



HydroCycle Vertical Aeroponic Systems

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 **WARNING:** Cancer and Reproductive Toxicity - P65Warnings.ca.gov

Revision date: 05.09.24



*Actual system may differ from system shown.

113593

8' Vertical System (44 Grow Sites)

Important Information

READ THIS DOCUMENT BEFORE YOU BEGIN TO ASSEMBLE YOUR HYDROCYCLE VERTICAL AEROPONIC SYSTEM.

This guide provides helpful hints and important information needed to safely assemble and properly maintain the HydroCycle Vertical Aeroponic System. Read and understand this guide before you begin.

SAFETY PRECAUTIONS

- Apply pvc primer and cement in a well-ventilated area. **Follow all instructions on containers.**
- Use a portable GFCI (Ground Fault Circuit Interrupter) when working with electric power tools and cords. Use battery-powered tools if possible.
- Exercise caution when using all tools.
- Wear gloves and eye protection when drilling and cutting.

SAMPLE ASSEMBLY PROCEDURE

The steps outlining sample table system assembly process are as follows:

1. Verify all parts are included in shipment. Notify customer service for questions or concerns.
2. Read these instructions and all additional documentation included with shipment **before** you begin.
3. Gather tools and assistants needed to assemble product.



WARNING: KEEP ALL ELECTRICAL CORDS AND CONNECTIONS OUT OF THE RESERVOIR. CONSULT THE SERVICES OF A QUALIFIED ELECTRICIAN TO ADEQUATELY AND SAFELY CONNECT PUMP TO A POWER SUPPLY.

ALL ELECTRICAL CIRCUITS SHALL BE DESIGNED IN ACCORDANCE WITH LOCAL AND REGIONAL BUILDING CODES AND STANDARDS.

TOOLS

The following list identifies tools needed to assemble the aeroponic system. Additional tools may be needed depending on application.

- Tape measure and gloves.
- Marker
- Variable speed drill (cordless with extra batteries works best).
- Wrenches and socket/ratchet set for stand assembly. Sizes: 7/16", 1/2", and 3/8".
- 1-3/8" or 1-1/2" hole saw bit
- 2-1/4" hole saw bit
- 5/16" drill bit
- Tool to cut pvc tubing
- Ladders to work at the height of system.



UNPACK AND IDENTIFY PARTS

The following steps will ensure that you have all the necessary parts *before* you begin assembly.

1. Unpack contents of shipment and place where you can easily inventory parts. Refer to Bill of Materials/Spec Sheets.
2. Verify all parts listed on Bill of Materials/Spec Sheets are present. If anything is missing or you have questions, contact Customer Service.

BASIC CARE AND MAINTENANCE

Proper care and maintenance of your system is important. Check the following items periodically to properly maintain your aeroponic system.

- Check connections to verify they remain tight.
- Verify pump is working properly.
- Check and clean filter to optimize performance.
- Clean reservoir periodically to prevent unwanted contamination of solution.
- Monitor temperatures (room and solution) to maximize plant growth.

Important Information

PICTORIAL GUIDE

Use the following graphics and photos to identify system parts.



WF4065



WF1540



WF1390



WF2190



WF3375



LJ2502



WF3316



WF2193



111045



WF1570



WF3420



WF4790 Key Punch



110077 Air Stone



WF8582



112710



113595



112689



113696

Important Information

PICTORIAL PARTS GUIDE—CONTINUED



110725
Air Pump



110091
Clear Vinyl Tubing



WF1033 with
112066 Shut-Off
Valve



WF6990
PVC Cement
and
113372 Purple
Primer

PVC PRIMER & PVC CEMENT

Follow all directions printed on pvc primer and cement containers. **Purple color of primer does not fade!** Use caution during application to reduce spills and over application at joints.

Prime all joints before assembly.



WR4067



WR1095
Tape



110829
Drill & Tap Combo



CAUTION: Do not activate pump without first priming it. **Doing so will damage the pump!** Consult all documentation included with the pump **before** you begin.

WARNING: DO NOT ALLOW THE PUMP TO RUN WHILE RESERVOIR IS EMPTY. DAMAGE TO PUMP WILL OCCUR. MONITOR NUTRIENT LEVEL AT ALL TIMES.



118451 and 118452
25 Gallon Reservoir and Lid



113583 Flotec Utility Pump



112531 Timer*

ATTENTION: A timer is required to cycle the water pump on and off. If you did not purchase a timer, contact your sales representative to purchase the 112531 timer.

*Timer not included. Additional purchase required.

Basic Aeroponic System

The aeroponic system is ideal for growing in tight spaces. Multiple systems arranged in the same area allow for maximum use of available growing space. However you decide to use your aeroponic system, review the information that follows to better understand how to prepare and setup and system.

1. Construct the 115041 AeroTower Stand using diagrams near the back of this guide.
2. Review diagrams throughout this guide to help decide where to set the system. Set tower stand and reservoir in place. Allow ample room for cleaning, maintenance, and harvest.
3. Check overhead clearance. Height of 8' system (113593) with grow tube on stand is approximately 128".
4. Consider system pump location and clearance it will need.
5. Consider where main power will connect to water pump and air pump.

ATTENTION: All electrical wiring to be completed by an electrical contractor in accordance with established electrical codes.

6. Depending on setting, additional lighting may be required. Ensure that electrical service can support the addition of artificial light fixtures if needed.

TIMER REQUIRED

For best results and to prevent over-heating of the nutrient solution, a timer is required to control the water pump. After populating the grow tubes with plants, set the timer to cycle the pump on and off as follows:

Run pump for three (3) minutes every two (2) hours.

Monitor the plant growth and solution temperature and adjust watering times as needed to maximize results. **Do not connect the air pump to the timer. Air pump must run continuously for best results.**

System shown for example only.
Actual system may differ.



*Actual system may differ from system shown.

