Multiponics 6800/8800 DIY Kit Product Manual

by James McMillin 2014

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Product List/Description (6800 Kit/8800 Kit)

-1x 6800/8800 Pump and Transformer Housed with Glycerin Gauge

This box is hand-built by our professional horticultural technicians. It is meant to safely house your pump while giving a clear display of the pressure coming from the pump. The gauge is filled with glycerin.

The Aquatec 6800/8800 pump is built for use with water only. It is not meant for use with petroleum based products, harsh environments, or in hazardous atmospheres. It can be mounted in any direction, but may lose 15% efficiency if placed upside down. The pump should be kept in a stable temperature (32-115F) and should be kept dry. If the pump is enclosed, additional cooling may be necessary. Never try to submerge your pump in liquid or get it wet. Never use any tubing other than Multiponics brand tubing, and never use the pump without either a 150 micron or 100 micron mesh filter. The 6800 is recommended for use with 4-6 nozzles while the 8800 is recommended for use with 10-12 nozzles. The pressure output is the same, but the 8800 has a higher flow rate. Make sure no creases are in tubing before operating pump. It is designed for continuous use, so any "off" periods of the pump should exceed 60 seconds. Repeatedly turning the pump on before this point will reduce the life of your pump. Only use Aquatec brand power supplies with this pump. Every year, the pump should be checked for operating standards. Every 2-3 years, the pump diaphragm should be replaced. All Aquatec products are warranted (by Aquatec, not Multiponics) to be free from defects in material and workmanship in the following terms: the warranty will last 13 months from the date of shipping from an Aquatec warehouse. The period will be extended an additional 12 months for the 6800. This warranty does not extend to products which have been altered or modified outside the Aquatec factory, nor does it apply to units that are returned or in unassembled condition. The warranty does not cover wear, appearance, misapplication, or external water damage. This is a limited warranty. More information can be found directly from Aquatec.

-1x 10-Step Titanium Drill-bit

This drill-bit is designed for versatility with our systems. As you will need to drill holes of varying size (and do not want to err on the excessively-large size), this staged drill bit is perfect for the job.

-6x/10x Aeroponic/Hydroponic Spraying/Misting Nozzles (with 4/6 additional replacements)

These nozzles are either straight or barbed/angled at 90 degrees. These nozzles are perfect for high or low pressure aeroponic configurations, but will work well with hydroponics as well. They are fit for 1/4" tubing, have vortex o-rings, and are meant to be cleaned with ease. These nozzles are designed to hit the “sweet spot” of water droplet micron diameter when used in conjunction with the Aquatec 6800/8800.

-6x/10x Pre-drilled Silicone Stoppers

These silicone stoppers have been drilled through to allow for 1/4" tubing to pass through. These stoppers will allow you to create tubing passageways for nozzles while still keeping air/water in or out of the root chamber.

-7x/11x T Connectors

These T connectors are made of food grade plastics, allowing you to branch off your tubing for a nozzle. These are quick connect compatible and made of castor oil bio polymer. For each kit, one T is used in the pump housing. This means you will have 6/10 T’s for use outside of the enclosure.

-2x Elbow Connectors

Elbows allow for hard angles and bends in your tubing without creasing the tubing and stopping flow. These are quick connect compatible and made of castor oil bio polymer.

-2x Bulkhead Unions

Bulkhead unions are a means to creating passages for your tubing while still keeping the opening water or air tight. These are quick connect compatible and made of castor oil bio polymer. The bulkhead unions included with the kit are installed in your pump housing/enclosure.

-1x 150 Micron Mesh Filter

These filters precede the pump in your configuration. They filter out particulate matter and biological scum so that your pump, tubing, and nozzles do not clog. If you choose not to filter your reservoir, the life of your pump and all other equipment will be drastically reduced, and the likelihood of clogging is significantly increased. The filters are very easy to clean, and should be cleaned about once a week.

