

# USC

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Foundation for  
Cross-Connection  
Control and  
Hydraulic Research

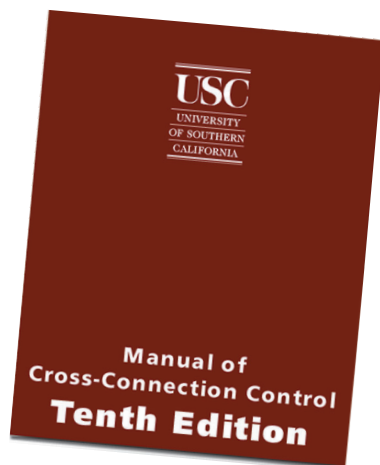
# TALK

# CROSS

Autumn 2003

## 10th Edition Manual Update

The *Manual of Cross-Connection Control* is still under revision. It was the hope of the Manual Review Committee to have the manual published by January 2004. However, there are still a few technical issues to resolve and then the committee needs to give their final approval before it is published.

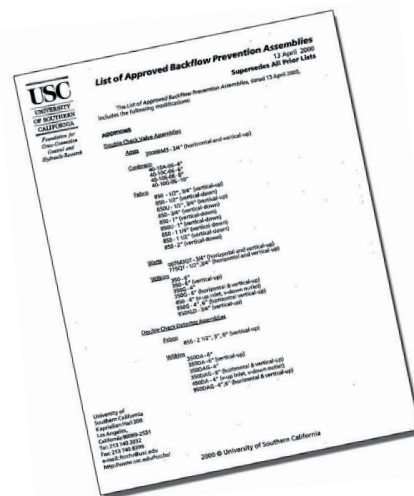


Until the technical issues are resolved, a publication date cannot be set, however, every effort is being made to get the Tenth Edition published as soon as possible, hopefully within the next few months.

Make sure to visit the Foundation website periodically for updates on the release date of the Tenth Edition Manual as soon as it becomes available. ■

## New Look for the Approved List

The List of Approved Assemblies is being reformatted. Over the years Foundation Members have asked for the List of Approved Assemblies in a different format. Some wanted to be able to



incorporate it into their existing database more readily, while others wanted the ability to search for specific criteria. Although this project has been discussed for years, the List is nearly finalized and will be available to Foundation Members in Microsoft Excel format. Excel is a spreadsheet software that is, not only, easy to use, but also easily imported into other programs.

Excel has a feature called the “auto-filter.” This enables the user

*continued on page three*

### Inside Cross Talk

Manual Update • Working Together for Safe Water DVD • Field Test Procedures  
Exercising the Relief Valve • New Look for the Approved List

## Foundation Membership

The Foundation's Membership Program provides many benefits to the Members of the Foundation. These include: twenty percent discount on Foundation Training courses for any employee of the Member company/organization, the *List of Approved Backflow Prevention Assemblies*, printed quarterly, and access to the up-to-the-minute version of the List for those Members with Internet access.

3-D Fire Protection, Inc.  
Advanced Irrigation  
Advanced Operator Short Schools  
All American Backflow Prevention  
Arapahoe Water  
Cal Poly - Pomona  
Cambria Community Services District  
Coastland Civil Engineering Inc.  
D & P May Enterprises  
Dominion / VA Power  
Don's Backflow Service  
Duncanville, City of  
Dwyer Engineering  
Fanshawe College  
Ford, Gary  
G. E. Cross, Inc.  
Granger Water Specialties  
Greencare  
Guadalupe, City of  
Jim & Dude's Plumbing & Heating  
Kent, City of  
King Lu Int'l., LLC  
LPB Co., Inc.  
Mahoney, John  
Mililani Leak Detection  
Mohawk College  
Navajo Nation EPA  
Oracle Environment  
Pran-Con, Ltd.  
Quality Service  
Redding - Water Div., City of  
Rockdale Water Resources  
SAS Systems Inc.  
Steamboat Springs, City of  
TVA Fire & Life Safety  
Thermo-Temp, Inc.  
Total Backflow Resources  
Utilities, Inc.  
Valu Plumbing  
Victaulic Company of America  
Water Compliance Services  
Wyoming Association of Rural Water

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[www.usc.edu/fccchr](http://www.usc.edu/fccchr)

The Foundation accepts Purchase Orders via mail or fax and credit card orders (Visa, MasterCard, Discover) via telephone and the Web.

