

# Model TG-5

## 5 Valve Backflow Prevention Assembly Test Kit

### □ Testing Procedures



#### REDUCED PRESSURE TYPE BACKFLOW PREVENTER (5 Valve)

Note: It is the tester's responsibility to determine if this procedure is accepted by local authorities.

##### TEST #1

**Purpose:** To test the operation of the pressure differential relief valve.

**Requirement:** The differential pressure relief valve must operate to maintain the zone between the two check valves at least 2 psi less than the supply pressure.

##### Procedure:

- Open #4 test cock to establish flow through the unit, then flush water through test cocks #1, #2, and #3 by opening and closing each test cock one at a time to eliminate foreign material. Be careful not to dump the relief valve during this process (open #2 test cock slowly). Close test cock #4.
- Install test fittings.
- Install hose from the high side of the differential pressure gauge to the #2 test cock.
- Install hose from the low side of the differential pressure gauge to the #3 test cock.
- Open test cock #3 slowly and bleed all air from the hose and gauge by opening the low side bleed needle valve. Maintain the low side bleed needle valve in the open position while slowly opening test cock #2. Open the high side bleed needle valve to bleed the hose and gauge. Close the high side bleed needle valve then close the low side bleed needle valve after the gauge has pinned at the upper end of the scale.
- Close #2 shutoff valve.
- Observe the apparent pressure drop across the #1 check valve. If the gauge needle drops to the low end of the scale and the differential pressure relief valve continuously discharges, then the #1 check valve is leaking.
- Open the high side control needle valve approximately one turn, then slowly open the low side control needle valve no more than one quarter turn to bypass water from the #2 test cock to the #3 test cock.
- Watch the pressure differential drop slowly while observing the relief valve discharge port. When water is observed leaking from the relief valve discharge port, note the relief valve opening point.
- Close needle valves.

##### TEST #2

**Purpose:** To test the #2 check valve for tightness against reverse flow.

**Requirement:** The #2 check valve shall be tight against reverse flow.

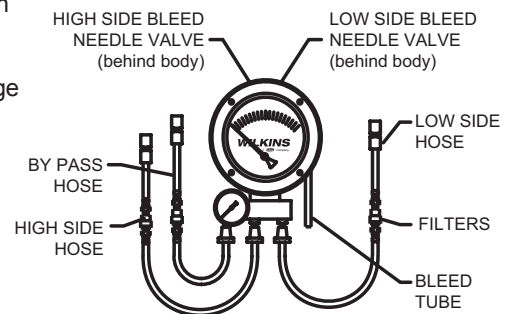
##### Procedure:

- Maintain #2 shutoff valve in the closed position from test #1.
- Vent all of the air through the bypass hose by opening both the high side control needle valve and the bypass needle valve. Close the bypass needle valve ONLY.
- Install bypass hose from the differential pressure gauge to the #4 test cock. Open the #4 test cock.
- Bleed water from the "zone" by opening the low side bleed needle valve on the gauge in order to re-establish the normal reduce pressure within the zone. Once the gauge reaches the high end of the scale close the low side bleed needle valve.
- Open the bypass needle valve. If the indicated pressure differential remains steady, then the #2 check valve is reported as "closed tight". If the pressure differential falls to the relief valve opening point and leaks steadily, then check for disc compression by opening the low side bleed needle valve until the needle is pinned at upper end of scale. Close low side bleed needle valve. If the indicated pressure differential remains steady, then the #2 check is reported as "closed tight". If the pressure differential falls to the relief valve opening point again and leaks steadily, then the #2 check is noted as "leaking" and Test #3 below cannot be completed. If the pressure differential drops but stops above the relief valve opening point, the #2 check valve can still be reported as "closed tight".

##### TEST #3

**Purpose:** To determine the tightness of #1 check valve and to record the static pressure drop across the #1 check valve.

**Requirement:** The static pressure drop across #1 check valve shall be greater than the relief valve opening point (test #1), and at least 5.0 psid.



##### Procedure:

- With the bypass hose connected to test cock #4 as in step "C" of Test #2, bleed water from the "zone" through the low side bleed needle valve on the gauge until the needle reaches the high end of the scale.
- Close the low side bleed needle valve. After the gauge needle settles, the steady state pressure differential indicated (needle is not falling on the gauge) is the actual static (i.e., no flow) pressure drop across #1 check valve, and is to be recorded as such.
- Close all test cock valves, open #2 shutoff valve and remove all test equipment.

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## DOUBLE CHECK VALVE BACKFLOW PREVENTER

Note: It is the tester's responsibility to determine if this procedure is accepted by local authorities.

