

the Repair Guys



In our line of work, we field questions from contractors and technicians concerning repairs, installations, and general backflow prevention practices. We'd like to share some questions we receive and our answers. Everyone has different opinions on these subjects and we would like to hear yours. Contact us with your questions and ideas via email at: imark@backflowparts.com or mail us at American Backflow Products Co., Post Office Box 37025, Tallahassee, FL 32315.

— Mark Inman and Jason Gregg

QUESTION —

I recently tested and failed the second check of an assembly that I am not familiar with. The assembly is an Ames 4-inch model C-400. The strange thing is that it doesn't seem to have any access covers. Do you guys have any experience with this assembly? If so, can you give me some tips regarding service procedures for this assembly?

Mark -

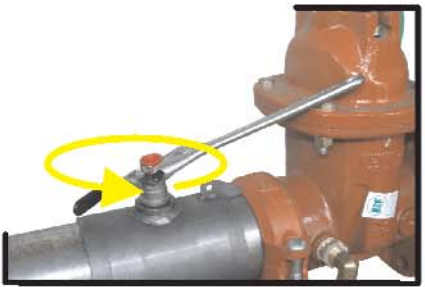
Yes, at first glance this device doesn't seem to have any access to the check valves. The Ames Model C-400 is a reduced pressure principle assembly, and is very unique in its appearance. The body of this assembly is stainless steel, and uses grooved couplings to connect to the shut off valves instead of traditional flanged ends. Many people say this assembly looks to be just a piece of pipe between two gate valves, but rest assured there is a way to get into this assembly.

As manufacturers strive to build assemblies smaller, lighter, and with better flow rates, we will start to see different looking devices in the field. They will also have new innovations for access and repair of the check valves.

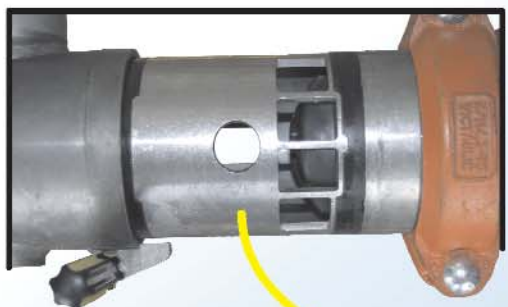
- Jason

We'll go over a complete repair procedure, so that we don't leave anything out. First, you want to close both shutoff valves. Then test-cocks 2, 3, and 4 to relieve any water pressure in the device body.

Both isolation valves must be closed, and test cocks 2, 3, and 4 must be opened prior to opening the assembly.

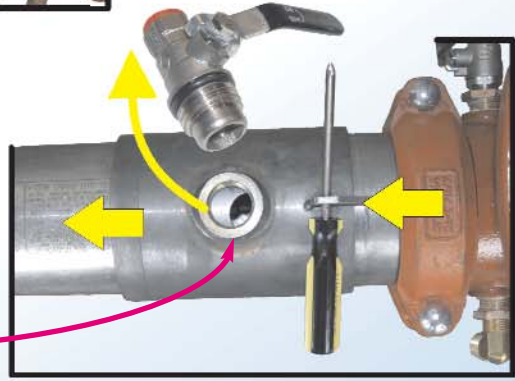


The photos at the right and lower right have the outer sleeve rotated 90 degrees for the photograph. The relief valve is normally in a downward direction under the assembly.



The outer sleeve must be pulled back to the downstream coupling. Then the retainer, shown in place at the left, can be lifted out as shown in the photo below.

Test cock number 3 must be removed, as it serves as the lock for the sleeve. In the photo at the right, the sleeve has been pulled open slightly. The test cock is threaded into the valve body.



To gain access to the check valves, you first need to remove test-cock number 3 by turning it counterclockwise. Removing this test-cock completely will unlock the Closure Sleeve.

Welded on the closure sleeve you'll notice a tab with a hole just the right size for a screwdriver. Place your screwdriver through the hole in the tab and using your screwdriver for leverage, turn the sleeve to break the seal and then slide the closure sleeve towards the outlet gate valve.

