



Indoor Garden ASSEMBLY INSTRUCTIONS



PARTS & COMPONENTS

Fittings
(for reference only)



Figure 1: Clockwise from top left: cross, elbow, cap, coupling, and tee

Pipe Sections in Shipping Box



Figure 2: left to right = Front (F) End bundle, Back (B) End bundle, Top Side (S) Bars, Bottom Side (S) Bars, Reservoir Support Bar, Top Bars, Nutrient Delivery System, Manifold, GroPipes (5), plant support bars, Lamp Support Top Rack, LSTR vertical supports. Sections are laid out from left to right in the order that you'll assemble them.

Line up the pipe sections in the shipping box in the order shown in Figure 2. As you assemble you will be taking them from left to right.

Notes

Orientation in assembly is important. Because the nutrient solution is pumped from the front (F) end to the back (B) end, and returns by gravity to the F end, the B end legs are one inch longer than the F end legs

Once you've completed assembly, if your surface isn't level, and the B to F slope is insufficient, place small shims underneath the B end feet

With one exception pipe/fitting connections are not glued making it easy to correct alignments during assembly, and easy to disassemble for storage or moving. Removing pipes from fittings can still be difficult but is never impossible. Hold the pipe firmly while hitting on the fitting with the rubber mallet (included)

No tools are required for assembly

Begin Assembly

Take the F end. It is 3 components – 2 F legs and the F bottom bar - bundled together.

The F end sports a short center leg on its bottom bar to support the Reservoir. Leave it attached for now.

Open the bundled F end. The bottom bar may be in 3 pieces. Insert the longer bottom bar pipes into the tee so that the tee is centered. Ignore the short leg for now. Insert the bottom bar (the horizontal in Figure 3) into the second from bottom tees on each leg (Figure 3)



Figure 3: The F end. Insert bottom bar into its tee fittings. Note the short Reservoir support leg on the bottom bar

Set the F end aside for a moment

Take the B end. It is 3 components – 2 B legs and the B bottom bar (no center leg) - bundled together.

Open the bundle and insert the bottom bar into the second from the bottom tees on each leg (figure 4)



Figure 4: The B end. Insert bottom bar into its tee fittings

Locate the side (S) bars. The top S bars are straight pipes while the bottom S bars include short reservoir-support legs (Figure 5). These S bottom bars are the only components that contain “Cross” fittings. Caps are the “feet” and always orient down



Figure 5: The S bars. The 2 S top bars top, the 2 S bottom bars bottom. Bottom bars orient with their feet (caps) down

Lay the B end flat on the floor as shown in Figure 6 and Insert the S bars into the B end leg tee fittings. The straight top S bars go into the top leg tees.

The bottom S bars go in the lowest leg tees close to the leg's feet (caps). Orientation is important. Notice that these bottom S bars are made of 2 different lengths horizontal pipes. The longer horizontal pipes go into the B leg tees. Note the short perpendicular sections in the Cross. The short section with the Cap (foot) goes down.



Figure 6: B end laid flat on the floor with top and bottom S bars inserted. Bottom S bars with their short reservoir-support feet are at the bottom of the picture with caps (feet) pointing down

The other short pipes without caps in the Crosses accept the Reservoir Support Bar (Figure 7)



Figure 7: Reservoir Support Bar

Install the inside reservoir-support bar as illustrated in Figure 8



Figure 8: Reservoir Support Bar installed

Pick up the F end and lay it atop your structure matching the open tees on the F end with the S bar pipe ends facing up at you as shown in Figure 9



*Figure 9: Laying the F end atop the S bars that project upward out of the B end
Note – the Reservoir Support Bar was omitted in this picture*

Once all components are aligned push down hard on the fittings and pipes to set them together firmly. Rotate the structure 90 degrees in each direction and press together firmly several times. Unglued connections allow flexibility and adjustability during assembly, but pipe/fitting joints have to be firmly set, or the loose structure can come apart. Even after firmly fitting all components the Garden is easy to disassemble using the rubber mallet provided.

