

Irrigation System 102 - Autumn Shut-Down (Winterize)

By Clark Anderson

The grass is not growing as much now days and you probably have been only watering once a week.

For two reasons, we need to perform the complete shutdown process, using an air compressor to blow out all of the water, before any hard, extended freezes.

- 1) Our irrigation systems do not have drain valves at all of the low points.
- 2) Our underground plumbing uses white PVC pipe that is pretty strong, but brittle. The black 'Poly' Ethylene hose is more resilient.

My first year in this home, my main PVC pipe running from the Backflow Prevention Assembly to the Solenoid Control Valve Pit, froze and split at its low point, under the driveway a yard or two up from the sidewalk. The concrete driveway is denser than soil and a much poorer insulator from the cold winter weather.

This **Complete Shutdown** procedure uses an air compressor, replacing 'supply water pressure' with air pressure, to blow the water out of these low points in the system and protect the entire system against hard freezes during the winter.

The compressor that I use is a portable one, intended primarily for spray-painting. It cannot blow enough air to hold the Check Valve closed and blow air out all of the underground pipes, sprinkler heads and drip irrigation emitters in one step.

Someone recommended using a compressor big enough to deliver 85 Cubic Feet per minute. The purpose for the high volume is to assure that all of the water is truly 'Blown Out!' It is a possibility that my dinky little compressor is only nudging the water along and leaving some behind.

If your compressor can deliver anywhere near the recommended 85 Cubic Feet per minute, you can probably blow out all sprinkler stations at once.

Boy! The more I think about this, the more I wish we had drains at all of the low points in our irrigation system.

The need for a compressor is one reason many homeowners contract someone to perform this task.

Complete Shutdown process (Winterize):

If you did a Partial Shutdown for a light freeze, you will need to do enough of a Startup process to pressurize the Backflow Prevention Assembly and the underground pipes with water.

Most parts are plastic and do NOT require tools.

In the basement, on the copper pipe going up and out the side of the house:

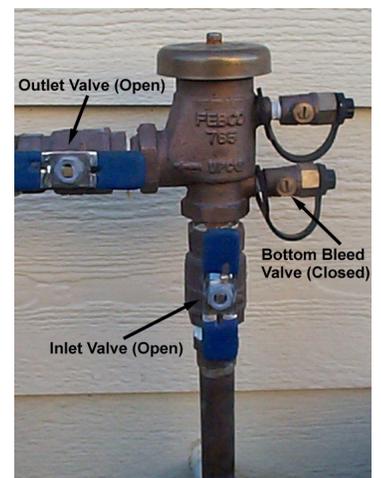
Close the Sprinkler System Supply Valve. In the closed position, the handle will be perpendicular to the pipe. It, symbolically, crosses the pipe to indicate no flow.

In the garage:

You can turn off your electronic control. Ours is a RainBird eController with a rotary switch that can be turned to the 'Off' position. Some controllers have a 'Rain' setting for this purpose. Turning this off, now, will prevent an unexpected opening of a Solenoid Valve while your compressor is 'blowing out' the system.

At the side of the house at the Backflow Prevention Assembly (Check Valve):

- 1) Close the Inlet Valve (next to the copper pipe that enters the house). In the closed position the handle is perpendicular to the copper pipe that enters the house.
- 2) Connect the compressor to the bottom bleed valve.
- 3) Start the compressor and open the bottom bleed valve. Use a screwdriver to turn the slot to be parallel to the tube.

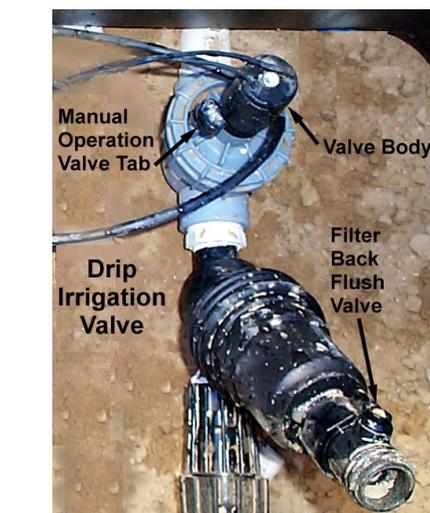


Outside, in the Solenoid Control Valve Pit, under the green cover:

- 1) Open the brass Drain Valve (turning the cross-shaped handle counter-clockwise). I like to use my 'spanner' tool. It is a steel rod with a handle at one end and two-prong fork to fit the valve on the other end.

I open this first to let the water move with enough momentum to clear the main supply pipe under the driveway. You may stuff a piece of hose in the end of the Drain Valve to direct some of the water out of the pit. My pit accumulated enough water to submerge the drain valve.

