

INSTALLATION MANUAL & OWNER'S GUIDE

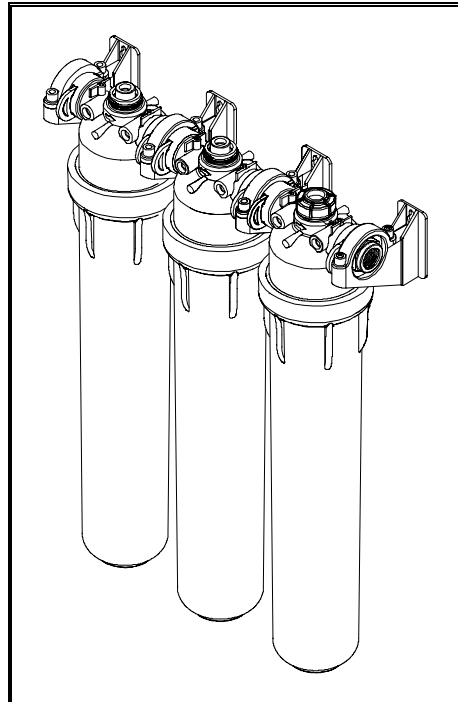
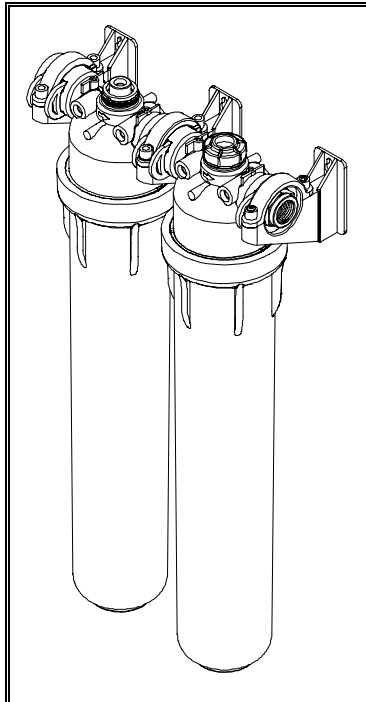
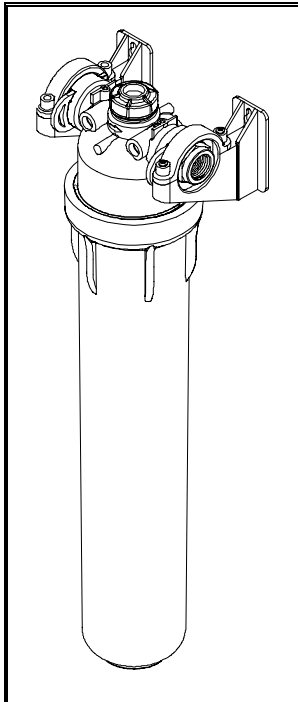
AquaSafe[®]

WATER TREATMENT SYSTEMS

**15201 SERIES
REVERSE OSMOSIS**

**15203 SERIES
MECHANICAL FILTRATION**

**15202 SERIES
ULTRAVIOLET LIGHT WITH MECHANICAL FILTRATION**



INTRODUCTION

SYSTEM DESCRIPTION

The Aquasafe™ Expandable Modular Water Treatment System consists of patented individual, self-contained, ready-to-install module assemblies. The module assemblies may be installed as stand-alone units or interconnected to form a complete, multi-phase system.

A module assembly may be configured to use a filter (sediment or activated carbon), reverse osmosis membrane, or ultraviolet lamp. Filters are selected based on their Nominal Filter Rating (See Definition).

Definition: Nominal Filter Rating
Specification indicating the approximate size particle (in microns) that will be retained by the filter. The filter must retain at least 85% of the particles to achieve a specific micron rating.
NOTE: A micron equals millionth of a meter or 0.00003937 inches.

A module assembly is available with #13 or #21 filters/sumps. The type of module assembly/system to be installed is determined by the on-site location and performance requirements.

Each module assembly/system is shipped with the hardware required to attach it to the wall and fittings for inlet/outlet and/or inter-module connections.

The Aquasafe™ System uses unique mounting brackets that permit individual module assemblies to be rotated for service. Connections to the system are completed using standard plumbing fittings.

MODULE ASSEMBLY TYPES AND DESCRIPTIONS

- 1. Sediment Removal:** This module uses a string-wound, polypropylene filter element rated at 5 microns.
- 2. Mechanical Filtration:** This module uses an activated carbon block filter cartridge rated at either 0.5 or 10 microns. The 0.5 micron filter is available as an Extended Pass Carbon Block (EPCB).
- 3. Reverse Osmosis (RO) Filtration:** This module uses a Thin Film Composite membrane element. Since membranes consistently remove particles less than 1 micron in size, they are rated according to:
 - a. Daily Production:** The #13 Modules have a daily production specification of 125 gal/day (473 L/day). The #21 modules are available with an output specification of 125 gal/day (473 L/day) or 250 gal/day (946 L/day).

NOTE: The daily production specification designates the volume of permeate (treated) water produced in 24 hours. Value is shown in gallons per day (gal/day or GPD) and/or Liters per day (L/day or LPD).

- b. Recovery Rate:** The systems are available with a 25% or 50% Recovery Rating.

NOTE: The Recovery Rating specifies the percentage of influent water that is delivered as permeate under open permeate discharge conditions. The balance of the influent water is used to rinse the membrane and is then sent to the drain.

CAUTION: Systems set for 50% Recovery Rating must have less than 17ppm hardness.

- 4. Ultraviolet (UV):** A module consists of an Ultraviolet Lamp, Transparent quartz sleeve, Stainless Steel Channeling Sleeve (or EPCB Carbon Filter) and a Control Box.

Options include a Lamp-Out Circuit (LOC). The LOC provides an audible alarm or activates a solenoid valve when the lamp goes out.

The UV module has production specifications of 2 gal/min (7.6 L/min), 4.5 gal/min (17 L/min), or 8.5 gal/min (32 L/min).

NOTE: UV systems are rated according to the volume of water passing through the system each minute. This value is stated as gallons per minute gal/min or GPM) and/or Liters per minute (L/min or LPM).

The 2 gal/min (7.6 L/min) module contains the UV lamp and a 0.5 micron EPCB Carbon filter.

The 4.5 gal/min (17 L/min) and 8.5 gal/min (32 L/min) modules contain a UV Lamp and a channeling sleeve.

If water conditions fall below the UV CONDITIONS OF USE (Page iii, Table 1), an additional module or modules (pre-filters) should be installed upstream of the UV module.

- 5. CAUTION:** The UV lamp requires a start-up period of one to two minutes in order to achieve full intensity. Repeated starting of the UV lamp will shorten its life. Therefore, it is recommended that the UV lamp remain on at all times during use.

Pre-filters may be may be installed in a variety of configurations: a string-wound sediment removal module, an activated carbon module, or a combination of module types.

INTRODUCTION

BASIC SYSTEM CONFIGURATIONS

REVERSE OSMOSIS SYSTEMS

MODEL NUMBER	OUTPUT (GPD)	MODULES		FILTER MODULE TYPES			RINSE WATER FLOW	
		QTY	TYPE	SEDIMENT	CARBON	MEMBRANE	25% RECOVERY	50% RECOVERY
15201201	125	2	#13	5 MICRON		THIN FILM COMPOSITE	375 GPD	125 GPD
15201202	125	2	#13		10 MICRON	THIN FILM COMPOSITE	375 GPD	125 GPD
15201203	250	2	#21	5 MICRON		THIN FILM COMPOSITE	750 GPD	250 GPD
15201204	250	2	#21		10 MICRON	THIN FILM COMPOSITE	750 GPD	250 GPD
15201301	125	3	#13	5 MICRON	10 MICRON	THIN FILM COMPOSITE	375 GPD	125 GPD
15201302	250	3	#21	5 MICRON	10 MICRON	THIN FILM COMPOSITE	750 GPD	250 GPD

ULTRAVIOLET SYSTEMS

MODEL NUMBER	FLOW RATE (GPM)	MODULES		FILTER MODULE TYPES		POWER SUPPLY
		QTY	TYPE	SEDIMENT	CARBON	
15202101	2.0	1	#13		0.5 MICRON EPCB*	120 volt
15202102	2.0	1	#13		0.5 MICRON EPCB*	220 volt
15202103	4.5	1	#13			120 volt
15202104	4.5	1	#13			220 volt
15202105	8.5	1	#21			120 volt
15202106	8.5	1	#21			220 volt
15202201	2.0	2	#13	5 MICRON	0.5 MICRON EPCB	120 volt
15202202	2.0	2	#13	5 MICRON	0.5 MICRON EPCB	220 volt
15202203	4.5	2	#13	5 MICRON		120 volt
15202204	4.5	2	#13	5 MICRON		220 volt
15202205	8.5	2	#21	5 MICRON		120 volt
15202206	8.5	2	#21	5 MICRON		220 volt
15202301	2.0	3	#13	5 MICRON	10 MICRON, 0.5 MICRON EPCB	120 volt
15202302	2.0	3	#13	5 MICRON	10 MICRON, 0.5 MICRON EPCB	220 volt
15202303	4.5	3	#13	5 MICRON	0.5 MICRON	120 volt
15202304	4.5	3	#13	5 MICRON	0.5 MICRON	120 volt
15202305	8.5	3	#21	5 MICRON	10 MICRON	120 volt
15202306	8.5	3	#21	5 MICRON	10 MICRON	220 volt

* EXTENDED PASS CARBON BLOCK CARTRIDGE, 0.5 MICRON RATING - INSTALLED IN SUMP WITH UV LAMP.

