



Aqua-Clear™ Fiberglass Sand Filters



Installation & User's Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Customer Service

If you have questions about ordering replacement parts, please use the following contact information:

Customer Service / Technical Support (8 A.M. to 4:30 P.M. — Eastern and Pacific Times)

Phone: (800) 333-8125 or (619) 562-2950

Fax: (800) 892-1822 or (619) 258-9973

Web site

visit *www.toromicroirrigation.com* or *www.toro.com*

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Table of Contents

Important Warning and Safety Instructions	ii
Section 1: Introduction	1
Aqua-Clear Fiberglass Sand Filters Overview	1
General Features	1
Additional Features	1
Section 2: Installation	2
Installing the AquaClear Fiberglass Sand Filter	2
Introduction	2
How the Filter Works	2
Installing the Filter	4
Construction of the Manifold System	5
How to Configure a 3-Way Valve	5
Initial Start-Up	6
Section 3: Maintenance	7
Filter Care	7
Cleaning	7
Filter Procedure	7
Backwash Procedure	8
Winterizing and Storing the Filter	8
Section 4: Troubleshooting	9
Section 5: Replacement Parts	11

IMPORTANT WARNING AND SAFETY INSTRUCTIONS



Important Notice:

This guide provides installation and operation instructions for the Aqua-Clear™ Series Fiberglass Sand Filters. Consult Toro Micro-Irrigation with any questions regarding this equipment.

Attention Installer: This guide contains important information about the installation, operation and safe usage of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the filter.

Attention User: This manual contains important information that will help you in operating and maintaining this filter. Please retain it for future reference.

 **WARNING** — Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 333-8125 for additional free copies of these instructions.

Consumer Information and Safety

The Aqua-Clear Fiberglass Sand Filters are designed and manufactured to provide many years of safe and reliable service when installed, operated and maintained according to the information in this manual and the installation codes referred to in later sections. Throughout the manual, safety warnings and cautions are identified by the  symbol. Be sure to read and comply with all of the warnings and cautions.

WARNING — THIS FILTER OPERATES UNDER HIGH PRESSURE



When any part of the irrigation system, (e.g., closure, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the top closure to separate which can result in severe injury, death, or property damage. To avoid this potential hazard, follow these instructions:

1. If you are not familiar with your irrigation system filtering system:
 - a. **Do NOT** attempt to adjust or service without consulting your dealer, or a qualified irrigation system technician.
 - b. Read the entire Installation & User's Guide before attempting to use, service or adjust the filtering system.
2. Before repositioning valve(s) and before beginning the assembly, disassembly, or any other service of the irrigation system: (A) Turn the pump **OFF** and **shut OFF** any automatic controls to ensure the system is **NOT** inadvertently started during the servicing; (B) open the manual air bleeder valve; (C) wait until all pressure is relieved.
3. Whenever installing the filter closure **FOLLOW THE FILTER CLOSURE WARNINGS EXACTLY.**
4. Once service on the irrigation system is complete **FOLLOW INITIAL START-UP INSTRUCTIONS EXACTLY.**
5. Maintain irrigation system properly. Replace worn or damaged parts immediately, (e.g., closure, pressure gauge, valve(s), o-rings, etc).
6. Be sure that the filter is properly mounted and positioned according to instructions provided.

IMPORTANT WARNING AND SAFETY INSTRUCTIONS

 **WARNING** — This filter must be installed in accordance with the all applicable local codes and ordinances. Improper installation could result in death or serious injury to users, installers, or others and may also cause damage to property.

Always disconnect power to the irrigation system at the circuit breaker before servicing the filter. Ensure that the disconnected circuit is locked out or properly tagged so that it cannot be switched on while you are working on the filter. Failure to do so could result in serious injury or death to service person, users or others due to electric shock.

 **WARNING** — Do not operate the filter until you have read and understand clearly all the operating instructions and warning messages for all equipment that is a part of the irrigation system. The following instructions are intended as a guide for initially operating the filter in a general irrigation system installation. Failure to follow all operating instructions and warning messages can result in property damage or severe personal injury or death.

 **WARNING** — To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

Never attempt to adjust any closures or lids or attempt to remove or tighten bolts when the system is pressurized. These actions can cause the closure to blow off and could cause severe personal injury or death if they were to strike a person.

 **WARNING** — Never exceed the maximum operating pressure of the system components. Exceeding these limits could result in a component failing under pressure. This instantaneous release of energy can cause the closure to blow off and could cause severe personal injury or death if they were to strike a person.



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Section 1

Introduction

Aqua-Clear™ Fiberglass Sand Filter Overview

The Aqua-Clear™ fiberglass sand filter provides years of dependable, low maintenance operation. Aqua-Clear superior filtration performance delivers a level of dependability and ease of operation and maintenance. Aqua-Clear features a special internal design that keeps the sand bed level, ensuring even water flow, and resulting in the most efficient filtration possible.



