

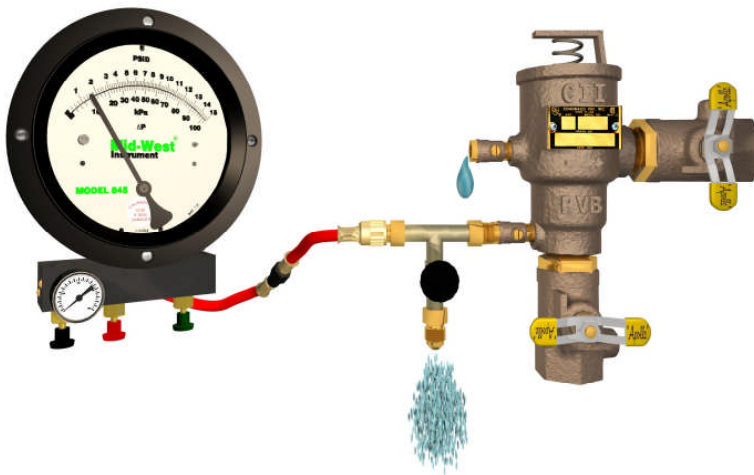
P.N. 830-0001 Compensating Tee Assembly and 830-0003 Vertical Tube Kit Assembly **Theory of Operation**

The Mid-West Instrument Backflow Test Kit Accessories 830-0001 and 830-0003 are designed for use with the USC field test procedures for double check valve assemblies, pressure vacuum breaker assemblies and spill resistant pressure vacuum breakers per the USC **Manual of Cross-Connection Control**.

The theory of operation is as follows;

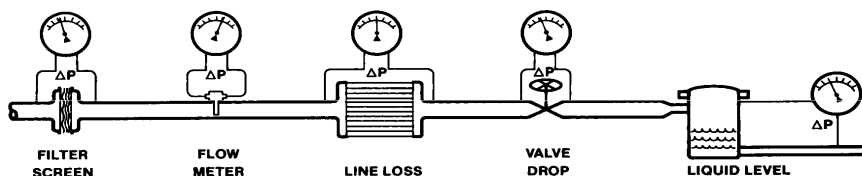
Proper test results can only be obtained when backflow prevention assemblies are in a static “no flow” condition during field testing. The 830-0001 and 830-0003 compensate for leaky number 1 shut-off valves, allow for trouble shooting of shut-off valve conditions and improve the accuracy of test results.

830-0001 Compensating Tee Assembly – A leaky #1 shut-off valve on a backflow prevention assembly does not prevent the backflow preventer from stopping backflow but it may prevent an accurate test. The 830-0001 is designed to compensate for a leaky #1 shut-off valve. It is plumbed in a tee configuration that allows for; connection to the test cock of a backflow prevention assembly; connection of the high hose of the test kit to the test cock through the assembly; and has a “bleed-off” valve which opens to atmosphere. If the test results indicate a leaky shut-off valve the 830-0001 will help trouble shoot which shut-off valve is leaking under what conditions. If the #1 shut-off valve is leaking this leak can be compensated by opening the “bleed off” valve and draining the leak by the #1 shut-off valve to atmosphere thus putting the backflow preventer in a static “no flow” condition. When the bleed-off valve is adjusted per the test procedure the flow from the valve is the amount of leakage by the #1 shut-off valve. The #1 shut-off valve only needs repair if the bleed-off valve is fully open and the test still can not be passed per the procedure.



The 830-0001 has a soft seated needle valve, a quick coupler for connection to a ¼” flare fitting at the test cock and a flare connection for connection of the test kit hose to the assembly.

