

Multimedia Filter Accessory User Manual and Installation Guide



Congratulations on choosing FCI Watermakers Multimedia Filter accessory to protect your advanced marine reverse osmosis system. The multimedia filter works upstream from your watermaker's pre-filter to remove particulate or iron from the seawater before they can potentially damage the high pressure pump or membranes. A great deal of time and effort has been put into the design and manufacture of your new FCI Watermakers accessory. Please take time to read this entire manual and familiarize yourself with its operation. It will benefit you by insuring long trouble-free operation.

Thank you for purchasing FCI Watermakers Multimedia Filter accessory. Your choice of an accessory from FCI Watermakers proves that quality, craftsmanship and performance do matter. The accessory you have chosen is of the highest quality and it works alongside most FCI watermakers systems, from legacy to the latest FCI Watermakers.

The intent of this manual is to allow the operator to become familiar with the multimedia filter. By understanding the function, importance, and normal operation, the operator can readily diagnose minor problems. When such problems first arise, they usually require minor maintenance and the issue is easily corrected. However, if left unattended, a problem in one component may eventually affect the rest of the system and it could lead to further repairs.

FCI has the most comprehensive warranty on the market. The Multimedia Filter accessory is covered for one year on all non-consumable parts. A copy of our warranty is included in this manual. Please read and familiarize yourself with it.

PREFACE

We are committed to customer service that exceeds your expectations. If at any time you have questions about what's covered in this manual, our hands-on technical support will never leave you adrift. This manual contains technical information & instructions for the installation, operation, maintenance, and troubleshooting of the FCI Watermakers accessory. Anyone responsible for the installation, operation, and maintenance of a FCI Watermakers accessory must read and understand the contents of this manual, and comply with these instructions, guidelines and safety requirements at all times.

The term *system* will be used throughout this manual, and it generally refers to the FCI Watermakers System. Reading this manual in its entirety will familiarize you with the system and the operation of its components. By understanding the system in its entirety, one can readily operate and diagnose problems.

All references within this manual refers to other sections unless specifically defined. Graphics and illustrations are used for reference only and may not represent the actual part or arrangement of parts in a customized system.

ABOUT SAFETY NOTES

Safety issues requiring user's attention are highlighted throughout this manual as follows:

WARNING:

Provides critical information in order to prevent the possibility of injuries and/or death.

CAUTION:

Provides important information to prevent the possibility of damaging the device or equipment.

NOTE:

Provides additional information to safely and properly operate the equipment.

NEW SYSTEM PERFORMANCE

FCI Watermakers recommends backwashing the newly installed multimedia filters (or those with new packs) for 20 minutes prior to making water. This initial backwashing "fluffs" the pack, which can settle during shipment and installation.

LIMITED WARRANTY

This policy will define, in detail, what is and is not covered under warranty. It will also define how to obtain warranty service and approval.

I. Filtration Concepts Incorporated, dba FCI Watermakers (“FCI”), warrants to the original purchaser (“Purchaser”) that new Water Purification Products, Pumps, and Related Accessories (“Product(s)”), if used in accordance with FCI’s published specifications and operating manuals and all applicable laws and regulations, will not fail due to defects in material or workmanship during the period of the earlier of (i) one year from Startup (defined below), or (ii) 18 months from shipment (“Warranty Period”). At FCI’s option, it will repair, replace, or refund the original purchase price for the defective Product. Any parts repaired or replaced under this Product warranty shall not extend the original Warranty Period for the Product and will not be warranted any longer than the original Warranty Period. Labor costs to repair or replace are not included in this warranty.

Replacement parts (outside the original sale of the Product) shall carry a separate warranty as set forth in Article VI below.

Products built to Purchaser’s own specifications (“Custom products”). Custom Product Warranty: All Custom products manufactured by FCI pursuant to the design and specifications provide by Purchaser are warranted for one year from the date of manufacture. FCI warrants only that the Custom product will be manufactured in accordance with the Purchaser’s specifications.

II. To commence the warranty process, the Purchaser must call FCI’s Customer Service Department (see IV.2. below) for a recommendation as to the closest Authorized Servicing Dealer (see IV.2. below). If the Purchaser has a prior relationship with an Authorized Servicing Dealer, the Purchaser may contact same directly. If the Purchaser contacts FCI’s Customer Service Department for an Authorized Servicing Dealer and FCI has no one located in that particular area on the list, FCI will authorize the use of a local service company and work with that local company to assist in any way possible.

III. Exclusions to the above warranty:

1. Product failures resulting from improper installation or use contrary to operating manuals and other Product instructions;
2. Product failures resulting from abuse, misuse, accident, fire, or submergence;
3. Products manufactured by a third party that are not included in the original Product;
4. Products which fail as a result of improper application or improper installation, including but not limited to hose clamps, fittings, flare nuts, quick disconnects;
5. Products damaged during loading or shipment;
6. Cosmetic damages that do not affect the use and function of the Products;
7. Pumps that have been run dry, are water damaged or have been allowed to freeze;
8. Pumps with cracked heads;

LIMITED WARRANTY (continued)

9. Pump seals and UV light bulbs;
10. Sea strainer elements and cartridge filter elements;
11. Damage due to sand and/or gravel in a multi-media filter;
12. Pump packing assemblies;
13. Pump valve assemblies;
14. Pump crankcase oil;
15. Gauge instrument calibration;
16. Fuses;
17. Valve seals and packings;
18. Exterior corrosion;
19. Membrane elements;
20. Water damage to logic boards;
21. Logic boards with blown MOV's (Power Surge) or mis-programmed displays;
22. Water damage to displays or remotes;
23. Failures due to improper winterization;
24. All other consumable parts not covered herein;
25. Product damage resulting from improper return packaging by Purchaser; or
26. Force Majeure as more specifically defined in Section 9 of the General Terms and Conditions.

IV. Additional Exclusions/Restrictions:

1. For issues regarding installation, assembly or Start-up of the Product, the installer maintains all liability for its work, and FCI disclaims all liability therefor. Purchaser shall defend, indemnify and release FCI from and against any claims arising from the installer's work. "Start- up" is when the OEM or Authorized Servicing Dealer ("installer") has put the Product into service as shown on the Warranty Card (as defined in Article V. #3 below).
2. The installer must be an OEM or "Authorized Servicing Dealer". A list of Authorized Servicing Dealers can be found at <https://fciwatermakers.com/dealer-map/> or by calling FCI's Customer Service Department Monday-Friday from 8:00 a.m. until 5:00 p.m. (MT) at (801) 906-8840. If Purchaser wishes to use an installer that is not found on the list, please call the telephone number above for prior authorization. FCI is not liable for work performed by an installer and Purchaser shall defend, indemnify and release FCI from and against any claims arising from such third-party work.
3. Warranty repairs shall be subject to the same restriction as found in IV. #2 above. If an OEM or Authorized Servicing Dealer is not used for warranty repairs and/or installation, the warranty shall be voided.

LIMITED WARRANTY (continued)

4. Except as provided in IV. #5 below, labor costs and expenses for warranty repairs are excluded.
 5. If Purchaser, at its own cost and liability, packages and ships the defective Product to FCI for repair, FCI will repair the Product (or component) in its facility at its own expense (including labor) if found to be defective.
 6. If the Product is replaced under this warranty, all costs of uninstallation of the warranted Product and reinstallation of the new Product are excluded.
 7. In the case of a refund, the Purchaser must package and ship the Product back to FCI at its own cost and liability. If found to be defective, a refund will be issued.
 8. If the Product is uninstalled and reinstalled by Purchaser or its agent to another location, the warranty shall be voided.
 9. Purchaser (or its agents) shall be responsible for the cost to make the Product accessible for warranty repair.
 10. Products are not intended for use in connection with any nuclear facility or activity and FCI disclaims all liability for nuclear damage, injury, or contamination. Purchaser shall indemnify, defend, and hold FCI, its officers, directors, agents, employees, successors, assigns harmless from and against any and all damages or expenses of whatever nature (including attorney's fees and costs) which may be incurred arising from such use.
 11. If Purchaser or an installer purchases replacement parts to perform warranty repairs, unless FCI finds the returned part to be defective, FCI will not credit such purchase of a new part. Instead, FCI encourages Buyer to send the part in question to FCI's facility for evaluation of the alleged defect prior to purchasing a new part.
- V. Additional required conditions to warranty effectiveness:
1. FCI WARRANTIES ARE EFFECTIVE UPON PAYMENT IN FULL, AND FCI IS NOT OBLIGATED TO HONOR ANY WARRANTY OR PROVIDE ANY SERVICE UNTIL FCI RECEIVES PAYMENT IN FULL.
 2. Proof of purchase or proof of installation date may be required to verify warranty coverage.
 3. Purchaser must submit the "Warranty Card" at the time of Start-up through the portal found at <https://fciwatermakers.com/register-your-product/>. If Buyer fails to submit the Warranty Card upon Start-up, the Warranty Period for the purchased Product shall be limited to one year from shipment. All other terms and conditions herein shall apply.
 4. All products manufactured by FCI are based on a set criterion for performance based on feed water conditions. These parameters can be found on the product data sheet(s) ("PDS") for each product. Please refer to the applicable PDS for additional warranties, exclusions and terms and conditions. Variations from these parameters will affect system performance and in some cases damage system components. FCI is not responsible for feed water quality or changes in the feed water over time or the resulting system performance due to feed water being unbalanced or containing contaminants or biological elements. In these circumstances, the warranty will be void.

LIMITED WARRANTY (continued)

In cases when FCI's Application Questionnaire is completed by Purchaser, FCI assumes no liability for the accuracy of the data submitted by Purchaser or subsequent recommendations based on the submittal. If Purchaser's responses are inaccurate or incomplete, the warranty shall be void. If the feed water conditions change, the warranty will be void. If Purchaser does not return the Application Questionnaire and the product fails due to improper feed water conditions for the model purchased, the warranty will be void.

VI. Parts' Warranty: All parts ("Parts") sold outside the original Product sale (excluding replacement parts covered by the Product warranty above in Article I) that are sold by FCI shall be warranted for 90 days from the date of sale. FCI does not warrant parts manufactured by third parties and the Parts buyer should contact the original manufacturer for any applicable warranty rights.

VII. Additional limitations to the Product, Custom product and Parts warranties:

THE REMEDIES SET FORTH HEREIN ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON OR ENTITY FOR BREACH OF WARRANTY OR FOR BREACH OF ANY OTHER COVENANT OR OBLIGATION ON THE PART OF FCI AS SET FORTH HEREIN. FCI SHALL HAVE NO LIABILITY OR OBLIGATION TO ANY PERSON OR ENTITY FOR BREACH OF ANY OTHER COVENANT OR OBLIGATION UNDER THIS WARRANTY EXCEPT AS EXPRESSLY SET FORTH HEREIN.

IT IS EXPRESSLY AGREED THAT THIS WARRANTY DOES NOT FAIL OF ITS ESSENTIAL PURPOSE.

IN NO EVENT SHALL FCI BE LIABLE FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL OR PUNITIVE DAMAGES OF ANY NATURE WHATSOEVER, WHETHER ANY SUCH CLAIM OR DAMAGES BE BASED UPON WARRANTY, CONTRACT, NEGLIGENCE, STRICT LIABILITY, TORT, OR OTHERWISE.

IN NO EVENT SHALL FCI'S TOTAL LIABILITY HEREUNDER EXCEED THE ORIGINAL PURCHASE PRICE OF THE PRODUCT OR PART, AS APPLICABLE.

THIS LIMITED WARRANTY CONSTITUTES FCI'S EXCLUSIVE PRODUCT, CUSTOM PRODUCT AND PARTS WARRANTIES. ANY SERVICE, ADVICE, OR CONSULTATION FURNISHED TO PURCHASER OR BUYER BY FCI OR ITS REPRESENTATIVES AS WELL AS ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

VIII. FCI's General Terms and Conditions of Sale and applicable PDS are included in and applicable to this Limited Warranty. FCI's Customer Service Department can provide Purchaser with a copy of the General Terms and Conditions of Sale upon request.

Effective Date: 4/29/2022

WARRANTY REGISTRATION

INSTRUCTIONS: At the time of purchase of the FCI Watermakers accessory, please complete the warranty information listed below. After completing this form, please make a copy and submit the copy using one of the options at the bottom of the page — Keep this copy in your manual for future reference.

ACCESSORY INFORMATION

Part #: _____
Date Purchased: _____

Date Commissioned: _____

SYSTEM INFORMATION:

Model # _____
Serial # _____
Operating Voltage: _____

DEALER INFORMATION:

Dealer Name: _____
Address: _____
City: _____ State: _____
Country: _____ Postal Code: _____
Dealer Invoice #: _____

CUSTOMER INFORMATION:

Customer Name: _____
Address: _____
City: _____
State: _____ Postal Code: _____
Country: _____
Phone: _____ Fax: _____
E-mail: _____

VESSEL INFORMATION:

Boat Manufacture: _____
Boat Model: _____
Boat Name: _____
Boat Length: _____

LAND BASED INFORMATION:

Installation site: _____
Site Name: (resort, company etc) _____

Application: _____

Operator Contact Information:

(person in charge of system maintenance and operation)
Name: _____
E-mail: _____
Phone: _____

COMMERCIAL APPLICATION:

Rig Name: _____
Rig Location: _____
Operator Name: _____
Operator E-mail: _____

Mail a copy to:

FCI WATERMAKERS, INC
ATTENTION: WARRANTY REGISTRATION
3782 W 2340 S, STE E
WEST VALLEY CITY, UT 84120-7291 USA

EMAIL: info@fciwatermakers.com
Subject: Warranty Registration

FAX: +1-801-883-9985

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FCI CONTACT INFORMATION

If you have questions regarding your FCI Watermakers accessory or the contents of this manual, or if you need replacement parts, please do not hesitate to contact us immediately. Our hands-on technical support is always at your service.

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GENERAL INFORMATION

Your FCI Watermakers dealer will recommend the appropriate Multimedia Filter and pack for your watermaker system and operating environment. Factors include watermaker model, particulate or iron removal pack, and cylinder size. Automated multimedia filters are available for those watermakers that support automation.

Your FCI Multimedia Filter accessory is designed to provide lasting performance using high-grade materials and uncompromising engineering. FCI systems and accessories utilize high-grade alloys in critical components, where competing brands often use inferior material that compromise operation and jeopardize the vessel. *Table 1* lists the Multimedia Filters available:

Table 1: Multimedia Filters by Size, Pack, Option, and Part Number

Cylinder Size*	Media Pack	Option	Part Number
1236	Iron Removal	Manual	93-4975
		Automated	93-4977
	Particulate Removal	Manual	93-4974
		Automated	93-4976
1252	Iron Removal	Manual	93-5014
		Automated	93-5043
	Particulate Removal	Manual	93-5013
		Automated	93-5042
1665	Iron Removal	Manual	93-5037
		Automated	93-5039
		Automated OG	93-5555
	Particulate Removal	Manual	93-5036
		Automated	93-5038
		Automated OG	93-5554

* Cylinder size is written as ddhh, where dd = diameter and hh = height in inches.

NEW SYSTEM PERFORMANCE

FCI Watermakers recommends backwashing the newly installed multimedia filters (or those with new installed media packs) for 20 minutes prior to making water. This initial backwashing “fluffs” the media, which can settle during shipment and installation.

2/ PRE-INSTALLATION

This section provides key information for a successful install, leading to long-term enjoyment of your FCI Watermakers accessory. It includes warnings, cautions and notes associated with the preparatory work necessary to properly install and maintain your accessory.

Because of the various options with regard to location and voltage, hose and wire are not provided with the accessory. Please contact your local dealer for these supplies. Be sure to follow all local codes when installing your new FCI watermaking system.

Always use genuine FCI approved parts to ensure proper operation of your watermaker.

PRE-INSTALLATION PRECAUTIONS

STORAGE PRIOR TO REMOVAL FROM CRATE

Adhere to crate markings:

- **DO NOT** store in direct sunlight;
- **DO NOT** store above 120° F (50° C);
- **DO NOT** freeze;
- **DO NOT** store longer than 4 months without flushing with storage chemical;
- **STORE ONLY** on base with **ARROWS UP**.
- **KEEP THE R.O. MEMBRANE ELEMENT WET AT ALL TIMES.**

REVERSE OSMOSIS MEMBRANE ELEMENT IS SUSCEPTIBILITY TO CHEMICAL ATTACK

CAUTION: Do Not expose the FCI Watermakers system to intake Feed Water from any chemical not approved in writing by FCI Watermakers, or any of the following chemicals:

- | | |
|---------------------|-------------------------|
| • Hydrogen peroxide | • Chloramines-T |
| • Chlorine dioxide | • Chlorine |
| • Bromine phenolic | • Disinfectants |
| • Chloramines | • N-chloroisocyanurates |
| • Hypochlorite | • Iodine |
| • Bromide | • Petroleum products |

USE OF NON-AUTHORIZED OR MISUSE OF AUTHORIZED CHEMICALS VOIDS SYSTEM WARRANTY

Do not connect any water line to the system that may contain any of the aforementioned chemicals. Example: Do not connect the inlet of the system to the ship's potable water system if the ship's system contains chlorinated or brominated water. These chemicals destroy the copolymer components within the R.O. system. These oxidants and others also damage the R.O. membrane element. The fresh water flush system removes chlorine and bromine from the ship's potable water system.

DO NOT PERFORM INSTALLATION UNLESS:

- 1 The system feed water sea cock valve is closed.
- 2 The system main electrical disconnect switch is switched **OFF, LOCKED, and TAGGED.**
- 3 A volt/ohm meter will be necessary.

WARNING: ELECTRICAL SHOCK HAZARD. The installation procedures expose the installer to **HIGH VOLTAGE** and electrical shock hazard. Only attempt installation if you are a qualified electrician and only if surrounding conditions are safe.

QUALIFICATIONS

Technicians must have technical knowledge and ability in the following fields:

- a) Electrical, Electronic, Electric Motors and Circuits
- b) Electromechanical and Mechanical Systems
- c) Hydraulic and Liquid Pressure and Flow Systems
- d) Piping and Plumbing Systems
- e) Water Suction and Pressure Lines
- f) Thru-Hull Fitting below and above water level

WARNING: Do not attempt installation, commissioning, troubleshooting, or repair if you are not proficient in the above fields of expertise.

SPECIAL CONSIDERATIONS INSTALLATION CAUTIONS

Do not over tighten PVC fittings. If threaded pipe fittings leak after installation, remove the fitting, clean the mating threads, apply 3 to 4 wraps of Teflon tape to the male threads, apply liquid Teflon pipe sealer sparingly, and thread the parts back together. PVC fittings should only be hand tightened without the use of a wrench. The sea cock valve, in-line pressure gauge, sea strainer, rinse-clean inlet valve, and booster pump should be installed below water level. This will aid the booster pump in priming.

Always allow hoses and tubes to enter and exit straight from the connection for a minimum of one inch prior to a bend. If stress is placed on the fitting due to a tight bend, the fitting will leak and may break.

Avoid skin and eye contact with the membrane packaging solution. In case of skin contact, rinse the skin thoroughly with water. In case of eye contact, flush repeatedly with water and notify a physician immediately. R.O. membrane elements are stored in “sodium bisulfite.”

NEVER mount liquid-holding component above any electrical or electronic device. Extensive damage to the electronic device will result if liquid enters device during maintenance or component failure.

CONNECTION LINE CAUTIONS— All connection lines should be as short and straight as possible using minimum fittings. The connection lines must not be kinked.

ACCESSIBILITY CAUTIONS— This is a simple rule: Install the system and its supporting components in an accessible manner. The electrical control display or panel must be accessible for operation and monitoring of the system.

ELECTRICAL POWER REQUIREMENTS— Ensure that the power source is sufficiently sized to provide the correct voltage and cycles during start up and operation. If unsure, please consult with your local installation specialist or qualified electrician.

R.O. MEMBRANE ELEMENT NOTES

CAUTION: Some systems are shipped **WITHOUT** the reverse osmosis membrane element. This is to accommodate boat builders that will install the system well in advance of commissioning the boat and the system.

DOES THIS SYSTEM HAVE R.O. MEMBRANE(S) INSTALLED OR NOT?

If not, is it your intention to install the R.O. membrane(s) at this time, or do you wish to install them at a later date when the boat is commissioned?

If the R.O. membrane element has been installed, there will be a R.O. membrane element serial number tag attached to the high pressure vessel(s). Find this serial number tag to ensure that the R.O. membrane element(s) have been installed. If the R.O. membrane element serial number tag is missing or does not contain a serial number, then the R.O. membranes are not installed. If the R.O. membrane elements are not installed and you wish to install them at this time contact FCI Watermakers, Inc. and supply us with your original purchase order number, FCI's invoice number, and this system's serial number.

WARNING: If the reverse osmosis membrane element is not to be installed at this time, ensure that you leave a visible note at the system controller and at the front of the control panel informing the end user that:

The reverse osmosis membrane elements are not installed;
to contact the factory for the R.O. membrane elements; and
DO NOT operate the system without the R.O. membrane
elements installed. Extensive damage will occur if the system is
operated without the R.O. membrane elements installed.

Damage to the system caused by the operation of the system without R.O. membrane elements installed:

- Is **NOT** covered by the FCI Watermakers, Inc. warranty
- Is the liability of the installer if the installer did not notify the end user.
- Is the liability of the end user if the installer notified the end user that the R.O. membranes were not installed and to not operate the system without the R.O. membrane elements installed.

COMPONENTS IDENTIFICATION

This manual and one of the multimedia filters shown in *Figure 1* are supplied with your purchase.

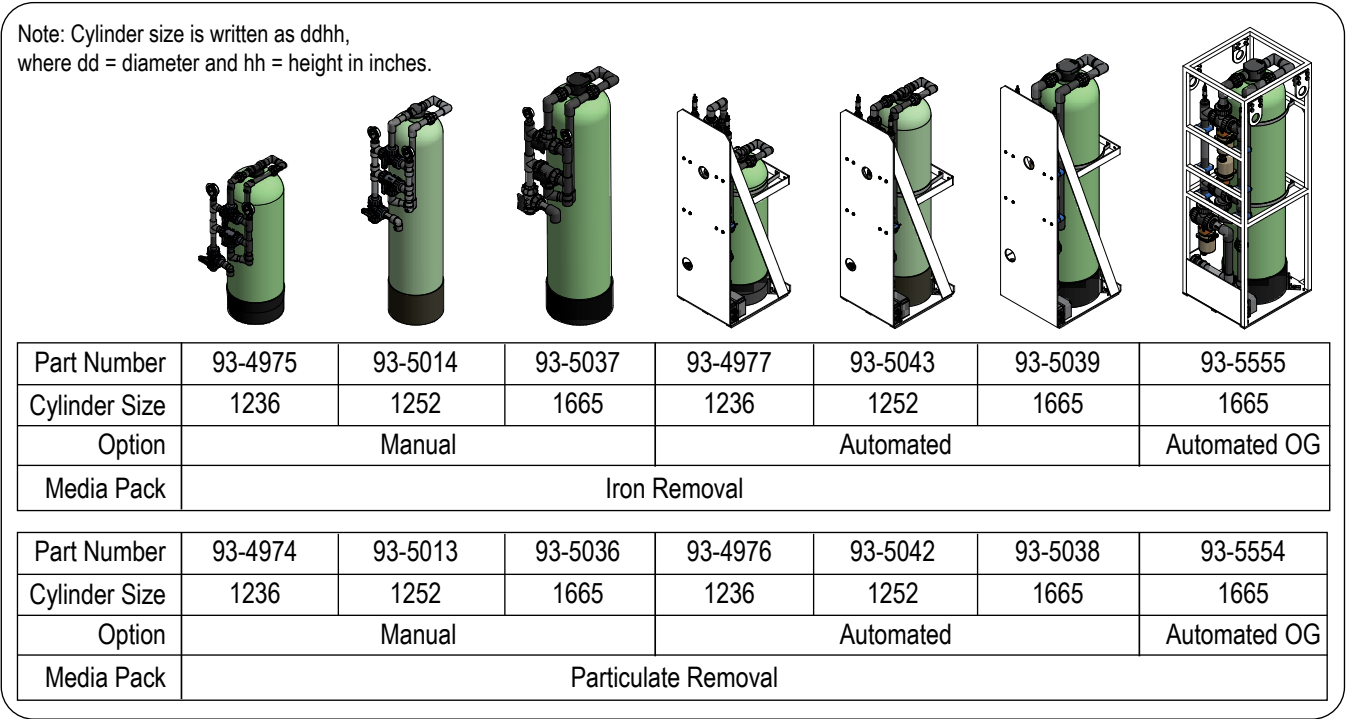


Figure 1: Identifying the Multimedia Filter

PIPING & INTERCONNECT DIAGRAM

Refer to the piping and interconnect diagram included in your system installation and user guide. Determine the pre-filtration and post-filtration components that were supplied with your system, and identify how the multimedia filter interconnects.

MEDIA FILTER BYPASS (APC/DTS)

For systems with the APC/DTS (Double-Pass) technology, the installation will be slightly different to protect the freshwater membranes from the saltwater that is contained within the Media Tank. You can choose one of three installation options.

Option #1: Plumb the Dock Water source along with the system's 3-way actuator after the media tank. This would require no extra parts; the downside would be you cannot use the Low-Pressure Pump to build extra pressure if needed.

Option #2: You can order the Media Filter Bypass Kit, Manual Version in which you would need to turn a valve during DTS operation to bypass the media tank. You can still use the Low-Pressure Pump to build extra pressure if needed.

Option #3: You can order the Media Filter Bypass Kit, Automated Version in which the system would automatically bypass the media tank. You can still use the Low-Pressure Pump to build extra pressure if needed.

If you have questions or need assistance in selecting the best option for you, feel free to contact FCI Support.

If you chose to order a Media Filter Bypass Kit, refer to *Figure 3* to *Figure 4* and find your kit and identify the kit's components.

MEDIA FILTER BYPASS INSTALL KIT/MANUAL (APC/DTS)

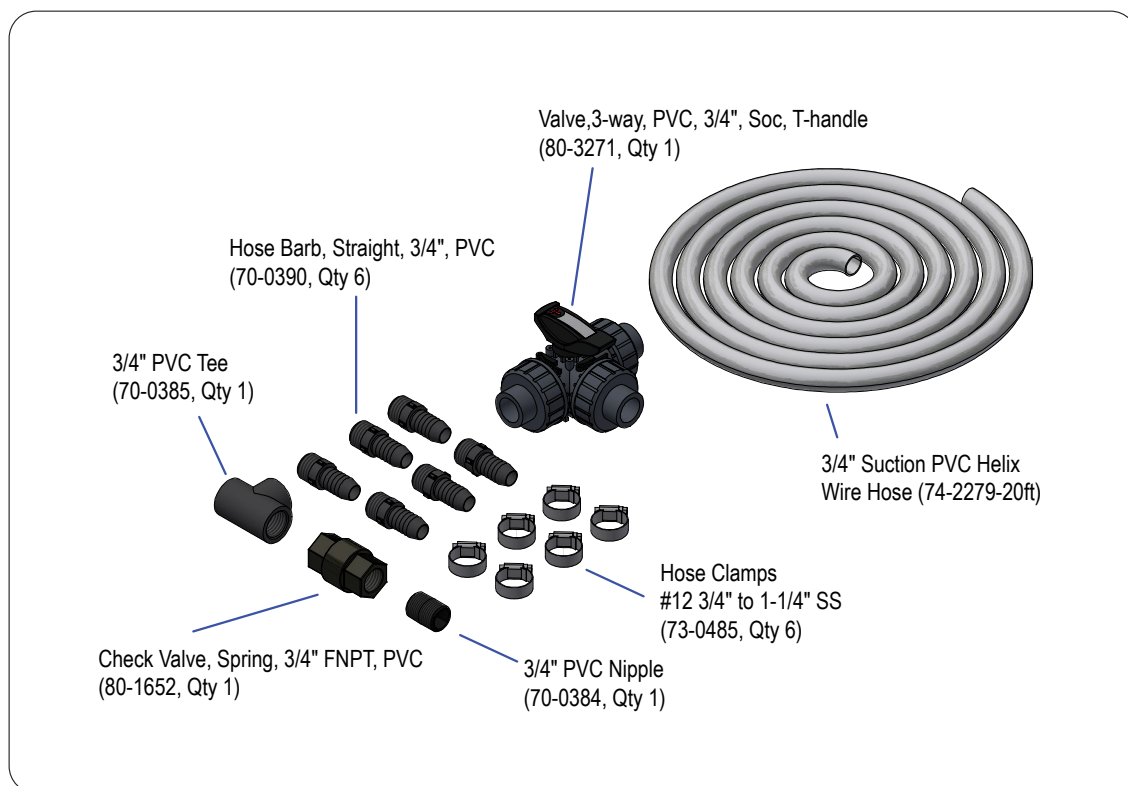


Figure 2: Media Filter Bypass Kit Manual Version for 1236 Tank

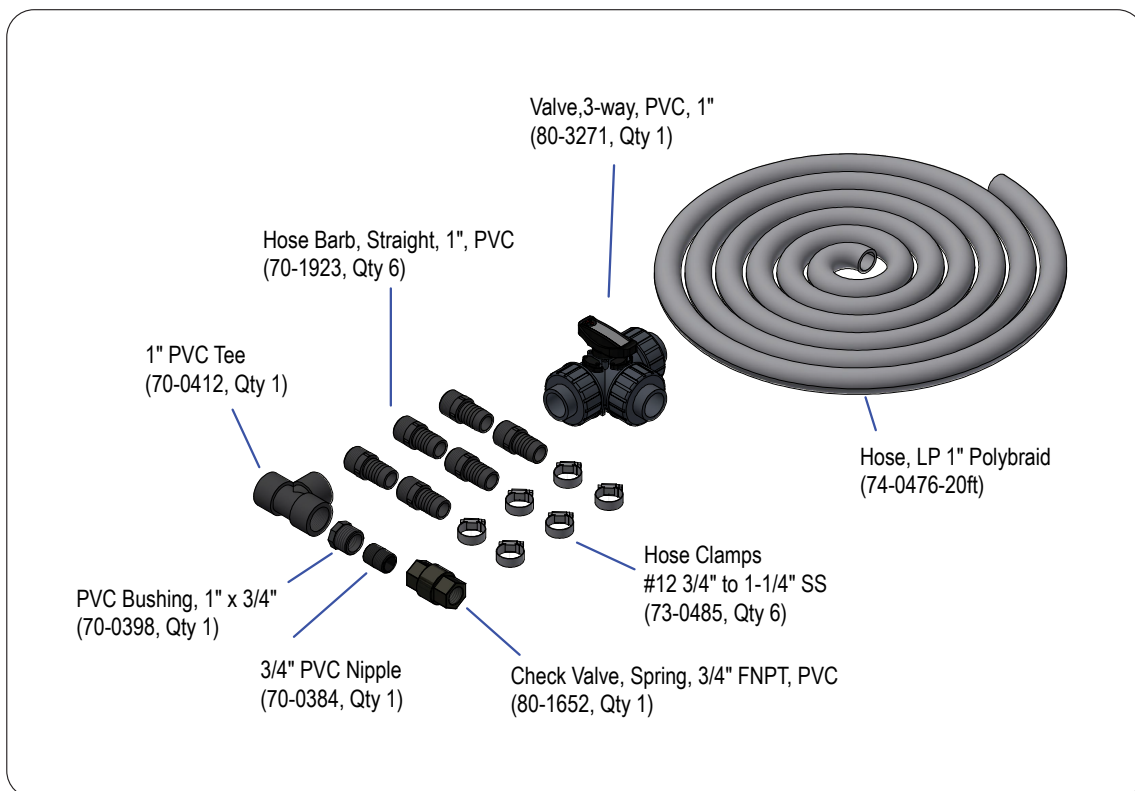


Figure 3: Media Filter Bypass Kit Manual Version for 1252 Tank

MEDIA FILTER BYPASS INSTALL KIT/AUTOMATED (APC/DTS)

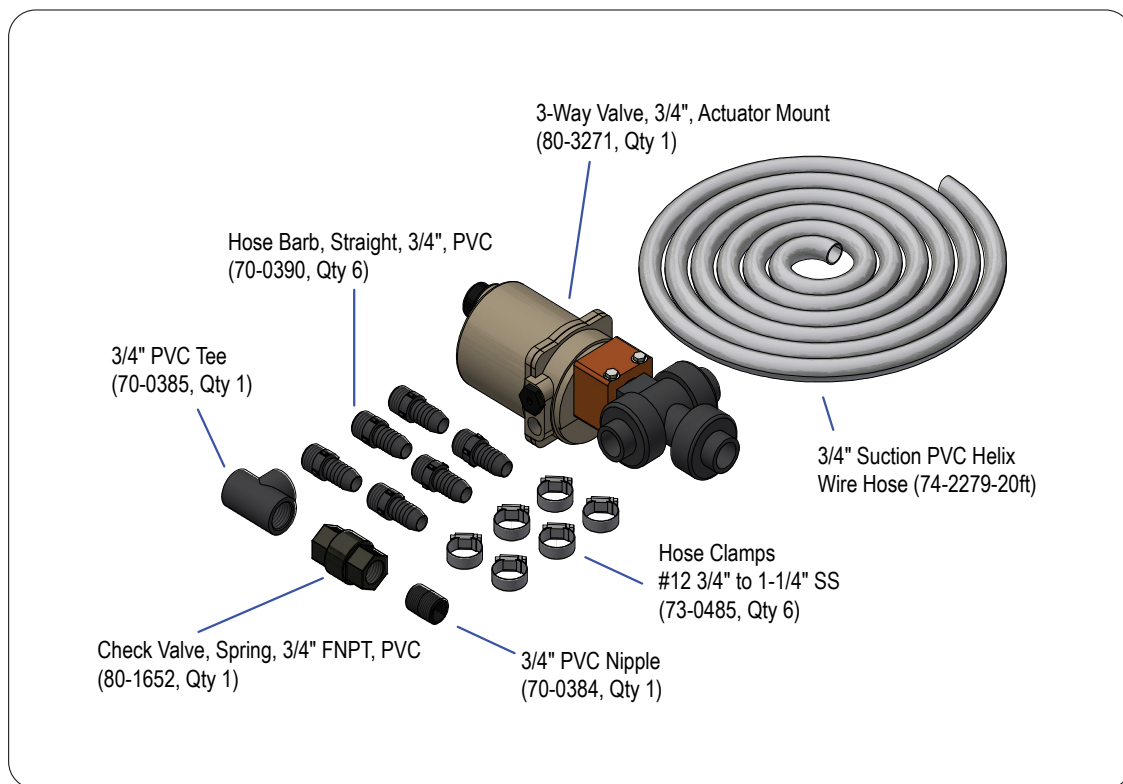


Figure 4: Media Filter Bypass Kit Automated Version for 1236 Tank

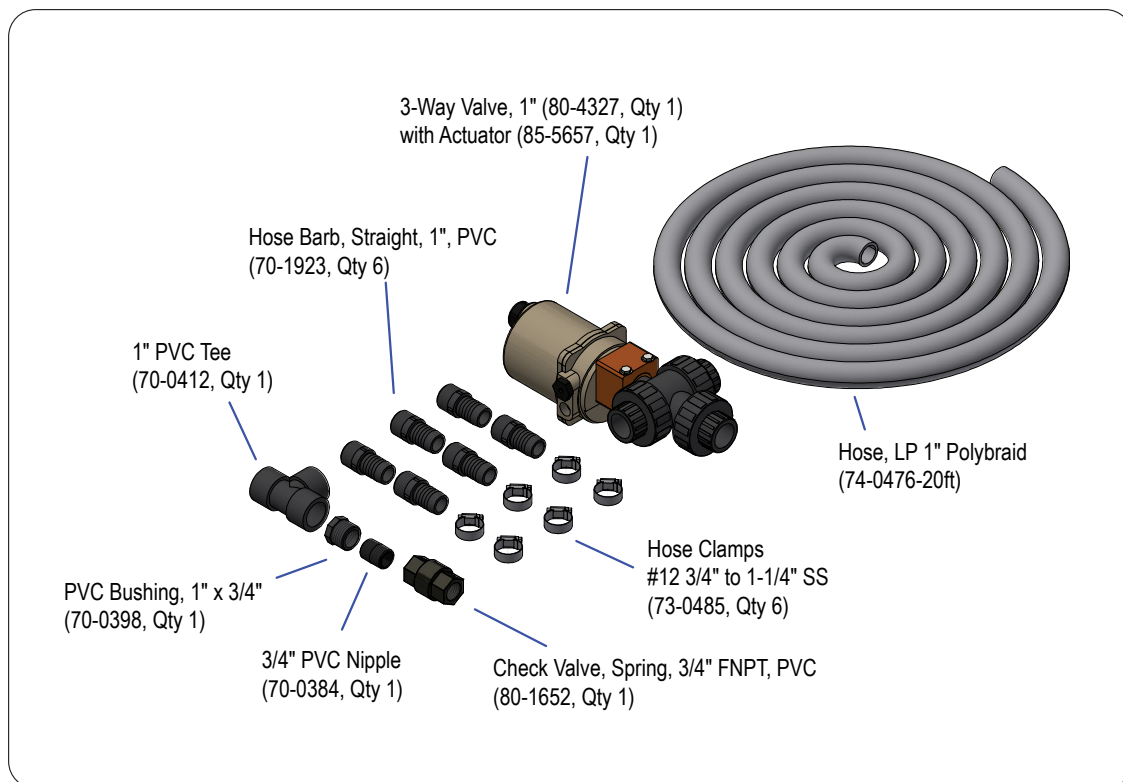


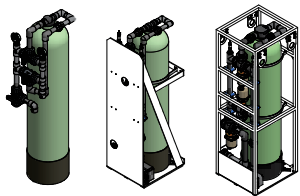
Figure 5: Media Filter Bypass Kit Automated Version for 1252 Tank

COMPONENT DESCRIPTIONS

The location, operation, and purpose of your FCI Watermakers accessory is briefly explained.