MECHANICAL FILTRATION SYSTEMS

MODEL NUMBER	MODULES		FILTER MODULE TYPES	
	QTY	TYPE	SEDIMENT	CARBON
15203101	1	#13		10 MICRON
15203102	1	#13	5 MICRON	
15203103	1	#21		10 MICRON
15203104	1	#21	5 MICRON	
15203201	2	#13	5 MICRON	10 MICRON
15203202	2	#21	5 MICRON	10 MICRON

INTRODUCTION

OPERATION AND MAINTENANCE REQUIREMENTS

CONDITIONS FOR SYSTEM USE, ALL MEDIA TYPES

TABLE 1

System Type				
Process Media	Thin Film Composite Membrane		Sediment/Activated Carbon	Ultraviolet
Output Specification	125 GPD	250 GPD	ALL	ALL
Source Water Supply Profile				
Community/Private	Chlorinated/Non-Chlorinated	Chlorinated/Non-Chlorinated	Chlorinated/Non-Chlorinated	Chlorinated/Non-Chlorinated
Feed Water Pressure ¹	207-862 kPa (30-125 psig)	207-862 kPa (30-125 psig)	172-862 kPa (25-125 psig)	138-517 kPa (20-75 psig)
Feed Water Temperature	7°-35° C (45°-95° F)	7°-35° C (45°-95° F)	4°-38° C (40°-100° F)	3°-40° C (38°-105° F)
pH Range	4.0 - 11.0	4.0 - 11.0	N/A	6.5 - 9.5
Total Dissolved Solids	1500 mg/L	1500 mg/L	N/A	<1500 mg/L
Turbidity**	<1.0 NTU**	<1.0 NTU**	N/A	<1.0 NTU
Supply Flow	2 GPM	3 GPM	N/A	N/A
Maximum SDI***	<4.0	<4.0	N/A	N/A
Chemical Parameters ²				
Hardness ³ (CaCO ₃)	<350	<350	N/A	< 120
Iron (Fe)	<0.1	<0.1	N/A	< 0.3
Manganese (Mn)	<0.05	<0.05	N/A	< 0.05
Hydrogen Sulfide (H ₂ S)	0.00	0.00	** Nephelometric Turbidity Unit.	
Residual Chlorine (Cl ₂)	<2.0	<2.0	*** Silt Density Index: Value stated in SDI units.	
NOTES:				
1. A Pressure Regulator may be required if the source water pressure exceeds the maximum for the type of module to be installed. Multi-Module Systems incorporating an Ultraviolet (UV) module cannot exceed 517 kPa (75 psig). A Booster Pump may be required if the source water pressure is insufficient to meet the minimum for the type of module to be installed. Multi-Module Systems incorporating a Reverse Osmosis (RO) module require a minimum of 207 kPa (30 psig).				
2. All values shown are in parts per billion (ppm) unless noted otherwise.				
3. Reverse Osmosis System rated for 50% Recovery Rating must have less than 17 ppm Hardness.				

SERVICE AND ROUTINE MAINTENANCE REQUIREMENTS

TABLE 2

SERVICE REQUIREMENTS		
<p>This system contains replaceable treatment components that are critical to the efficiency of the system. These components, by their very nature, have a finite life span. Compliance with operational, maintenance, and component replacement requirements is essential for this drinking water system to perform as specified. Replacement of the reverse osmosis membrane, carbon cartridge, or ultraviolet lamp should be with one of identical specifications, as defined by WaterGroup to assure the same efficiency of operation. We strongly recommend that the system user test the product water at regular intervals (six months minimum) to make sure that the system is operating satisfactorily.</p>		
ROUTINE MAINTENANCE REQUIREMENTS		
REVERSE OSMOSIS MEMBRANE	ACTIVATED CARBON CARTRIDGE	ULTRAVIOLET LIGHT
Replace as required by periodic TDS rejection tests and Production Flow Rate. Maximum recommended service life for the membrane is 36 months.	Replace every 6 to 12 months, As required	Lamp: Replace every 12 months. Quartz Sleeve: Clean, replace if damaged.

INTRODUCTION

INSTALLATION REQUIREMENTS

CAUTION: Follow the directions in this Guide when installing your system to ensure that it operates correctly.

CAUTION: The Aquasafe Water Treatment Systems are designed for indoor use only.

LOCATION

1. A Module may be mounted on any vertical surface capable of supporting the total weight of all system modules (any type) when they are full of water.
 - #13 Module Assembly: 6 pounds.
 - #21 Module Assembly: 9 pounds.
2. Modules must have sufficient clearance to permit easy removal/replacement of cartridges and to clean the quartz sleeve:

Reverse Osmosis, Carbon, and Sediment Modules:

 - #13 or #21: Minimum of 6" below.

Ultraviolet Lamp Modules:

 - 2 GPM: Minimum of 15" above and below.
 - 4.5 GPM: Minimum of 15" above and below.
 - 8.5 GPM: Minimum of 25" above and below.
3. There must be sufficient clearance at each end of a module assembly/system to complete source water line and product water line connections.
4. A Reverse Osmosis (RO) module assembly must have easy access to the drain for rinse water. Drain must have sufficient capacity to carry the rated system rinse water flow rate (Page ii). Space must be available so that tubing may be routed without bends or sharp curves.
5. **CAUTION:** Verify power outlet is grounded and that it meets or exceeds local electrical codes

CAUTION: Verify that power outlet and control box are the same voltage rating (120 or 220 volts) before proceeding with installation.

Position the system close enough to a grounded power outlet to permit connection of the control without an extension cord.
6. Module assemblies are positioned so that auxiliary ports are facing forward, away from mounting surface. In this configuration, water flow direction is from left to right.

NOTE: Some applications may require the system be reversed when installed (water flow right to left). This installation is not recommended, as there is insufficient space between the module and mounting surface to install gauges or other monitors.

HARDWARE

1. Mount the module using the proper screws or bolts for the material composition of the selected location.
2. Mount the module using brackets provided. Brackets must be installed exactly 6" on center.

NOTE: The number of brackets required for an installation is determined by the number of modules:

 - 1 module/2 brackets
 - 2 modules/3 brackets
 - 3 modules/4 brackets

SOURCE WATER

- CAUTION:** System may not be used where water is microbiologically unsafe or with water of unknown quality without adequate disinfection before the system.
- CAUTION:** System may be installed on potable (drinkable) water supplies only.
1. Water pressure, temperature, and composition should be tested to determine system requirements.
 2. Water must meet the parameters listed in the CONDITIONS FOR USE (Page iii, Table 1). Source water exceeding chemical parameters requires pretreatment.
 3. **CAUTION:** The Thin Film Composite material used in the membrane may be damaged by chlorine. A reverse osmosis system installed on a source water supply containing free chlorine must include an activated carbon filter before the membrane.

CAUTION: System will not function properly if water flow is reversed.

CAUTION: To ensure maximum UV exposure, UV systems should include pre-filters to process the water before it reaches the UV lamp. These filters will remove the suspended solids that may shield the microbes and make it difficult to obtain sufficient UV exposure.

MULTIPLE MODULE INSTALLATIONS

1. Module types must be connected in sequence (as applicable): sediment, carbon, reverse osmosis, and ultraviolet.

MECHANICAL FILTRATION AND REVERSE OSMOSIS MODULES INSTALLATION AND CONNECTION PROCEDURES

The system must be installed in accordance with applicable city, state, and local plumbing codes.

AquaSafe™ is designed to provide years of trouble-free service if properly maintained.
Retain these instructions for future reference.

PREPARATION

1. **CAUTION:** Do not install system on hot water line.
Locate shut off valve on source water line and shut off water supply.
2. Identify the module type to be installed:
 - a. **Mechanical Filtration:** The port at the top center of the head is blocked.
This unit is shipped fully assembled. Refer to Section “MECHANICAL FILTRATION MODULE” on this page for instructions
 - b. **Reverse Osmosis:** The port at the top center of the head has the threaded connection for the membrane and flow control assembly.
This unit is shipped fully assembled. Refer to Section “REVERSE OSMOSIS MODULE” on this page for instructions
 - c. **Ultraviolet:** The port at the top center of the head is open.
This unit is assembled as part of the installation process. Refer to Section “ULTRAVIOLET MODULE” on Page 10 for instructions.

INSTALLATION

NOTE: Item number callouts in the following Installation Instructions refer to Page 4, Figure 4 unless noted otherwise.

MOUNTING BRACKET

1. Determine location for brackets that will provide adequate clearance (Page 1, Step 2).
2. Remove the Mounting Bracket Screws (Item 5) and pull the Upper Mounting Bracket (Item 6) away from the Lower Mounting Bracket (Item 7).
3. Pull the module assembly away from the lower mounting bracket and set the module assembly aside.
4. Attach the Mounting Brackets (Item 7) to the wall on 6” centers.