### TEST #1

**Purpose:** To determine the static pressure drop across #1 check.

**Requirement:** The static pressure drop across check valve #1 shall be at least 1.0 psid.

#### Procedure:

- A. Open and flush water through test cocks #1, #2, #3 & #4 by opening and closing each test cock one at a time.
- B. Install test fitting on test cock #2.
- C. If test cock #3 is not at the highest point of the check valve body, then a vertical tube or pipe must be installed on test cock #3 so that it rises to the top of the check valve body.
- D. Attach high side hose of the differential pressure gauge to the #2 test cock.
- E. Open test cock #2 and bleed all air from the hose and gauge by opening the high side bleed needle valve, then close the high side bleed needle valve. If a tube is attached to test cock #3, open test cock #3 to fill the tube, then close test cock #3.
- F. Close #2 shutoff valve, then close #1 shutoff valve.
- G. Slowly open test cock #3. Hold differential gauge at level of water in sight tube. After water stops running out of test cock #3 and the gauge stabilizes record the reading on gauge as the static pressure drop across the #1 check.
- H. Close test cocks #2 & #3, and open #1 shutoff valve.

### TEST #2

**Purpose:** To determine the static pressure drop across check valve #2.

**Requirement:** The static pressure drop across check valve #2 shall be at least 1.0 psid.

#### Procedure:

- A. Attach test fitting and hose from the high side of the differential pressure gauge to the #3 test cock.
- B. If test cock #4 is not at the highest point of the check valve body, then a vertical tube or pipe must be installed on test cock #4 so that it rises to the top of the check valve body.
- C. Open test cock #3, and bleed all air from the hose and gauge by opening the high side bleed needle valve and then closing the high side needle valve. If a tube is attached to test cock #4, open test cock #4 to fill the tube, then close test cock #4.
- D. Close #1 shutoff valve.
- E. Slowly open test cock #4. Hold differential gauge at level of water in sight tube. After water stops running out of test cock #4 and the gauge stabilizes, record the reading on gauge as the static pressure drop across the #2 check.
- F. If the water at test cock #4 recedes, there is a leaking #2 shutoff valve. Move the gauge to the center line of the assembly and record the gauge reading as the pressure differential across the #2 check valve.
- G. Close all test cocks and remove all test equipment.
- H. Remove all fittings. Open shutoff valve #1, then slowly open shutoff valve #2.

## PRESSURE VACUUM BREAKER

Note: It is the tester's responsibility to determine if this procedure is accepted by local authorities.

All of tests below are to be performed with differential gauge and hoses held at same level as valve being tested.

### TEST #1

**Purpose:** To determine the air inlet valve opening point

**Requirement:** The air inlet valve shall open when the pressure in the body is no less than 1.0 psi above atmospheric pressure. The air inlet valve shall be fully open when the water drains from the body.

#### Procedure:

- A. Remove air inlet canopy. Open and flush water through test cocks #1 and #2 by opening and closing each test cock one at a time.
- B. Install test fitting on test cocks.
- C. Attach high side hose of the differential pressure gauge to the #2 test cock.
- D. Open test cock #2 and bleed all air from the hose and gauge by opening the high side bleed needle valve, then close the high side bleed needle valve.
- E. Close #2 shutoff valve, then close #1 shutoff valve.
- F. Holding the pressure differential gauge at the level of the assembly being tested, slowly open high side bleed needle valve no more than one quarter turn. Do not let pressure differential reading drop too quickly. Record the reading on the gauge when the air inlet valve opens. Fully open the high side bleed needle valve to drain water from the body. Make sure that air inlet valve has dropped to the fully open position.
- G. Close #2 test cock and remove hose from fitting. Open #1 shutoff valve.

### TEST #2

**Purpose:** To determine the static pressure drop across the check valve.

**Requirement:** The static pressure drop across check valve shall be at least 1.0 psid.

#### Procedure:

- A. Attach hose from the high side of the differential pressure gauge to the #1 test cock and open #1 test cock.
- B. Bleed all air from the hose and gauge by opening the high side bleed needle valve, then close the high side bleed needle valve.
- C. Close #1 shutoff valve.
- D. Holding the pressure differential gauge at the level of the assembly being tested, open test cock #2. After water stops running out of test cock #2 and the gauge stabilizes, the reading on gauge is the static pressure drop across the check valve.
- E. Close both test cocks and remove hoses and fittings. Slowly open #1 shutoff valve then the #2 shutoff valve.
- F. Replace air inlet valve canopy.

**WARRANTY:** ZURN WILKINS Valves are guaranteed against defects of material or workmanship when used for the services recommended. If in any recommended service, a defect develops due to material or workmanship, and the device is returned, freight prepaid, to ZURN WILKINS within 12 months from date of purchase, it will be repaired or replaced free of charge. ZURN WILKINS' liability shall be limited to our agreement to repair or replace the valve only.