Aqua-Clear Sand Filter

Features

- Proven internal design ensures that all water receives maximum filtration for maximum effectiveness.
- Unique manufacturing process creates a one-piece, fiberglass reinforced tank with a UV-resistant coating for years of dependable, corrosion-resistant service
- Flow system design controls filtration quality and ensures maximum run times between backwashing to save you time
- Full 2 in. drain
- 8 in. opening for easy access to sand bed
- **Maximum Operating Pressure 75 psi**

Additional Features

- Combination sand and water drain speeds servicing and winterizing
- All internal parts are threaded for ease of maintenance
- Swing-away water diffuser allows instant access to sand and all internal parts
- Can be installed as a single, dual, or multiple tank system

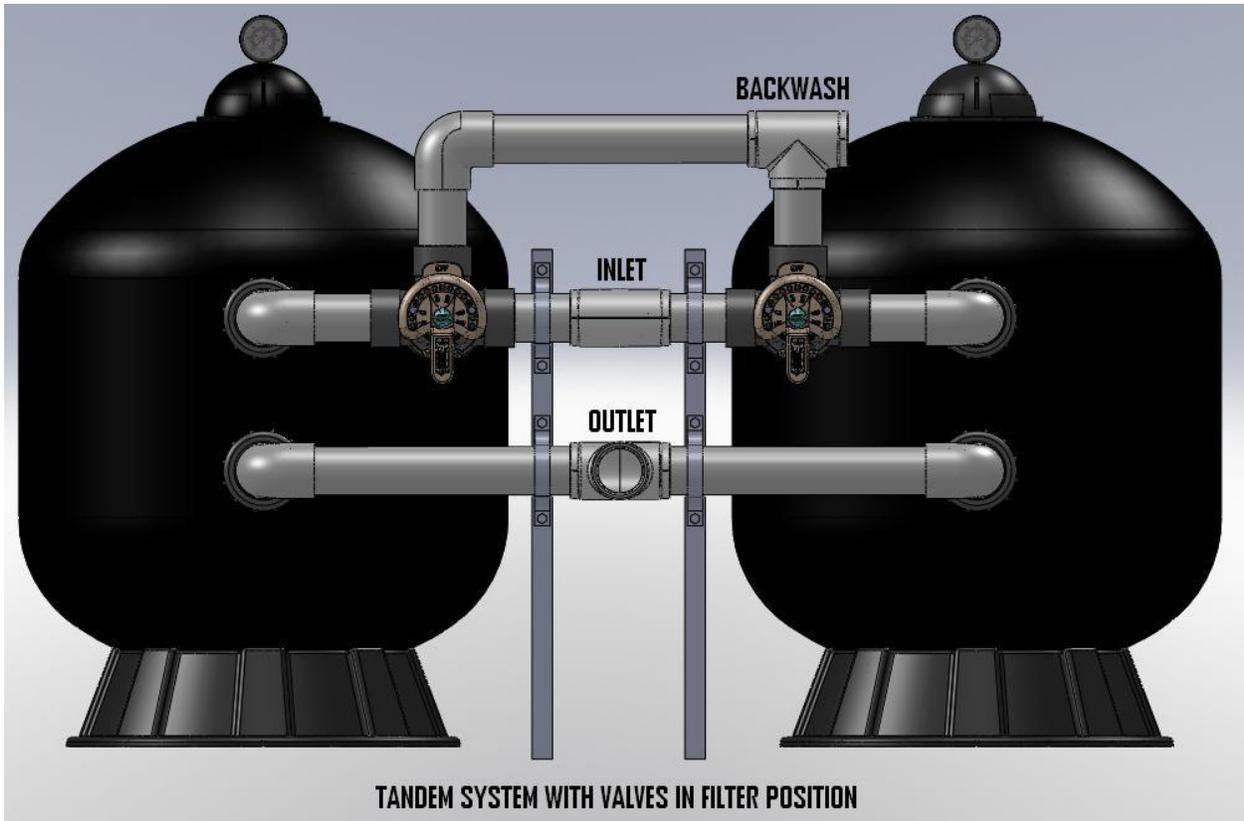
Section 2

Installation

Note: Before installing this product, read and follow all warning and safety notices and instructions starting on page ii.

Installing the Aqua-Clear Fiberglass Sand Filter

Only a qualified service person should install the Aqua-Clear Fiberglass Sand Filter. This filter is designed and intended for use to filter water.



Introduction

The following general information describes how to install the Aqua-Clear fiberglass sand filter. This filter operates under pressure and if assembled improperly or operated with air in the water circulation system, the top closure can separate and result in an accident causing property damage or serious bodily injury. A warning label has been affixed to the top of the filter and should not be removed. Keep safety labels in good condition and replace if missing or illegible.

How the Filter works

The Aqua-Clear fiberglass sand filter is designed to operate for years with a minimum of maintenance and when installed, operated and maintained in accordance with these instructions, it will provide years of trouble free operation.

Dirt is collected in the filter as the water is directed into the top bulkhead. Dirty water flows into the diffuser at the top of the tank and is directed downward into the top surface of the filter sand bed. The dirt is collected in the sand bed and the clean water flows through the laterals and lower piping at the bottom of the filter up into the lower bulkhead. Clean water is returned through the piping system into the irrigation system.

The pressure will rise and the flow to the irrigation system will be lowered as the dirt is collected in the filter. Eventually, the filter will become so plugged with dirt that it will be necessary to perform the backwash procedure. It is important to know when to backwash the filter. Backwashing is discussed further under the subsequent sections of this guide.

Please note that a filter removes suspended matter and does not sanitize the irrigation water. The irrigation water must be sanitized and the water must be treated to remove organic materials and other contaminants. Your filtration system should be designed to meet your local codes. It is recommended that the filtration system be designed to provide the full water requirements of the irrigation system even during backflushing.

⚠ WARNING — Failure to maintain and operate your filter system or inadequate filtration can result in clogging of the irrigation system and crop damage.

⚠ WARNING — Filters should never be tested or subjected to air or gas under pressure. All gases are compressible and under pressure create a danger. Severe bodily injury or property damage could occur if the filter is subjected to air or gas pressure.