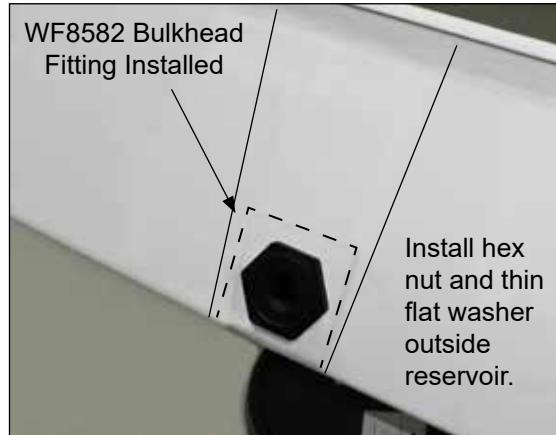
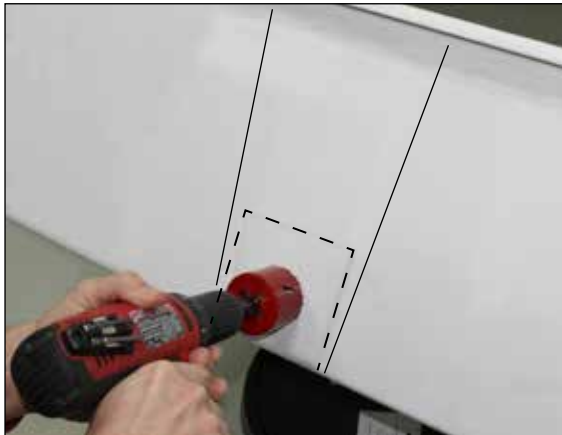
1

DRILL RESERVOIR AND INSTALL BULKHEAD FITTING



WF8582

1. Take the reservoir and locate the smooth surface on the outside at one end.
2. Using a **2-1/4" hole saw bit and drill**, drill the hole for the bulkhead fitting. Clean debris from around hole and inside reservoir. Ensure hole is an inch or so above the bottom of reservoir to allow for fitting installation. (Actual tank may differ from the example shown.)
3. Attach WF8582 bulkhead to reservoir. Hex nut and thin flat washer are outside the reservoir. Install thick rubber washer on inside. Tighten until snug using large adjustable pliers.



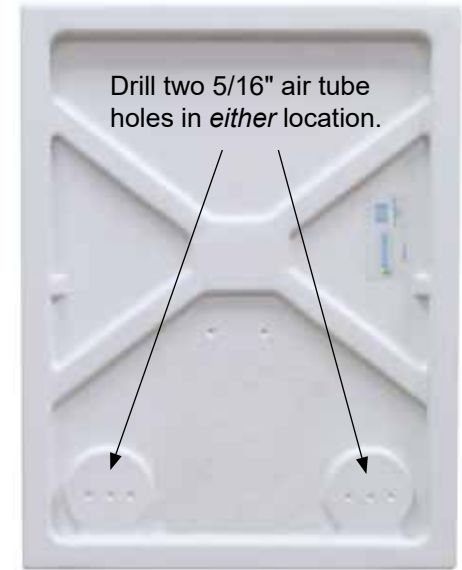
4. Continue by preparing the cover for system assembly.

2

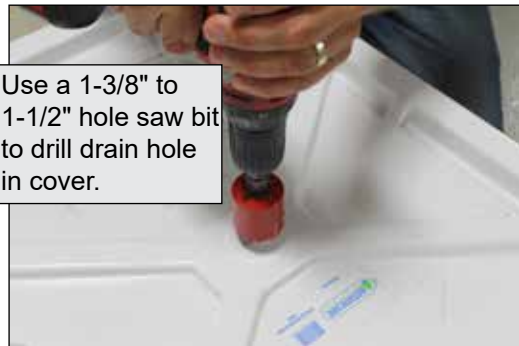
DRILL DRAIN AND AIR LINE HOLES IN COVER

Complete these steps:

1. Take the 113797 cover and set on customer-supplied supports for drilling drain hole. **Do not drill cover over the reservoir.** Debris can damage the pump and clog the filter. Locate the center of the raised cover where cross braces meet.
2. Use a 1-3/8" to 1-1/2" hole saw bit and drill drain hole in reservoir cover.
3. Using a 5/16" drill bit, drill two (2) holes in the raised area on either side of the porthole for the air lines.
4. Remove all debris from the cover and around all holes to prevent it from dropping into the reservoir when cover is set in place.
5. Continue with the next procedure.



ATTENTION: Actual cover design may differ. Prepare actual cover as directed.



3

ATTACH THE AIR PUMP AND AERATOR STONES

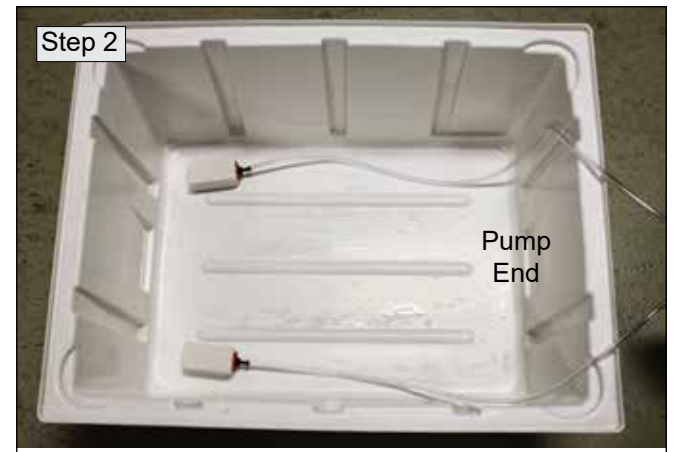
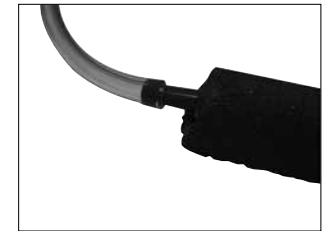
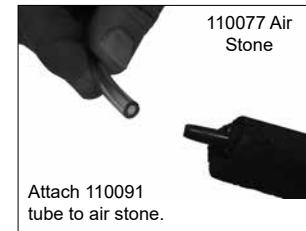
For optimal system performance and to extend the life of the nutrient solution through increased oxygenation, an aerator pump and aerator stones are included. Position stones on bottom of reservoir opposite main pump. *Air pump must remain above nutrient level to prevent siphoning.*