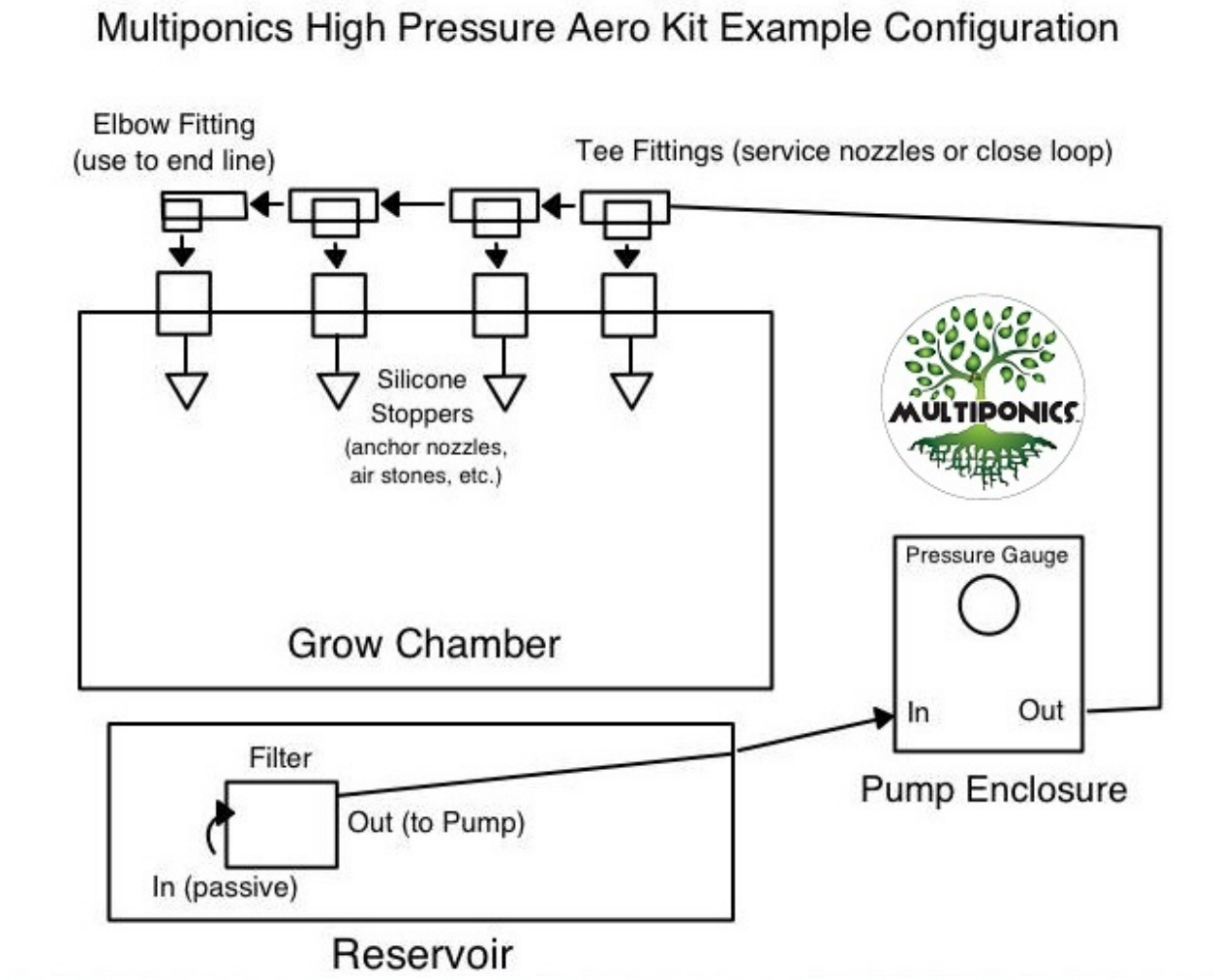
-1x 30ft ¼” Tubing/40ft ¼” Tubing

This tubing is food grade plastic, and is rated for high pressures. This tubing is ideal for hydroponic/aeroponic endeavors, especially with the Aquatec pump. It is compatible with all of our quick-connect equipment and devices. It is opaque to prevent light from contacting the nutrient solution or water.

Introduction to the Kit

The DIY kits from Multiponics are meant to empower gardeners and horticulturists, giving them home and commercial access to incredible and unprecedented technology. The most popular feature of these DIY kits is their versatility. With either the 6800 or 8800 pump, the gardener is free to transform any empty container(s) into virtually any type of hydroponic/aeroponic system, teeming with life. These DIY kits are also great for modifying and retrofitting existing hydroponic and Aeroponic systems. You will find that these kits are perfectly compatible and capable of running deep water culture, ebb and flow tables, high pressure Aeroponic systems, low pressure Aeroponic systems, drip systems, automated watering for plants in soil/soilless mixes, nutrient film technique and gutters, cloners, and virtually any other growing system imaginable. We are frequently impressed by the diversity of applications that our DIY kits are utilized for.

Installation Instructions and Diagram



While intimidating to many amateur gardeners, our DIY kits are very simple in concept and are easy to install. The general concept is this: the pump pulls water from a reservoir through the filter, until it passes through the pump. It is then pushed at a high pressure across our nozzles, creating a fine mist of nutrient solution that is easily accessed by plants' root systems. More can be learned about how NASA innovated this technology on www.multiponics.com. The nozzles/misters, which are under high pressure, are on a closed loop on the output side of the pump.

Here is an example of the process, step by step. We are illustrating one way to use our DIY kit, but we hope the concept will be food for your imagination. This is just one example of an infinite of applications.

1) Acquire all parts from DIY kit as well as a root chamber and reservoir (these can be as simple as opaque, plastic totes).

2) Using your 10-step titanium drill bit, drill holes into your root chamber where each nozzle will be placed. It is best to plan out where each nozzle will go in advance. Avoid orienting nozzles directly against one another, as this will condense the fine mist into larger drops. These larger drops are not as easily utilized by the plant, but will still grow healthy, hydroponic/aeroponic life.

The 6800 pump can support 4-6 nozzles at ideal pressure, while the 8800 can support 10-12 nozzles at ideal pressure. Every time an additional nozzle is linked up to the system, pressure drops, and the size of the droplets moves out of the ideal zone.