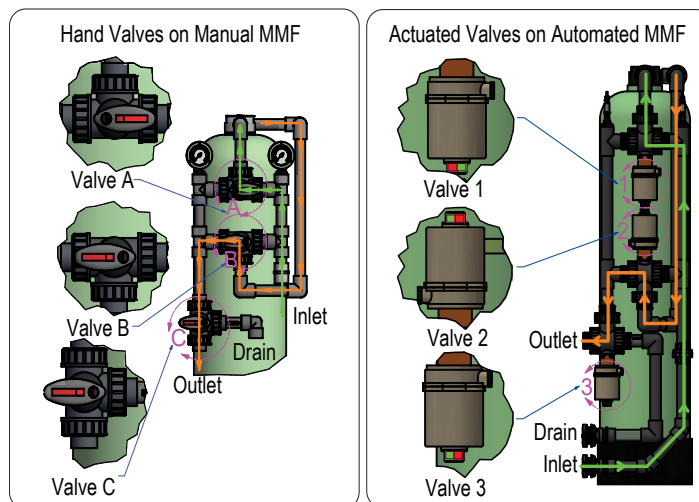
Use of third party, Non-FCI (or unauthorized) components may lead to premature failure, added operating and maintenance costs, and increased labor. Using 3rd party, Non-FCI components may void any and all FCI Watermakers Warranty. We only wish to help you enjoy the luxury of owning a FCI Desalinating System. Treat it properly by using only FCI supplied parts, recommended consumables, and authorized accessories.

MULTIMEDIA FILTER



For operation with iron or heavy particulate in the feed water, the multimedia filter will help remove the contaminants before they can potentially damage the high pressure pump or foul the membranes.

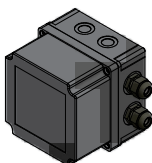
The multimedia filter consists of a tank, valve assembly, and pressure gauges. The media is loaded in the tank. The valve assembly is used to set the multimedia filter to in-service or backwash. For manual multimedia filters, the valves are set by hand. For automated media filters, the valves are actuated and set by the watermakers system.



The multimedia filter requires backwashing for 20 minutes on first use and when the pressure across the filter is greater than 20 psi.

MEDIA PACK

Packs are pre-sized to supply enough media for your size tank. Packs are mixed for either particulate or iron removal. It is recommended to replace the media every year.



ELECTRICAL ENCLOSURE (Automated Multimedia Filters Only)

A 10-conductor/20 gauge cable and a 6-conductor/16 gauge cable are routed out of the electrical enclosure of the automated multimedia filter, ready to be routed into the electrical enclosure of the watermaker system and then connected to the system control board. For APC/DTS (Double-Pass) technology and the Auto Bypass Kit, "Figure 35: Wiring the Bypass Actuated Valve (APC/DTS)" on page 56.

3/ INSTALLATION

Refer to the outline below for an overview of the installation process and the structure of this chapter.

Each system has its unique environment. To allow for this, the instructions are presented in part by discussion rather than by procedure. Start by reading through this chapter completely, matching the tasks to your environment.

DIAGRAMS SHOWING THE COMPONENTS AND LAYOUT

Diagrams of the multimedia filters are provided with dimensions, weight, and footprints. Possible system layouts are shown in plumbing diagrams. The diagrams are used to become familiar with how the parts fit together.

FILTER INSTALLATION / MOUNTING

Following the diagrams are instructions on mounting the multimedia filter. The footprint and layout diagrams of the previous section are available for reference when mounting the filter.

FILTER INSTALLATION / PLUMBING

After the mounting instructions, the installation focuses on plumbing. The plumbing diagrams are available for reference when connecting the plumbing.

FILTER INSTALLATION / ELECTRICAL CONNECTIONS

For automated multimedia filters only, the next task is connecting the electrical wiring.

WIRING SCHEMATICS

For automated multimedia filters, schematics are available for reference when connecting the wiring.

FINAL INSTALLATION CHECKLIST

After completing the installation, a checklist is provided to help you check your work.

DIMENSIONS, WEIGHT & FOOTPRINT

Weight, dimensions, and footprints of the multimedia filters are shown in *Figure 6* to *Figure 12*. Refer to the figure appropriate to your accessory when planning where to mount the accessory. Planning considerations are discussed in "FILTER INSTALLATION / MOUNTING" on page 49.

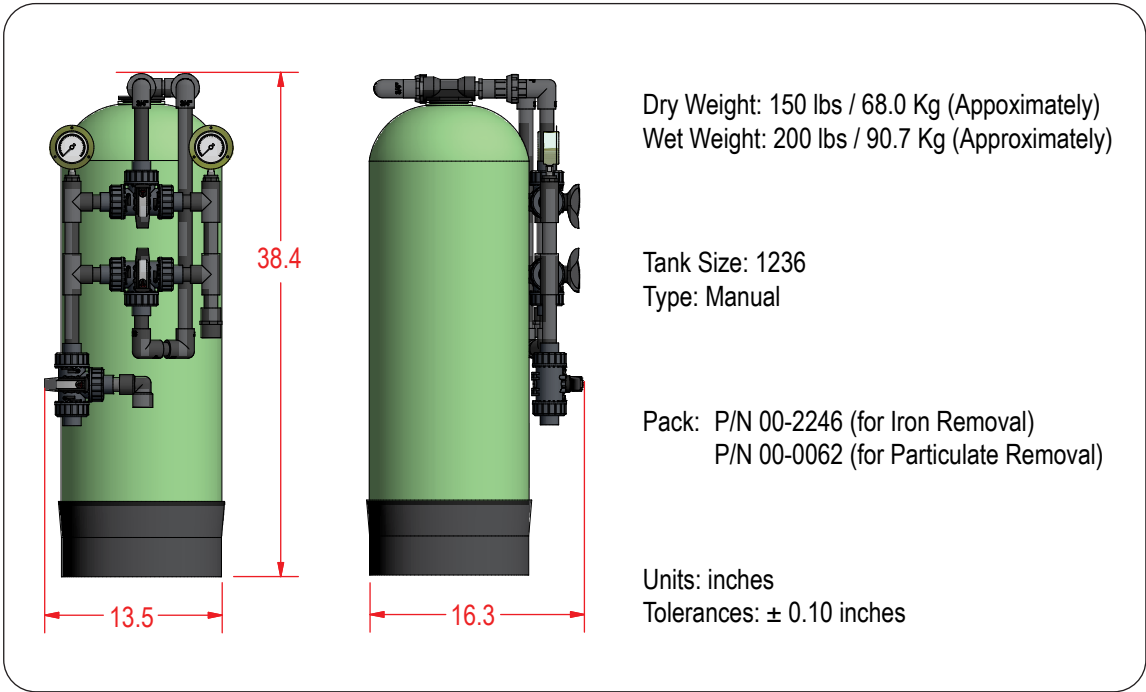
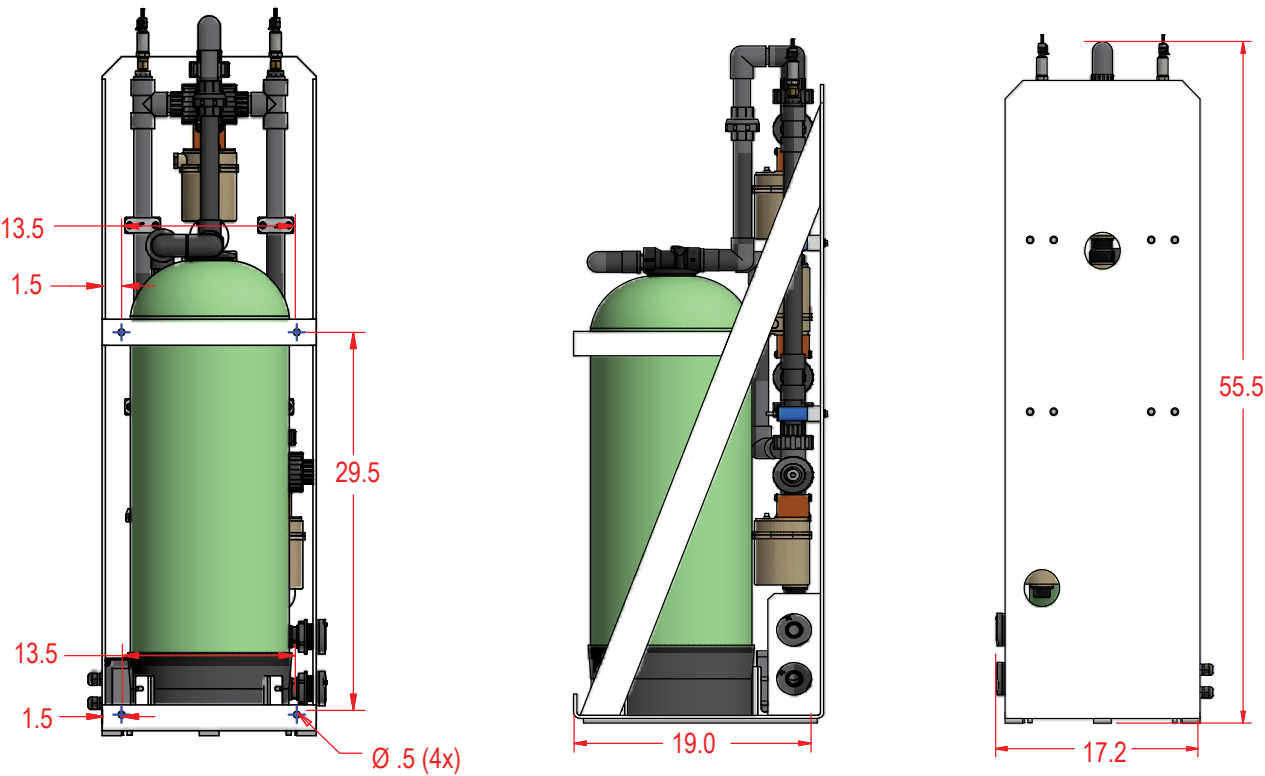


Figure 6: Dimensions & Weight for Manual Multimedia Filter (1236)

DIMENSIONS, WEIGHT & FOOTPRINT (continued)



Dry Weight: 175 lbs / 79.4 Kg (Approximately)
Wet Weight: 225 lbs / 102.1 Kg (Approximately)
Tank Size: 1236
Type: Automatic

Units: inches
Tolerances: ± 0.10 inches
Pack: P/N 00-2246 (for Iron Removal)
P/N 00-0062 (for Particulate Removal)

Figure 7: Dimensions & Weight for Automated Multimedia Filter (1236)

DIMENSIONS, WEIGHT & FOOTPRINT (continued)

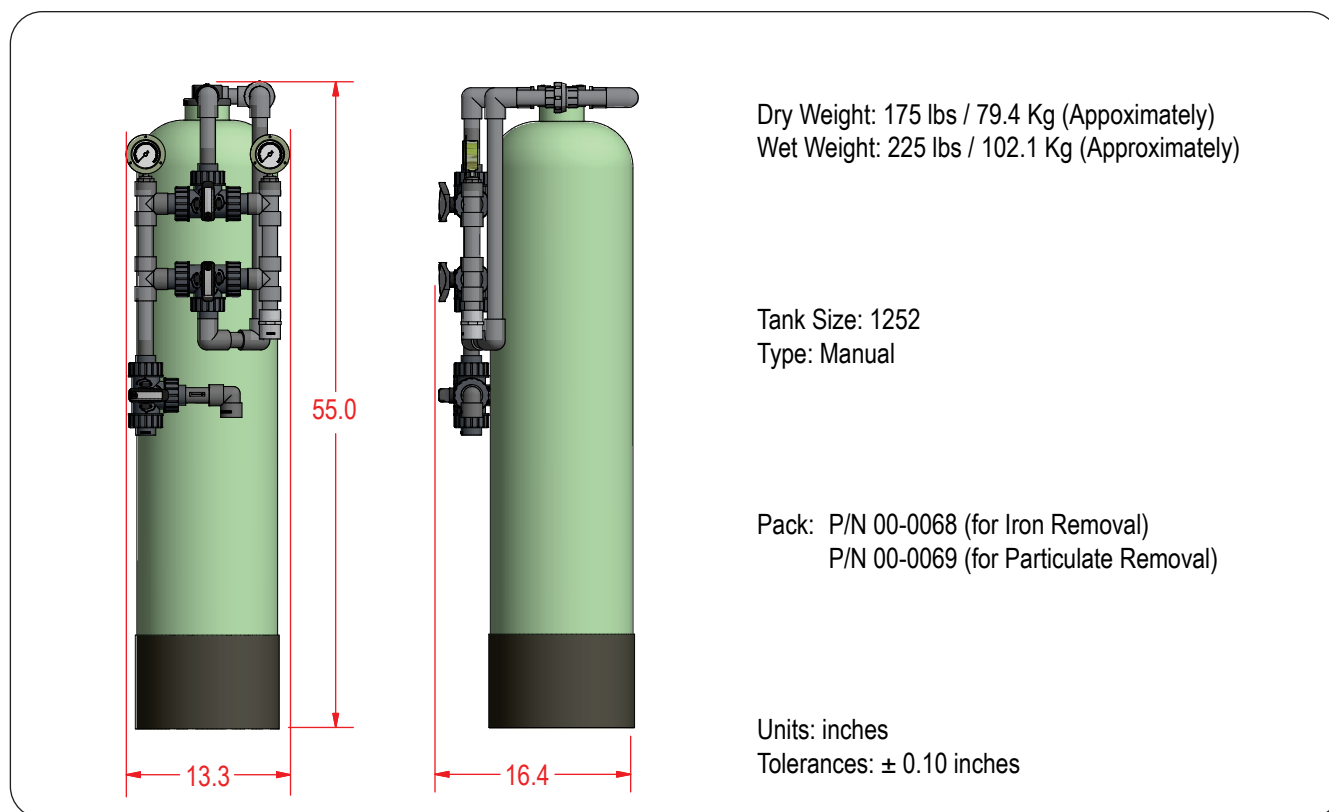


Figure 8: Dimensions & Weight for Manual Multimedia Filter (1252)

DIMENSIONS, WEIGHT & FOOTPRINT (continued)

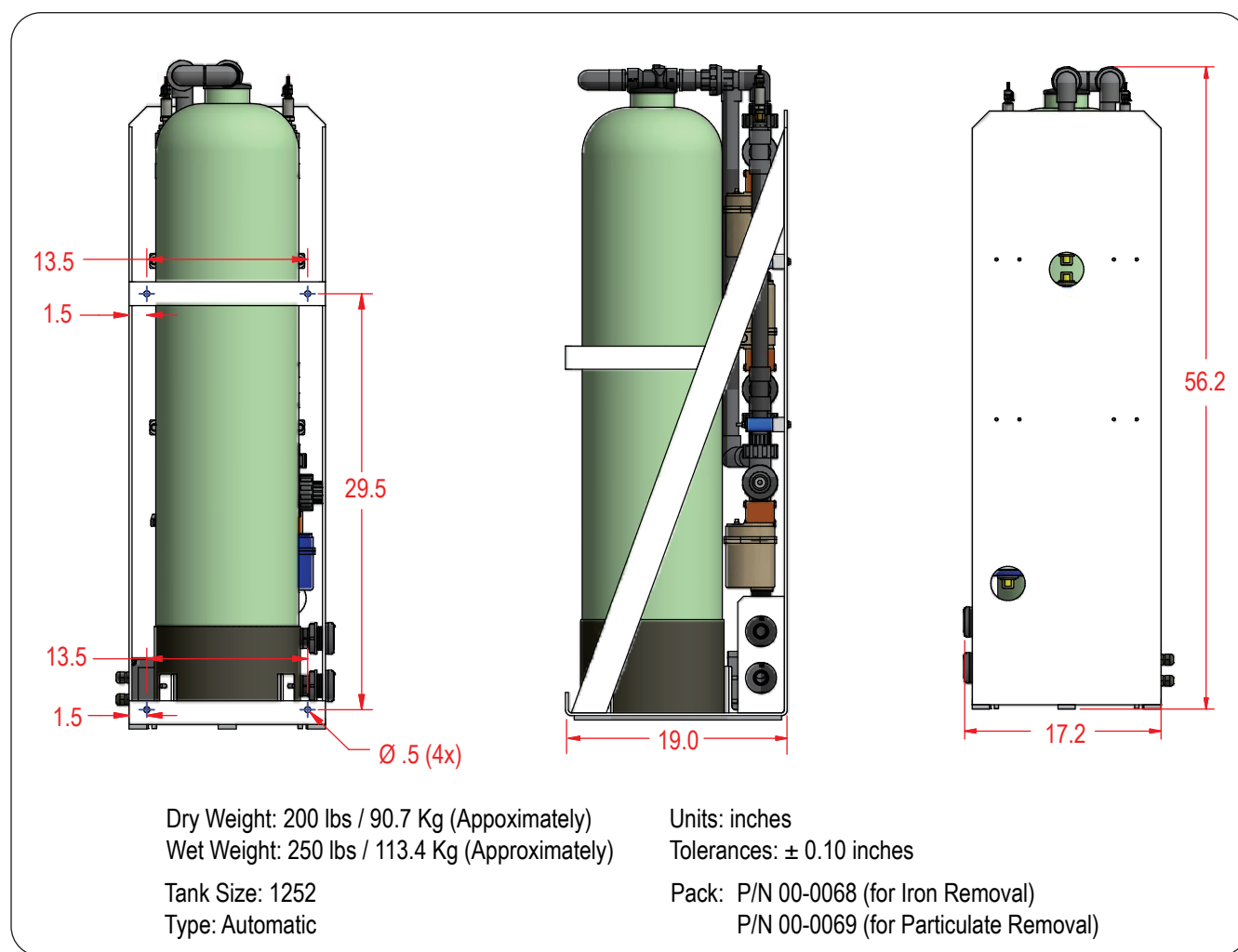


Figure 9: Dimensions & Weight for Automated Multimedia Filter (1252)

DIMENSIONS, WEIGHT & FOOTPRINT (continued)

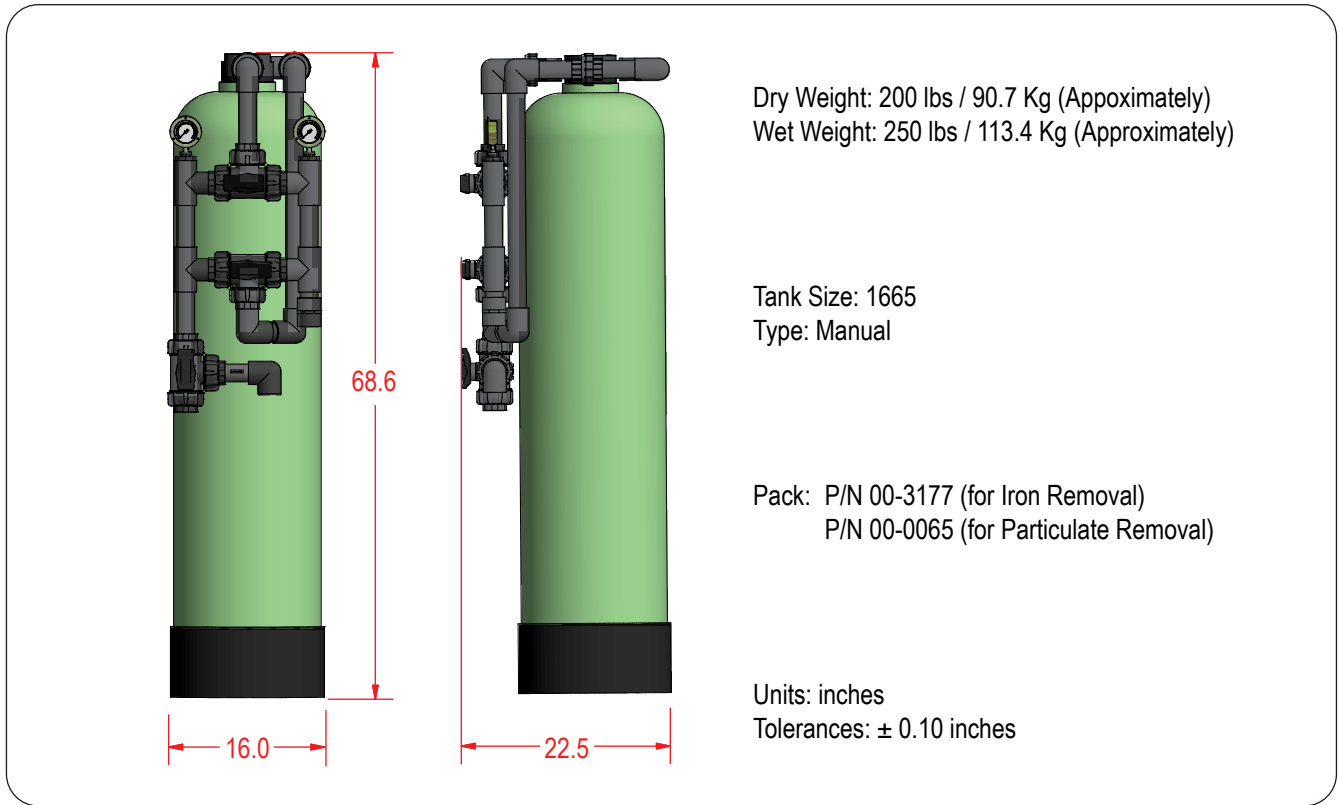


Figure 10: Dimensions & Weight for Manual Multimedia Filter (1665)

DIMENSIONS, WEIGHT & FOOTPRINT (continued)

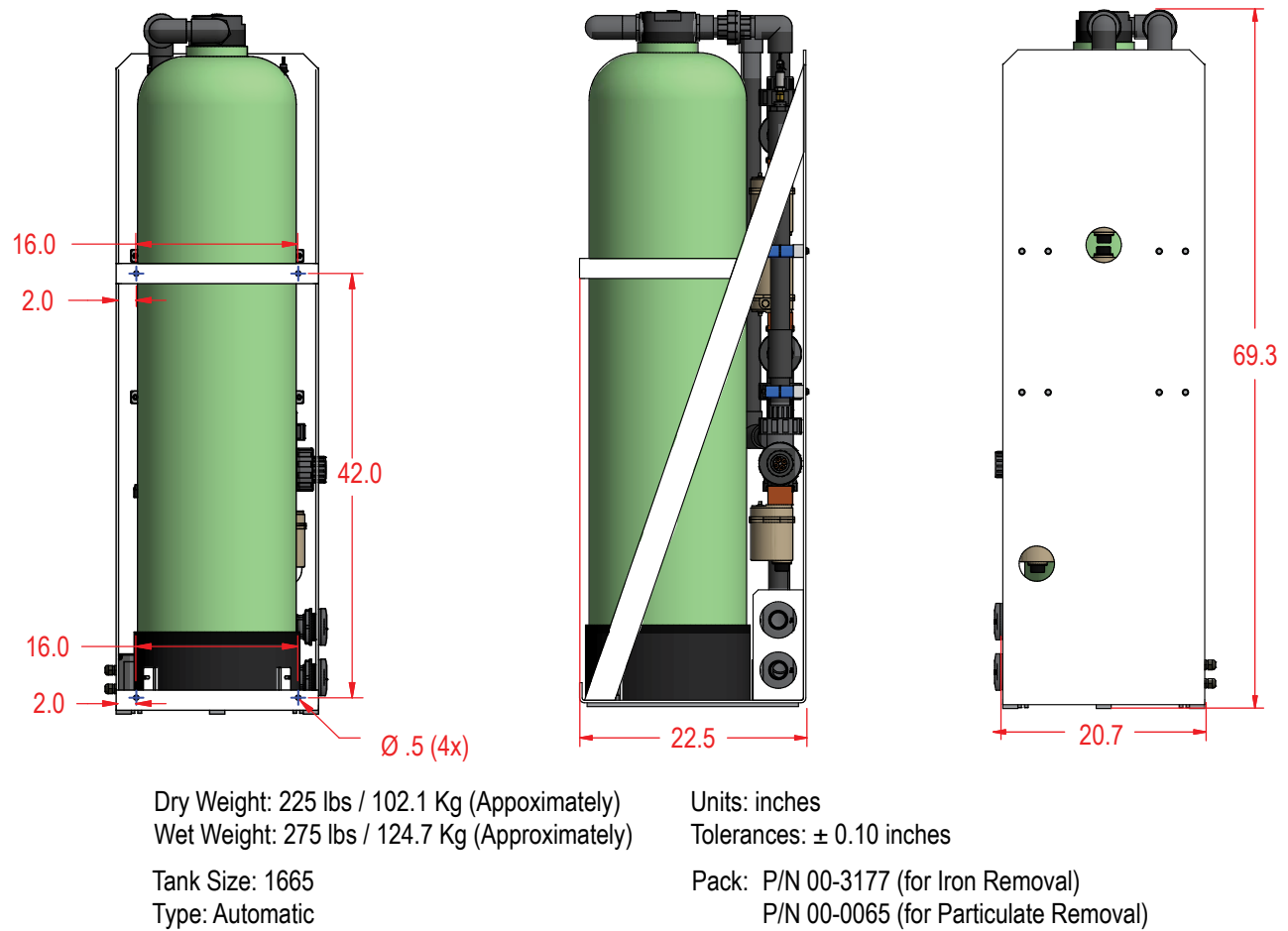
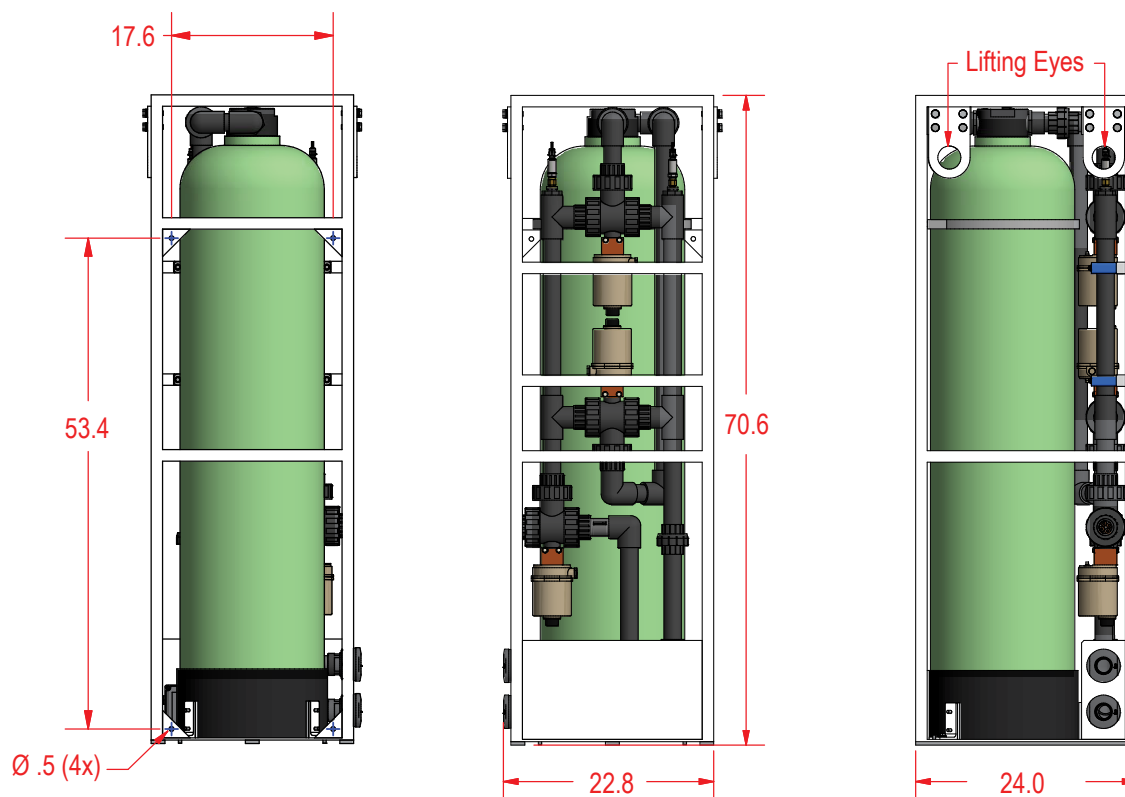


Figure 11: Dimensions & Weight for Automated Multimedia Filter (1665)

DIMENSIONS, WEIGHT & FOOTPRINT (continued)



Dry Weight: 250 lbs / 113.4 Kg (Approximately)
Wet Weight: 300 lbs / 136.14 Kg (Approximately)

Tank Size: 1665
Type: Automatic OG

Units: inches
Tolerances: ± 0.10 inches

Pack: P/N 00-3177 (for Iron Removal)
P/N 00-0065 (for Particulate Removal)

Figure 12: Dimensions & Weight for Automated OG Multimedia Filter (1665)

PLUMBING DIAGRAM

Possible system plumbing layouts are shown in *Figure 13* to *Figure 25*. Refer to the figure appropriate to your installation when connecting the plumbing. The plumbing installation is discussed in "FILTER INSTALLATION / PLUMBING" on page 50.

