

REDUCED PRESSURE ZONE DEVICE AND TEST KIT

5.T.T.2

TESTING

REDUCE PRESSURE ZONE DEVICES (RPZD)

Scope

This sequence sets out the method for field testing reduced pressure zone backflow prevention devices.

Apparatus

A test kit as shown in Figure A1 is required.

Procedure

Preliminary test procedures must be observed. All measurements shall be taken at ambient air temperature.

(Points (a) to (h) will test the differential across the first check.

The procedure shall as follows:

- a With reference to the RPZD diagram check and ensure inlet upstream isolating valve (4) is open. If water is observed drifting from relief valve port (7) the first check (5) has failed and must be repaired before proceeding. After repairing first check start test at (A).
- b In sequence, open and close test cocks (1), (2) and (3) to flush out any impurities.
- c Close outlet downstream isolating valve (5)
CLOSE
Test kit high pressure valves (A) and (B).
CLOSE
Open test kit vent valve (C).
DRAIN
- d Connect:
 - i The high pressure hose of the test kit to test cock (1), and
 - ii The low pressure hose of the test kit to test cock (2)
- e Open test cocks (1) and (2)
- f Slowly open test kit high pressure valve (A) and bleed water through the vent hose (C).
Close test kit high pressure valve (A).

- g** Slowly open test kit low pressure needle valve (B) and bleed water through the vent hose. (This eliminates air from the system).
- h** Slowly close kit low pressure needle valve (B) and **RECORD** the reading on the differential pressure gauge. (This indicates the pressure drop across the upstream check valve (5)).

Points (i) to (l) test second check (6) for tightness against reverse flow.

- i** Connect the vent hose to test cock (3).
- j** Open test cock (3) and test kit high pressure valves (A) and (C).
- k** Observe the relief port (7).
If the relief valve discharges it indicates that the second check valve (6) is leaking.
- l** **RECORD** whether there is any discharge This checks the
~~NO 2 CHECK~~ pressure tightness of the downstream valve (6).

Points (m) and (n) test downstream valve (4) for tightness.

- m** Close test cock (1).
- n** **OBSERVE** the differential gauge

Points (o), (p) and (q) test relief valve (7)

- o** Open test kit vent valve (C).
- p** Open test cock (1) and slowly open test kit low pressure needle valve (B) observing both the differential gauge and the relief port (7).
- q** **RECORD** the reading on the differential gauge when the relief port (7) commences discharging.
- r** Close test cocks, open test kit high pressure valve (A) and low pressure (B).
Disconnect the test kit and open isolating valve.

Test Report (RPZD)

The following shall be reported:

- a The readings obtained from the pressure drop across the first check valve (5).
- b The pressure or absence of any discharge verifies that the second check valve (6) is tight.
- c The downstream isolating valve is tight.
- d The differential pressure gauge reading in step q.

5 35 kPa
T T
T T
2 14 kPa

Criteria for Acceptance

The following shall be the criteria for acceptance:

- a The readings in step (h) shall not be less than 35 kPa.
- b There shall be no discharge from the relief port in step m.
- c The reading in step (q) shall be not less than 14 kPa.
- d The downstream isolating valve is tight.

Notes

- 1 A reading below 35 kPa at step h indicates that the upstream check valve (5) is faulty. This should be repaired and the test repeated.
- 2 A discharge from the relief valve port during step a indicates that the first check valve (5) is leaking.
- 3 A discharge from the relief port during step m indicates the downstream check valve (6) is leaking. This should be repaired and the test repeated, starting from step (a).
- 4 If the pressure differential decreases (approaches zero) during step (o) this indicates the downstream isolating valve (5) is leaking and should be repaired.

Leaking invalidates the results of the earlier tests which must be repeated after the isolating valve is repaired.

TESTING

SPILL PROOF PRESSURE VACUUM BREAKER

UNITTEC acknowledges the contributions of Howard Hendrickson who personally designed and developed the following test procedure for Murray Ellis, who in turn made this procedure available for the UNITTEC Backflow Testers Course.

