UF | TREEO Center
UNIVERSITY of FLORIDA

Why We Do
What We Do

What is **TREEO**?

Training

Research

Education

Environmental

Occupation

What is **TREEO**?

T – training

R – research

E – education

E – environmental

O – occupation

Why Teach?

- ✓ Importance
- ✓ Environment Concerns
- ✓ Testing Procedures

Importance


WATER

Environmental Concerns


WATER


WATER

What is Reclaimed Water?

Water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility

2 types of Reclaimed Water

- Secondary Filtration and Basic Level Disinfection
- Secondary Filtration and High Level Disinfection

How Can Reclaimed Water Be Used

- Acceptable use of reclaimed water
  - Part II- Slow-rate Land Application Systems; Restricted Public Access
  - Part III- Slow-Rate Land Application Systems; Public Access Areas, Residential Irrigation, and Edible Crops
  - Part IV- Rapid-Rate Land Application Systems (Rapid Infiltration Basins and Absorption Fields)
  - Part V- Ground Water Recharge and Indirect Potable Reuse
  - Part VI- Overland Flow Systems
  - Part VII- Industrial Uses of Reclaimed Water

62-610.450 Description of System

- Irrigation of areas that are intended to be accessible to the public
  - residential lawns
  - golf courses
  - cemeteries
  - parks
  - landscape areas
  - highway medians

62-610.450 Description of System

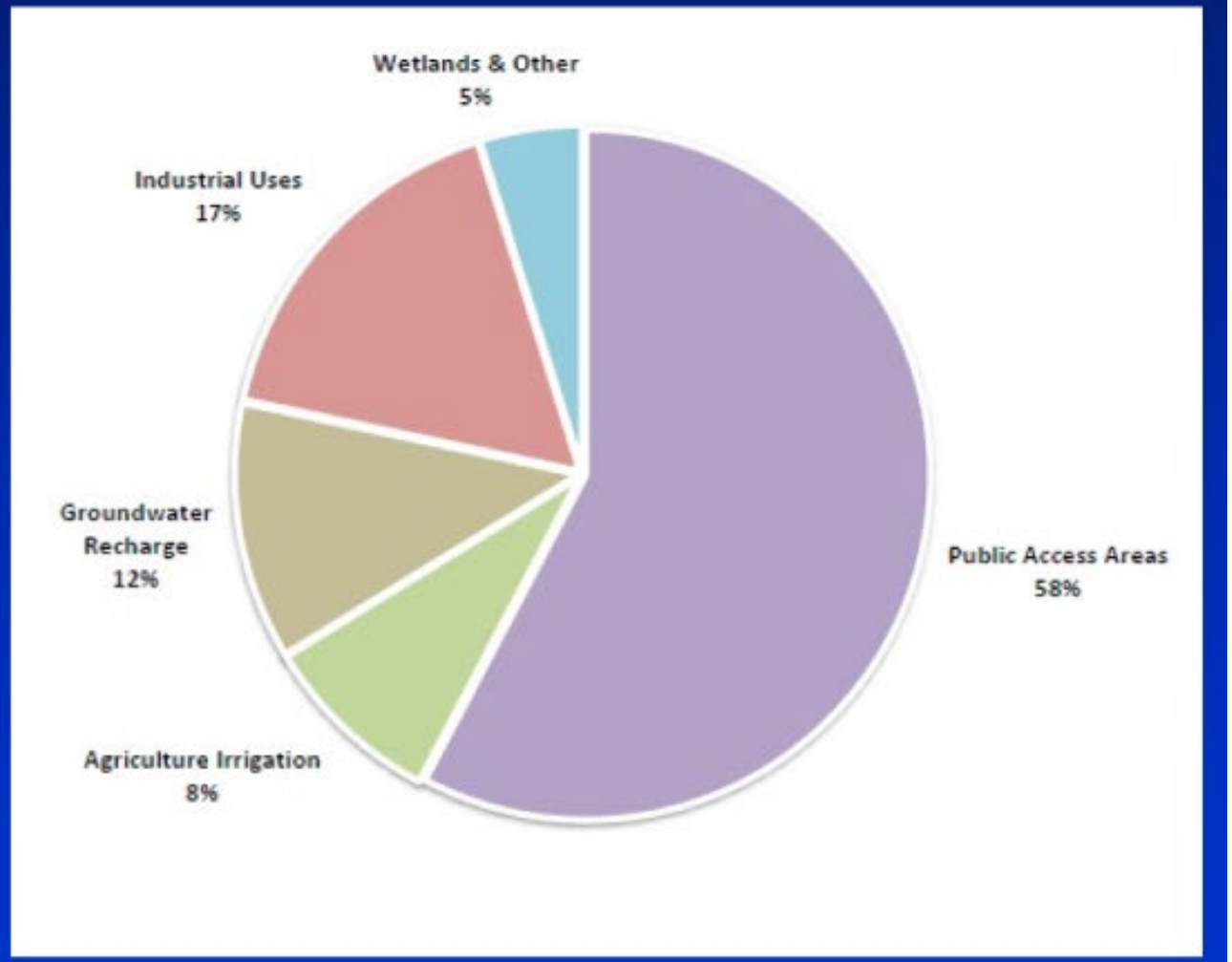
- Reclaimed water also used for
  - Fire protection
  - Aesthetic purposes
  - Irrigation of edible crops
  - Dust control on construction sites

62-610.469 Application Systems and Cross-Connection Control

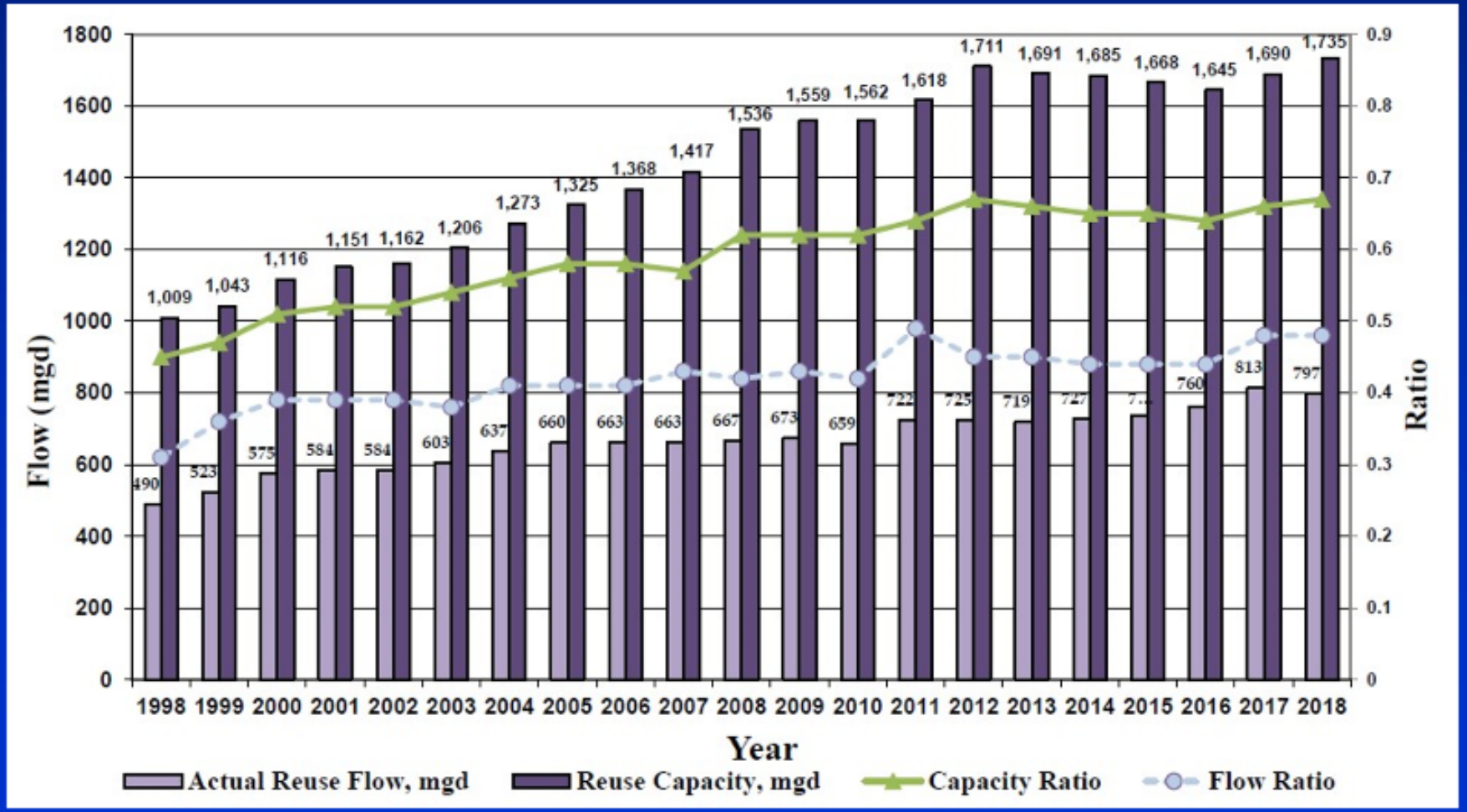
- (7)(h) The permittee is responsible for conducting inspections
  - verify proper connections
  - monitor proper use
  - minimize the potential for cross-connections

2017 Florida Reuse

Annual Agency Reuse Reports are due February 1 of each year. All state agencies, state universities, and water management districts are required to submit Annual Agency Reuse Reports. Florida Statutes direct all state agencies, state universities, and water management districts to use reclaimed water to the greatest extent practicable.

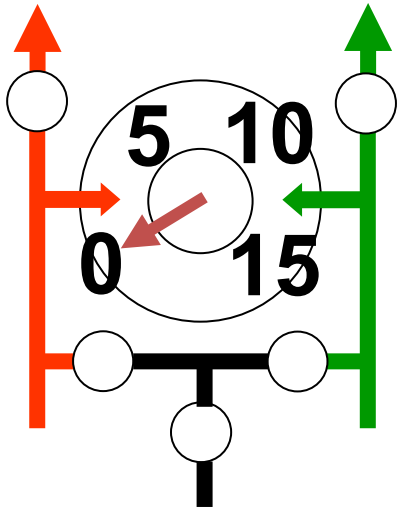


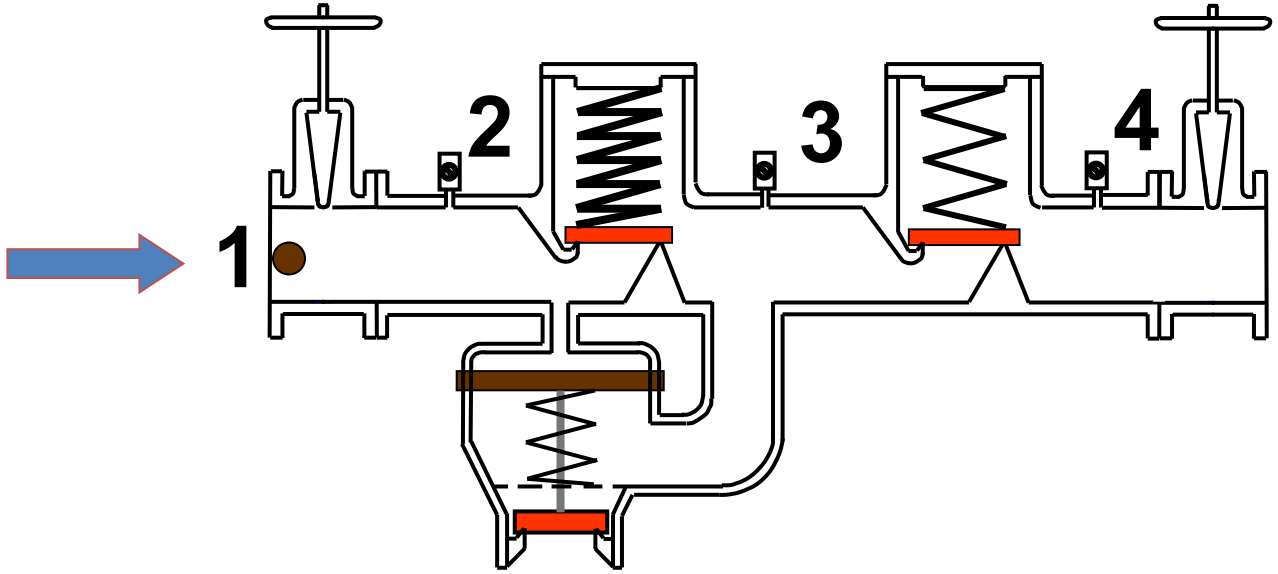
Florida's Reuse Growth



Testing Procedures

TESTING THE RP





RP Field Test

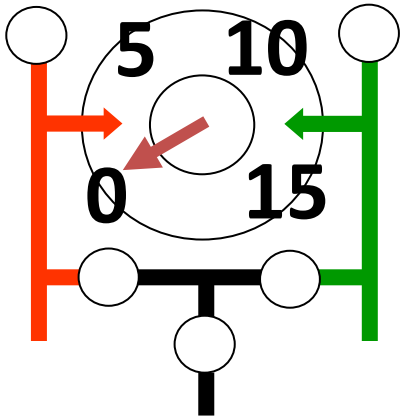
Preparation

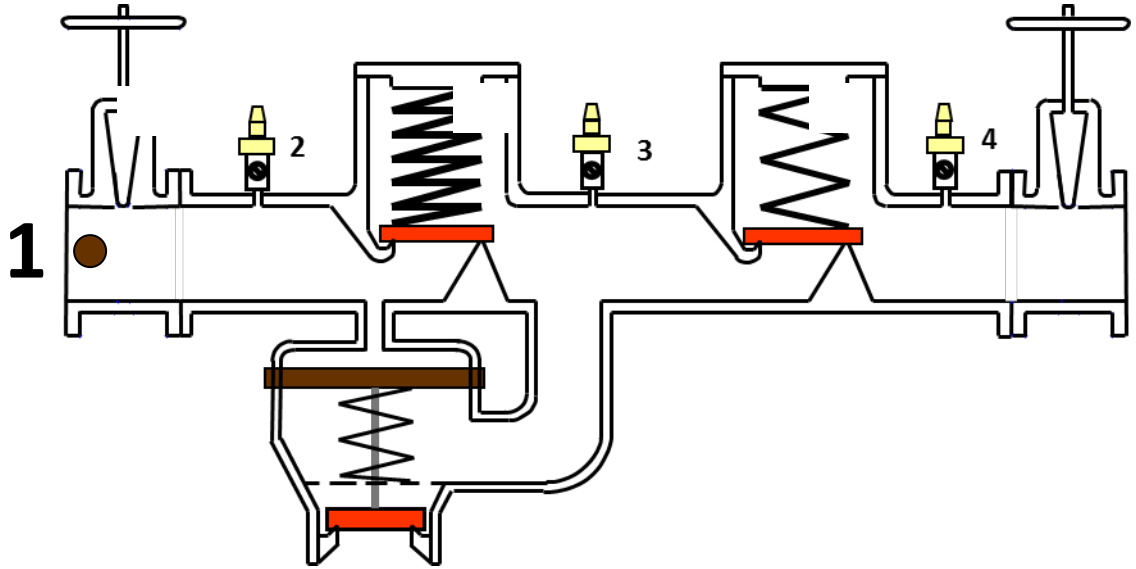
1. Observe CV1 (leaks or holds tight)
2. Record RV opening point
3. Observe CV2 - backpressure test
4. Record CV1 (5.0 or greater)

