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 have an assembly on a fire sprinkler system that needs to be repaired. It is a 4-inch Febco model 831H Double Check Detector Assembly, and at first glance I thought that it didn't have any shut-off valves but it turns out that it must have butterfly valves for the shut-offs because of the handwheels on either side of the assembly. I have had no experience with this model yet and was wondering if you guys could offer some information on what to expect when I go into this assembly to make the needed repairs?

Mark -

The Febco model 831 is a prime example of new product designs that many manufacturers are now starting to offer. Obviously, their goal is to make assemblies lighter, smaller, and maybe, less costly than their conventional models. Let's take a look at this particular assembly. The Febco 4-inch Model 831H is a double-check detector assembly and is part of the new Febco 'Micro Series.' These assemblies are supplied with either gear operated or lever operated integral butterfly shut-off valves. Standard features also include fused epoxy internal and external coating, the check valves are modular in design with stainless steel trim as well as silicone rubber check discs. Both check valves are accessible through one cover located on the top of the assembly.

- Jason

To get started on the repair we first need to close both shut-off valves. These butterfly valves should have position indicators on them to show if the valve is open or closed. The vertical position is closed and the horizontal position is open.

Now open test-cocks 2, 3 and 4 to relieve the water pressure. You can now remove the 8 cover bolts and the cover gasket. Make sure to leave test-cocks 2 and 4 open, so that the check modules can be easily removed. With the cover off, now remove the spacer (check retainer). This is the steel part located directly before the number 2 check module.

Now move the flow insert. This is the black plastic part that sits directly over the number 1 check module. Next, remove the number 1 check module by

pulling it in a downstream direction to free the seat ring from its sealing cavity in the body. Remove the number 2 check module by inserting a flat blade screwdriver into the small groove adjacent to the inlet side of the seat ring, and then prying the module in an upstream direction. *Note: While prying, try to protect the epoxy coating by using a small piece of wood or plastic.*

Mark -

An alternate way to remove the number 2 check module is to slowly apply water pressure into test-cock number 4 by connecting a hose from test-cock number 1 to test-cock number 4. This will push the module from its cavity in the device body.

After removing the check modules now it's time to change the check valve discs. Start by holding the check module securely with the disc retainer cone facing upwards. Using a large flat blade screwdriver, unscrew the disc retainer counter-clockwise, and remove from the check module. At this point the disc and disc holder are still pressed against the seat, so you can't remove the disc just yet. To replace the check disc, we need to compress the spring and draw the disc holder up and away from the seat.

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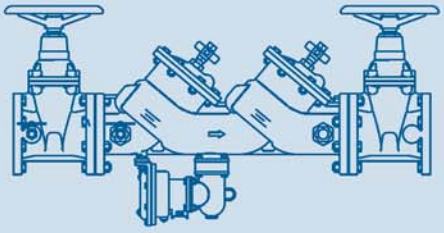

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Don't forget that when you re-assemble, there are parts, such as O-rings that will need lubrication.

- Jason

To compress the spring you're going to need to have a 3/8-inch × 5-inch long bolt, a flat washer, and a 3/8-inch nut. (The bolt should have threads along its total length, or a piece of all-thread rod of similar length will work.) Now working from the outlet side of the check module, thread the nut onto the bolt and work it all the way to the top of the bolt, slide your washer on after that and then thread the bolt into the bottom of the disc holder. Now as you begin to turn the nut clockwise with a wrench, the disc holder will start to pull away from the seat and allow you access to remove the rubber check disc as well as inspect and clean the seating surface. After replacing the check valve disc, re-assemble the module in reverse order. Inspect or replace seat o-rings, lube them well and then reinstall the check modules. It is important to remember to install the number 2 check module first then follow with the number 1 check module. dw&bp