MECHANICAL FILTRATION MODULE

NOTE: Use thread sealing tape (P/N 35700002) on male threaded connections.

1. Install lower brackets as instructed in Section “MOUNTING BRACKET INSTALLATION” on this page.
2. **CAUTION:** Verify that the module assembly fits correctly into the lower mounting bracket. If the space between the mounting brackets is incorrect, relocate the brackets before proceeding with the installation.
Place the module assembly into the lower mounting bracket.
3. Place the upper mounting bracket in position and attach it to the lower bracket with the mounting bracket screws.
4. Connect the source water line to the System Inlet Port. Connect the product water line to the Outlet Port.
5. Open source water shut-off valve. Let the module run for five minutes and check for leaks. Correct leaks as necessary.

REVERSE OSMOSIS MODULE

NOTE: Use thread sealing tape (P/N 35700002) on male threaded connections.

1. Install lower brackets as instructed in Section “MOUNTING BRACKET INSTALLATION” on this page.
2. **CAUTION:** Verify that the module assembly fits correctly into the lower mounting bracket. If the space between the mounting brackets is incorrect, relocate them before proceeding with the installation.
Place the module assembly into the lower mounting bracket.
3. Place the upper mounting bracket in position and attach it to the lower bracket with the mounting bracket screws.
4. Remove the Sump (Item 19) containing the membrane (Item 23).

MECHANICAL FILTRATION AND REVERSE OSMOSIS MODULES INSTALLATION AND CONNECTION PROCEDURES

5. **CAUTION:** Hold the membrane firmly to prevent it from rotating when the elbow is installed

CAUTION: When tightened, rotate the membrane so that the elbow is pointed toward the drain connection (See Figure 1). There must be sufficient space to connect the tubing and to route tubing to the drain without any kinks or tight bends.

Connect the Flow Control Elbow (Item 11) and 1/4" tubing connector (Item 12) to the threaded drain connector on the top of the Membrane (Item 23).

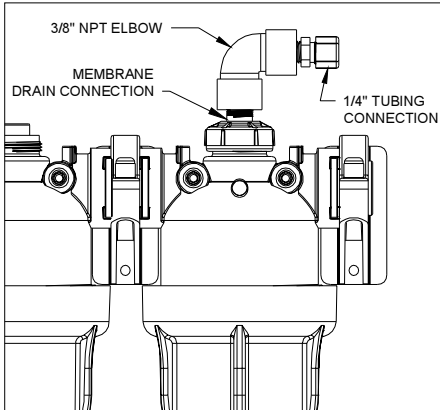


Figure 1: Membrane Drain Assembly

6. **CAUTION:** Verify that the Flow Control Assembly (Item 13) matches the membrane recovery rate and output (See Figure 2 and Table 3):

CAUTION: The inner diameter of the tubing is critical to the performance of the flow control. Do not use standard 1/4" tubing for the flow control.

Connect the flow control tubing to the flow elbow. Insert the tube until it is fully seated in the connector. Tighten the nut on the elbow.



Figure 2: Flow Control Tubing Inside Diameters

Flow Control Tube Designation Table 3

25% Recovery Rating
125 GPD - Red Tubing 3/32 in. I.D. x 17 ft., P/N 40600046
250 GPD - Green Tubing 1/8 in. I.D. x20 ft., P/N 40600045
50% Recovery Rating
125 GPD - Yellow Tubing 1/16 in. I.D. x 7 ft., P/N 40600044
250 GPD - Yellow Tubing 1/16 in. I.D. x27 ft., P/N 40600043

7. **CAUTION:** Do not alter the length of the flow control tubing. To do so will change the system recovery rating.

Route flow control tubing to the drain connection. Draw excess tubing into a loop and secure the loop.

8. **CAUTION:** Approved air gap is required. See local plumbing codes.

Connect the flow control tubing to the drain/air gap.

WARNING: USE FDA APPROVED SILICONE LUBRICANT ON "O" RINGS. DO NOT USE PETROLEUM-BASED LUBRICANTS.

9. **CAUTION:** Confirm that the "O" ring (Item 15) is in place and lubricated.

CAUTION: Tighten the sump by hand only. Do not use tools as they may over-tighten and damage the sump. Take care not to cut or pinch the "O" Ring (Item 20).

Install the sump into the Reverse Osmosis Manifold Head (Item 16).

10. **CAUTION:** The system will not shut down if the solenoid is incorrectly installed. See Figure 3 for the correct flow path.

Connect the 3/4" Nipple (Item 2) to the Solenoid (Item 1) and connect the solenoid to the System Inlet Port.

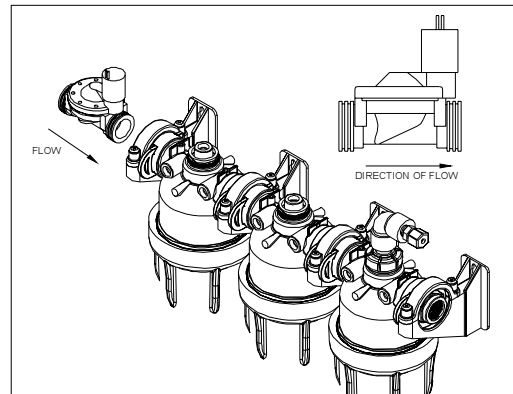
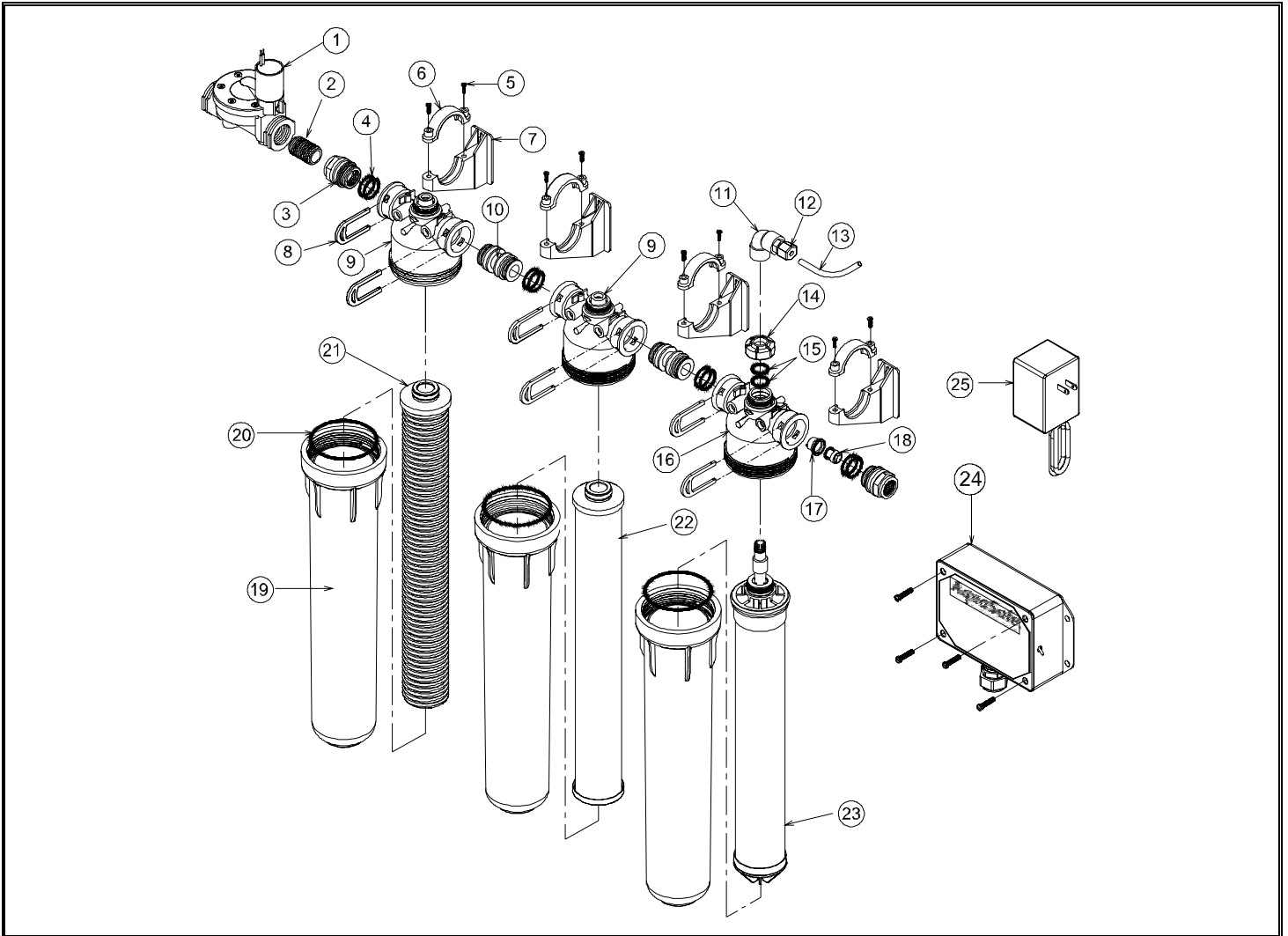


Figure 3: Solenoid Installation and Flow Path

CAUTION: Verify source water pressure before connecting system. A Pressure Regulator is required if pressure exceeds 862 kPa (125 psig). A Booster pump may be required if pressure is below 207 kPa (30 psig).