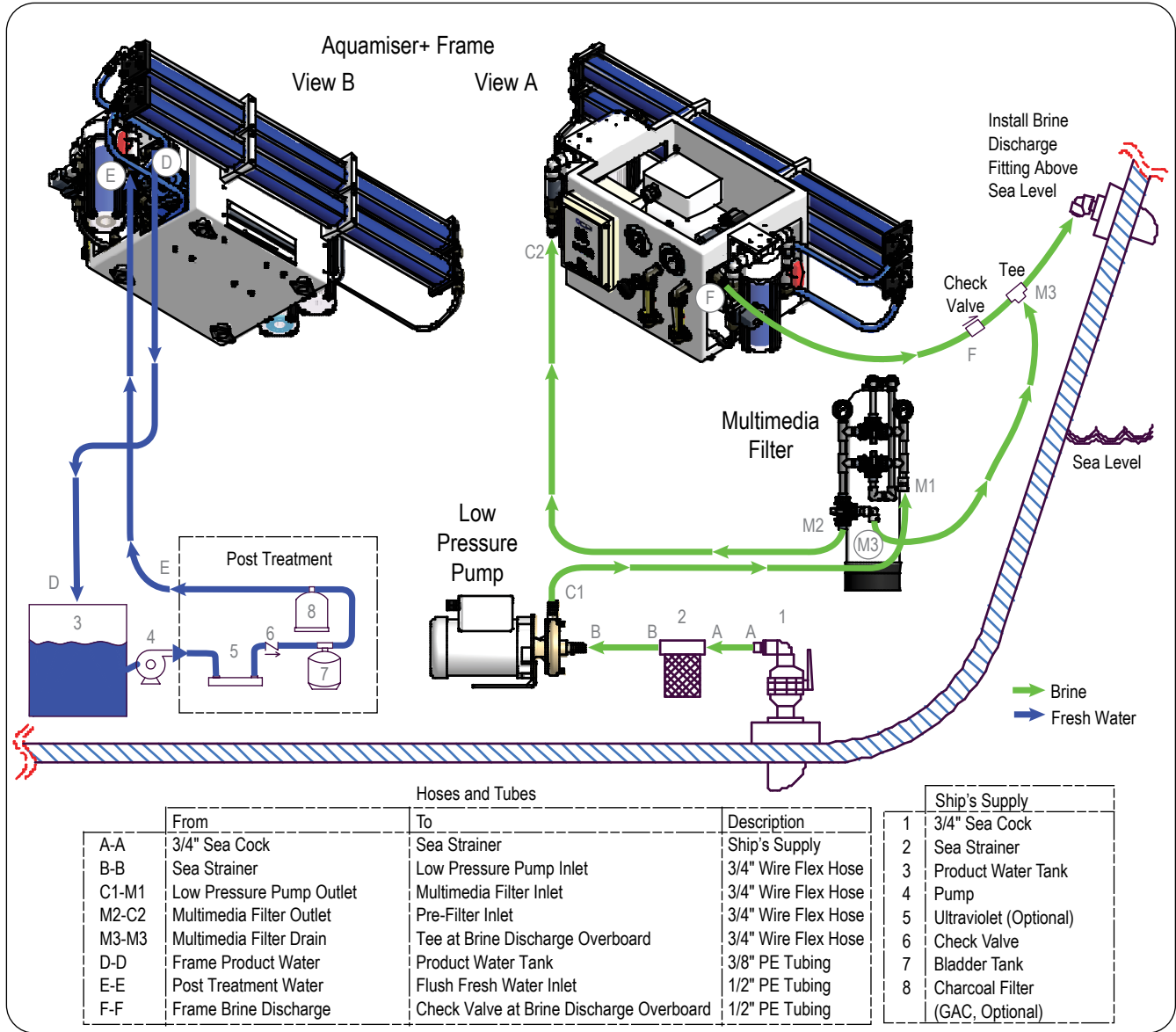


Figure 13: Plumbing Diagram Aquamiser+ Framed (standard pre-filter)

PLUMBING DIAGRAM (continued)

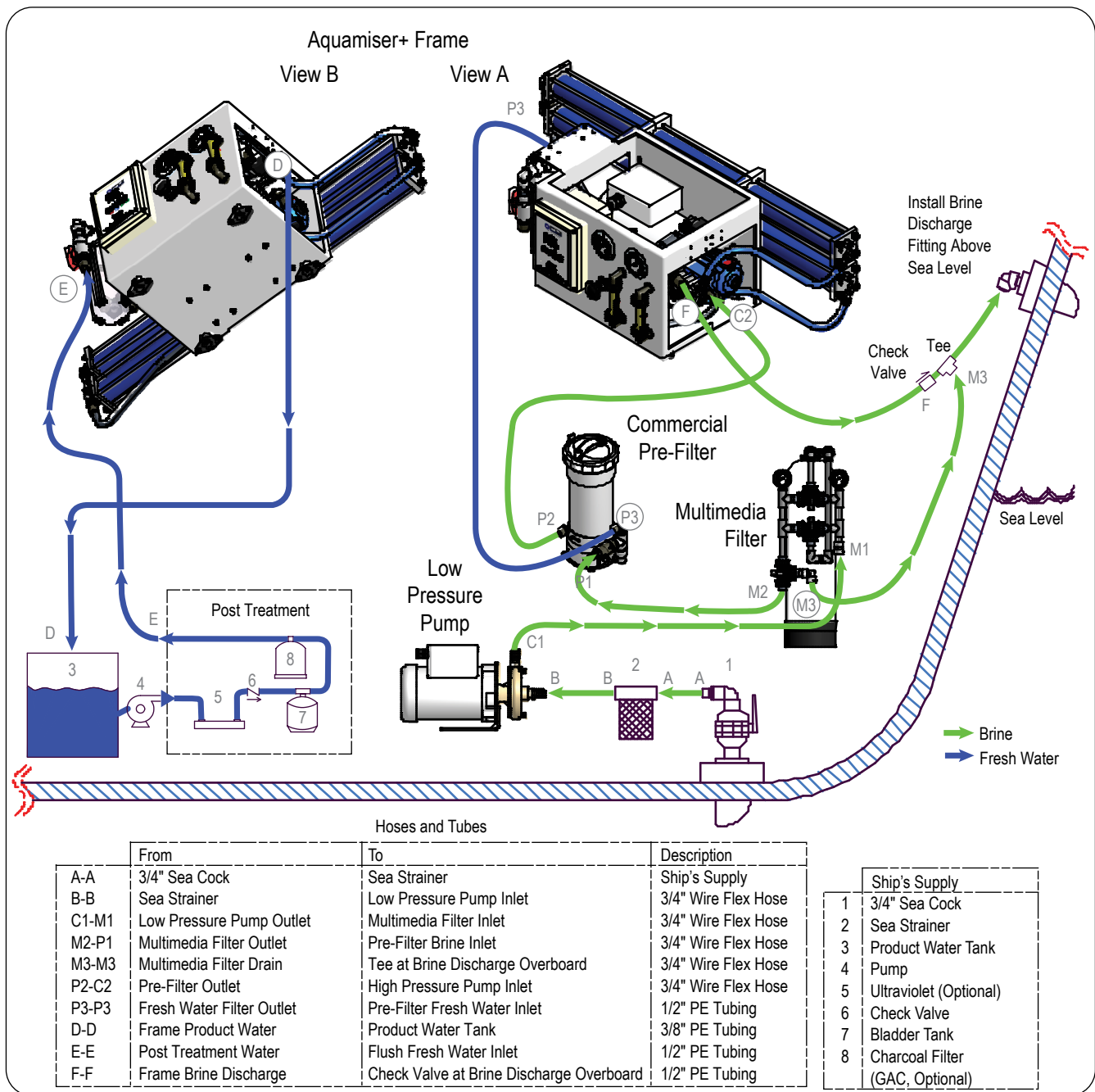


Figure 14: Plumbing Diagram Aquamiser+ Framed (commercial pre-filter)

PLUMBING DIAGRAM (continued)

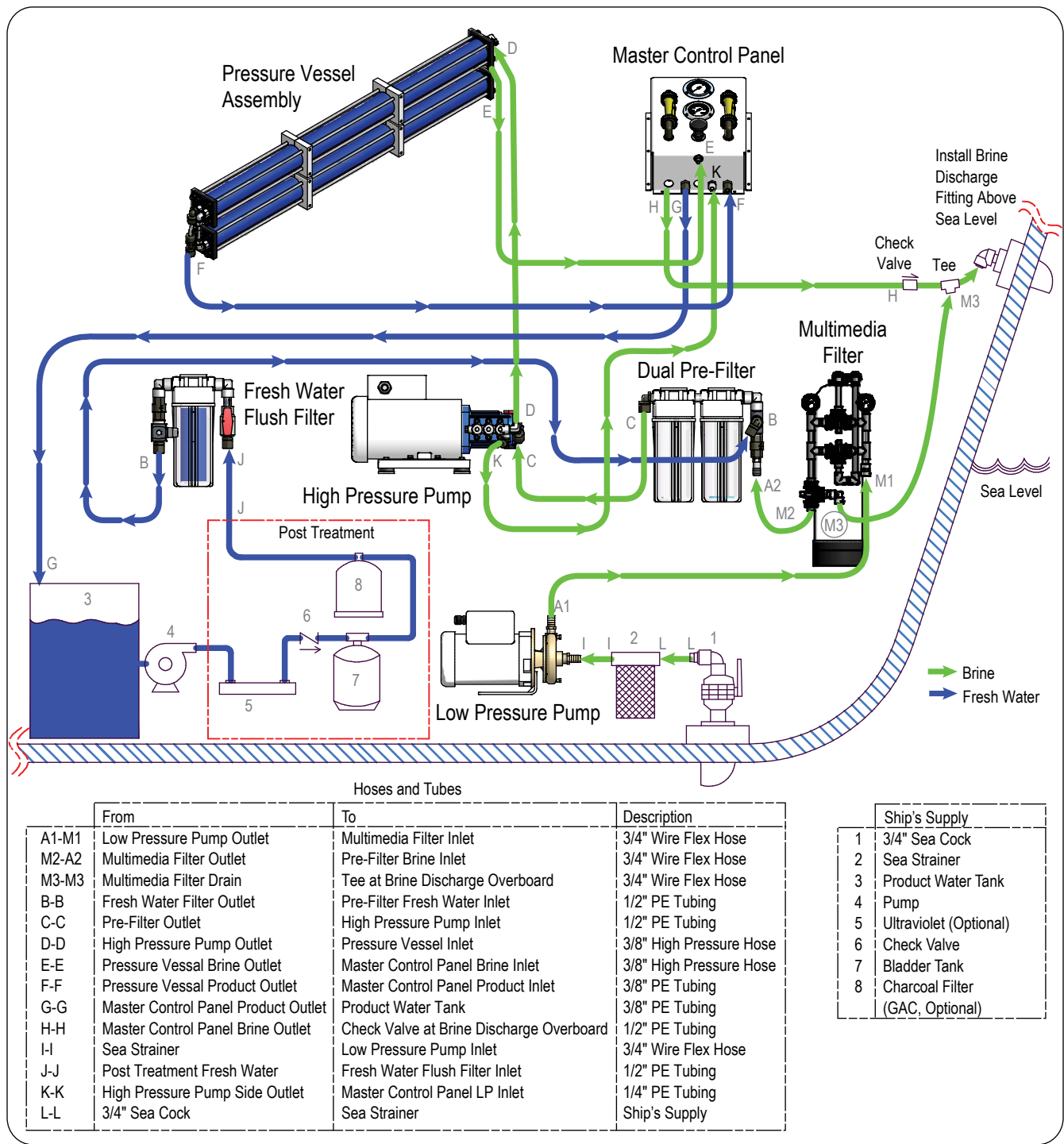


Figure 15: Plumbing Diagram Aquamiser+ Modular (dual pre-filter)

PLUMBING DIAGRAM (continued)

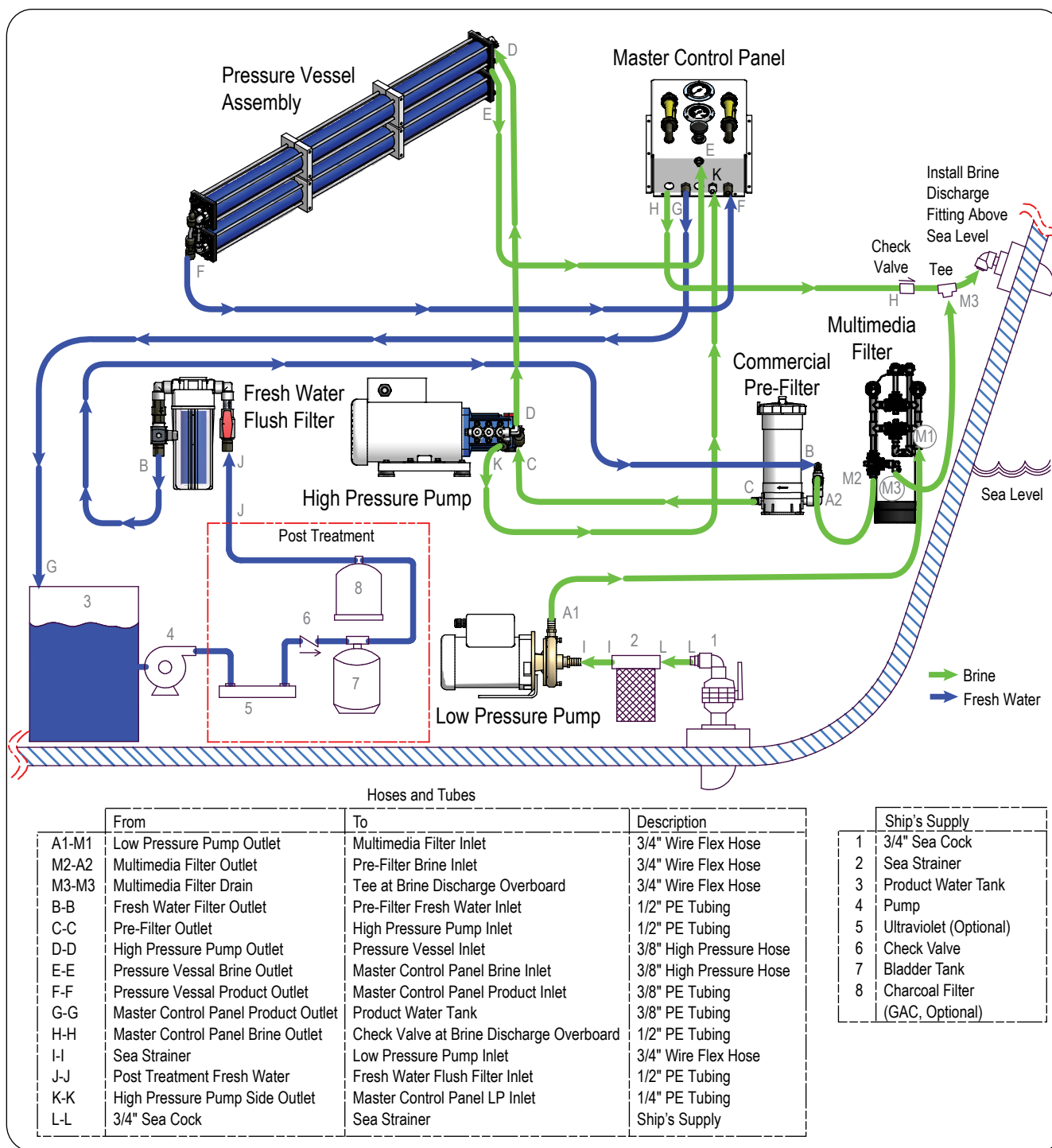


Figure 16: Plumbing Diagram Aquamiser+ Modular (commercial pre-filter)

PLUMBING DIAGRAM (continued)

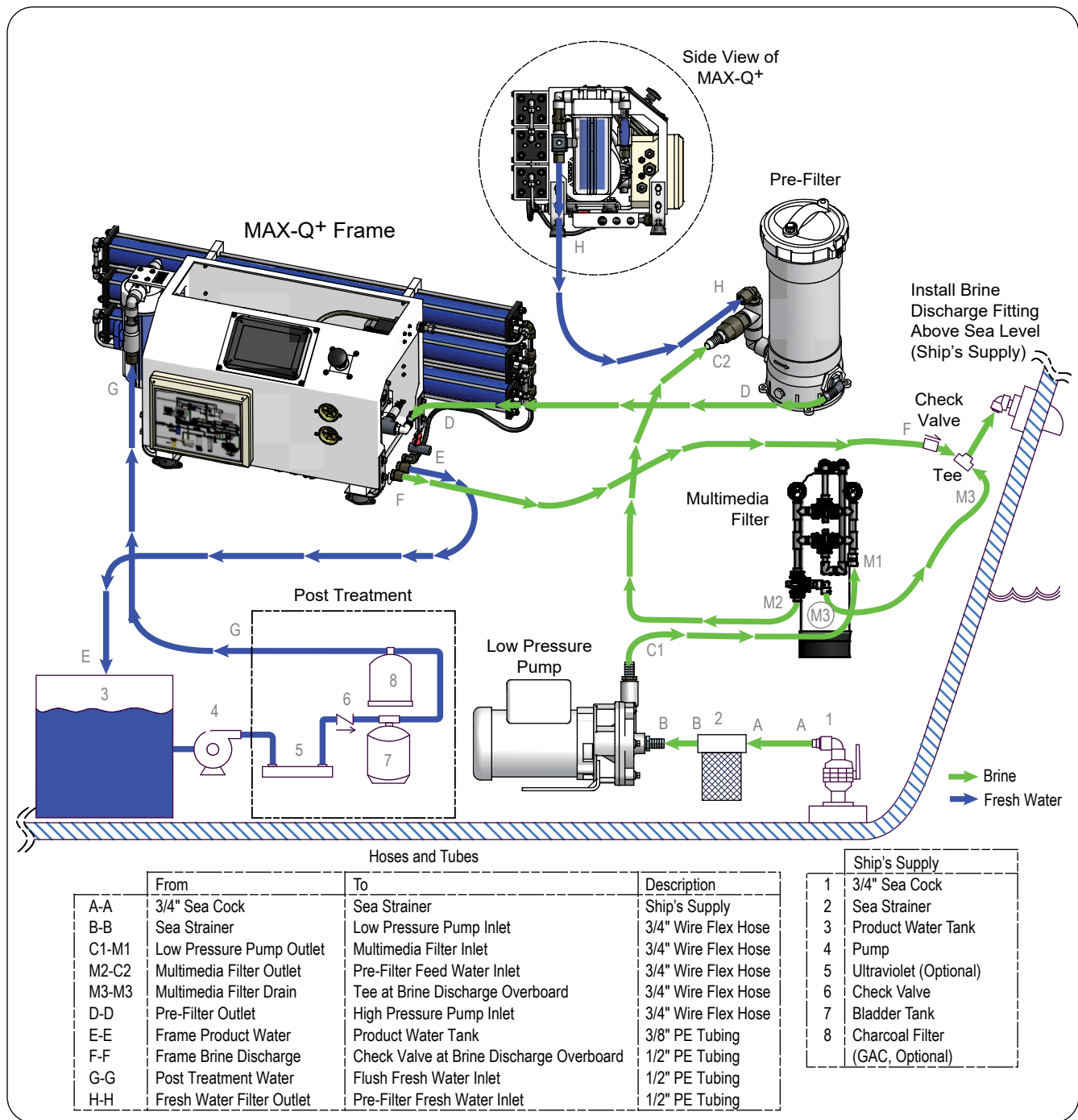


Figure 17: Plumbing Diagram Max•Q+ Framed

PLUMBING DIAGRAM (continued)

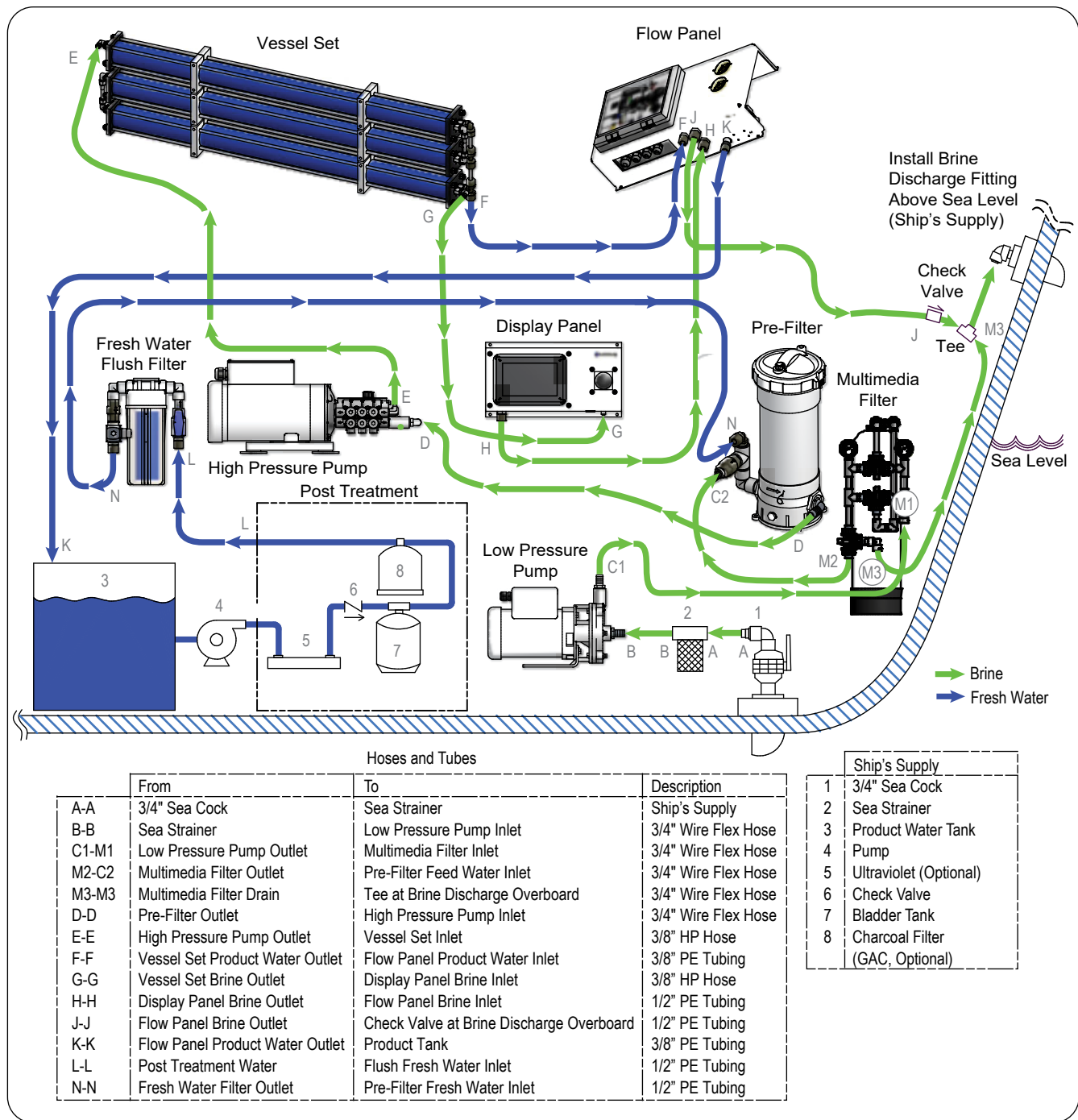


Figure 18: Plumbing Diagram Max•Q+ Modular

PLUMBING DIAGRAM (continued)

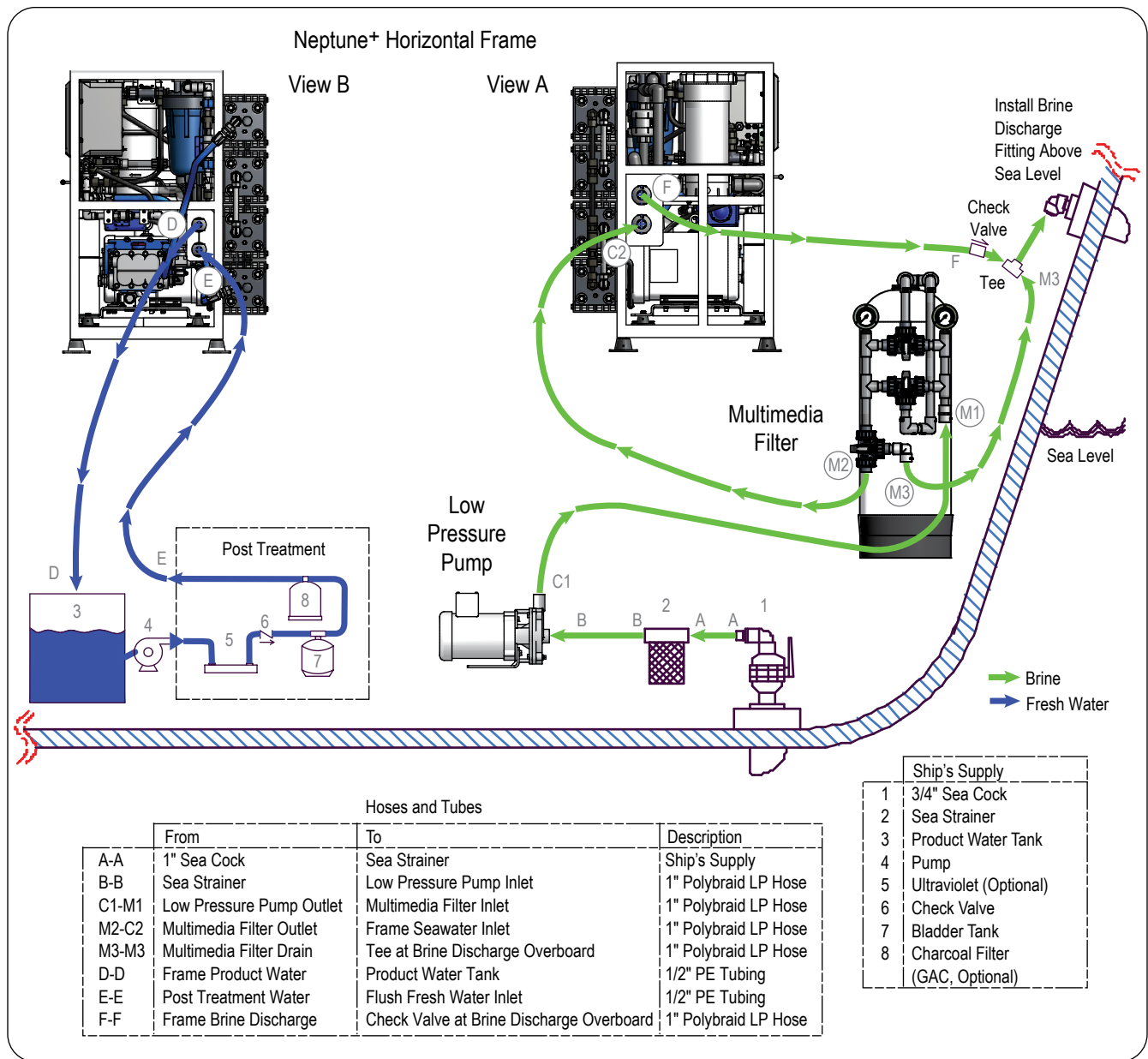


Figure 19: Plumbing Diagram Neptune+ Horizontal

PLUMBING DIAGRAM (continued)

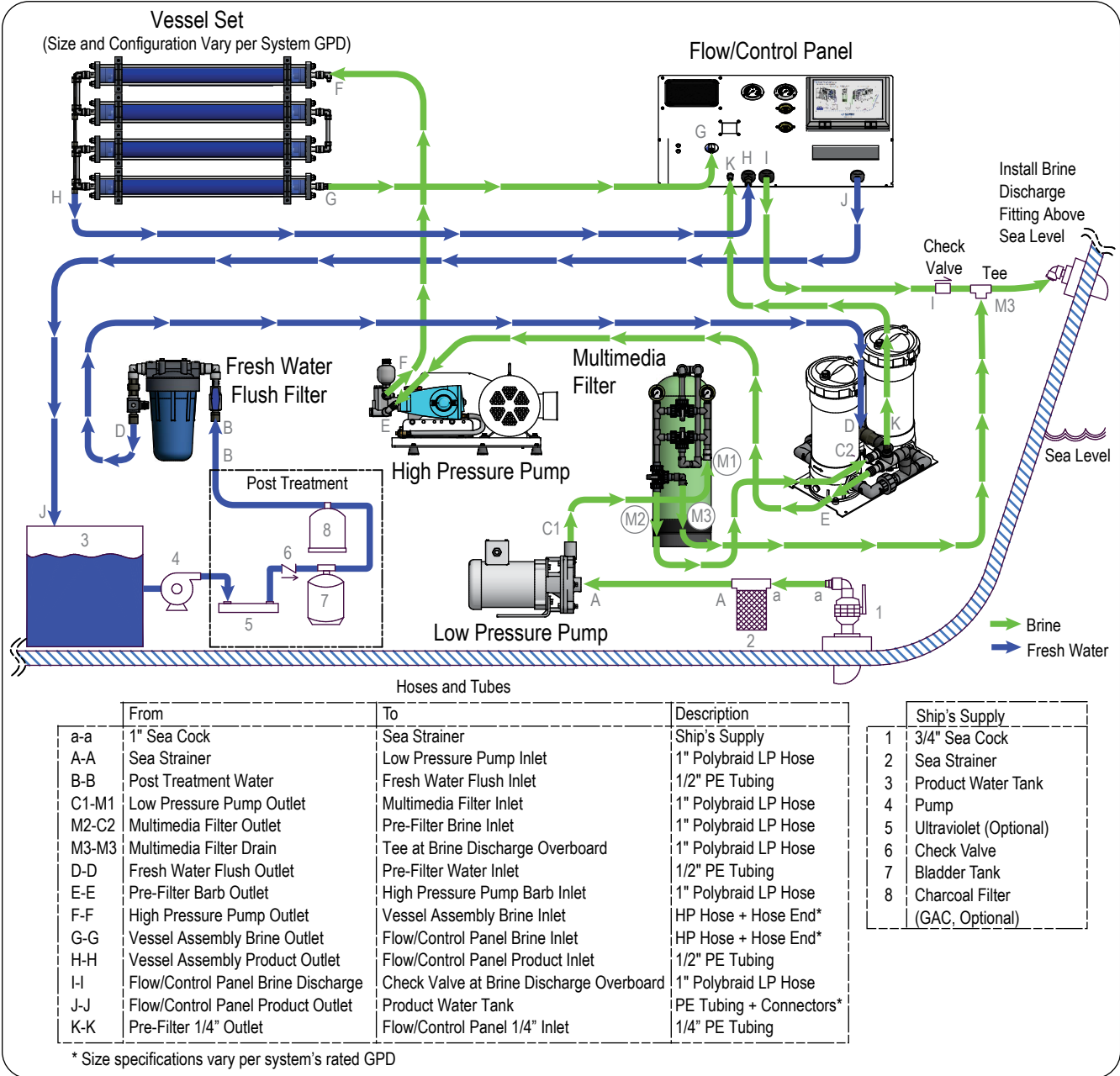


Figure 20: Plumbing Diagram Neptune+ Modular

PLUMBING DIAGRAM (continued)

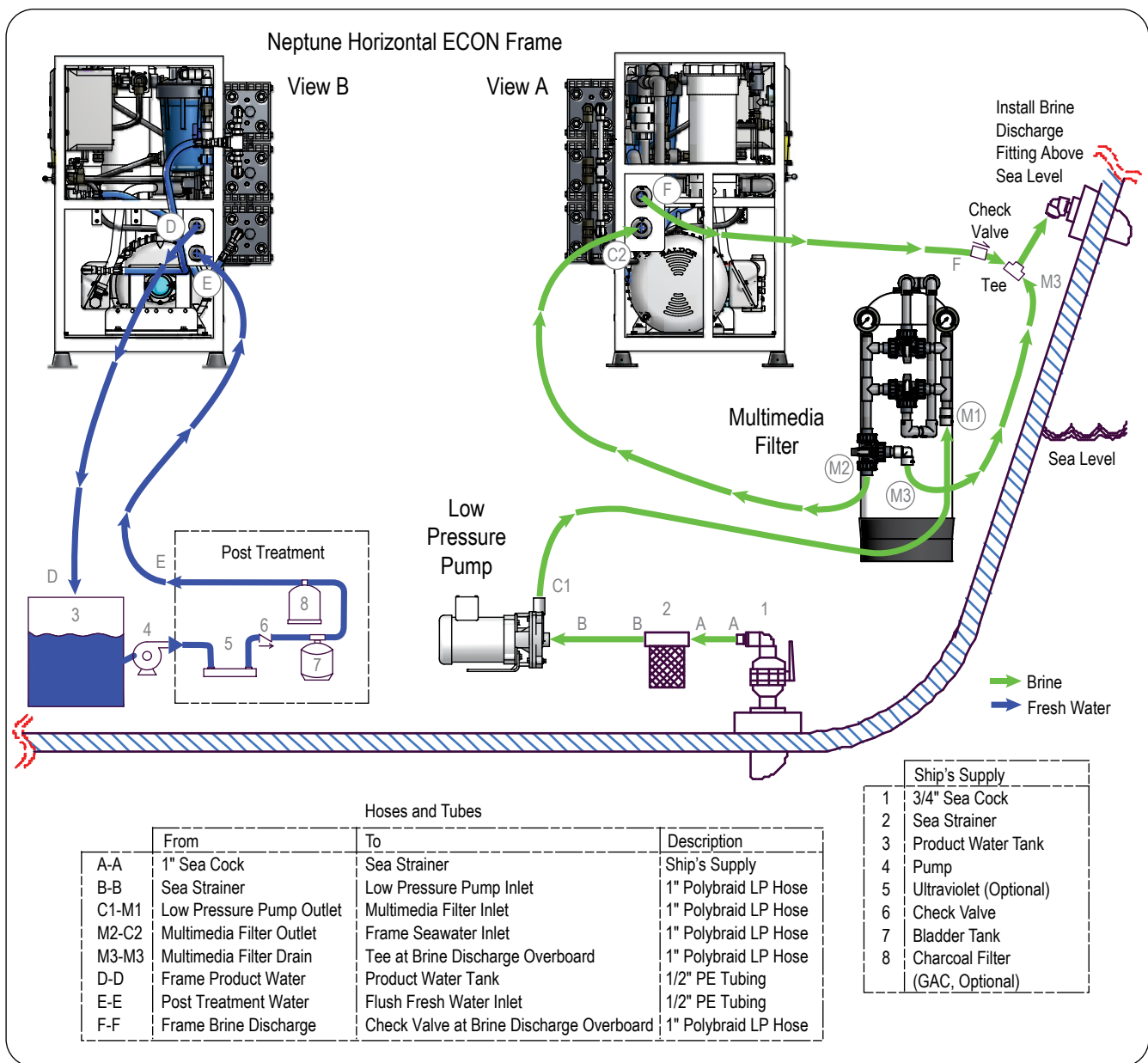


Figure 21: Plumbing Diagram Neptune+ Econ

PLUMBING DIAGRAM (continued)

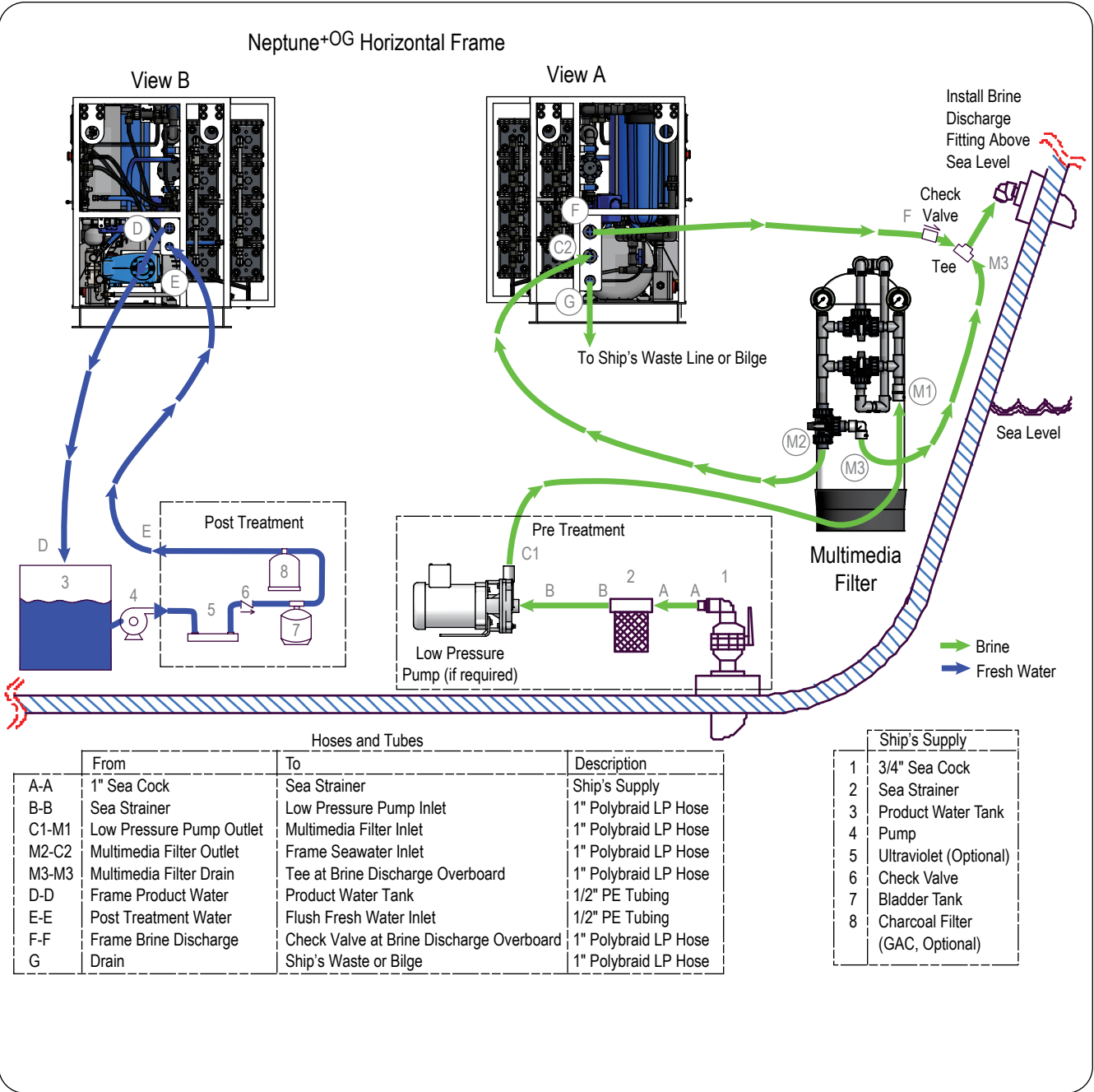


Figure 22: Plumbing Diagram Neptune+ OG

PLUMBING DIAGRAM (continued)

