



## HydroCycle 4" Pro NFT Lettuce Systems



### *110830 Hydroponic Table Kit\**

*Designed to grow healthy plants without soil using mineral-nutrient solutions.*

©2023 Growers Supply  
All Rights Reserved. Reproduction  
is prohibited without permission.



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

\*Actual system may differ from what is shown.

# Important Information

## READ THIS DOCUMENT BEFORE YOU BEGIN

Thank you for purchasing this hydroponic system. When properly assembled and maintained, this product will provide years of reliable service. These instructions include helpful hints and important information needed to safely assemble and properly maintain the system. Please read these instructions **before** you begin. If you have any questions during the assembly, contact Customer Service at 1.800.245.9881 for assistance.

## SAFETY PRECAUTIONS

- Wear eye protection.
- Wear gloves when handling metal pipes.
- Use a portable GFCI (Ground Fault Circuit Interrupter) when working with power tools and cords.

## REQUIRED TOOLS

The following list identifies the main tools needed to assemble the hydroponic system. Additional tools and supports may be needed.

- Tape measure and marker
- Variable speed drill (cordless with extra batteries works best)
- 1/4" hex key (Allen) wrench
- Metal-cutting saw, hammer, and gloves
- Magnetic nut setter (5/16" x 2-9/16")
- Utility knife or similar cutting tool to cut hose and tubing
- Adjustable pliers
- Drill bit set
- Level (4'– optional)
- Small and medium adjustable wrenches
- 1-3/8", 1-3/4", and 2-1/2" hole saw bits



## ASSEMBLY PROCEDURE

Following the instructions as presented will help ensure the proper assembly of your hydroponic table. *This manual describes how to assemble a single table that includes ten (10) twelve foot (12') channels.*

The steps outlining the assembly process are as follows:

1. Verify that all parts are included in the shipment. Notify customer service for questions or concerns.
2. Read these instructions and all additional documentation included with the shipment **before** you begin.
3. Gather the tools and assistants.
4. For best results, assemble the components in the order they are presented in these instructions.
5. Read the care and maintenance information.

## UNPACK AND IDENTIFY PARTS

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

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

**NOTE:** At this time, you do not need to open the plastic bags containing smaller parts such as fasteners or washers (if equipped).

## CARE AND MAINTENANCE

maintain your hydroponic table.

- Check connections and all fasteners to verify that they remain tight.
- Do not climb or stand on the frame or channels at anytime.
- Verify that the supply lines and related fittings are clean and functioning properly.
- Replace all worn or damaged parts and fittings promptly.
- Repair all leaks immediately.
- If the table is moved, inspect all parts and connections before reassembling and use.
- For replacement or missing parts, call 1.800.245.9881 for assistance.

## QUICK START GUIDE

For a quick overview of this product, its components, and connection details consult the Quick Start Guide at the back of these instructions.

**ATTENTION:** *This manual describes how to assemble a single table that includes ten (10) twelve foot (12') channels. If you are connecting this system to another, minor adjustments must be made to some of the procedures that follow. **Such an application is beyond the scope of this manual.***

## *Important Information*

### PICTORIAL GUIDE

The following graphics and photos will help identify the different parts of the hydroponic system. (Some parts may not be shown.) To prevent mixing of fittings, select only those that are needed for each procedure. **Keep all fittings in the shipping bags until they are needed.**



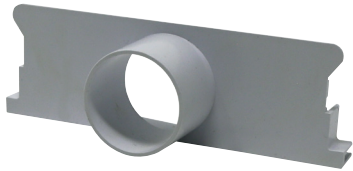
**PVC PRIMER & CEMENT**

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.**



# Important Information

## PICTORIAL GUIDE (continued)



117079 (10)  
End Cap w/ Outlet



117078 (10)  
End Cap No Outlet



112539 Hanger



110722 (1)  
ActiveAqua Pump 550



WF1023 Filter (1)



110725 (1)  
Air Pump



109260 Air Stone (2)



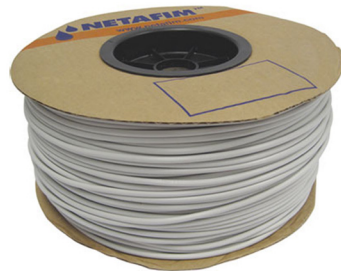
WF6504 Hose



10015106  
Short Tee Fitting (16)



WR1095 (2)  
Tape



111046  
1/4" White Polyethylene Tubing



40 Gallon Reservoir Cover\* (1)



40 Gallon Reservoir\* (1)

\*Actual reservoir and cover may differ depending on availability.