1. Cut the 110091 tubing in half.
2. Attach one stone to each line and set the stones in the reservoir. See photo for stone position opposite the main pump. Actual stones may differ from the example.
3. Feed tubing up through access holes and connect free end of each tube to the air pump. *(Actual reservoir cover may differ. Procedure is the same.)*

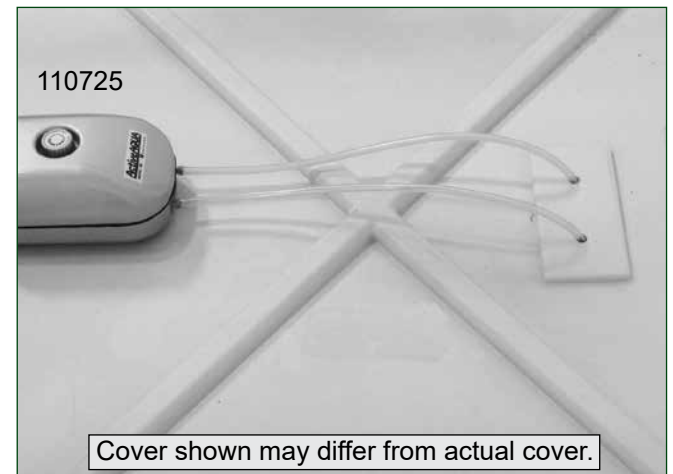


4. Plug pump into an outlet and check the stones to ensure air is pumping through them. Place stones in a small container of water if needed to confirm operation.
5. Turn off pump after checking the operation.
6. Set the air pump on the cover or inside the reservoir until grow tube is installed.
7. Continue with the next procedure.

ATTENTION: For best results, air pump must run continuously when system is in operation. **Do not connect air pump to a circuit controlled by a timer.**



Position stones opposite the pump end of the reservoir.



When in operation, position the air pump at a level that is **above the reservoir at all times to prevent siphoning** of the nutrient solution.

4

INSTALL SEALS, GROMMETS, AND DRAIN EXTENSION



112710

113595

Complete these step:

1. Install all 112710 uniseals in the 10" grow tube. When installed correctly, seals will seat tightly against the outer surface of grow tube.



2. Next, take the two 10" grow tube caps (113107) and install one (1) 113595 grommet in each. Carefully start grommet in hole and work it around until grommet is seated flush against lid. Fit is tight.



Step 2



Step 3



3. Flip lid over. Verify that collar of grommet is flat against cap surface.
4. Cut one (1) sixteen inch (16") drain extension from the 1" pvc tube.
5. Install drain extension into either 10" cap. Wet drain tube end for easier installation. End of tube is flush with lip of rubber grommet when installed correctly.
6. Continue with the next procedure.



End of extension is flush with grommet.



5

SET RESERVOIR AND ASSEMBLE GROW TUBE

Complete these steps:

1. Take the 113112 mist column and carefully twist the 113107 cap with grommet (previous procedure—Step 2) onto threaded fitting at top.

ATTENTION: Inspect the mist column to ensure that no mist emitters are damaged or missing. **Consult the procedure to replace damaged mist emitters near the back of this guide if needed.**

2. Seat cap tightly against shoulder of threaded fitting to seal against cap.
3. Wrap threads of mist column fitting with thread tape. Wrap in a direction that will not allow the tape to unwrap when manifold section is attached.
4. Add the WF2190 fitting to the threaded end of mist column.
5. Hold column with one hand and tighten the WF2190 fitting against the rubber grommet. Tighten until snug.



Seat column fitting tight to rubber grommet.



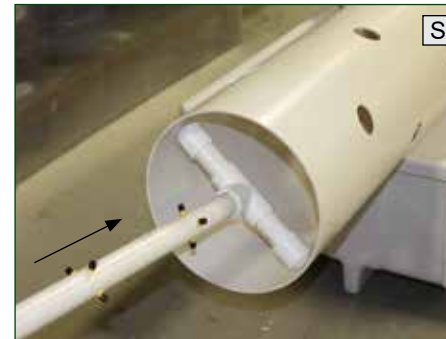
5

SET RESERVOIR AND ASSEMBLE GROW TUBE—continued

6. With assistance, take the grow tube and carefully slide cap and mist column assembly into tube.
7. Work the cap over the end of grow tube and tap in place with palm of your hand. Do not hit with hammer or anything that could crack the tubing or cap. Verify that cap is seated in place.

ATTENTION: Do not cement cap to grow tube! Tube must remain free to remove for system maintenance and cleaning.

8. Look into grow tube through plant sites and verify that mist nozzles align with sites. Adjust/turn cap as needed and press back into place.
9. Take cap with drain extension (Procedure 4) and install on bottom of grow tube. Seat in place with palm of your hand. **Do not cement!**
10. Set the grow tube assembly aside and continue with the next procedure.



6

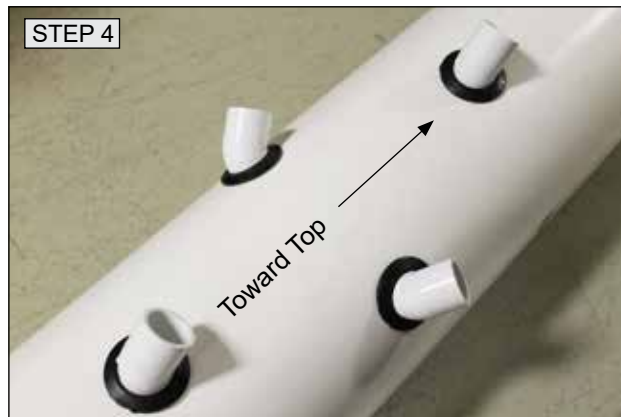
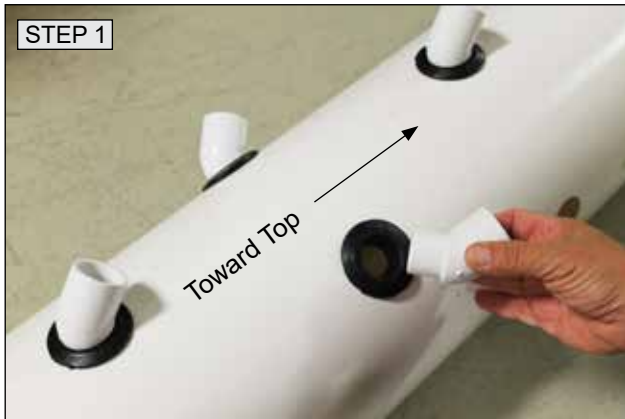
INSTALL 111045 ELBOWS IN GROW TUBE

Once grow tube is assembled, install all 111045 elbows. Wet end of 111045 elbow and insert it into 112710 uniseal. Install all elbows so open end **points up and away from drain extension end** of tube.