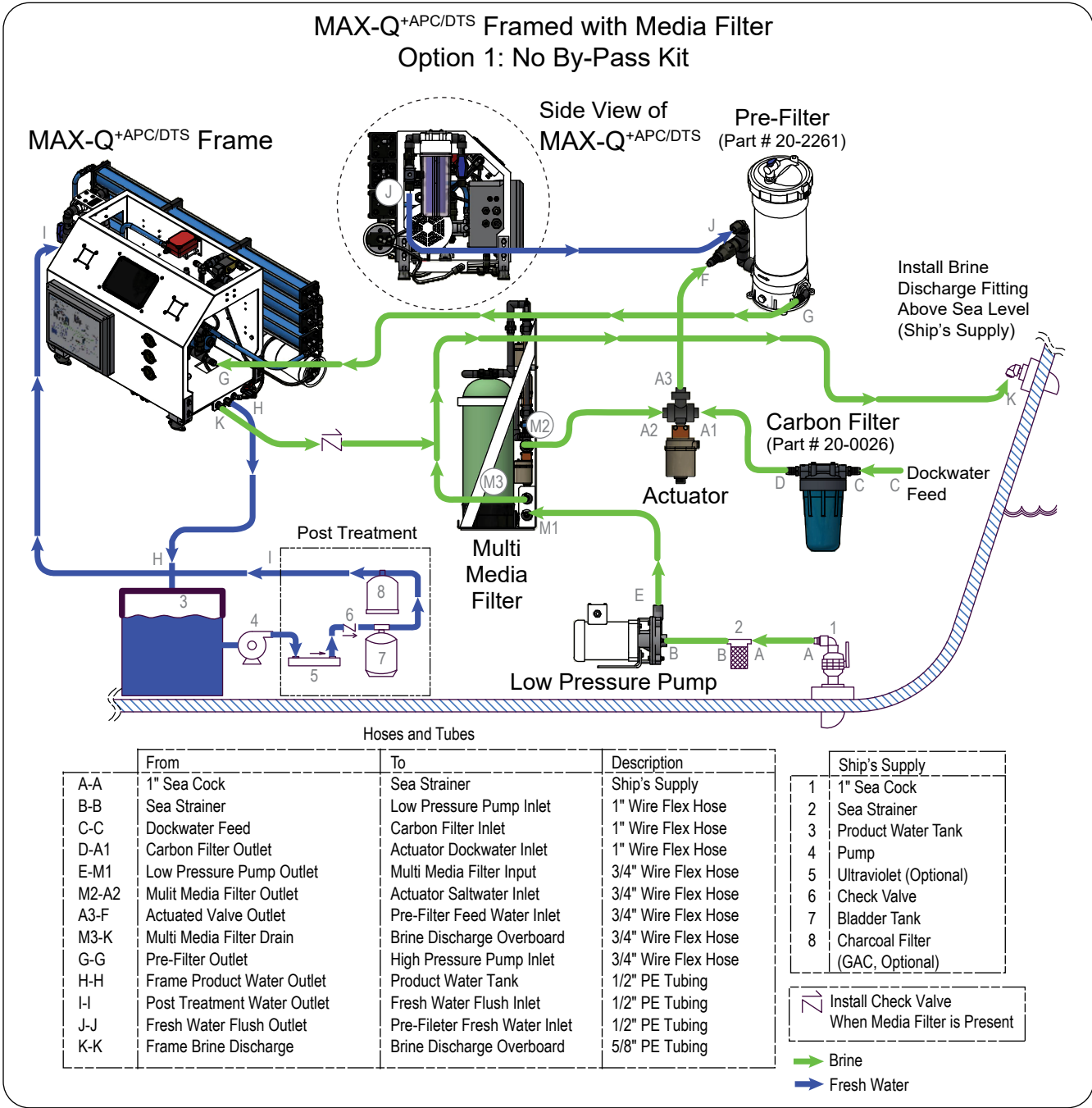


Figure 23: Plumbing Diagram Max•Q+APC/DTS, No By-Pass Kit (Option 1)

PLUMBING DIAGRAM (continued)

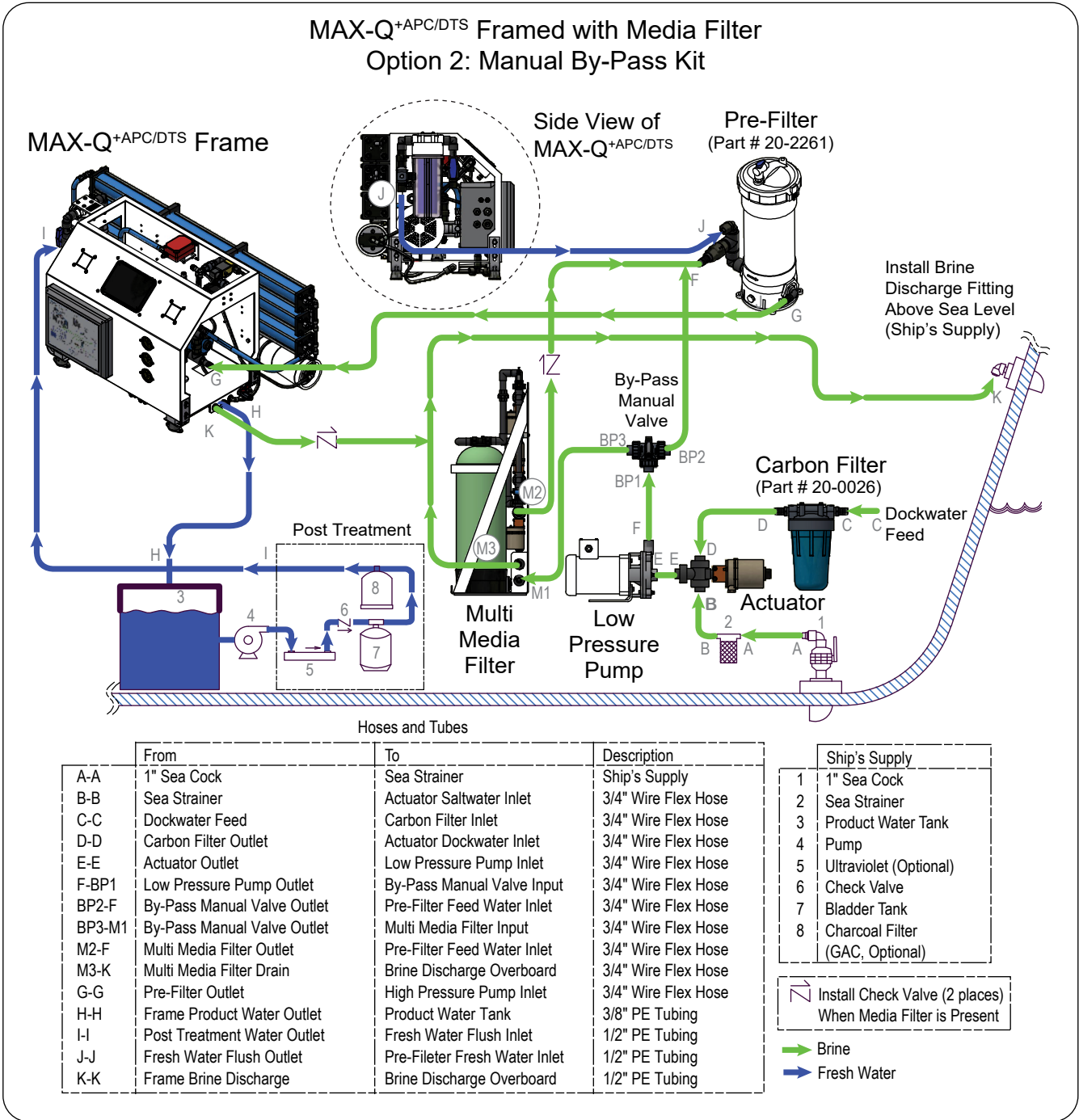


Figure 24: Plumbing Diagram Max•Q+APC/DTS, Manual By-Pass Kit (Option 2)

PLUMBING DIAGRAM (continued)

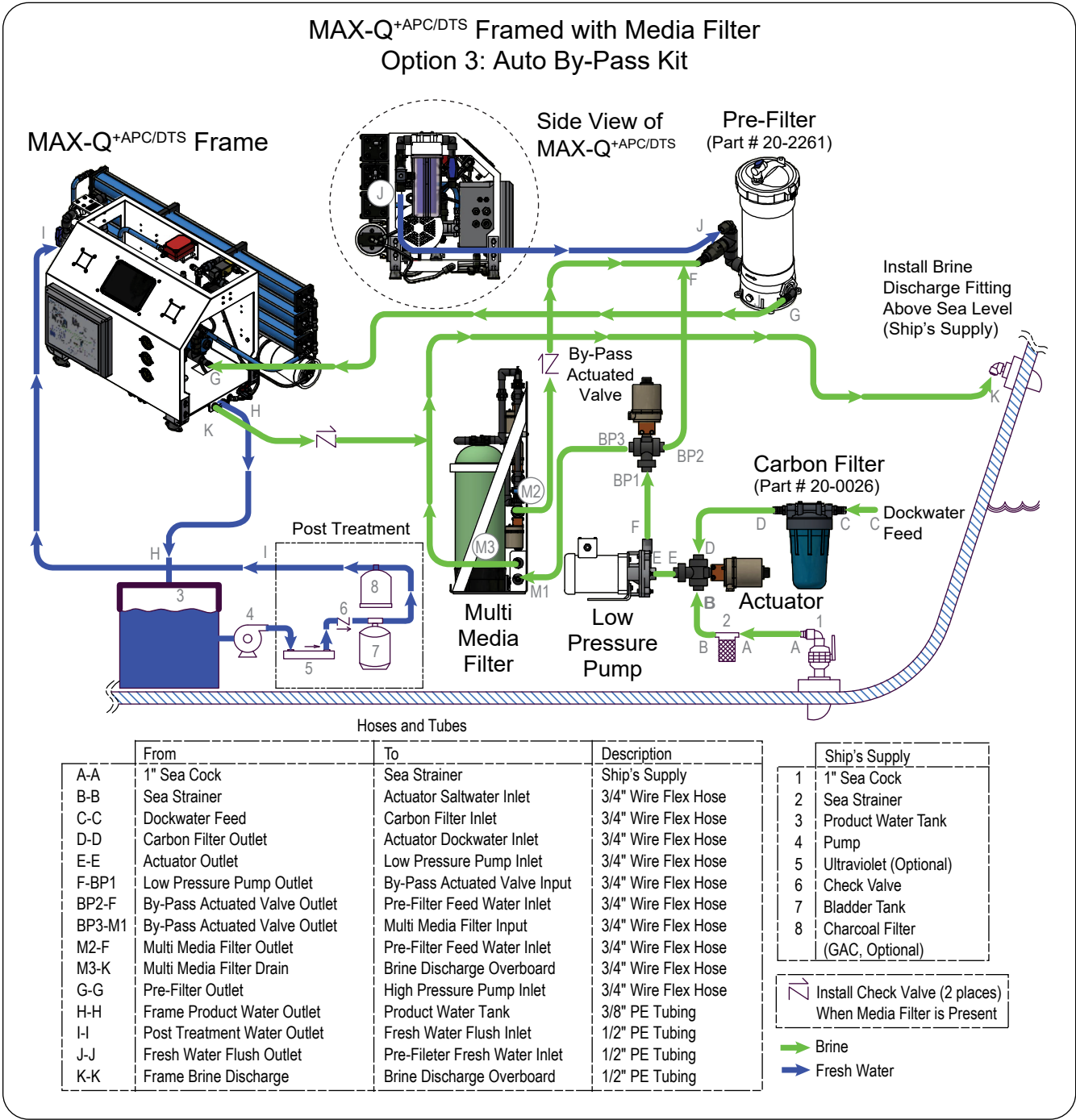


Figure 25: Plumbing Diagram Max•Q+APC/DTS, Auto By-Pass Kit (Option 3)

PLUMBING DIAGRAM (continued)

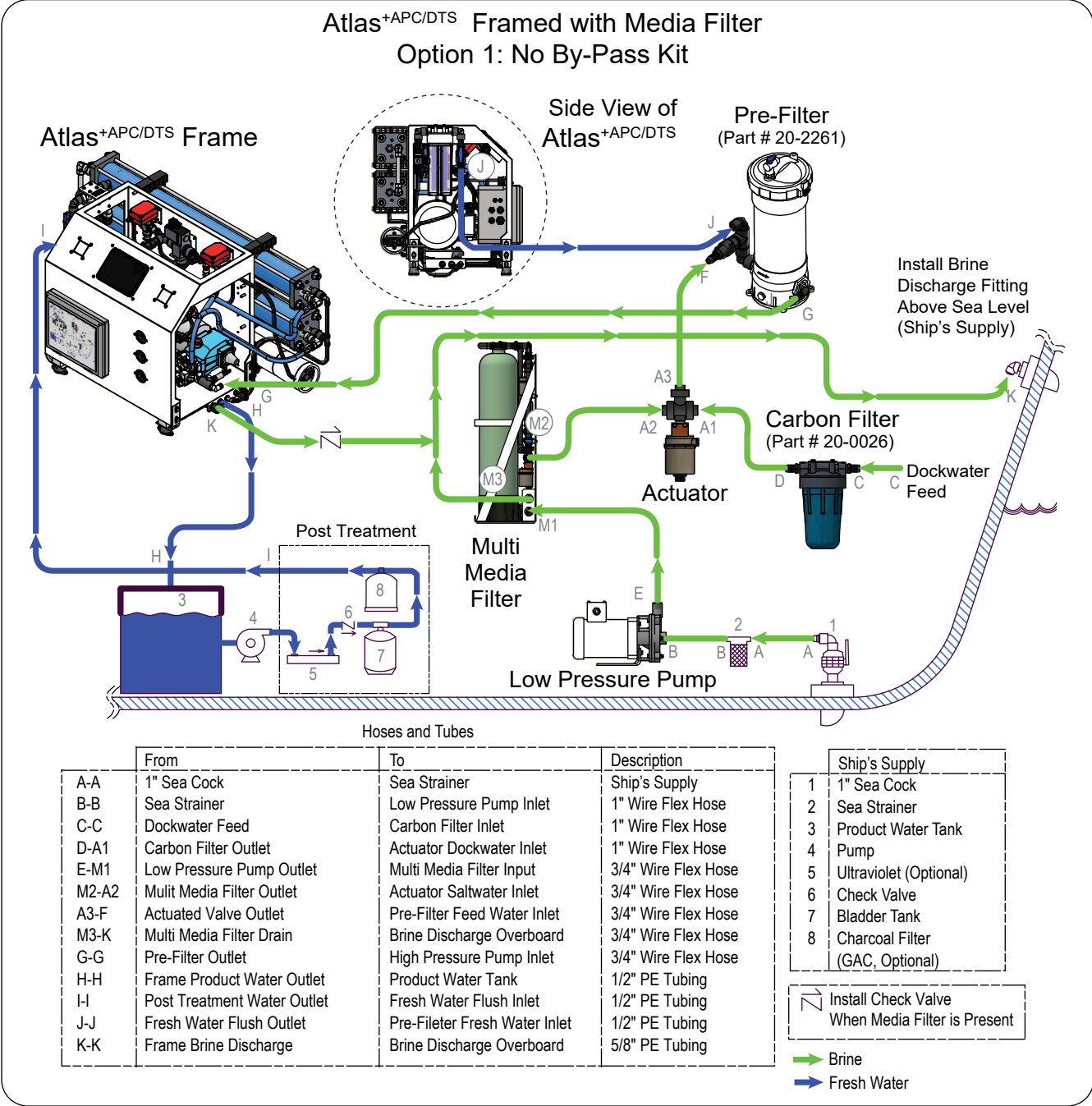


Figure 26: Plumbing Diagram Atlas+APC/DTS, No By-Pass Kit (Option 1)

PLUMBING DIAGRAM (continued)

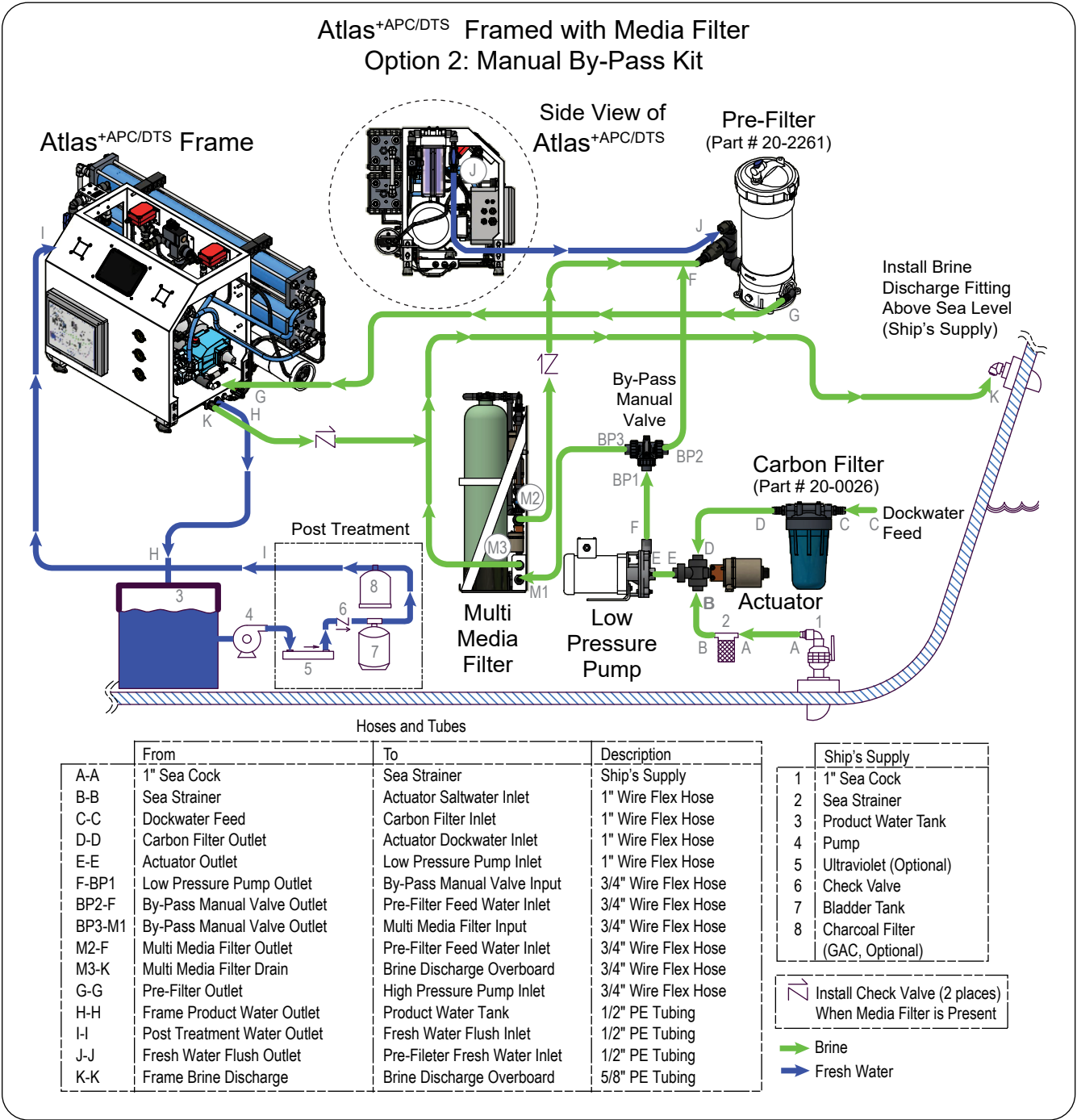


Figure 27: Plumbing Diagram Atlas+APC/DTS, Manual By-Pass Kit (Option 2)

PLUMBING DIAGRAM (continued)

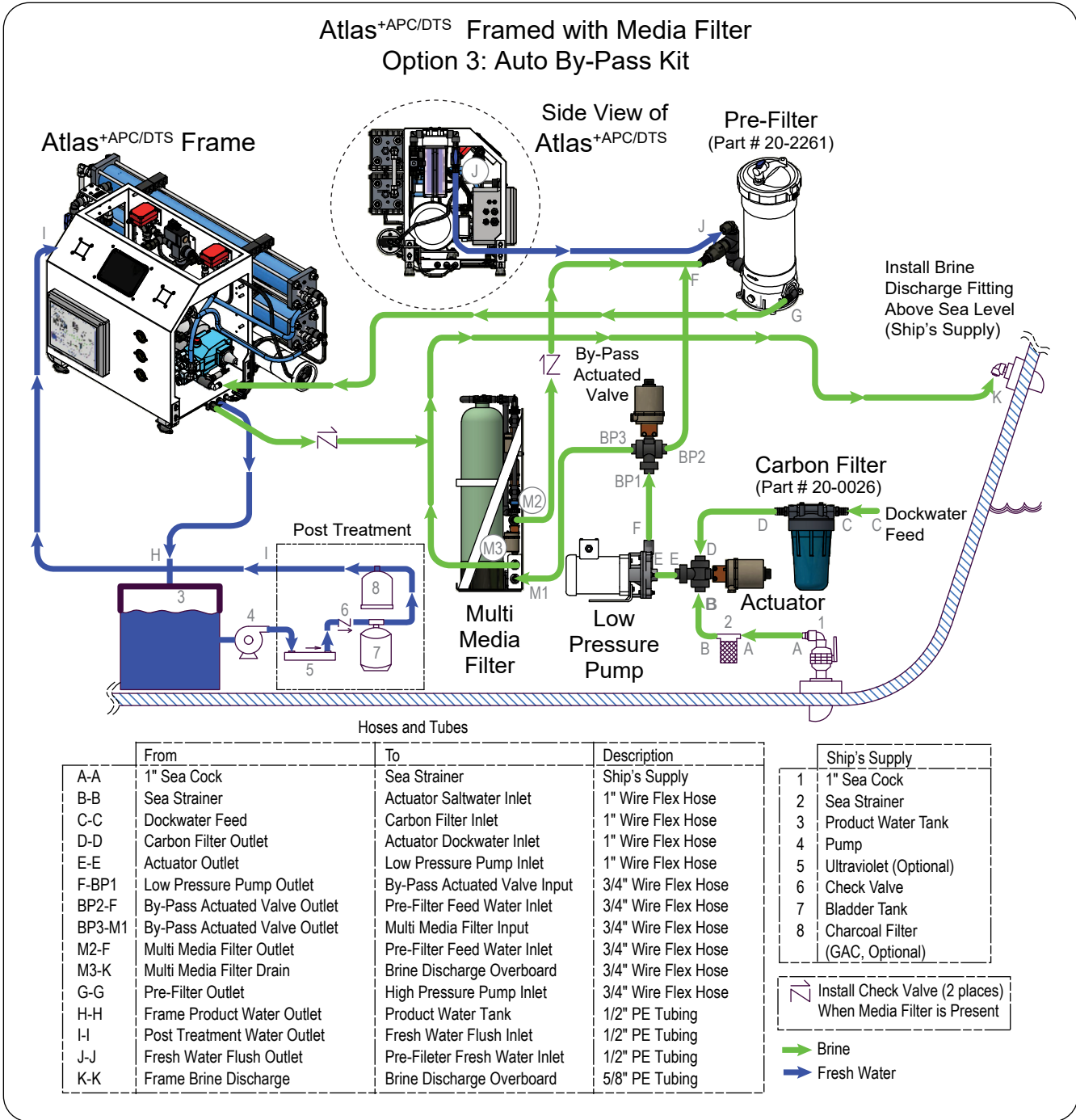
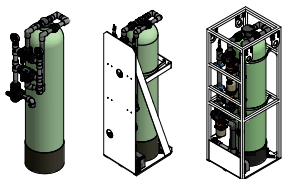


Figure 28: Plumbing Diagram Atlas+APC/DTS, Auto By-Pass Kit (Option 3)

FILTER INSTALLATION / MOUNTING

Please refer to the appropriate footprint and layout diagrams from "DIMENSIONS, WEIGHT & FOOTPRINT" starting on page 26.



SECURING THE MULTIMEDIA FILTER

For manual multimedia filters, position the tank in an area that the valve tree on the tank can be reached. Secure the tank with a strap approximately 60% up on the tank. Block the base in at three points or 120 degree increments. Do not locate the tank in an area of heavy vibration as the media bed will compact and become hard.

For automated multimedia filters, secure the tank by the four mounting holes on the side of the frame. Do not locate the tank in an area of heavy vibration as the media bed will compact and become hard.

The multimedia filter will need to be backwashed prior to putting it into service.

FILTER INSTALLATION / PLUMBING

Before proceeding, review *Figure 29* and the notes below to ensure proper tube fittings and hose connections.

PROPER INSTALLATION OF HOSE ENDS AND FITTINGS

Follow these best practices when installing fittings and clamps:

- Cut the tube or hose end square and clean. You may use a vise and fine-tooth saw to facilitate a square and clean cut. Remove any burrs.
- For tubes, fittings are supplied. There are two types of fittings. Fittings with release button (called push-in fittings) require you to only insert tube until it bottoms. Fittings with nut require you to loosen nut three turns, insert tube until it bottoms, then tighten nut.
- For PVC helix wire suction hose, feed hose through a two clamps, push hose on over the barb until it bottoms against the barb, and tighten clamps. Do not use lubricant on the tube end; it may leave a residue that compromises the connection. You may, however, soak the hose end in hot water for a few minutes before pushing the hose on the barb.

CAUTION: Always allow slack in all tube and hose lines. Never cause the tube or hose to immediately bend from the fitting. Allow the line to enter or leave from the fitting in a straight manner for several inches to ensure proper connection, to relieve stress to the fitting and tube or hose, and to allow ease of detachment and reattachment during maintenance or repair.

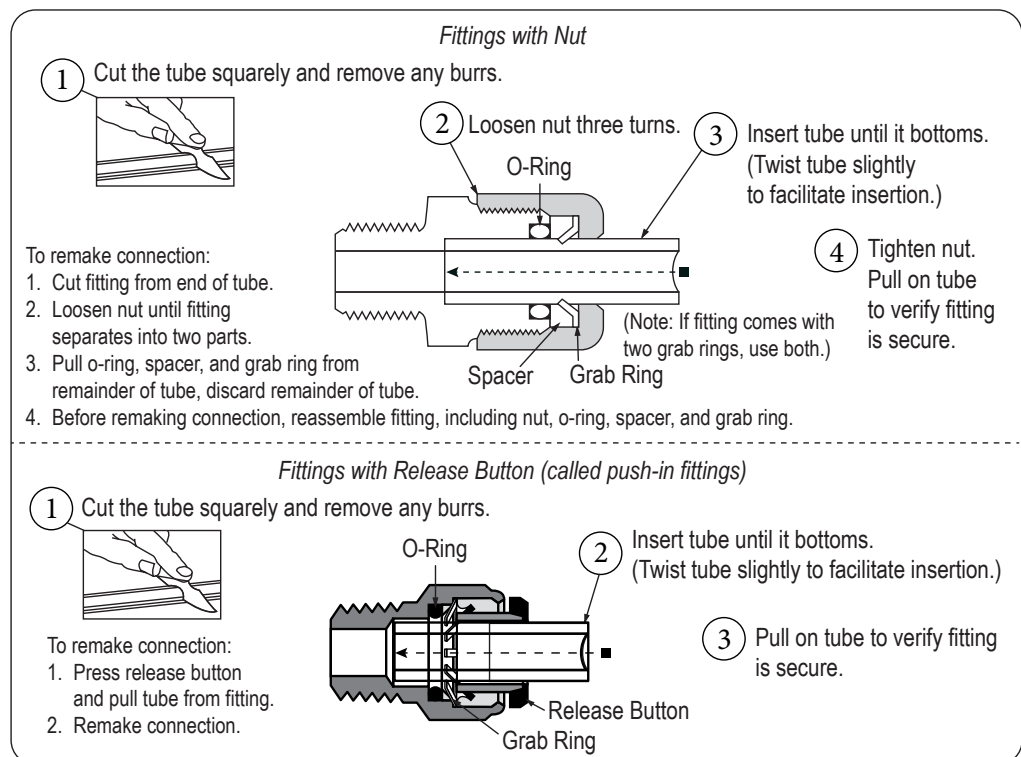


Figure 29: Proper Installation of Hose Ends and Fittings

Plumb the watermaker system first, then the splice in the multimedia filter as described in the paragraphs that follow. Refer to *Figure 13* to *Figure 25* for plumbing diagrams. Refer to *Figure 30* for media filter connections. For systems with the APC/DTS (Double-Pass) technology, also refer to *Figure 31* and *Figure 32* for actuator connections.

MULTIMEDIA FILTER PLUMBING CONNECTIONS

Splice into the hose that connects the low-pressure pump to the prefilter inlet. Attach the free end of hose on the upstream side to multimedia filter inlet (M1). Attach the free end of hose on the downstream side to the multimedia filter outlet (M2). Then route hose from the multimedia filter drain (M3) through a tee to the brine discharge connection. Add a check valve on the system's brine discharge line to prevent back flow into the system.

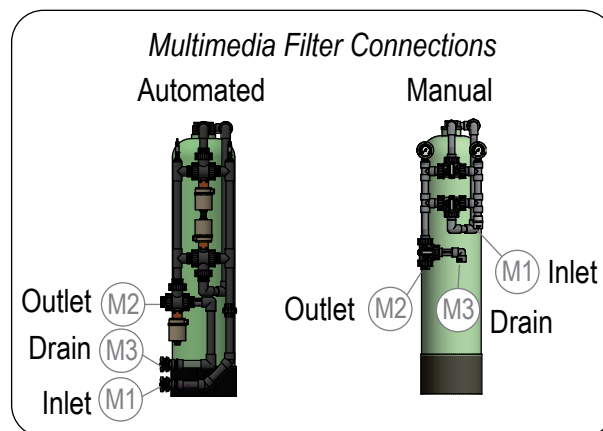


Figure 30: Multimedia Filter Plumbing Connections

MULTIMEDIA FILTER PLUMBING CONNECTIONS (APC/DTS)

Refer to the instructions below that correlates to the Media Filter Bypass Option of your installation. Use the hose, barbs, clamps, check valve, nipple, and tee included with the Installation Kit to assist in making the plumbing connections.

Option #1 (No Kit): Route hose from the carbon filter outlet to the first inlet actuator input (A1). Route hose from low pressure pump to media filter input (M1). Route a hose from the media filter output (M2) to second inlet actuator input (A2). Route a hose from inlet actuator output (A3) to prefilter input. Route hose from the media filter drain (M3) to the brine discharge. Add a check valve

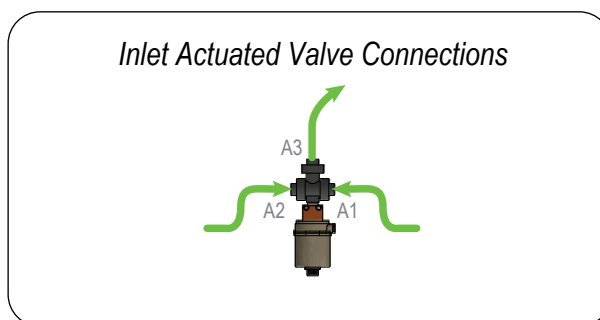


Figure 31: Inlet Actuated Valve Plumbing Connections

on the system's brine discharge line to prevent back flow into the system

Option #2 (Manual Kit): Splice into the hose that connects the low-pressure pump to the prefilter inlet. Attach the free end of hose on the upstream side to bypass manual valve (BP1). Attach the free end of hose on the downstream side to the bypass manual valve (BP2). Route hose from bypass manual valve (BP3) to media filter inlet (M1). Route hose from media filter outlet (M2) to prefilter inlet through a check valve. Then route hose from the media filter drain (M3) to the brine discharge. Add a check valve on the system's brine discharge line to prevent back flow into the system.

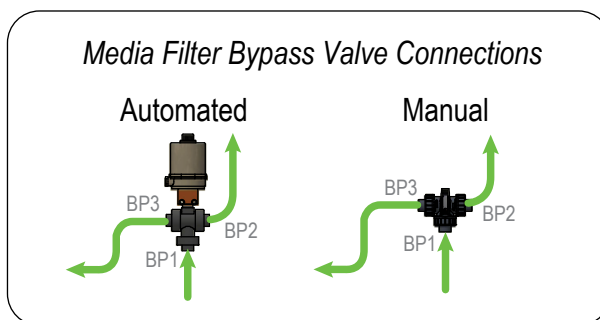


Figure 32: Media Filter Bypass Valves Plumbing Connections

Option #3 (Auto Kit): Splice into the hose that connects the low-pressure pump to the prefilter inlet. Attach the free end of hose on the upstream side to bypass automated valve (BP1). Attach the free end of hose on the downstream side to the bypass automated valve (BP2). Route hose from bypass automated valve (BP3) to media filter inlet (M1). Route hose from media filter outlet (M2) to prefilter inlet through a check valve. Then route hose from the media filter drain (M3) to brine discharge. Add a check valve on the system's brine discharge line to prevent back flow into the system.