Remove the short reservoir-support leg attached to the F end bottom bar and insert it into its adjacent tee fitting. Press it in firmly (Note – Gardens may be shipped with this piece already inserted)

Stand the Garden structure up on its feet

Locate the 2 identical End Top Bars



Figure 10: Top End Bars. From the F end looking B the longer horizontal pipe goes to the right side. The 1" (smaller) tees to the outside may be "plugged"

Press the Top Bars down onto the tops of the F and B end legs as shown in Figure 11. Watch their orientation: Top Bars consist of 2 horizontal pipes one longer than the other. The longer pipe goes to the right side of the Garden as you face it from F to B (Figure 11). Top Bars lock down the structure



Figure 11: Garden base structure with Top Bars installed. Top Bars insert onto the legs locking the structure together. Orient the Top Bars correctly as illustrated here: longer horizontal pipe section to the observer's right as he faces the Garden from F to B. The center 1" tees mate with the Nutrient Delivery System (Figure 12 below)

Locate the nutrient solution distribution system (Figure 12). Plug the Nutrient Delivery System support bar into the center horizontal tees on the two End Top Bars. (Figure 13). The solution distribution manifold goes to the B end.

Cut the cable tie and remove the small L-shaped piece attached to the main bar for shipping (shown top) and insert it into the $\frac{1}{2}$ " grey elbow adjacent to it (shown bottom). [Note: The Garden may be shipped with this connection already made] The short 3" rubber piece is not glued in the grey L so it can turn as necessary as it drops down and enters the Reservoir to mate with the Pump Assembly (best shown if Figures 17 & 19 below). Use a screwdriver to loosen the clamp just enough to permit rotation if necessary. If the connection leaks later tighten the clamp.



Figure 12: nutrient delivery systems. The top photo shows as shipped, with the L-shaped assembly attached via cable tie. Cut the cable tie to detach it and insert the end with the soft tube all the way into the grey ½" L fitting next to it as shown to the left in the bottom photo



*Figure 13: The nutrient solution distribution system support bar plugged into the open tees on the F and B Top Bars
Note – in this photo the L-shaped connection to the pump assembly has not yet been untied. Shown still attached to the support bar and pointing upwards it will mate with the Pump and Filter assembly inside the Reservoir*

Locate both the manifold and the 5 GroPipes (Figure 14)

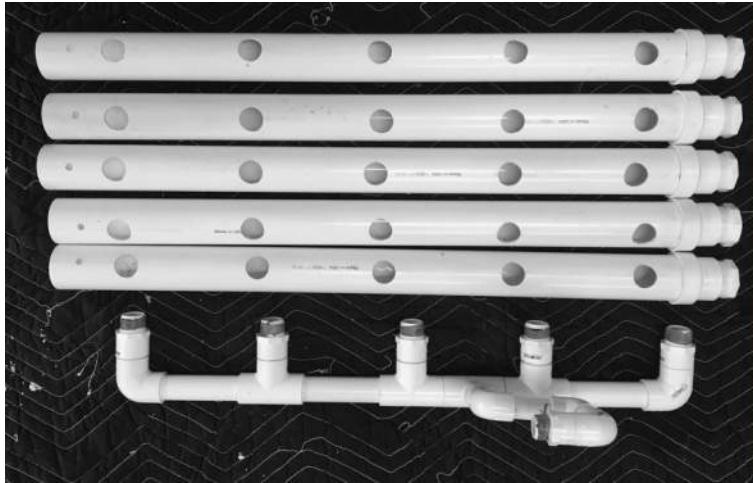


Figure 14 Manifold (bottom) with 5 ports that accept the GroPipes (top). Nutrient Solution Drain to Reservoir section is glued to the bottom of the manifold. The manifold is upside down to show the Drain to Reservoir section.

The manifold is not glued so that the GroPipes can be adjusted as needed to lay flat on the structure. Stand up the manifold vertically and firmly push down to set pipes and fittings together. Because it is not glued if leaks (drips) occur (rare) after start up almost certainly it is because it's not pushed together firmly enough. Press it firmly against the floor or place one end against your hip and pull hard towards you on the other end. You can also try using Teflon tape (included) on the pipe to seal the fitting. Last straw (it's never happened) buy some PVC glue and glue (only) the dripping connection. If you move the Garden around periodically tighten the manifold as described above.