ATTENTION: Seat elbow tight against uniseal to prevent leaks.



111045



Verify all elbows are seated tight against seal.

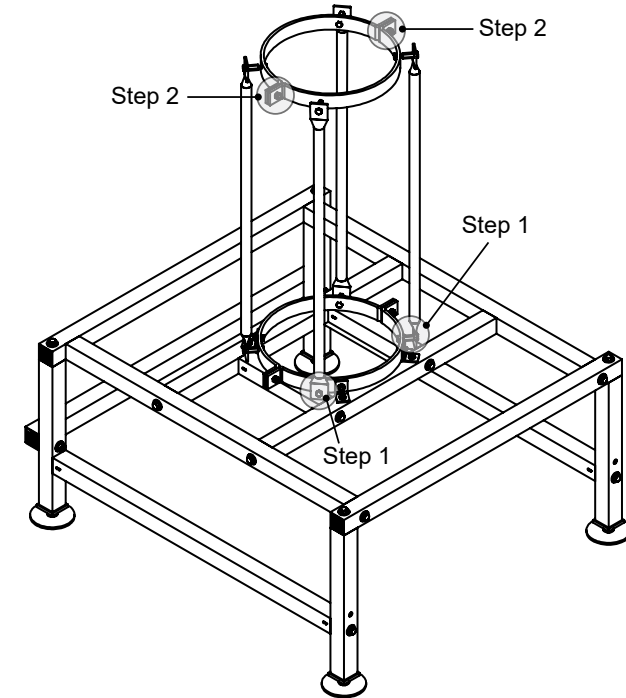
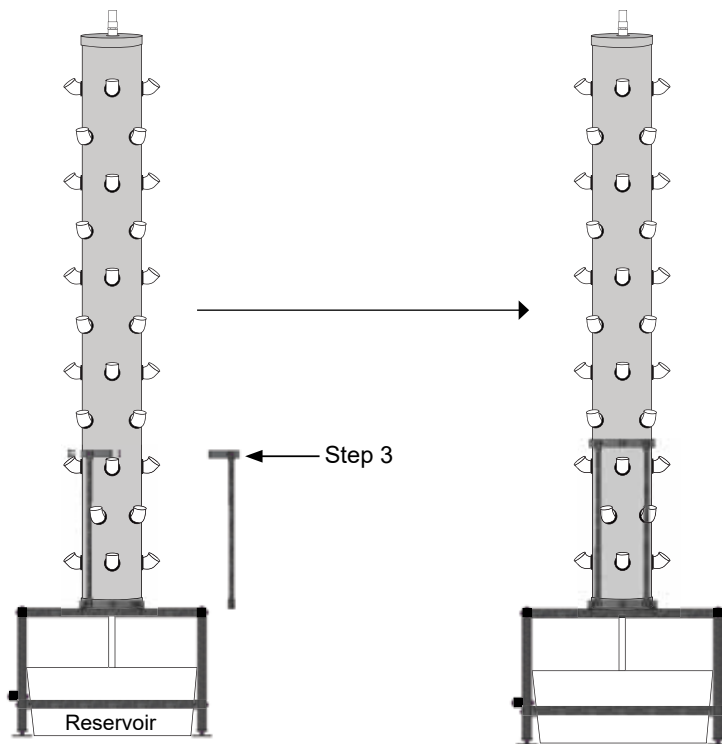


7

SET GROW TUBE ON TOWER STAND

Take the necessary steps to assemble tower stand if this has not been completed yet. Read the following procedure to determine which part of tower stand to attach *after* tower is set in place. If stand is fully assembled as shown (right), remove one upper support ring in this manner:

1. Remove two (2) lower 1/4" x 1/2" hex bolts to loosen two vertical supports.
2. Remove two (2) 1/4" x 1" bolts of upper supports.
3. Lift upper support and two vertical supports assembly off main tower frame.
4. Set cover on reservoir (if needed) and slide reservoir under tower frame.



5. Slide grow tube drain extension through hole in cover and seat tower in place on frame.

ATTENTION: Remove Y-filter housing if needed to allow tower to pass between frame cross tubes.

