

# CROSSTALK

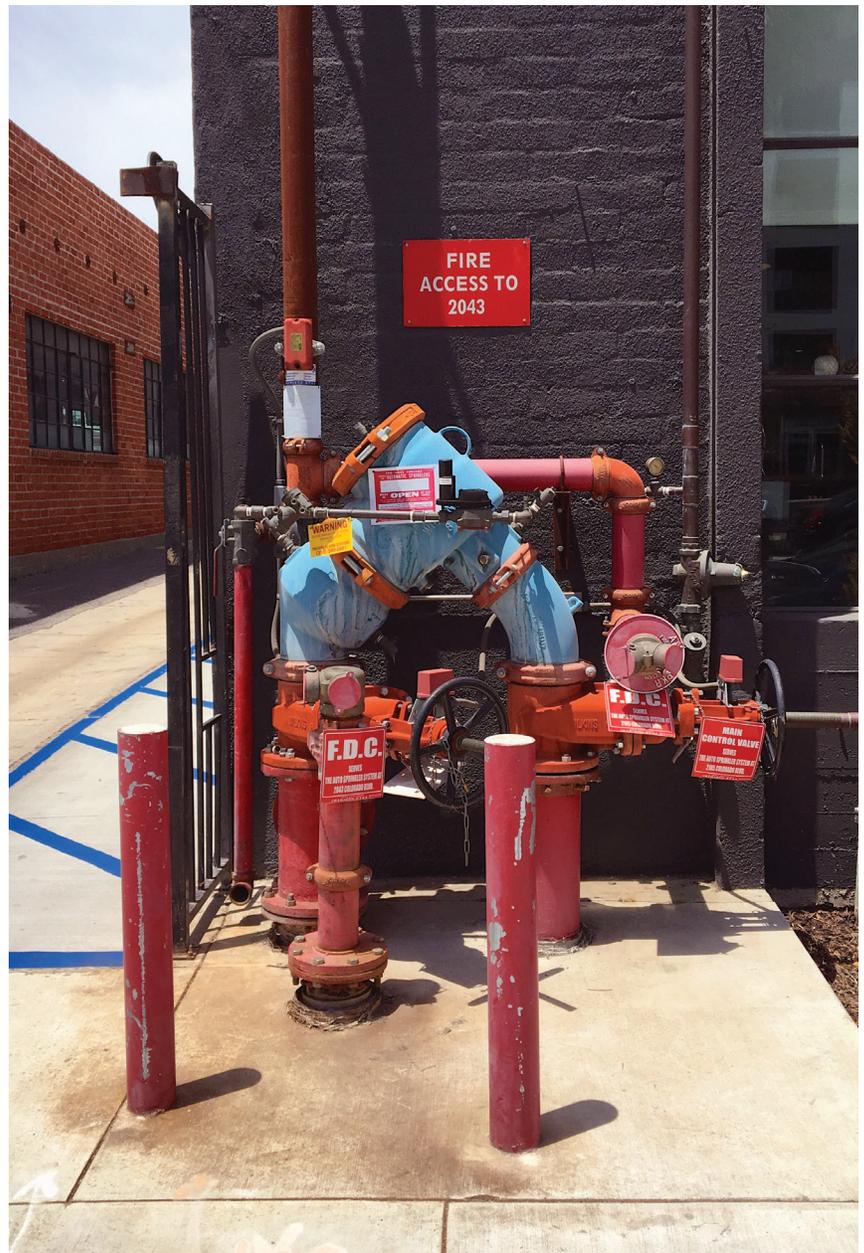
Spring 2016

## Understanding Detector Assemblies

The Double Check Detector Assembly (DCDA) and the Double Check Detector Assembly-Type II (DCDA-II) along with the Reduced Pressure Principle Detector Assembly (RPDA) and the Reduced Pressure Principle Detector Assembly-Type II (RPDA-II) are backflow prevention assemblies that include a bypass arrangement, which incorporates a water meter and either a backflow prevention assembly or a single check valve assembly. These detector assemblies are typically used on fire sprinkler systems as a means of backflow prevention and to record unauthorized usage of water. Since these types of assemblies include additional components, many may not know how to treat the bypass arrangement or how to record its field test results.

Detector backflow prevention assemblies are comprised of detector assemblies: DCDA and RPDA; and Type-II detector assemblies: DCDA-II and RPDA-II. The DCDA and RPDA include a mainline assembly with a bypass arrangement, which incorporates a water meter and a backflow prevention assembly. The DCDA-II and RPDA-II include a mainline assembly with a bypass arrangement, which incorporates a water meter and a single check valve assembly.