**ATTENTION:** Reservoir and lid style shown throughout this guide may vary. When needed, critical dimensions are noted for hole locations.



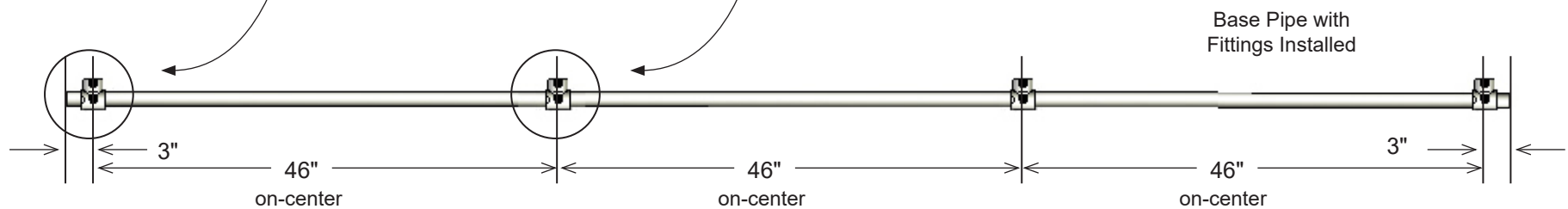
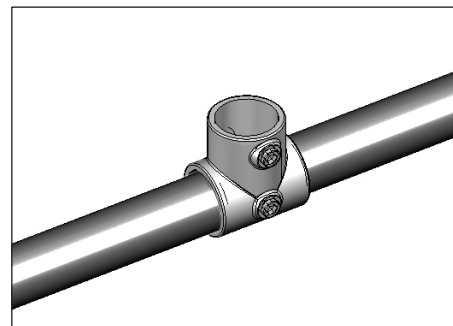
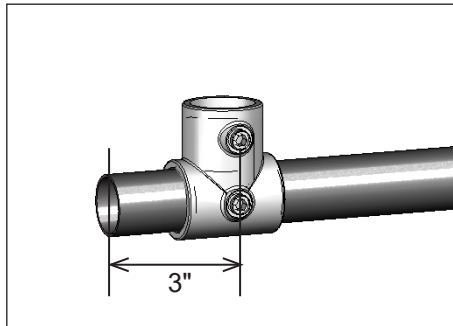
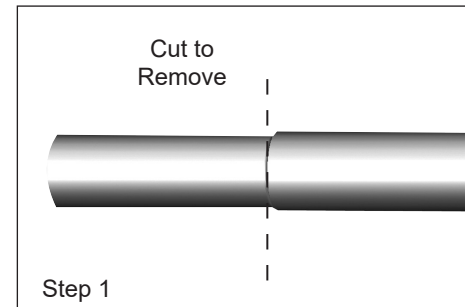
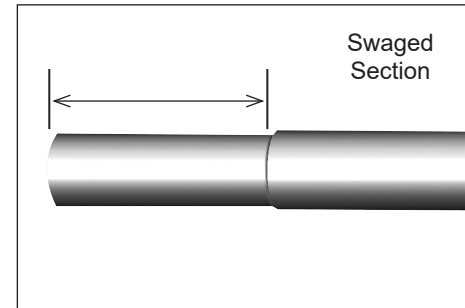
# Assembly Instructions

# 1

## ASSEMBLE MAIN SUPPORT FRAME

Consult the Quick Start section of this guide for an overview of the system and additional diagrams. Also included in the Quick Start section is a breakdown of all fitting assemblies used in the 110830 hydroponic system. **These fittings can be assembled any time prior to the final construction of the hydroponic system.**