NOTIFY THE CUSTOMER

CHECK THE AREA

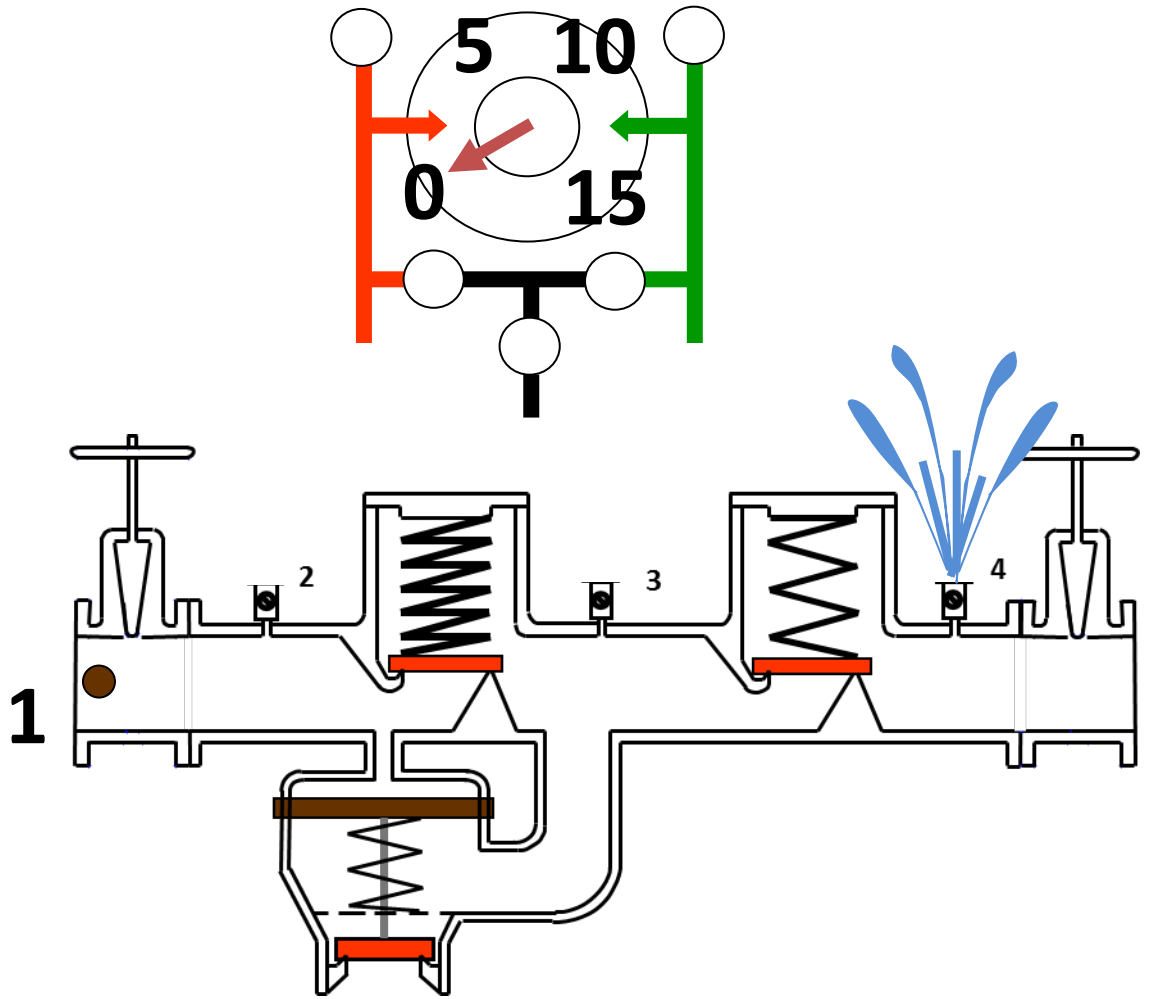
FLUSH THE TESTCOCKS





FLUSH THE TESTCOCKS

OPEN 4



FLUSH

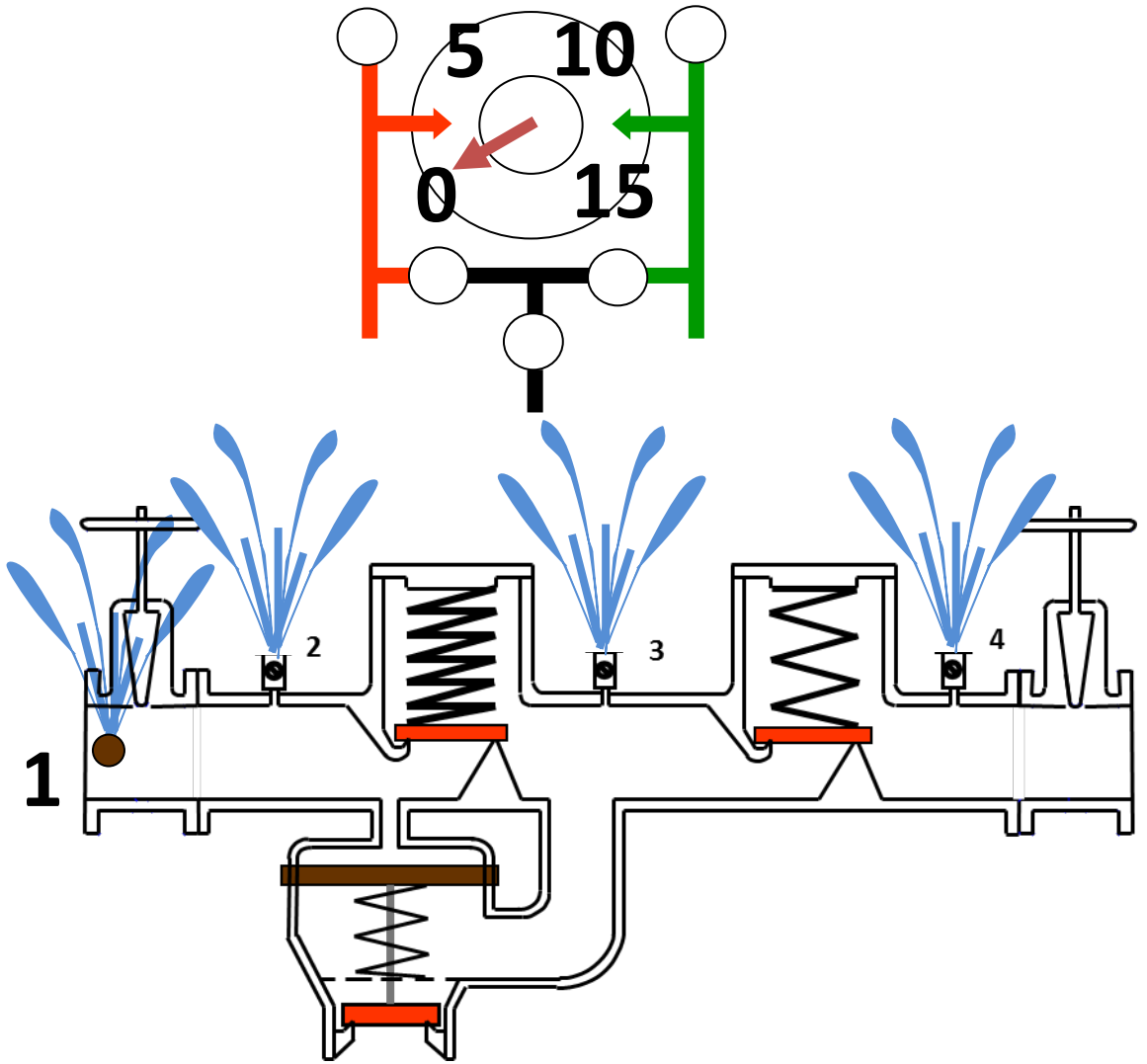
TESTCOCKS

OPEN 4

OPEN 3

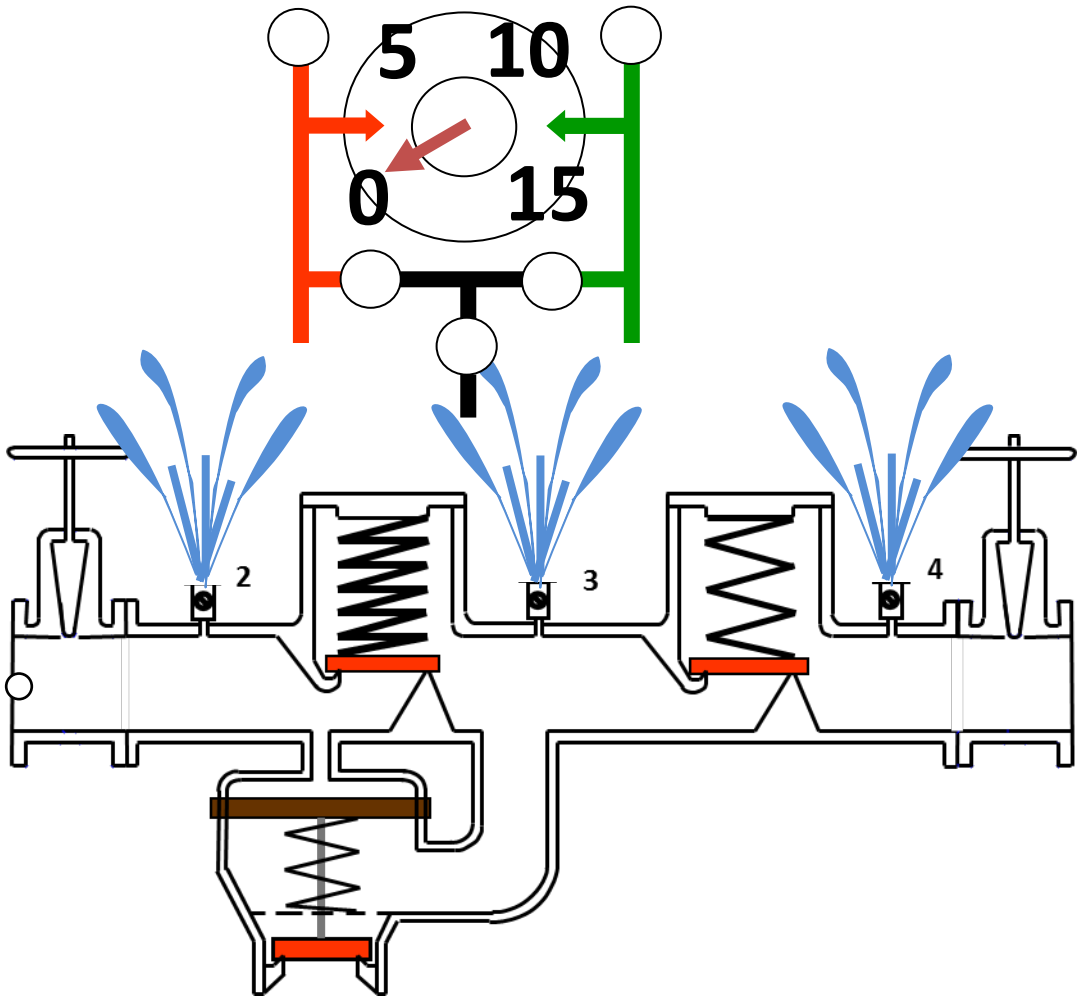
OPEN 2

OPEN 1



FLUSH TESTCOCKS

- OPEN 4
- OPEN 3
- OPEN 2
- CLOSE 1



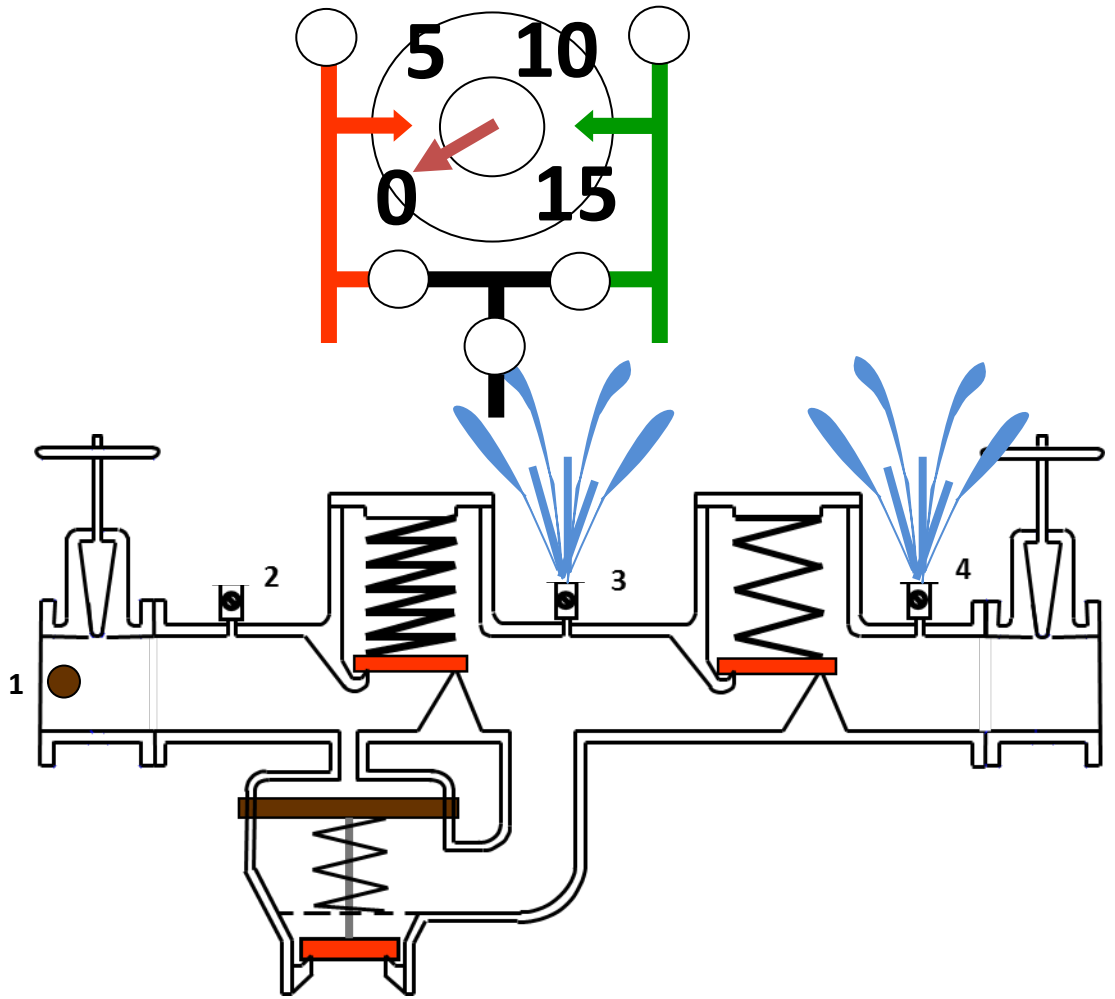
FLUSH TESTCOCKS

OPEN 4

OPEN 3

CLOSE 2

CLOSE 1



FLUSH

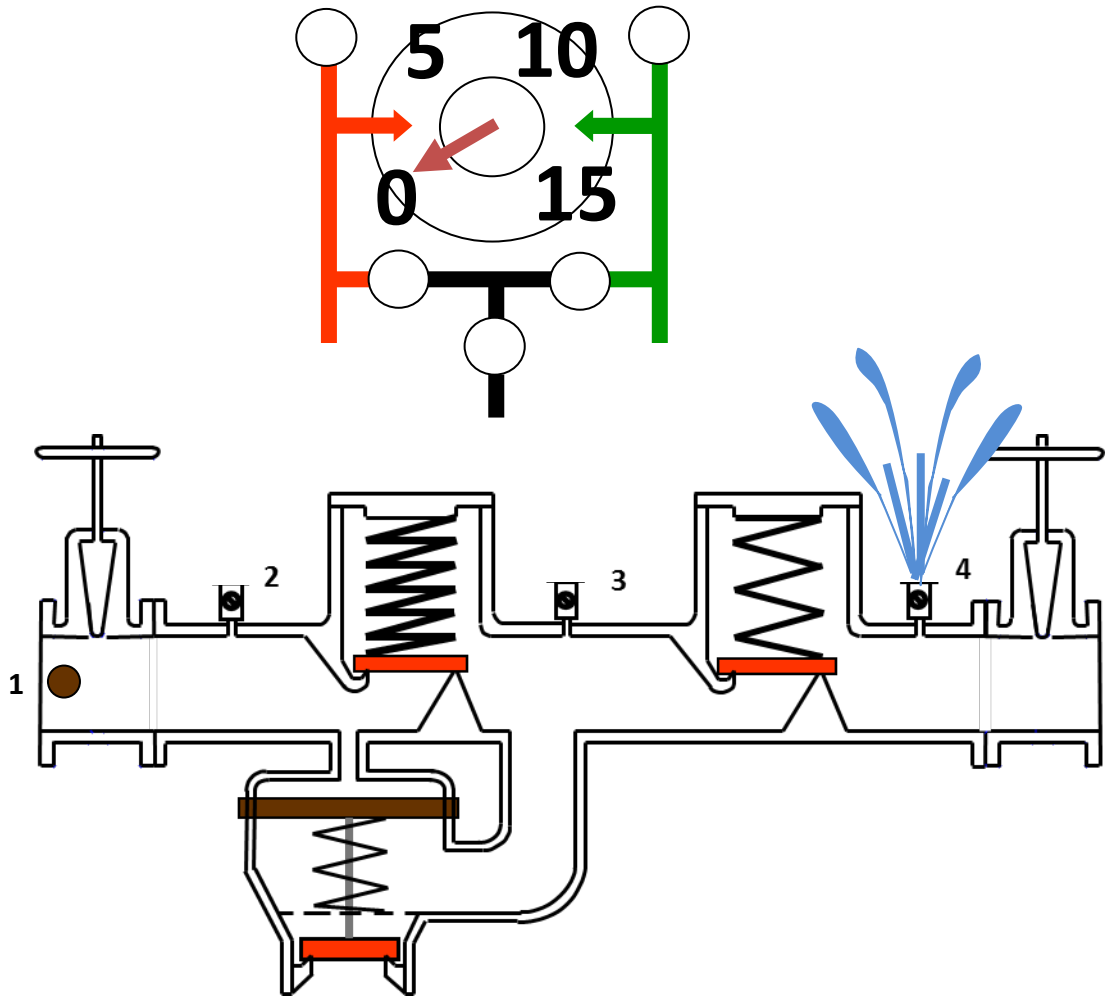
TESTCOCKS

OPEN 4

CLOSE 3

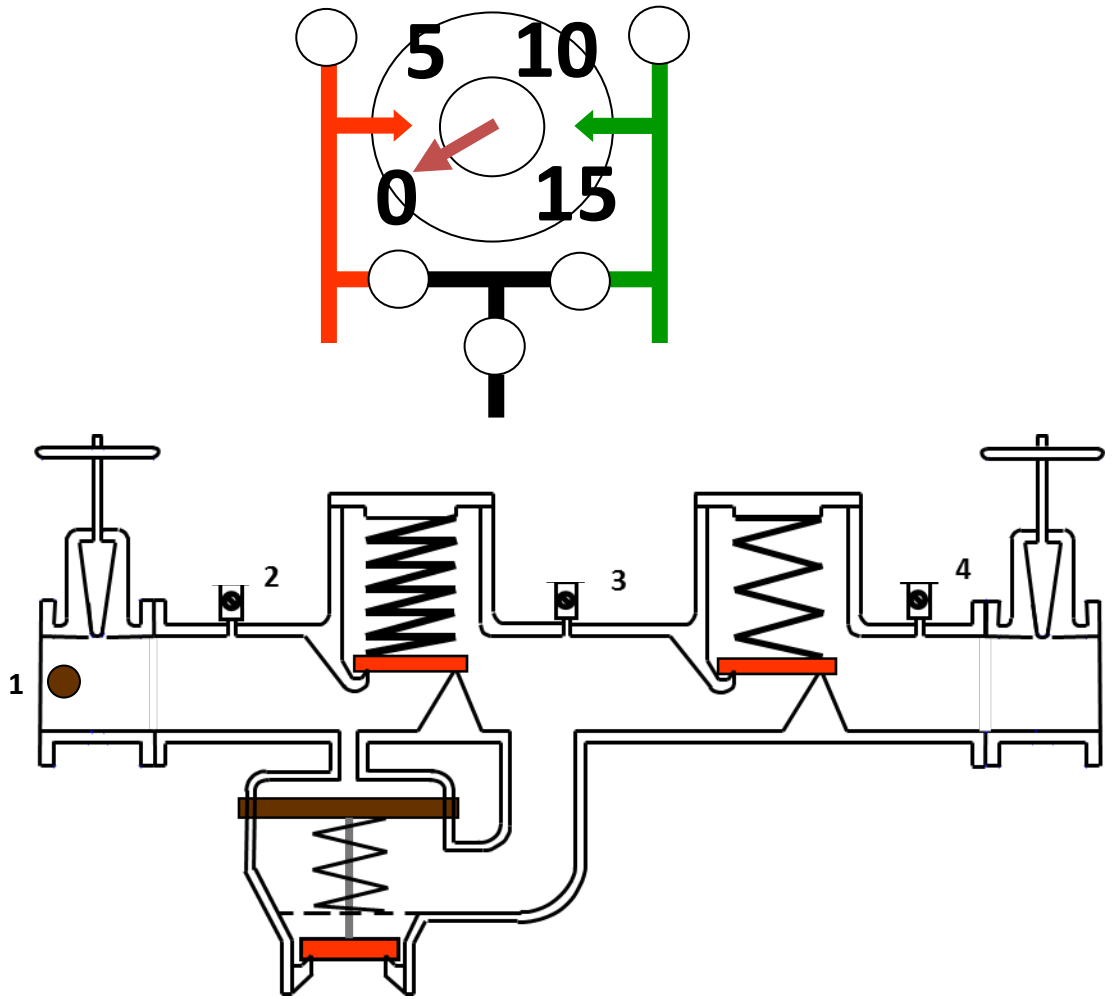
CLOSE 2

CLOSE 1



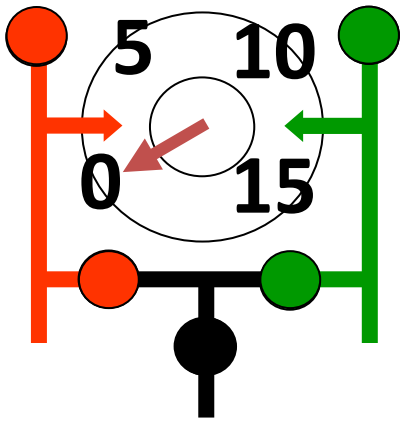
FLUSH TESTCOCKS

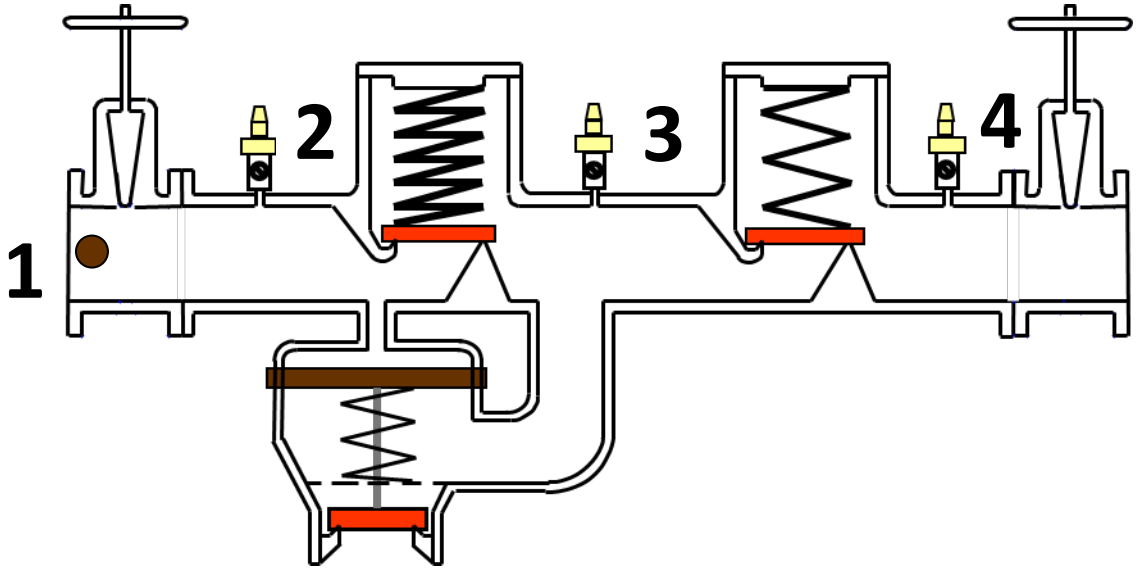
- CLOSE 4
- CLOSE 3
- CLOSE 2
- CLOSE 1



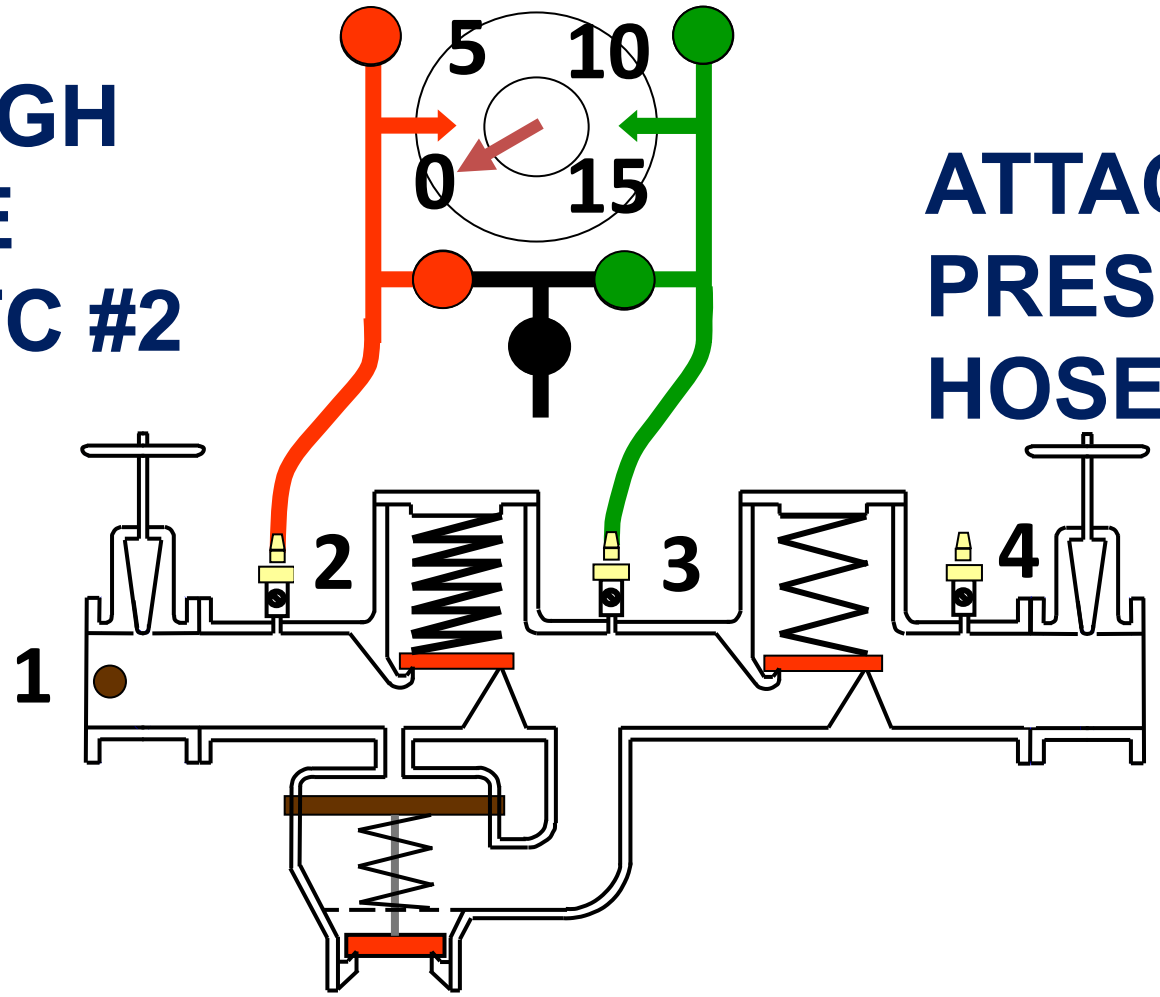
Check Valve # 1 Test