1. Check carton for any evidence of damage due to rough handling in shipment. If carton or any filter components are damaged, notify the freight carrier immediately.
2. Carefully remove the accessory package and the filter tank from the carton.
3. Mount the filter on a permanent slab, preferably concrete poured in a form or on a platform constructed of concrete block or brick. **DO NOT** use sand to level the filter or for the pump mounting, as it will wash away.
4. Provide space and lighting for routine maintenance access. Do not mount electrical controls over the filter. One needs to be able to stand clear of the filter when starting the pump. Minimum space requirements may be found on the large nameplate on the filter.
5. Position filter so that the port locations are in the desired final positions.
6. **Use crushed silica sand in the filter.** Sand and gravel specifications – be certain the proper sand and gravel is used as described in Table 2. Before pouring the sand or gravel into the filter, look inside and check the lower under-drain for broken or loose laterals (SEE item 15 on page 110), which may have been accidentally damaged by rough handling during shipment. Replace any broken parts if necessary. **USE #20 CRUSHED SILICA SAND IN THE FILTERS. More coarse crushed silica sand may be used if required by the irrigation device.**

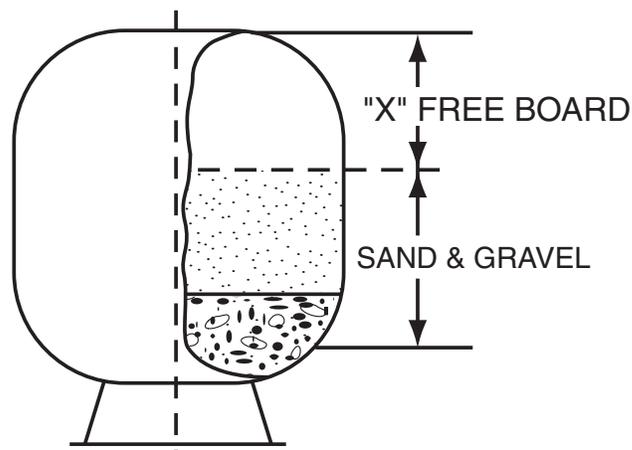
NOTE: The free board distance (distance between sand/gravel mixture and the top of the filter tank) is the most important variable and should be maintained. Sand and gravel density will vary and therefore sand and gravel amount are given as a reference.

Table 2.

MODEL	FREE BOARD "X"	FILTER MEDIA† (POUNDS)	
		PEA GRAVEL ‡	SAND
AC40	8 1/4"	50	125
AC60	10 1/2"	50	275
AC100	11 1/4"	150	450
AC140	13 1/2"	275	650

‡ Pea Gravel to be 3/8" to 1/8" diameter.

* Sand to be No. 20 crushed silica



⚠ WARNING — Failure to position the Automatic Air Vent inside of the Closure will allow excessive trapped air to accumulate in the filter. If the Closure is properly closed, trapped air can cause the Closure to separate and could cause severe bodily injury and/or property damage.

- Pivot the diffuser out of the center of the tank by rotating the diffuser assembly counter clockwise. Fill the tank about half full of water. Pour pea gravel first and then the sand into the top of the filter at a slow rate so that the impact of the filter media does not damage the laterals. See Table 2 for the proper amounts of sand and gravel. Fill filter to the proper level to maintain freeboard, as shown in Table 2. Pivot the diffuser assembly back to its vertical position. Be certain the automatic air vent is protruding into the top of the closure as indicated below in Figure 1. Be sure that the automatic air vent is in the center of the filter closure and that the screen strainer is attached.. Wash away all sand around the threaded opening at the top of the tank.

Installing the Filter

⚠ WARNING — Use care when installing closure. The closure should turn freely in the filter, if resistance to closure insertion is felt, then slowly remove the closure by turning counter-clockwise. The starting thread of the tank and closure must engage properly in order to secure the closure. *Do not cross-thread closure.*



Failure to install the closure properly can cause the closure to separate and may could severe bodily injury and/or property damage.

- Assemble the pressure gauge and bleeder valve to the closure lid. Clean the lid o-ring and lubricate with silicone grease such as Dow #33, 40 or GE 300, 623 lubricant. Place the closure lid on the filter and tighten, making certain the air vent is up inside the dome of the closure.
- With the plastic wrench, provided with the filter, tighten the closure as tight as possible using two hands on the wrench handles. As a minimum, the closure must be hand tight + 1/4 turn.
- Assemble piping and pipe fittings to pump and valve. All piping must conform to local and state codes.
- Use sealant compounds on all male connections of pipe and fittings. Use only pipe compounds suited for plastic pipe. Support pipe to prevent strains on filter, pump or valve.
- Long piping runs and elbows restrict flow. For best efficiency, use the fewest possible number of fittings, and large diameter pipe (at least 2”).

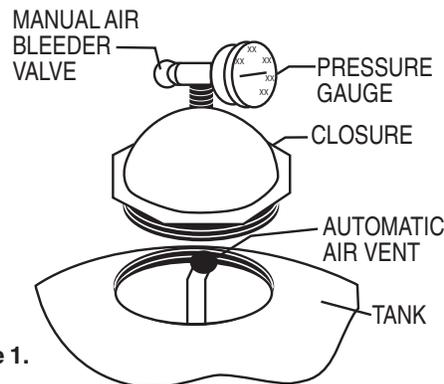


Figure 1.

⚠ CAUTION — Operating at excessive vacuum levels can cause the tank to crack and could cause property damage.