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# New Members

Below is a list of those who have become members of the USC Foundation since the last *Cross Talk*.

## ABPA- Indiana Chapter

Adam Rotherham

## Automatic Sprinkler Controls, Inc.

Backflow Education Group

## Edward Ruiz

Fire Ace

## Francis Walling

Isle of Wight Public Utilities

## Jacobi Williams

Los Angeles County Parks & Recreation

## Perfect Lawns

PGF

## PHD, LLC.

Philip Harrigan

## Reliable Plumbing & Drain Cleaning, Inc.

Robert Waddell

## Saflow Testing

Sonoma County Water Agency

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# USC Foundation Membership Benefits



Bovard Auditorium

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*Cross Talk* quarterly subscription



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Free copy of each new edition of the *Manual of  
Cross-Connection Control*



2016 *USC List of Approved Backflow Prevention  
Assemblies* book (At member's request)



Email notifications of new updates to the  
*USC List of Approved Backflow Prevention Assemblies*



*Special Notices* mailed exclusively to members  
as published

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# ROTATING ASSEMBLIES ON THEIR AXES

Installing a backflow prevention assembly may not be an easy task. Factors an installer may take into account include available spacing and accessibility to the assembly. In some instances, an installer may decide that rotating an assembly on its axis solves these types of problems. But, installing an assembly in



Reduced Pressure Principle Assembly (RP)  
rotated on its axis 90° degrees

an orientation other than what is listed on the *USC List of Approved Backflow Prevention Assemblies* invalidates the approval.

All assemblies found on the USC List are evaluated for a specific orientation. That orientation is requested by the manufacturer when the assembly is submitted for USC Approval. So, rotating an assembly on its axis invalidates the approval since the assembly was not evaluated in that orientation.

For example, if an assembly is tested in the horizontal orientation, then the assembly is

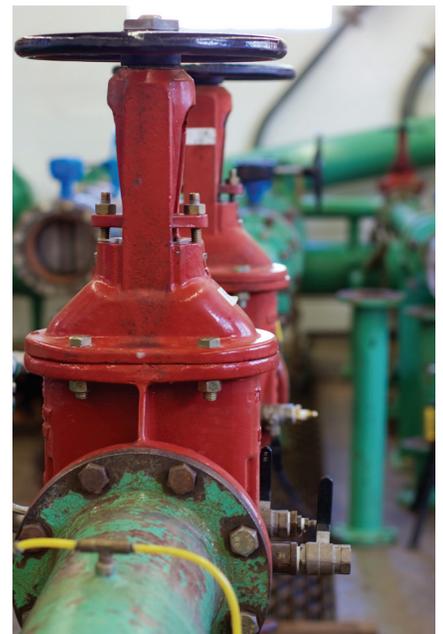
approved in the horizontal orientation and it may only be installed in that orientation to maintain USC Approval.

The USC List includes an orientation legend that illustrates the different orientations in which an approved assembly may be installed. The orientation of each approved assembly on the USC List is designated by an acronym that corresponds with an illustration on the legend. The USC List includes a 'Notices' page that also explains the USC Foundation's position on rotating approved assemblies on their axes.

If space is an issue when installing an approved assembly, the Foundation has determined that it is possible to rotate flanged shutoff valves (i.e., NRS or OS&Y Gate Valves) of the 2.5-inch size and larger one bolt hole. This will not affect the operation of the assembly or the shutoff valve. Neither will it affect the approval of the assembly. Rotating a flanged shutoff valve may help an installer with spacing or accessibility of an assembly.

In all cases, an assembly must be installed in the orientation in which it was evaluated and approved. An assembly may not be rotated on its axis and maintain USC Approval.

For any additional questions about USC Approval or rotating flanged shutoff valves please contact the Foundation office. ■



Flanged Shutoff Valve

# TESTING VERTICAL ASSEMBLIES

Larger backflow prevention assemblies may take up too much space, so installers choose to install the assemblies in a vertical orientation to fit in the space available. The standard found in the *Manual of Cross-Connection Control, Tenth Edition* allows for assemblies to be installed in orientations other than horizontal, if so approved. An assembly's approved orientation is noted on the *USC List of Approved Backflow Prevention Assemblies*. While the field test

principle assemblies (RP) are also approved in the vertical orientation. All of them, regardless of orientation, are field tested as instructed in the manual.