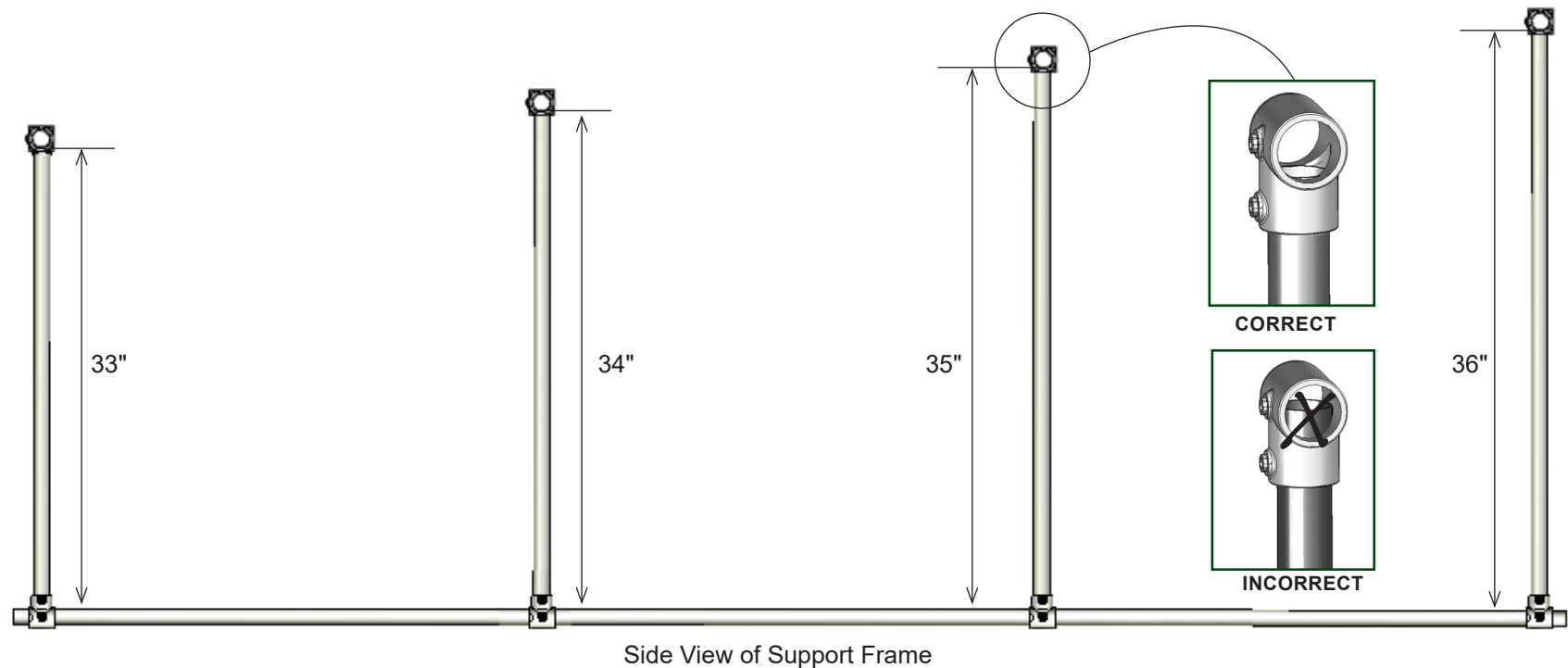
1. Take the two long 131S147 pipes and cut off the swaged (or tapered) end of the pipe to create two base pipes. Base pipes will be 144" long when finished.
2. With the two base pipes on a flat surface, slide four (4) tee fittings onto each 144" pipe and space as shown below. Position fittings with the set screws facing up.
3. Using a 1/4" hex wrench, tighten each fitting and recheck the spacing.