- When installing backwash lines, it is recommended that a vacuum breaker be installed on installations where the backwash line length exceeds 40 ft. or the backwash line discharges more than 10 ft. lower than the lowest portion of the irrigation system where air can enter the system.
- The maximum operating pressure of the unit is 75 pounds per square inch (psi). Never operate this filter above these pressures or attach a pump to this filter that has more than 75 psi shut off pressure.
- Always install a chemical and fertilizer injection systems upstream of the filter. Always install a check valve upstream of the chemical injection system to protect the water source from being contaminated.
- ⚠ CAUTION** — A positive shut off valve is **not recommended** at the outlet of the filtering system. If the system is ever run with such a valve closed, the internal air relief system becomes inoperative and could create a dangerous situation. Additionally, running the system with no flow will seriously damage the equipment.
- Never store chemicals within 10 ft. of the filter. Chemicals should always be stored in a cool, dry well ventilated area.

Construction of the manifold system

To construct the manifold system seen here, use only schedule 40 PVC pipe and fittings to construct it. Shown below is an illustration of the manifold setup in filter position. Always support the long runs of PVC pipe to prevent any added stresses on the filter bulkheads and glue joints and use as short of runs of PVC pipe as possible. Minimize the number of fittings and elbows used in the system. This will reduce pressure drop in your system and improve efficiency.

For pipe lengths and parts numbers see the table below:

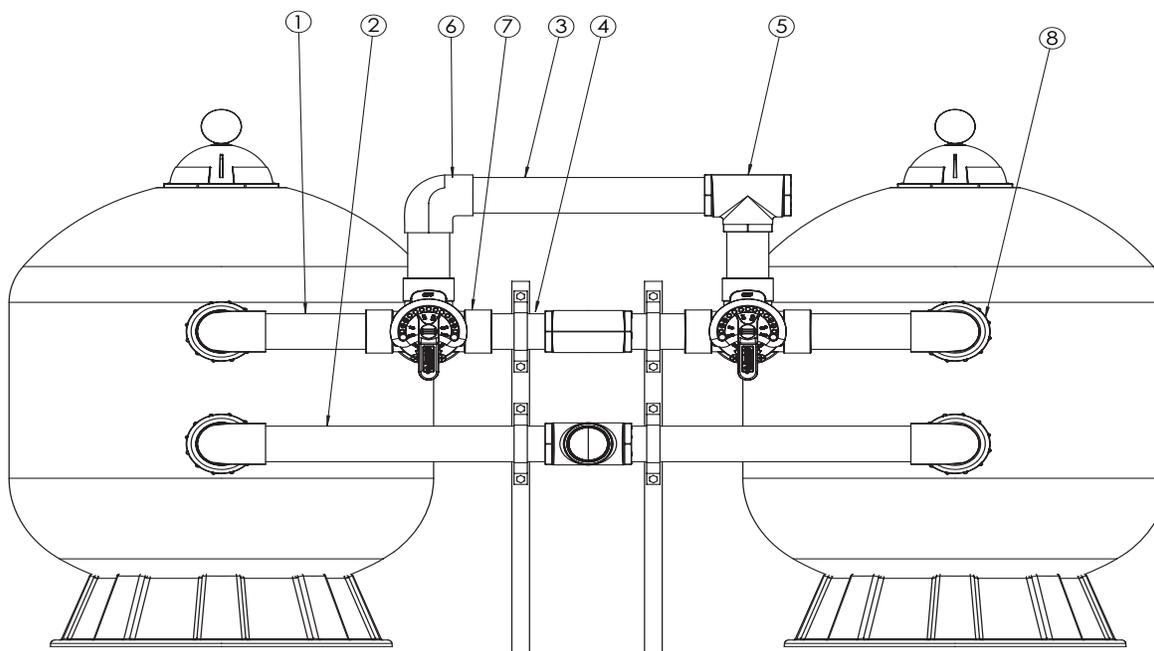


Table: Pipe Lengths and Part Numbers

ITEM NO.	DESCRIPTION	MODEL	LENGTH / PART NO.	QTY NEEDED
1	PVC PIPE SCH 40	AC-40	5.750"	2
1	PVC PIPE SCH 40	AC-60	8.375"	2
1	PVC PIPE SCH 40	AC-100	11.375"	2
1	PVC PIPE SCH 40	AC-140	14.375"	2
2	PVC PIPE SCH 40	AC-40	15.500"	2
2	PVC PIPE SCH 40	AC-60	18.125"	2
2	PVC PIPE SCH 40	AC-100	21.125"	2
2	PVC PIPE SCH 40	AC-140	24.125"	2
3	PVC PIPE SCH 40	ALL	15.500"	1
4	PVC PIPE SCH 40	ALL	5.750"	2
5	TEE 2" SLIP x SLIP x SLIP	ALL	192782	3
6	ELBOW 2" 90 DEG SXS	ALL	152265	5
7	3-WAY VALVE 2" PVC	ALL	263026	2
8	2" UNION SET	ALL	271092	2

How to Configure a 3-way Valve

The 3-way backflush valves need to be re-configured prior to construction of the manifold system. In order to re-configure the 3-way backflush valves, please follow these steps:

1. Remove the set screw from both of the valves.
2. Remove the two set-pins from the valve handle assembly.
3. Rotate the valve handle 180° from its original position. The word "OFF" should now be in line with the tee outlet of the valve.
4. Replace the set screw in both of the valves.
5. Replace the set-pins as follows:
 - a. Right-hand valve: L-90 positions
 - b. Left-hand valve: R-90 positions

Initial Start-up

1. Connect the water source to the filter, but do not connect the filter to the downstream irrigation system until the filter sand has been adequately cleaned. **Always backflush the filter immediately upon start up** to remove out the small particles that are in the sand. If you start the system without cleaning the sand, the initial flow of these small particles into the irrigation system can cause clogging.

