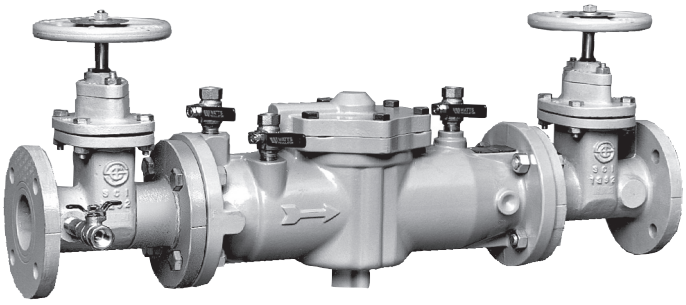
INSTALLATION INSTRUCTIONS

Series 857

Double Check Valve Assemblies

Sizes: 2½" and 3" (65 and 80mm)**



FEBCO 857

⚠ WARNING

Read this Manual BEFORE using this equipment.

Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment.

Keep this Manual for future reference.

⚠ WARNING

You are required to consult the local building and plumbing codes prior to installation. If the information in this manual is not consistent with local building or plumbing codes, the local codes should be followed. Inquire with governing authorities for additional local requirements.

⚠ WARNING

Need for Periodic Inspection/Maintenance: This product must be tested periodically in compliance with local codes, but at least once per year or more as service conditions warrant. If installed on a fire suppression system, all mechanical checks, such as alarms and backflow preventers, should be flow tested and inspected in accordance with NFPA 13 and/or NFPA 25. All products must be retested once maintenance has been performed. Corrosive water conditions and/or unauthorized adjustments or repair could render the product ineffective for the service intended. Regular checking and cleaning of the product's internal components helps assure maximum life and proper product function.

⚠ WARNING

The installation and maintenance of backflow assemblies should be performed by a qualified, licensed technician.
Failure to do so may result in a malfunctioning assembly.

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NOTICE

The flange gasket bolts for the gate valves should be retightened during installation as the bolts may have loosened due to storage and shipping.

NOTICE

Inquire with governing authorities for local installation requirements

Testing

For field testing procedure, refer to FEBCO installation sheets IS-F-TK-1 found on **www.FEBCOonline.com.**

For other repair kits and service parts, refer to our Backflow Prevention Products Repair Kits & Service Parts price list PL-FEBCO found on **www.FEBCOonline.com.**

For technical assistance, contact your local FEBCO representative.

** Metric Dimensions are nominal pipe diameter. This product is produced with ASME/ANSI flanged end connections.

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Installation Instructions

Indoors - Figure 1

Series 857 may be installed in either a vertical or horizontal position. Pipe lines should be thoroughly flushed to remove foreign material before installing the unit. A strainer should be installed as shown, ahead of backflow preventer to prevent disc from unnecessary fouling. Install valve in the line with arrow on valve body pointing in the direction of flow.

For indoor installations, it is important that the valve be easily accessible to facilitate testing and servicing. Do not install in a concealed location.

⚠ CAUTION

Do not install with strainer when backflow preventer is used on seldom-used water lines which are called upon during emergencies, such as fire sprinkler lines, etc.

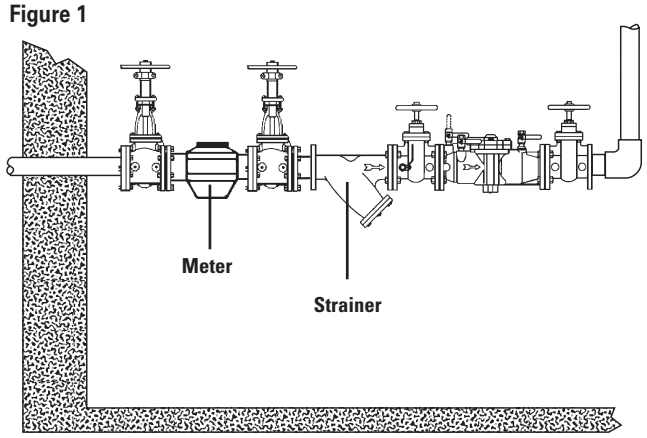
It is important that Series 857 be tested periodically in compliance with local codes, but at least once a year or more often depending upon system conditions.

NOTICE

Fire Protection System Installations

The National Fire Protection Agency (NFPA) Guidelines require a confirming flow test to be conducted whenever a "main line" valve such as the shutoff valves or a backflow assembly have been operated. Certified testers of backflow assemblies must conduct this test. The trim valves of the detector meter bypass line, on assemblies so equipped, should be shut off during the confirming flow test. When the test is completed, the trim valves must be retuned to a fully open position.