The lower Drain to Reservoir section does ship glued to the manifold since it does have a tendency to leak.

Support the manifold up on the F Top Bar by threading a GroPipe onto its center port. An attached GroPipe does hold the manifold in place. Thread the remaining 4 GroPipes onto the manifold ports hand tightening only. Make sure not to cross thread and strip the threads. If a GroPipe drips after start up tighten it another turn. If one continues to drip remove it and add Teflon tape (included) to the port threads. The GroHoles face directly upward.

Locate the long 24" cable ties (included) and use them to firmly attach the manifold to the Top Bar. Best location for the ties is around the insides of the manifold's outside most 1" (smaller) elbows.

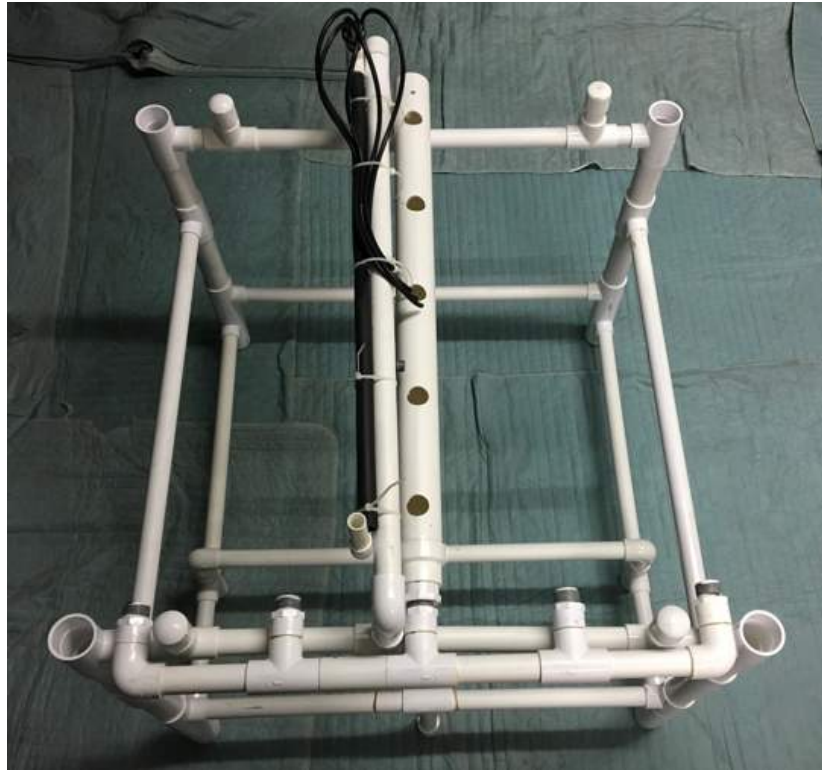


Figure 15: Base structure with manifold and one GroPipe in place. As in Figure 13 above, the L-shaped connection to the pump assembly has not yet been untied and can be seen pointing upwards from the Irrigation Support Bar.

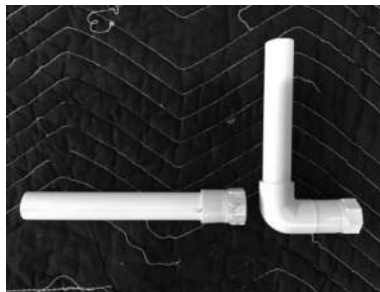


Figure 16: Nutrient Solution Return Pipe (left) and System Drain to Bucket (right) ship inside the Electrical Box. Both thread to the Nutrient Solution Drain-to-Reservoir section (Figure 15), the lower part of the Manifold. The first returns the nutrient solution back into the reservoir and functions during normal operation. The second is used to empty the Reservoir into a bucket during routine nutrient solution change outs. Make sure their hose washers are in place or they will leak.