FILTER INSTALLATION / ELECTRICAL CONNECTIONS

Please refer to the wiring schematics for the automated and the automated OG multimedia filters, immediately following these electrical connections instructions.

CAUTION: DO NOT PERFORM INSTALLATION UNLESS:

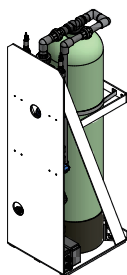
1. The system feed water sea cock valve is closed.
2. The system main electrical disconnect switch is switched **OFF, LOCKED, and TAGGED.**

WARNING: ELECTRICAL SHOCK HAZARD. A volt/ohm meter will be necessary. The following installation procedures expose the installer to **HIGH VOLTAGE** and electrical shock hazard. Only attempt this if you are a qualified electrician and only if surrounding conditions are safe.

CAUTION: Always allow slack in electrical cables. Allow the cable to enter or leave from the strain relief in a straight manner for several inches to ensure proper connection, to relieve stress to the cable and fitting, and to allow ease of detachment and reattachment for maintenance or replacement. If electrical cables are pulled tight causing them to bend at the strain relief, they will pull out of the strain relief causing a dangerous electrical shock condition.

NOTE:

- Always follow all local and Coast Guard codes when installing this system.
- Grounding and circuit protection should be done in accordance with National Electrical Code.
- Never attempt to hook-up or service this system without disconnecting all power.
- Always check to make sure system voltage matches incoming voltage.
- If system is 3-phase, be sure to check for correct rotation on all pumps before running system.



WIRING THE AUTOMATED MULTIMEDIA FILTER

NOTE: If you are installing the Automated OG Multimedia Filter, skip to "Wiring The Automated OG Multimedia Filter" on page 55.

The automated multimedia filter is pre-wired for your convenience, however you will need to terminate a couple of wires to the watermaker system PC board (located in the system electrical enclosure). Find the 6-conductor and the 10-conductor wires on the automated multimedia filter and route the wires to the watermaker system PC board, Connect the wires to the PC board as shown in *Figure 33*.

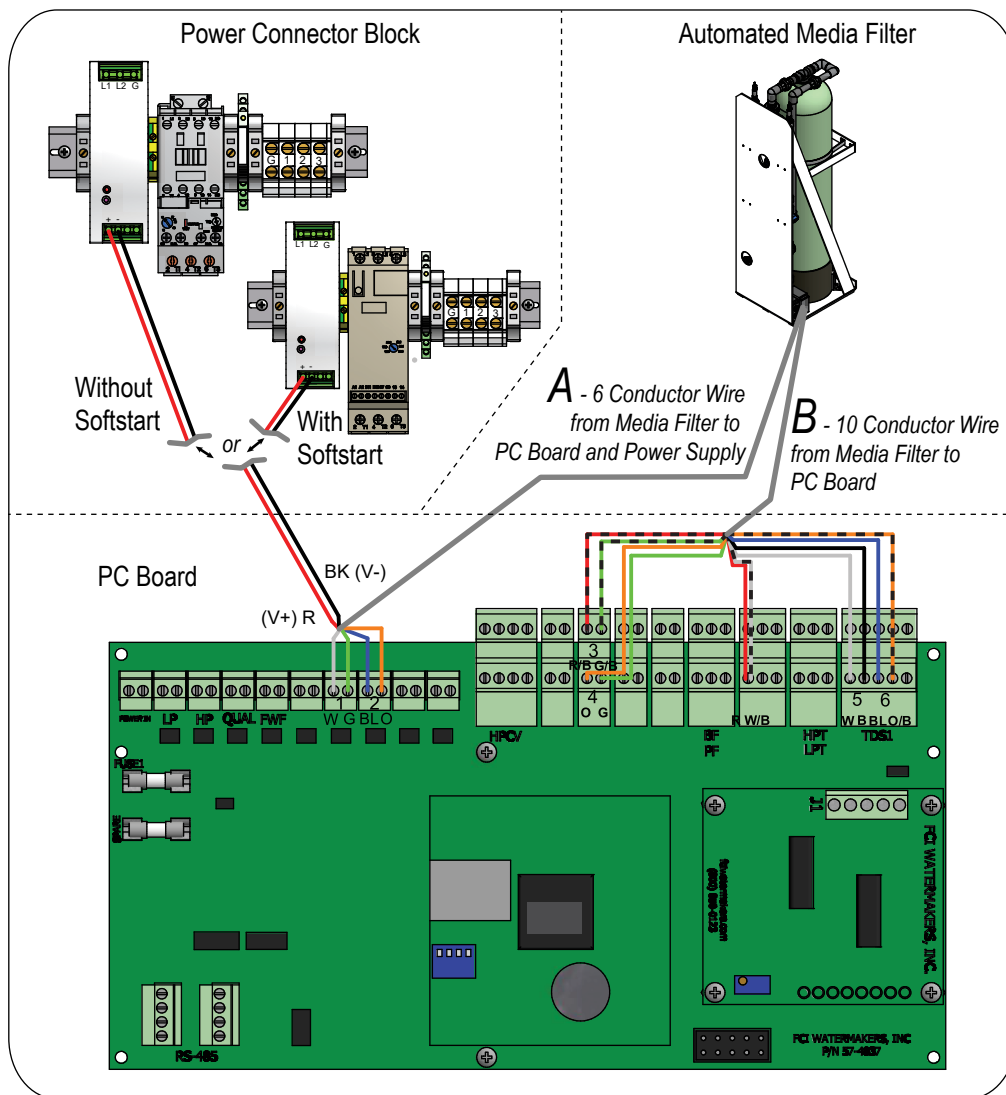
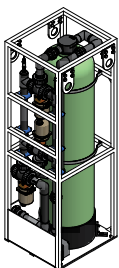


Figure 33: Wiring the Automated Multimedia Filter



WIRING THE AUTOMATED OG MULTIMEDIA FILTER

The Automated OG Multimedia Filter is pre-wired for your convenience with the wire assembly terminated with a 17-pole plug. The OG watermaker is built with a 17-pole receptacle on the side of its electrical enclosure. Simply route the wire assembly to the receptacle, remove the receptacle's cap, and plug the wire assembly into the receptacle (Figure 34).

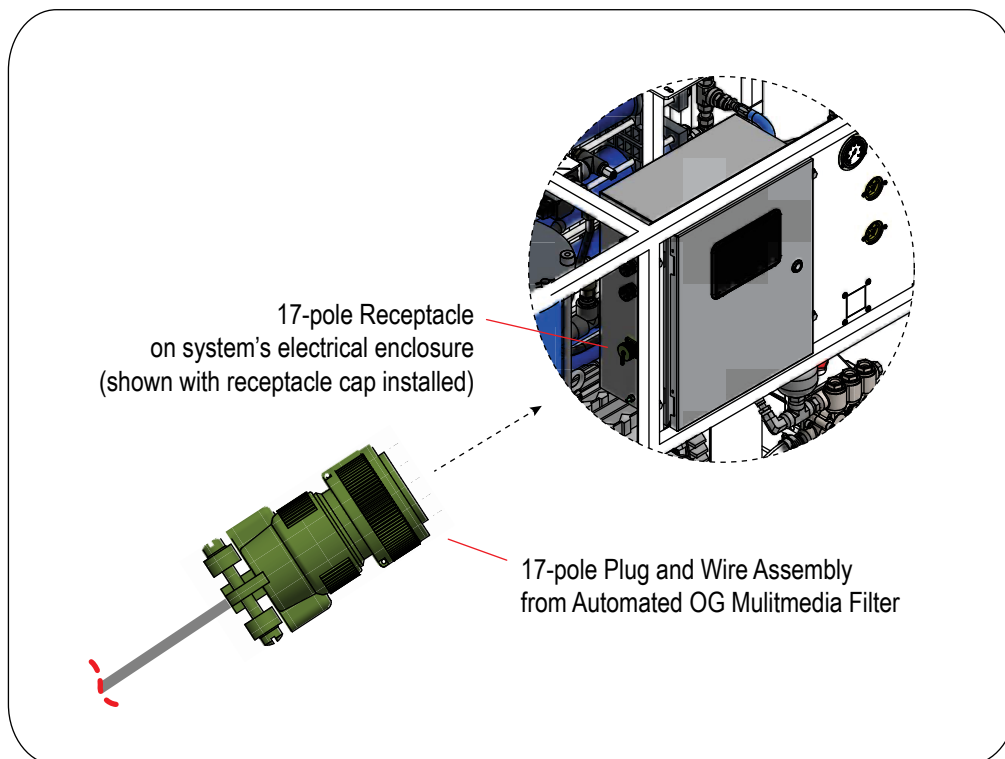


Figure 34: Wiring the Automated OG Multimedia Filter

WIRING THE THE BYPASS ACTUATOR (APC/DTS)

For APC/DTS installations that have the bypass valve, connect the wiring from the valves to the PC Board (Figure 35).

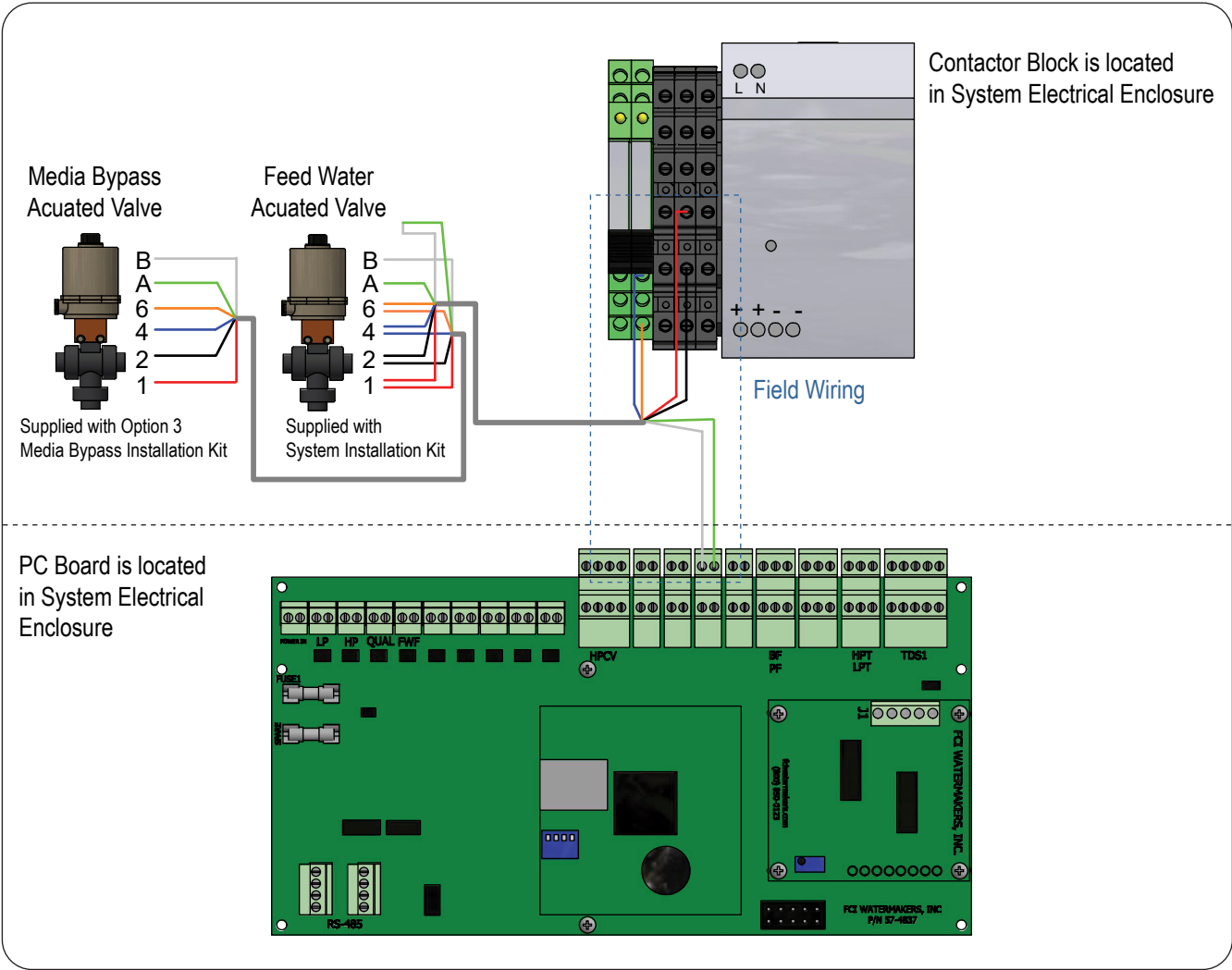
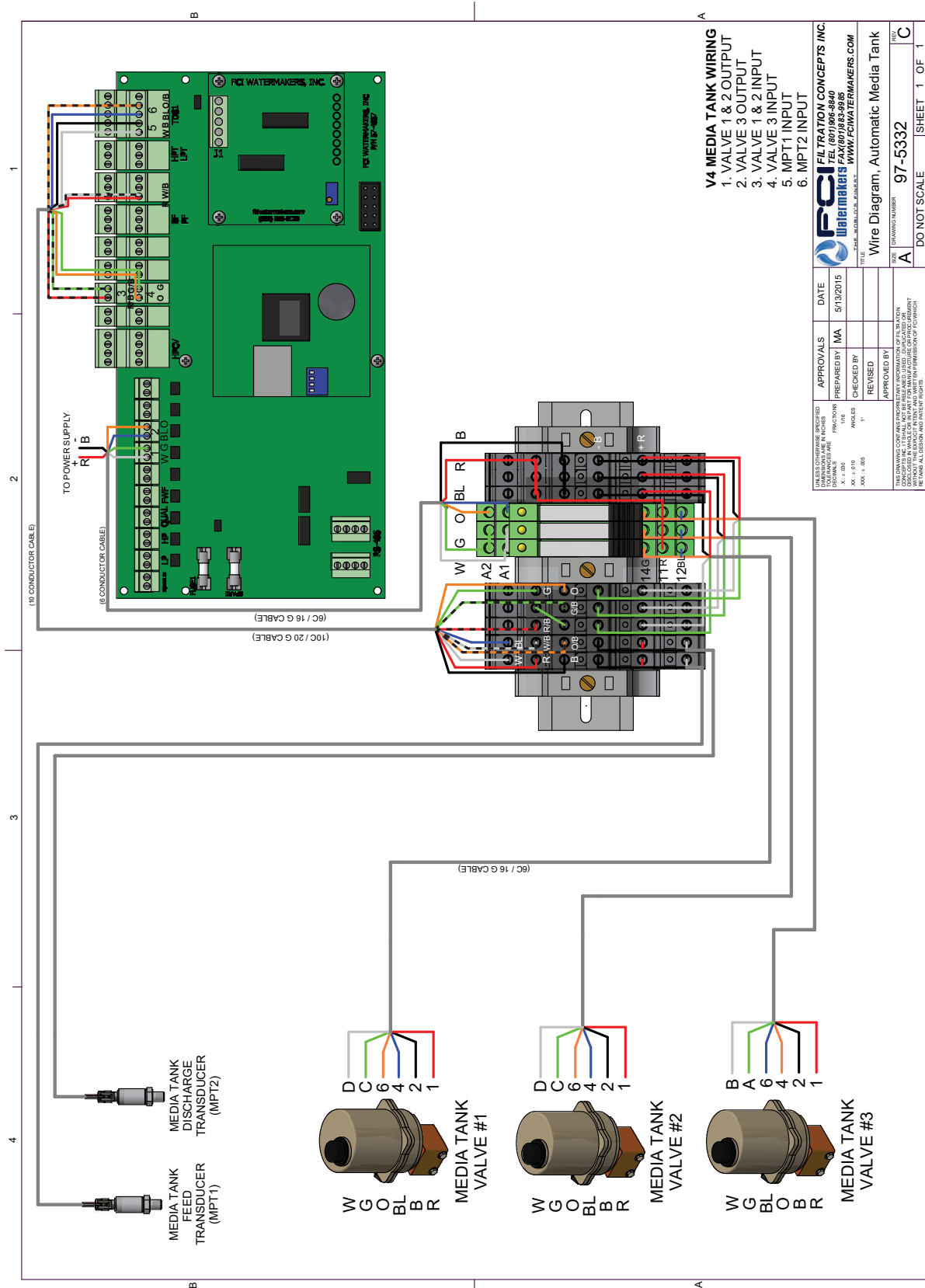
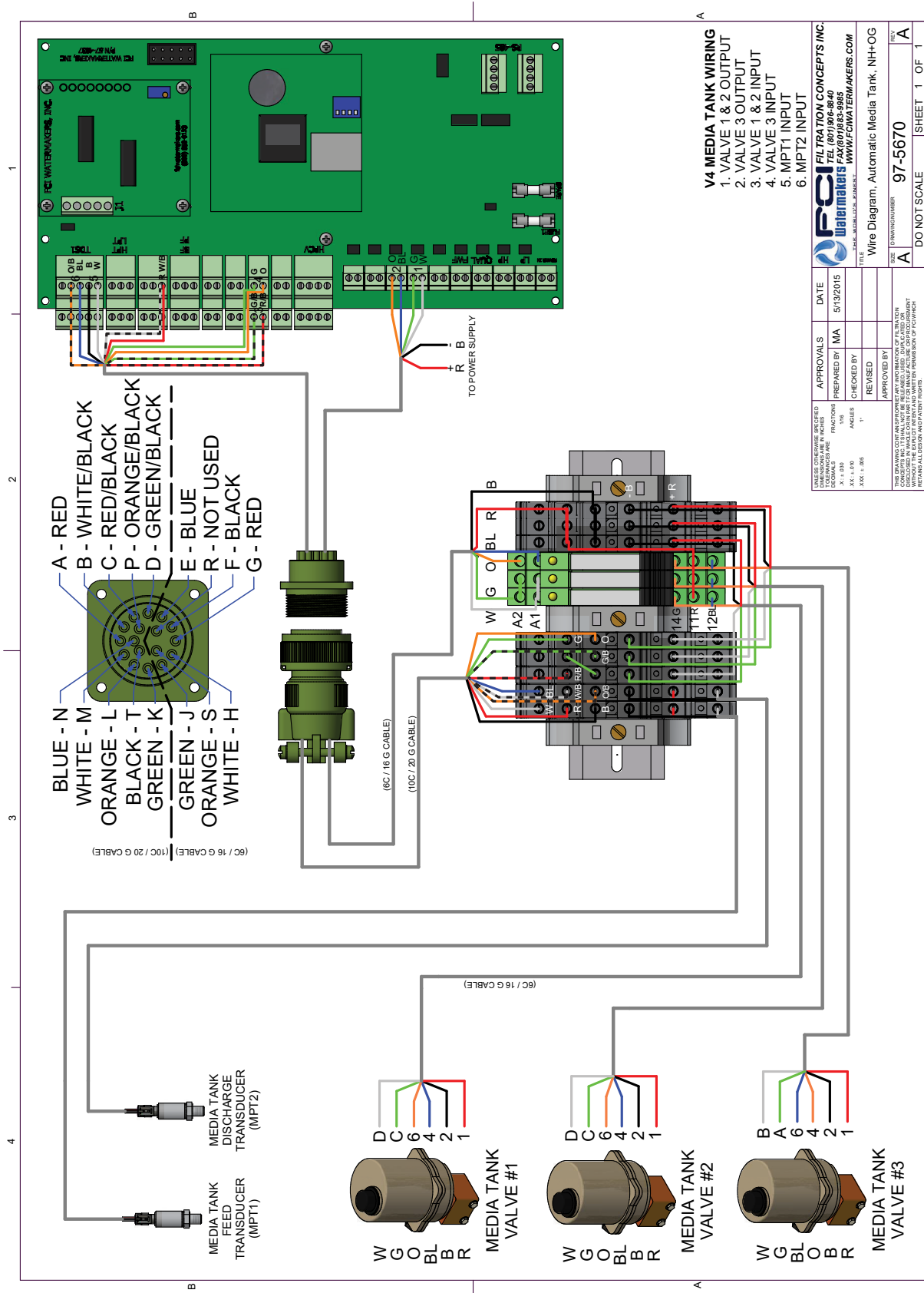


Figure 35: Wiring the Bypass Actuated Valve (APC/DTS)





FINAL INSTALLATION CHECKLIST

The following list will help ensure a successful installation:

- Ample access around system/components
- All connections are tight
- Supply and discharge valves open
- Electrical connections are secure
- Storage tank is cleaned
- Pump rotations have been checked
- Pump crankcase is filled with oil
- All Coast Guard/local codes have been met
- No iron or ferrous fittings have been used
- Electrical connections are correct
- Plumbing connections do not leak
- Thru hull is open
- Filter housings are tight
- Hose clamps are tight

4/ OPERATIONAL INSTRUCTIONS

Please refer to the operational overview below for information on running the watermaker's backwash feature.

OPERATIONAL OVERVIEW

The multimedia filter operates in two modes, IN-SERVICE for pre-filtering the inlet seawater, and BACKWASH for cleaning the multimedia filter when the pressure differential across the multimedia filter reaches 20 psi.

To select the mode for manual multimedia filters, set the hand valves to IN-SERVICE or BACKWASH (*Figure 36 on page 61*) when seawater is not flowing through the manual multimedia filter. For systems with push button control, refer to *page 62* for operational details. If your system has the V4 Control, the system will send an alarm to the touchscreen whenever a backwash is needed; refer to *page 63* for V4 Control operational details.

For automated multimedia filters, the valves are set by the watermaker's V4 Control system, and the settings can be visually inspected by the post indicators on the valves (*Figure 37 on page 61*). When a backwash is needed, the V4 Control system will send an alarm to the touchscreen, and if the user does not clear the alarm, the V4 Control system will automatically run the backwash to completion. Refer to "V4 CONTROL SYSTEM" on *page 63* for operational details.

On initial installation or if the media pack is replaced, FCI Watermakers recommends backwashing the multimedia filter for 20 minutes to fluff the pack.

To initially install or to replace the media pack, refer to "MULTIMEDIA FILTER LOADING" on *page 75*. The media pack should be replaced once a year.

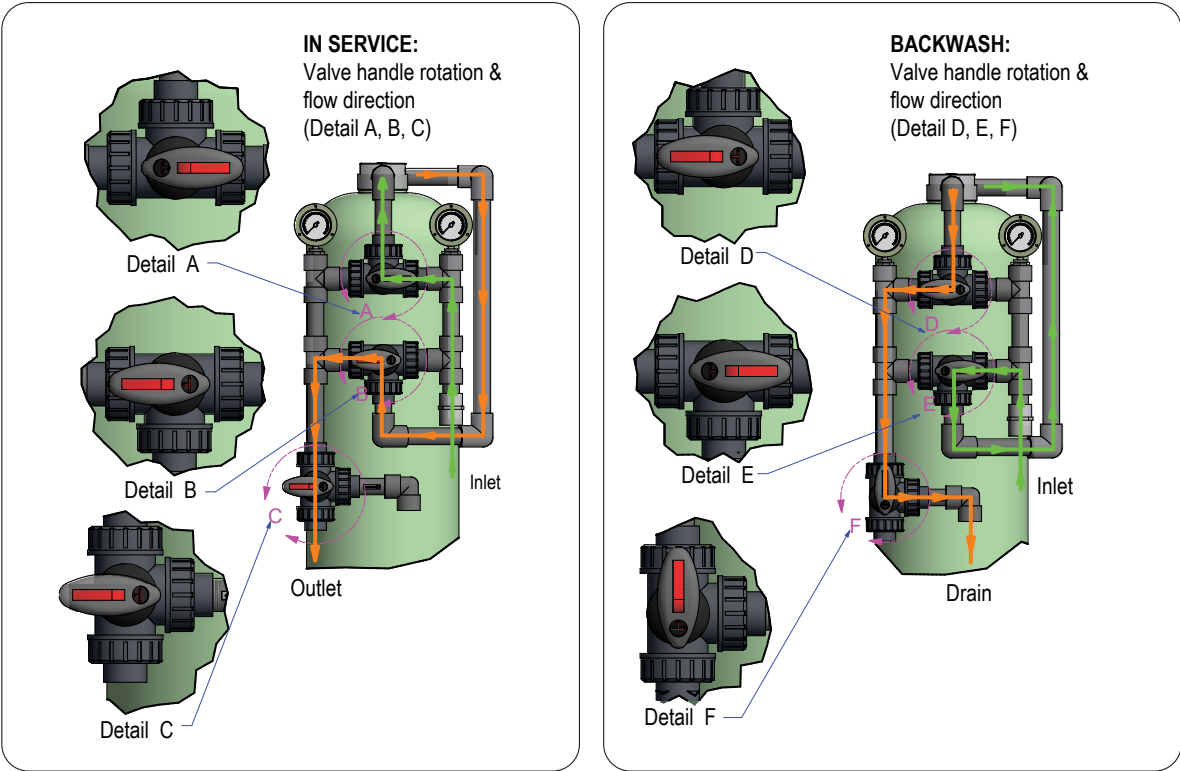


Figure 36: Manual Multimedia Filter Valve Settings

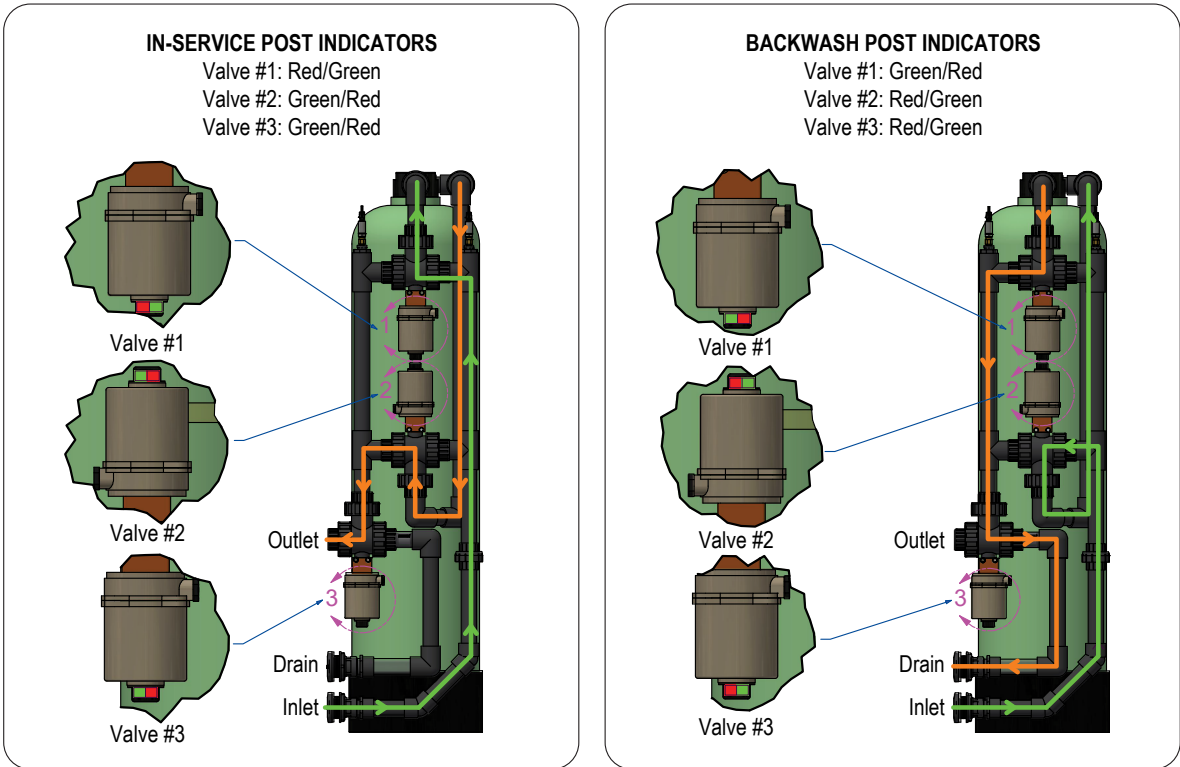


Figure 37: Automated Multimedia Filter Valve Settings

PUSH BUTTON CONTROL SYSTEM

For watermaker systems with the push button control, the procedure for operating the multimedia filter is listed below.

BACKWASHING PROCEDURE

A green rounded square button with the text "START STOP" in white, centered.

1. Place the watermaker in standby with inlet and outlet valves open. If the watermaker is running, press the START/STOP button once and wait for system to shutdown and the fresh water flush to finish.

A green rounded square button with the text "LPP ONLY" in white, centered.

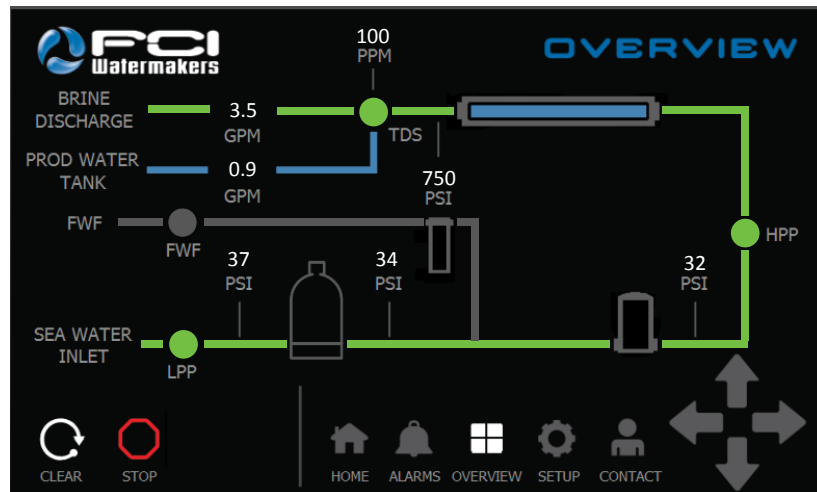
2. With no seawater is flowing through the manual multimedia filter, turn its valves to BACKWASH (*Figure 36 on page 61*).
3. Press the LPP Only button once. The system will run the LPP for 20 minutes, backwashing the filter. During this cycle, the LPP Status Light flashes green. To cancel the backwash before the 20 minute cycle ends, press the LPP Only button again.
4. When the watermaker returns to standby and no seawater is flowing through the manual multimedia filter, place the multimedia valves to IN-SERVICE to ready the watermaker for its next run cycle (*Figure 36 on page 61*).

V4 CONTROL SYSTEM

For watermaker systems with V4 Control, the touchscreens and descriptions for operating the multimedia filter are reprinted here from your watermakers user guide.

OVERVIEW SCREEN

The Overview Screen is a quick reference of the status of the system. The Overview Screen for systems with the media filter is as follows:



The Overview Screen will display the media filter icon and the pressure upstream and downstream from the media filter.

Clear – Press this button to clear the system once a shutdown has taken place.

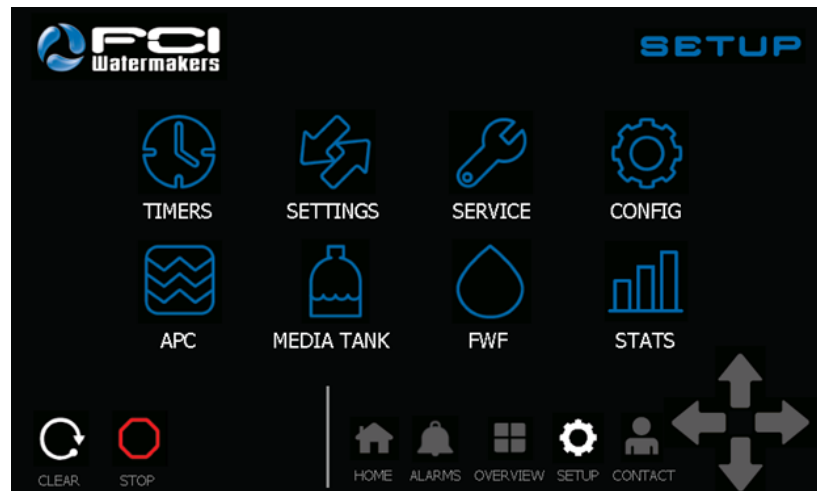
Stop – Press this button to stop the system.

Navigation Bar – This allows the user to easily navigate between main screens.

V4 CONTROL SYSTEM (continued)

SETUP SCREEN

From the Setup Screen you can navigate to the Settings Screen #2, Backwash Screens, and Stats Screen #2 where you can operating the media filter.



Settings – Press the image and navigate to Settings Screen #2 to adjust system settings for the media tank.

Media Tank – Press the image to take you to the Backwash Screens where you can backwash your media tank.

Stats – Press the image and navigate to the Stats Screen #2 to see the differential monitor for the media tank.

Clear – Press this button to clear the system once a shutdown has taken place.

Stop – Press this button to stop the system.

Navigation Bar – This allows the user to easily navigate between main screens.

V4 CONTROL SYSTEM (continued)

SETTINGS SCREEN #2

Settings Screen #2 will allow you to adjust system settings for the media tank, if installed



To adjust the settings, press the white number of the setting you would like to adjust. Once pressed, a numeric keypad will come up.

Media Tank Diff SP (PSI) – This setting is the high differential setpoint in which the media tank will alarm and proceed to backwash if no action is taking.

Clear – Press this button to clear the system once a shutdown has taken place.

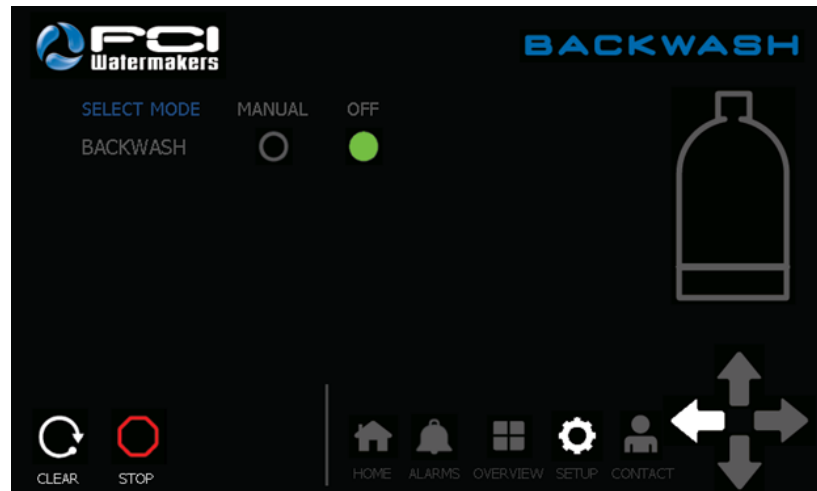
Stop – Press this button to stop the system.

Navigation Bar – This allows the user to easily navigate between main screens.