Figure 1



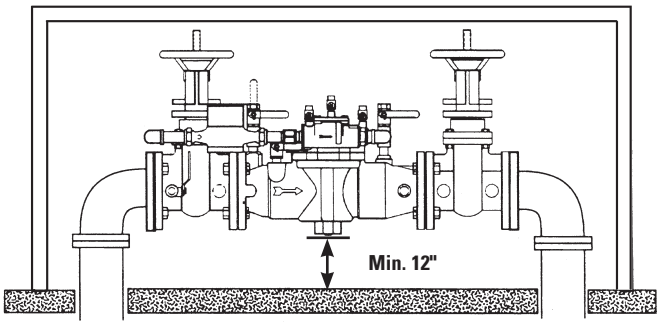
2½", 3" 857

Outside Building Above Ground - Figure 2

In an area where freezing conditions do not occur, Series 857 can be installed outside of a building. The most satisfactory installation is above ground and should be installed in this manner whenever possible. In an area where freezing conditions can occur, Series 857 should be installed above ground in an insulated enclosure.

Annual inspection of all water system safety and control valves is required and necessary. Regular inspection, testing and cleaning assures maximum life and proper product function.

Figure 2



Parallel - Figure 3

Consult Local codes for Approval

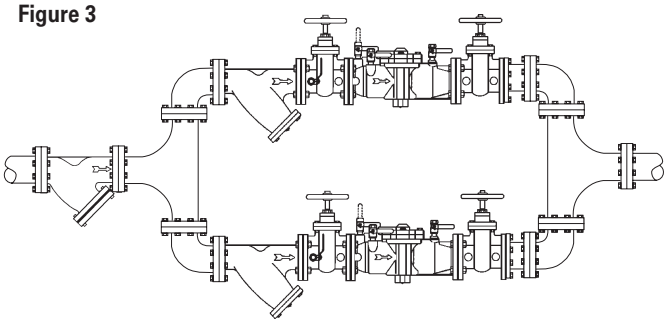
Two or more Series 857 smaller size valves may be piped in parallel (where approved) to serve a larger supply pipe main. This type of installation is employed whenever it is vital to maintain a continuous supply of water/where interruptions for testing and servicing would be unacceptable. It also has the advantage of providing increase capacity where needed beyond that provided by a single valve and permits testing or servicing of an individual valve without shutting down the complete line. For two valve installations the total capacity should equal or exceed that required by the system.

The quantity of valves used in parallel should be determined by the engineers judgement based on the operating conditions of a specific installation.

NOTICE

The flange gasket bolts for the gate valves should be retightened during installation as the bolts may have loosened due to storage and shipping.

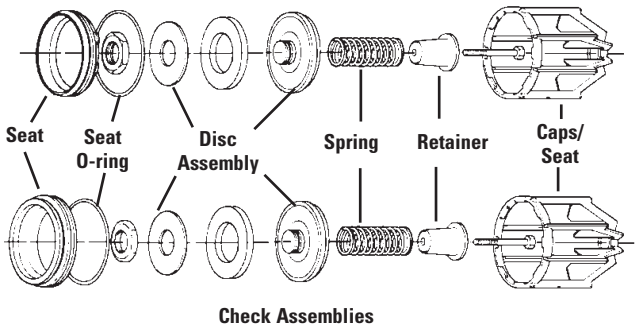
Figure 3



2½", 3" 857

Servicing First and Second Check Valves

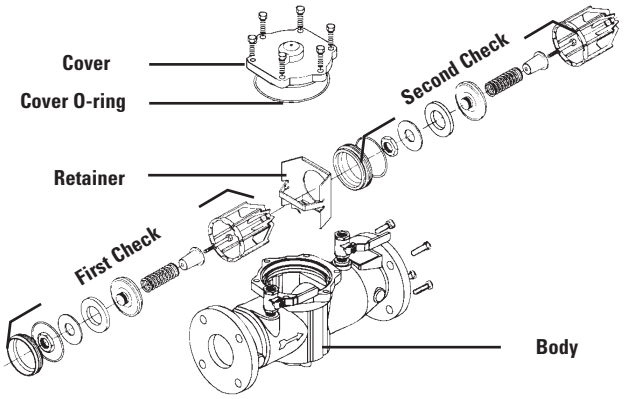
1. Remove cover bolts and cover.
2. Remove the retainer from the body bore. The check valve modules can now be removed from the valve by hand or with a screwdriver.
3. The check seats are attached to the cage with a bayonet type locking arrangement. Holding the cage in one hand, push the seat inward and rotate counterclockwise against the cage. The seat, spring cage, spring and disc assembly are now individual components.
4. The disc assembly may now be cleaned and reassembled, or depending on its condition, may be discarded and replaced with a new assembly from the repair kit. O-rings should be cleaned or replaced as necessary. For more information, refer to repair parts price list.
5. Reassemble the Check valve modules. Check modules are installed in the valve body with the seats facing the valve inlet. The modules must be securely in place before the retainer can be replaced.