## 1

### ASSEMBLE MAIN SUPPORT FRAME (continued)

4. With a metal-cutting saw, cut the legs for the support frame. Use four (4) 131P072 pipes and cut as follows:
  - One (1) pipe for two (2) legs at 33";
  - One (1) pipe for two (2) legs at 34";
  - One (1) pipe for two (2) legs at 35";
  - One (1) pipe for two (2) legs at 36";
5. Slide each leg into position as shown and tighten the set screw to secure the legs in the tee fittings.
6. Place a tee fitting at the end of each leg. Use a scrap piece of 1.315" pipe cut from the legs to properly set the fitting on the leg pipes. Assemble on a flat surface to keep the fittings square on the end of the leg pipes.
7. Lock the fittings in place by tightening the set screws and repeat for the remaining base pipe.



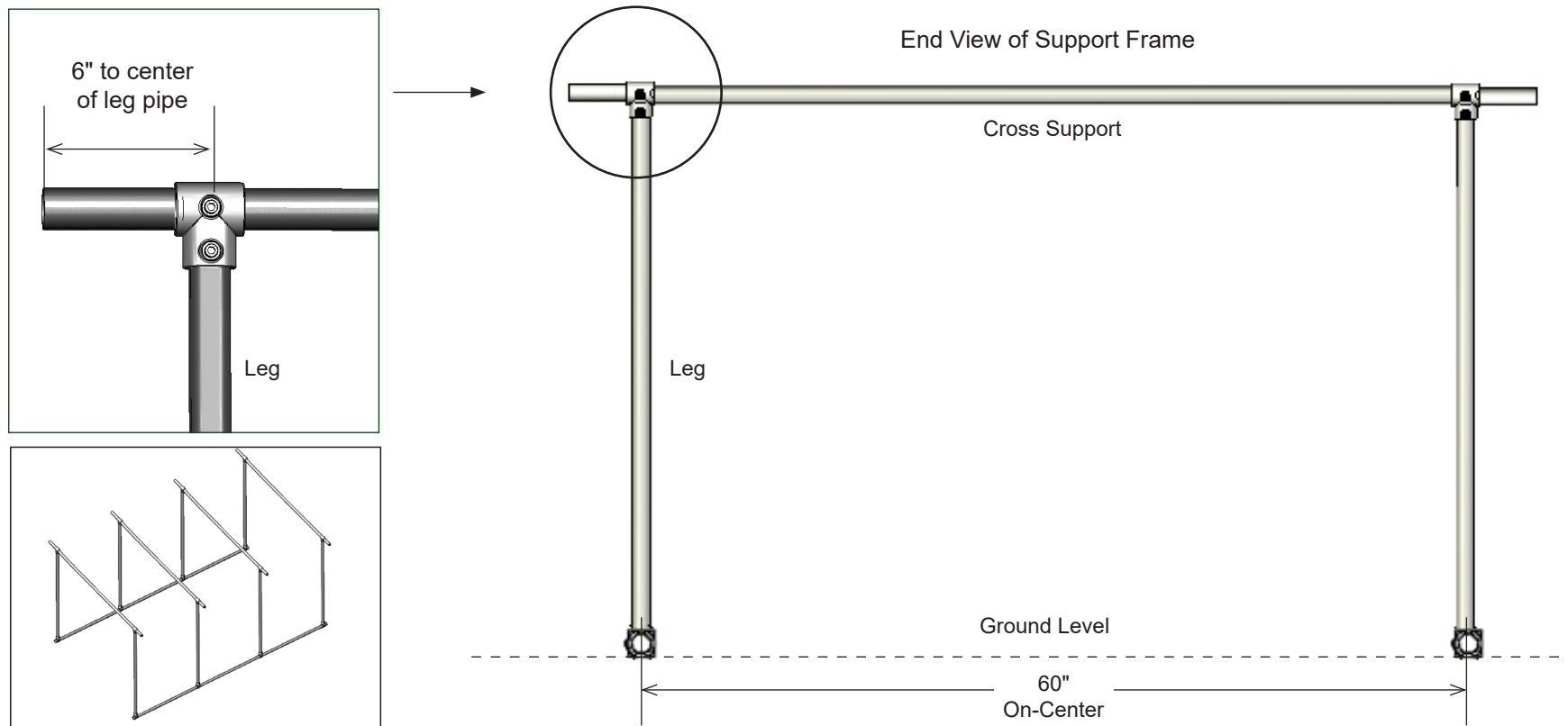
## 1

### ASSEMBLE MAIN SUPPORT FRAME (continued)

- With assistance, arrange and stand the two base assemblies so that the leg lengths of each assembly match (i.e., 36" with 36", 35" with 35", and so on).