 **WARNING** — Wash the pea gravel before it is inserted into the tank.

2. Be sure the backwash line is open so that water is free to flow out the backwash line. Set the valve or the manifold to the BACKWASH position.

 **WARNING** — If the tank closure not installed properly, air entering the filter can cause the closure to separate and could cause severe bodily injury and/or property damage.

3. Check closure on filter for tightness.
4. Open the manual air bleeder on the filter closure. Stand clear of the filter and start the pump allowing it to prime.
5. Close the air bleeder on the closure when all the air is removed from the filter and a steady stream of water emerges.

NOTE: Irrigation filter sand is typically not pre-washed and requires an extended backwash cycle at initial start-up; continue to backwash until the backwash water is clear.

 **WARNING** — To prevent equipment damage and possible injury, always turn the pump off before changing the valve position.

6. Stop the pump. Set the valve or the manifold to the FILTER position.
7. Ensure at least one zone valve is open so that water is free to flow to the irrigation system.
8. Open the manual air bleeder on the filter closure. Stand clear of the filter and start the pump.
9. Close the air bleeder on the filter closure when all the air is removed from the filter and a steady stream of water emerges.
10. The filter has now started its filtering cycle. You should ensure that water is flowing to the irrigation system and take note of the operating pressure when the filter is clean.

 **WARNING** — For dual tank systems, only one valve should be in backflush position at a time.

Section 3

Maintenance

This section describes how to maintain your Aqua-Clear Fiberglass Sand Filter.

Filter Care

The filter is a very important part of the system equipment and installation. Proper care and maintenance will add many years of service to the system. Follow these suggestions for long trouble-free operations:

1. To clean the exterior of the filter of dust and dirt, wash with a mild detergent and water then hose off. Do not use solvents.
2. If internal maintenance is required, sand may be removed by removing the sand drain from the bottom of the filter and flushing with a garden hose.
3. If after a number of years, the filter tank appears foggy in color or rough in texture, the tank surface can be painted. We recommend the use of a Quick Dry Spray Enamel. **Do NOT paint the valve.**

 **WARNING** — Always visually inspect filter components during normal servicing to ensure structural safety. Replace any item which is cracked, deformed or otherwise visually defective. Defective filter components can allow the filter top or attachments to blow off and could cause severe bodily injury or property damage.

4. The filter closure on your Aqua-Clear Sand Filter was manufactured with high quality corrosion resistant materials. This part should be carefully inspected whenever servicing your filter. If excessive leakage is noted coming from the closure/tank interface, the closure and o-ring should be carefully inspected and replaced if any signs of deterioration exist.
5. Your filter is a pressure vessel and should never be serviced while under pressure. Always relieve tank pressure and open air bleeder on the filter closure before attempting to service your filter.
6. When restarting your filter, always open the manual air bleeder on the filter closure and stand clear of the filter.

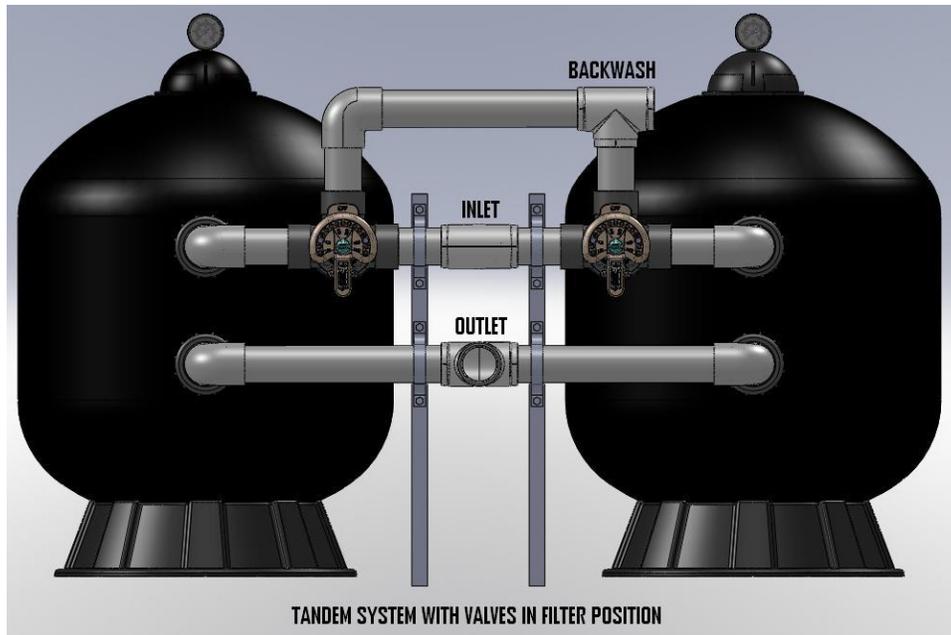
Cleaning

1. The filter should be backwashed when one of the following conditions is met:
 - a. A second pressure gauge, installed downstream of the filter, should be compared to the pressure gauge located on the filter tank. The downstream pressure gauge should read a lower pressure under normal conditions due to pressure lost in the filter. If this normal pressure differential increases 6 lbs., the filter should be backwashed.
3. In addition, the filter should be backwashed on a regular basis depending on need. In order to determine the minimum frequency of backwashing, start backwashing after every 8 hours of operation. If the backwash water is clear, then the frequency can be extended. Keep in mind that factors like weather conditions, heavy rains, algae blooms, groundwater levels and water temperature all affect the frequency of backwash. As you use your irrigation system, you will become aware of these influences.
4. If at any time the starting pressure after backwashing the filter indicates 4 to 6 PSI higher than normal starting pressure, inspect the sand for chemical or physical changes from its original condition. Raking of the sand or replacement of the sand may be required.