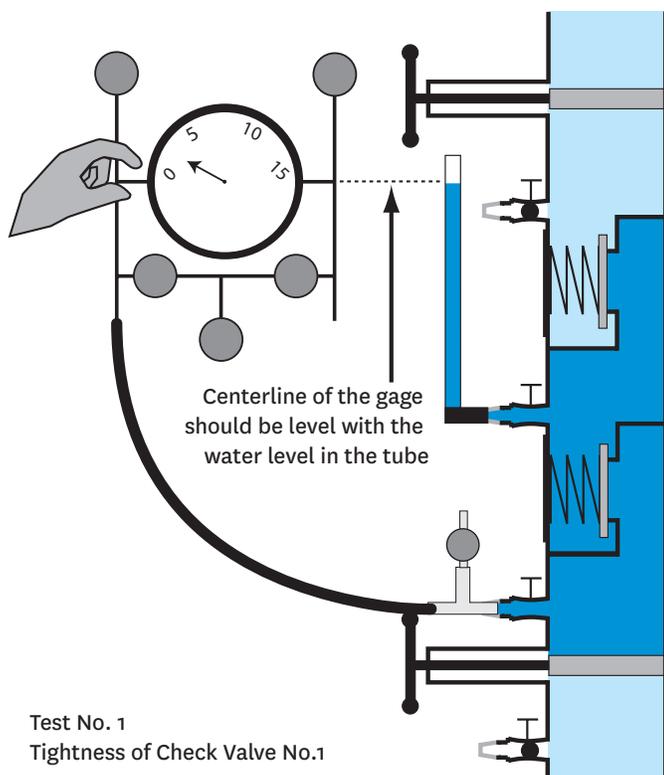
Since the RP uses a two hose method for its field test, the field test procedure is exactly the same for an RP regardless of orientation because the elevation of the field test kit is not critical. As for the DC, the field test procedure is also the same regardless of orientation but visually it may appear different.

Minor visual differences in the field test procedure for a vertically installed DC have to do with the level of the field test kit and the height of the vertical tube throughout the procedure.

The Tenth Edition manual states in Chapter 9.3.3.1:

*During this field test it is important to keep the field test kit and unused hoses at the appropriate elevation. A visible downstream reference point is needed for this field test. If the downstream test cock is at the highest point of the body, then this can be used as the reference point. However, if the downstream test cock is below the top of the body, then a vertical pipe or tube must be attached to the downstream test cock so that it rises above the top of the body.*

When testing the tightness of the first check of a vertically installed DC with the flow upward, it is only necessary for the tube to be extended above the highest portion of the region between the check valves. If it is difficult to determine where this is, the tester should simply



procedures in the Tenth Edition manual are illustrated using horizontal assemblies, assemblies installed vertically are field tested using the same procedure.

The majority of approved assemblies that may be installed vertically are double check valve assemblies (DC) and double check detector assemblies (DCDA). Some reduced pressure

# WEBINARS ON DEMAND

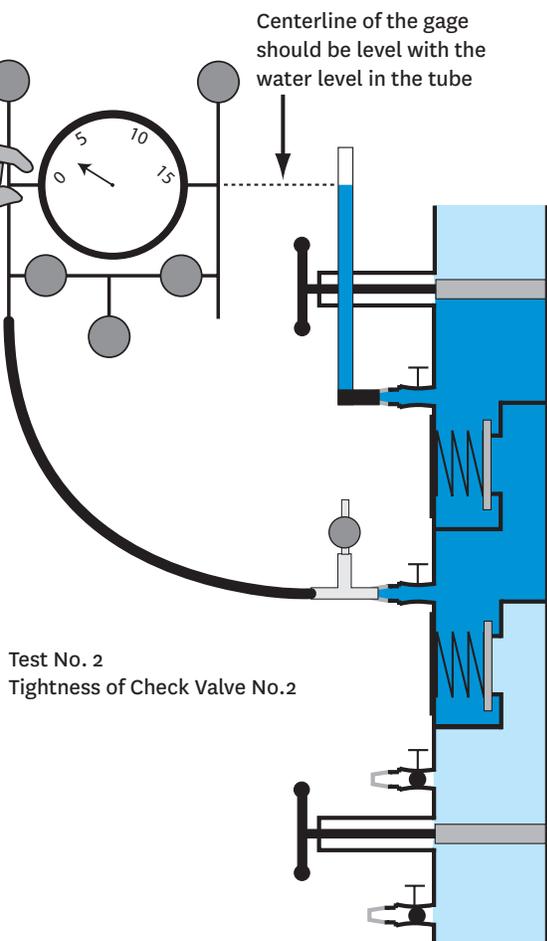
With the introduction of the USC Foundation's Seminars the Foundation made it possible for backflow prevention assembly testers and cross-connection control program specialists to be refreshed on current field test procedures and cross-connection control topics.