**NOTE:** It is best to assemble the support frame in the area where it will be used so the frame can be leveled for final assembly.

- Next, take one of the remaining 131P072 pipes and slide it through the tee fittings at one end of each base assembly.
- Repeat for the remaining three (3) cross supports.
- Set the on-center width of the support frame at ground level and at the cross support at 60". See the diagram on this page and in the Quick Start section near the back of this guide.
- Tighten all set screws and continue with the next procedures.

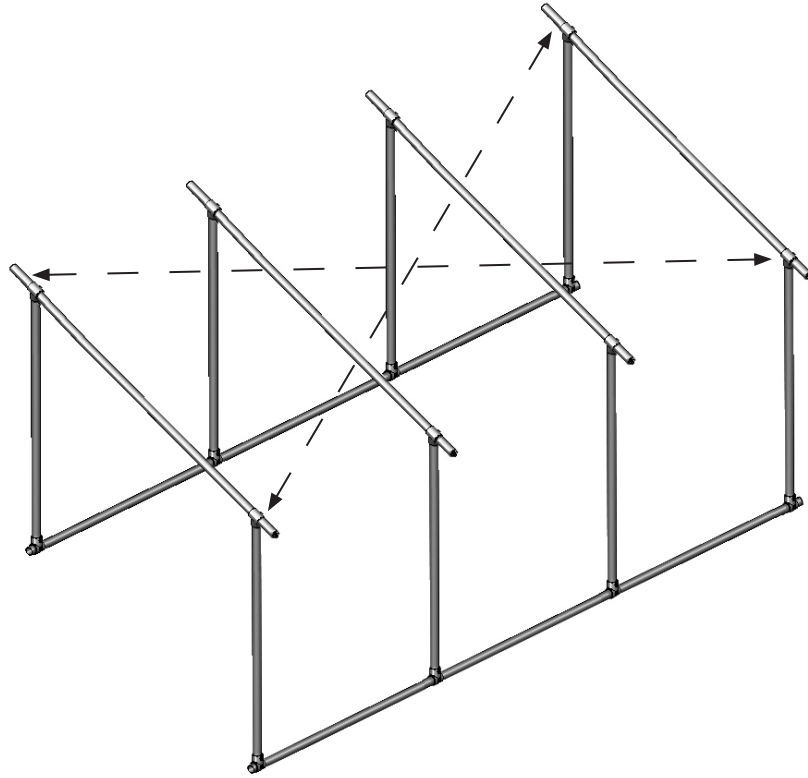




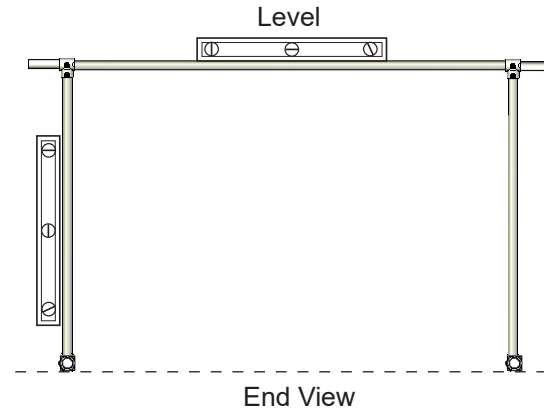
## 2

### LEVEL AND SQUARE MAIN FRAME

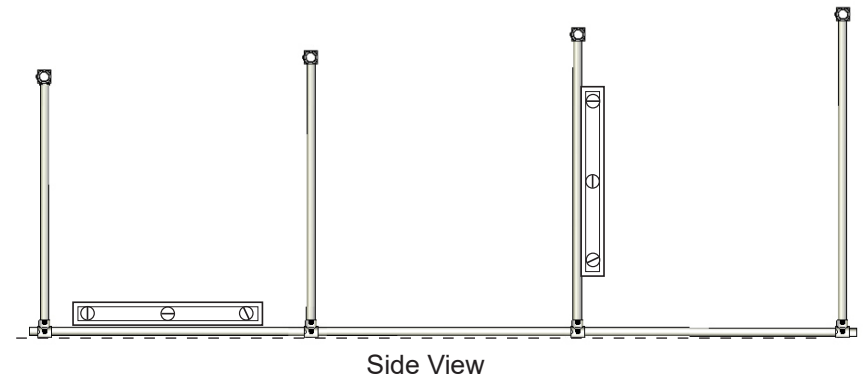
Level and square the support frame before adding the NFT channels. An uneven frame can affect the delivery and distribution of the nutrient solution. Improper flow may cause irregular crop growth. The following procedure helps to ensure that channels will sit squarely on the frame. Complete these steps to level and square the main frame:



1. To square the frame, measure from corner-to-corner and adjust the frame as needed until the two dimensions are equal. Be sure to measure from the same point at each corner to achieve the best and most accurate results.



