

# Troubleshooting Water Softeners

## 10 Need-to-Know Tips for Dealers

Let's face it, as good as water softener valves have become, certain factors can affect their performance. There also are many older units out there that dealers still have to contend with. So, in an effort to help keep business flowing, as well as softened water, *Water Quality Products* went in search of an expert to bring you the top troubleshooting tips for valves. The search led to Jay Runkle, employed in technical services at Pentair Water Treatment. According to Runkle, issues quickly can be sorted out if you know what to look for. Here are Runkle's top 10 dilemmas, accompanied by probable causes and suggested antidotes.

### Problem Number 1 The customer is complaining of low water pressure.

According to Runkle, improper system sizing and installation are the root of this problem. You need to consider the required flow rate to meet your customer's need, the inlet pressure available and plumbing system layout. Remember that you lose 1 psig for every 2.3 feet in piping elevation (this means the water pressure on the second floor of the house may be 10 psig lower than it is in the basement). For well systems, you need to consider the low (cut-in) pressure setting for the well pump.

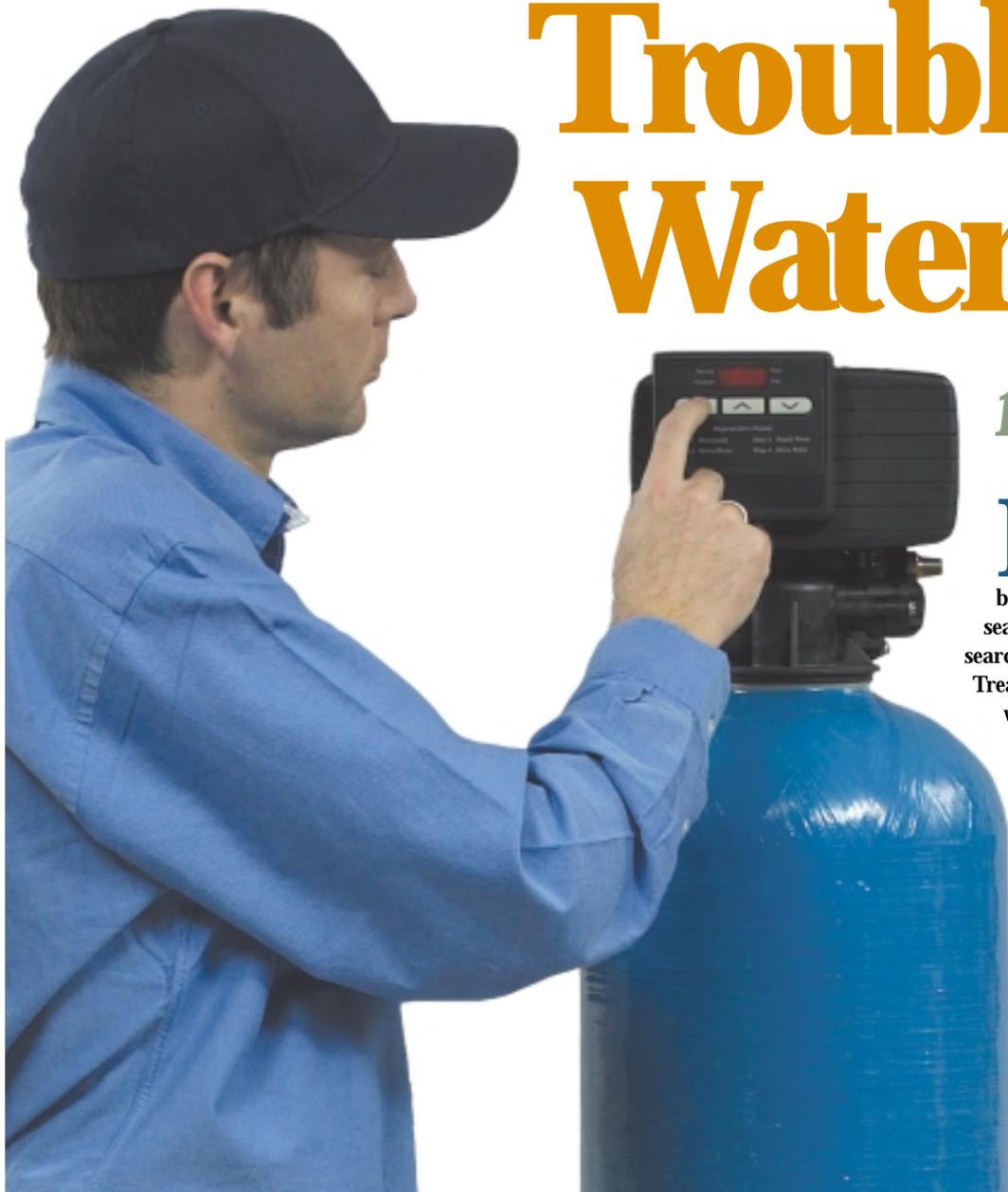
### Problem Number 2 The softener is producing a blend of hard and soft water.

The problem here could be an improperly cut distributor. If cut too short, the distributor will not reach the O-ring in the control valve, thereby producing the water blend. Runkle's suggestion? Put the valve in a brine draw and see how long it takes for salty water to reach the drain. If salty water reaches the drain immediately, chances are the distributor is too short. Alternately, the O-ring could be missing in the valve. Check both and replace as necessary.

Could the distributor ever be cut too long? Yes, says Runkle. In that case you may see media inside the valve when it is in the service position. Take a flashlight and check inside the tank to see if there is a loss of media. Besides the control valve, the media also might appear in the service lines.