3) Connect nozzle to 1/4" tubing, then run this tubing through a silicone stopper so that the nozzle is facing inward. Connect a plastic "T" to the open end of tubing. Apply nozzle heads to the inward faces of silicone stoppers, so that the nozzles face the roots. Plug previously-drilled holes in the root chamber with silicone stoppers/nozzle/T apparatuses.

4) Place root chamber on top of reservoir in such a way to drain excess water into reservoir. Some additional drilling may be required. For plumbing kits, drains, bulkheads, etc., visit www.multiponics.com.

5) Take filter, and connect the output of filter (indicated by arrow) to the input of your pump using 1/4" tubing and quick connects.

6) Using more tubing, elbows, and T's, create a closed loop from the output of the pump to each nozzle head. Usually, daisy chaining the nozzles together using the tubing is most effective. Now, the loop must be closed, or else the pressure will not be forced on the nozzles. A point in the tubing after the last nozzle should be connected to a point of the

tubing immediately outside the output of the pump. This connects the output of the pump to all nozzles and then closes the loop, keeping a high pressure on each nozzle.

7) The reservoir can now be filled with water or nutrient solution, and the filter placed inside (fully submerged in) the reservoir. The pump can be plugged into the transformer, and connected to power. You should now be able to see water being pulled from the reservoir through the filter, through the pump, through the nozzles, and draining from the root chamber back into the reservoir.

8) Your system is fully functioning, but you might notice there is nowhere to put the plants. We recommend drilling holes in the top of your root chamber, and placing net pots with neoprene collars in the drilled holes. Net pots filled with hydroton or baked clay balls will also work. These will be your plant sites. The stems will protrude out of the neoprene collars or hydroton, and the roots will be shielded beneath them.

9) Congratulations, you now have a functioning high pressure aeroponic system or cloner! Just make sure to provide adequate light, nutrient solution, and fresh air for your plants.

Maintenance Plan

Weekly

Like any other life-supporting system, our DIY kit must be maintained diligently. We recommend manually cleaning the 150 micron filter with hot water twice a week. Otherwise, the mesh in the filter can be clogged. This will put a higher load on and produce more work for your pump, and could reduce the number of running hours or even cause total failure of the pump.

The reservoir itself must be cleaned about once a week as well. This is because the nutrient solution will encourage algae, bacteria, and other scummy growth that has the potential to clog filters, nozzles, pumps, or tubing. We recommend emptying the reservoir and scrubbing out any scum or other growth with a brush. To prevent this type of build up in

your reservoir, we recommend using beneficial bacterias which will naturally keep algae and bad bacteria populations in check.

In Between Crops

Finally, there is the maintenance needed in between each crop. The most dangerous/likely time for clogs and malfunctions is when the pump has been turned off. This creates standing water in both the parts and reservoir, encouraging scum and algae to grow unchecked. Because of this, we recommend that as soon as a crop is finished, to clean the filter and reservoir as described above. Next, fill the reservoir with a hydrogen peroxide solution (Note: if you do this, you MUST adequately rinse afterward with plain water. Too high concentrations of residual hydrogen peroxide will kill or damage plants later). Now, rinse the pump and nozzles thoroughly with this solution by running your system with the solution in the reservoir. Do NOT rinse the exterior of your pump. Let all parts dry thoroughly, and they should be ready for the next crop. For extra precautions, one can remove all nozzles/tubing and soak in rubbing alcohol or hydrogen peroxide solution and let dry. This will dissolve particulate matter and kill micro organisms lodged in small places.

Troubleshooting

The gauge is not displaying as high of a pressure as it should.

First, make sure you're not using more nozzles than is recommended for your pump. The 6800 pump can keep a high pressure with 4-6 nozzles, and the 8800 pump with 10-12 nozzles. If you are not using more nozzles than recommended, then your nozzles are probably not firing correctly. See below.

My nozzles are sputtering, spraying jets/streams, or are otherwise not working correctly.

If your nozzles do not exude a fine mist, they are spraying defectively. They should not stream jets of water or drip. If they are spraying jets or dripping, they are probably clogged. We recommend removing all nozzles, taking them apart, and soaking in isopropyl alcohol for 24 hours. They should then be dried. Sometimes, the nozzles will begin to work again

but fail soon after. This means there is scum inside of the tubing or pump, and it will continue to clog nozzles repeatedly. If this is the case, we recommend throwing out all of the tubing and replacing it. You also must bathe the nozzles as previously described, and a hot water/hydrogen peroxide solution should be continuously ran through the pump to clean it. Once all parts are clear of scum build-up, your nozzles should begin spraying correctly again.

My pump/filter/nozzles are clogged or don't work.

Your pump is probably clogged. We recommend cleaning as described above.

Contact Multiponics

While we have tried to exhaustively address every problem or issue that can arise with our kit, we realize you may have an issue or question that is not addressed in the manual. If this is the case, please contact us using either phone or email. Our company phone number is 1-720-505-FROG (3764). If you have any questions that have not been addressed above, please email the author at James@multiponics.com or to visit the website www.multiponics.com.