and valve seat (only if separate part) with proper "WILKINS" parts.
- Inspect bevelled valve seat, if damaged, replace with proper "WILKINS" part.
- Grasp legs of valve seal retainer and withdraw valve stem.

- Replace O-ring on stem with proper "WILKINS" part.
- Reach into cavity and use fingers to carefully dislodge lower diaphragm.
- Inspect diaphragm for possible pinholes, cuts, tears or frayed fabric. If damaged, replace with proper "WILKINS" part.
- Loosen and remove bolt holding seal retainer. Remove seal retainer.
- Carefully insert knife blade between outer edge of rubber seal and brass retainer. Pry edge of seal upward. Remove seal.
- Inspect seal for possible embedded debris or cuts. If damaged, and reverse side of seal is unused, invert and reassemble; otherwise, replace seal with proper "WILKINS" part.

**NOTE:** When reassembling seal, first, be sure seal cavity is wiped clean. Then be sure seal is fully seated (no bulges) before assembling and securing retainer.

## TO REASSEMBLE VALVE

Reassemble the relief valve following sequence of steps "p" to "a" above with following guides.

### To Reassemble Valve Seat and Stem to Valve body (Ref. items p to l).

Carefully insert legs of retainer into valve seat and lower into valve body. Then bolt mounting flange in place.

### To Assemble Lower Diaphragm (Ref. items n, k, j.)

- Fit stainless lower diaphragm retainer over distended diaphragm properly aligning holes in retainer and diaphragm.
- Holding flange of diaphragm lightly press cup down until flush with flange.
- Holding valve body and pressing stem upward, lower diaphragm and retainer over stem, aligning all holes and lightly press into place on stem.
- Insert and tighten retaining screws.
- Place valve body with "mounting flange down" on clean work surface.
- Carefully press flange of diaphragm into place in body.

### To Assemble Spring, Diaphragm, etc. (Ref. items g to d).

- After valve guide is assembled, place spring and spring seat (with pivoting diaphragm backing washer, if separate) in place on spring. Place diaphragm with printing against backing plate.
- Carefully depress spring fully by pressing on diaphragm, allowing threaded stem to protrude through hole in diaphragm. Place washer and finger tighten nut.
- Holding backing plate from turning, tighten nut.
- Carefully seat diaphragm on body by tucking excess down alongside backing plate. Minimize wrinkles as far as possible.
- Seat O-ring around outside of diaphragm.
- Place cover w/ports on same side of valve. Place and tighten cover bolts.

## PLACING BACKFLOW UNITS BACK IN SERVICE

- Remount valve to backflow unit being sure O-ring seat is in place in valve.
  - Before reassembling sensing tubes from valve to device as required, check to be sure lines are free of debris, etc., as are fittings on device. Reconnect sensing lines.
  - Open gate valve No. 1 and bleed any entrapped air through vent cocks.
  - Check complete unit for leaks. Tighten as required.
- IMPORTANT:** After servicing either the Model 575 or Model 550 devices, they must be tested per "Test Procedure" above.
- After testing, open gate valves and the device is in service.

**NOTE:** If any questions concerning the installation, inspection or maintenance instructions arise, contact the Manager of Consumer Relations at WILKINS' Home Office.