CLOSE CONTROL VALVES ON GAUGE

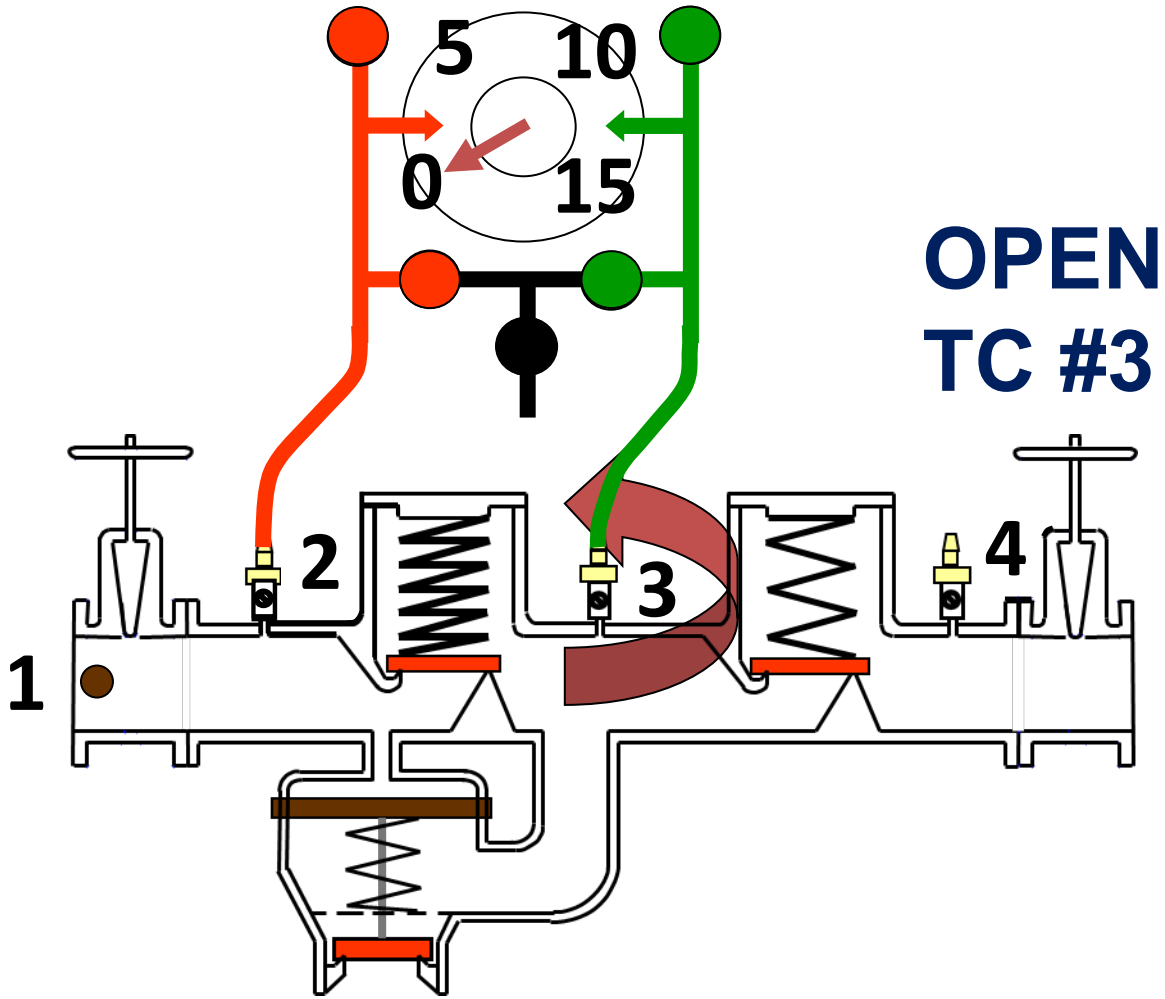


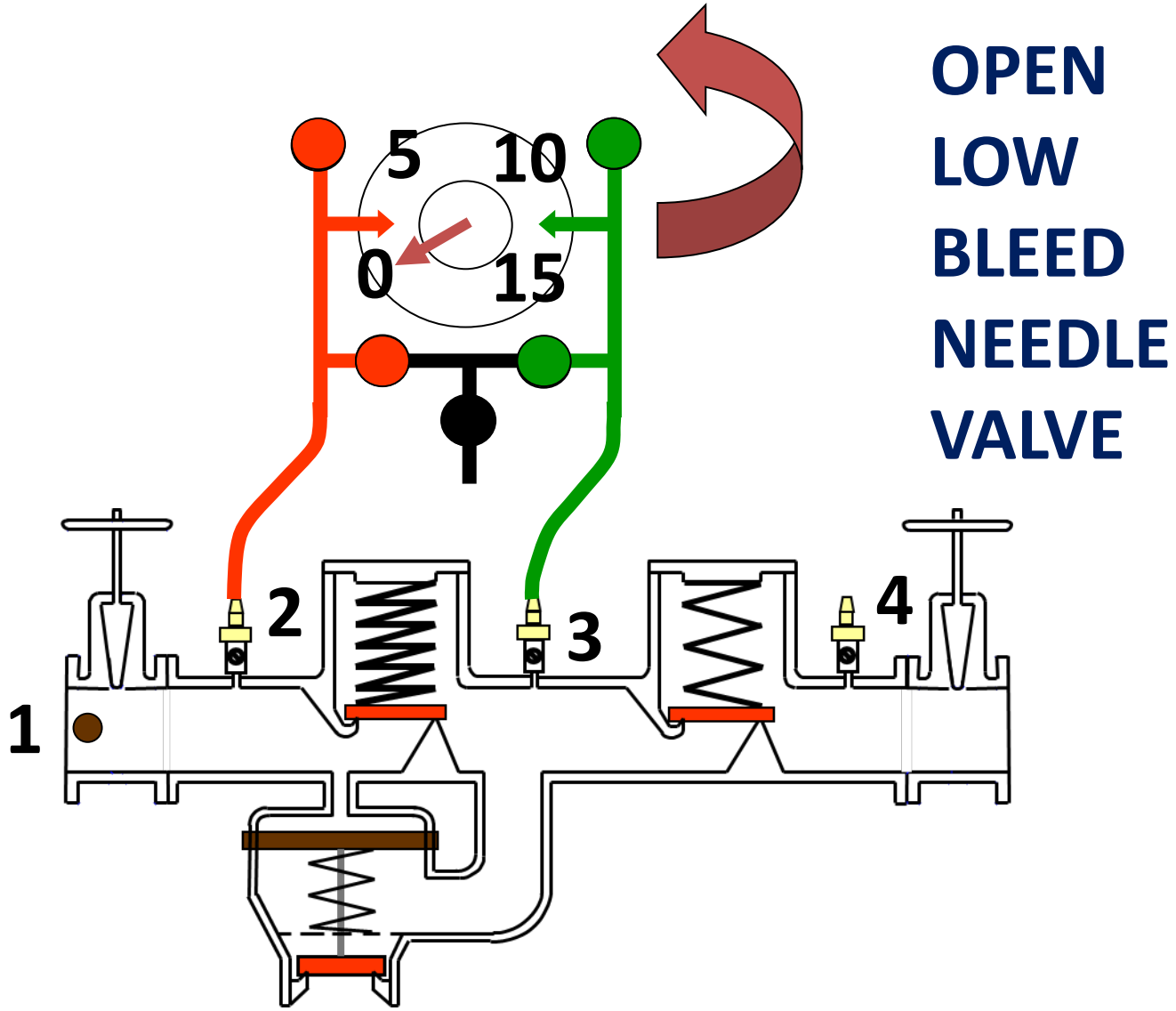


ATTACH HIGH PRESSURE HOSE TO TC #2



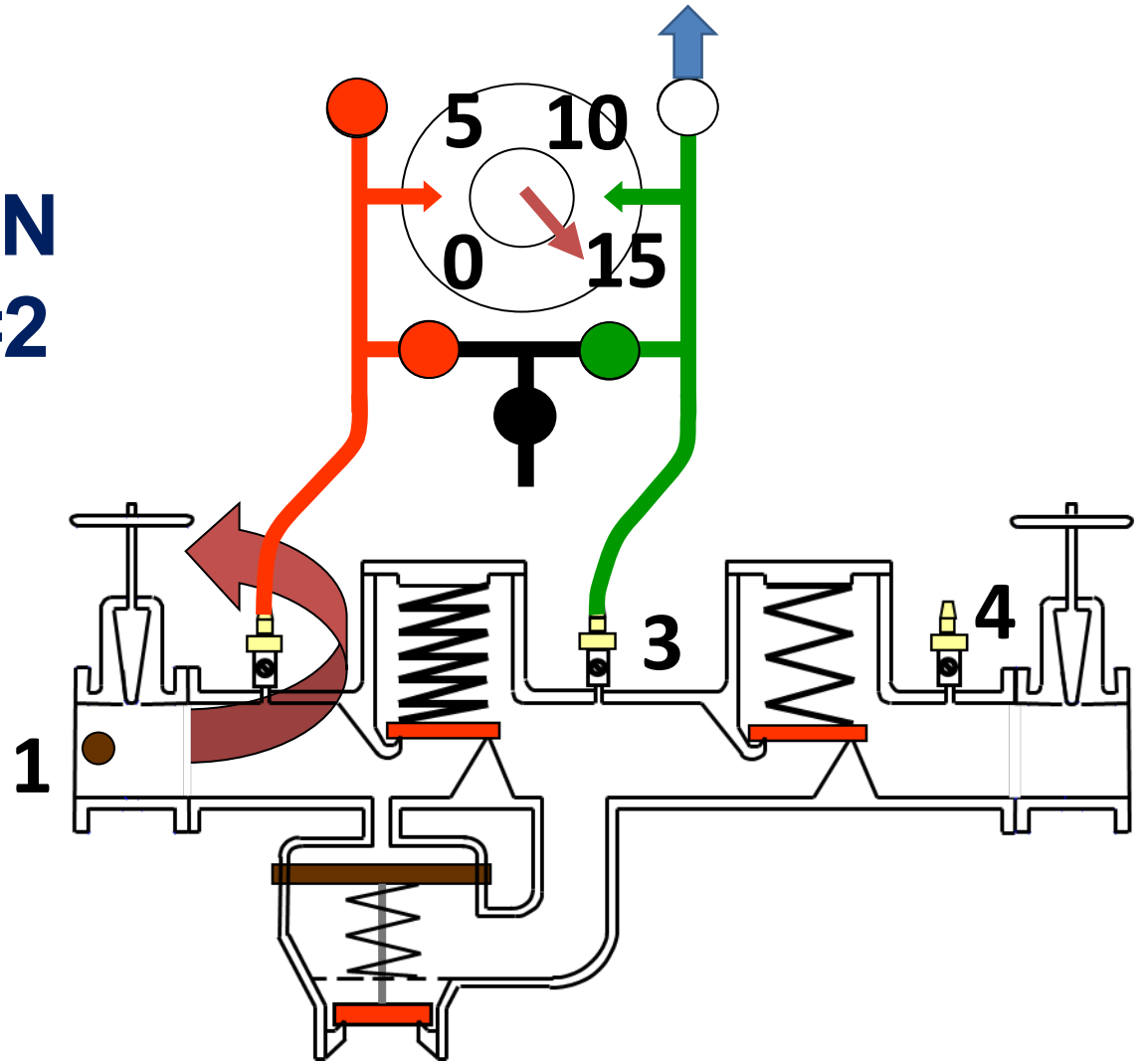
ATTACH LOW PRESSURE HOSE TO TC #3


5
10
0
15
OPEN
TC #3
1
2
3
4

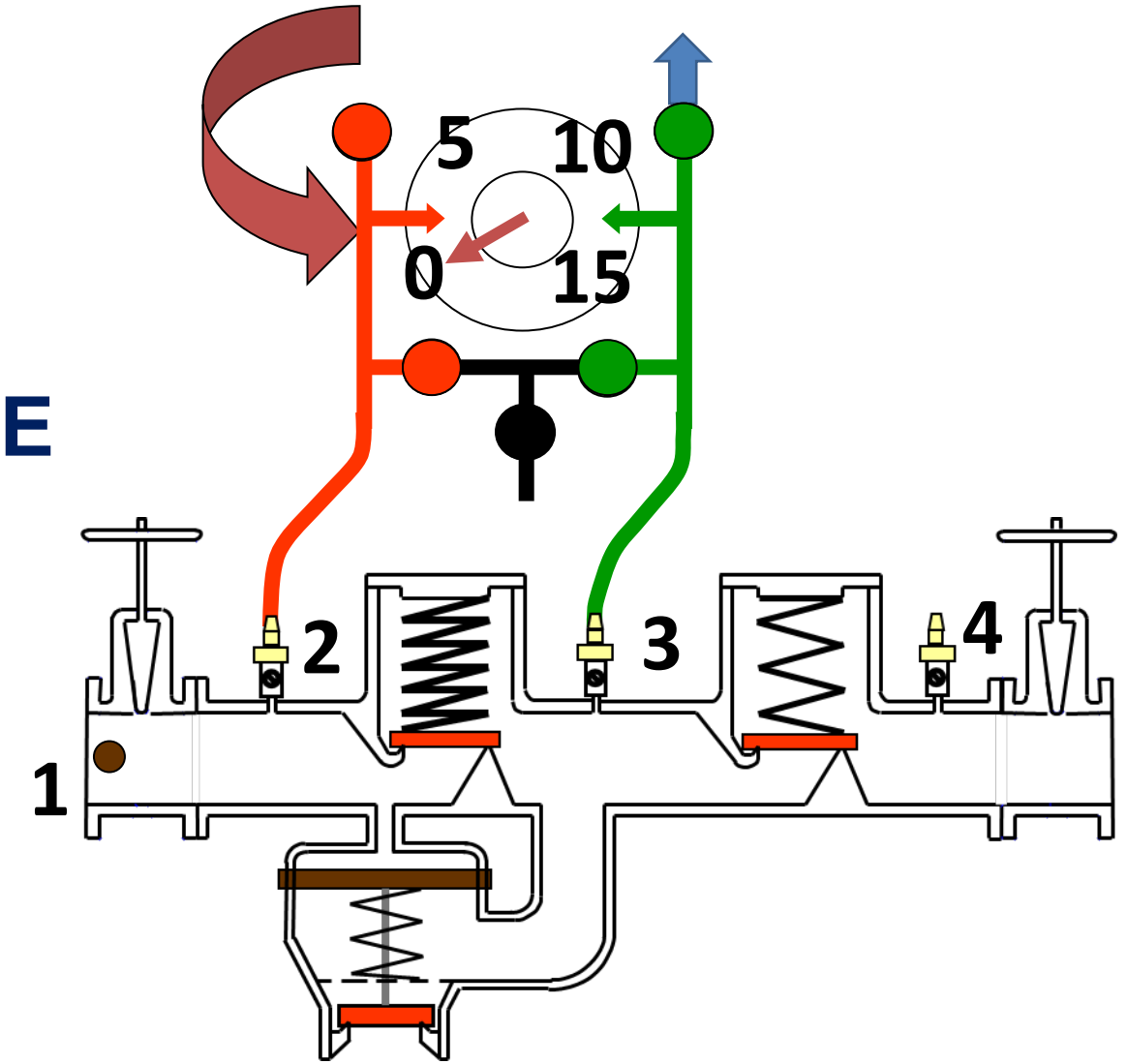


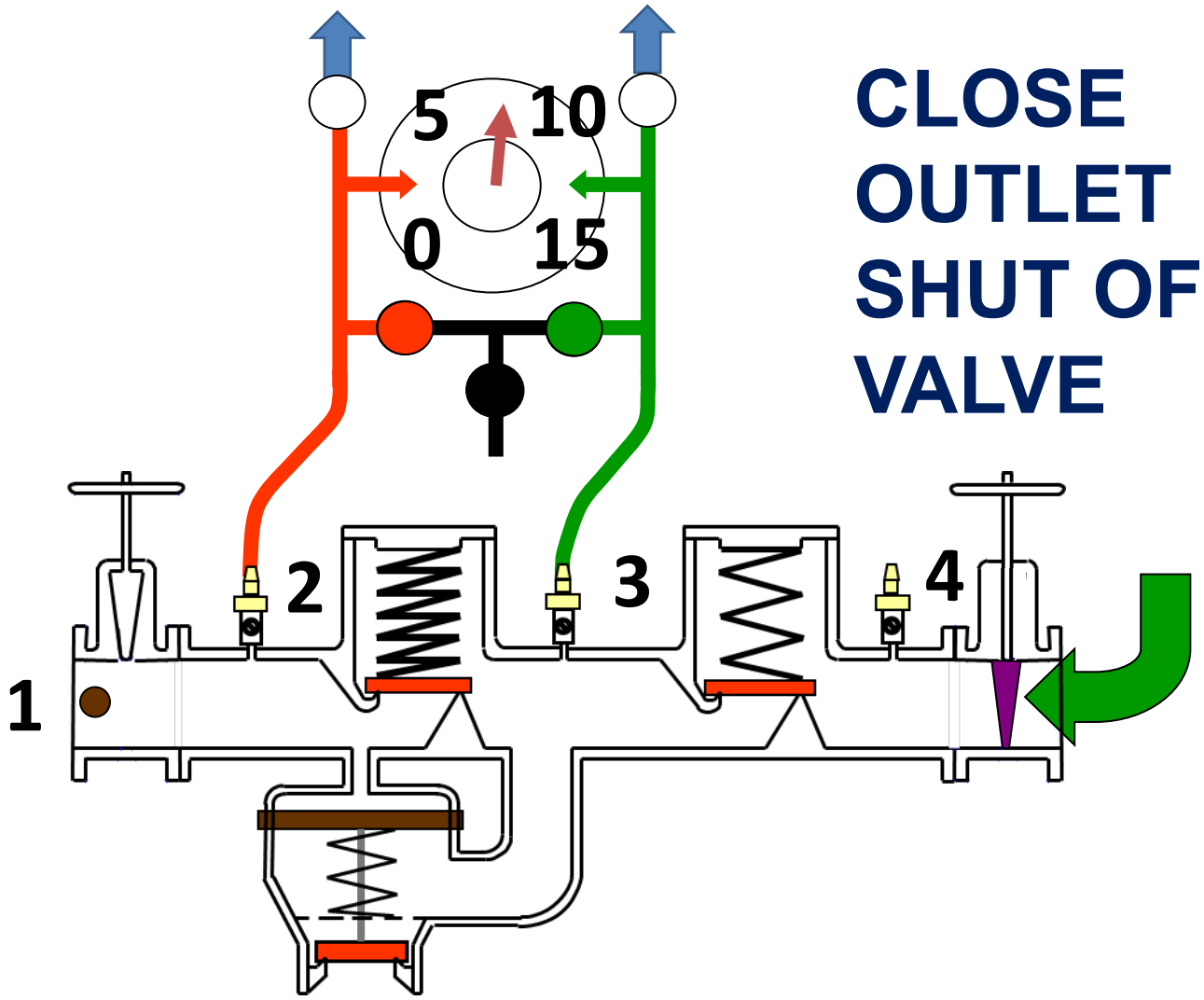
OPEN
LOW
BLEED
NEEDLE
VALVE

OPEN
TC #2



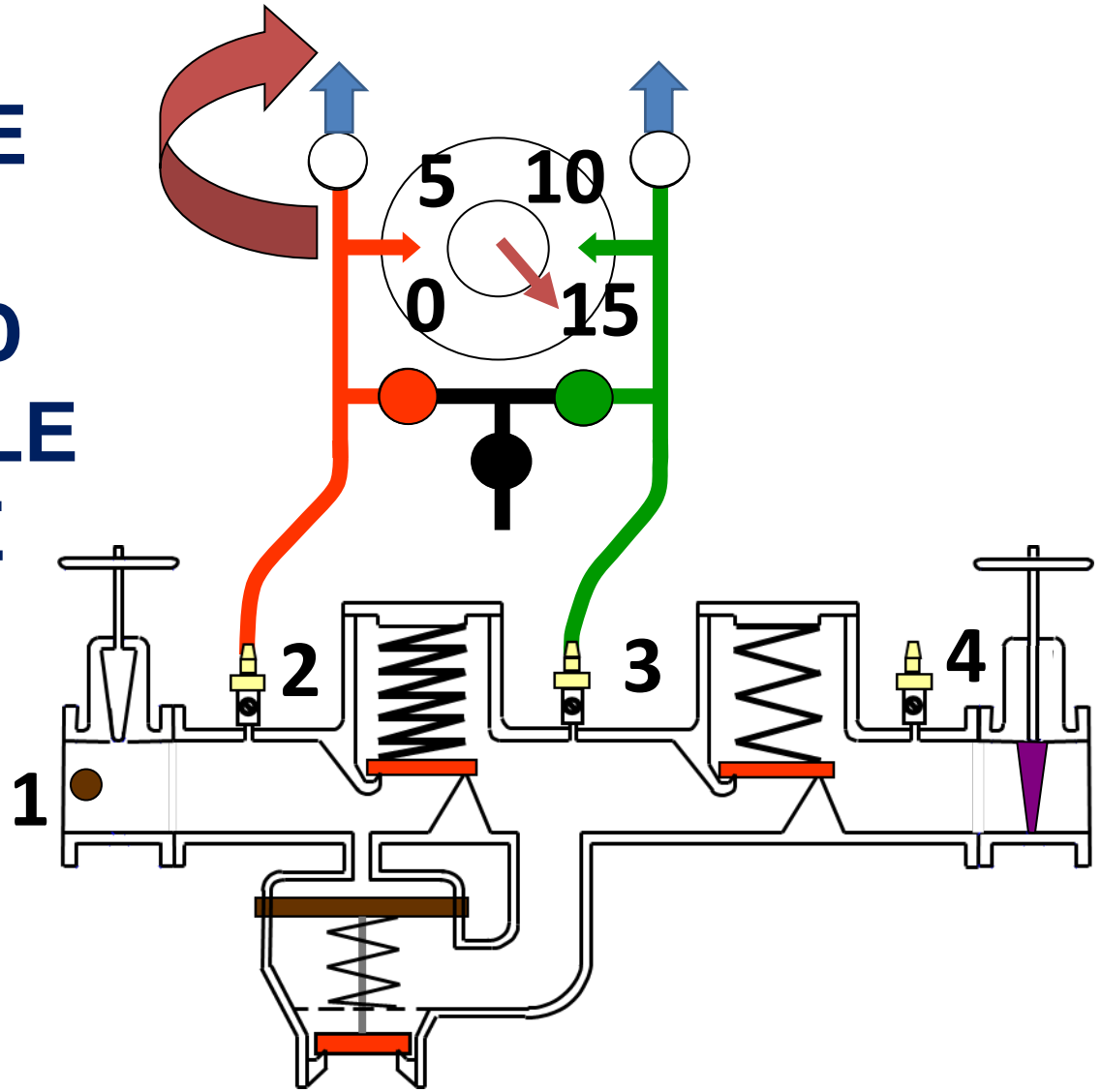
OPEN HIGH BLEED NEEDLE VALVE

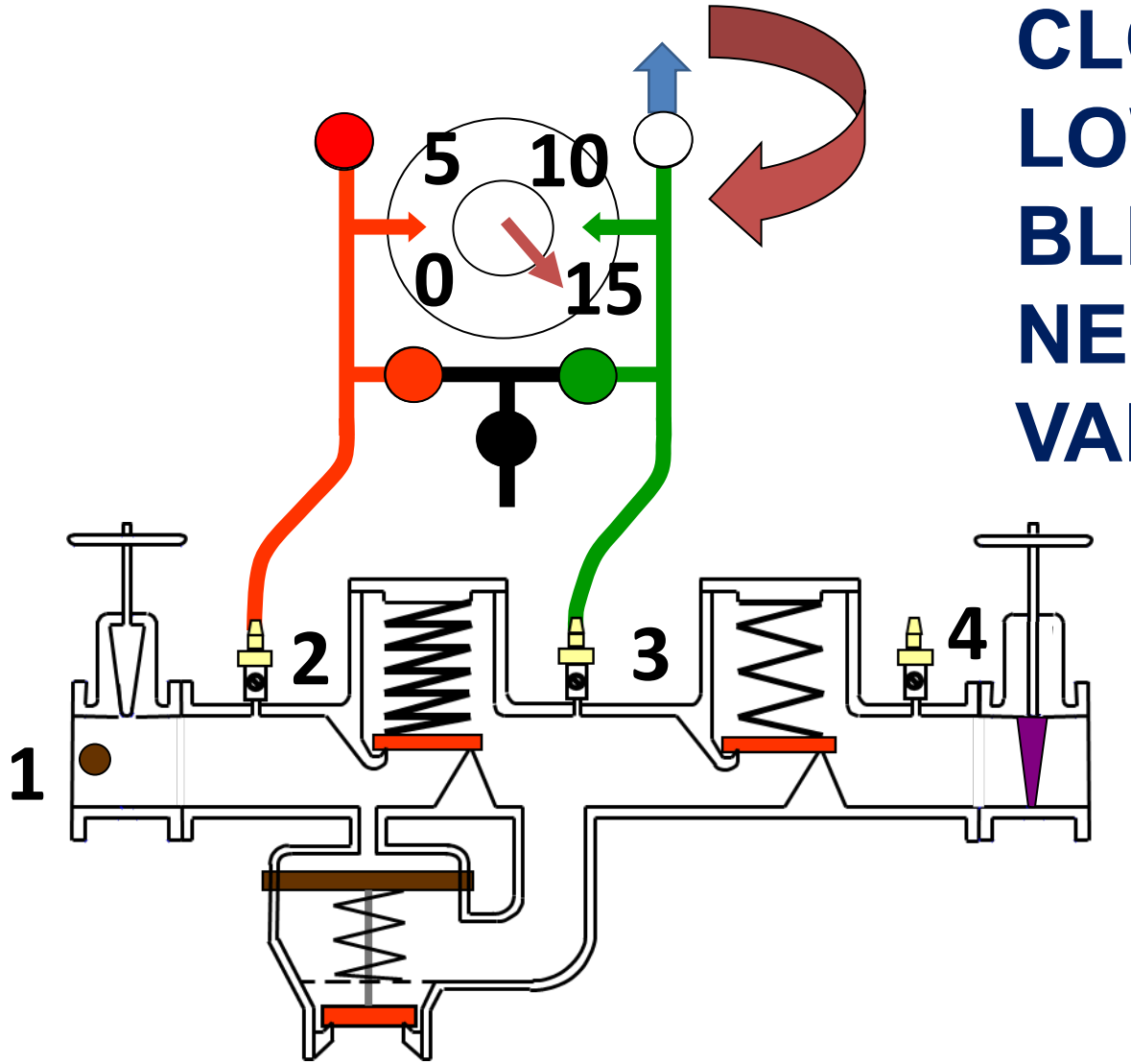




CLOSE OUTLET SHUT OFF VALVE

CLOSE HIGH BLEED NEEDLE VALVE



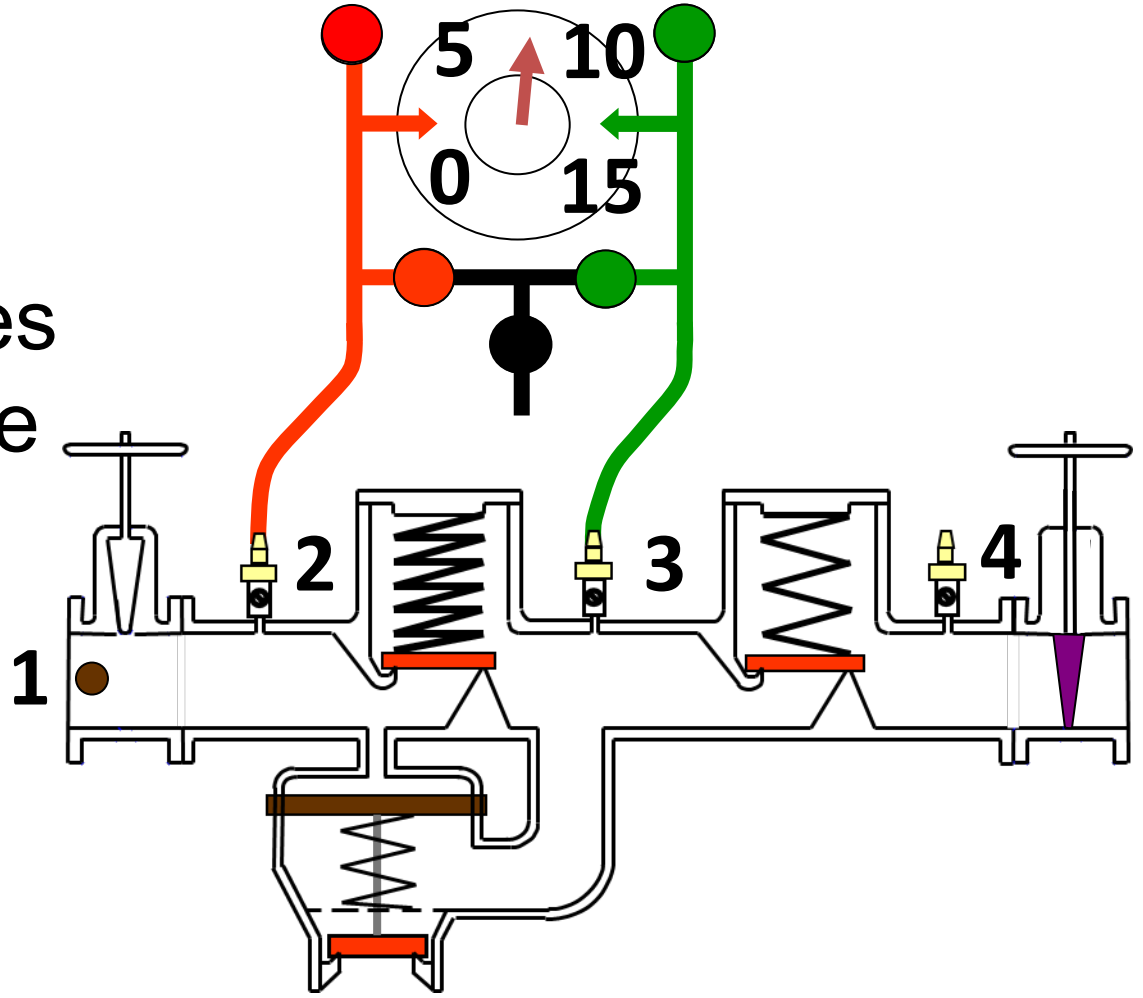


CLOSE
LOW
BLEED
NEEDLE
VALVE

Test 1

Observe Check Valve #1

If Relief Valve does not drip and gauge is holding steady, then CV #1 is holding tight.