Filter Procedure (see diagram on page 8)

1. Turn pump OFF.
2. Handles of the 3-way valves are to be set vertically (straight up and down)
3. Lock the handles in place by using the thumb screw lock
4. Note: Water enters the PVC tee located between the two 3-way valves. Water outlet to the field exits from the threaded PVC tee located on the bottom manifold
5. Note: If water comes out of the upper manifold you are backflushing, not filtering. Turn the 3-way valve so that the word "OFF" is at the top of the 3-way valve.

⚠ CAUTION — NEVER PUMP WATER WHEN BOTH 3-WAY VALVE HANDLES ARE HORIZONTAL!



Backwash Procedure

NOTE: The following Backwash instructions only apply for the manifold setup for two filters. For a single filter setup, refer to your valve instruction manual.

1. Turn pump OFF before turning valve handle.
2. Close the outlet of the manifold using a plug or a gate valve in your irrigation plumbing (if installed).
3. Turn the left 3-way valve. The valve will only turn in one direction. Do not force the valve handle. The word "OFF" on the valve should rotate towards the other 3-way valve.
4. Turn pump ON and run the backflush until the water runs clear and clean (approximately 2 minutes).
5. Turn the 3-way valve to its vertical position. Backflushing then stops and the filter returns to normal filtration operation.
6. Turn the right hand 3-way valve. The word "OFF" on the valve should rotate towards the other 3-way valve. Run the backflush until the water runs clear and clean (approximately 2 minutes).
7. Turn the 3-way valve to its vertical position. Backflushing then stops and the filter returns to normal filtration operation.
8. Backwash whenever the pressure increases by 5 - 10 psi.

⚠ CAUTION — NEVER PUMP WATER WHEN BOTH 3-WAY VALVE HANDLES ARE HORIZONTAL OR WITH THE OUTLET BLOCKED!

Winterizing and Storing the Filter

1. After the growing season is over, make sure that you backwash the filter before turning off the irrigation system. This helps protect the filter for future use.
2. Leave the manifold in the BACKWASH position.
3. Always drain the water from the filters, the 3 way valves and the manifold.
4. Remove the plug on the bottom of the filter. The filter will drain very slowly, and therefore, it is recommended that the drain plug be left out.
5. Drain all appropriate system piping.
6. It is recommended to cover the equipment with a tarpaulin or store out of the weather to inhibit deterioration from weather.

Section 4

Troubleshooting

Use the following troubleshooting information to resolve possible problems with your filter.



WARNING — THIS FILTER OPERATES UNDER HIGH PRESSURE

When any part of the circulating system, (e.g., closure, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the top closure to separate which can result in severe injury, death, or property damage. To avoid this potential hazard, follow these instructions:

1. If you are not familiar with your filtering system:
 - a. **Do NOT** attempt to adjust or service without consulting your dealer, or a qualified technician.
 - b. Read the entire Installation & User's Guide before attempting to use, service or adjust the filtering system.
2. Before repositioning valve(s) and before beginning the assembly, disassembly, or any other service of the filter system: (A) Turn the pump **OFF** and **shut OFF** any automatic controls to ensure the system is NOT inadvertently started during the servicing; (B) open the manual air bleeder valve; (C) wait until all pressure is relieved.
3. Whenever installing the filter closure **FOLLOW THE FILTER CLOSURE WARNINGS EXACTLY.**
4. Once service on the irrigation system is complete **FOLLOW INITIAL START-UP INSTRUCTIONS EXACTLY.**
5. Maintain irrigation system properly. Replace worn or damaged parts immediately, (e.g., closure, pressure gauge, valve(s), o-rings, etc.).
6. Be sure that the filter is properly mounted and positioned according to instructions provided.

Note: Turn off power to unit prior to attempting service or repair.