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## New Look for the Approved List

*continued from page one*

to sort the data using any of the headings at the top of the column. Therefore, one can sort the assemblies by any parameter available:

- Type of assembly
- Manufacturer
- Model
- Orientation
- Size
- Edition of Manual under which assembly was approved
- Shutoff valves
- Approval date
- Renewal date

So, the member could very easily have the list display all 2-inch double check valve assemblies approved under the ninth edition with a vertical up orientation. By clicking on any of the column titles shown in the figure, one would be given the options available under that heading. For example, if one clicked on size, the options of 1/2" through 10" would appear. If the user selected 3", then only three-inch assemblies would appear on the list. Furthermore one could click on orientation and select all the assemblies that have the orientation listed as VU, or H.

In the figure below (see page seven) double check valve assemblies were selected and then custom filter tool was used to select assemblies with VU or H as their orientation and the size was set at two inches or less. The result is not the complete listing; it is just given as an example.

*continued on page seven*

## Working Together for Safe Water DVD

The *Working Together for Safe Water* videocassette has become one of the more popular training tools made available by the Foundation and in early 2004 the DVD version will be made available.

The introductory video introduces the basic concepts of backflow and cross-connection control. The combination of live footage and animation helps to explain these concepts in terms that everyone will understand.



In addition to the video the DVD will have subtitles available in Spanish and English. The DVD will also have a Chapter Selection, making it simple to jump between the different topics on the video.

Beginning early next year the DVD will be made available to purchase on the Foundation website ([www.usc.edu/fccchr](http://www.usc.edu/fccchr)) or by phone (866-545-6340). The DVD will be offered to members of the Foundation for \$25.00 and for \$35 to non-members. Make sure to visit the Foundation website periodically for updates on the release date of the DVD. ■

**In addition to the video the DVD will have subtitles in Spanish and English.**

## Updates to the Field Test Procedures

A misconception held by many backflow prevention assembly testers is that all Tester Certification Programs currently using the Ninth Edition of the *Manual of Cross-Connection Control* field test procedures will automatically change to the Tenth Edition procedures on the day the Tenth Edition is published.

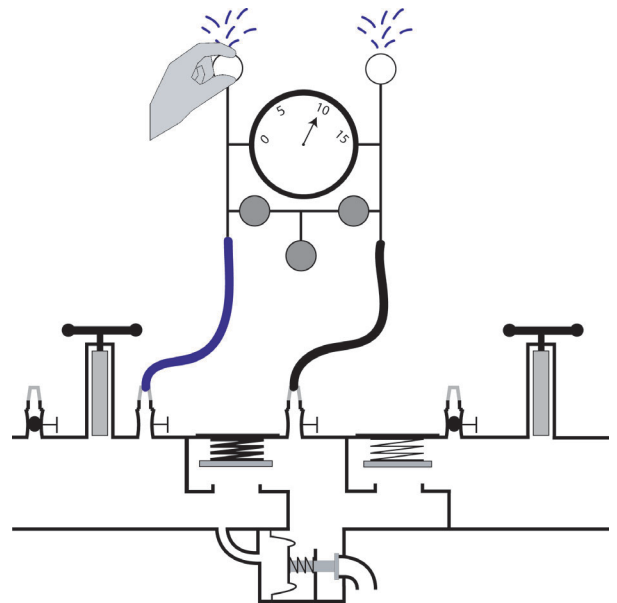
Those tester certification programs that previously adopted the Ninth Edition field test procedures went through a technical review and adoption process. Upon adoption of the Ninth Edition procedures, each certification program had to establish an implementation time line. It was unreasonable to expect existing testers and training providers to switch field test procedures overnight. Some programs established a one-year phase in program where both the old and new field test procedures would be accepted for their certification examinations (written and performance), then at the end of the phase-in period only the new procedure would be accepted.

The Foundation would anticipate any adoption of the Tenth Edition field test procedures to take a similar path. This phase-in period would allow the certification

programs to update their exam proctors on the changes in the Tenth Edition, and then provide training updates to existing testers and training providers.

Some of the modifications in the Tenth Edition field test procedures include:

Updated illustrations to show more clearly the location of the moving components (i.e., check valves,



relief valve and air inlet valve) during the procedures

Testcocks and needle valves will be more clearly illustrated to show their open and closed positions.