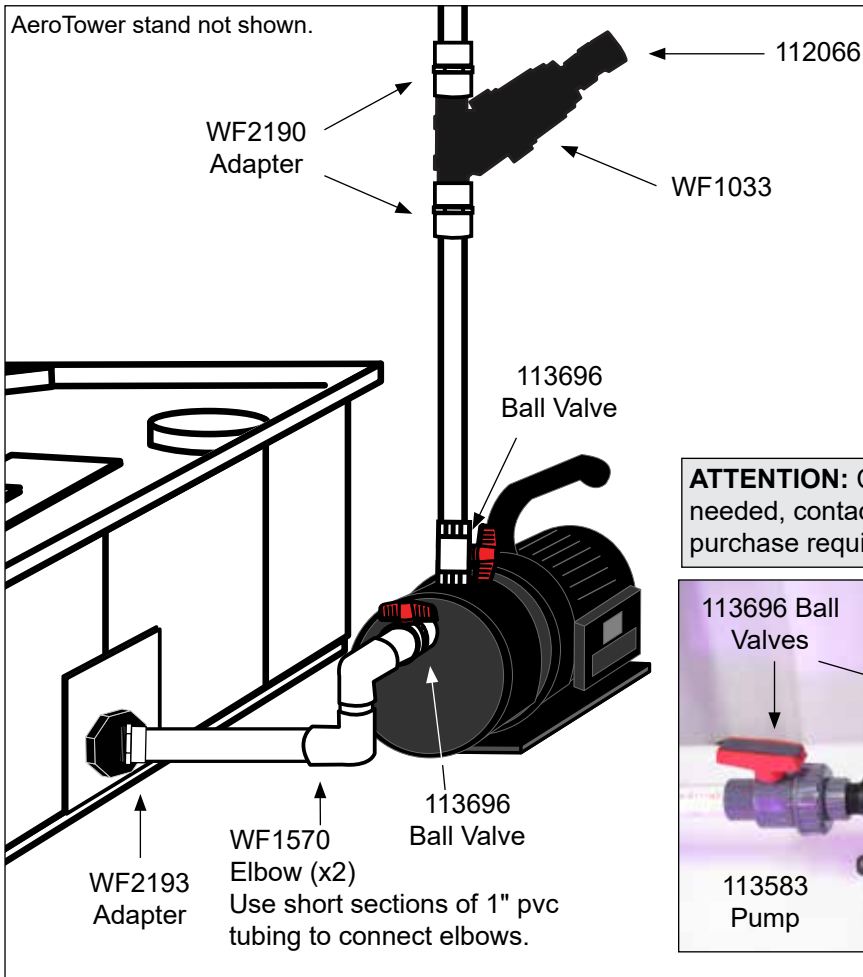
6. Reattach upper support and two vertical supports to secure grow tube.
7. Continue with next procedure.

8

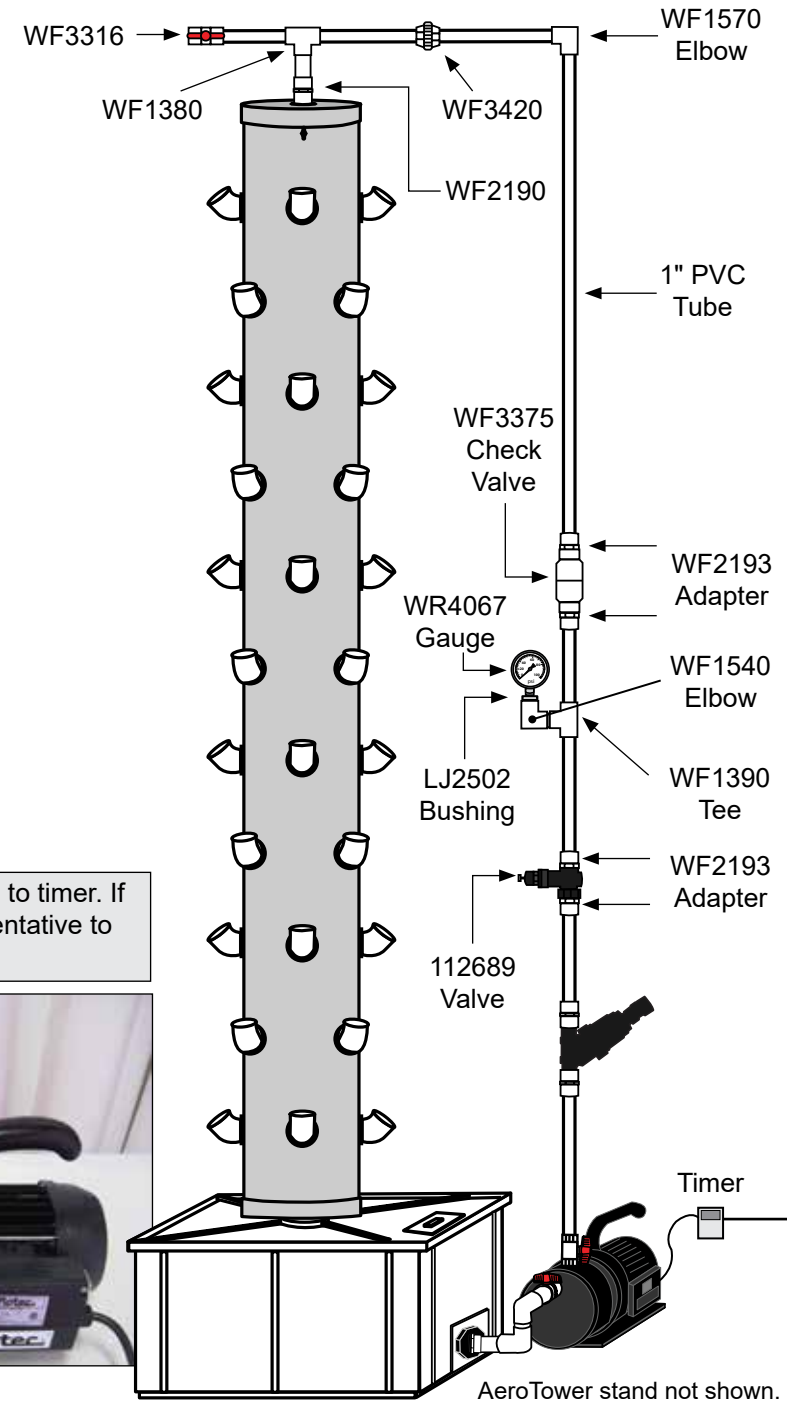
INSTALL PUMP AND PLUMBING

With tower locked in tower stand, install plumbing from reservoir to top of grow tube using components shown. The 1" pvc is cut to length during assembly.

ATTENTION: Wrap all threaded fittings with thread tape before assembly. Use pvc primer and pvc cement to secure all slip fitting connections. Ensure that system is in the location where it will be in operation. **Confirm water flow direction arrows on all valves and filters before assembly. Dry fit assemblies before applying pvc primer and pvc cement to ensure desired result.**



ATTENTION: Connect water pump to timer. If needed, contact your sales representative to purchase required timer.