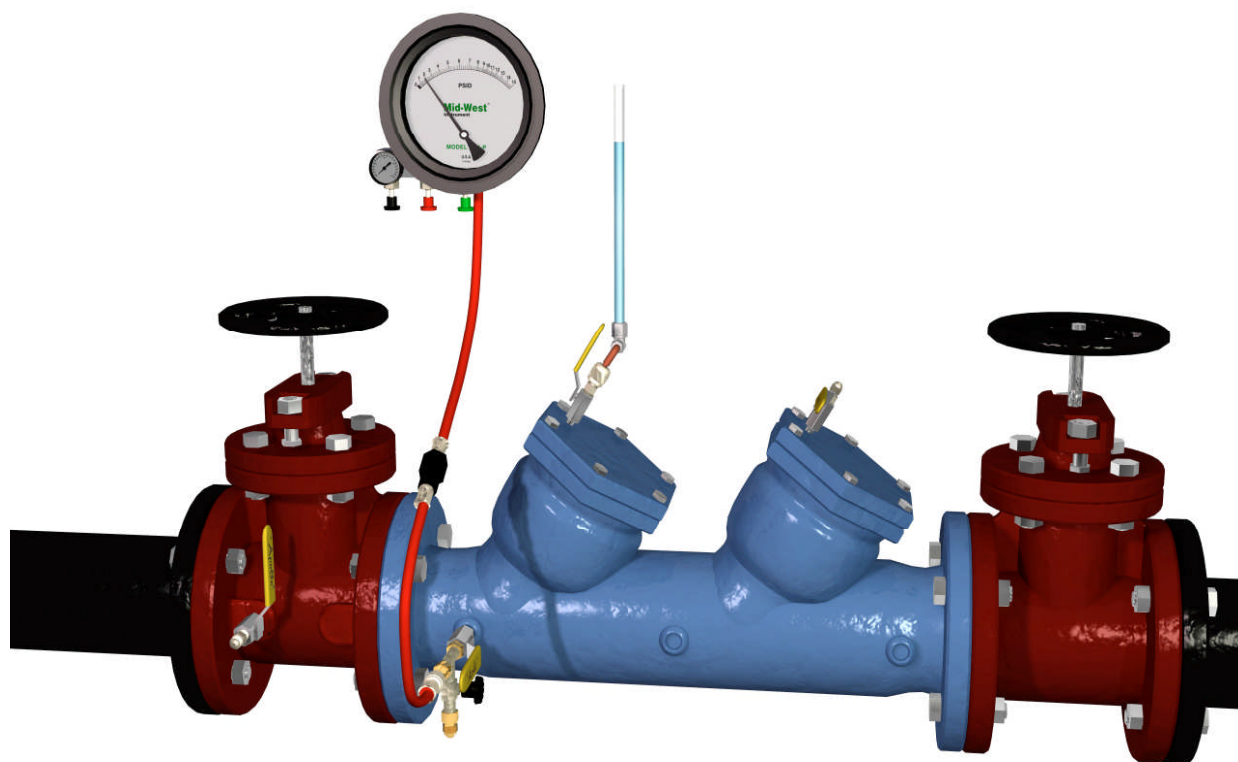
Mid-West[®] Instrument



830-0003 Vertical Tube Kit – Double check valve assemblies (DCVA) do not always have the test cocks located at the highest point of the assembly, especially when installed in a vertical orientation. Since only a single hose is used for USC test procedures it is critical that the test kit be held at the proper level to account for the weight of water to take an accurate reading. If the test cock is not at the highest point on the DCVA a vertical tube assembly must be attached to the test cock. The procedure fills the tube with water. The test kit can then be held at the level of the water in the tube and an accurate check valve reading can be recorded. The standard tube is 15" in height. For large assemblies or vertical installations a 15" extension can be added for a 30" height.

Water draining from the tube or continuing for flow from the tube are indications of leaky shut-off valves. With the use of the 830-0001 Compensating Tee Assembly and the observations listed in the test procedures the technician can determine which shut-off valve is leaking and under what conditions.

The 830-0003 has a quick coupler for connection to a ¼" flare fitting at the test cock. The design is such that the tube can be rotated into a vertical orientation regardless of the position or angle of the test cock. The 15" extension tube can be added to the assembly without tools. The tube assemblies contain o-ring seals so a leak tight water column is achieved.



Detailed Illustrated Test Procedures

Detailed illustrated test procedures showing the use of these type devices are only available from the Foundation for Cross-Connection Control and Hydraulic Research – University of Southern California.