Check Assemblies

NOTICE

No special tools required to service Series 857.



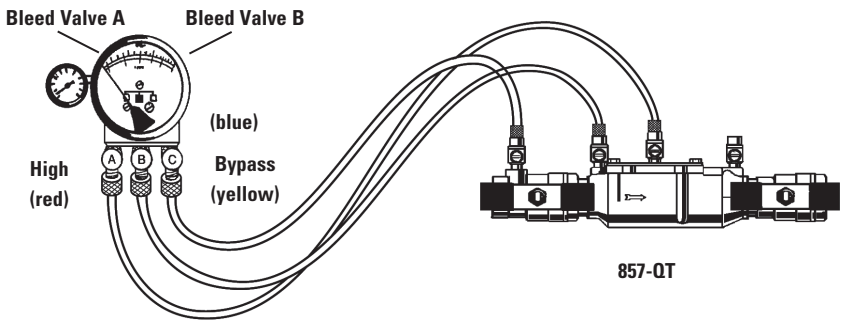
Test Procedure for Double Check Valve Assembly

A. Before starting test, all needle valves and bleed valves on test kit must be closed.

B. Flush test cocks before test.

NOTICE

Supply pressure gauge reading will decrease when performing this test procedure.



Test No. 1 - Check Valve No. 1

NOTICE

Close all needle valve "A", "B" and "C" and bleed valve "A" and "B" on test kit.

Step 1 Insure shutoff No. 1 is open, shutoff No. 2 is closed.

Step 2 Install high side hose between connection "A" highside and test cock No. 3, low side hose between "B" low side and test cock No. 2 and open both test cock No. 2 and 3.

Step 3 Open bleed valve "A" to bleed air from the high side. Close "A" then open bleed valve "B" to bleed low side. Close "B".

Step 4 Connect bypass hose loosely to test cock No. 1. Open needle valves "A" high side and "C" bypass to vent air from the bypass hose. Tighten bypass hose at test cock No. 1, open test cock No. 1.

Step 5 Close shutoff No. 1. Slowly open bleed "B" until differential gauge rises to 2psi and close. If the differential reading does not decrease, record check valve as "tight."

Step 6 Close all test cocks and open bleed valves "A" and "B." Then close needle valves "A," "B" and "C" and bleed valves "A" and "B." Remove hoses from test cocks.

Test No. 2 - Check Valve No. 2

Step 7 Move the high side hose to test cock No. 4, low side hose to test cock No. 3 and open both test cock No. 3 and 4. Remove bypass hose from test cock No. 1, open shutoff valve No. 1.

Step 8 Open bleed valve "A" to bleed air from the high side. Close bleed "A" then open bleed "B" to bleed low side. Close bleed "B."

Step 9 Connect bypass hose loosely to test cock No. 1. Open needle valves "A" high side and "C" bypass to vent air from the bypass hose. Tighten bypass hose at test cock No. 1, open test cock No. 1.

Step 10 Close shutoff No. 1, then slowly open bleed "B" until differential gauge rises to 2psi and close. If the differential reading does not decrease, record check as tight. Close all test cocks and remove hoses. Open bleed valves "A" and "B." Restore valve to original working condition.

NOTICE

The assembly will fail both the first and second check valve tests above, if shutoff No. 2 leaks excessively. To test for a leaky No. 2 shutoff, use the following procedure.

Test for Leaky No. 2 Shutoff

Step 11 Connect the high side hose to test cock No. 1, low side hose to test cock No. 4. Open test cocks No. 1 and 4. Close shutoffs No.1 and 2.

Step 12 Close needle valve "C" bypass. Open needle valve "A" high side, then open needle valve "B" low side one turn, loosen hose at test cock No. 4 to remove air. Retighten hose.

Step 13 If the differential gauge rises above 0 there is excessive leakage at shutoff No. 2, and it must be replaced to test the assembly.

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information: www.watts.com/prop65

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