11. Connect source water line to the solenoid. Connect product water line to the Outlet Port.

MECHANICAL FILTRATION AND REVERSE OSMOSIS MODULES INSTALLATION AND CONNECTION PROCEDURES



Item	Description	Part No.
1	Valve, Solenoid	34800041
2	Nipple, 3/4"	33601004
3	Connector, Inlet/Outlet 1/2" FPT	21202012
	Connector, Inlet/Outlet 3/4" FPT	21202005
4	"O" Ring, Connector	34201041
5	Screw, Mounting Bracket	32101014
6	Mounting Bracket, Upper	22401020
7	Mounting Bracket, Lower	22401022
8	Clip, Retaining	21202001
9	Manifold Head, Filtration	21202002
10	Connector, Manifold Head	22401021
11	Elbow, Flow Restrictor Connector	33606028
12	Connector, 1/4" x 3/8"M	33613011
13	Flow Control Assembly (tube, elbow, connector)	
	125 GPD, 25% Recovery Rate	40600046
	250 GPD, 25% Recovery Rate	40600044
	125 GPD, 50% Recovery Rate	40600045
	250 GPD, 50% Recovery Rate	40600043
14	Cap, Membrane Drain Connection	22401012
15	"O" Ring, Membrane Drain Connection	34201042
16	Manifold Head, Reverse Osmosis Membrane	22402001
17	Retainer, Check-valve	35200030
18	Check-valve, Product Water	22401024

Item	Description	Part No.
19	Sump	
	Filter or Membrane #13	33801110
	Filter or Membrane #21	33801111
20	"O" Ring, Filter Sump	34202036
21	Filter Cartridge, Sediment	
	String-Wound Polyester, #13 1 Micron	41405001
	String-Wound Polyester, #13 5 Micron	41405002
	String-Wound Polyester, #13 10 Micron	41405003
	String-Wound Polyester, #13 25 Micron	41405004
	String-Wound Polyester, #21 1 Micron	41405005
	String-Wound Polyester, #21 5 Micron	41405006
	String-Wound Polyester, #21 10 Micron	41405007
	String-Wound Polyester, #21 25 Micron	41405008
22	Filter Cartridge, Pre-Filter or Post-Filter	
	Activated Carbon, #13 0.5 Micron	33004116
	Activated Carbon, #13 10 Micron	33004117
	Activated Carbon, #21 0.5 Micron	33004118
	Activated Carbon, #21 10 Micron	33004119
23	Membrane, Thin Film Composite	
	125 GPD #13	41400074
	250 GPD #21	41400073
24	Control Box, Electrical	44501016
25	Transformer, Power Supply 120v 50/60	31500006
	Transformer, Power Supply 220v 50	31500005

Figure 4: Aquasafe™ Reverse Osmosis and Mechanical Filtration Module Assemblies and Interconnections.

REVERSE OSMOSIS MODULE SUPPORT COMPONENT INSTALLATION PROCEDURE

ELECTRONIC CONTROL BOX

WARNING: DO NOT USE AN EXTENSION CORD TO RUN ELECTRICAL POWER TO THE SYSTEM.

WARNING: ELECTRICAL CONNECTIONS MUST COMPLY WITH ALL LOCAL CODES.

An Electronic Control Box (Item 24) connected to the solenoid valve regulates system operation. The control box contains a circuit board, terminal connections, and a fuse.

The control box operates at 24VAC 50/60Hz. A 24V transformer is provided with the system (Item 25). The transformer is plugged into a grounded outlet.

1. Mount the control box in a visible location close to an electrical outlet and where the ON/OFF switch is easily accessible for operation.
2. Unscrew the Box Cover Screws and pull the cover clear to expose the circuit board and terminal strip.

NOTE: All terminal callouts in the following steps refer to the circuit board shown in Figure 5.

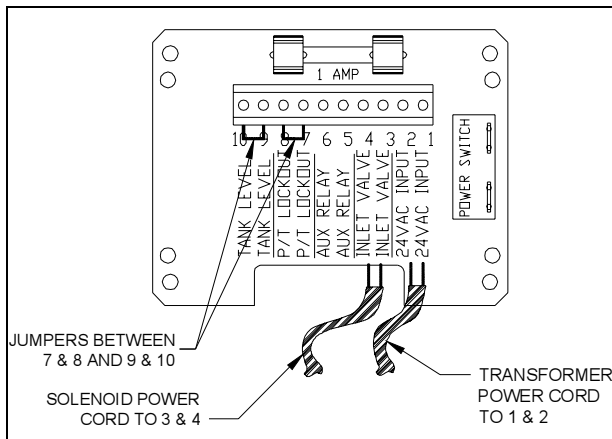


Figure 5: Circuit Board Connections

3. **CAUTION:** Wiring connections must be secure to ensure the system operates properly.
To connect a wire to the terminal:
 - a. Thread the wire through the wire nut and into the control box.
 - b. Loosen the screw above the terminal connector.
 - c. Insert the wire into the connector as far as it will go. If the wire does not go in easily, loosen the connector screw until the wire will go in.
 - d. Tighten the connector screw sufficiently to keep the wire from pulling out of the connector.
4. Connect the power cord wires from the transformer to terminals 1 and 2 (24VAC INPUT) on the terminal block.
5. Connect the wires from the solenoid to terminals 3 and 4 (INLET VALVE) on the terminal block.
6. **CAUTION:** If the AquaSafe RO system is located downstream from any device that could cut off the water supply to the system, i.e., water softener or filter, an automatic power disconnect, or Pretreatment (P/T) Lockout Device must be used.
Connect a Pretreatment Lockout Device (P/T), Automatic Shut-off, and/or Auxiliary Relay as described on Page 6.
7. Tighten the nut on the strain relief to hold the wires in place.
8. **CAUTION:** Verify that all connections are secure before proceeding.
Install the box cover and tighten the screws.
9. **CAUTION:** Verify that the Power Switch is in the "OFF" position before continuing with the installation.
Connect the transformer to the electrical outlet.
10. Turn on the Aquasafe RO System by moving the Power Switch to the "ON" position.
11. Open source water shut-off valve. Let the system run for five minutes and check for leaks. Correct leaks as necessary.
12. Confirm that the system is producing water. System will be sending water to the drain.

REVERSE OSMOSIS MODULE SUPPORT COMPONENT INSTALLATION PROCEDURE

CAUTION: The P/T LOCKOUT and TANK LEVEL SHUT-OFF connections require dry contacts. The terminal strip accepts dry contact switch signals capable of handling 50 mA at 24VAC.

PRETREATMENT LOCKOUT DEVICE (P/T)

P/T Device Is Not Installed

1. Install a jumper between terminals 7 and 8 (P/T LOCKOUT) on the terminal block.

P/T Device Is Installed

1. **CAUTION:** The P/T Lockout Device is actuated when the upstream equipment is turned off. To operate correctly, the P/T Lockout must be connected to a switch that is closed (the "ON" position) during normal upstream equipment operation.

Locate the required switch and move it to the open ("OFF") position. Disconnect the equipment from its power source.

2. Connect the P/T Lockout wires to the Switch.
3. Connect wires from the upstream equipment to terminals 7 and 8 (P/T LOCKOUT) on the terminal block.

AUTOMATIC TANK LEVEL SHUT-OFF

Automatic Shut-Off Is Not Installed

1. Install a jumper between terminals 9 and 10 (TANK LEVEL) on the terminal block.

Automatic Shut-Off Is Installed

Determine the type of product water storage system is used downstream of the AquaSafe RO unit. Refer to either the Float Switch or Pressure Switch Installation Kit Instructions as applicable.

AUXILIARY RELAY

CAUTION: The maximum rated draw for the AUX RELAY terminals is 100 mA. Do not connect a relay that draws more than the maximum rated amperage.

A provision is provided in the Control Box for connection of an auxiliary relay. Terminal connections 5 and 6 (AUX RELAY) are reserved for an auxiliary relay. The circuit board will provide power to the relay when the system is on.

WARNING: USE FDA APPROVED SILICONE LUBRICANT ON "O" RINGS. DO NOT USE PETROLEUM-BASED LUBRICANTS.

INTER-MODULE CONNECTIONS - NEW INSTALLATION

1. Determine sequence in which the modules will be connected (Page 1).
2. Install Inlet/Outlet Connectors (Item 3).
 - a. Lubricate O-Rings (Item 4).
 - b. Press the connector fully into the connector port on the manifold head.
 - c. Insert the Retainer Clip (Item 8) to lock the connector in place.
3. Install Module-to-Module Connectors (Item 10).
 - a. Lubricate O-Rings (Item 4).
 - b. Press the connector fully into the connector port on the manifold head.
 - c. Insert the Retainer Clip (Item 8) to lock the connector in place.
4. Install system (Page 1).

INTER-MODULE CONNECTIONS - EXISTING INSTALLATION

NOTE: It is easier to handle the system if water has been drained completely and the sumps removed.