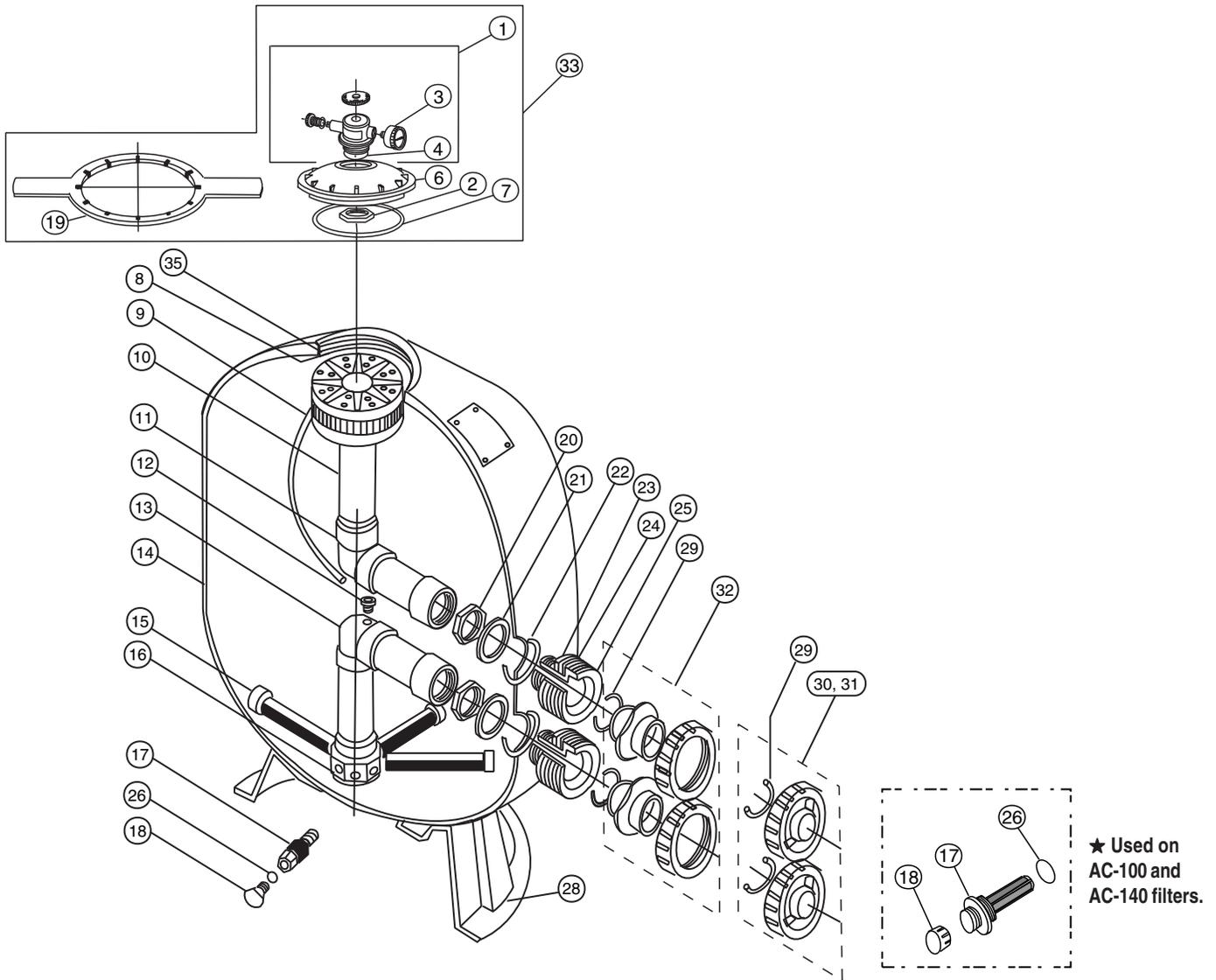
Problems and Corrective Actions

PROBLEM	CAUSE	REMEDY
irrigation water not sufficiently clean	<ol style="list-style-type: none"> 1. Break in the line. 2. Too frequent a backwash cycle. 3. Improper amount or wrong sand size. 4. Channeling of sand allows dirty water downstream of the filter. 5. Air strainer is damaged or missing. 	<p>Repair breaks in system and flush all dirt from system prior to restarting the system.</p> <p>Add additional tanks to increase filtration capacity between backflush cycles.</p> <p>Check sand bed Freeboard and sand size or consult a service technician.</p> <p>Rake the sand and consult your dealer to determine the cause of channeling.</p> <p>Replace damaged components.</p>
High filter pressure	<ol style="list-style-type: none"> 1. Insufficient backwashing. 2. Sand bed plugged with mineral deposits. 3. Partially closed valve. 	<p>Backwash until effluent runs clear.</p> <p>Rake or replace sand.</p> <p>Open valve or remove obstruction in return line.</p>
Short cycles between cleaning	<ol style="list-style-type: none"> 1. Improper backwash. 2. Exceptionally dirty water. 3. Plugged sand bed. 4. Flow rate too high. 	<p>Backwash until effluent runs clear.</p> <p>Install additional tanks to increase filtration capacity.</p> <p>Manually remove top 1" surface of sand bed, replace with new sand.</p> <p>Install additional tanks to increase filtration capacity.</p>

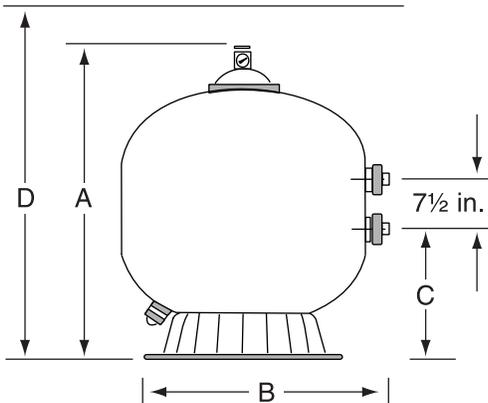
PROBLEM	CAUSE	REMEDY
Flow to system diminished.	<ol style="list-style-type: none"> 1. Break in line. 2. Filter needs to be cleaned 3. Valve is closed 	<p>Repair line and flush the system before restart.</p> <p>Backflush filter according to directions</p> <p>Check pressures and valve settings.</p>
Sand in irrigation lines	<ol style="list-style-type: none"> 1. Broken under drain lateral. 	<p>Replace broken or damaged laterals.</p>
Sand loss to waste	<ol style="list-style-type: none"> 1. Backwash rate too high. 2. Improper sand size. 3. Air strainer is damaged or missing. 	<p>Reduce backwash flow rate.</p> <p>Change to proper sand.</p> <p>Replace damage components.</p>
Leak at closure	<ol style="list-style-type: none"> 1. Improperly tightened closure. 2. Dirt or contamination on sealing surface. 3. Damaged part. 	<p>Shut off pump, relieve tank pressure, open air bleeder, tighten closure properly.</p> <p>Shut off pump, relieve tank pressure, open air bleeder, remove closure and clean all sealing surfaces. Reassemble closure properly.</p> <p>Same as above except replace damaged o-ring, closure, tank or any combination of parts as required.</p>
Leak at bulkhead	<ol style="list-style-type: none"> 1. Improperly tightened bulkhead assembly. 2. Dirt or contamination on sealing surfaces. 3. Damaged part. 	<p>Shut off pump, relieve tank pressure, open air bleeder, remove closure and remove sand to access leaking bulkhead. Hold the 2" bulkhead and tighten the 2" internal locknut. Hand tighten plus 1/2 turn.</p> <p>Shut off pump, relieve tank pressure, open air bleeder, remove closure and remove sand to access leaking bulkhead. Remove attached tank internals and remove bulkhead assembly. Clean all mating surfaces and seals. Replace the bulkhead assembly, being careful to assemble properly. Tighten assembly as indicated above.</p> <p>Same as above except replace damaged part or combination of parts.</p>

