Is My Filter Working? Troubleshooting Tips for Hydraulic Suction Scanner Filters

If you use an open water source for irrigation you likely use a self-cleaning hydraulic suction scanning filter to remove contaminants from the water before the water enters the irrigation system. Thus filter performance is critical to keep the irrigation system working properly. Scheduling quarterly preventive maintenance and inspection based on average filtration duty, is a good guideline but for best results, a maintenance schedule should be compiled based on experience gained from using the filter.

Regular Filter Inspection

Here are two steps you can take to ensure the filter is working properly.

- Check coarse screen and clean as required
- Trigger a manual rinse and check for proper filter function by observing the pressures as described in Section 4.2 of the manual. This step should be performed for all individual filters in multiple installations.

If you notice your filter is not working properly it can be found in the following modes:

- filter does not experience rinse cycles
- filter rinses continuously, rinse valves do not close
- filter cycles continuously, rinse valves open and close repeatedly
- filter control system is not operating

In this article we'll cover the steps to take when determining the cause of a malfunctioning filter. As part of the troubleshooting process all tubing connections should be verified against the schematics provided in the manual.

Filter does not experience rinse cycles

If the filter does not experience rinse cycles, either automatic or manual, check the differential pressure across the filter from inlet to outlet versus the preset on the differential pressure switch. All differential pressure switches are factory preset for 7 psi.

1. If the differential pressure is higher than the preset, go to step 5.

2. If the differential pressure is lower than the preset, monitor the differential pressure across the filter from inlet to outlet to determine whether it is increasing.

If it is increasing, allow the differential to increase to the preset value and monitor operation.

3. **If the differential pressure is not increasing**, or is increasing very slowly, shut down the filter and extract the fine screen. Carefully inspect the screen and o-rings for damage. Replace parts as necessary. When reinstalling the screen, check to ensure that it is seated properly inside the housing and that the dirt collector moves freely.

4. If the screen is intact and was seated properly, then the screen openings (micron size) may be too large for the application. Contact Rain Bird GSP at 866-477-9778 for assistance.

5. If the differential is higher, check to ensure that the control system power switch is on.

6. Close the isolation valve on the filter outlet and allow the inlet and outlet pressures to equalize. Initiate a manual rinse cycle by depressing the rinse cycle button. If the filter rinses, check the differential

pressure switch and connections and repair or replace as necessary. Recheck operation. Go to step 11.

7. If the filter rinses, open the outlet valve and recheck the differential pressure. If the differential has recovered, the filter was probably blocked due to an influx of dirt.

Allow the differential to buildup and monitor for proper filter operation.

10. If the differential pressure has not recovered, check to ensure that the inlet pressure during the rinse cycle is greater than the minimum required (30 psi). If not, the pressure must be greater. Contact Rain Bird GSP at 866-477-9778 for assistance.

11. Check the inlet pressure versus the hydraulic motor chamber pressure for sufficient pressure drop (25 to 40%). If not sufficient, check for restrictions or sources of back pressure in the rinse valve drain lines.

12. If the pressure drop is sufficient and the differential is not recovering after several additional manual rinse cycles with the outlet valve closed, the filter must be shut down and the screen extracted and cleaned manually. Check the dirt collector nozzles for damage or excessive wear against the heights indicated in the table.

FILTERS	COLLECTOR	HEIGHT
HS-I-03-xE	PVC	2.8
	Stainless Steel	2.6
HS-I-04-xE, HS-I-06-xE, HS-I-08-xS	PVC	2.4
	Stainless Steel	2.3
HS-I-08-PE	Stainless Steel	2.3
HS-I-10-xS, HS-I-10-PE, HS-I-12-xS	Stainless Steel	3.1
HS-I-14-xS, HS-I-16-PS, HS-I-18-PS, HS-I-20-PS	Stainless Steel	3.7

DIRT COLLECTOR NOZZLE HEIGHTS FOR PISTON MODELS

Note that nozzle heights for PVC dirt collectors are measured from the surface of the dirt collector tube, whereas those for Stainless Steel dirt collectors are measured from the face of the coupling.

Filter rinses continuously

1. The problem may lie with the controller. Contact Rain Bird GSP at 866-477-9778 for assistance.

2. If flow is present at line pressure, the rinse valve actuators should be replaced.

Filter cycles continuously

1. Check the preset on the differential pressure switch. This should be set to 7 psi.

2. Check the flow rate through the filter to ensure that this value is within the maximum flow rating of the filter. If the flow is too high, adjust as necessary.

3. Check the differential pressure across the filter from inlet to outlet following a rinse cycle.

If the differential does not recover, go to Step 10 under "Filter does not experience rinse cycles".

4. If the flow is within the operating range of the filter and the differential recovers, a larger screen and/or additional filters may be required. Contact Rain Bird GSP at 866-477-9778 for assistance.

Filter control system is not working

1. Check to ensure that the switch on the controller is in the ON position.

2. Check to ensure that power is available to the controller.

3. Check the fuses inside the controller and replace as necessary.