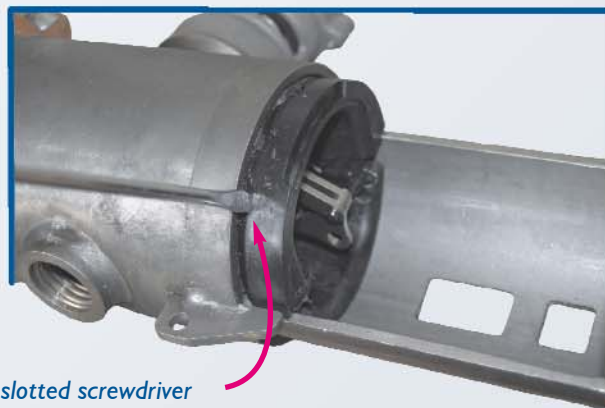
With the closure sleeve opened and out of the way you should now be able to see the stainless steel check retainer, which once removed will give you access to both check valves.

Mark -

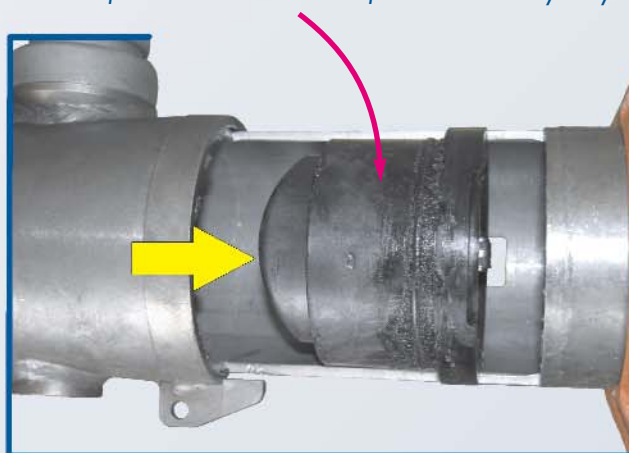
Now we can remove the check valve retainer and get to the good stuff.

Note: The retainer should not be difficult to remove, if you are having trouble pulling the retainer straight up and out, STOP! Make sure you have opened test-cocks 2 and 4 to relieve all water pressure in the assembly body.

After removing the retainer, you'll notice two notches in each check valve. Place the tip of a slotted screwdriver in these notches and pry the check valves out, removing the check valve number 1 first followed by check valve number 2.



Use a slotted screwdriver at the notch near the top of the check valve to pry it from the valve body. Continue to pull it out until it is free and can be removed from the assembly body.