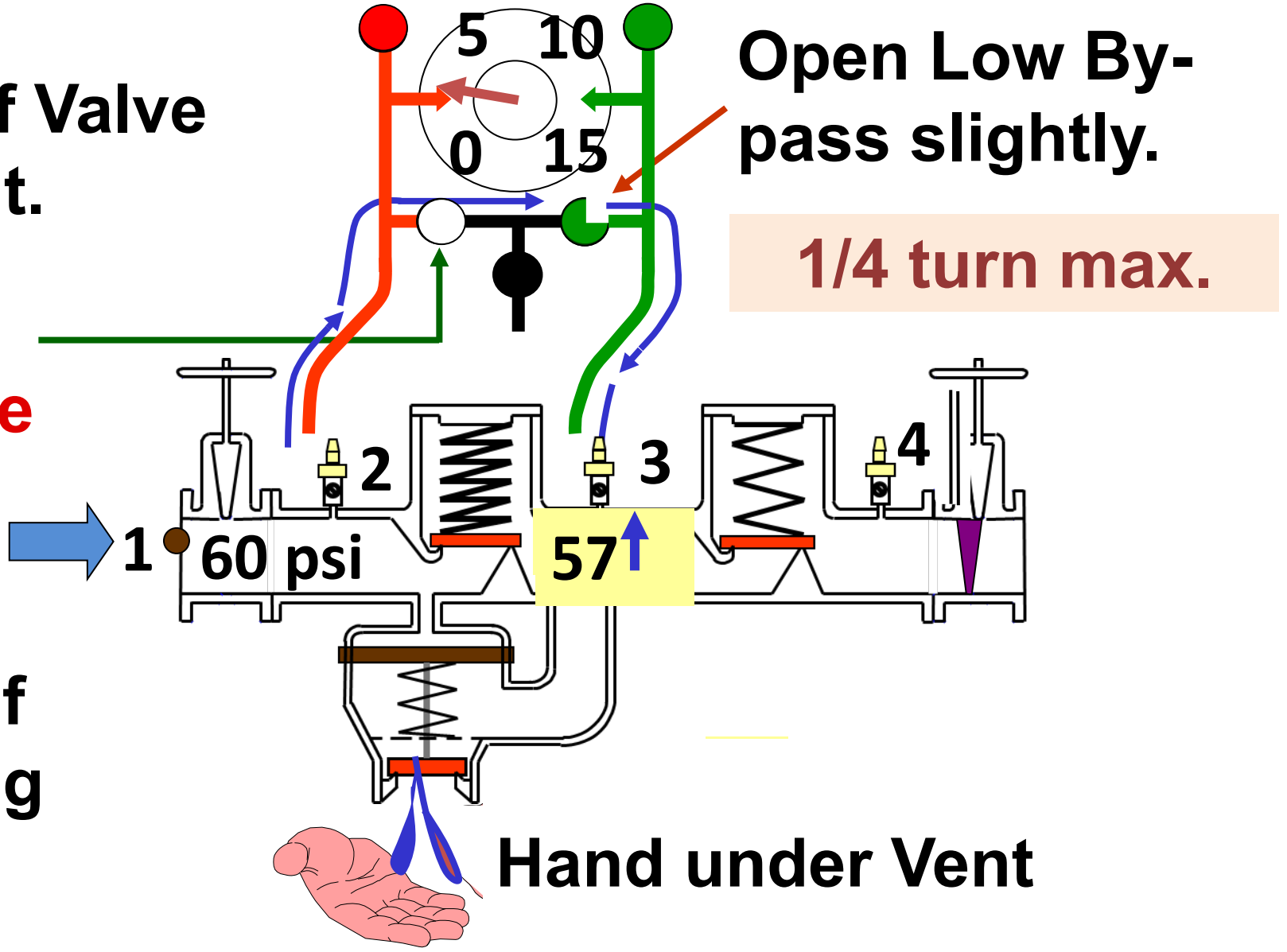


Relief Valve Test

Test 2

Record Relief Valve opening point.

Open High By-pass Valve one turn.



Record Relief Valve opening point.

Back Pressure Test

Test 3

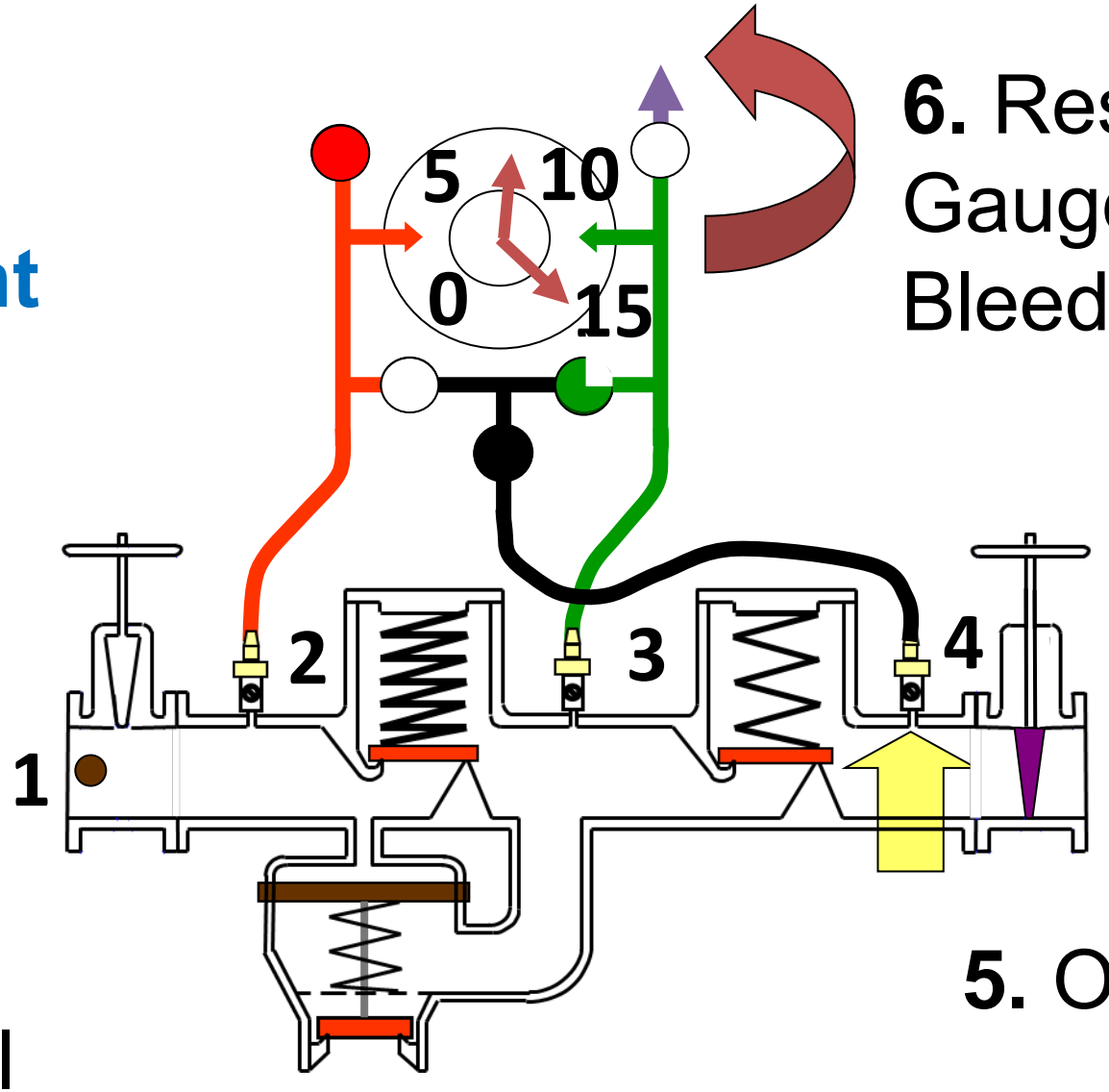
Observe CV #2 - leaks or closed tight

1. Close Low By-pass Control Valve

2. Open Vent Control Valve

3. Connect Vent Hose to TC #4

4. Close Vent Control Valve

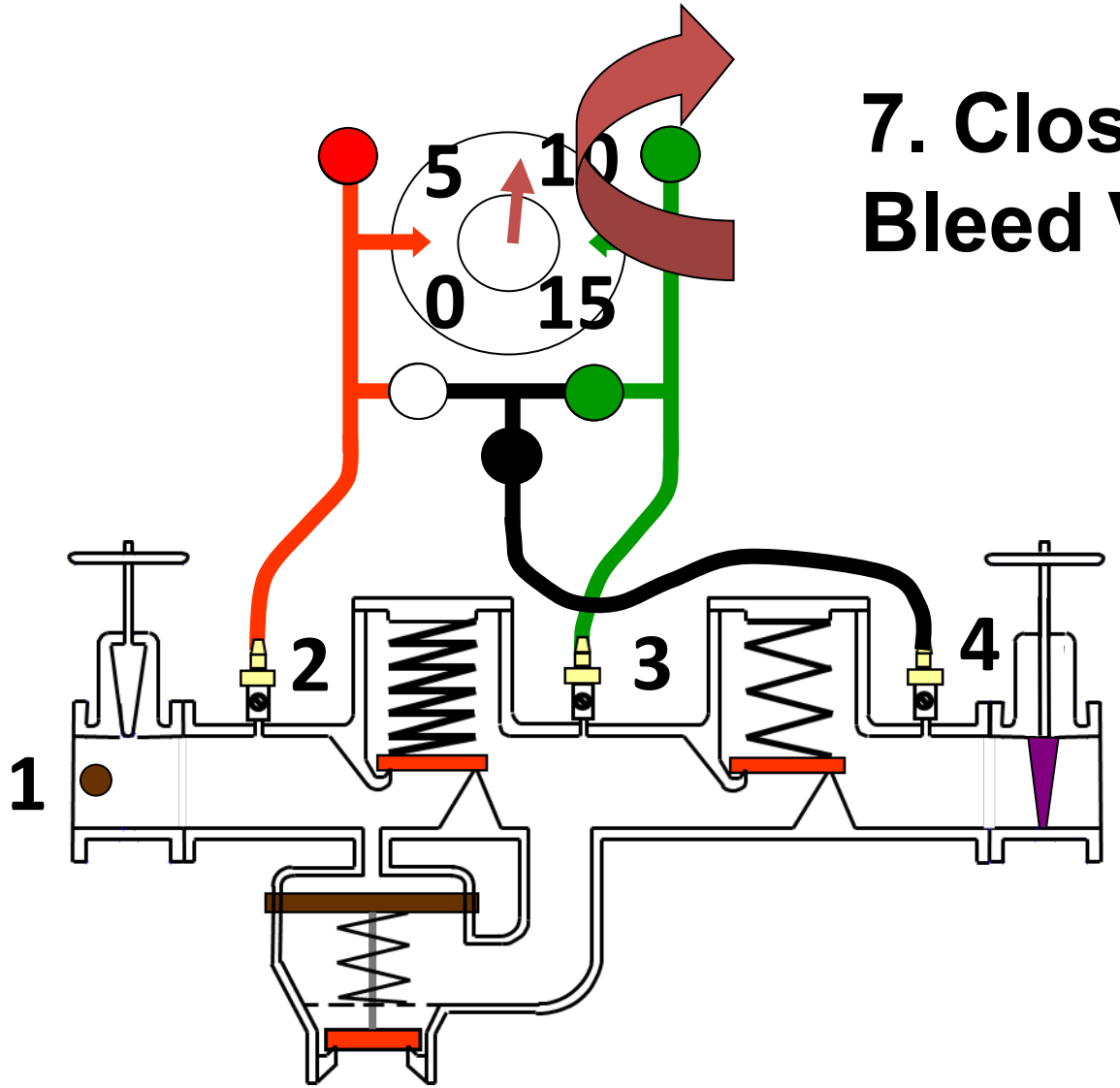


6. Reset Gauge Low Bleed Valve

5. Open TC #4

Test 3

Observe CV #2 - leaks or closed tight

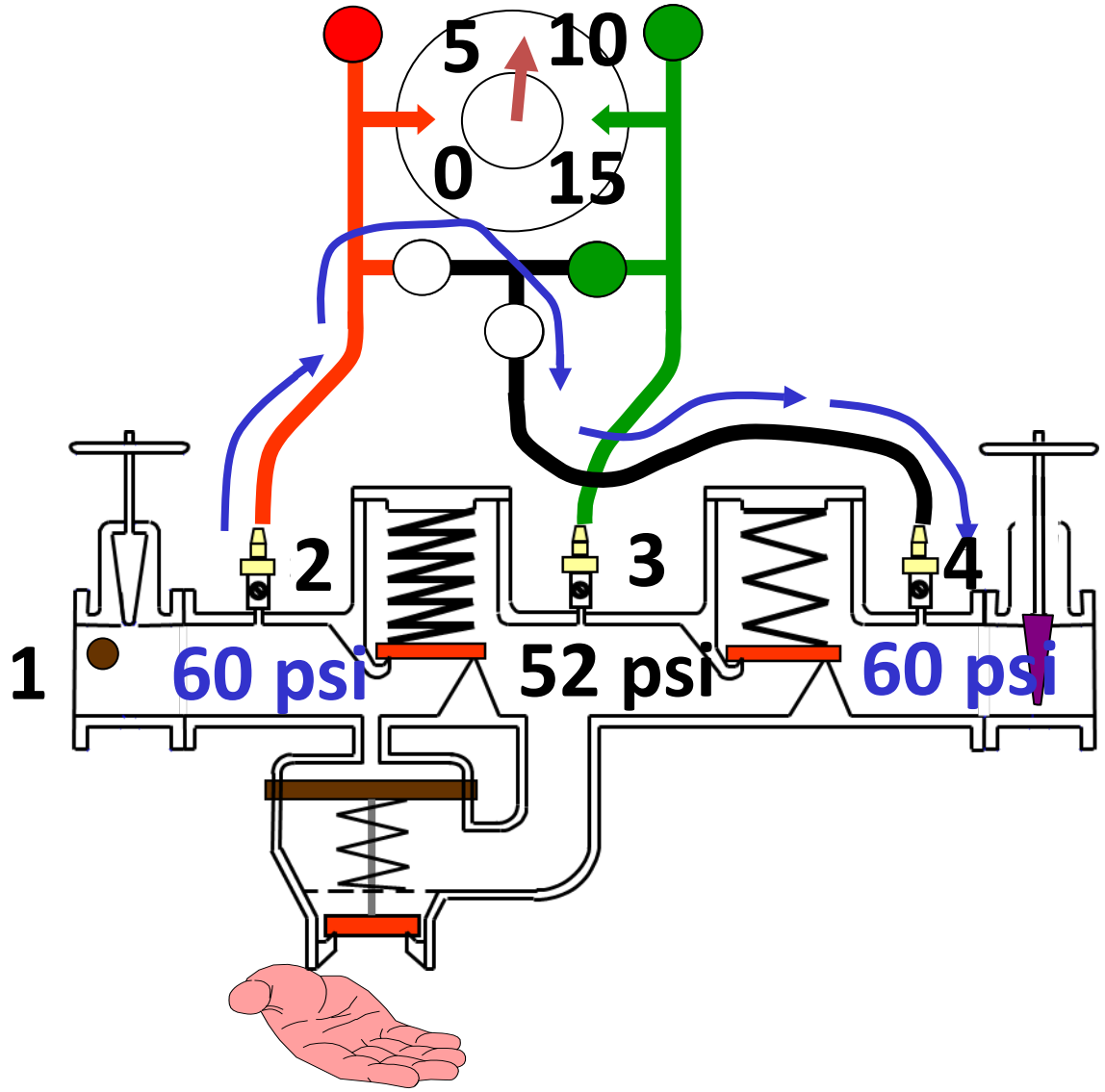


7. Close Low Bleed Valve

Test 3

Observe CV #2 - leaks or closed tight

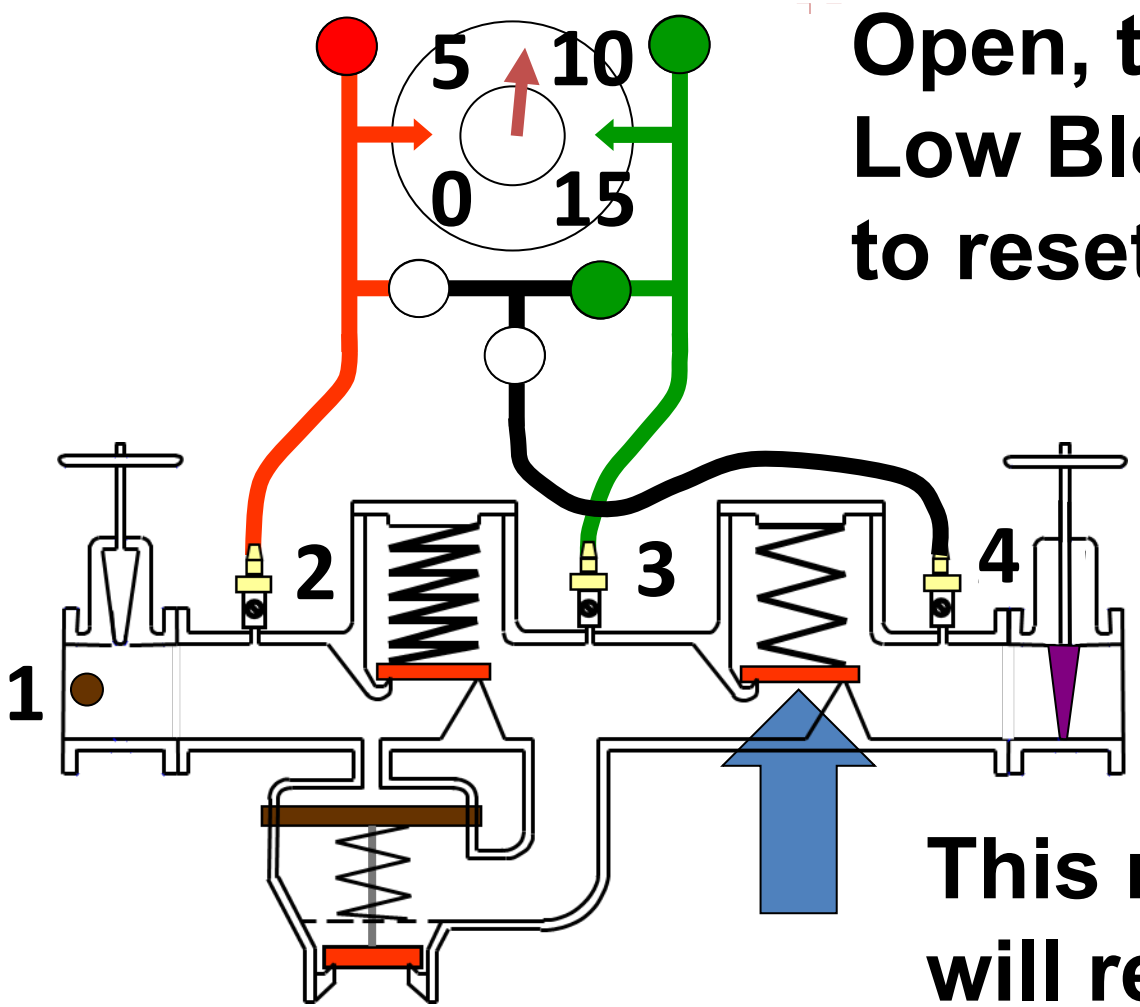
8. Open Vent Control Valve



Test 4

Record CV #1 -

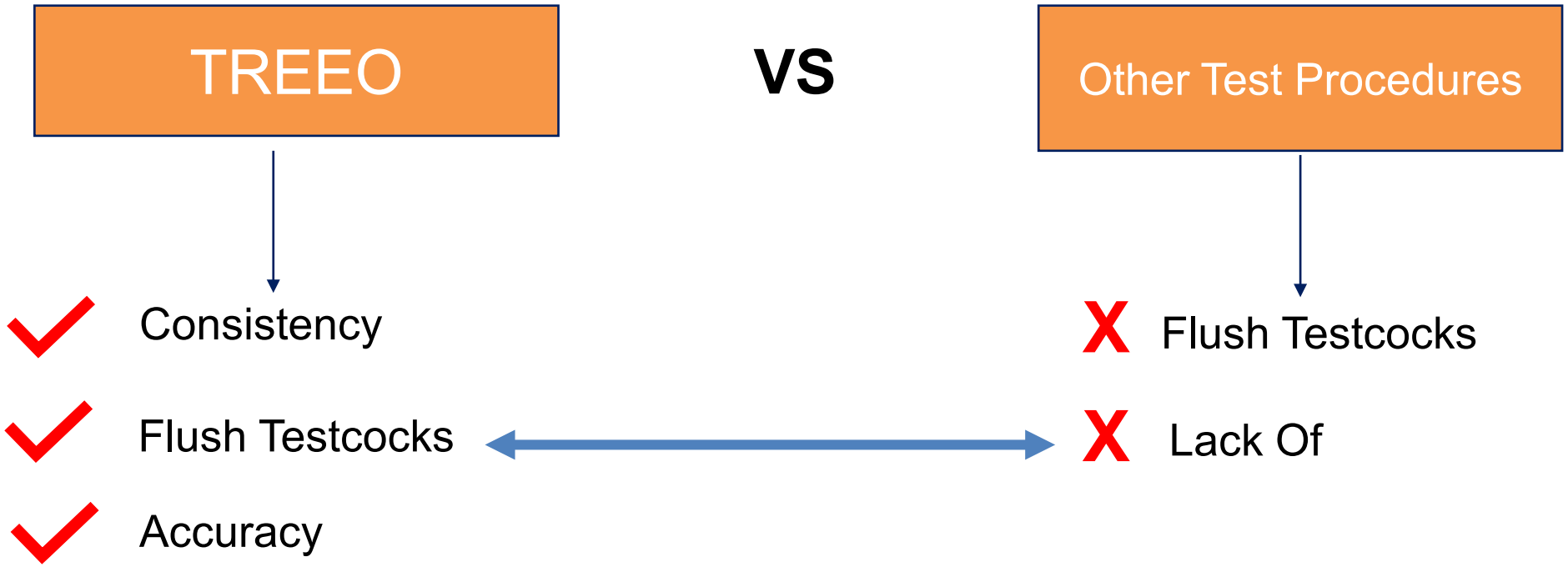
Record value on Gauge as the differential pressure across CV #1



Open, then close Low Bleed Valve to reset Gauge.