Figure 17: Nutrient solution return pipe linking manifold to the reservoir. For nutrient solution change out replace the straight return pipe with the right-angle pipe aimed into a collection bucket. Used nutrient solution can fertilize outdoor landscapes and gardens. Note: Styrofoam or other material is provided to make a shelf on the Reservoir Support Bars (not shown)

Lay the shelf on the Reservoir support pipes and place the Reservoir atop it to the right side of the Garden (Figure 17). It has 3 entry points (Figure 18)

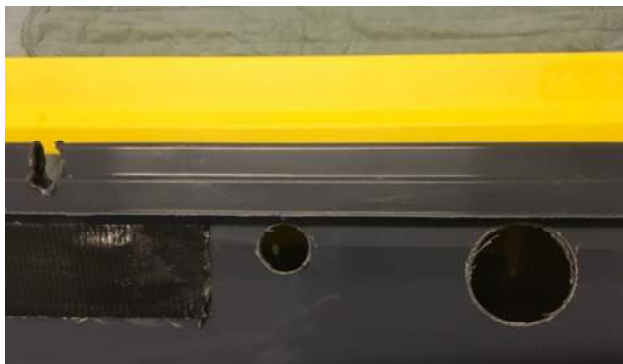


Figure 18: Large hole, small hole, and upper edge groove (near yellow cover top left) accommodate the nutrient solution return pipe, pump assembly to nutrient delivery system, and pump electrical wire respectively.

Connect the manifold to the Reservoir via the Nutrient Solution Return Pipe inserted through the large hole as illustrated in Figure 17 above

The connection to the nutrient delivery system should be hanging vertically to the side of the Reservoir. Pass its short 3" horizontal pipe through the small hole in the Reservoir where it will mate with the Pump and Filter System inside the Reservoir

Set the Electrical Box on the support pipes next to the Reservoir (see finished Garden photo on page 1). Take out the pump and place it in the Reservoir with its wire passing through the Reservoir's upper edge groove shown above (Figure 18). Position the pump in the Reservoir below the small hole; the pump assembly mates with the Nutrient Delivery System through that hole. The pump's suction cups allow it to slide easily into position on the bottom of the reservoir. Pass the pump's plug through the hole in the side of the Electrical Box along with the majority of the long cord. This process is a little tedious but results in most of the pump's wire

coil stored in the Electrical Box. Leave the minimal amount of wire between the pump and the Box to make a clean, neat presentation. See the right side of Figure 21.

The Pump and Filter System is not glued (a little leaking inside the Reservoir does no harm) and is easily pulled apart to inspect and clean the filter.



Figure 19: The L shaped piece shipped attached to the nutrient solution delivery system connects the pump and filter system to the solution distribution system. If it's not already assembled, slip the grey right-angle fitting completely into the distribution hose. This fitting pivots in 2 directions allowing everything to turn as needed for perfect fits. The 3" long pipe at the bottom of the L goes through a hole in the reservoir wall and mates with the pump and filter system



Figure 20: Pump and filter system is shipped in the Electrical Box as a single assembled piece. The filter contains a copper screen filter. The system is not glued to allow easy access to the filter. Note the 3 holes in the Electrical Box. One side of the E Box goes next to the Reservoir where the pump wire passes through the hole as illustrated in Figure 21, right side. The hole on the side opposite the

Reservoir accommodates the lamp wire, which is attached with cable ties to the Front Left leg (looking F to B). The hole in the back of the E Box is for the incoming ac cord which plugs into the timer.



Figure 21

Left - Inside reservoir showing nutrient solution return pipe (left) and pump and filter system (right)

Right - View of open reservoir and electrical box showing coiled pump wire and timer, and installed Nutrient Solution Delivery System

Once everything is in place cut the cable ties bundling the spaghetti tubes and insert one tube into each GroPipe (figure 23). All tubes are 19" long; some can be shortened later if they're in the way. Tubing is standard ¼" drip irrigation tubing available from any supplier including Lowes and Amazon.

Caution: Use care not cut the cables attaching the Nutrient Solution Delivery rubber tube to its PVC support pipe!

Note the additional 2 horizontal tees (they may be plugged) on each End Top Bar. They hold Plant Support Bars (probably the last components remaining on your table). You won't need these to start but as your plants grow taller and heavier you'll appreciate the chance to support them to these bars.