Section 5 Replacement Parts

Aqua-Clear Fiberglass Sand Filter Replacement Parts



Vertical Clearance Required



MODEL	A DIM.	B DIM.	C DIM.	D DIM.
AC-40	30 1/2 in.	19 1/2 in.	10 3/4 in.	32 1/2 in.
AC-60	35 1/2 in.	24 1/2 in.	13-5/8 in.	37 1/2 in.
AC-100	39 3/4 in.	30 1/2 in.	16 1/4 in.	41 3/4 in.
AC-140	45 1/4 in.	36 1/2 in.	18 3/4 in.	47 1/4 in.

AC-40 and AC-60 Aqua-Clear Fiberglass Sand Filter Replacement Parts

Item No.	Part No.	SAND FILTERS Description	Item No.	Part No.	SAND FILTERS Description
1	154689	Air bleeder/tee assy.	15	152290	Lateral - 6 11/16 in. L AC-40
2	154700	Adapter - brass air bleeder	15	150085	Lateral Assy. - 1/4 turn AC-60, 6 req.
3	991481	Gauge - HD	16	152222	Hub Assy. AC-60
4	154661	O-ring - air bleeder adapter	16	154763	Hub Lateral AC-40
5	154664	Nut - 3/8 in. - 16 s/s	17	152220	Sand drain 2 in. .
6		Closure - 6 in. buttress thread	17	154698	Spigot 3/4 in. NPT sand drainn
	154493	O-ring closure	18	357161	Plug 1/4 in. NPT drain AC-40/AC-60
8	150035	Strainer	19	154527	Wrench 8 1/2 in. closure
9	50039	Tube air relief AC-40	19	154512	Wrench 6 in. closure AC-40/AC-60
9	50040	Tube air relief AC-60	19	154510	Wrench 6in closure aluminum
10	154598	Diffuser assy. AC-40	20	154412	Locknut 2 in. internal, 2 req.
10	154599	Diffuser assy. AC-60	21	154416	Spacer 2 in. internal, 2 req.
11	154803	Piping assy. upper AC-40	22	154492	O-ring 2 in. bulkhead, 2 req.
11	154533	Piping assy. upper AC-60	23	154408	Spacer 2 in. external, 2 req.
12	150036	Connector air relief tube	24	154538	Gasket 2 in. bulkhead, 2 req.
13	154801	Piping assy. lower AC-40	25	154405	Bulkhead 2 in., 2 req.
13	154805	Piping assy. lower AC-60	26	274494	O-ring 3/16 in. X 2 5/8 in.
13	154807	Piping assy. lower AC-100	26	192115	O-ring #2-12 air adapter
13	154489	Piping assy. lower AC-140	27	154418	Washer 3/8 in. s/s
			28	154926	Foot 16 in. dia., AC-40
			28	154520	Foot 19 in. dia., AC-60
			29	274494	O-ring valve adptr., 2 req.
			30	271092	2 in. thd. adptr. kit
			31	271094	1 1/2 in. thd. adptr. kit
			32	271096	1 1/2 in. & 2 in. slip adptr. kit
			33	151007	Kit closure, 6 in. buttress thd., Blk.
			33	151008	Kit closure, 8 1/2 in. buttress thd., Blk.
			34	154687	Fitting package complete
			35	154611	Spacer air vent strainer 3 3/4 in. AC-40
			35	154612	Spacer air vent strainer 4 1/2 in. AC-60
			35	154613	Spacer air vent strainer 5 1/2 in. AC100
			35	154614	Spacer air vent strainer 5 in. AC-140
				154402	Tape ft. mounting AC-40/60, 3 req.
				154407	Tape ft. mounting AC-100/AC-140, 3 req.
				151602	Bulkhead wrench 2 in.
				154714	Bulkhead kit, include items 20-25

AC-100 and AC-140 Aqua-Clear Fiberglass Sand Filter Replacement Parts

Item No.	Part No.	SAND FILTERS Description
1	273564	Manual air relief body assy.
3	155050	Pressure gauge
2	154412	Nut 2 in. internal
4	274494	O-ring 3/16 in. X 2-5/8 in. i.d..
6	154575	Closure 8½ in. buttress
7	152509	Square ring 8½ in.
9	150041	Tube air relief AC-100
9	150042	Tube air relief AC-140
10	154462	Diffuser assy. AC-100
10	154906	Diffuser assy. AC-140
11	154426	Piping assy. upper AC-100
11	154500	Piping assy. upper AC-140
15	154540	Lateral - 12 in. L AC-140, 8 req.
15	152202	Lateral - 9 1/8 in. L AC-100, 8 req.
16	154453	Hub Lateral
18	154871	Cap thd. 1½ in.
19	151608	Wrench 8½ in. closure aluminum
19	154527	Wrench 8½ in. closure
28	154596	Foot 24 in. dia., AC-100/AC-140
37	271096	11/2 in & 2 in slip adapter kit for inst. w/o valve (pair)