1. Close inlet and outlet water valves and relieve system pressure.
2. **CAUTION:** Do not attempt to disconnect tubes until water flow stops and pressure is relieved. Disconnect source water and product water tubes.
3. Remove the Mounting Bracket Screws (Item 5) and pull the upper Mounting Bracket (Item 6) away from the lower bracket.
4. Install the additional mounting brackets (Page 2).
5. Connect additional manifold head(s) in specified position (Page 1).
6. Re-install system (Page 1)

MECHANICAL FILTRATION OR REVERSE OSMOSIS MODULE CLEANING, SANITIZING AND FILTER REPLACEMENT PROCEDURE

RECOMMENDATIONS		
HAVE ALL COMPONENTS ON HAND AND READY BEFORE BEGINNING PROCEDURE A CLEAN WORK AREA AND EQUIPMENT ARE ESSENTIAL TO PROPERLY CLEAN AND/OR DISINFECT THE SYSTEM (i.e., CLEAN HANDS, TOOLS, WORK SURFACE, AND CONTAINERS)		
EQUIPMENT NEEDED		
Safety Glasses Rubber Gloves, Sanitary Wash Cloth, Clean and Lint-Free	Liquid Dish Soap Household Bleach – Unscented Only (5 ¼% Sodium Hypochlorite) Plastic Storage Bag, 20" Long	Plastic Bucket "O" Ring Lubricant, Silicone Based (P/N 30300026)
REPLACEMENT FILTERS	REPLACEMENT COMPONENTS	
Refer to system Parts List for specific component part numbers	Refer to system Parts List for specific component part numbers	

1. Mix mild cleaning solution of dish soap and clean potable water in plastic bowl.
2. Close inlet and outlet water supply valves and relieve system pressure.
3. **CAUTION:** Do not attempt to remove sumps until water flow stops. This reduces pressure inside the system so sumps may safely be removed.

Remove each sump by turning it counter-clockwise. Remove each filter cartridge as its sump is removed. Discard filters.

IF MEMBRANE IS PERFORMING SATISFACTORILY:
Go to Step 4.

IF MEMBRANE IS DEPLETED OR FOULED:
Discard it and go to Step 11.

4. **CAUTION:** Use sanitary rubber gloves for this procedure to avoid contaminating sanitizing solution, filters, or membrane. Wear gloves whenever cleaning/ sanitizing system components or handling new filter/membrane cartridges.

Clean membrane outer wrap with washcloth and cleaning solution. Do not immerse membrane in solution. Do not scrub membrane wrap with abrasive cleaners. Rinse membrane well with clean potable water.
5. Place membrane into clean plastic bag, close bag.
6. Remove sump "O" rings and wash them with cleaning solution. Rinse them well with clean potable water. Inspect them for damage (i.e., nicks, scratches). Replace damaged "O" rings.
7. Clean filter sumps and manifold ports, inside and outside, with washcloth and cleaning solution. Do not use abrasive materials.
8. Rinse manifold and sumps with clean potable water.

9. Inspect manifold and sump "O" ring groove area for damage (i.e., nicks or scratches). Replace damaged components.

WARNING: USE FDA APPROVED SILICONE LUBRICANT ON "O" RINGS. DO NOT USE PETROLEUM-BASED LUBRICANTS.

10. Place a small amount of "O" ring lubricant over surface of sump "O" ring. Install "O" ring into sump groove.

TO SANITIZE THE SYSTEM: Complete Steps 11-26.

TO INSTALL FILTERS: Complete Steps 18-26.

WARNING: WEAR SAFETY GLASSES WHILE PERFORMING THIS PROCEDURE.

WARNING: READ "WARNINGS" INFORMATION ON BLEACH CONTAINER BEFORE USING CONTENTS.

HANDLE SANITIZING SOLUTION CAREFULLY. AVOID CONTACT WITH UNPROTECTED AREAS.

11. **CAUTION:** Excessive concentrations of bleach will damage plastic and rubber components. Rinse all parts that contact bleach thoroughly with clean potable water.

Mix sanitizing solution of 1/3 teaspoon (1.5 ml) of household bleach and 1 gallon (3.8 L) of clean, potable water in the bucket. Mix solution well.

12. **CAUTION:** Tighten sumps by hand only. Do not use tools as they will over-tighten and damage sumps. Take care not to cut or pinch "O" rings.

Add 8 oz. (236 ml) of sanitizing solution to each sump and install them onto the manifold (do not install filters or membrane at this time). Tighten each sump by hand only.

MECHANICAL FILTRATION OR REVERSE OSMOSIS MODULE CLEANING, SANITIZING AND FILTER REPLACEMENT PROCEDURE

13. Slowly open source water supply valve.
14. Open outlet valve. Close valve as soon as water begins to flow from port.
15. Wait 5 minutes, then close source water supply valve.
16. Wait 25 minutes, then open outlet valve and let water flow to drain.
17. **CAUTION:** Do not attempt to remove the sumps until water flow stops. This releases the water pressure within the system so sumps may safely be removed.

Remove sumps and dispose of water. Rinse sumps and manifold ports thoroughly with clean potable water.
18. **CAUTION:** Do not remove protective plastic bag from replacement filter/membrane cartridges until so instructed.

Install "O" rings into sumps. Open top of filter bag enough to expose filter cap and "O" ring grooves. Place a small amount of "O" ring lubricant on surface of each "O" ring.
19. **CAUTION:** Tighten sumps by hand only. Do not use tools as they will over-tighten and damage sumps. Take care not to cut or pinch "O" rings.

Install filter and membrane cartridges. Hold cartridge by its protective plastic bag and insert cartridge into manifold. Slide bag from cartridge and discard. Replace sump as each cartridge is installed.
20. Turn feed water valve slowly to open position.
21. Confirm system is producing water. Unit will be sending rinse water to drain.
22. Open outlet valve. Let water flow until all air has been expelled from the system.
23. Close outlet valve. Wait 5 minutes check connections for leaks, and correct as necessary.
24. Allow system to operate for at least 30 minutes.
25. Sanitize the Product Water Storage Tank:

Atmospheric Tank: See instructions on Page 9.
Hydropneumatic Tank: Use Tank Sanitizing Kit (P/N 42903007).
26. System is ready to use. Should there be any aftertaste or odor, drain storage tank and repeat Steps 24 and 25.

ATMOSPHERIC PRODUCT WATER STORAGE TANK CLEANING AND SANITIZING PROCEDURE

RECOMMENDATIONS		
HAVE ALL COMPONENTS ON HAND AND READY BEFORE BEGINNING PROCEDURE A CLEAN WORK AREA AND EQUIPMENT ARE ESSENTIAL TO PROPERLY CLEAN AND/OR DISINFECT THE SYSTEM (i.e., CLEAN HANDS, TOOLS, WORK SURFACE, AND CONTAINERS)		
EQUIPMENT NEEDED		
Safety Glasses Rubber Gloves, Sanitary Wash Cloth, Clean and Lint-Free	Liquid Dish Soap Household Bleach – Unscented Only (5 ¼% Sodium Hypochlorite)	Plastic Bucket “O” Ring Lubricant, Silicone Based (P/N 30300026)

WARNING: THESE PROCEDURES ARE INTENDED FOR GENERAL USE ONLY. IF STORAGE TANK MAY BE CONTAMINATED WITH UNKNOWN SUBSTANCES, A WATER ANALYSIS BY A CERTIFIED LABORATORY MUST BE PERFORMED. DISCARD ANY CONTAMINATED TANK.

CAUTION: All storage tanks must be sanitized when installed. Tanks should be cleaned and sanitized at least once a year.

CLEANING PROCEDURE

1. Turn off the system by moving the Electronic Control power switch to the “OFF” position.
2. Turn off all electrical equipment connected to the storage tank i.e., UV, ozone, re-pressurizing pump, re-circulating pump, etc.
2. Turn the tank valve to the “OFF” position.
3. Disconnect supply line to tank and output line to point-of-use delivery device.
4. Connect line from tank output port to drain.
5. Open tank valve and drain the tank.
6. **CAUTION:** Do not use brushes or abrasives that will scratch the inside tank surface or components.

Clean the inside of the tank with mild dish soap and potable water. Scrub the side, bottom, and top of the tank. Scrub the outside surface of all lines, tubing, and connectors inside the tank.
7. Rinse the tank thoroughly with clean potable water. Make sure all surfaces are rinsed well.

DISINFECTION PROCEDURE

- WARNING: WEAR SAFETY GLASSES AND SANITARY RUBBER GLOVES WHILE PERFORMING THIS PROCEDURE.**
- WARNING: READ THE "WARNINGS" ON THE BLEACH CONTAINER BEFORE USING.**
- WARNING: HANDLE SANITIZING SOLUTION CAREFULLY. AVOID CONTACT WITH UNPROTECTED AREAS.**
1. Mix a sanitizing solution of 6 ml (0.2 oz) of household bleach for each 3.8L (1 gallon) of clean, potable water in the bucket. Mix the solution well.
 2. Swab the inside of the tank with the sanitizing solution. Swab the side, bottom, and top of the tank. Swab the outside surface of all lines, tubing, and connectors inside the tank.
 3. Wait 30 minutes and repeat Step 2.
 4. Open tank valve and drain the tank.
 5. Rinse the tank several times with clean potable water. Make sure all surfaces are rinsed well.
 6. Reconnect tank supply line and output line to delivery device.
 7. System is ready for use. Should there be any aftertaste or odor, repeat Step 5.