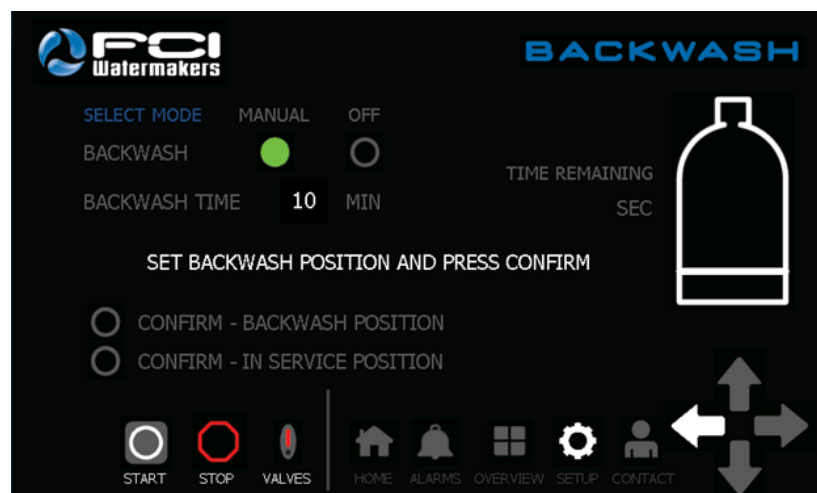
BACKWASH SCREENS (Manual Media Filter)

If your system is equipped with a manual Media Tank, these screens will guide you how to backwash your tank.

1. Select backwash mode by touching the grey circle marked, “MANUAL.”

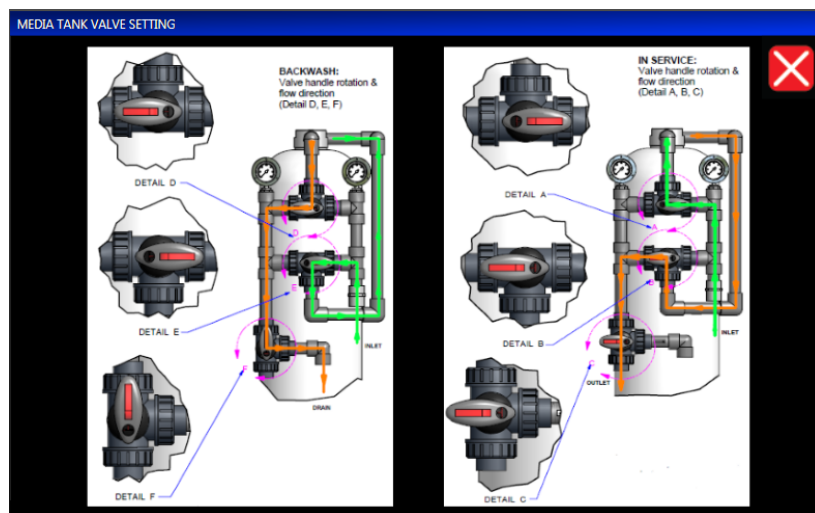


2. Once selected, use the on screen directions to complete a backwash. You will be instructed to set the media filter valves to the backwash position, and touch confirm when done.

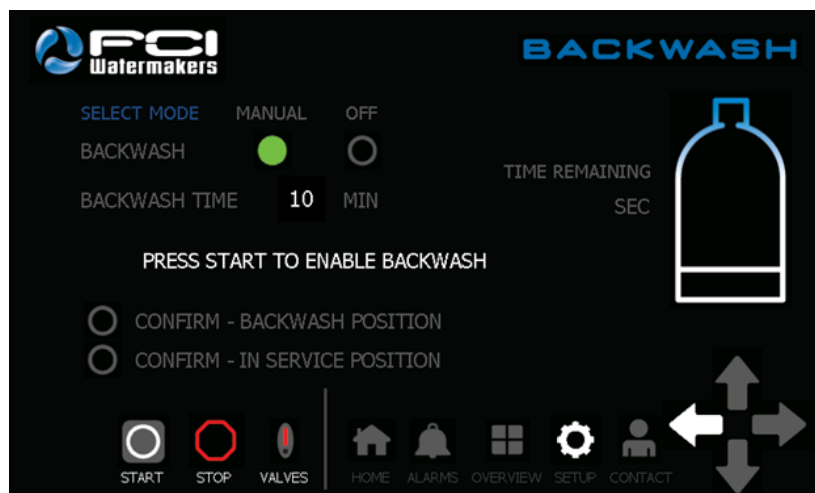


V4 CONTROL SYSTEM (continued)

3. You can select the valves icon towards the bottom center of the screen for help in the setup the media tank valves.

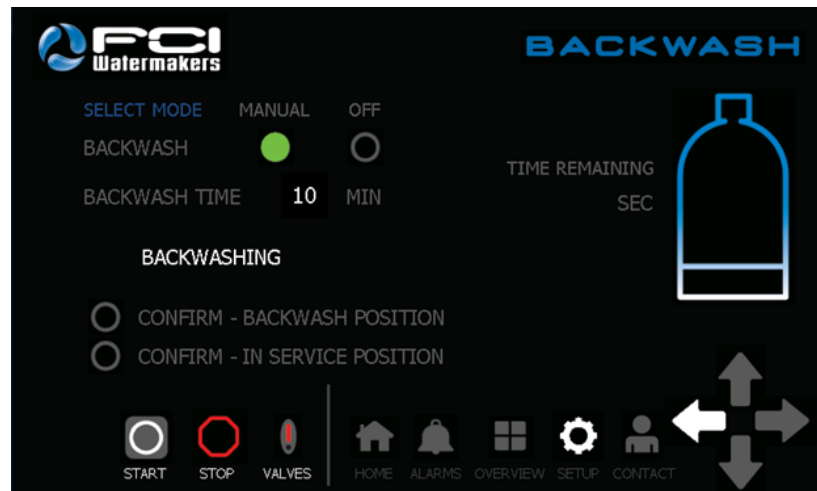


4. Once backwash position is set and the confirm button is pressed, you will be prompted to start the backwash process.

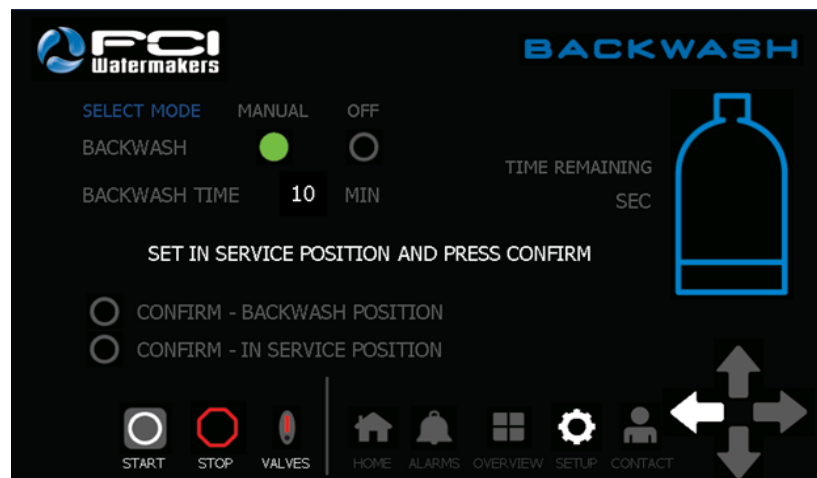


V4 CONTROL SYSTEM (continued)

- During the backwash process, the display will indicate backwashing by flashing the word, “BACKWASHING.” Also, the timer will indicate how many seconds are left in the backwash till completed.



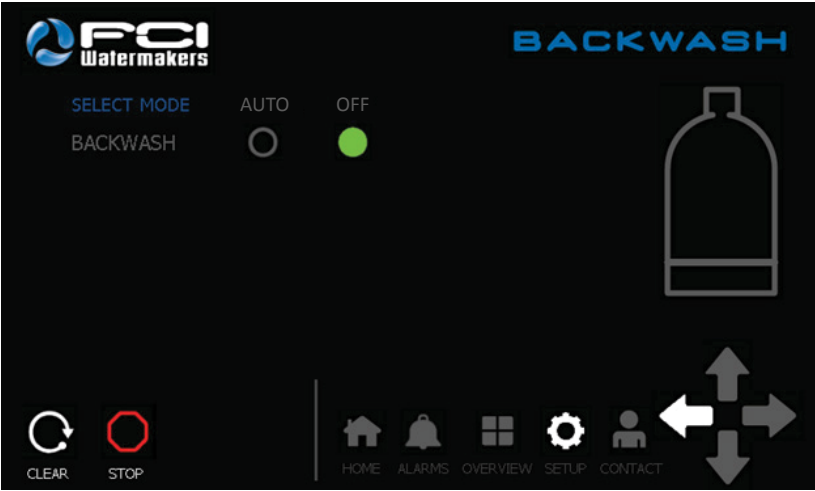
- Once completed, set the media tank valves back into service position and confirm. Backwashing has now been completed.



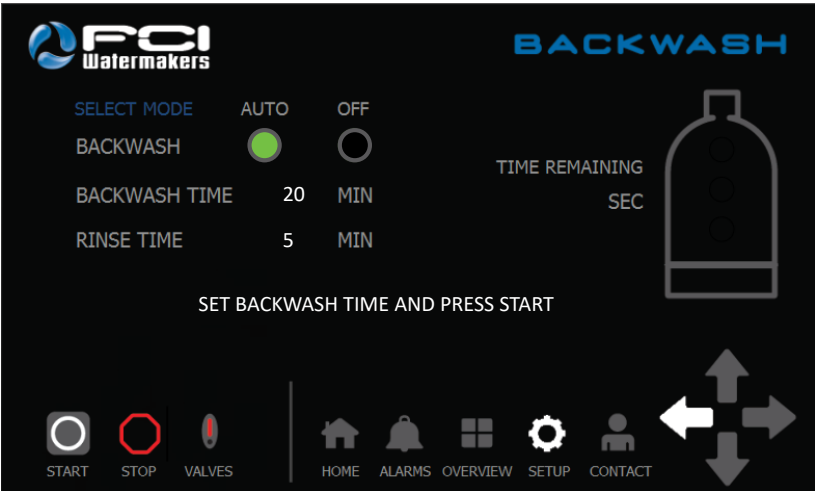
BACKWASH SCREENS (Automated Media Tank)

If you system is equipped with a Automated Media Tank, these screens will guide you how to backwash your tank.

- 1. Select backwash mode by touching the grey circle marked, “AUTO.”

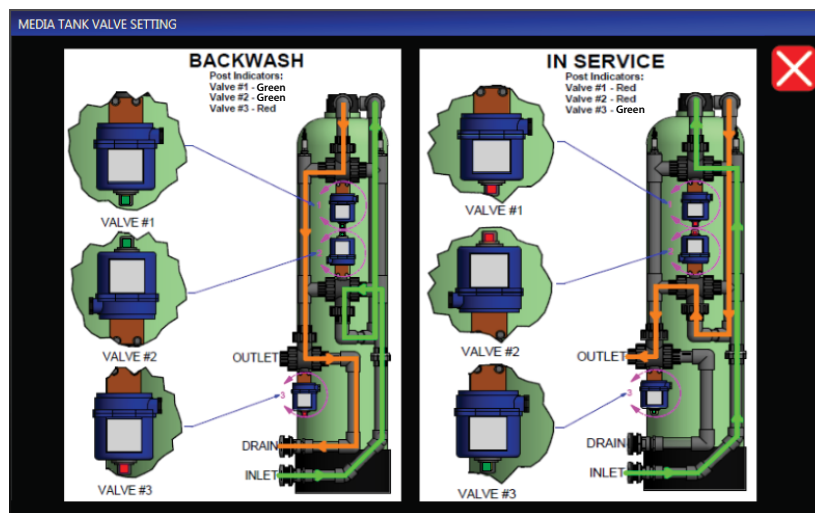


- 2. Once selected, use the on screen directions to complete a backwash.

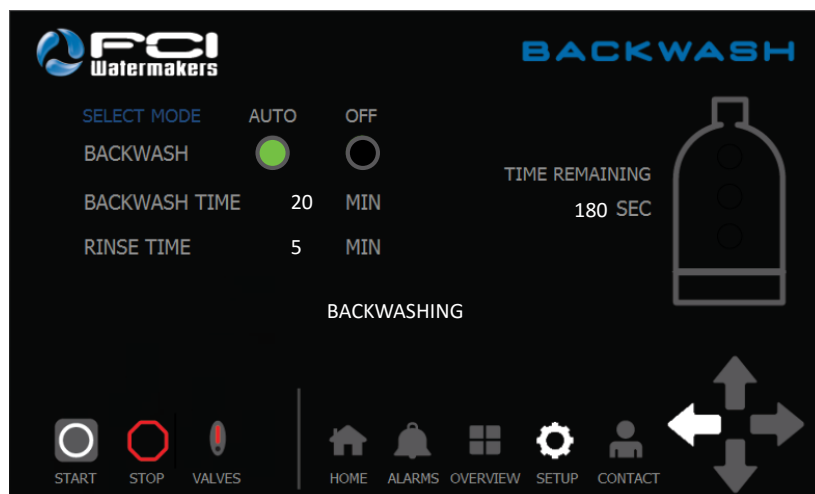


V4 CONTROL SYSTEM (continued)

3. You can select the valves icon towards the bottom center of the screen for help to see where the valves should be positioned.



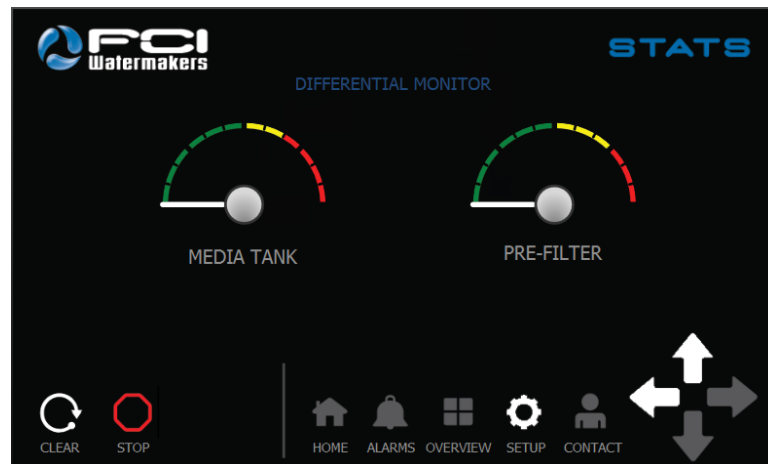
4. During the backwash process, the display will indicate backwashing by flashing the word, "BACKWASHING." Also, the timer will indicate how many seconds are left in the backwash till completed.



V4 CONTROL SYSTEM (continued)

STATS SCREEN #2

The Stats Screen is available if the system is equipped with automated media filter.



Differential Monitor for Media Tank – Indicates the differential pressure of the media tank. The system will warn you when the media tank is needed to be backwashed. If the system is running, a High Differential Alarm will pop up, and inform you the Media Tank will automatically backwash unless this is aborted. Once the media tank completes its backwash the system will restart.



Clear – Press this button to clear the system once a shutdown has taken place.

Stop – Press this button to stop the system.

Navigation Bar – This allows the user to easily navigate between main screens.

Up Arrow – Goes back to Stats Screen #1.

Left Arrow – Goes back to the main setup screen.

ALARMS

An Alarm is used to alert the user that an item needs to be addressed immediately otherwise the system will shutdown. The following describes the media filter alarm and its cause, and how to clear the alarm condition.

1. Media Tank High Differential Alarm:

Cause: When the Media Tank differential pressure is greater than the setpoint for more than 20 seconds.

Clear: Perform a backwash, or allow the system to automatically backwash the media tank.

5/ MAINTENANCE & REPAIR

Troubleshooting and subsequent correction or repair of your watermaker will require understanding of:

- Electrical circuits
- Hydraulic systems
- Mechanical knowledge
- Electronic circuits
- Liquid pressures and flows

DO NOT attempt troubleshooting or repair if you are not familiar with or are not proficient in the above fields of expertise.

USE CAUTION WHEN TROUBLESHOOTING.

DO NOT perform maintenance unless:

- 1 The feed water sea cock valve is closed
- 2 The system main electrical disconnect switch is **OFF, LOCKED, and TAGGED.**

CAUTION: ELECTRICAL SHOCK HAZARD. A volt/ohm meter will be necessary. The following procedures expose the technician to high voltage and electrical shock hazard. Only attempt this if you are a qualified electrician and only if surrounding conditions are safe.

CAUTION: AVOID CHEMICAL ATTACK TO THE SYSTEM:

Do not use for storage and do not expose the watermaker to:

- Hydrogen Peroxide
- Chlorine Dioxide
- Bromine
- Chloramines
- Hypochlorite
- Bromide
- Chlorine
- Phenolic Disinfectants
- N-chloroisocyanurates
- Iodine
- Petroleum Products

Or any other specific chemical not approved in writing by FCI Watermakers Inc. Use of non-authorized chemicals or misuse of authorized chemicals voids warranty. Never use third party “cleaners” or “storage” chemicals. Third party chemicals will dissolve copolymer components within the watermaker and will destroy the membrane element. Use of and subsequent damage caused by non FCI Watermaker chemicals are the liability and responsibility of the operator and are not covered by the FCI Watermakers warranty.

DO NOT connect any water line to the watermaker system that may contain any of the above listed chemicals.

WEEKLY QUICK CHECK

The following steps ensure that potential problems are resolved, preventing major repairs:

- 1 Inspect all fasteners for tightness, including brackets, screws, nuts, and bolts. Pay special attention to the high pressure pump and electric motor since they are subject to increased vibration.
- 2 Clean any salt water or salt deposits from the system and accessories with a wet rag.
- 3 Check for water leaks throughout the system and supporting water lines.
- 4 Check all tubing and high-pressure hoses for wear and abrasion against rough surfaces. The hoses must not contact heated or abrasive surfaces.

COMPONENT MAINTENANCE INTERVALS

The frequency of required maintenance is dependent on the regularity of usage, the condition of the intake water (the location of use), the length of time the system is exposed to water, the total running time, and the manner in which the system is installed or operated. Because of these factors, it is virtually impossible to comprise an exact timetable for required maintenance. The following maintenance timetable (Table 2) is an estimate of the time intervals at which maintenance may be required on the multimedia filter accessory. This is based upon factual data compiled from FCI Watermakers installations around the world. However, this schedule must be adjusted to each individual system depending upon the variables listed.

WARNING: Components, spares, and consumables utilized within the FCI Watermakers System can be specific to FCI Watermakers specifications and are not commercially available from other sources. Many of these other-sourced components can appear to be similar to FCI Watermakers components. Extensive and expensive damage to the FCI Watermakers System WILL result if incompatible components are used in the FCI Watermakers System. Damage caused to the FCI Watermakers System as a result of third party components is the liability and responsibility of both the marine dealer that sold the component for use in the FCI Watermakers System as well as the owner/operator that purchased and installed the third party component in the FCI Watermakers System and is not covered by the FCI Watermakers Warranty.

ALWAYS INSIST ON ONLY FCI WATERMAKERS SUPPLIED COMPONENTS, SPARES, AND CONSUMABLES.

Table 2: Component Maintenance Intervals

Component	Maintenance Required	Time Interval (Continuous or Intermittent Duty)
MULTIMEDIA FILTER	Backwash & Rinse	When pressure drop across filter is > 20 PSI (manual filter)
		V4 Control System will advise when needed (automated filter)
	Replace Media	Once every year

TROUBLESHOOTING

Refer to *Table 3* for probable cause and solution to problems.

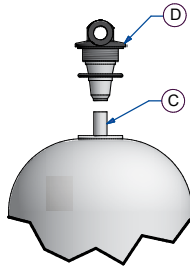
Table 3: Multimedia Filter Troubleshooting Guide

Problem	Probable Cause	Solution
LP FAULT • Low Pressure Feed Pressure Too Low	Multimedia filter needs backwashing	Backwash or replace media

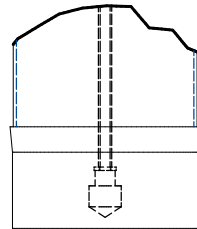
MULTIMEDIA FILTER LOADING

The media in the filter should be changed approximately every year. To replace the media, follow the instructions in *Figure 38*.

Media Filter Loading Instructions



1. Unscrew and lift the distributor assembly: Grab Distributor pipe "C" and pull the head "D" off the pipe.
2. Tape off the opening of the distributor "C" pipe to inhibit any media from getting into the pipe.
3. Place the distributor pipe so that it rests in the center of the bottom of the tank.
4. Place the funnel "E" over the opening of the tank so the distributor pipe is in the middle of the funnel opening.
5. Using the funnel "E" pour the media into the tank starting with the pea gravel. The media pack is sized for the tank, pour all the media into the tank. When complete the tank should be 60-70% (depending on the tank).

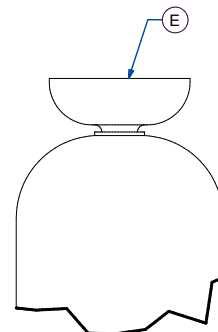


After Loading

1. Remove the funnel and tape from the distributor pipe.

DO NOT LIFT THE DISTRIBUTOR PIPE. YOU WILL NOT GET IT BACKDOWN ON THE BOTTOM OF THE TANK AND WILL NEED TO DUMP THE LOAD AND RELOAD.

2. Clean the thread of any media.
3. Lube the treads with any standard silicone o-ring lubricant.
4. Carefully position the head on the tank to line the threads up properly and tighten until hand tight or until the head is tight and in the correct position.
5. Backwash the media filter for 20 minutes prior to operation.



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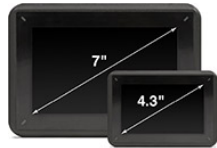
Figure 38: Multimedia Filter Loading

6/ ACCESSORIES & OPTIONAL EQUIPMENT

Contact your authorized FCI dealer for the following items:

- REPLACEMENT PARTS
- ACCESSORIES & OPTIONAL EQUIPMENT

For more information, please call 1-801-906-8840,
or visit us online at fcewatermakers.com.



ADDITIONAL DISPLAYS

Monitor, program and access the system from one or more remote locations. Install one on the bridge, in the salon and/or engineering room. In the case of an island installation place one anywhere remote control and monitoring is desired.



MULTIMEDIA FILTERS

Multimedia filters remove particulate or iron from the feed water stream. Filter includes valve tree assembly and stainless steel differential gauges.



ULTRA-VIOLET STERILIZERS

Stainless steel, ultra-violet sterilizers provide 99.8% sterilization of bacteria and micro-organisms in water. Available in a variety of flow rates.

Recommended installation is after the holding tank, not immediately after the watermaker, as specified by other manufacturers and/or installers. The reason for this is that in addition to receiving clean water from the on-board watermaker, holding tanks are vented (inviting potential for contaminants) and are also fed by dockside fillings from shore—there is no control of water quality in the holding tank itself. If a UV sterilizer is used, it should be sized to accommodate the requirements of the boat's fresh water pump.



POST GRANULAR ACTIVATED CARBON FILTERS

Granular-activated charcoal filters are great for post-tank filtration, and remove particulate, chlorine and other contaminants found in your fresh water holding tank.



REPLACEMENT PARTS

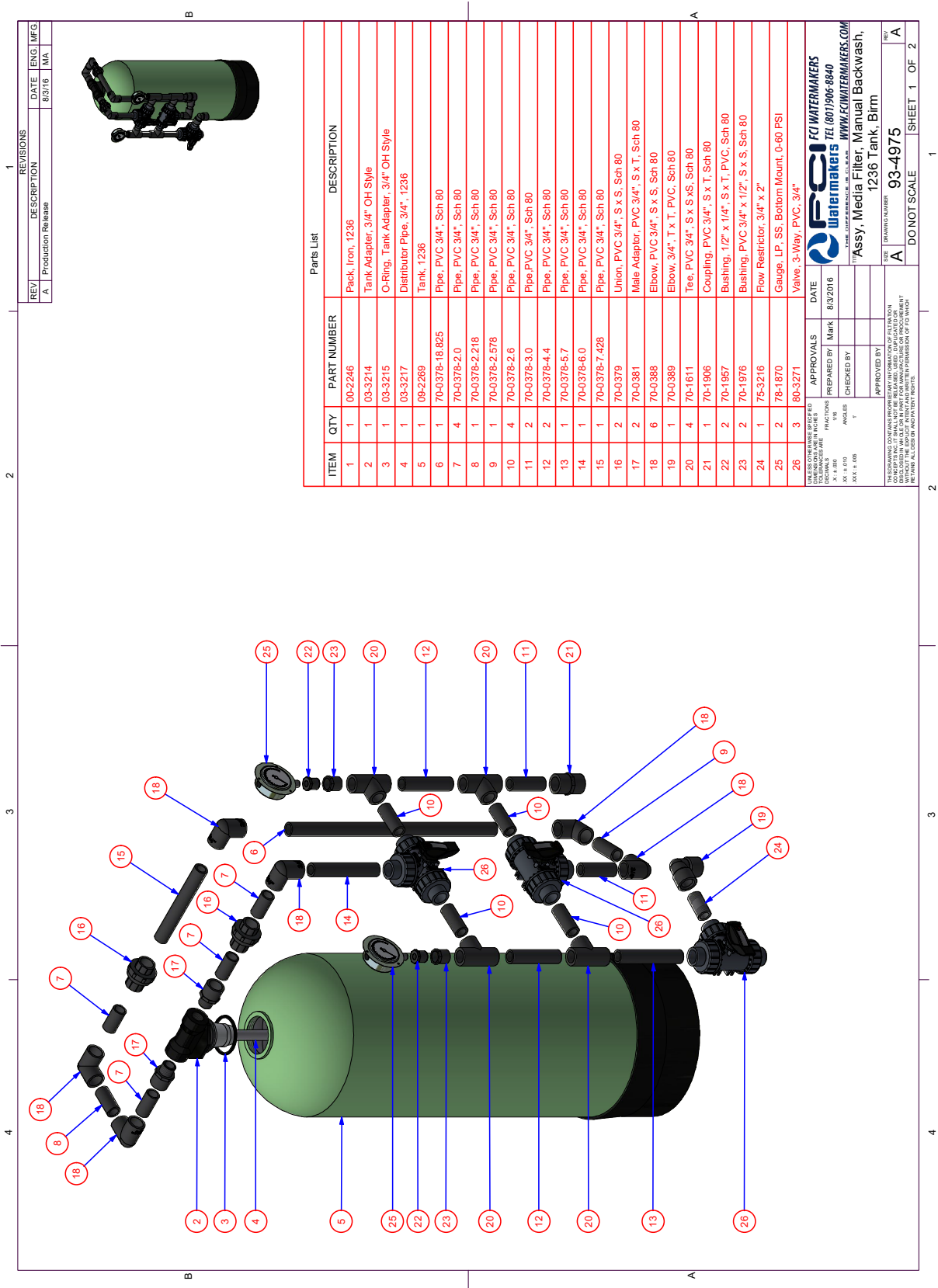
FCI carries a complete line of replacement parts including filters, membranes, hoses, fittings, spanners, o-rings and more.

Refer to the General Assembly Diagrams included in this chapter for information about parts used in the system.

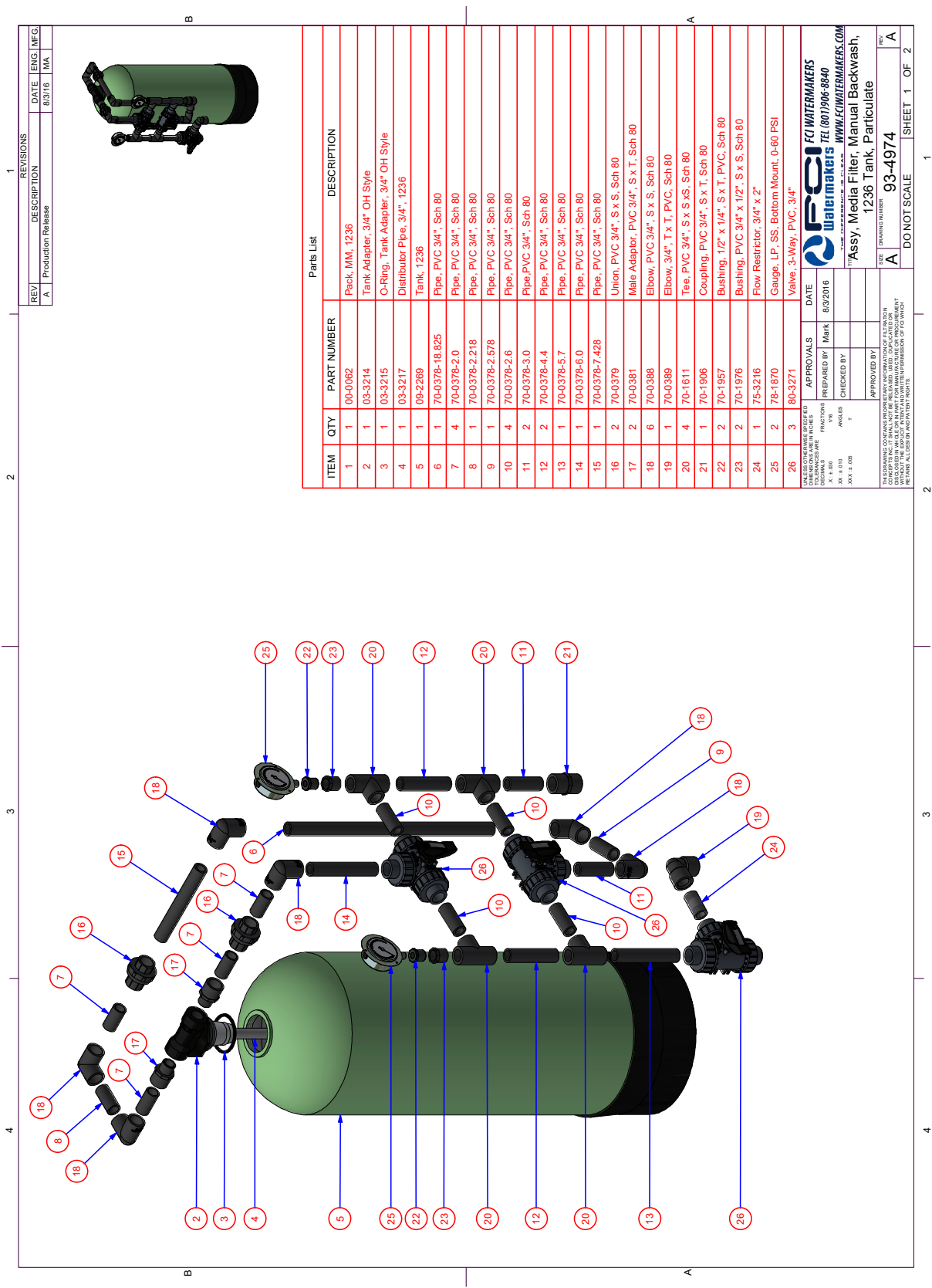
The General Assembly Diagrams in this chapter are organized in the following order:

- 1236 Cylinder-Size Multimedia Filters
- 1252 Cylinder-Size Multimedia Filters
- 1665 Cylinder-Size Multimedia Filters
- 1665 Cylinder-Size Multimedia Filters for Oil and Gas
- Automated Multimedia Filter Electrical

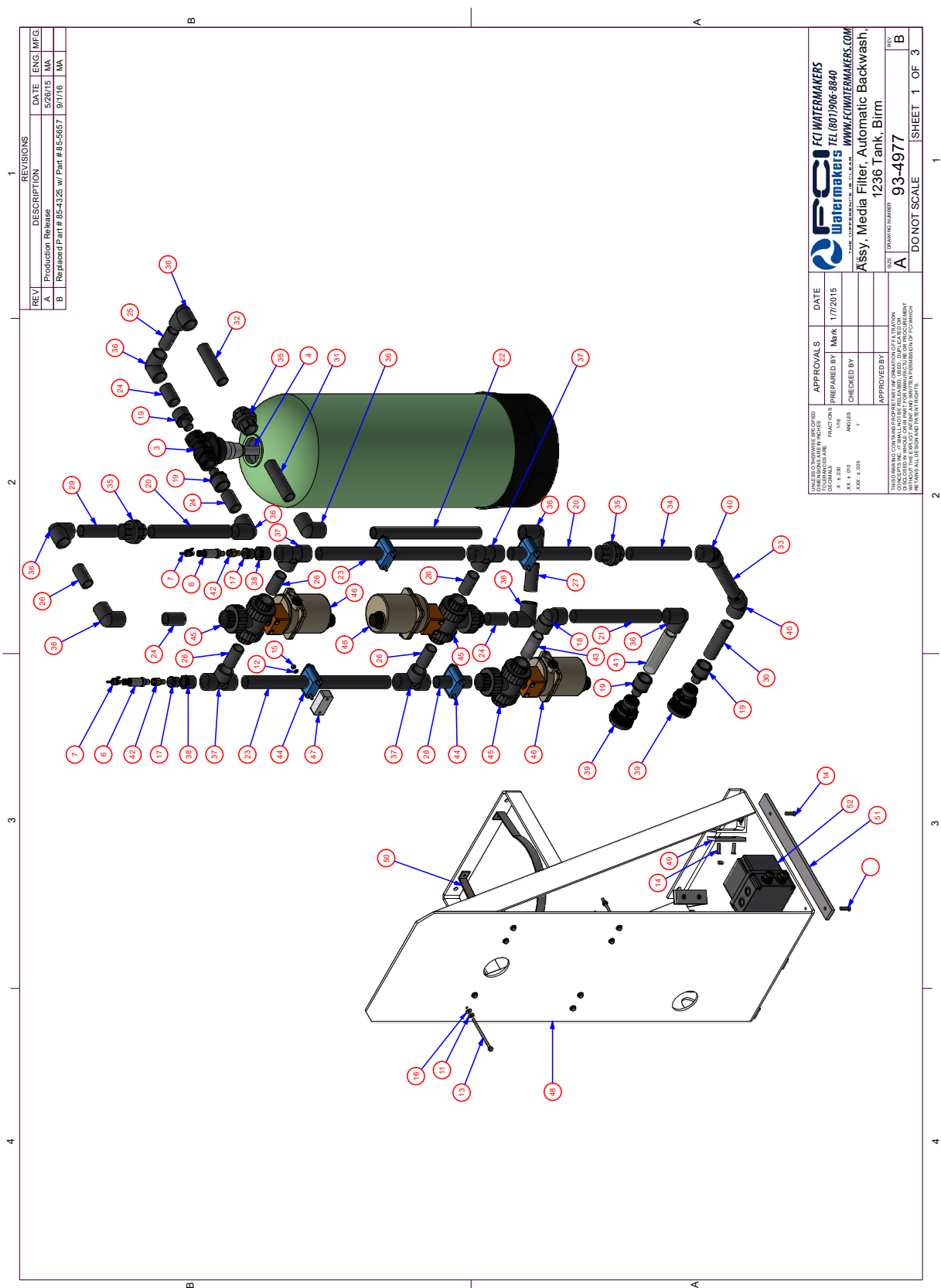
GENERAL ASSEMBLY DIAGRAMS / 1236 MMF



GENERAL ASSEMBLY DIAGRAMS / 1236 MMF (continued)