- 2) Water should start gushing out of the drain valve.
- 3) When the water stops gushing out of the drain valve, Close the brass Drain Valve (turning the cross-shaped handle clockwise).
- 4) Start with the first Lawn Irrigation station (group of sprinkler heads).
- 5) Open the Solenoid Valve by using the Solenoid Manual Operation Valve Tab to rotate the top of the Solenoid Body a half turn counter-clockwise.
- 6) When the sprinkler heads stop spraying water, close the Solenoid Valve by using the Solenoid Manual Operation Valve Tab to rotate the top of the Solenoid Body a half turn clockwise.
- 7) Move on the next station (group of sprinkler heads). Repeat steps 5 and 6 for each lawn irrigation station (circuit).



8) Drip Irrigation Valves are a little different. Open the Filter Back-Flush Valve (Open is parallel to the Back Flush body).

9) Open the Solenoid Valve by using the Solenoid Manual Operation Valve Tab to rotate the top of the Solenoid Body a half turn counter-clockwise.

10) When most of the water seems to be blown out of this little 'water canon', close its valve (perpendicular to the 'canon' body)

11) Allow plenty of time for the drip irrigation lines and emitters to blow out their water. The consequence of letting water freeze in the drip irrigation lines seems to be emitters popping out letting excess water run out in the Spring.

12) When you are satisfied the drip system has stopped spraying water, Close the Solenoid Valve by using the Solenoid Manual Operation Valve Tab to

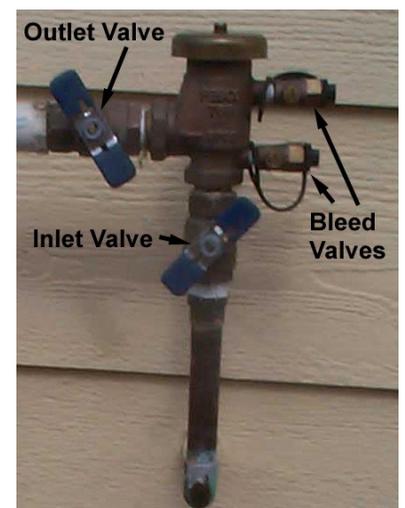
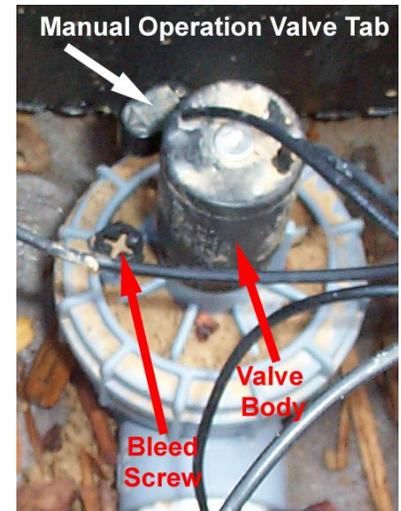
rotate the top of the Solenoid Body a half turn clockwise.

- 13) Repeat steps 8 through 12 for each drip irrigation station (circuit).