### Problem Number 3

Media in the service line when the valve is in the service position. Once





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again, a flashlight is a necessary diagnostic tool. In this case, Runkle reports the probable cause to be a reversed inlet/outlet with service water going down the distributor rather than down the media and up the distributor. This causes the media to be lifted out of the bottom of the control valve and found in the service line. Use a flashlight to see if there are media either inside the control valve or in the service lines. Here is another

tip: Runkle reports that an electromechanical metered valve never will go into regeneration with a reversed inlet/outlet. He suggests you check the meter dial. If the dial will count up and not down, you definitely have a reversed situation. However, this is not a definitive test with an electronic meter valve, as it will continue to count down meter pulses correctly even with a reversed inlet/outlet.

## Problem Number 4

**Water is leaking out the drain when the control valve is in the service position.** According to Runkle, the problem here is a drain line leak due to piston seal failure. He suggests you check the piston to see if it is scratched or if the piston seal is pinched or torn. Alternately, there also could be foreign material between the piston seals and piston. If any of these are true, the

piston and/or seals will need to be replaced. Worn seals can cause this problem, too.

## Problem Number 5

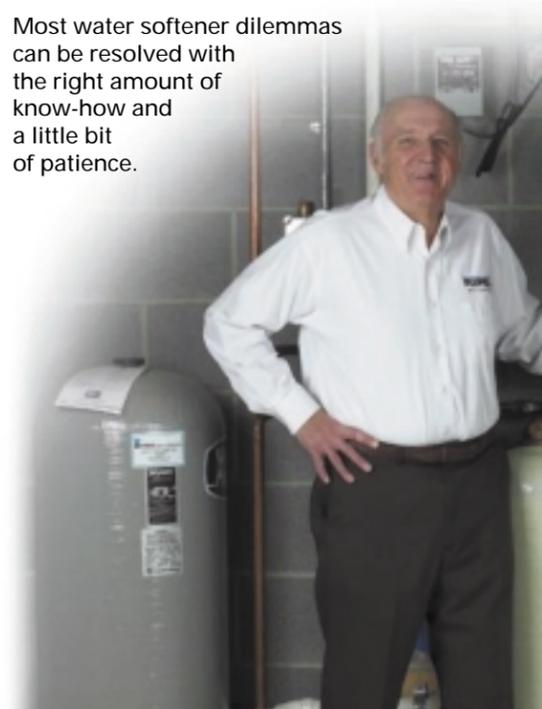
**The softener is refilling the brine tank with water instead of drawing brine into the softener.** This happens when the control valve is in the brine draw position but is refilling the brine tank instead. Runkle says the culprit in this case is backpressure to the injector. This can be determined easily if you check the drain flow during brine draw. If there is no flow, the drain line or control valve are plugged. If there is a large flow or backwash rate, the control valve is bypassing water internally. Then check for a blockage in the control valve or drain and repair.

## Problem Number 6

**The brine tank is overflowing.** Here the control valve is putting too much water in the brine tank. This is less likely to happen if the valve is installed with a safety brine valve in addition to the brine valve. Runkle suggests you check for the following.

- Inspect the brine valve to see if it is stuck in the open position.
- Look at the O-ring inside the brine valve to see if it is missing or pinched.
- Check to make sure the refill time is properly set on the control valve timer.
- Access the brine line flow control. See if it is the correct control for the softener, or alternately, if it is in crooked.
- Refer to the troubleshooting tips in problem number 5. An overflowing brine tank also could be a symptom of backpressure to the injector.

Most water softener dilemmas can be resolved with the right amount of know-how and a little bit of patience.





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## Problem Number 7

### **Low flow in the drain and brine lines.**

In this case, Runkle reports that the probable cause is a backward flow control. For example, there are two sets of numbers molded into a Fleck flow washer. One number is the mold number of the flow washer, and the second number is the size of the flow washer, he explains. To be properly seated, the two sets of numbers should face the control valve. This will prevent the proper flow for media expansion in the backwash and not allow enough water into the brine tank for proper salting.

## Problem Number 8

### **The softener is producing hard water.**

This one takes some investigation. According to Runkle, there are a number of possible causes. The first thing he suggests is checking the bypass valve. If it has been left open, close it. Otherwise, hard water will be the result. Next, look for salt in the brine tank. If there is none, add enough salt to the tank so it is above the water level. Another possible cause of hard water is a plugged injector screen. Check it and clean it, if necessary. A leak at the distributor tube also can cause hard water. Inspect the tube to make sure it is not cracked. Also check the O-ring and tube pilot. Finally, consider an internal valve leak. Replace the seals and spacers and/or the piston to correct the problem.

## Problem Number 9

**There is iron in the conditioned water.** According to Runkle, many dealers will first suspect the valve,

but usually the problem is a fouled mineral bed. Check the backwash, brine draw and brine tank fill times. Then increase the frequency of regeneration.

## Problem Number 10

**The wrong system has been recommended for the job.** Runkle says there is no fixing an improperly applied softener system. More and

more customers find they are not facing a service problem as much as a sales problem. Selling a low-price valve to get the order is no good if it cannot do the job. Make sure the water treatment system you recommend has the ability to solve your customer's

hard water, iron or any other problem. Remember to consider all the factors involved including hardness, number of family members, well type and flow. Then, sell up. In the long run, your customers will appreciate your integrity. **WQP**

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