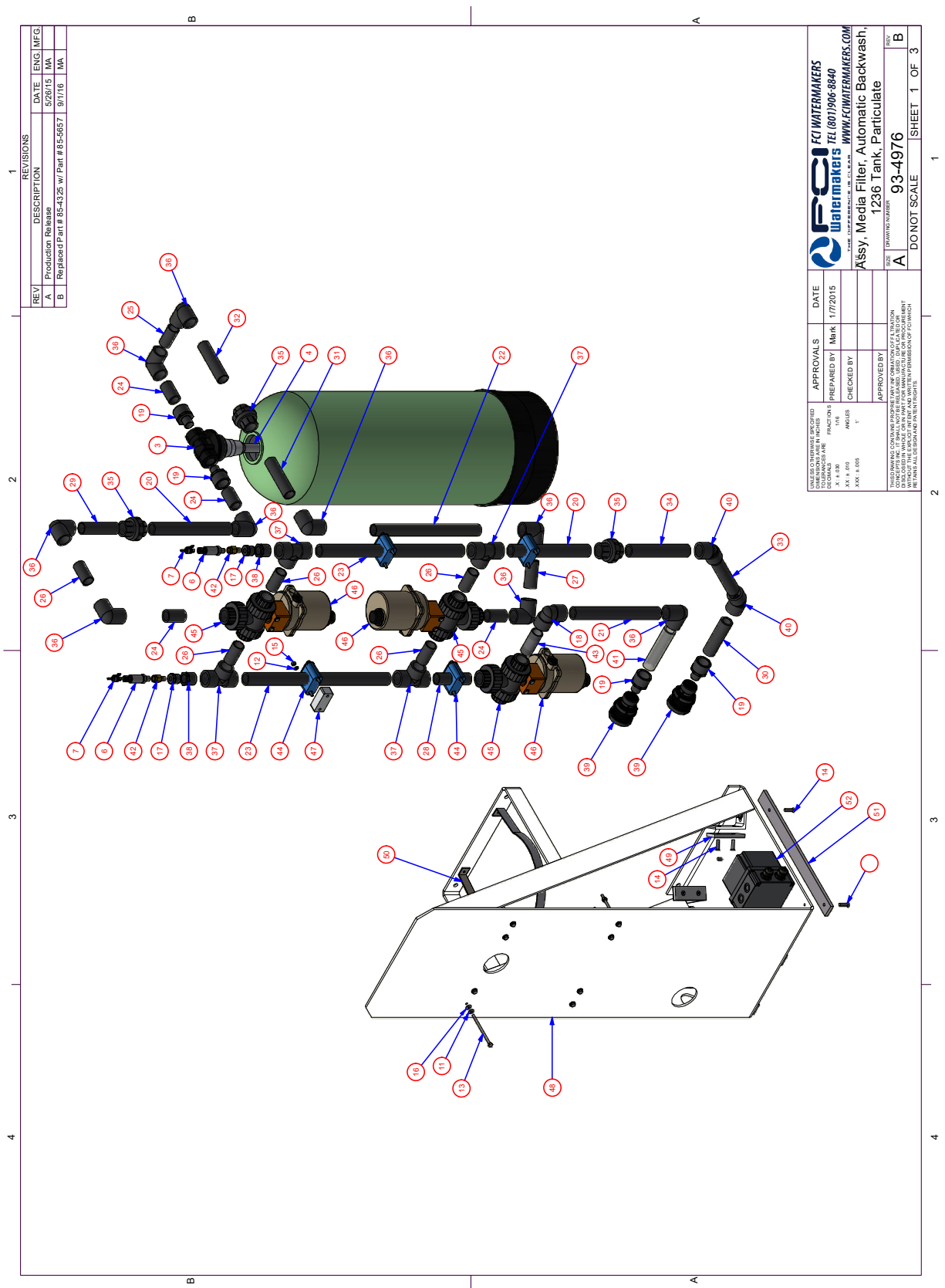
GENERAL ASSEMBLY DIAGRAMS / 1236 MMF (continued)



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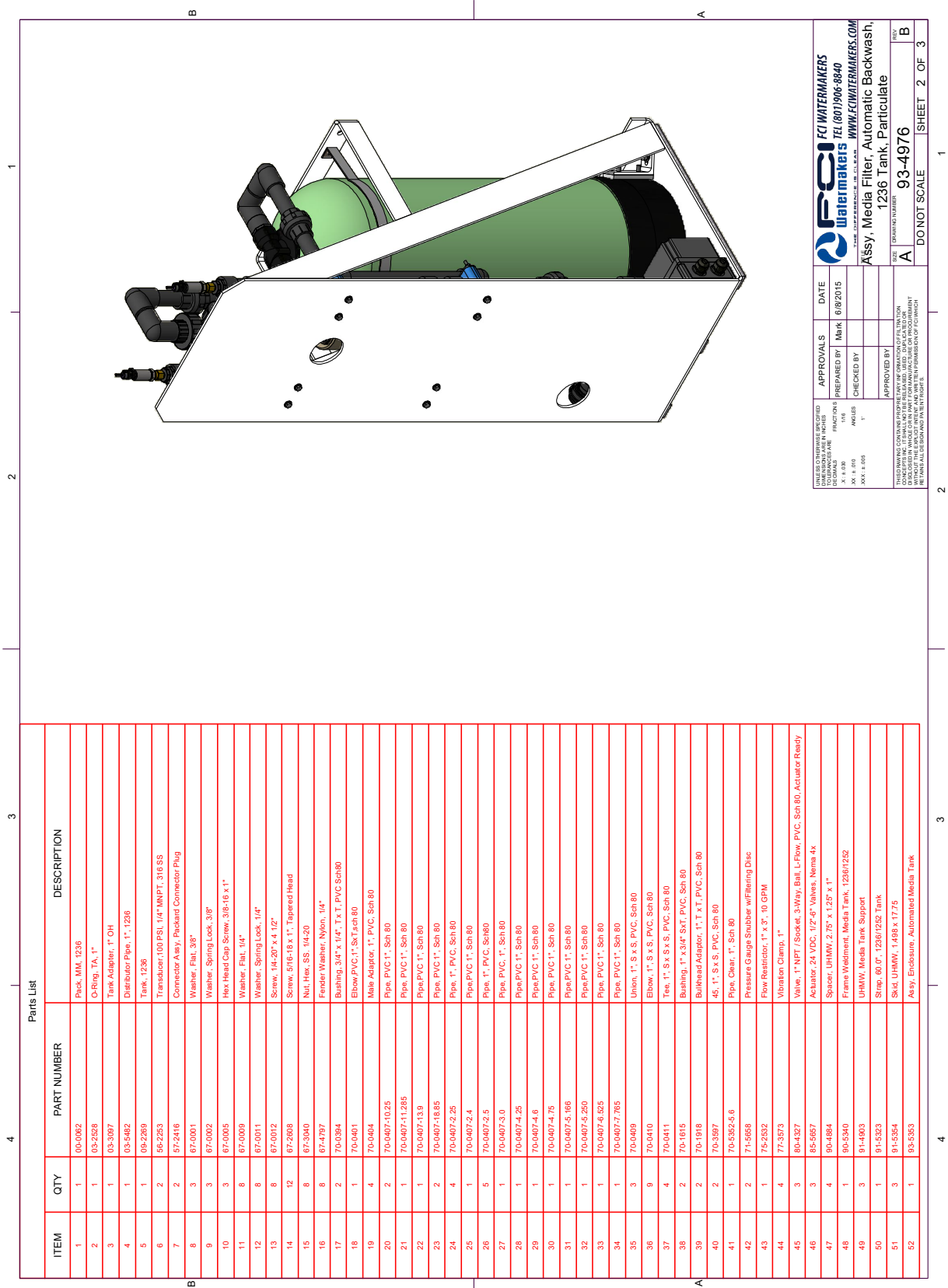
GENERAL ASSEMBLY DIAGRAMS / 1236 MMF (continued)



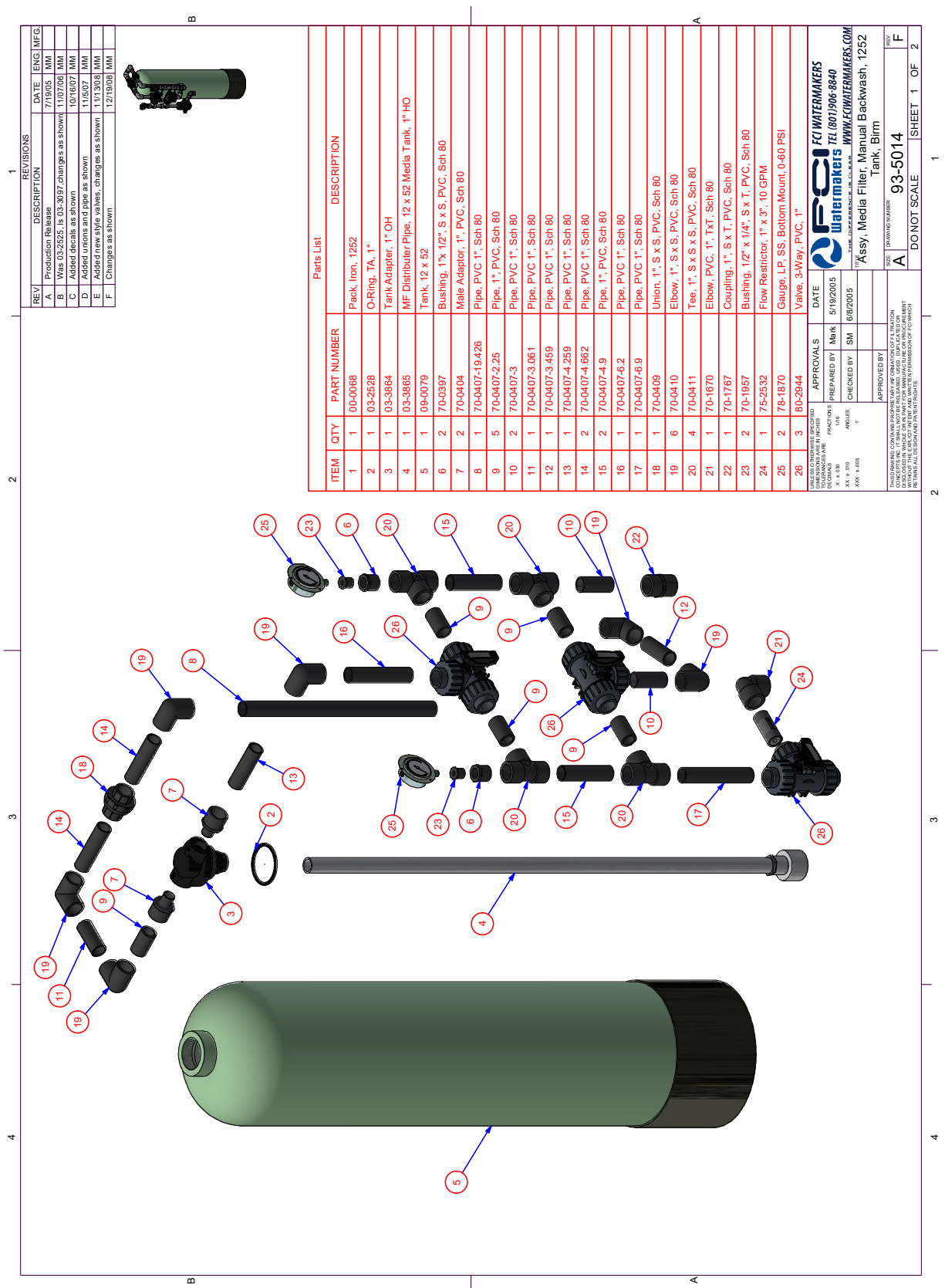
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REV	DESCRIPTION			
A	Production Release	5/28/15	MA	
B	Replaced Part # 85-4325 w/ Part # 85-5857	9/7/16	MA	

		FCI WATERMAKERS Watermakers TEL (801) 906-8840 WWW.FCIWATERMAKERS.COM THE EXPERIENCE OF U.S.A.	
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE TO BE GIVEN IN INCHES AND DECIMALS THEREOF.		APPROVALS	DATE
XX 1/8, 3/16, 1/2, 3/4, 1		PREPARED BY Mark	1/7/2015
XX 1/8, 3/16, 1/2, 3/4, 1		CHECKED BY	
XX 1/8, 3/16, 1/2, 3/4, 1		APPROVED BY	
THIS DRAWING CONTAINS NO INFORMATION THAT IS TO BE RELEASED OR USED IN ANY MANNER WITHOUT THE EXPRESS WRITTEN PERMISSION OF FCI WATERMAKERS, INC.			
Assy, Media Filter, Automatic Backwash, 1236 Tank, Particulate		SIZE: 93-4976	REV
DO NOT SCALE		DRAWING NUMBER	B
SHEET 1 OF 3			

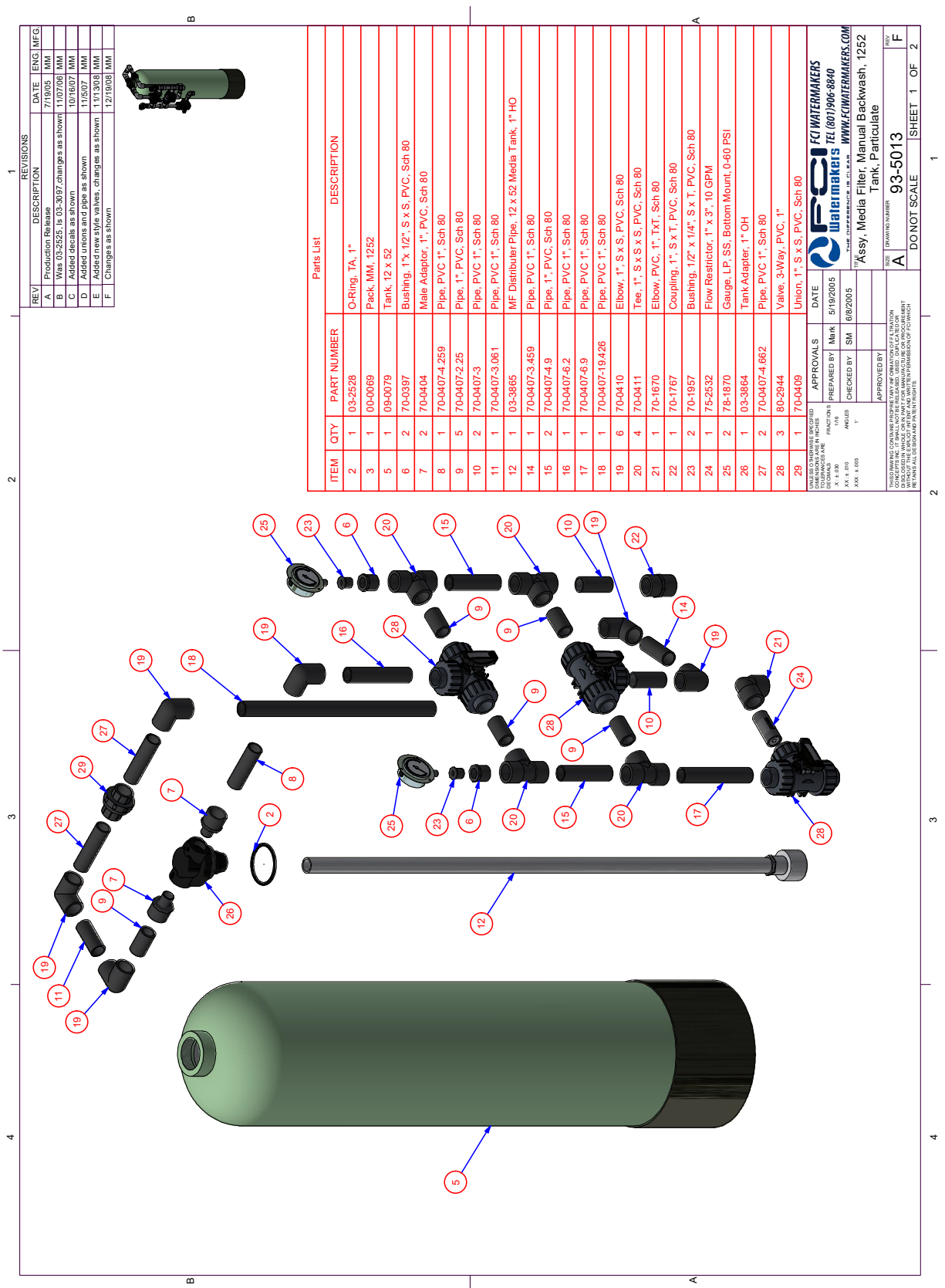
GENERAL ASSEMBLY DIAGRAMS / 1236 MMF (continued)



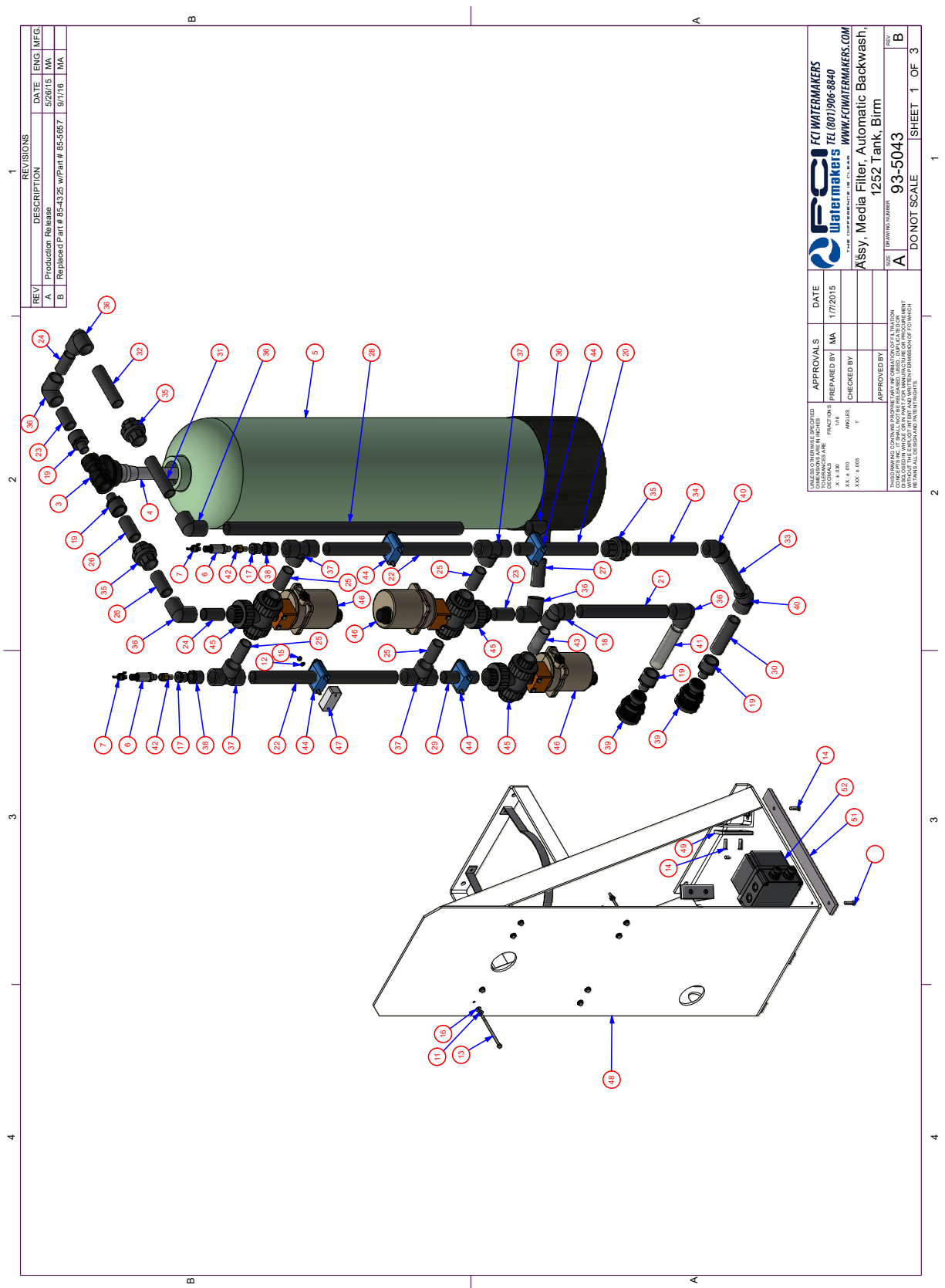
GENERAL ASSEMBLY DIAGRAMS / 1252 MMF



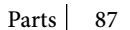
GENERAL ASSEMBLY DIAGRAMS / 1252 MMF (continued)



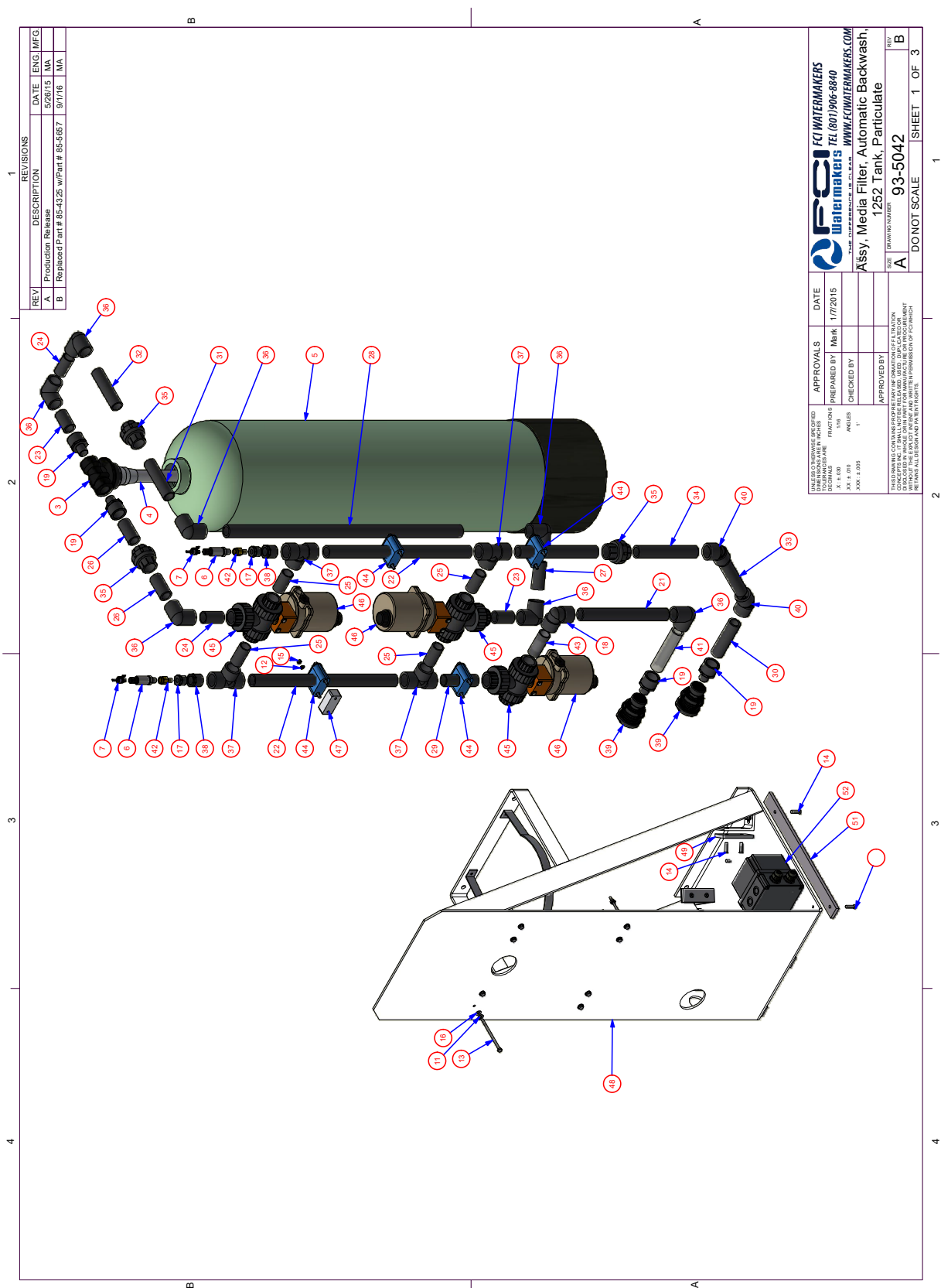
GENERAL ASSEMBLY DIAGRAMS / 1252 MMF (continued)



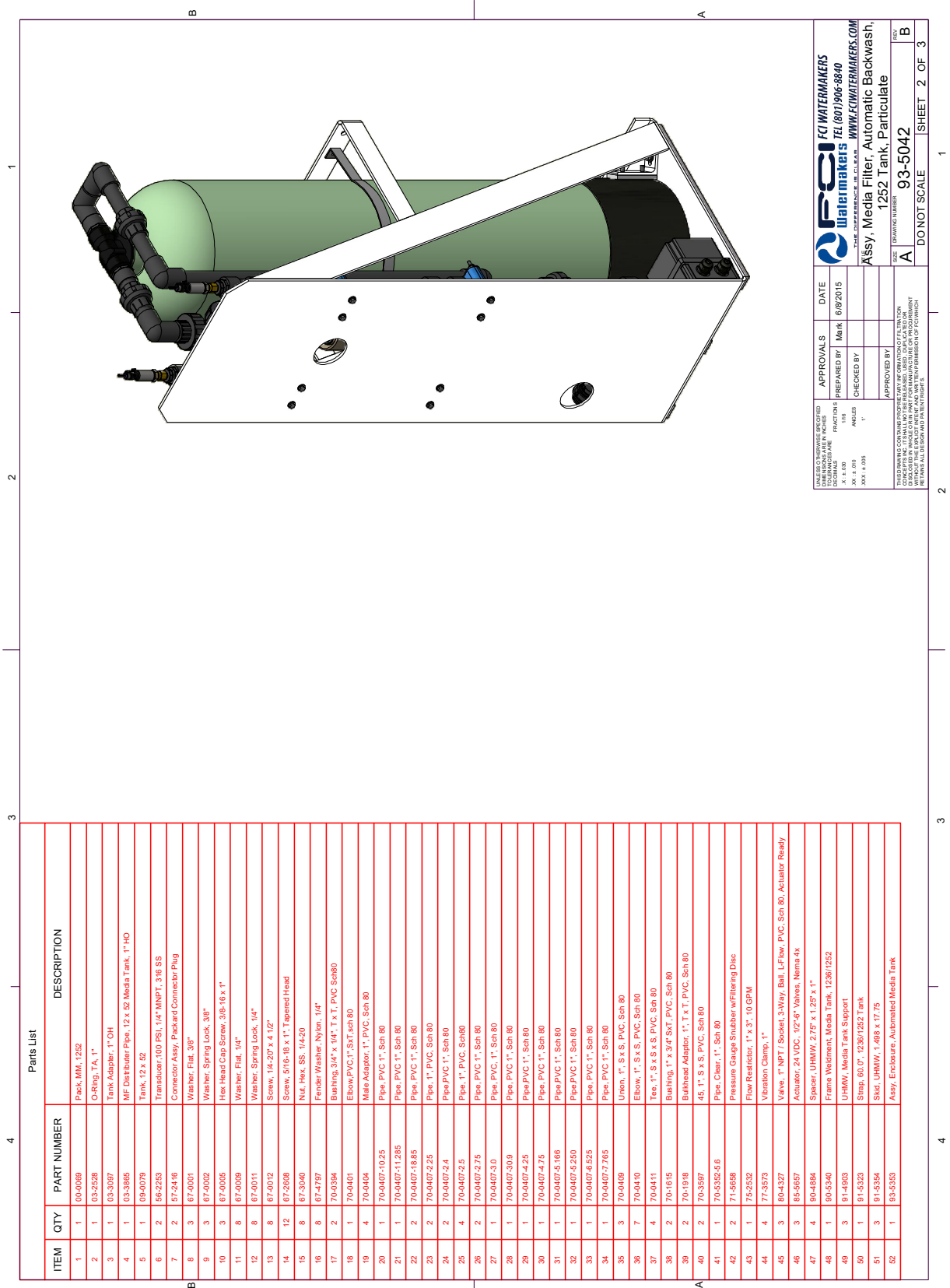
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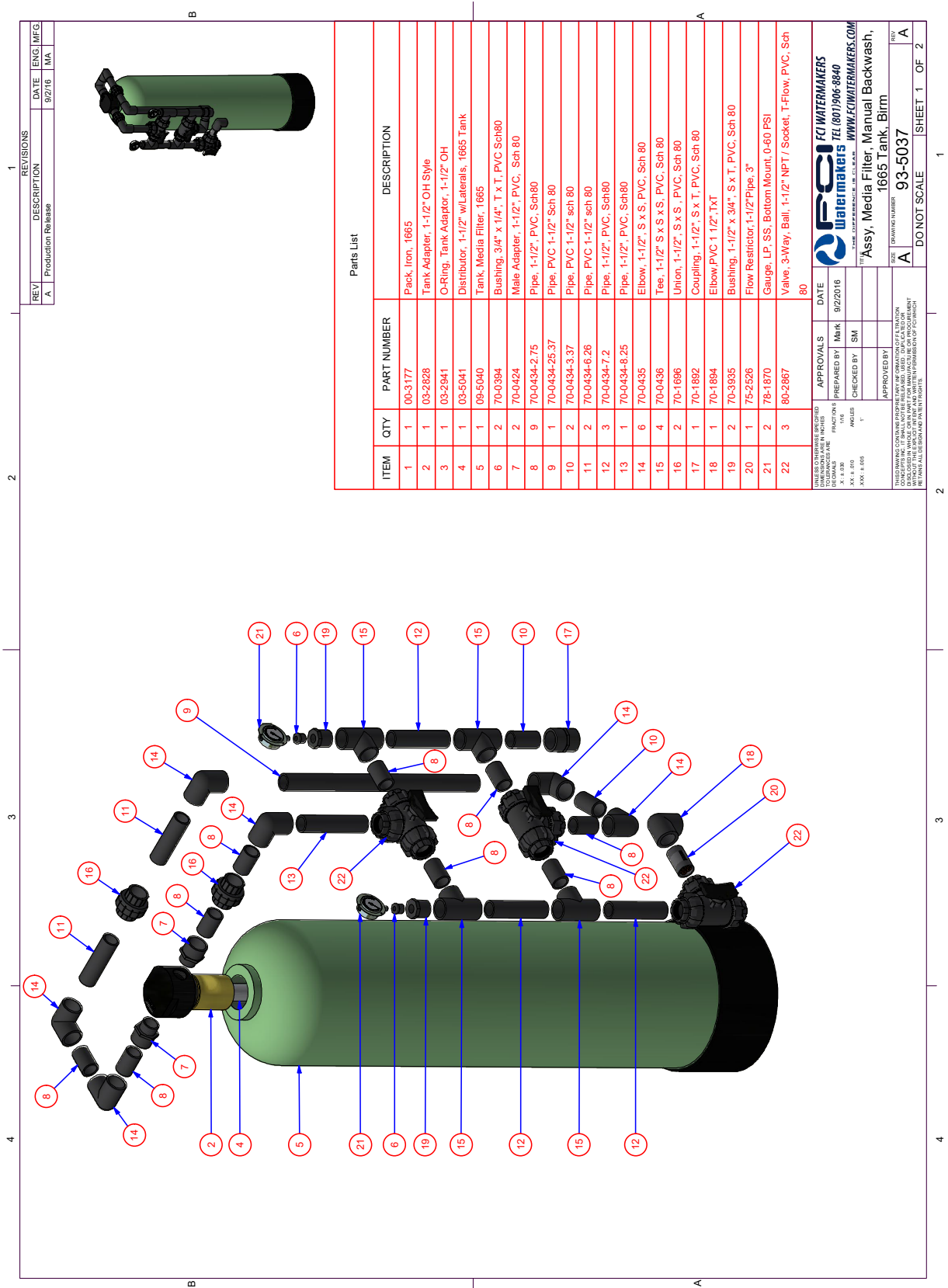
GENERAL ASSEMBLY DIAGRAMS / 1252 MMF (continued)



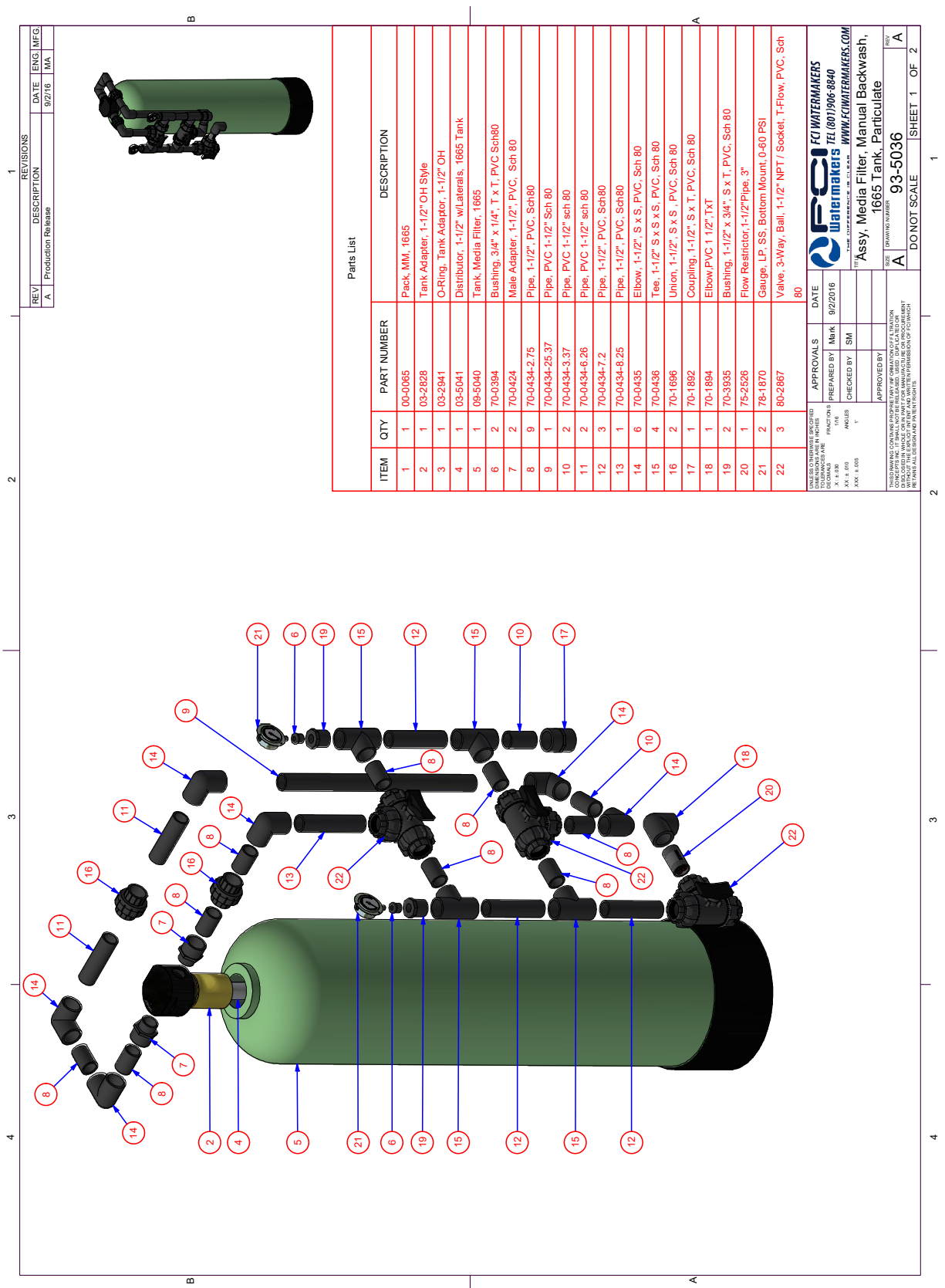
GENERAL ASSEMBLY DIAGRAMS / 1252 MMF (continued)