This reset will relieve CV #2 disk compression

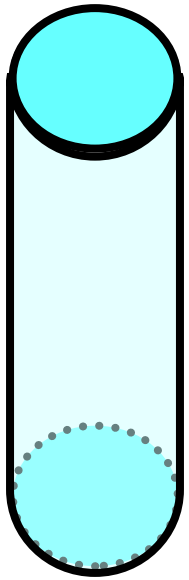
RP Field Test Procedures



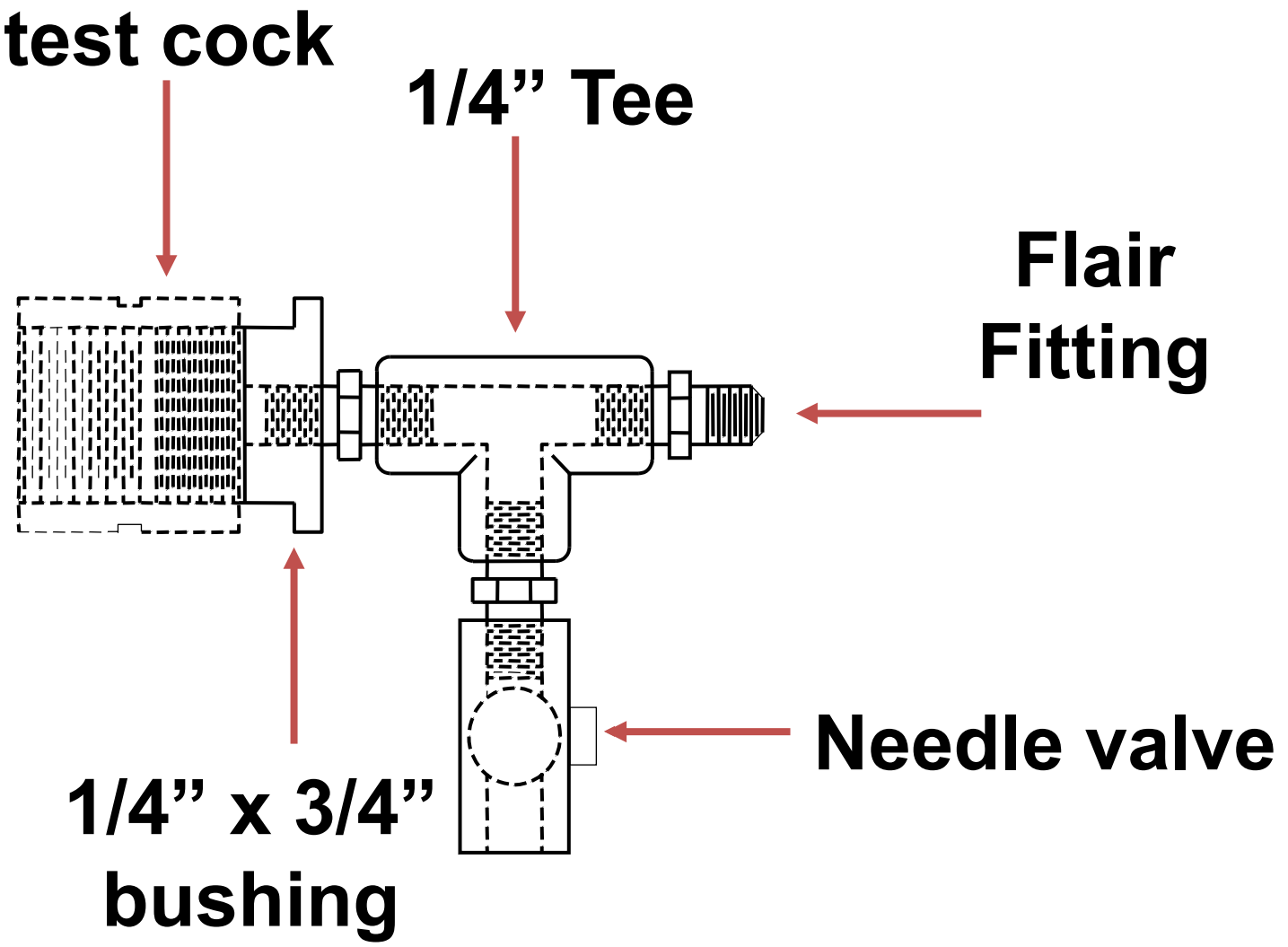
DCVA Field Test

Extra Equipment Needed:

Short Tube
(clear tube)

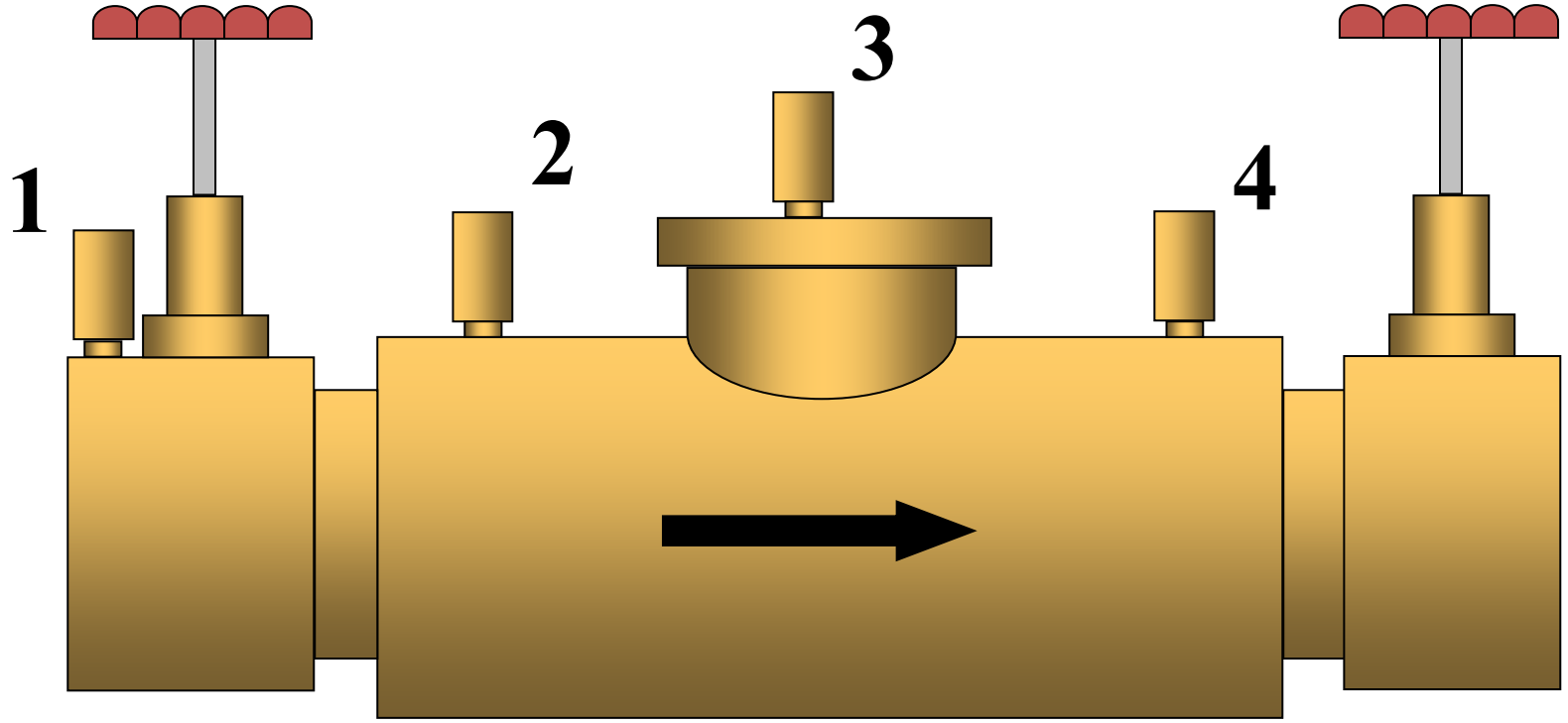


and



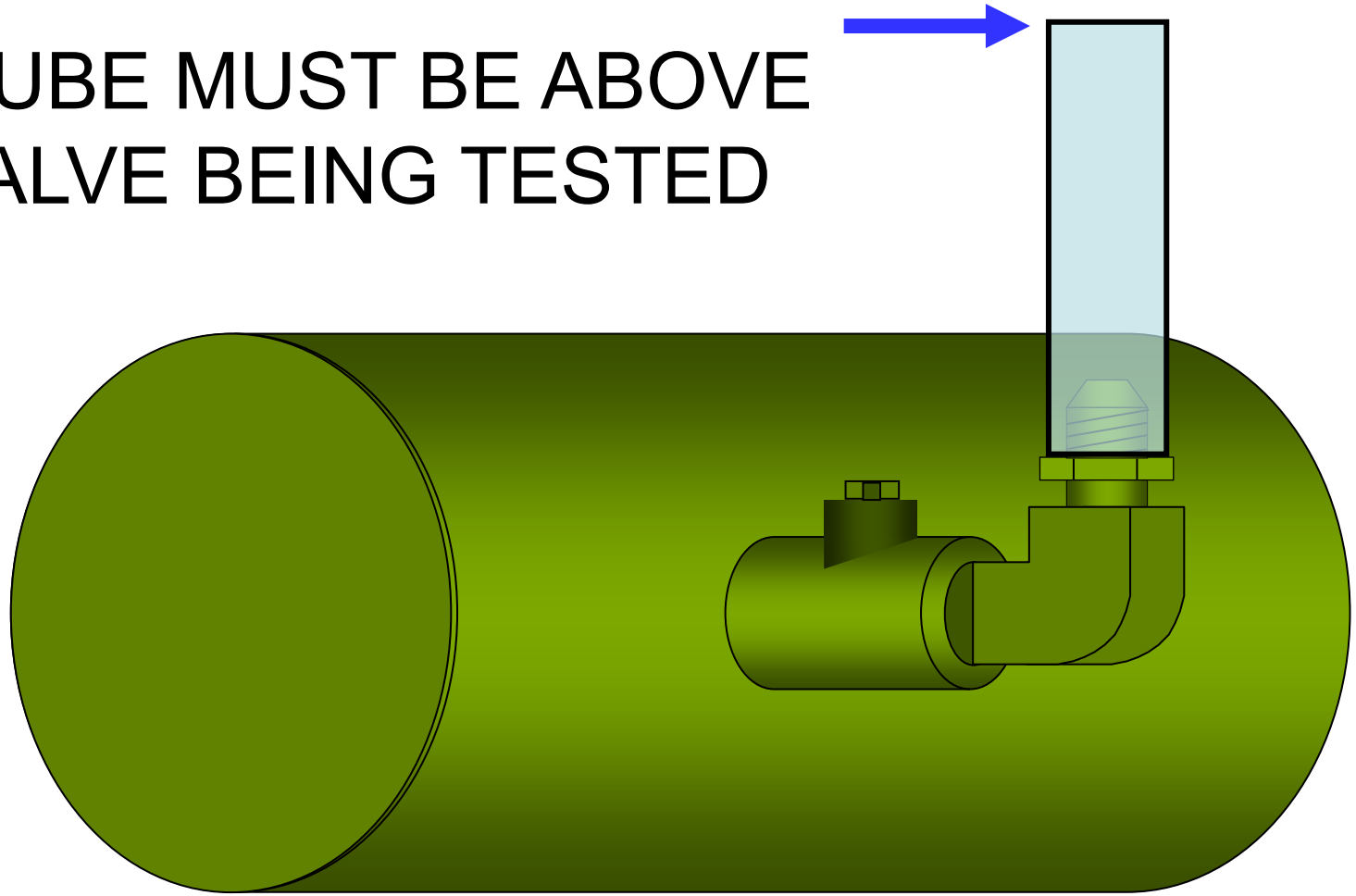
COMPENSATING TEE

Location of test cocks

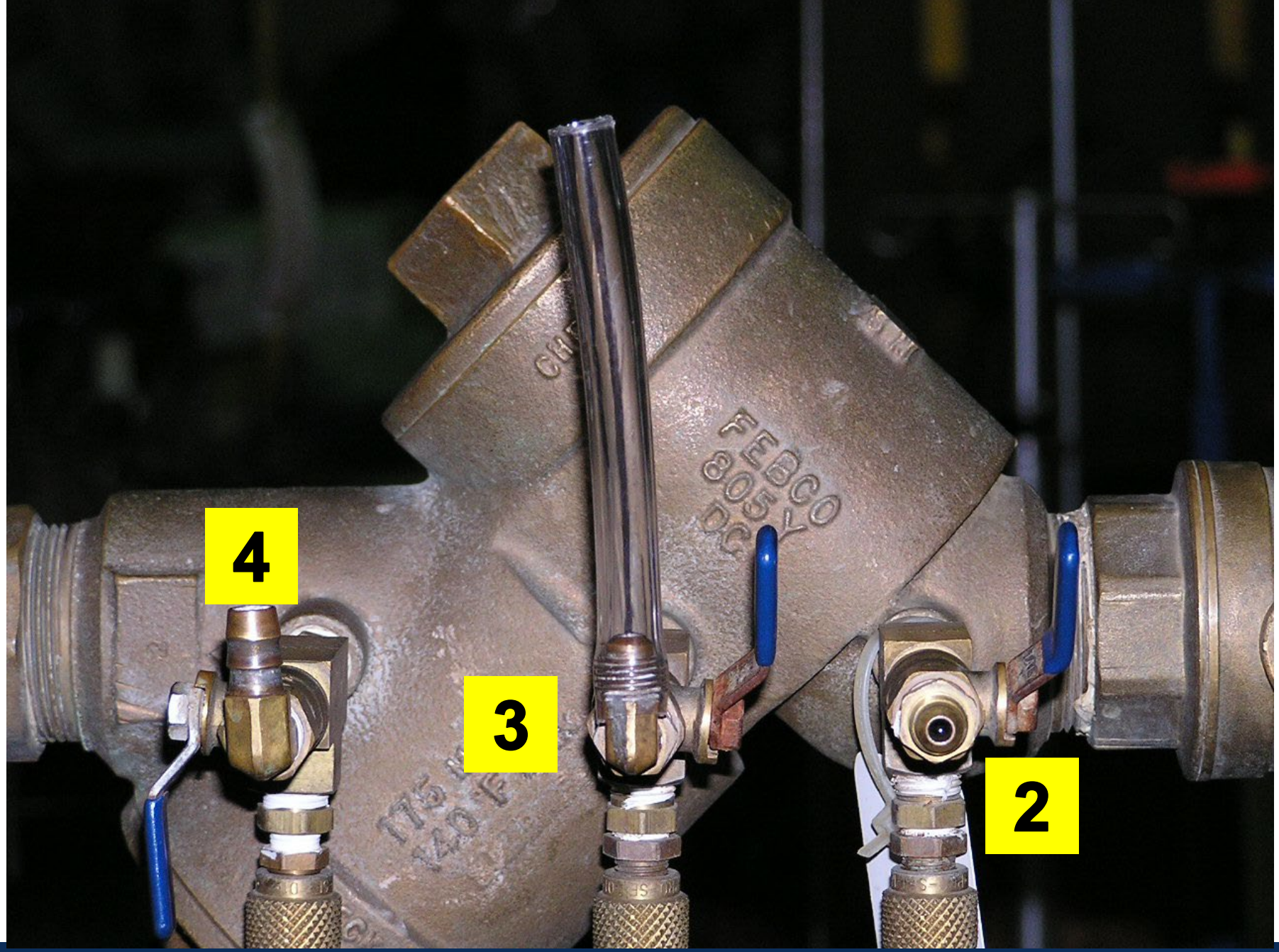


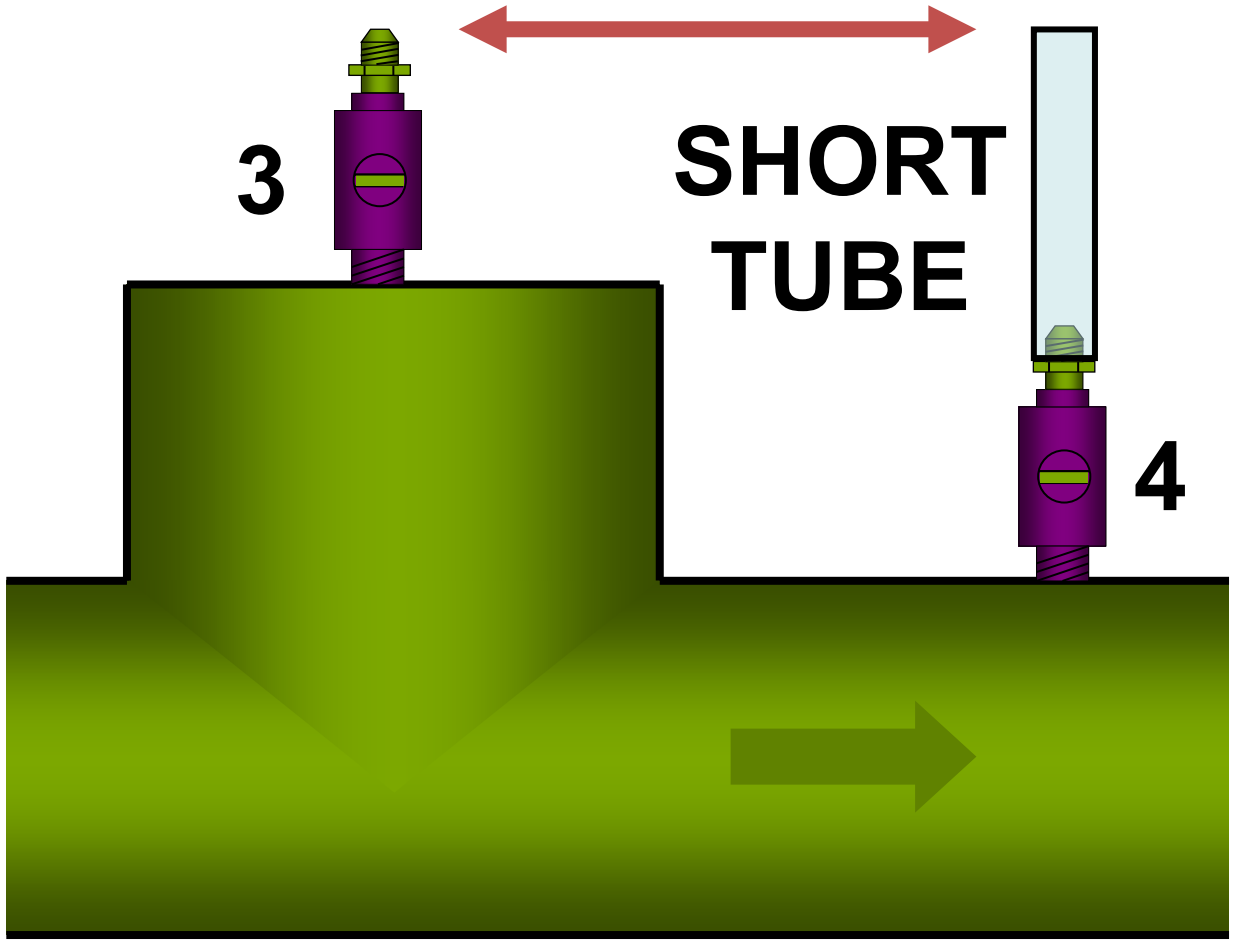
DCVA

TOP OF TUBE MUST BE ABOVE
CHECK VALVE BEING TESTED

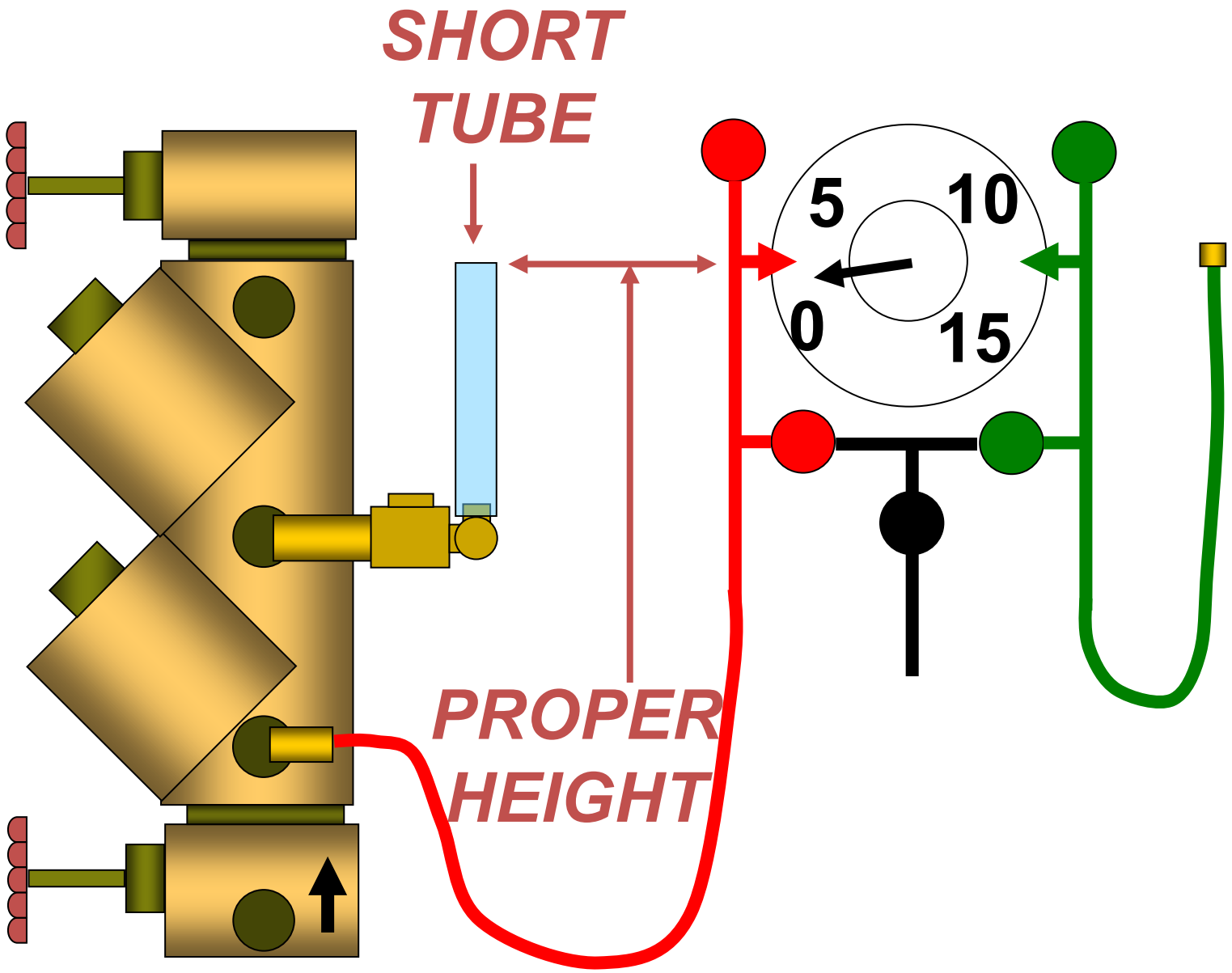


ADD 90^0 ELBOW, A FLAIR FITTING, and A SHORT TUBE


4
3
2
FEBCO
805Y
175 PSI
120 F



Also serves as a sight glass


SHORT
TUBE
5
10
0
15
PROPER
HEIGHT

Field Testing the DCVA

PREPARATION

Notify the Customer.