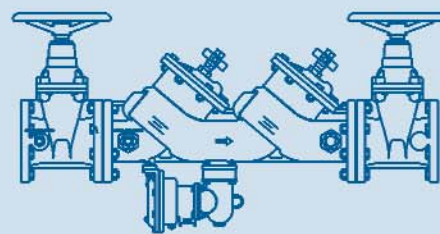


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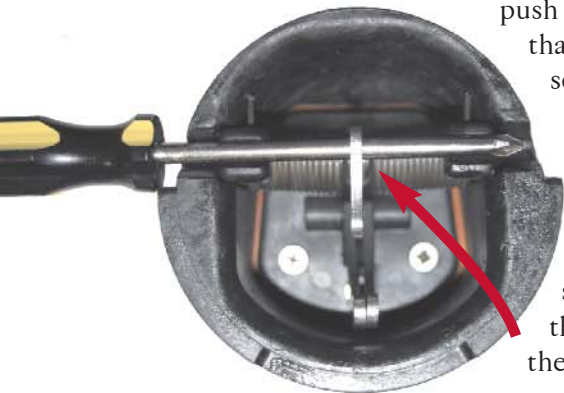
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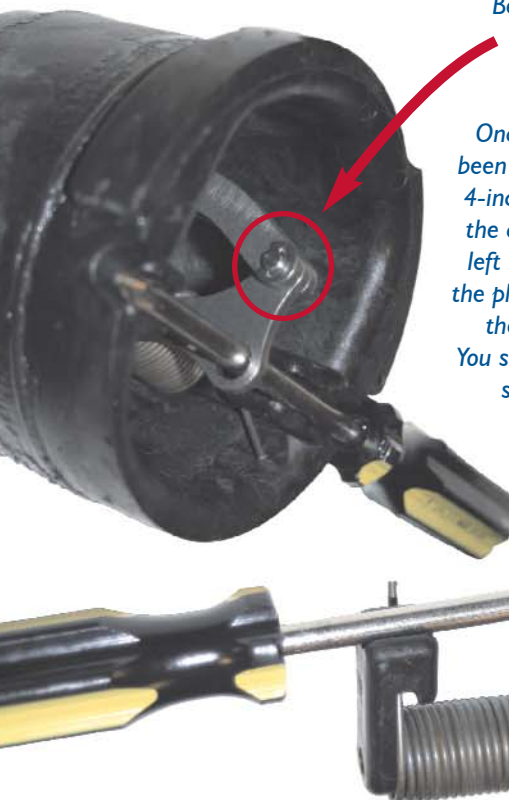
With check valve in hand, clean or replace the seat O-ring. If you turn the check valve over, so that you're looking at the inlet end of the check, you'll notice two links (bi-link). One link is attached to the disc retainer and one is attached to the spring assembly. Here is where we want to lock the link that is attached to the spring assembly in place.



To lock the link, simply push forward on the link that has the hole in it, so that it's lined up with the grooves on the inlet side of the check valve. Now slip a round shank screwdriver through the hole in the link.

- Jason

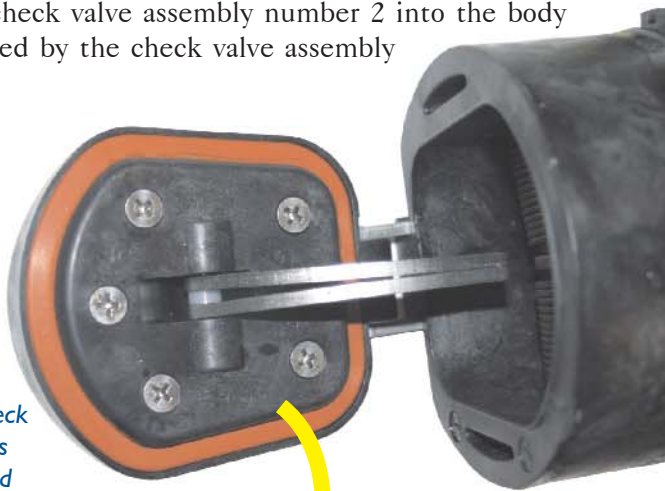
With the screwdriver in place containing the spring tension, we can now get to work inspecting the seat and/or replacing the check rubber. Joining the two links, you'll notice a clevis pin that's held into place by an 'E' Clip. Remove the 'E' Clip with a small tip screwdriver being careful not to lose it. Now remove the clevis pin and allow the disc retainer portion (clapper) of the check assembly to swing free.



The E-clip and pin are located here. Be careful when removing the clip, as it is small and can easily be lost.

Once the E clip and pin have been removed, the spring on the 4-inch unit may come out from the check module. It should be left in place. We removed it in the photo, so you could easily see the screwdriver placement. You should not try to remove the spring from the module.

Now you can remove the five (5) screws and replace the check disc if necessary. After cleaning or replacing check valve rubber, reassemble links using clevis pin and 'E' Clip and remove screwdriver. Lube the seat o-rings and slide check valve assembly number 2 into the body first followed by the check valve assembly number 1.



Once the check valve spring is contained and removed, the check disc holder is easily accessible.



As you reassemble the Model 400, remember to lubricate the O-ring seals, and remember that the test cock number 3 (removed) also has an O-ring seal.

Now replace the retainer, slide the closure sleeve back into place, and then reinstall test-cock number 3.

Note: After the retainer is initially removed, leave the closure sleeve in the open position. Do not slide the closure sleeve over the check valve compartment without the retainer being in place. Doing this could result in the sleeve O-ring either rolling off or getting cut, and to replace this o-ring is a chore.

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