OPERATIONAL AND MAINTENANCE INFORMATION

General Operating Instructions

After assembly, check system before operation. Complete these steps:

1. Verify all electrical cord ends and air pump are outside reservoir before adding solution.
2. Verify WF3316 ball valve at end of main supply manifold above vertical grow tube is closed.
3. Verify both 113696 single union ball valves are open at pump before running pump.
4. Fill reservoir to cover nutrient pump intake.
5. Plug air pump into a GFCI (Ground Fault Circuit Interrupter) outlet. Look for bubbles in reservoir to confirm air is pumping to each air stone. **Remember to always mount air pump on a surface above water level.** Pump vibrations can cause pump to move. Make sure pump does not fall into reservoir or other liquids.
6. Consult nutrient pump documentation and **prime the pump**. After pump is primed, allow it to run until water flows through mist column inside grow tube. **If water does not flow, turn off pump and repeat steps to prime pump.**
7. Check all plumbing connections for leaks.
8. Check all pvc fittings for leaks.
9. Adjust system pressure: Normal operating pressure for this aeroponic system is 10 psi. Adjust pressure reducing valve (112689) as needed.
10. Once air is out of all lines and water sprays from mist column, turn off nutrient pump.
11. If this has not been done yet, install timer and connect water pump to it. Set timer to recommended watering cycles noted on **Page 5**.

ATTENTION: Once system is running, monitor plant growth and adjust watering cycles as needed to maximize results.

12. System is ready to use. Add plants and grow. Mix nutrient solution according to plant needs and instructions included with nutrient.

General Cleaning and Maintenance Instructions

For optimal performance and to increase yields, check and clean reservoir periodically. Time between maintenance and cleaning depends on growing environment and specific use of system. Apply the following steps as needed to ensure your system is working properly.

1. Disconnect main power supply to turn off all pumps. Remove reservoir cover and inspect inside of reservoir. Reservoir should be cleaned each time nutrient solution is replenished. Keep porthole cover in place during operation to prevent light from entering reservoir.
2. Check all plumbing connections to ensure none are leaking.
3. Check all tube supports to ensure all are functioning as designed.
4. With pump off, disassemble filter and clean screen and housing. Reassemble for use. See procedure on next pages for details.



WARNING: KEEP ALL ELECTRICAL CORDS AND CONNECTIONS OUT OF THE RESERVOIR. CONSULT THE SERVICES OF A QUALIFIED ELECTRICIAN TO ADEQUATELY AND SAFELY CONNECT THE PUMPS TO A POWER SUPPLY.

ALL ELECTRICAL CIRCUITS SHALL BE DESIGNED IN ACCORDANCE WITH LOCAL AND REGIONAL BUILDING CODES AND STANDARDS.

ATTENTION: During operation, always position air pump *above* reservoir/nutrient level to prevent siphoning. For best results, air pump must run continuously when system is in operation. **Do not connect air pump to a circuit controlled by a timer.**

OPERATIONAL AND MAINTENANCE INFORMATION

Reservoir Cleaning and Maintenance

Clean reservoir periodically to maximize plant growth and to minimize system contamination. Steps that follow can be used to pump reservoir for cleaning and typical maintenance. *Cleaning filter is strongly recommended after cleaning reservoir.*



1. Connect a garden hose to the 112066 shutoff valve on filter. Place end of hose in a bucket or run it to desired location.



2. Open shutoff valve to pump out reservoir. Turn off pump once reservoir is empty. **To prevent damage, do not run pump dry.**



3. Clean reservoir as needed and repeat steps to pump it out again. **Prime pump if needed.** Consult documentation included with pump. Close shutoff valve.

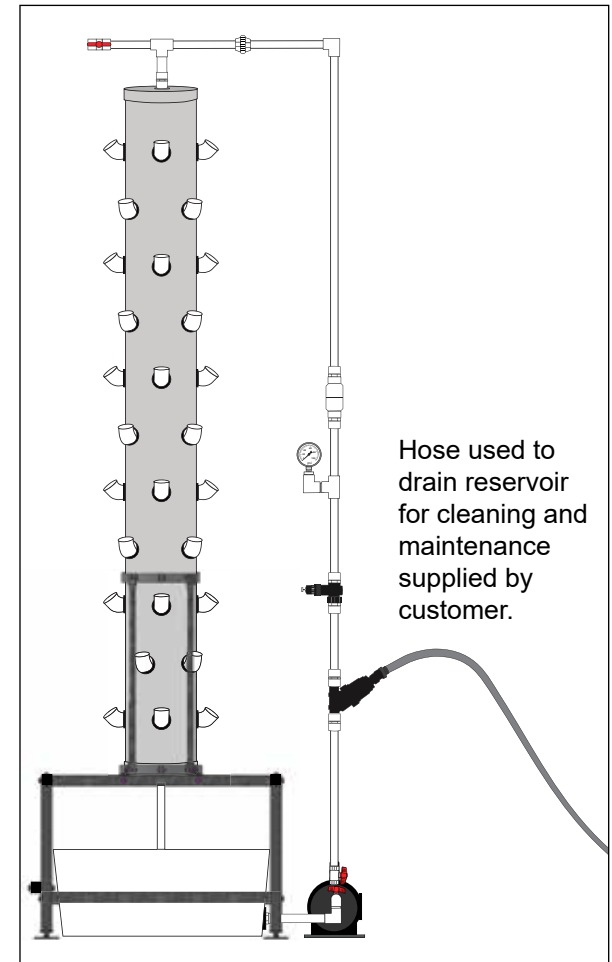


4. Remove hose and clean filter. See next page for filter cleaning procedure.

5. Refill reservoir with nutrient solution.

6. Turn on pump.

ATTENTION: SYSTEM SHOWN MAY DIFFER FROM ACTUAL SYSTEM. FILTER ASSEMBLY IS THE SAME. STEPS FOR CLEANING RESERVOIR ARE THE SAME.