ULTRAVIOLET MODULE INSTALLATION AND CONNECTION PROCEDURE

**WARNING: NEVER LOOK DIRECTLY AT A LIGHTED UV LAMP.
ULTRAVIOLET RAYS CAN BE HARMFUL TO EYES.
NEVER INSTALL SYSTEM UPSTREAM FROM PUMP.**

ASSEMBLY IS REQUIRED BEFORE CONNECTION. FOLLOW INSTRUCTIONS CAREFULLY!

ULTRAVIOLET LAMP MODULE

NOTE: All Item number callouts refer to the following Illustrated Parts Lists unless noted otherwise:

EPCB UV SYSTEMS: Page 10, Figure 6

CHANNELING SLEEVE UV SYSTEMS: Pages 10 and 11, Figures 7 and 7A.

1. Remove the Mounting Bracket Screws (Item 10) and pull the Upper Mounting Bracket (Item 9) away from the Lower Mounting Bracket (Item 8).
2. Pull the module assembly away from the lower bracket and set the module assembly aside.
3. Install lower brackets as instructed on Page 2.
4. **CAUTION:** Verify that the module assembly fits correctly into the lower mounting bracket. If the space between the mounting brackets is incorrect, relocate them before proceeding with the installation.

Place the module assembly into the lower mounting bracket.

5. Place the upper mounting bracket in position and attach it to the lower bracket with the mounting bracket screws.

LAMP AND QUARTZ SLEEVE INSTALLATION

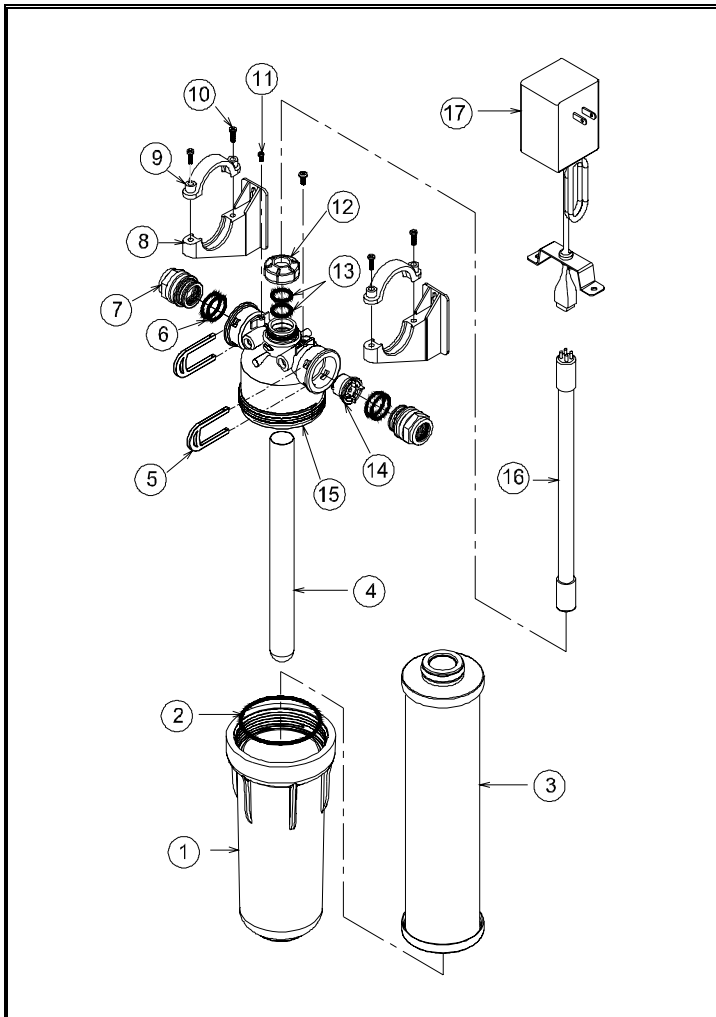
WARNING: THE UV LAMP AND QUARTZ SLEEVE ARE VERY FRAGILE. THEY ARE SHIPPED IN A SEPARATE CARTON TO AVOID BREAKAGE.

WARNING: DO NOT OPEN CARTON IF YOU HEAR THE SOUND OF BROKEN GLASS. CONTACT YOUR HYDROTECH DEALER FOR REPLACEMENT PARTS.

1. Remove the sump and contents:
EPCB UV SYSTEMS: EPCB Filter (Item 3)
CHANNELING SLEEVE UV SYSTEMS: Channeling Sleeve (Item 3).
2. Remove Ultraviolet Lamp Holder Cap (Item 12) and two "O" Rings (Item 13) at the open port in the UV Head (Item 15).

3. Insert the Quartz Sleeve (Item 4) into the manifold head from the bottom. Push the sleeve gently, through the head, until about 1 1/2" of the sleeve appears above the head.
4. Install "O" rings removed in Step 1 around the outside of open end of the Quartz Sleeve (Item 4). Locate them approximately 1/2" from one end of the quartz sleeve.
5. Push the quartz sleeve back, down into the opening in the center of the Manifold Head (Item 15). Press it down into the manifold head until the "O" rings seat.
6. Place the ultraviolet holder cap over the exposed end of the quartz sleeve. Press down gently to fully insert the sleeve and seat the "O" rings. Thread the o-ring retaining cap onto the head and tighten by hand only.
7. Remove two screws (Item 11) from the UV head.
8. Insert the UV lamp into the connector on the Power Supply (Item 17)
9. Insert the UV Lamp (Item 16) into the quartz sleeve.
10. Attach the bracket on the power supply cord to the UV Head using screws removed in Step 7.
11. **CAUTION:** Tighten sumps by hand only. Do not use tools as they will over-tighten and may damage sump. Take care not to cut or pinch "O" rings or gaskets. Use sump wrench for removal only.
Replace sump and contents.
12. Connect the source water to the System Inlet Port. Connect the product water to the Outlet Port.
13. **CAUTION:** UV lamp should remain on at all times. Lamp requires 1-2 minutes to start up.
Plug in transformer.
14. Open source water shut-off valve and output valve. Allow the system to run for 5 minutes. Correct leaks as necessary.

ULTRAVIOLET MODULE INSTALLATION AND CONNECTION PROCEDURE



Item	Description	Part No.
1	Sump, Ultraviolet Lamp or Filter Cartridge	33801110
2	"O" Ring, Sump	34202035
3	Activated Carbon Filter, 0.5 Micron EPCB Activated Carbon Filter, 10 Micron	41405009 41405010
4	Sleeve, Quartz #13, with "O" Ring	44303203
5	Clip, Retaining	22402001
6	"O" Ring, Connector	34201041
7	Connector, Inlet/Outlet 1/2" FPT Connector, Inlet/Outlet 3/4" FPT	21202012 21202005
8	Bracket, Mounting Lower	22401022
9	Bracket, Mounting Upper	22401020
10	Screw, Mounting Bracket	32101014
11	Screw, Power Cord Holding Bracket	32701007
12	Cap, Ultraviolet Lamp Holder	22401012
13	"O" Ring, Cap	34202021
14	Restrictor, Flow 2 GPM	40600047
15	Manifold Head, Ultraviolet	22402001
16	Lamp, Ultraviolet #11	36002017
17	Transformer, Power Supply, #11 120v Transformer, Power Supply, #11 220v	44302409 44302410

Figure 6: Aquasafe™ Ultraviolet Lamp with Activated Carbon Filter Module Schematic and Parts List

Item	Description	Part No.
1	Sump, Ultraviolet Lamp or Filter Cartridge #13 Sump, Ultraviolet Lamp or Filter Cartridge #21	33801110 33801111
2	"O" Ring, Sump	34202035
3	Channeling Device with Gasket #13 Channeling Device with Gasket #21 Gasket, Channeling Device	44301017 44301018 36099205
4	Sleeve, Quartz #13 with "O" Rings Sleeve, Quartz #21 with "O" Rings	44303203 44303204
5	Clip, Locking	21202001
6	"O" Ring, Connector	34201041
7	Connector, Inlet/Outlet 1/2" FPT Connector, Inlet/Outlet 3/4" FPT	21202012 21202005
8	Bracket, Mounting Lower	21201022
9	Bracket, Mounting Upper	21201020
10	Screw, Mounting Bracket	32101014
11	Screw, Power Cord Holding Bracket	32701007
12	Cap, Ultraviolet Lamp Holder	22401012
13	"O" Ring, Cap	34202021
14	Restrictor, Flow 4.5 GPM 8.5 GPM	40600048 40600049
15	Manifold Head, Ultraviolet	22402001
16	Lamp, Ultraviolet, #11 Lamp, Ultraviolet, #21	36002017 44303101
17	Transformer, Power Supply, #11 120v Transformer, Power Supply, #11 220v Transformer, Power Supply, #21 120v Transformer, Power Supply, #21 220v	44302409 44302410 44302411 44302412
18	Manifold Head, Filtration	22402002
19	Filter Cartridge, Sediment String-Wound Polyester, #13 1 Micron String-Wound Polyester, #13 5 Micron String-Wound Polyester, #13 10 Micron String-Wound Polyester, #13 25 Micron String-Wound Polyester, #21 1 Micron String-Wound Polyester, #21 5 Micron String-Wound Polyester, #21 10 Micron String-Wound Polyester, #21 25 Micron	41405001 41405002 41405003 41405004 41405005 41405006 41405007 41405008
20	Connector, Manifold Head	22401021
21	Filter Cartridge, Pre-Filter Activated Carbon, #13 0.5 Micron Activated Carbon, #13 10 Micron Activated Carbon, #21 0.5 Micron Activated Carbon, #21 10 Micron	33004116 33004117 33004118 33004119