Last year, the Foundation made available the *Seminars* series as live webinars, to allow more testers and specialists to participate in the seminars

from the comfort of their office or home. Now, in an effort to make *Seminars/Webinars* even more readily accessible, the Foundation introduces *Webinars On Demand*.

The Foundation's *Webinars On Demand* series consists of the slide and audio presentations that were made available during the live broadcast. It is understood that it may be difficult for many to sit and watch a 3 or 6-hour live webinar in one sitting so now anyone can conveniently watch at their own pace and a convenient time. All *Webinars On Demand* may be viewed on any computer or mobile device with an Internet connection.

The webinars are made available beginning 30 days after the live broadcast and will be available to purchase for nine months. Unfortunately, the Foundation cannot offer any continuing education units (CEU's) for *Webinars On Demand*.



Centerline of the gage should be level with the water level in the tube

make sure the tube extends to the elevation of the number four test cock. This will ensure that the tube is above the highest point between the check valves.

While testing the second check valve, the tube is located on the number four test cock and the water level should be at the elevation of the number two shutoff valve.

Test No. 2  
Tightness of Check Valve No.2

For testing purposes, the tube should be higher than the level of the seal in the downstream shutoff valve. However, this may be difficult to determine. The tester should consider having the elevation of the end of the tube above the downstream side of the number two shutoff valve to ensure the level of the tube extends beyond the sealing surface in the shutoff valve

In some cases, the tester will need a longer tube than the tube used in testing horizontal assemblies to obtain a good reference point. As with testing the DC in the horizontal orientation, it is important for the tester to hold the field test kit at the same level as the water in the tube.

If the field test kit is not held at the same level as the water in the tube, erroneous readings may be recorded. It has been observed that some testers hold the field test kit level with

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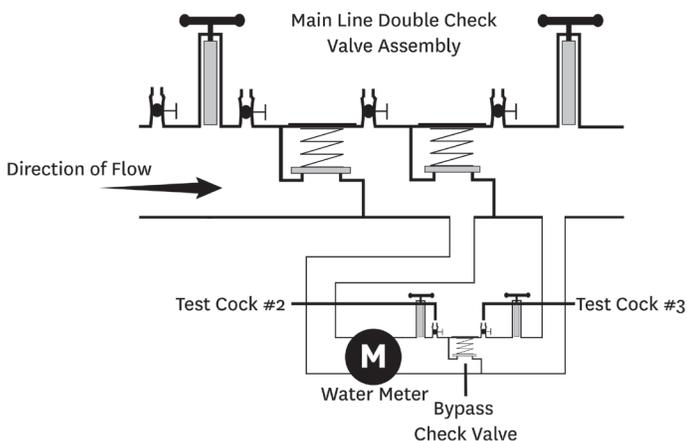
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## understanding detector assemblies: continued

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The backflow prevention assembly found on the bypass arrangement of a DCDA and RPDA must be a USC approved assembly per Chapter 10.1.2.6.1 (DCDA) and Chapter 10.1.2.7.1 (RPDA) of the *Manual of Cross-Connection Control, Tenth Edition*. So, a backflow prevention assembly found on the bypass of a DCDA or RPDA will be found on the *USC List of Approved Backflow Prevention Assemblies* as a standalone USC approved assembly. However, the same is not true with the DCDA-II and RPDA-II.

The bypass arrangement of a DCDA-II and RPDA-II includes a single check valve assembly. Unlike the DCDA and RPDA, the single check valve assembly, which is required in the bypass arrangement, is not USC approved. The USC Foundation does not have a standard for single check valve assemblies. A single check valve assembly separate from the main line assembly of a DCDA-II or RPDA-II is not considered a sufficient means of backflow prevention. A single check valve assembly in combination with a USC approved mainline assembly and a water meter make up a USC approved DCDA-II or RPDA-II.