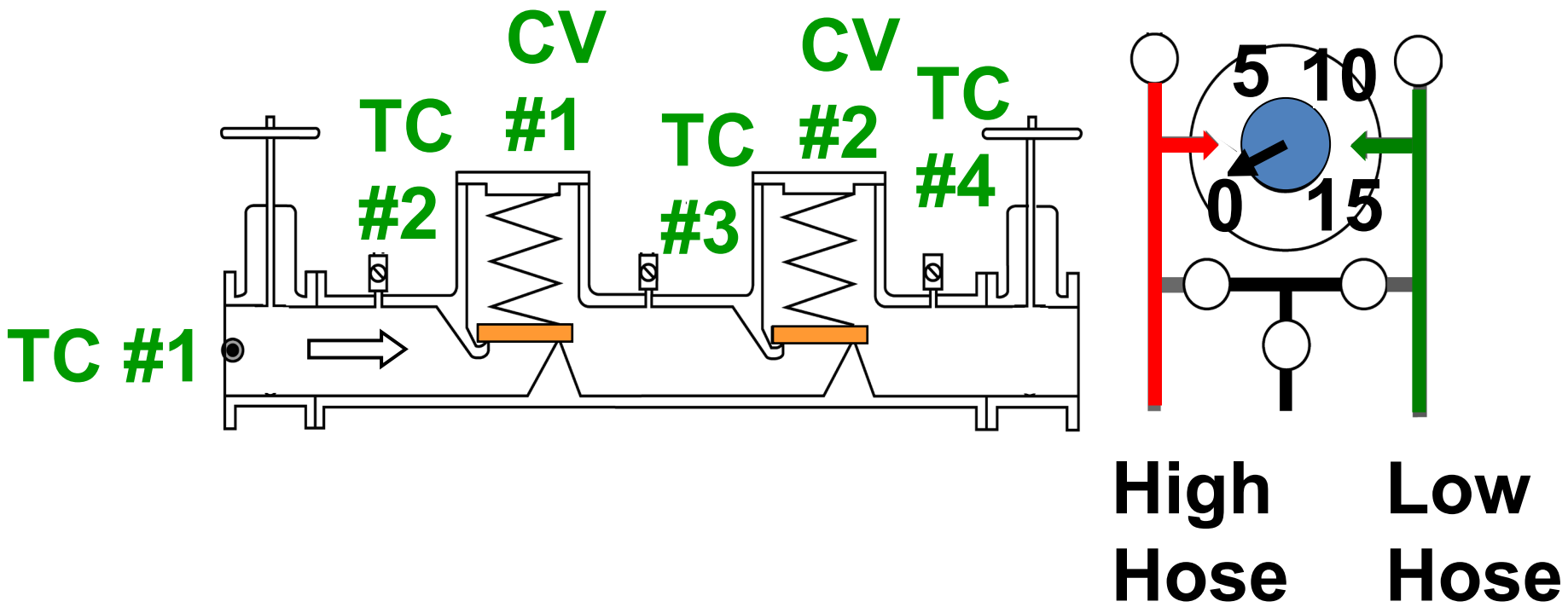
Inspect the Area.

Flush Testcocks.

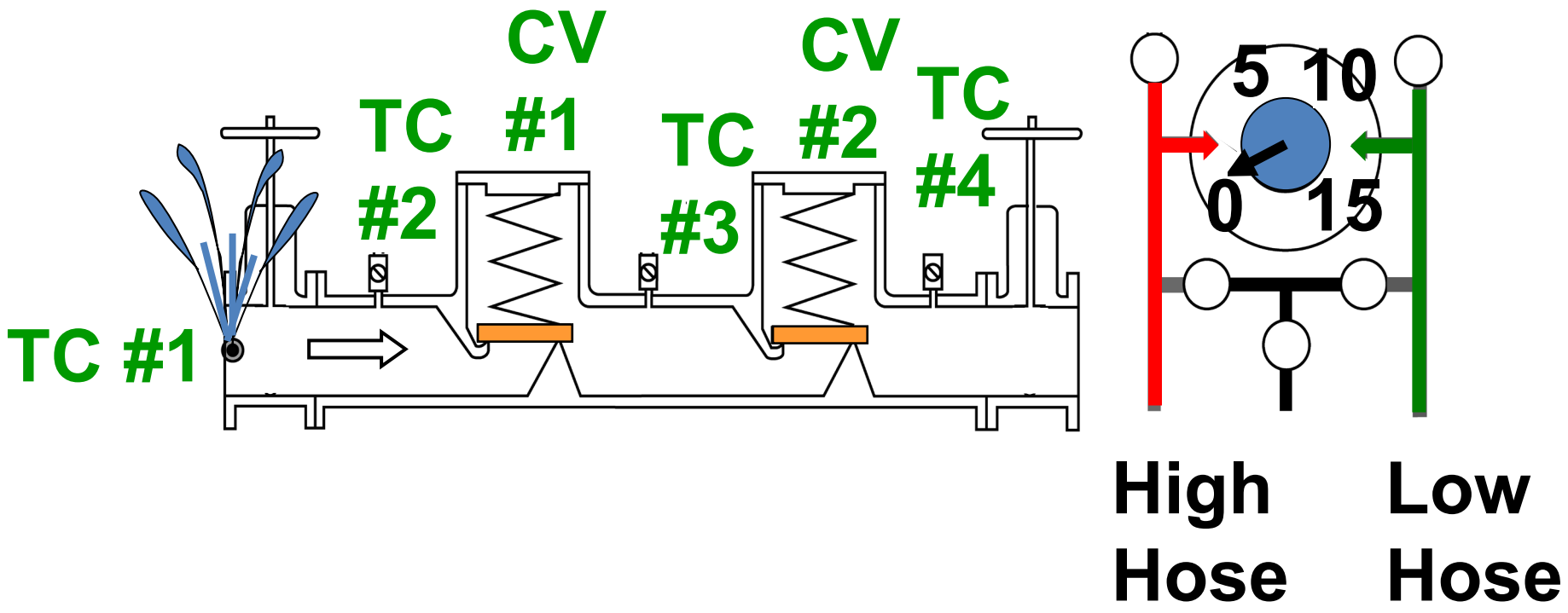
Install Fittings.

Inspect Test Kit.