Printing of the illustrated field test procedure in two colors will provide more clarification.

*continued on page five*

**Testcocks and  
needle valves  
will be more  
clearly illustrated  
to show their  
open and closed  
positions.**

continued from page four

All procedures will be illustrated with field test kits containing 2, 3, and 5 needle valve configurations. A summary of the field test procedure follows:

#### RP

Testcock flushing procedure modified to reduce risk of activating the relief valve.

*Open testcocks No. 4, No. 3, No. 2, No. 1, then close No. 1, No. 2, No. 3, and No. 4.*

Test kit flushing procedure modified to reduce risk of activating the relief valve.

*With the high side and low side bleed needle valves open on the test kit, close the No. 2 shutoff valve. Close the high side bleed needle valve, then the low side bleed needle valve.*

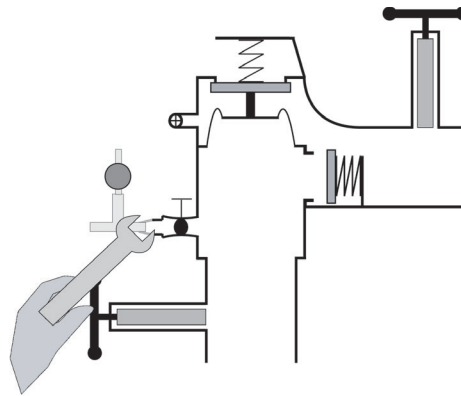
Remove reference to 3 psi buffer. First check valve reading shall be above the relief valve opening point, and a minimum of 5 psid.

#### DC/PVB/SVB

The elevation of test kit will be identified in the test steps of each procedure, rather than the current general notation at the beginning of each procedure. The procedures will identify the specific step when it is critical to have the test kit at the proper elevation.

#### SVB/PVB

Bleed valve arrangement will be shown as attached from the beginning of the procedures, rather than attached if needed.



#### SVB

To simplify the procedure, steps will be reversed so that check valve is tested first, then the air inlet valve.

For the most part the testing procedures will remain the same as in the Ninth Edition, with the few exceptions noted above. Backflow prevention assembly testers should have no trouble adjusting to the procedures in the Tenth Edition, since the changes are few and not complicated. Even though there are not many changes in the actual field test procedure Section 9 of the Manual will be changed greatly. The addition of a second color and newly created illustrations will help to detail every aspect of the field test procedure. The Manual Review Committee is confident that the backflow prevention assembly testers will be pleased with the improvements in Section 9. ■

**The addition of a second color and newly created illustrations will help to detail every aspect of the field test procedure.**

## Exercising the Relief Valve

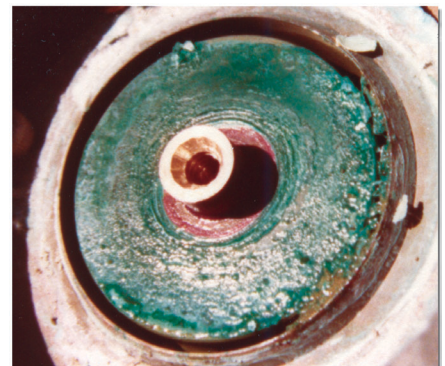
**T**he Foundation receives many inquiries about exercising the relief valve of a reduced pressure principle backflow prevention assembly. It is important for the tester to understand that during a backflow condition, the relief valve is not exercised before the occurrence of backflow. This is precisely the reason that the Foundation recommends using a testing procedure that will not cause the opening of the relief valve prior to its testing.

It is important for the tester to obtain an accurate relief valve test, the very first time the valve is opened, in order to accurately determine how the backflow preventer's relief valve operates in its normal pattern of use. There are other factors that will affect the opening operation of a relief valve in addition to the testing order of the checks and relief valve. Following is a discussion of the operation of a relief valve and why different opening point readings may be obtained when testing the relief valve.

The opening point of the relief valve is determined, in part, by the relief valve spring. The springs are designed to operate within specific tolerances. They may vary slightly after they are fully compressed. After some initial use, the spring will "set" or settle in at a fairly consistent point. However, one may still find that the relief valve opening point changes.

The spring is not the only factor, which determines the relief valve opening point. In fact, there may be several factors involved depending upon the design of the relief valve. One of the primary factors will be the sliding surfaces within the relief valve. When the relief valve opens some of the surfaces slide against other surfaces, such as guide stems. In some cases the sliding surfaces operate as a piston in a cylinder. The condition of the surfaces may change depending upon the local water conditions and how much exercise the relief valve gets.