**Double Check Detector Assembly-Type-II**

Anyone may look up any type of USC approved detector assembly on the USC List to determine which components of the bypass arrangement are required for individual detector assemblies. The model numbers for water

meters, bypass backflow prevention assemblies and single check valve assemblies that are required with specific detector assemblies are designated on the List. So, when a tester needs to replace a component of a detector assembly, the USC List includes all the information needed to maintain the detector assembly's approval.

Some may notice that a backflow prevention assembly that is part of the bypass arrangement is listed as a standalone USC approved assembly since the standard referenced above requires all backflow prevention assemblies used in the bypass arrangement to be USC approved. On the other hand, a single check valve assembly that is included in the bypass arrangement for Type II detector assemblies will not be listed as a standalone USC approved assembly since the Foundation does not have a standard for a single check valve assembly.

Although some have been concerned that the single check valve assembly is not listed elsewhere on the USC List as a standalone approved assembly, there is no reason for concern. Single check valve assemblies, exactly like water meters, are listed by model number so the end user may determine if the appropriate single check valve assembly is being used or which one should use, if a replacement is needed.

Many testers may not know how to record the field test results of detector backflow prevention assemblies, all of which include a bypass arrangement. Typically, a field test form does not include fields for the bypass arrangements.

Many administrative authorities may require a tester to record field test results on two forms for the DCDA or RPDA. Since the detector assemblies include two backflow prevention assemblies, filling out two forms that include all the required fields may help the tester. And, when using two forms to record the results for

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## testing vertical assemblies: continued

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the end of the tube, not with the level of the water in the tube. When the test cock is opened to the tube, air bubbles may come out and displace some of the water, causing the water level to stabilize below the end of the tube. The tester must carefully observe the level of the water. Following these instructions while testing vertical assemblies with upward water flow will produce correct results.

Even though adjusting the height of the field test kit and the addition of a longer tube may seem like an entirely different procedure when testing a DC vertically, it is important to understand that the field test procedure is the same. For more information, please contact the Foundation office. ■

## webinars on demand: continued

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Members may purchase a *Webinar On Demand* for the discounted price of \$50.00. The library of *Webinars On Demand* will continue to grow throughout the year. For more information about *Webinars On Demand* please visit [fccchr.usc.edu/ondemand](http://fccchr.usc.edu/ondemand). ■

## understanding detector assemblies: continued

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one detector assembly, it is critical to include all identifying information on both forms. Some administrative authorities may have a form that includes fields for four check valves for these types of detector assemblies. Nevertheless, contacting the administrative authority may be necessary for the tester to determine the proper steps for recording DCDA and RPDA results in their jurisdiction.

Recording the results for a DCDA-II or RPDA-II may not be as straight forward, since these types of detector assemblies include a single check valve assembly in the bypass arrangement. So, a field test form for a DCDA-II and RPDA-II may include fields for three check valves. Please note, a single check valve assembly is field tested independently of the mainline assembly. The tester should contact the local administrative authority for field test recording procedures for a DCDA-II and RPDA-II.

When performing a field test or recording results in a jurisdiction where the tester is not familiar with the reporting procedures, it is always important to contact the local administrative authority before commencing. Field test recording may vary from one administrative authority to another. In all cases it is important to understand that detector backflow prevention assemblies are USC approved as one unit and should be recorded as one unit. And, in no circumstances is a single check valve assembly of a DCDA-II or RPDA-II be suitable for backflow protection independent of the entire assembly. ■

## A Guide to Certification Requirements in Southern California

Since certification requirements may vary significantly between jurisdictions the USC Foundation has put together a guide of several southern California county certification requirements.

The guide, entitled Southern California County Backflow Tester Certification Requirements, includes ten local counties. The guide includes information like the certifying agency responsible for certification, certification exam fees and recertification information. Contact information like name, email and phone number is also included on the guide.

Members may view the guide by visiting [fccchr.usc.edu/certification](http://fccchr.usc.edu/certification). ■

# Upcoming **Training** Courses

all courses in Los Angeles, CA

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11-15 July  
3-7 October

## Specialist

25-29 July

## Seminars/Webinars

11 August

**Cross-Connection Control Surveys**

15 November

**Assembly Repair and Lead Free Issues**

### **Foundation for Cross-Connection Control and Hydraulic Research**

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## Upcoming **Events**

### **California Environmental Health Association Conference**

Long Beach, CA

1-2 September 2016

### **ABPA Western Region**

**Backflow Conference**

Las Vegas, NV

26-27 September 2016

### **Western Washington**

**Cross-Connection Prevention**

**Professionals Group**

Tacoma, WA

19 October 2016

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