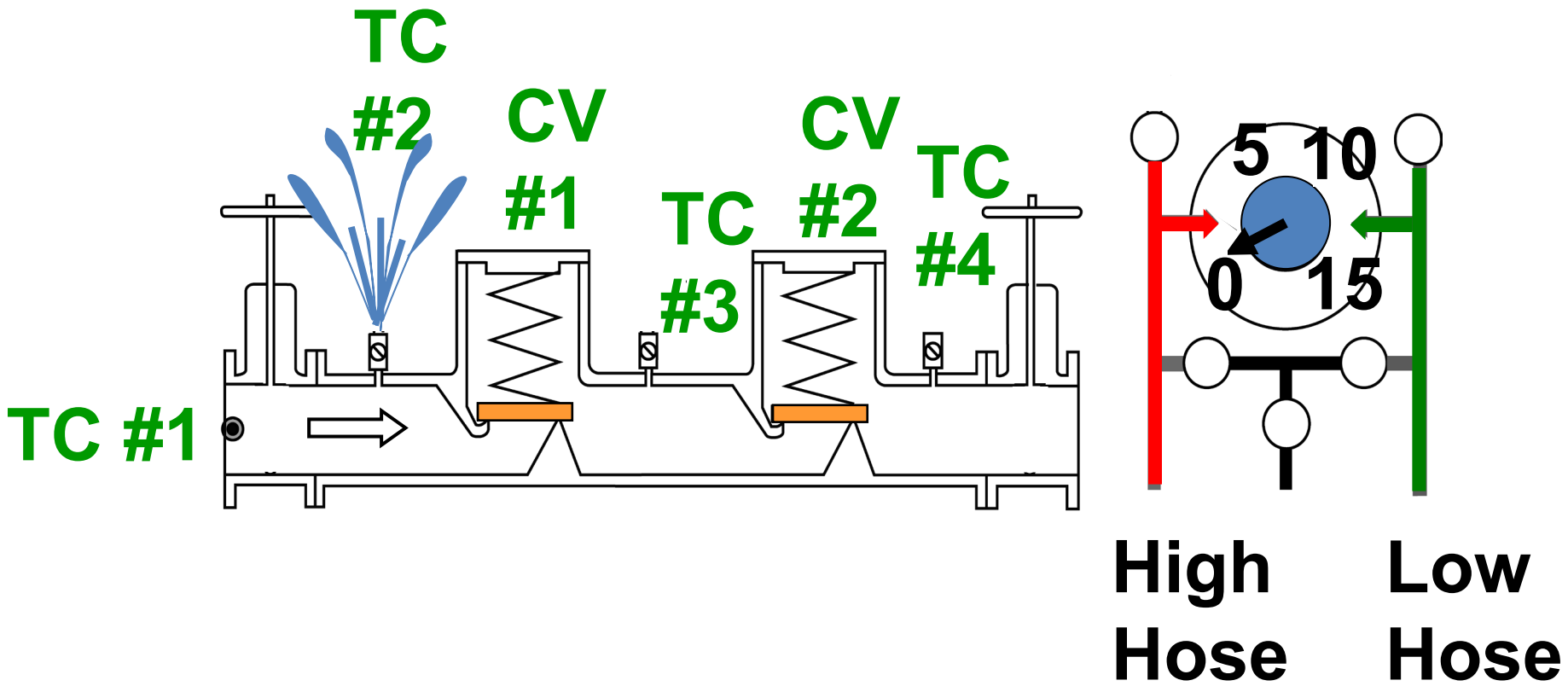
Field Testing the DCVA



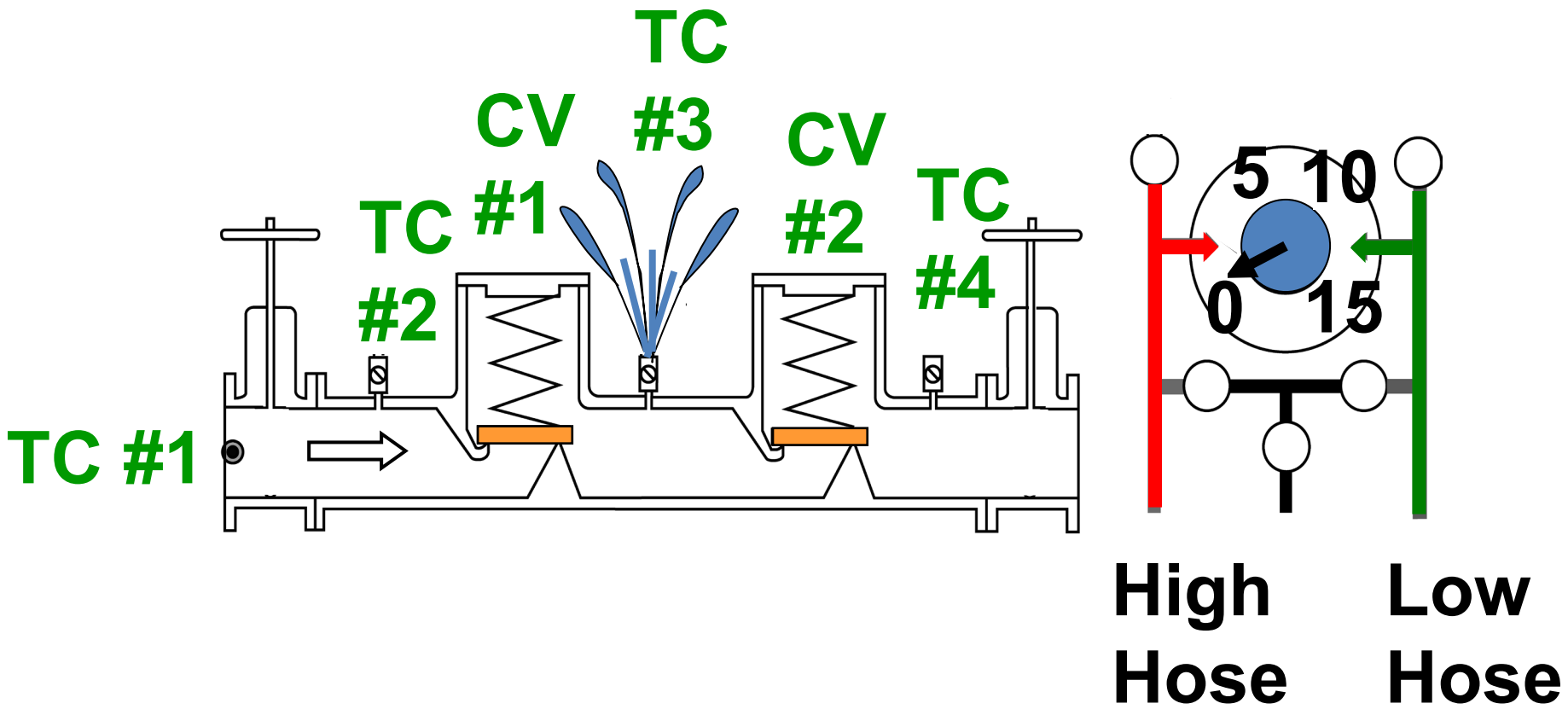
Flush Test Cocks



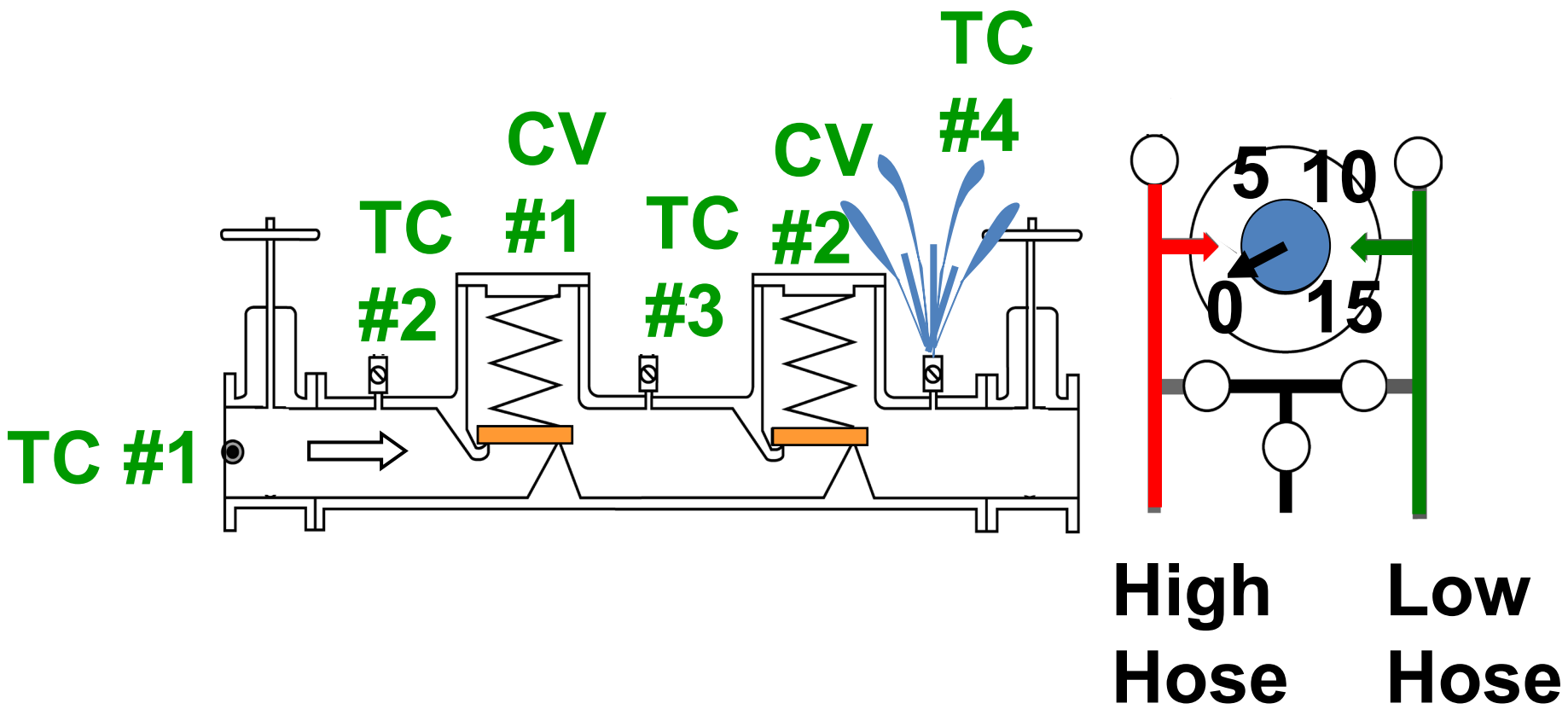
Flush Test Cocks



Flush Test Cocks

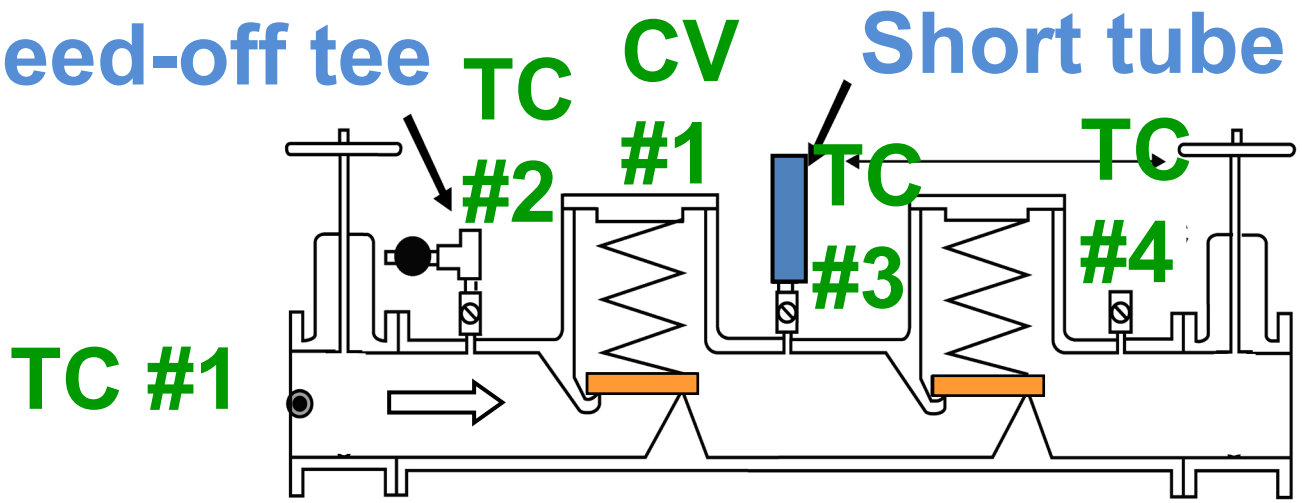


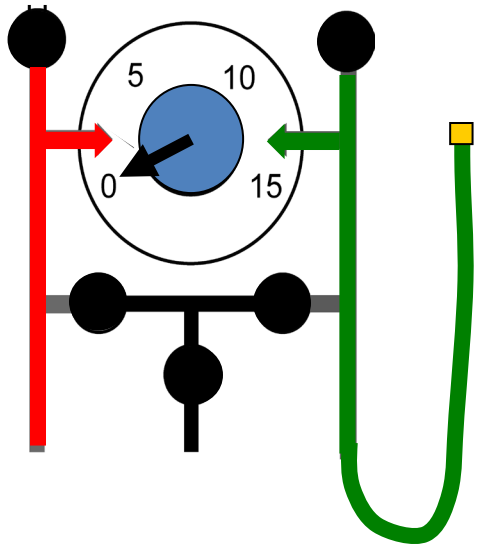
Flush Test Cocks



Install Bleed-off Tee on Test Cock #2

and Short Clear Hose on Test Cock #3

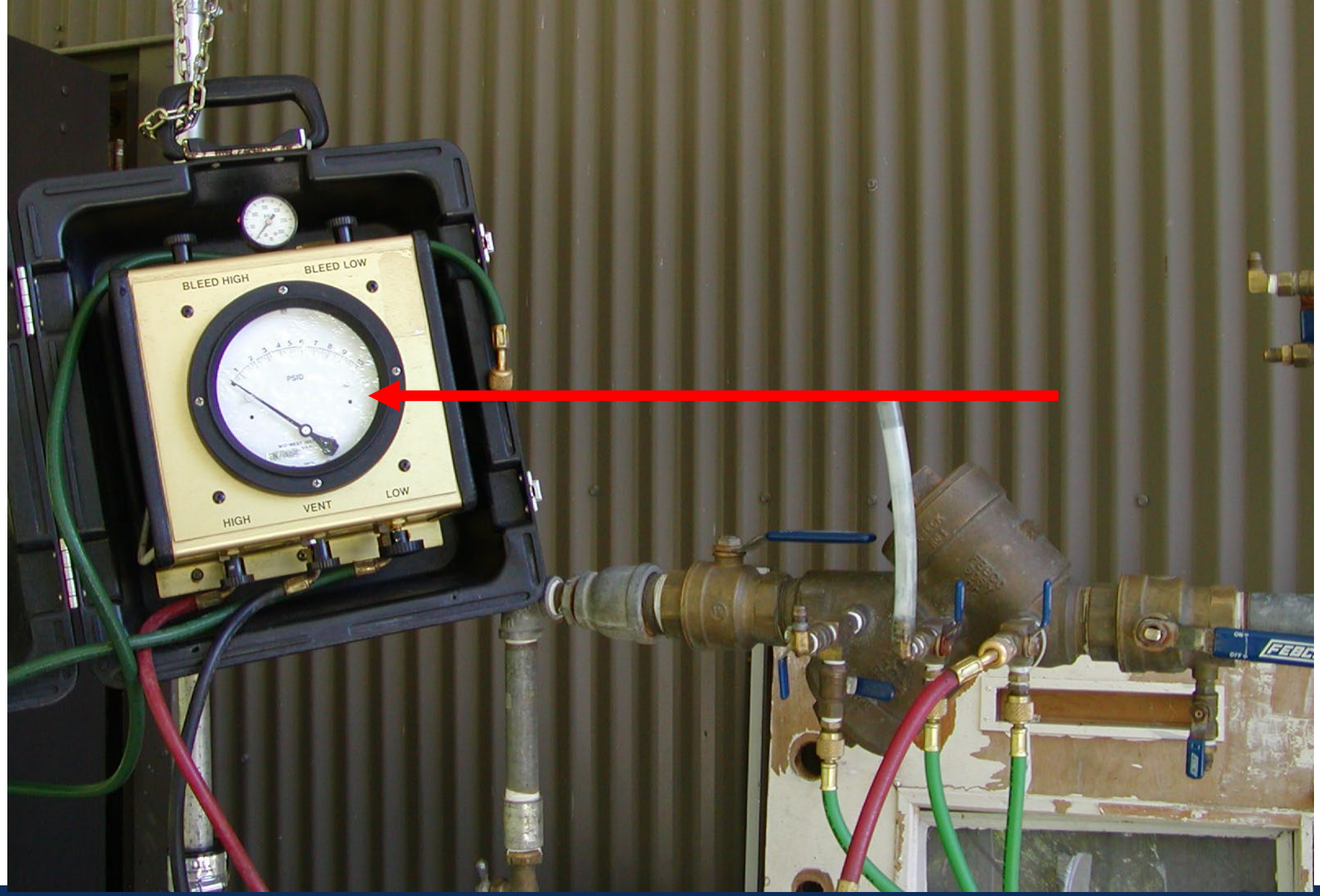


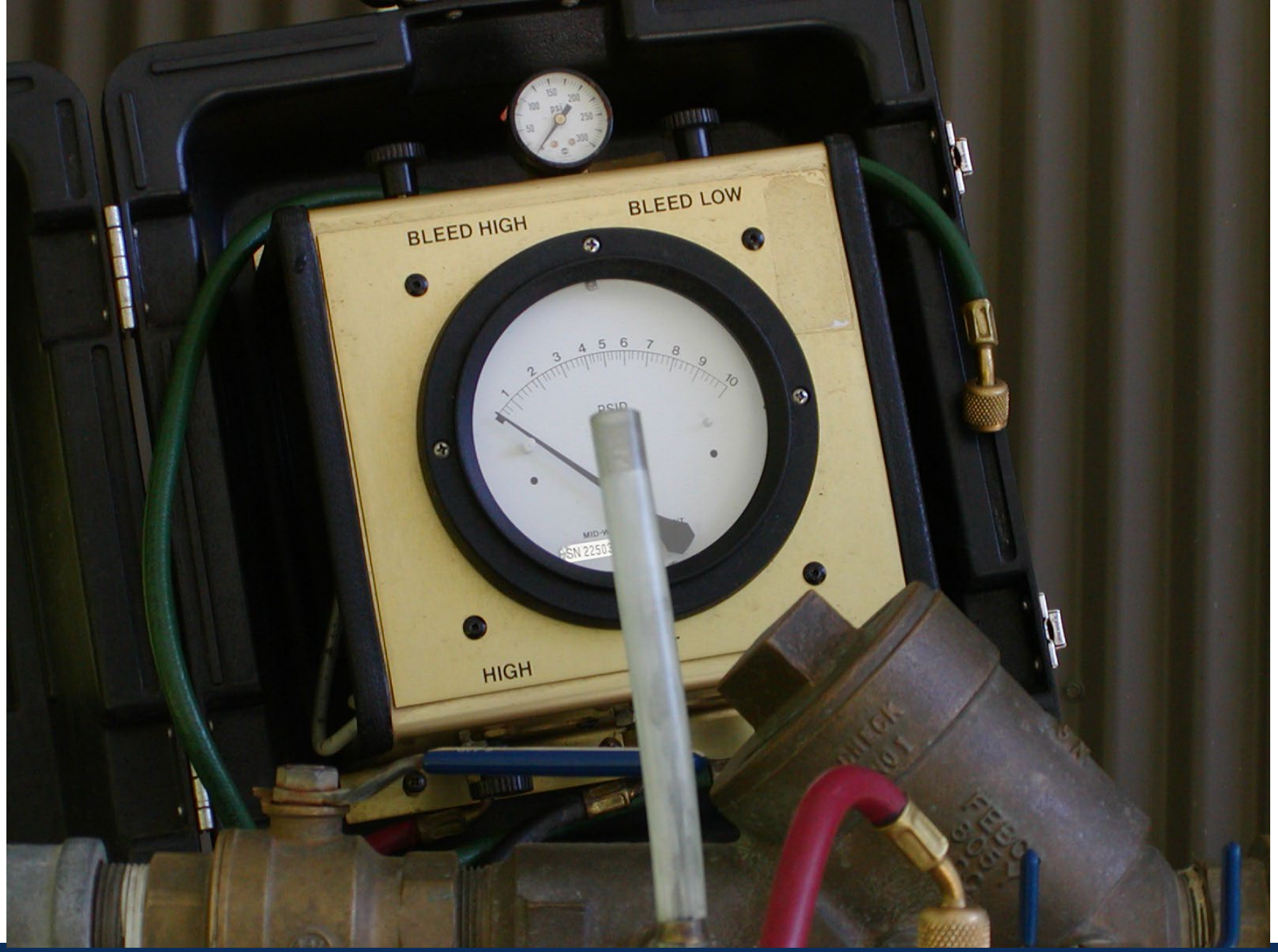


Position Test Gauge and end of Low Pressure Hose at proper elevation

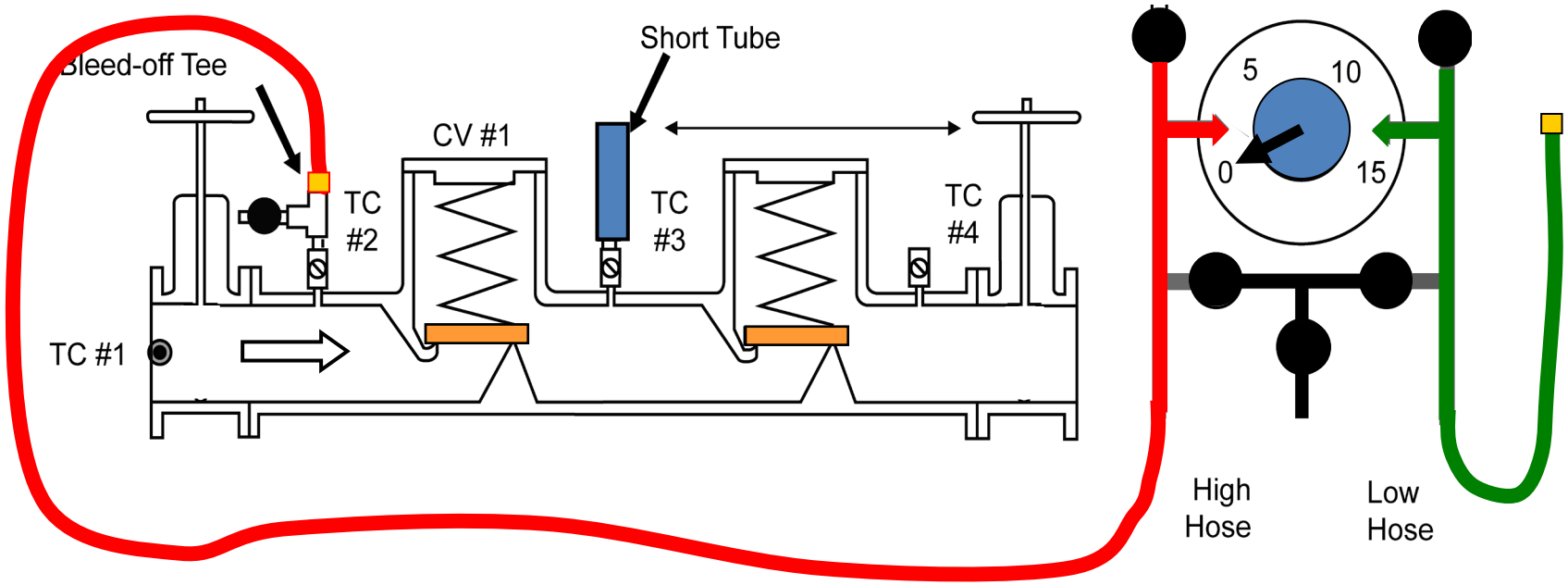
High Hose

Low Hose

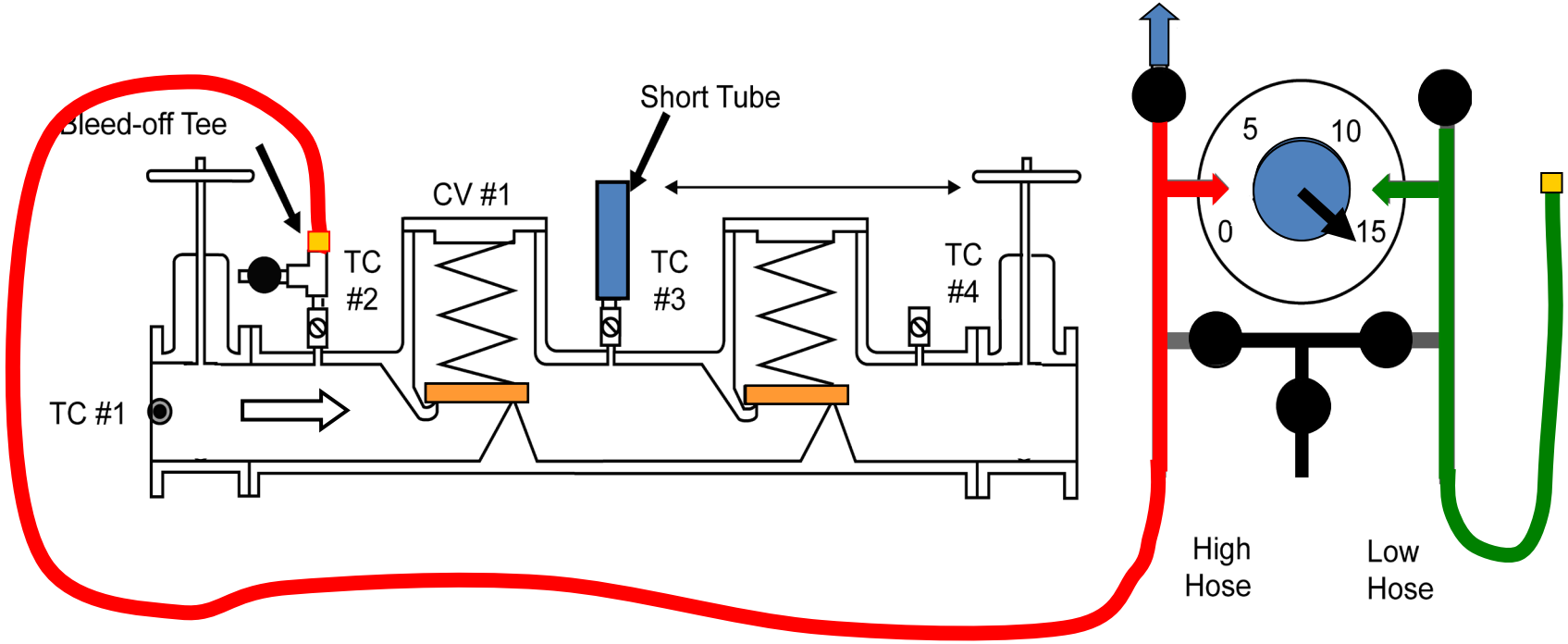

BLEED HIGH
BLEED LOW
PSID
HIGH
VENT
LOW


BLEED HIGH
BLEED LOW
HIGH

Attach High pressure Hose to Bleed-off Tee

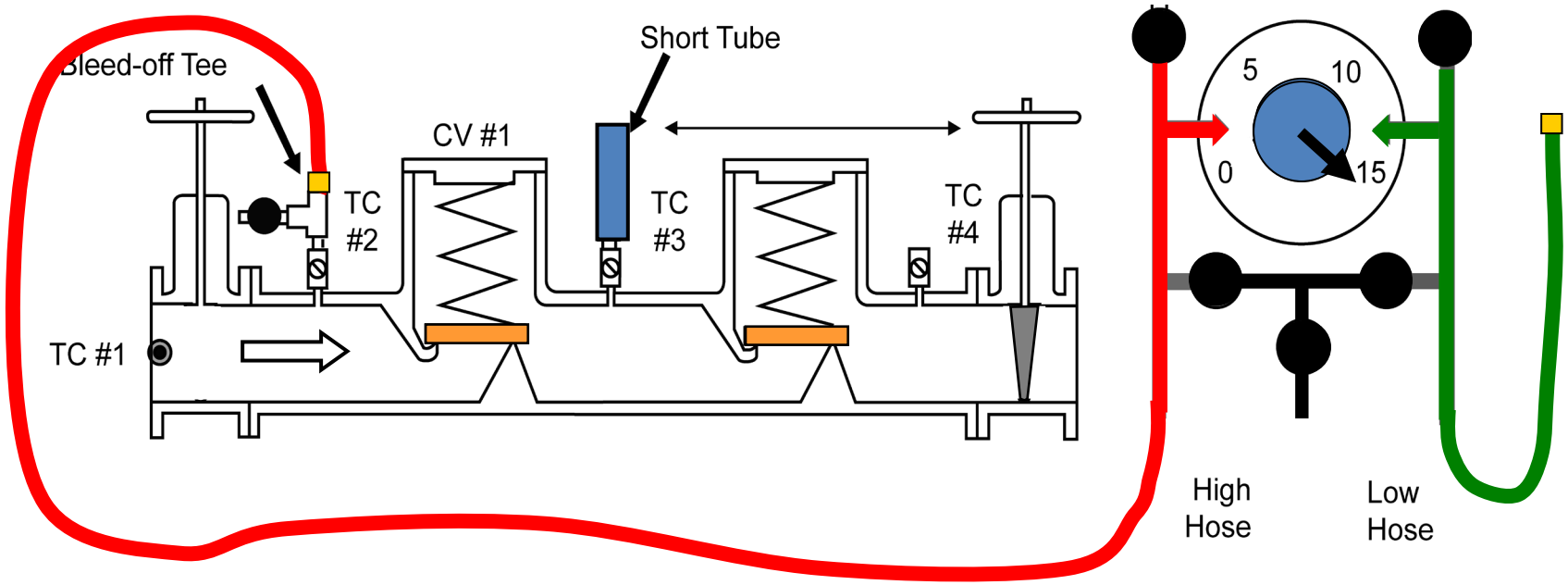


Open test cock #2 slowly and open High Bleed Valve.

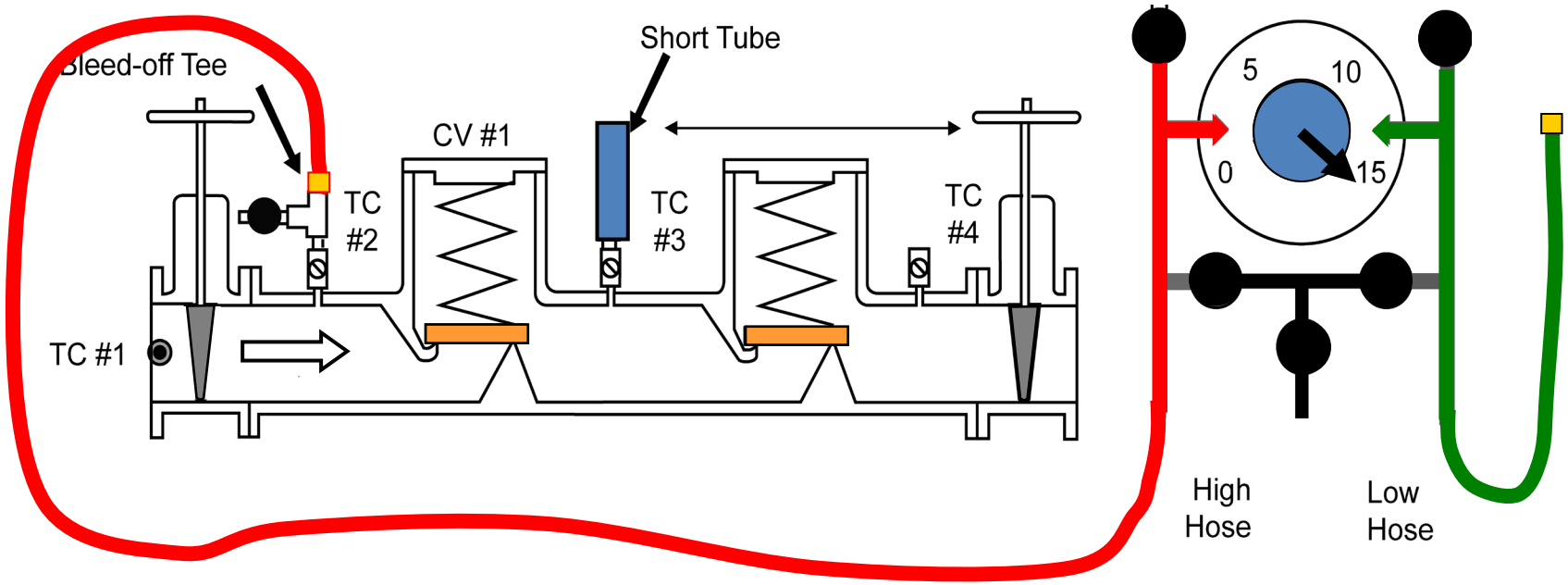


Close High Bleed Valve.

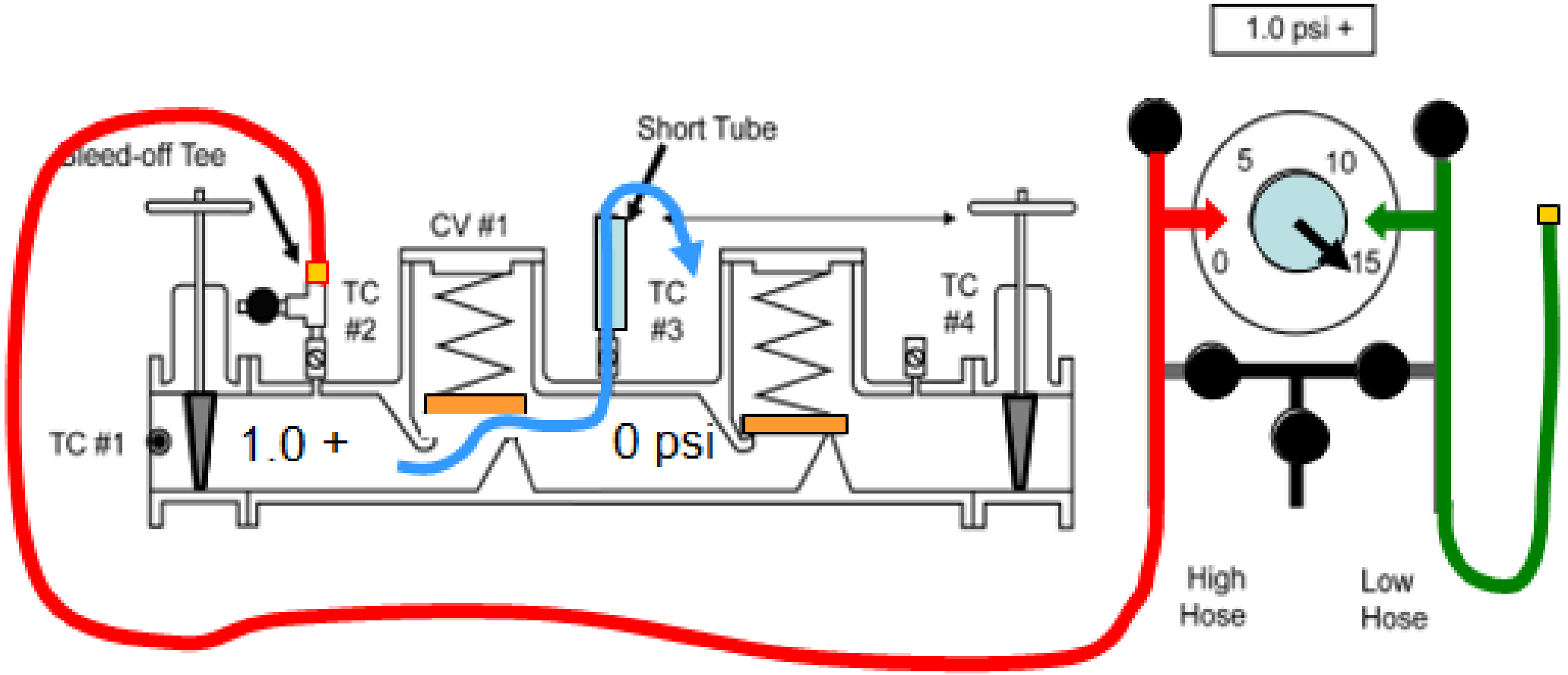
Close Outlet Shut-off Valve.



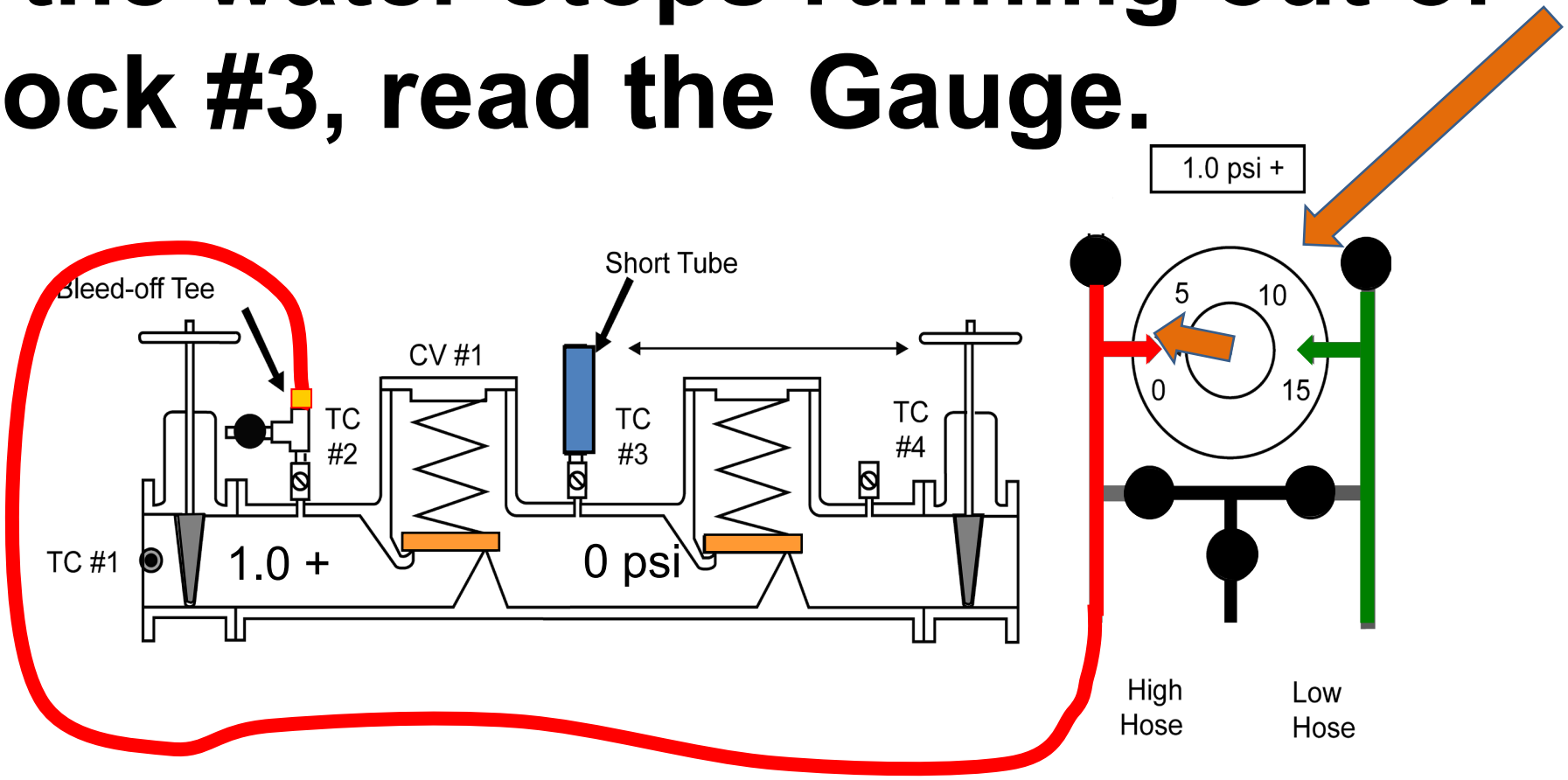
Close Inlet Shut-off Valve.



Open test cock #3 slowly.