Figure 7: Aquasafe™ Ultraviolet and Mechanical Filtration Module Parts List

ULTRAVIOLET MODULE INSTALLATION AND CONNECTION PROCEDURE

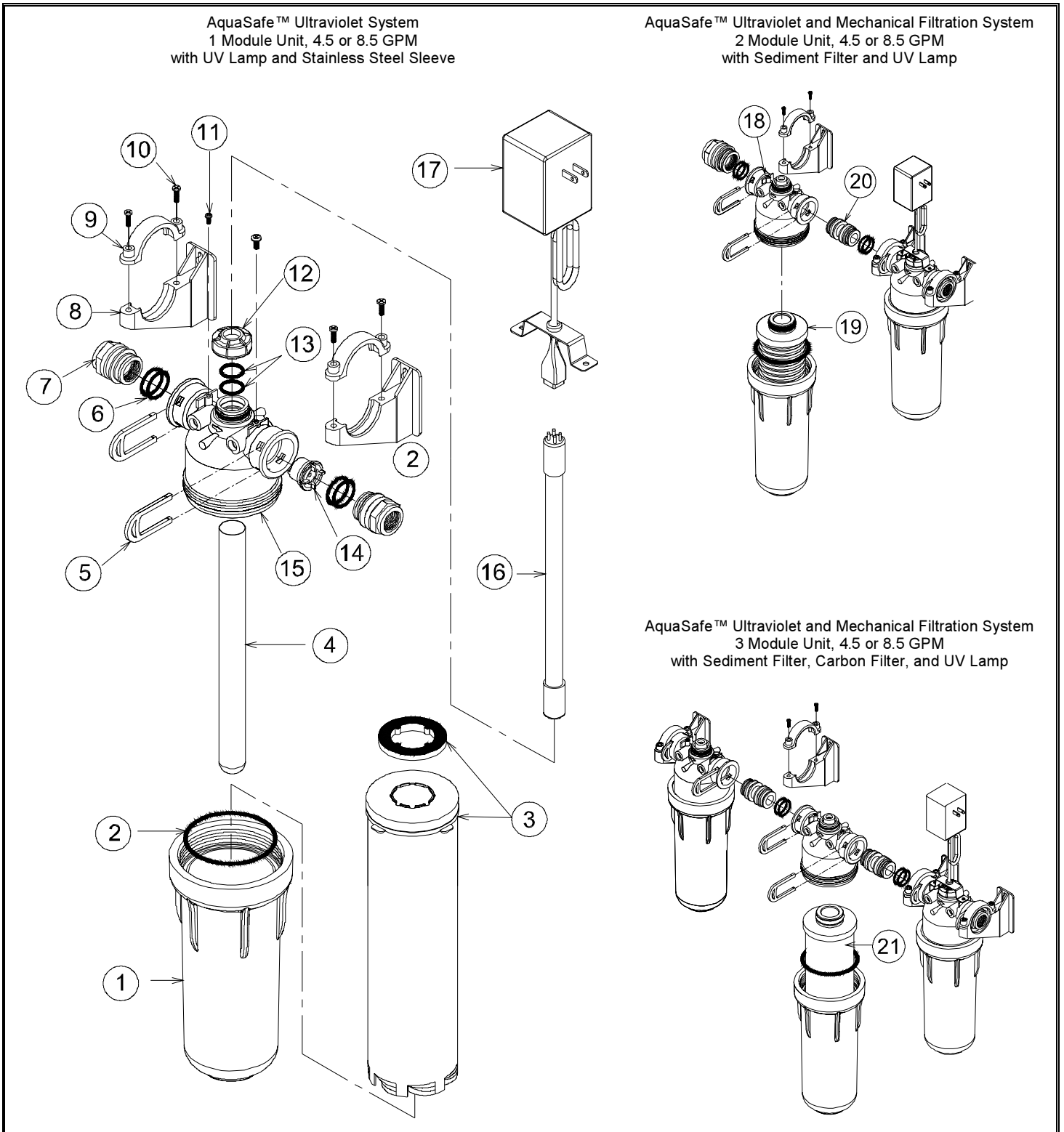


Figure 7A: Aquasafe™ Ultraviolet and Mechanical Filtration Module Assemblies and Interconnections Schematic

ULTRAVIOLET MODULE OPERATIONAL REQUIREMENTS

It is important that any water treatment system be properly maintained to ensure consistent water quality. Information provided on this page is of a general nature. For more detailed information, refer to the Cleaning, Disinfecting, and Filter Replacement Procedure on Page 14, the Mounting Bracket/Plumbing Installation Instructions (Pages 1 and 2), and Installation Instructions for the appropriate system (Page 2 for Mechanical Filtration and RO, Page 10 for UV Lamp).

WARNING: DISCONNECT LAMP FROM OUTLET BEFORE PERFORMING ANY MAINTENANCE PROCEDURE.

CLEANING

The inside of the system and the quartz sleeve should be cleaned each time the filters are changed. Clean all parts (except the filters and electronic parts) with the specified cleaning solution and rinse them thoroughly with RO, distilled, or de-ionized water.

NOTE: Presence of iron or general poor water quality will require that the system be inspected and the quartz sleeve cleaned more frequently.

SUMP REMOVAL

WARNING: PULL THE SUMP STRAIGHT DOWN TO AVOID BREAKING THE QUARTZ SLEEVE.

Make sure system water pressure has been relieved before attempting to loosen the sump. Pull the sump straight down until it clears the quartz sleeve, do not move it from side-to-side.

If channeling sleeve is installed, make sure it is in the sump when the sump is removed. If an EPCB filter is installed, remove it separately by pulling it straight down until it clears the quartz sleeve.

Remove the EPCB Carbon Filter. Pull on the filter with a gentle twisting motion. This will loosen the "O" ring seal holding the filter in the head, allowing the filter to be removed

"O" RINGS

WARNING: USE FDA APPROVED SILICONE LUBRICANT ON "O" RINGS. DO NOT USE PETROLEUM-BASED LUBRICANTS.

Lubricate each "O" ring to ensure a proper seal.

Replace any "O" Ring that has been cut, pinched, or deformed in any way. Make sure the mounting grooves are clean and free of damage i.e., nicks or scratches.

QUARTZ SLEEVE

The quartz sleeve should be wiped clean each time the module is serviced. This will enable the lamp to provide the maximum level of UV exposure.

The 4.5 and 8.5 GPM systems have a stainless steel channeling sleeve that stays in the sump when it is removed from the manifold head. A rubber gasket seals the stainless steel sleeve against the outlet port inside the head. This gasket may stay attached to the head, use care not to lose this gasket.

The ultraviolet lamp must be fully inserted into the sleeve, with no kinks or pinches in the electrical cable. If the lamp is not fully inserted, the system will not perform to its rated specifications.

FILTER REPLACEMENT

WARNING: PULL FILTERS STRAIGHT DOWN TO AVOID BREAKING THE QUARTZ SLEEVE.

CAUTION: Use only Aquasafe™ filters. Aquasafe™ filters are specially designed to work in the ultraviolet disinfection process. Use of non- Aquasafe™ filters voids the warranty.

Filters will normally last approximately four to six months. Filter life will vary due to water conditions. A reduced flow rate or deteriorating water quality indicates that filters must be changed.

The pre-filters, and EPCB filter for the 2-gpm systems, may need to be changed more often, depending on your specific water conditions.

UV LAMP

CAUTION: Use only PURA® UV lamps as they are specifically designed for the Aquasafe™ system. Use of non- PURA® UV lamps voids the warranty.

Lamps must be changed every twelve months. While UV lamps rarely burn out, they do lose their disinfection power.

ULTRAVIOLET MODULE CLEANING, SANITIZING, AND CARTRIDGE REPLACEMENT PROCEDURE

RECOMMENDATIONS		
HAVE ALL COMPONENTS ON HAND AND READY BEFORE BEGINNING PROCEDURE A CLEAN WORK AREA AND EQUIPMENT ARE ESSENTIAL TO PROPERLY CLEAN AND/OR DISINFECT THE SYSTEM (i.e., CLEAN HANDS, TOOLS, WORK SURFACE, AND CONTAINERS)		
EQUIPMENT NEEDED		
Safety Glasses Rubber Gloves, Sanitary Wash Cloth, Clean and Lint-Free	Liquid Dish Soap Household Bleach – Unscented Only (5 ¼% Sodium Hypochlorite)	Plastic Bucket “O” Ring Lubricant, Silicone Based (P/N 30300026)
REPLACEMENT FILTERS		REPLACEMENT UV COMPONENTS
Refer to system Parts List for specific component part numbers		Refer to system Parts List for specific component part numbers

CLEANING PROCEDURE

CAUTION: Clean all parts (except filters and electronic parts) with the specified cleaning solution and rinse them with RO product, distilled, or de-ionized water.