OPERATIONAL AND MAINTENANCE INFORMATION

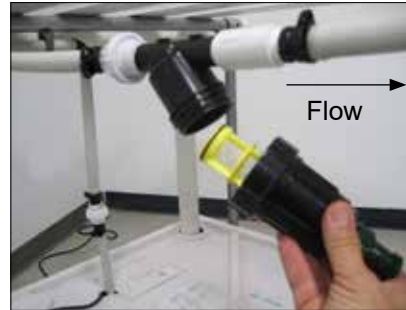
Clean Filter Screen and Housing

Clean filters ensure proper flow. Filters should also be cleaned after cleaning reservoir to remove sediment. When a reduced flow rate or drop in pressure is noticed, follow these steps to clean filters and filter housings.

ATTENTION: SYSTEM SHOWN DIFFERS FROM ACTUAL SYSTEM. FILTER ASSEMBLY IS THE SAME. STEPS FOR CLEANING THE FILTER ARE THE SAME.



1. Turn off pump. Open valve on filter to drain supply line and filter.



2. Grip filter housing and main supply line and remove housing. Do not apply force to filter or supply line fittings. Hold these steady when disassembling filter.



3. Remove screen from housing. Using clean water, rinse housing and screen.



4. Insert screen into housing, reassemble filter, and *close valve*.
5. Turn on pump. Prime if needed.
6. Check filter for leaks.

REPLACE DAMAGED OR BROKEN MIST EMITTER

Replace Damaged or Broken Mist Emitter

In rare instances, a mist emitter may become damaged during shipping or installation. The 110829 drill & tap combo pak is included to easily repair a broken or damaged emitter. Review photos below to remove broken emitter and to install a new one.



1. Using a variable speed drill and the drill bit from the 110829 combo pack, carefully drive the threaded shaft of emitter into tube. Hold drill steady and drill slowly. Do not damage threads or distort hole with bit.



2. Take a replacement WF4065 mist emitter and start it in threaded hole. Skip to Step 4.

If you are unable to start mist emitter in threaded hole, continue with next step.



3. Clean threads using tap. Secure round shaft of tap in drill chuck. Tap should spin evenly with no visible wobble. Do not bottom tap out in tube. *Run it into hole just enough to clean threads and no further.* Carefully back tap out of hole. Repeat Step 2 and continue.



4. Using WF4790 key punch, tighten emitter.



5. Inspect remainder of tube for damaged or broken mist emitters and repair as needed.

CAUTION: Turn until slight resistance is felt. Mist emitter will break! **Do not overtighten!**

AeroTower Stand Part Locations

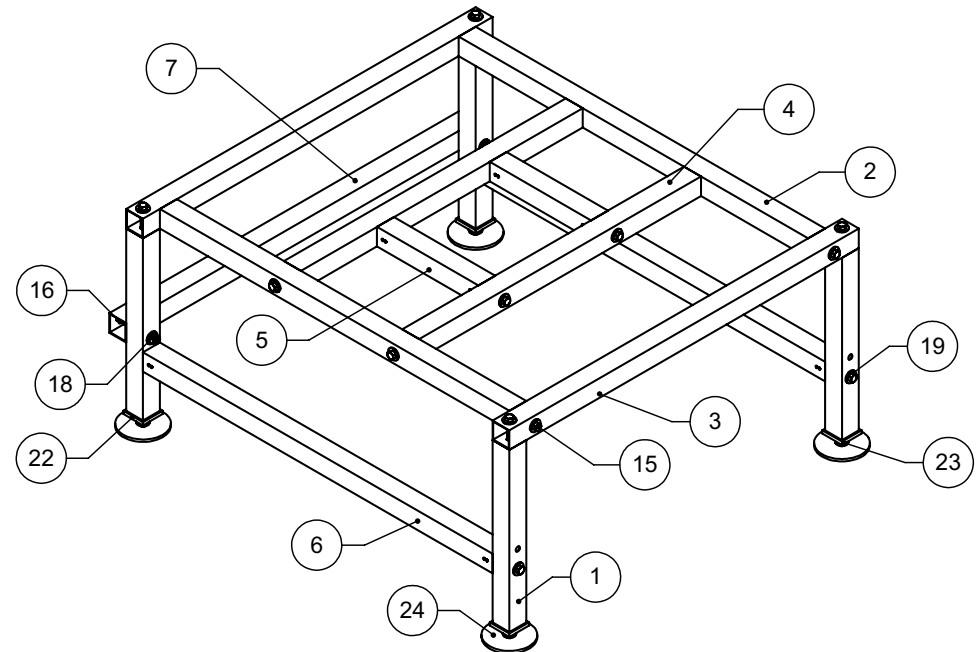
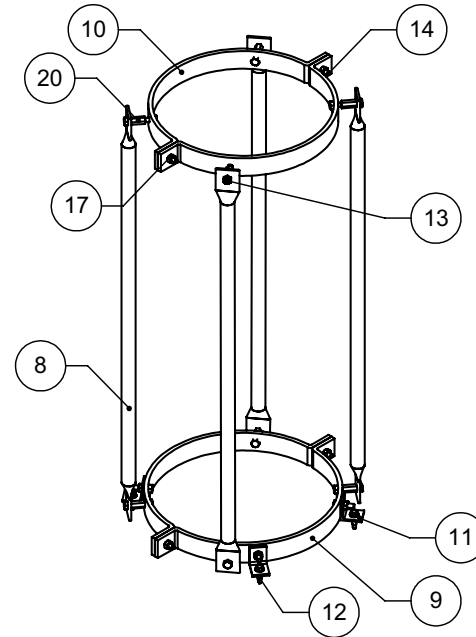
STAND ASSEMBLY

Use information on the following two pages to assemble stand for aeroponic plant tower.