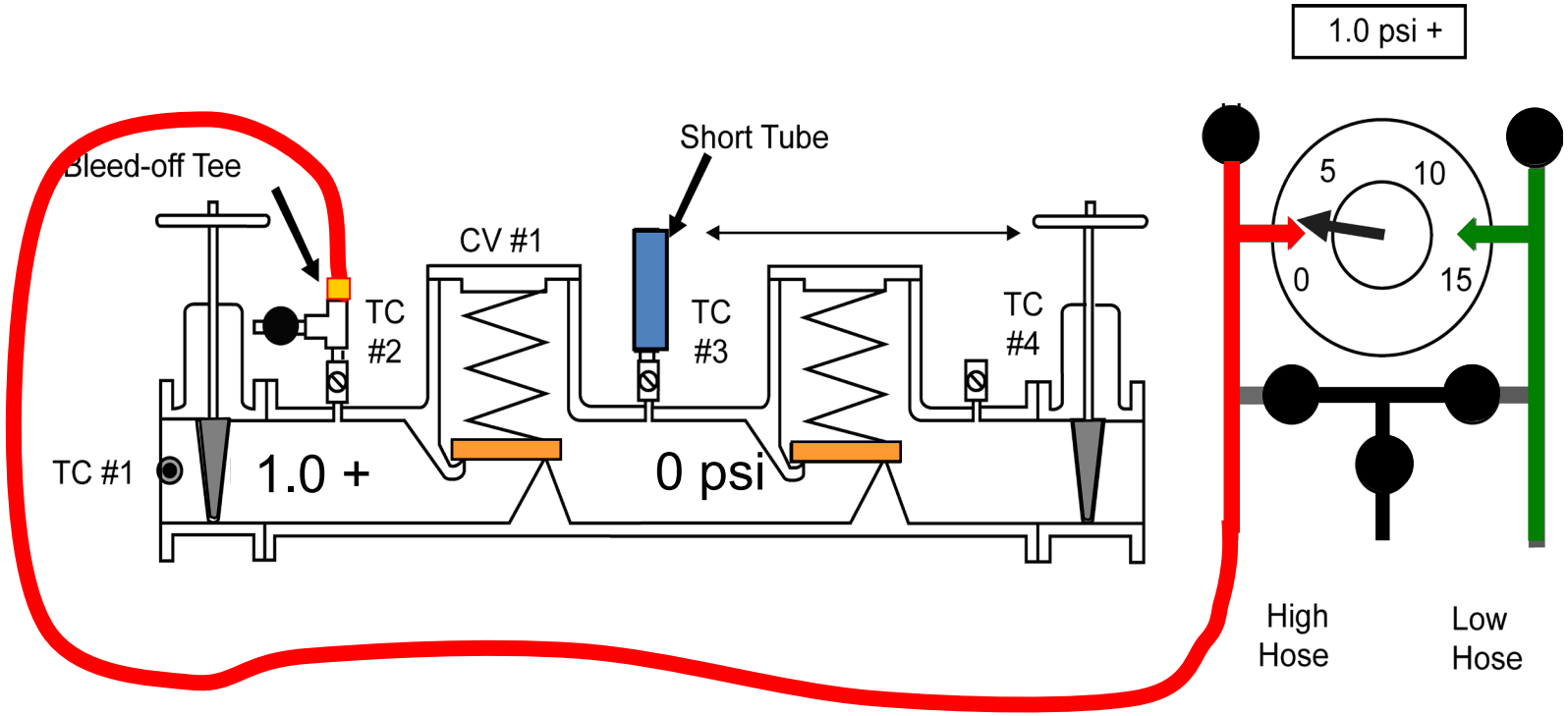


When the water stops running out of Test cock #3, read the Gauge.



The water pressure drops until the spring in CV#1 closes the Check Valve.

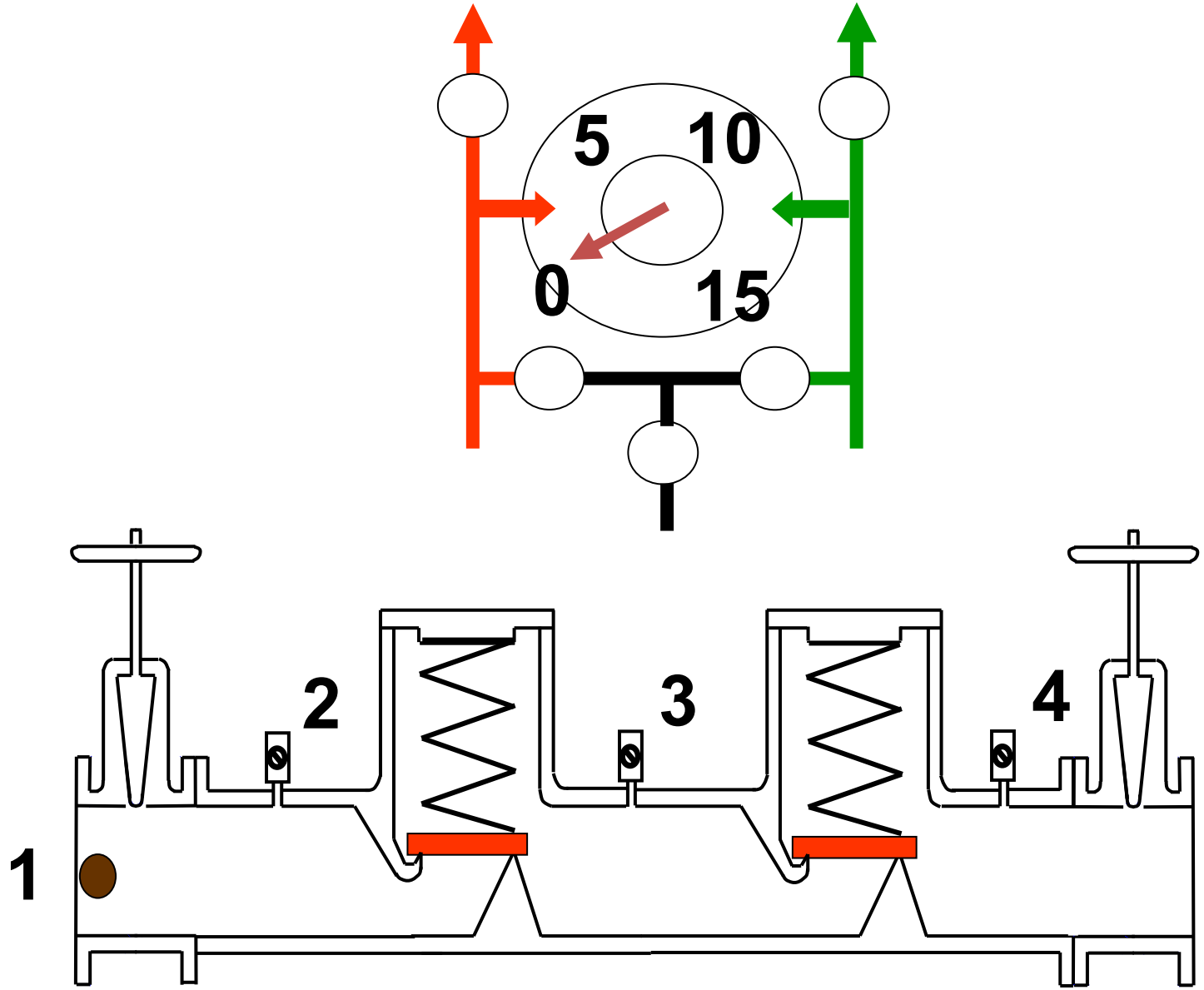
Record the value on the Gauge for CV #1.

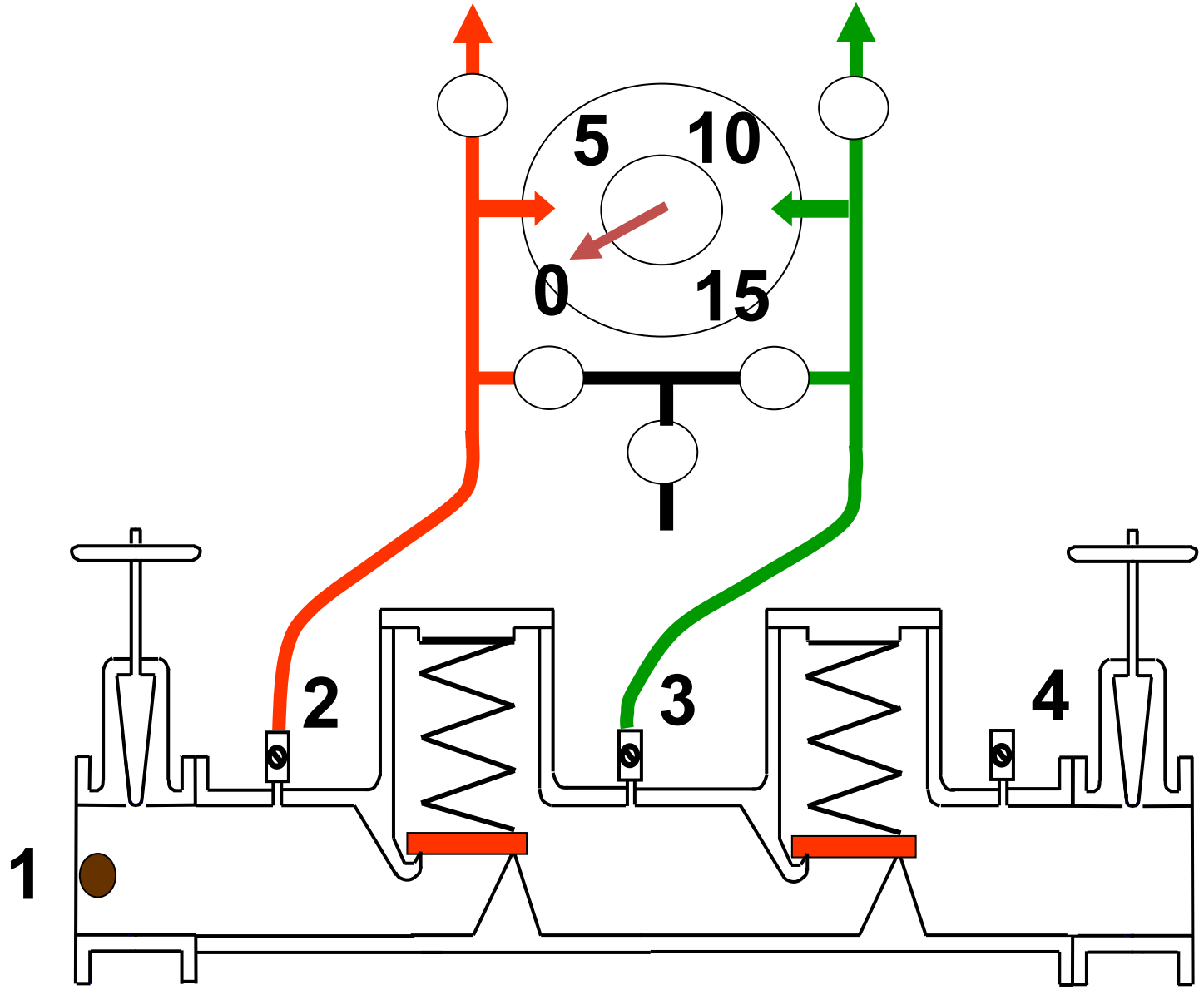


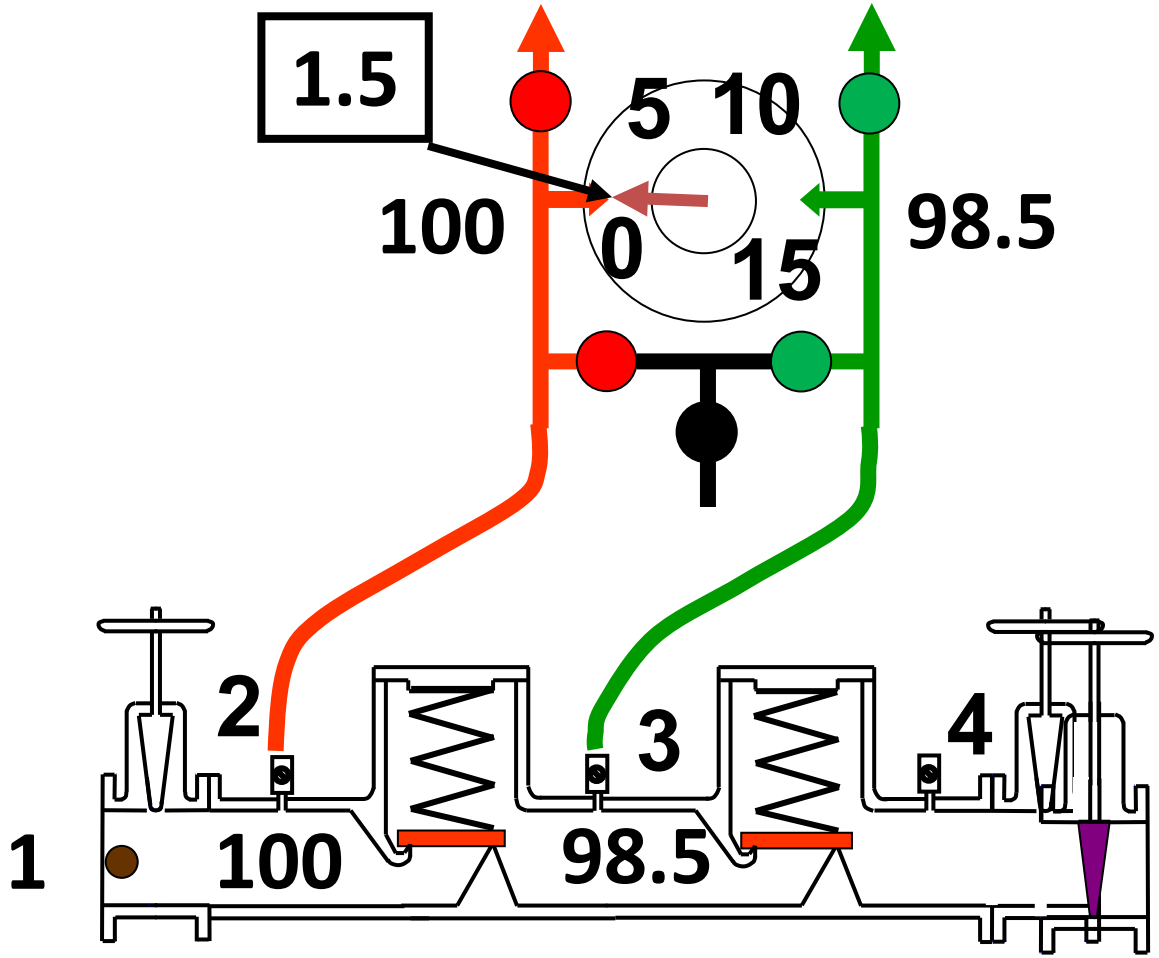
Double Check Valve Assembly

2-hose field test
taught by others

Not a reliable test


5
10
0
15
1
2
3
4

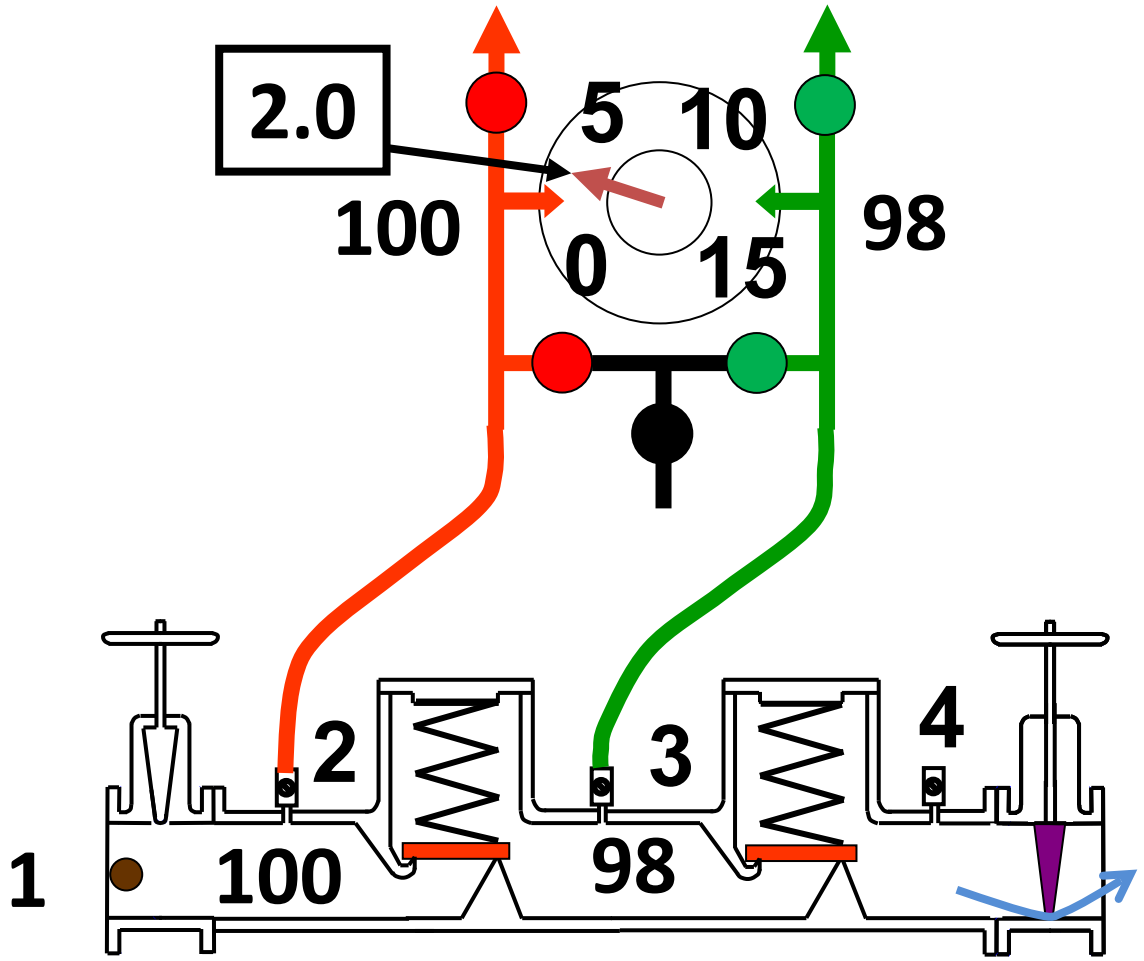

5
10
0
15
1
2
3
4



PASSING CHECK VALVE #1

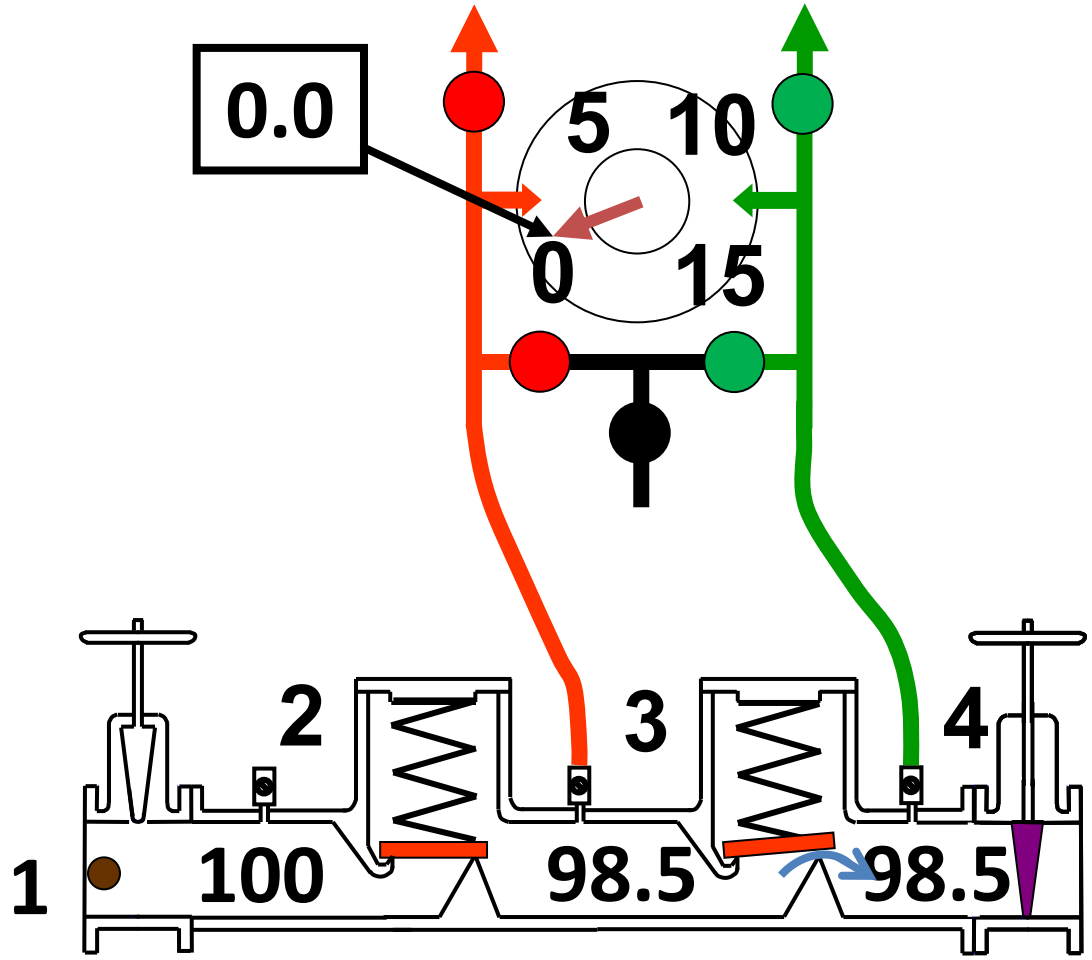
(No FLOW)

CHECK VALVE #1 with a leaking outlet valve



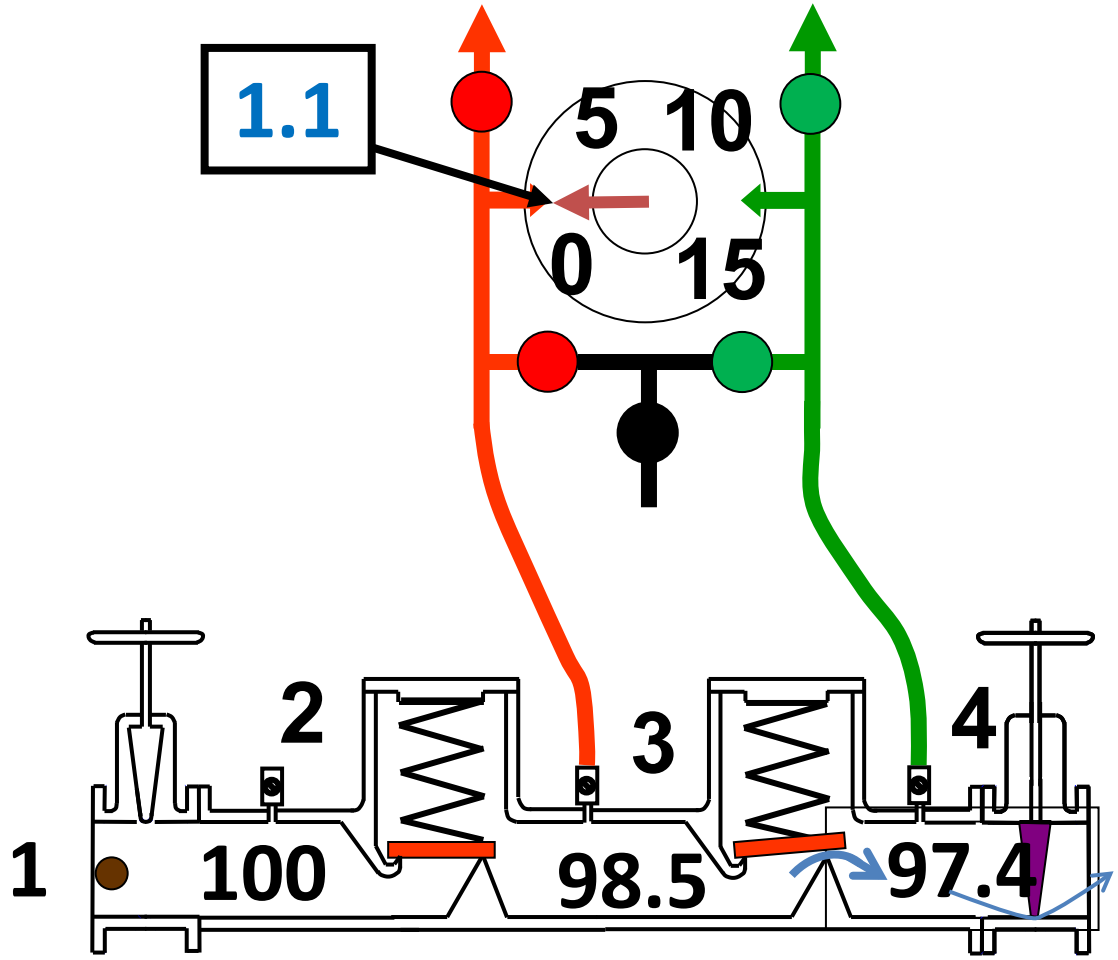
HAS A HIGHER THAN NORMAL READING

FAILED CHECK VALVE #2



(No FLOW)

FAILED CHECK VALVE #2



WITH A LEAKING OUTLET VALVE

Questions?