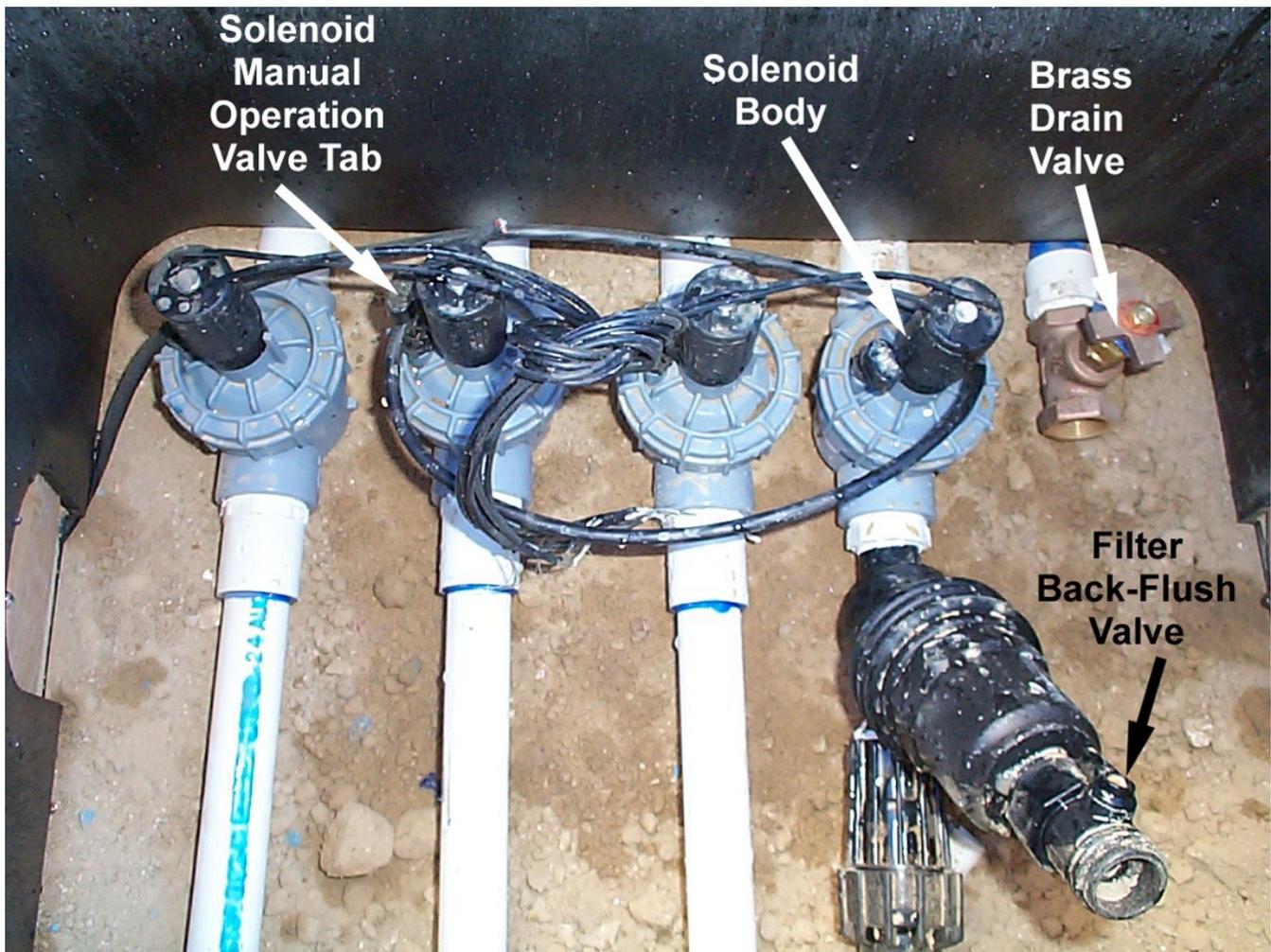
When the last sprinkler heads stop spraying water return to the **side of the house and the Backflow Prevention Assembly:**

- 1) Turn off and disconnect the compressor.
- 2) Half open the two bleed valves (test cocks for blowing out the lines). You will need a screwdriver to turn the slots to be at 45 degrees (half way between parallel and perpendicular) to the tube.
- 3) Half close the Inlet Valve (next to the copper inlet pipe that enters the house). In the half-closed position the handle is at 45 degrees to the copper inlet pipe.
- 4) Half close the Outlet Valve, (next to the possibly white plastic pipe that enters the ground). In the half-closed position the handle is at 45 degrees to the outlet pipe that enters the ground.

The half open-closed valve position allows for the air and any water droplets to pass freely either way.



Outside, in the Solenoid Control Valve Pit, under the green cover:



- 1) Open the brass Drain Valve (turning the cross-shaped handle counter-clockwise). Do not open it 'hard'. (When full open, turn it back clockwise a quarter to half turn.) This drain valve is at an elevation lower than the Backflow Prevention Assembly, but it is definitely not at the lowest point in our entire irrigation system!
- 2) Open each of the Solenoid Manual Operation Valves, about a half turn counter-clockwise. The tab on the side rotates the black solenoid body and can be used to manually operate each Sprinkler circuit.
- 3) Open the Drip Irrigation Filter Back-Flush Valve. This filter looks somewhat like a cannon aimed up at an angle and prevents small dirt particles from clogging the drip system emitters. In the open position, the small black handle is parallel to the black filter body. Opening this valve, with water pressure, washes dirt particles out of the filter.
- 4) You can replace the green cover.

In the basement on the copper pipe going up and out the side of the house:

- 1) Provide a container to catch at least 2-3 cups of water. Open the Bleed Valve, the small brass knob on the side of the larger valve body. (No tool needed.) You only need to turn it 1 turn counter-clockwise to let some water drip out. After all of the water has dripped out, it is probably a good idea to close this little bleed valve. (These little brass caps are not always easy to replace!)

That is it! With no water trapped in your irrigation system, you can rest easy inside, maybe in front of a fire place, while it gets as cold as it wants outside.