

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 a 6-inch FEBCO 825 reduced pressure principle assembly with a deteriorated second check valve seat. I think the seat should probably be replaced. I have worked on a FEBCO 825YD before, and I remember it having bolts that held the check seat into place, however I didn't see seat bolts in this 825. Are these seats threaded? If so, is there a tool I can purchase? Are there any tricks to getting this seat out?

Mark -

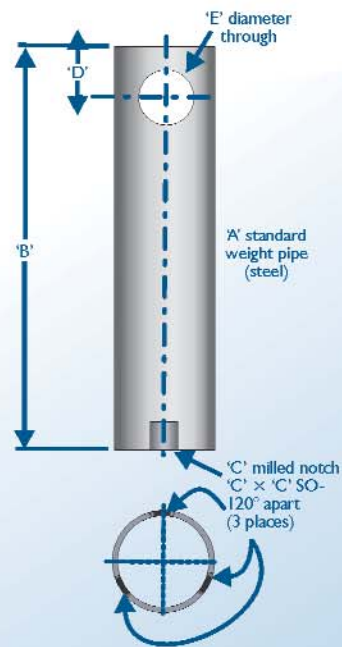
Yes this device is a little different from the 825YD. The biggest difference being the device body of the 825 is made of cast iron as opposed to ductile iron. The cast iron body made it possible to have seats that thread into the body, which makes seat removal a little more difficult depending on the age of the device as well as if anyone else has performed repairs on this device before. Sometimes inexperienced individuals will put pipe dope on the seat threads thinking that like most applications in the plumbing field, anything with threads requires pipe dope for a good seal. When dealing with backflow preventers, remember that the O-ring makes the seal - not the threads. I'm not saying that this is the case with the seat that you're dealing with, but if it is you could have an even tougher time removing the seats.

- Jason

Febco does not produce a seat removal tool for purchase. However, they do give specifications on how to build one. (See Illustration) Materials for the seat

removal tool are all standard sizes so you shouldn't have much trouble finding the appropriate materials for building your tool. Basically the tool is made from common size steel pipe with notches cut in one end to fit over the seat's guide arms, and a hole drilled in the other end to facilitate the use of a smaller diameter pipe to use as a handle. FEBCO is not specific on what type of standard steel pipe to use, but I would assume that Sch.40 Galvanized or Black steel would be sufficient. Caution: FEBCO states that to avoid possible injury during use, do not fabricate tool from lesser strength material or to smaller dimensions than the specifications shown.

The hole at the right allows the user to insert a bar or piece of rod stock through to us as a handle for leverage when unthreading the seat.



Seat Ring Tool
Dimensions (inches)

VALVE SIZE	A	B	C	D	E
1½	1½	6	3/8	3/4	3/4
2	1½	6	3/8	3/4	3/4
2½	2½	8	1/2	1	1
3	3	8	1/2	1	1
4	4	9	1/2	1	1
6	6	10	5/8	1	1
8	8	12	5/8	1	1
10	8	12	5/8	1	1

Please note the three milled notches in the seat ring tool at the right. The 1-inch holes for the handle are shown here.





- Jason

Depending on the location of the device, if room does not permit and you have to shorten the length of the handle portion of your tool it can be pretty difficult to break the seat loose. One tip that was given to me from a gentleman out of the state of Texas was the use of dry ice to help with seat removal. He mentioned to pick up some dry ice on the way to the job. Have a pair of heavy leather gloves and a strong plastic bag. When on the job site, break the dry ice up a little and place the bag down onto the valve seat. This should only take a couple of minutes to do the job and quickly bring the temperature down far enough so that the seat actually contracts enough to make its removal easier. After the seat is removed, lubricate new seat O-ring well and thread new seat back into the device body remembering not to over tighten the new seat.

Mark -

After completing the base part of your tool, you now need to have a smaller diameter pipe to use as a handle or breaker bar. I think that a 1-inch diameter piece of pipe about four feet in length will do the job. You also may want to think about having another person with you for this repair. It makes it a lot easier to have one person hold the base part of the tool steady on the check valve seat, while the other person mans the handle portion of the tool. I would suggest that whoever is going to man the handle portion of the tool be the one with the most weight in the rear portion of his trousers.

As you engage the seat-removal tool, remember to un-thread the seat in the counter-clockwise direction. Once removed, it may be necessary to replace the bushing and bushing nut.

The older 825's were painted an orange-red color, similar to the gate valve colors. The model 825 assemblies were produced prior to 1983. The model 825D's (ductile) were produced from 1983-83, and the 825YD's were produced from 1985-1986.

dw&bp

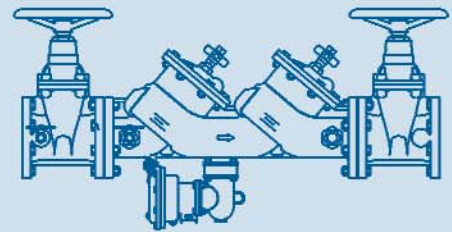


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