NOTE: Refer to individual System Assembly and Activation Procedures to identify specific components matching the descriptions shown in this procedure.

1. Disconnect system from electrical outlet.
2. Mix a mild cleaning solution of dish soap and clean potable water in the plastic bucket.
3. Close feed water supply valve and open outlet valve to relieve system pressure.
4. **CAUTION:** Do not attempt to remove sumps until water flow stops. This reduces pressure inside the system so sumps may be safely removed.

Remove each sump. Use sump wrench to remove stubborn sumps. Remove each filter as its sump is removed. Discard the filters.
5. **CAUTION:** Use sanitary rubber gloves for this procedure to avoid contaminating cleaning solution or filters. Wear gloves whenever cleaning components or handling new filters.

CAUTION: If quartz sleeve is removed or twisted, replace “O” rings.

Clean quartz sleeve carefully using vinegar to remove calcium carbonate deposits. Do not use abrasive materials. Rinse sleeve thoroughly. Replace any sleeve that is damaged or will not come completely clean.
6. Remove sump “O” rings and wash them with cleaning solution. Rinse “O” rings thoroughly. Inspect “O” rings for damage (i.e., nicks or scratches). Replace damaged “O” rings.

7. Clean sumps and heads, inside and outside with washcloth and cleaning solution. Do not use abrasive materials.

8. Rinse sumps and heads thoroughly.
9. **For 4.5 and 8.5 GPM Models only:** Clean and rinse the Stainless Steel Channeling Sleeve (Item 3) and Sleeve Gasket.
10. Inspect head and sump “O” ring groove area for damage (i.e., nicks or scratches). Replace damaged components.

WARNING: USE FDA APPROVED SILICONE LUBRICANT ON “O” RINGS. DO NOT USE PETROLEUM-BASED LUBRICANTS.

11. Lubricate the sump “O” ring. Install the “O” ring into the filter sump groove.

DISINFECTION PROCEDURE

WARNING: NEVER LOOK DIRECTLY AT A LIGHTED UV LAMP.

WARNING: WEAR SAFETY GLASSES AND SANITARY RUBBER GLOVES WHILE PERFORMING THIS PROCEDURE.

WARNING: READ THE "WARNINGS" ON THE BLEACH CONTAINER BEFORE USING.

WARNING: HANDLE SANITIZING SOLUTION CAREFULLY. AVOID CONTACT WITH UNPROTECTED AREAS.

1. Disconnect system from electrical outlet.
2. **CAUTION:** Excessive concentrations of bleach will damage plastic and rubber components. Rinse all parts that contact bleach thoroughly with clean potable water.

Mix a sanitizing solution of 59 ml (1/4 cup) of household bleach and 177 ml (3/4 cup) of clean, potable water in the bucket. Mix the solution well.

ULTRAVIOLET MODULE CLEANING, SANITIZING, AND CARTRIDGE REPLACEMENT PROCEDURE

3. **CAUTION:** Use care when sanitizing UV head. Do not get the UV control module or connectors wet.

CAUTION: Tighten sumps by hand only. Do not use tools as they will over-tighten and may damage sump. Take care not to cut or pinch "O" rings or gaskets. Use sump wrench for removal only.

Add 237 ml (1 cup) of sanitizing solution to the sump that contains the UV lamp.

4. Turn on UV System.
5. Slowly open the feed water supply valve.
6. Open output valve and keep it open until a chlorine smell is detected, then close it.
7. **WARNING: WATER LINES DOWNSTREAM FROM UV HOUSING MUST BE DISINFECTED TO DESTROY ANY BACTERIA THAT MIGHT REMAIN IN THE PIPES.**

Verify disinfection solution has reached every water outlet downstream of UV system. Solution must remain in the system for at least four hours.
8. Open outlet valve and let water flow for 5 minutes to flush disinfection solution from the water lines.

FILTER REPLACEMENT PROCEDURE

Perform Cleaning Procedure (Page 14, steps 1-11).

CAUTION: Refer to Exploded Schematic for your system to ensure each filter is installed in the correct position.

1. **CAUTION:** Do not remove protective plastic bag from filters. Open top of bag only enough to expose top of filter.

CAUTION: Do not use a petroleum-based lubricant on "O" rings.

Lubricate the O-Rings and install the filters into the appropriate sump. Hold filter by its protective plastic bag and insert the filter into the sump.
3. **CAUTION:** Tighten sumps by hand only. Do not use tools as they will over-tighten and may damage sump. Take care not to cut or pinch "O" rings or gaskets. Use sump wrench for removal only.

Slide bag from filter and discard. Replace each sump as each filter is installed.
4. Turn on water supply and check for leaks.

UV LAMP REPLACEMENT PROCEDURE

CAUTION: Refer to individual System Assembly and Activation Procedures to identify specific components matching the descriptions shown in this procedure.

1. Disconnect system from electrical outlet.
2. Shut feed water supply valve and open downstream faucet to relieve system pressure.
3. **CAUTION:** Do not attempt to remove sumps until water flow stops. This reduces pressure inside the system so sumps may be safely removed.

CAUTION: Use care when sanitizing UV head. Do not get the UV control module or connectors wet.

Remove sump from UV head and set aside.

WARNING: DO NOT ATTEMPT TO REMOVE QUARTZ SLEEVE. DAMAGE TO SYSTEM AND PERSONAL INJURY MAY OCCUR IF THE SLEEVE IS REMOVED INCORRECTLY. CONTACT YOUR DEALER IF QUARTZ SLEEVE IS BROKEN OR NEEDS REPLACEMENT.

4. **CAUTION:** Do not touch quartz sleeve or UV lamp with bare hands. Fingerprints will reduce the effectiveness of the light.

Clean quartz sleeve carefully using vinegar to remove hardness. Do not use abrasive materials. Rinse sleeve thoroughly with RO, distilled, or de-ionized water. Replace any sleeve that is damaged or that will not come completely clean.

5. Gain access to UV lamp by removing the Screws (Item 11) holding the Power Supply (Item 17) bracket to the UV Manifold Head (Item 15).

6. **CAUTION:** Use care not to break UV lamp or dislodge quartz sleeve.

CAUTION: Place the lamp in a location where it is unlikely to be broken before it may be safely discarded

Remove UV lamp by gently lifting the cable connecting the four-pin socket to the UV lamp. Grasp UV lamp and four-pin socket firmly and separate lamp from connector

7. **CAUTION:** Hold replacement UV lamp by the ceramic ends only. Do not touch the glass. Clean glass with isopropyl alcohol if necessary.

Install the replacement UV lamp by reversing steps 5 and 6 of this procedure.

LIMITED WARRANTY

Subject to the conditions and limitations described below, WaterGroup, warrants its Aquasafe™ Reverse Osmosis, Mechanical Filtration, and Ultraviolet Drinking Water Treatment Modules and Systems (excluding filters) when installed in accordance with WaterGroup specifications, to be free from defects in materials and workmanship under normal use within the operating specifications for a period of (3) years from the date of purchase with the exception of the electrical components which are warranted for (1) year. This warranty shall apply only to the original end-user of the Product.

If the Aquasafe™ Drinking Water Treatment Module, System, or any warranted component thereof is found defective, WaterGroup, at its sole option, will repair or replace such Product or warranted component. You pay only freight for repaired or replaced parts from our factory and local dealer charges, including but not limited to labor charges, travel and transportation expenses, and handling fees.

This warranty shall not apply to any part damaged by accident, fire, flood, freezing, Act of God, bacterial attack, filter fouling and/or scaling, sediment, misapplication, neglect, alteration, installation, or operation contrary to our printed instructions, or by use of accessories or components which do not meet WaterGroup specifications. If the drinking water system is modified by anyone other than an authorized WaterGroup dealer, the warranty shall be void.

ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE PERIOD SPECIFIED ABOVE FOR PRODUCT AND COMPONENTS DESCRIBED IN THIS LIMITED WARRANTY.

As a manufacturer, we do not know the characteristics of your water supply. The quality of water supplies may vary seasonally or over a period of time. Your water usage may vary as well. Water characteristics can also change if the Product is moved to a new location. For these reasons, we assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligations for us. Further, we assume no liability and extend no warranties, expressed or implied, for the use of this product with a water source that does not meet the Conditions For Use in the Installation Guide & Owner's Manual.

WATERGROUP'S OBLIGATIONS UNDER THIS WARRANTY ARE LIMITED TO THE REPAIR OR REPLACEMENT OF THE FAILED PRODUCT OR COMPONENTS (AT WATERGROUP'S OPTION), AND WE ASSUME NO LIABILITY WHATSOEVER FOR DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL, GENERAL, OR OTHER DAMAGES, WHETHER FROM CORROSION OR OTHER CAUSES.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Similarly, some states do not allow exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

WaterGroup Inc.

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