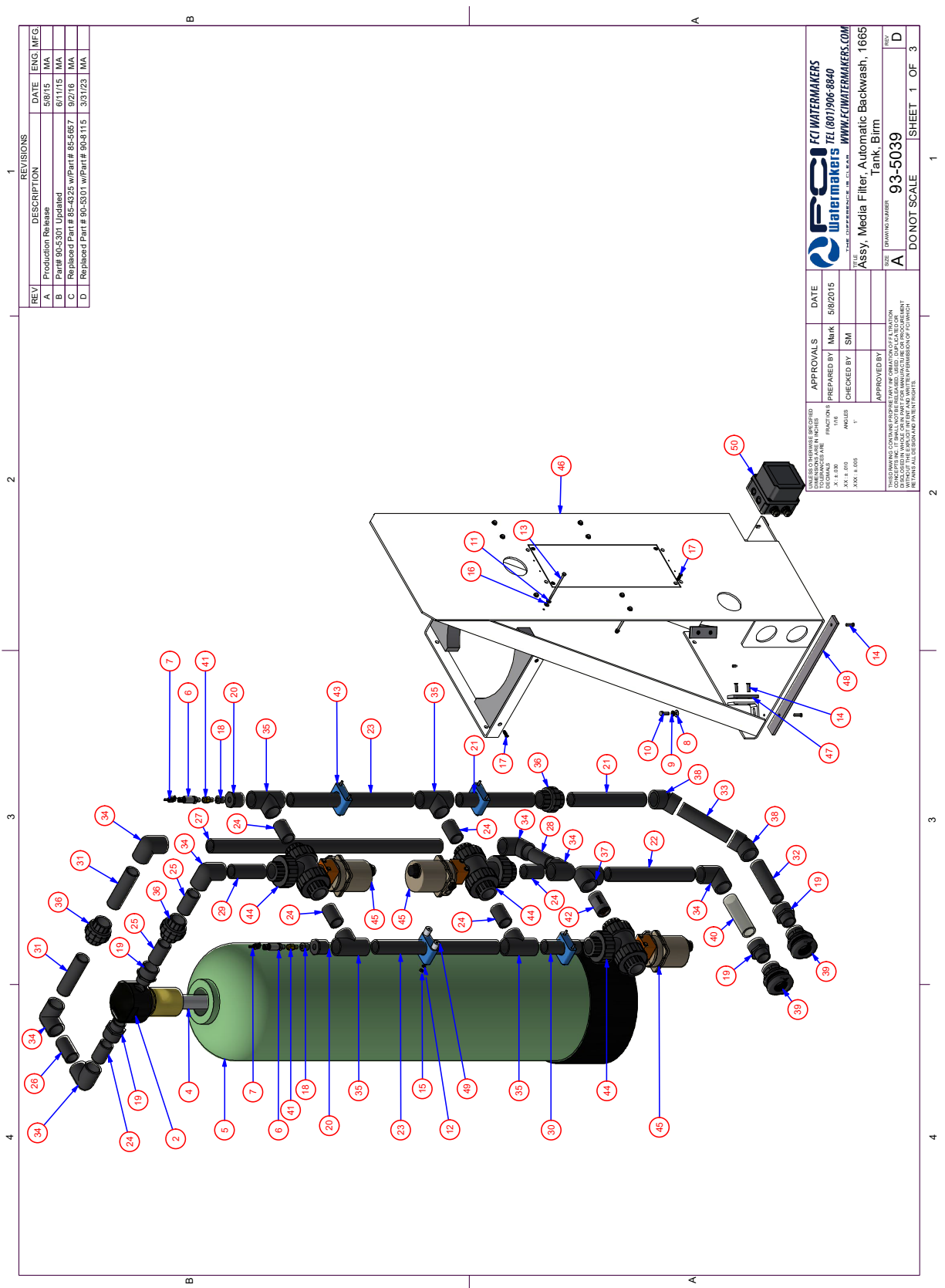
GENERAL ASSEMBLY DIAGRAMS / 1665 MMF



GENERAL ASSEMBLY DIAGRAMS / 1665 MMF (continued)



GENERAL ASSEMBLY DIAGRAMS / 1665 MMF (continued)



REVISIONS			
REV	DESCRIPTION	DATE	ENG. MFG.
A	Production Release	5/6/15	MA
B	Part# 90-5301 Updated	6/11/15	MA
C	Replaced Part # 85-4325 w/Part# 85-5657	9/2/16	MA
D	Replaced Part # 90-5301 w/Part# 90-8115	3/31/23	MA

**FCI WATERMAKERS**
Watermakers
TEL (801) 906-8840
WWW.FCIWATERMAKERS.COM

THE DIFFERENCE IS IN THE WATER.
Assy. Media Filter, Automatic Backwash, 1665 Tank, Blrm

APPROVED BY
[Signature]

DATE
5/6/2015

PREPARED BY
Mark

CHECKED BY
SM

SIZE
A

DRAWING NUMBER
93-5039

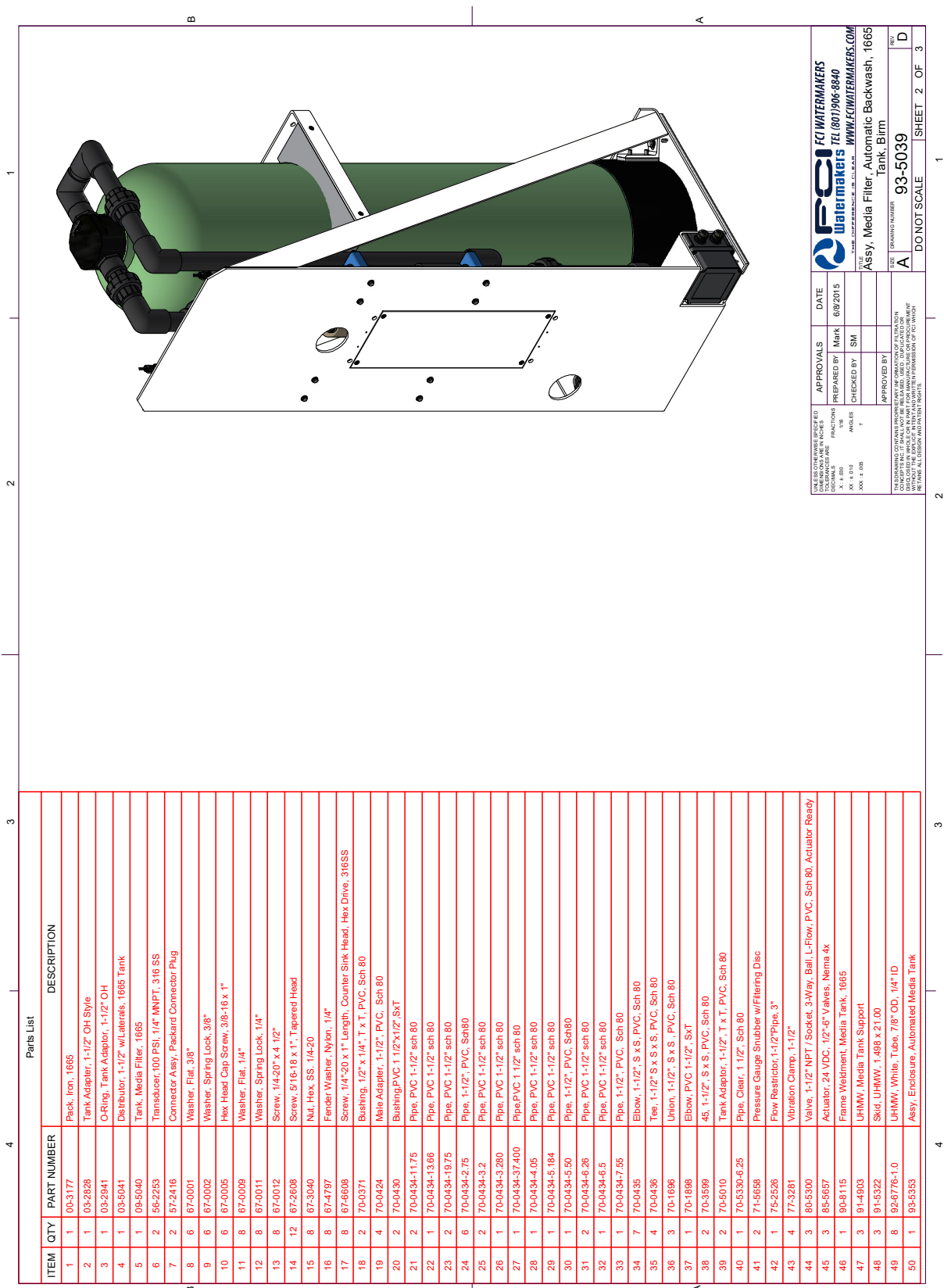
DO NOT SCALE

SHEET 1 OF 3

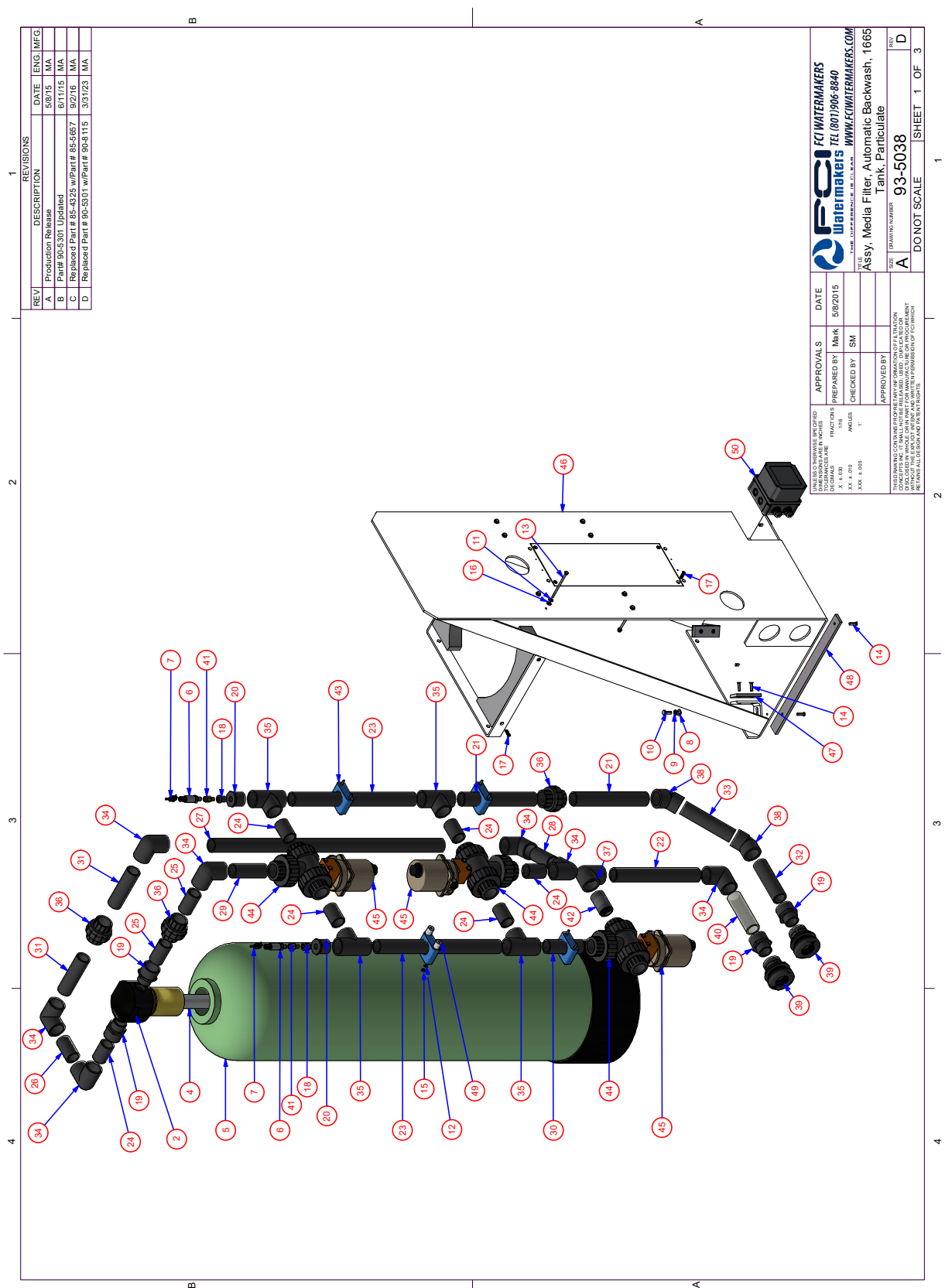
THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF FCI WATERMAKERS. IT IS TO BE USED FOR THE MANUFACTURE OF THE EQUIPMENT SHOWN HEREIN. NO PARTS OR MATERIALS ARE TO BE USED IN THE MANUFACTURE OF THE EQUIPMENT SHOWN HEREIN WITHOUT THE WRITTEN PERMISSION OF FCI WATERMAKERS.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
FRACTIONS 1/16
X 1/8
XX 1/8
XXX 1/8
XXX 1/8

GENERAL ASSEMBLY DIAGRAMS / 1665 MMF (continued)



GENERAL ASSEMBLY DIAGRAMS / 1665 MMF (continued)

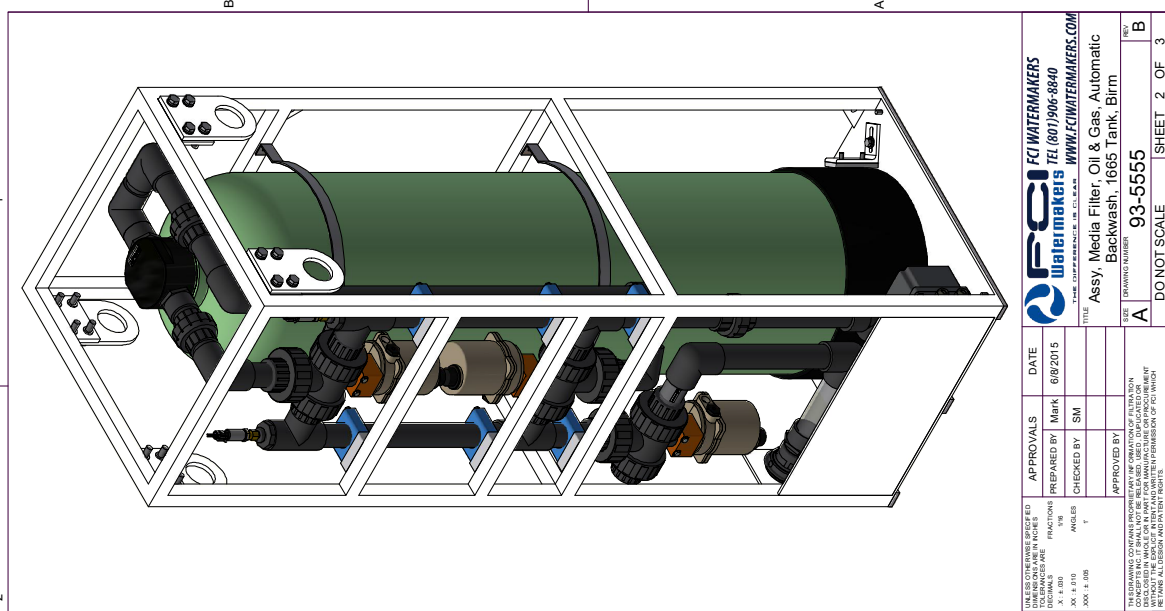


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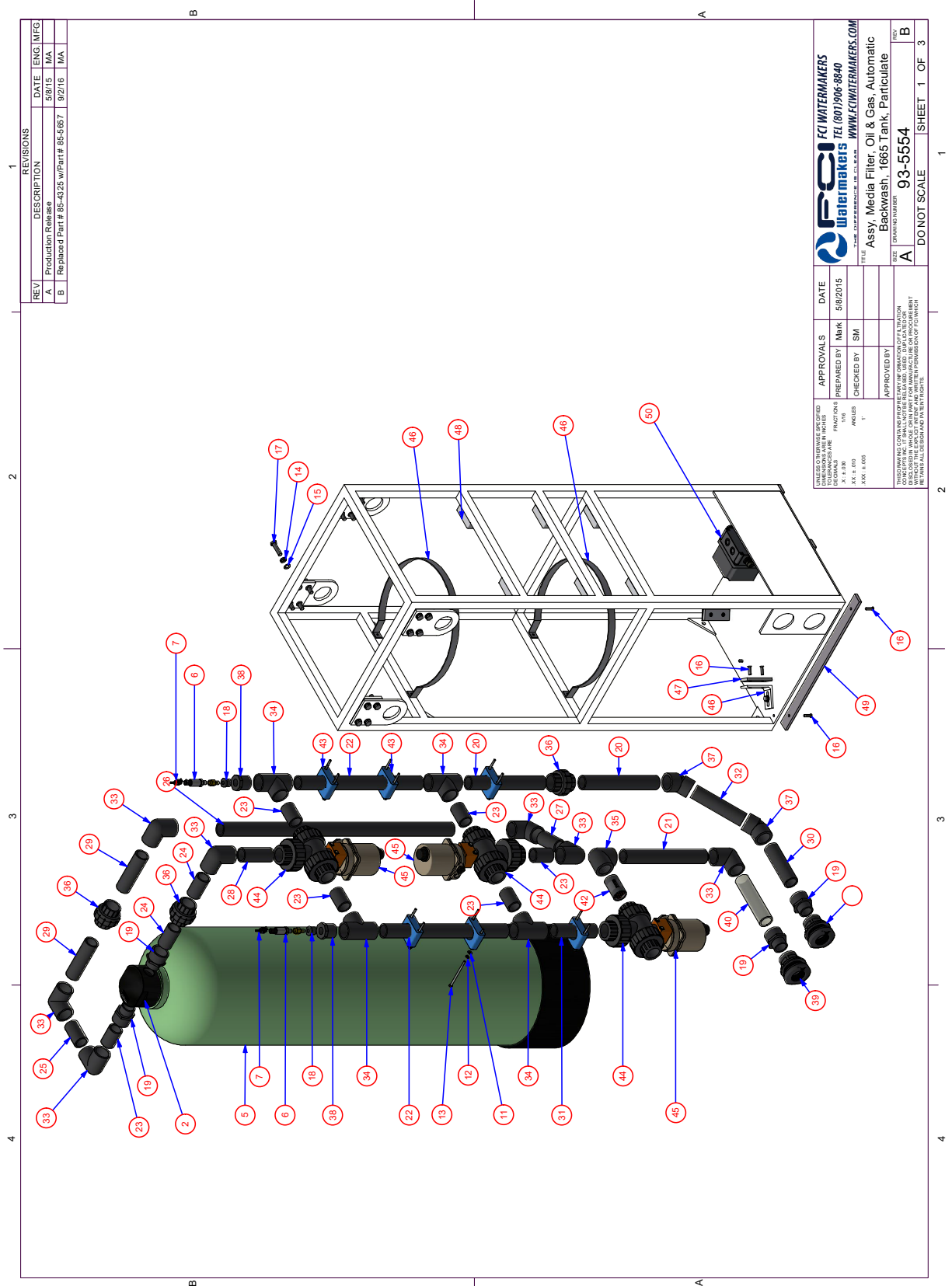


GENERAL ASSEMBLY DIAGRAMS / 1665 MMF (continued)

Parts List			DESCRIPTION
ITEM	QTY	PART NUMBER	
1	1	00-3177	Pack, Iron, 1665
2	1	03-2628	Tank Adapter, 1-1/2" OH Style
3	1	03-2941	O-Ring, Tank Adapter, 1-1/2" OH
4	1	03-5041	Distributor, 1-1/2" w/Laterals, 1665 Tank
5	1	09-5040	Tank Media Filler, 1665
6	2	56-2523	Transducer, 100 PSI, 1/4" MNPT, 316 SS
7	2	57-2416	Connector Assy, Packard Connector Plug
8	3	67-0001	Washer, Flat, 3/8"
9	3	67-0002	Washer, Spring Lock, 3/8"
10	3	67-0005	Hex Head Cap Screw, 3/8-16 x 1"
11	12	67-0009	Washer, Flat, 1/4"
12	12	67-0011	Washer, Spring Lock, 1/4"
13	12	67-0012	Screw, 1/4-20" x 4 1/2"
14	16	67-0032	Washer, Spring Lock, 1/2"
15	16	67-0035	Washer, Flat, 1/2, AN960C816
16	12	67-2608	Screw, 5/16-18 x 1", T, tapered Head
17	16	67-3931	Bolt, 316 SS, 1/2"-13 x 2"
18	2	70-0394	Bushing, 3/4" x 1/4", T x T, PVC Sch 80
19	4	70-0424	Male Adapter, 1-1/2", PVC, Sch 80
20	2	70-0434-1200	Pipe, 1-1/2", PVC, Sch 80
21	1	70-0434-131	Pipe, PVC 1-1/2" sch 80
22	2	70-0434-1975	Pipe, PVC 1-1/2" sch 80
23	6	70-0434-275	Pipe, 1-1/2", PVC, Sch 80
24	2	70-0434-32	Pipe, PVC 1-1/2" sch 80
25	1	70-0434-3280	Pipe, PVC 1-1/2" sch 80
26	1	70-0434-37400	Pipe,PVC 1 1/2" sch 80
27	1	70-0434-4 05	Pipe, PVC 1-1/2" sch 80
28	1	70-0434-4 687	Pipe, PVC 1-1/2" sch 80
29	2	70-0434-6 26	Pipe, PVC 1-1/2" sch 80
30	1	70-0434-6 5	Pipe, PVC 1-1/2" sch 80
31	1	70-0434-6 50	Pipe, PVC 1-1/2" sch 80
32	1	70-0434-7 55	Pipe, 1-1/2", PVC, Sch 80
33	7	70-0435	Elbow, 1-1/2", S x S, PVC, Sch 80
34	4	70-0436	Tee, 1-1/2" S x S x S, PVC, Sch 80
35	1	70-0439	Elbow, PVC 1 1/2", SxT, Sch 80
36	3	70-1696	Union, 1-1/2", S x S , PVC, Sch 80
37	2	70-3599	45, 1-1/2", S x S, PVC, Sch 80
38	2	70-3935	Bushing, 1-1/2" x 3/4", S x T, PVC, Sch 80
39	2	70-5010	Tank Adapter, 1-1/2", T x T, PVC, Sch 80
40	1	70-5330-7 86	Pipe, Clear, 1 1/2", Sch 80
41	2	71-5658	Pressure Gauge Snubbers w/Filtering Disc
42	1	75-2526	Flow Restrictor, 1-1/2"/2" Pipe, 3"
43	6	77-3281	Vibration Clamp, 1-1/2"
44	3	80-5300	Valve, 1-1/2" NPT /Socket, 3/4Way, Ball, L-Flow, PVC, Sch 80, Actuator Ready
45	3	85-5657	Actuator, 24 VDC, 1/2"-6" Valves, Nema 4x
46	1	90-5558	Frame Assy, Media Tank, Oil & Gas, 1665
47	3	91-4903	UHMW, Media Tank Support
48	6	91-5321	Spacer, 1-1/2" Pipe Clamp, UHMW, 3.5 x 1.25 x 1.00
49	3	91-5560	Stud UHMW, 1.498 x 24.00
50	1	95-5353	Assy, Enclosure, Automated Media Tank



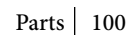
GENERAL ASSEMBLY DIAGRAMS / 1665 MMF OG



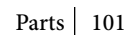
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Parts | 99

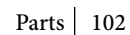
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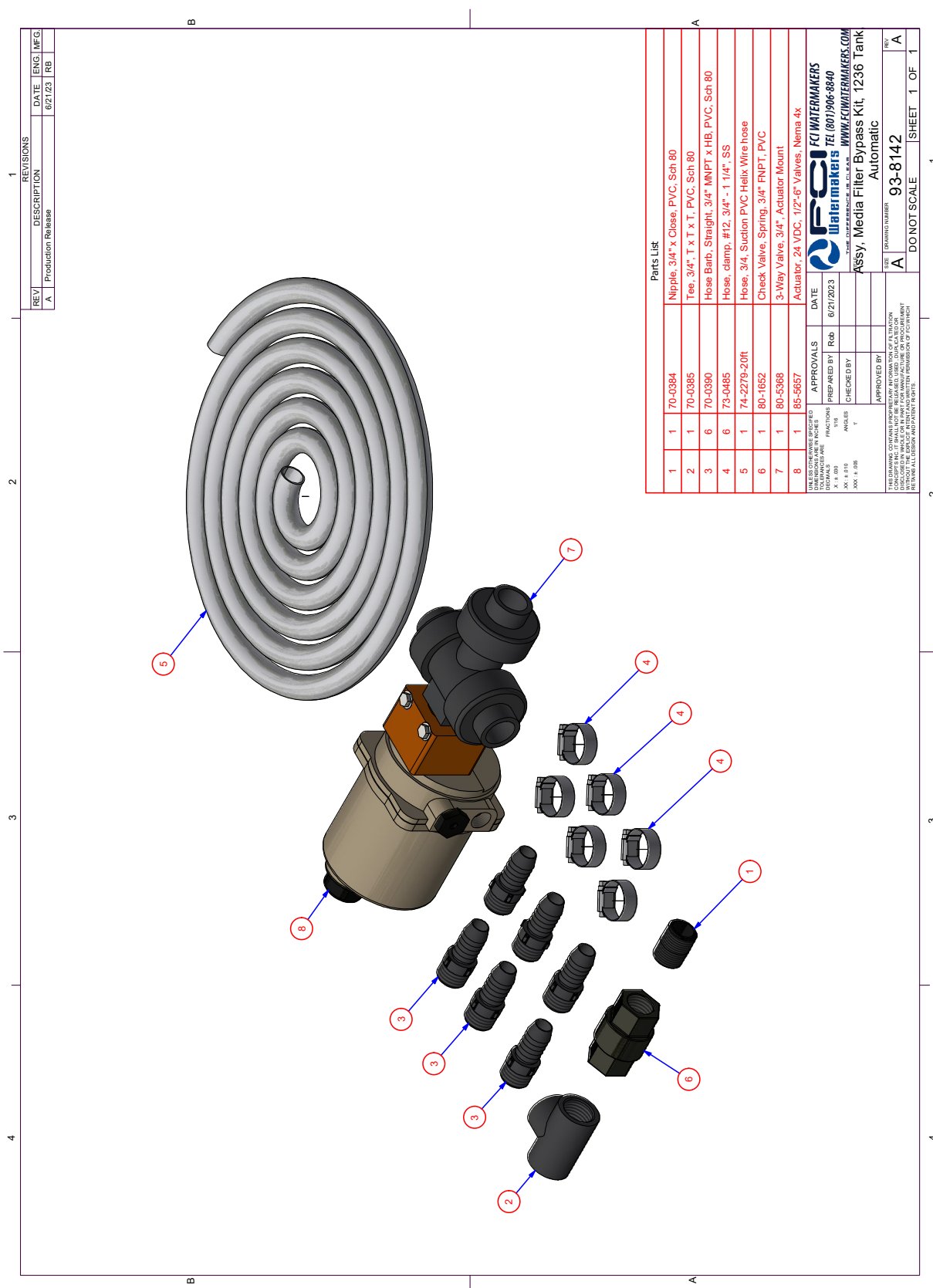
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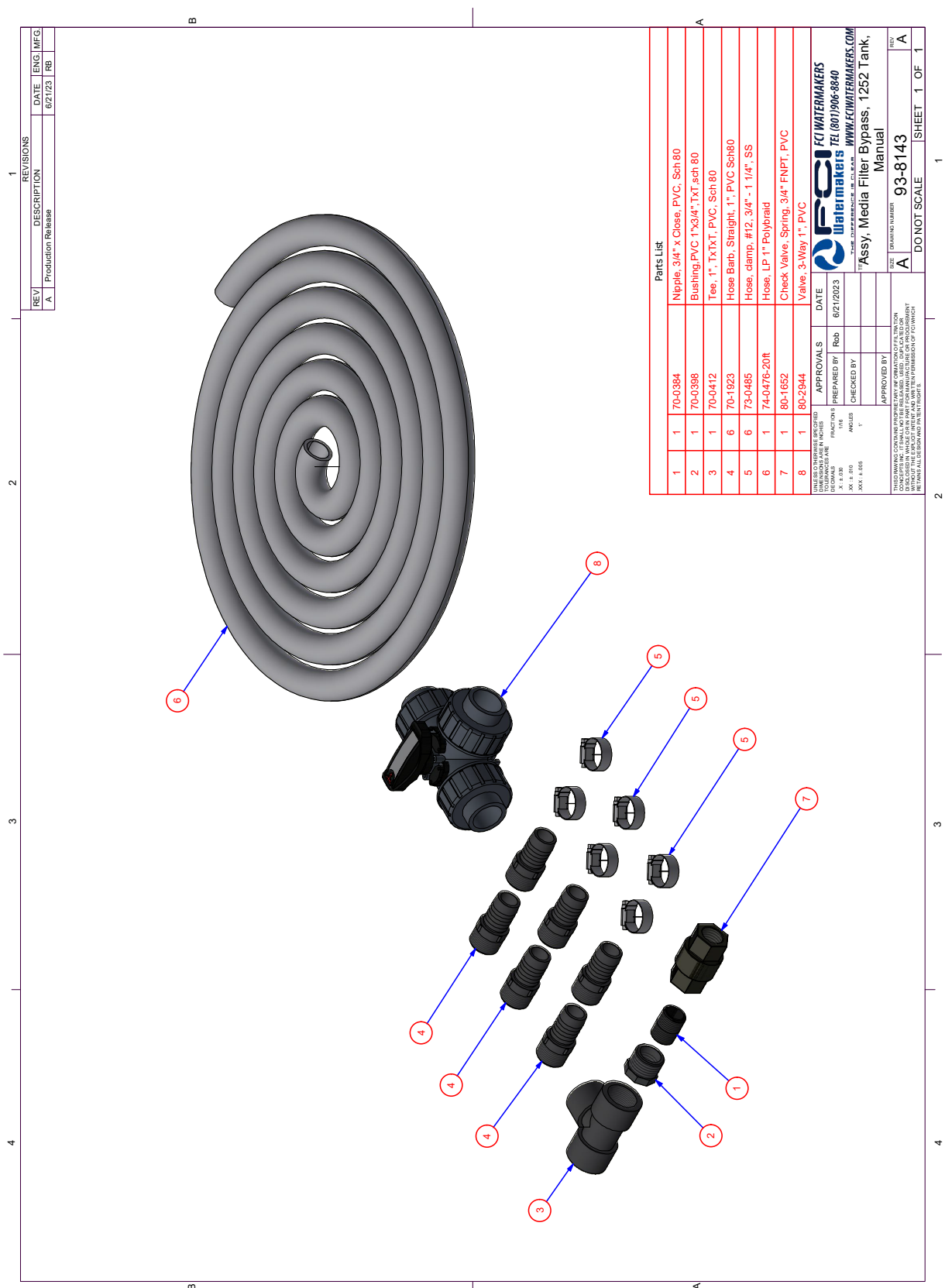
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GENERAL ASSEMBLY DIAGRAMS / INSTALL KITS (APC/DTs)



GENERAL ASSEMBLY DIAGRAMS / INSTALL KITS (APC/DTS)



GENERAL ASSEMBLY DIAGRAMS / INSTALL KITS (APC/DTs)

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B

A

REV		DESCRIPTION		DATE		ENG. MFG.	
A	Production Release			6/21/23	RB		

Parts List		
1	1 70-0384	Nipple, 3/4" x Close, PVC, Sch 80
2	1 70-0398	Bushing PVC 1"x3/4", TXT sch 80
3	1 70-0412	Tee, 1", TXT, PVC, Sch 80
4	6 70-1923	Hose Barb, Straight, 1", PVC Sch 80
5	6 73-0485	Hose, clamp, #12, 3/4" - 1 1/4", SS
6	1 74-0476-20ft	Hose, LP 1" Polybraid
7	1 80-1652	Check Valve, Spring, 3/4" FNPT, PVC
8	1 80-4327	Valve, 1" NPT / Socket, 3-Way, Ball, L-Flow, PVC, Sch 80, Actuator Ready
9	1 85-5657	Actuator, 24 VDC, 1/2"-6" Valves, Nema 4x

APPROVALS		DATE	
PREPARED BY	CHK'D BY	DATE	DATE
RB		6/21/2023	

FCI WATERMAKERS	
TEL (801) 906-8840	
WWW.FCIWATERMAKERS.COM	
Assy, Media Filter Bypass Kit, 1252 Tank Automatic	

DRAWING NUMBER	
93-8144	
DO NOT SCALE	

SHEET 1 OF 1	
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8/ REVISION HISTORY

REVISION HISTORY

Revision	Date	Description
A	02/22/2017	Initial release.
B	05/19/2017	Media Tank General Assembly drawings updated. Part Number corrected in Figure 1 to 93-5554. Pack Part Numbers corrected for Figure 7 to 00-3177 and 00-0065.
C	06/04/2023	Warranty updated.
D	09/17/2023	APC/DTS models added..General Assembly Drawing updated.



Document Part Number: 97-5811 Revision D