

Model TG-3

3 Valve Backflow Prevention Assembly Test Kit

WILKINS
a ZURN company

□ Testing Procedures

REDUCED PRESSURE TYPE BACKFLOW PREVENTER (3 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:

- A. 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.
- B. Install test fittings.
- C. Install hose from the high side of the differential pressure gauge to the #2 test cock.
- D. Install hose from the low side of the differential pressure gauge to the #3 test cock.
- E. Open the bypass needle valve. Open test cock #2 slowly and bleed all air by opening the high side needle valve, then close the high side needle valve. Open test cock #3 slowly and bleed all air by opening the low side needle valve. Close the low side needle valve after the gauge reading has pinned at the upper end of the scale. Close the bypass needle valve.
- F. Close #2 shutoff valve.
- G. 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.
- H. Open the high side needle valve approximately one turn, then slowly open the low side needle valve no more than one quarter turn to bypass water from the #2 test cock to the #3 test cock.
- I. 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.
- J. Close low side needle valve.

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.

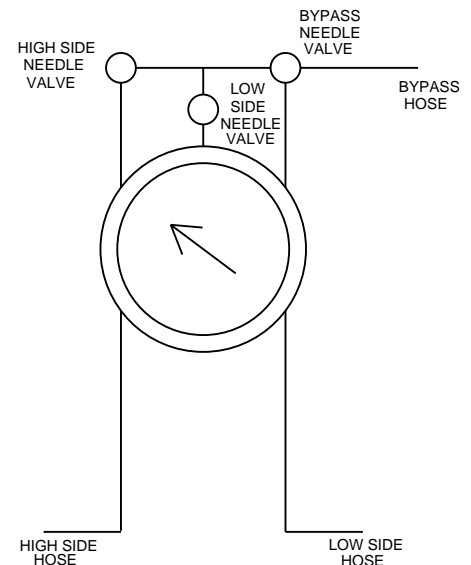
Procedure:

- A. Maintain #2 shutoff valve in the closed position from test #1.
- B. Vent all of the air through the bypass hose by opening the bypass needle valve. Close the bypass needle valve. High side needle valve should be left open.
- C. Install bypass hose from the differential pressure gauge to the #4 test cock. Open the #4 test cock.
- D. Bleed water from the "zone" by loosening the low side hose on the #3 test cock in order to re-establish the normal reduce pressure within the zone. Once the gauge needle reaches the high end of the scale, tighten the hose fitting on the #3 test cock.
- E. 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 the #2 check valve 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 should be at least 3 psi greater than the relief valve opening point (Test #1). This 3 psi "buffer" will prevent the relief valve from discharging during small fluctuations in upstream line pressure. **A "buffer" of less than 3 psi does not imply a leaking #1 check valve (i.e. allowing backflow) but rather is an indication of how well the #1 check valve is holding.**



Procedure:

- A. With the bypass hose connected to test cock #4 as in step "C" of Test #2, bleed water from the "zone" by loosening the low side hose on the #3 test cock on the gauge until the gauge needle reaches the high end of the scale, tighten the hose fitting on the #3 test cock.
- B. 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.
- C. Close all test cock valves, open #2 shutoff valve and remove all test equipment.

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 to 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 needle valve and the bypass needle valve, then close the bypass 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 shut off 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 bypass needle valve and then closing the bypass 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 centerline 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.

WARRANTY: 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 WILKINS within 12 months from date of purchase, it will be repaired or replaced free of charge. WILKINS' liability shall be limited to our agreement to repair or replace the valve only.

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 to 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 needle valve and the bypass needle valve, then close the bypass 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 bypass 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 bypass 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 needle valve and the bypass needle valve, then close the bypass 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.

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