If the relief valve is being exercised on a regular basis the sliding surfaces will usually glide freely without any hindrances. However, if the assembly has been sitting for a while without any relief valve activity, some small deposits from the water may build up upon the sliding surfaces requiring more force to move them, thus a lower



relief valve opening point might be obtained. If this is the case, the relief valve may have a higher

*continued on page seven*

**It is important for the tester to obtain an accurate relief valve test...in order to accurately determine how the backflow preventer's relief valve operates in its normal pattern of use.**

# New Look for the Approved List

continued from page three

Type	Manufacturer	Model	Size	Orientation(s)	Manual Approved	Renewed	Shutoffs	v-Spare Parts Only	Notes
DC	Ames	2000B	1/2	VU	9	16-Jun-1997	16-Jun-2003 (w),xx	N	
DC	Ames	2000B	3/4	VU	8	27-Aug-1996	27-Aug-2002 (w),xx	N	
DC	Ames	2000B	1	VU	9	18-May-1998	18-May-2001 (w),xx	N	
DC	Ames	2000B	1 1/4	H,VU	8	1-Oct-1996	1-Oct-2002 (w),xx	N	
DC	Ames	2000B	1 1/2	VU	8	11-Mar-1996	11-Mar-2002 (w),xx	N	
DC	Ames	2000B	2	VU	8	8-Mar-1996	8-Mar-2002 (w),xx	N	
DC	Ames	2000BM3	3/4	H,VU	9	27-Mar-2000	27-Mar-2003 (w),xx	N	
DC	Combraco	1/2DC	1/2	H,VU	9	18-Sep-2000	18-Sep-2003 (dd)	N	
DC	Febco	805YB	1	VU	8	16-Apr-1996	16-Apr-2002 (ii),fff,iii,ooo	N	

The List will still be printed and mailed to Members on a quarterly basis, and as updates are made, the pdf version will be posted on the

# Exercising the Relief Valve

continued from page six

reading if tested again immediately following the initial test. This is why it is so important for the tester not to activate the relief valve before determining the relief valve opening point. If the tester activates the relief valve and then determines the relief valve opening point, the reading is likely to be higher than if the tester determined the relief valve opening point without first exercising the relief valve. A stiff diaphragm may have a similar effect.

In testing the reduced pressure principle backflow prevention assembly, many agencies suggest that the components be tested in order of: the first check valve, the second check valve, and finally the relief valve. Testing in this order may affect the relief valve opening point reading, particularly testing

web site along with the Excel version for those wishing to use it. It will be necessary for those

wishing to access the Excel version to have a copy of Microsoft Excel installed on their computer system.

After much dialogue with several Members, it is evident

that this new format will be very valuable to the Membership as a whole. ■

the second check before the relief valve. Should the second check valve leak, the relief valve would open before it is tested – thus exercising the relief valve. As a relief valve is exercised the opening point tends to increase. In this case the tester may have missed the relief valve’s actual opening point. In an actual backflow situation, of course, the relief valve is never exercised before backflow occurs. The Foundation’s recommendation is to follow the field test procedures in the *Manual of Cross-Connection Control* the current Ninth Edition and the upcoming Tenth Edition both call for the relief valve to be tested first, then the second check valve and finally the first check valve. ■

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## Training Courses

### Tester Course

Los Angeles, CA  
12-16 January 2004

Los Angeles, CA  
17-21 May 2004

Los Angeles, CA  
12-16 July 2004

### Specialist Course

Los Angeles, CA  
26-30 January 2004

Mesa, AZ  
23-27 February 2004

Los Angeles, CA  
26-30 July 2004

## Upcoming Events

*Nokia Sugar Bowl  
College Football Championship*  
•New Orleans, LA  
4 January 2004

*Oregon ABPA Conference*  
•Wilsonville, OR  
21 January 2004

*14th Annual Cross-Connection  
Control Conference -  
University of Florida- TREEO  
Center*  
•Gainesville, FL  
19-20 February 2004

*Utah ABPA Conference*  
•Salt Lake City, UT  
19 March 2004

*ABPA- 20th Annual Conference*  
•Long Beach, CA  
9-12 May 2004



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