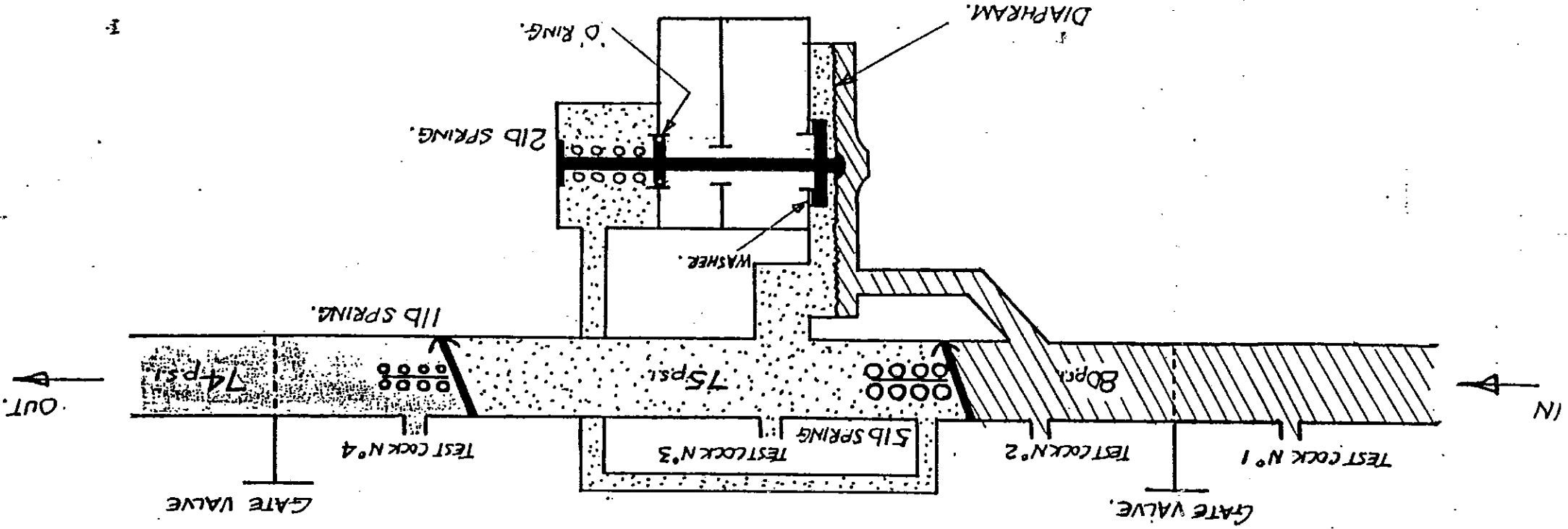
The Spill Proof Pressure Vacuum Breaker differs from all other testable devices, as it has only one test cock point and a single bleed point screw.

Procedure

Identify appropriate person and obtain permission to shut off water.

- (a) Turn off downstream valve (5).
- (b) Remove device hood cap from top of valve.
- (c) Flush out test cock and bleed screw.
- (d) Connect high pressure hose to test cock.
- (e) Open test cock and test kit valve (A), bleed through vent valve (C), close test kit vent valve (C).
- (f) Close upstream valve (4).
- (g) Open bleed screw, observe test kit differential, record when steady. (Should be no less than 7 kPa).
- (h) Open needle valve (B), watch poppit valve on top of device drop (open). Close test point, bleeder screw and remove test kit and drain. Refit device hood cap. Open upstream valve (4) and slowly open downstream valve (5) returning device to service.

REDUCED PRESSURE ZONE BACKFLOW PREVENTER (WATTS 909)



TESTING PROCEDURE

Allow water to flow through test cocks, (to remove any debris etc.)

Ask permission to close down supply.

Determine direction of flow.

Count test cocks.

Note: If water dribbles from Relief after shutting off supply, the first check is fouled.

FIRST CHECK

Connect high (Yellow) hose to test cock 2.

Connect low (White) hose to test cock 3.

Make sure the tester valves are: Close Close Open

(High) (Low) (Vent)

Open test cocks 2 & 3 then bleed air from hoses by opening high valve on tester, then close, then low valve and close slowly.

Note Reading: - On gauge it must be more than 5 PSID.

Refer to maintenance in Watts Manual (New England) for any further references.

NOTE: If 2nd check is fouled, turn off test cock No. 4, then reopen low on gauge and check if the relief valve has 2 PSID or more.

Re open test cock No. 2 to maintain pressure. Then slowly open low pressure vent until first drops from relief. Take note of reading on gauge, should be 2 PSID or more.

RELIEF VALVE OPENING DIFF

Turn off test cock No. 2 then check if needle is moving, if not, shut off valve is tight.

DOWNSTREAM GATE VALVE

Connect Blue hose (Vent) to test cock 4, turn on test cock 4, then turn on the high pressure valve on tester so that mains pressure can be behind 2nd check. Make sure needle on tester is steady, if it is, 2nd check is tight and no reading is necessary.

SECOND CHECK

Turn off test cock No. 2 then check if needle is moving, if not, shut off valve is tight.

W.C.