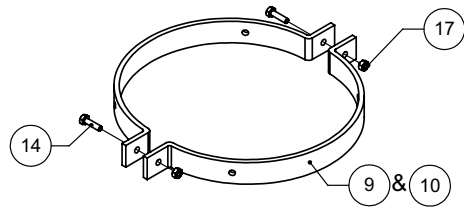
ITEM NO.	PART NUMBER	QTY.	DESCRIPTION
1	115029	4	AEROTOWER STAND LEG
2	115030	2	AEROTOWER STAND UH SUPPORT 1
3	115031	2	AEROTOWER STAND UH SUPPORT 2
4	115032	2	AEROTOWER STAND UH SUPPORT 3
5	115033	2	AEROTOWER STAND UH SUPPORT 4
6	115034	2	AEROTOWER STAND LH SUPPORT 1
7	115035	1	AEROTOWER STAND LH SUPPORT 2
8	115036	4	AEROTOWER STAND VERTICLE SUPPORT
9	115037	2	AEROTOWER STAND L SUPPORT RING
10	115038	2	AEROTOWER STAND U SUPPORT RING
11	112431	4	1-1/4" X 1-1/4" ALUMINUM ANGLE CLIP
12	FA4482B	8	TEK SCREW #14X1 HWH ZINC (EA)
13	FAG100	16	CAP SCREW SS 1/4X1/2 B/100
14	FAG102B	8	HEX CAP 1/4X3/4" ZINC EACH
15	FAG336B	20	HEX CAP 5/16"X2-1/2" ZINC EACH
16	FAG340B	2	HEX CAP 5/16X3-1/2 ZINC EACH
17	FALB01B	8	NUT BULK 1/4-20 ZINC (EA)
18	FALB02B	2	NUT BULK 5/16-18 ZINC (EA)
19	FAME07B	22	BULK FLATWASH 5/16" ZINC (EA)
20	FALC30	8	COUPLING NUT 1/4-20 ZINC /EA
22	113030S01	4	FLOAT TABLE AJUSTABLE FOOTER STY 1
23	FALB34B	4	NUT HOTDIP GLV 3/8-16
24	112477	4	FODDER FRAME LEVELER INSERT
25	112770	6	1-1/2" BLACK FINISHING PLUG

Tools needed to assemble tower stand:

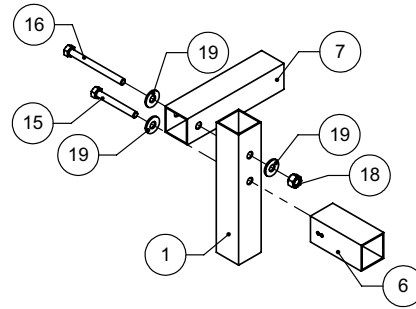
- 7/16", 1/2", and 3/8" wrench and socket set
- Battery-powered drill to install Tek screws
- Magnetic Nut Setter (3/8" x 2-9/16")
- Tape measure
- Marker to mark tower location on lower frame tubes.



Aero Tower Stand Connection Details

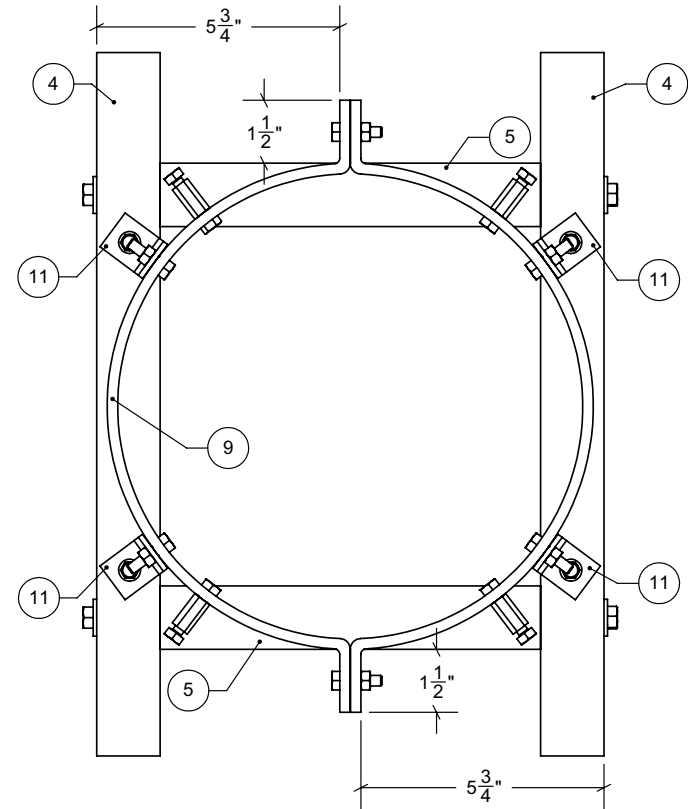


SUPPORT RING ASSEMBLED

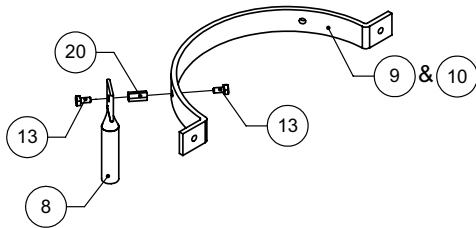


LEG TO LOWER HORIZONTAL SUPPORTS

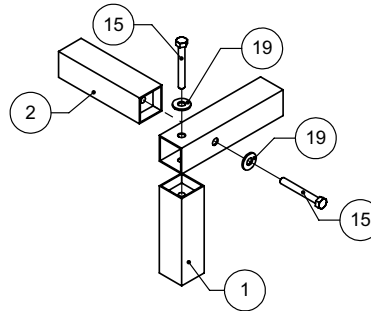
NOTE: TOWER WILL BE CENTERED ON BASE OF AEROTOWER STAND



CENTERING TOWER ONTO STAND



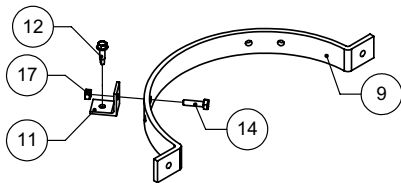
VERTICAL SUPPORT TO SUPPORT RING



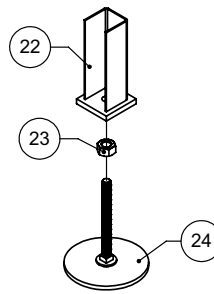
LEG TO UPPER HORIZONTAL SUPPORTS

NOTE: TOWER WILL BE TEK SCREWED TO BASE BEFORE BOLTS ARE TIGHTENED

NOTE: FOOT INSERT IS TEK SCREWED TO LEG



ANGLE CLIP TO SUPPORT RING



FOOT INSERT ASSEMBLED