Figure 22. Interchangeable Plant Support Bars and Plugs which go into the open tees on the End Top Bars. The Plant Support Bars can be very handy for supporting larger, heavy plants growing in their adjacent GroPipes. When not needed its

recommended to replace them with Plugs to reduce shading. Note: The 31" horizontal pipes on these Bars can be replaced with identical pipes drilled to support GroBottles.

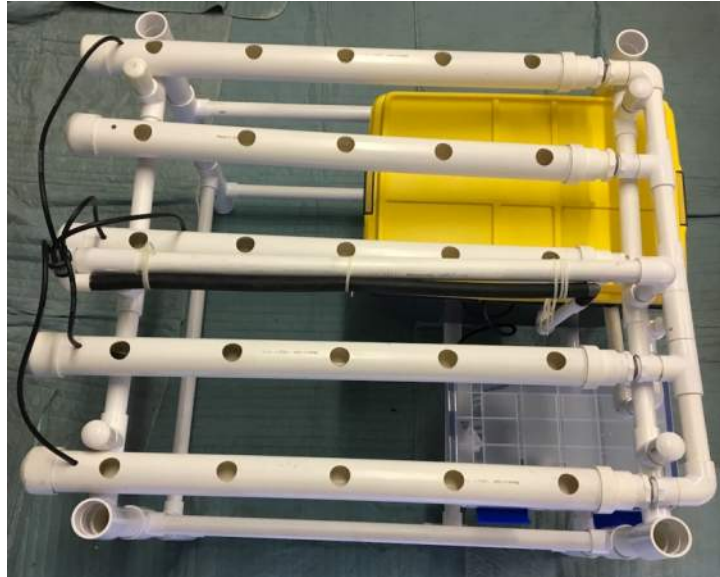


Figure 23: Garden Bottom structure ready to receive the Top structure. The F is to the right, the B to the left. The Reservoir and Electrical Box are both positioned to be easily accessible from the front (F). Reservoir access required for nutrient solution level checks and change outs, filter cleaning, and pump replacement. The Electrical Box access required for Timer setting, voltage checks, and battery maintenance.

Top Rack / Lamp Support

Visualize it on page 1 cover picture

Open and assemble the Top Rack/Lamp Support as illustrated in Figure 24. Insert the two lamp support bars into their tees, making certain that the open eye bolts are on the downside of the bar. Press on all connections to ensure tightness to avoid risking an expensive and catastrophic lamp fall.



Figure 24: The Top Rack Lamp Support section. Eyebolts are on the lower side to hold the lamp hooks

Insert the 25" vertical pipes firmly into the 4 tees atop the 4 lower structure legs (Figure 25).



Figure 25. The 25" Top Rack vertical supports are inserted firmly into the top tees on each leg. Figure 25 shows an 11" extension on each pipe in order to position the lamp 30" above the GroPipes as recommended for germination. Removing the 11" pipe sections positions the lamp about 19" above the GroPipes. Growers have had success at several heights and the brochure accompanying the lamp makes recommendations. Key considerations include height of plants and equal light distribution over the Garden's 9 square foot growing surface. Most gardeners will simultaneously have plants of differing heights. To experiment with different lamp heights purchase and cut to length schedule 200 (thin wall) 1 1/2" PVC pipe available at either of the two big box hardware stores, or hang the lamp from a ceiling via the pulley system provided. Experimenting is fun!

Make the one necessary connection on the Top Rack, inserting the short pipe segment ending in an elbow into the nearby tee.

Lay the Top Rack on top of the 4 pipes and carefully and firmly push each corner elbow into its pipe (Cover picture). As with the base structure no gluing required.

With a little practice the lamp is easy to hang. Balance it on one arm while guiding the holes on one side onto their hooks. Now let those 2 hooks support the weight while using your free hand to put the opposite 2 hooks into their holes.

Run the lamp wire over to, and down, the vertical support closest to the electrical box. Attach it with the cable ties (provided). Pass it through the hole in the box and plug it into the double outlet timer. The timer will simultaneously operate both the lamp and pump. The nutrient solution doesn't have to circulate when the light is off.

Study these Operational Instructions and the lamp brochure carefully..... and enjoy incomparable fresh and healthy eating!

Growing Healthy and Tasty Fresh Food

IT'S GREAT FUN
ENJOY!