2. Once the frame is square, verify that all vertical supports are plumb. Verify that all horizontal pipes are level. After making these adjustments, repeat Step 1.



3. Check the bottom pipes to ensure these are level. After completing this step, recheck the frame—Steps 1-2.
4. Once the frame is level and square, continue with the next procedure.

## 3

### ASSEMBLE ALL 12' HYDROPONIC CHANNELS: 117077L144

- Using the support frame as a bench, place one 12' channel (117077L144) on the cross supports.
- Using the 112509 adhesive, attach the plain end cap (no outlet-117078) to the end of the channel that is resting on the high side of the support table. This is the end with the 36" legs. Be sure to coat the end of the channel with adhesive *before* you install the end cap. Repeat for all 12' channels.
- Move to the other end of the channel and install the 117079 end cap (with outlet). Coat the end of the channel with adhesive *before* you install the end cap. Repeat for all channels.
- Next, attach a 90° elbow (WF6682) to each 117079 end cap as shown. Apply pvc primer and cement to end cap outlet and inside elbow. Slide fitting onto outlet. Install fitting as shown with open end pointing down in the 6:00 o'clock position.

**ATTENTION:** Verify that you are using the WF6682 elbows. These are without threads.

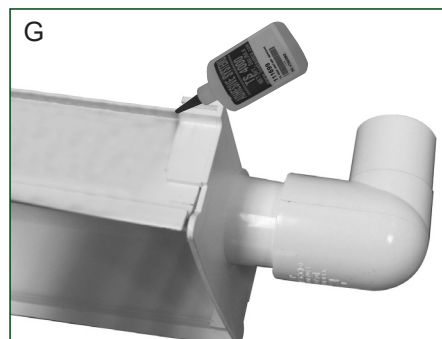
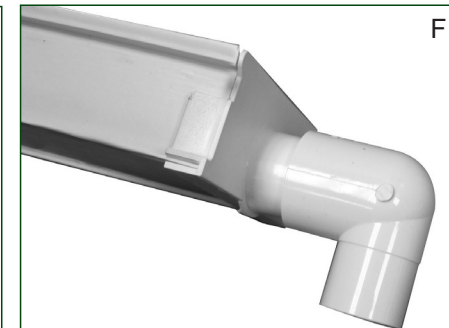
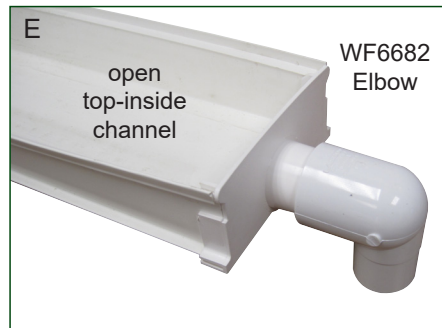
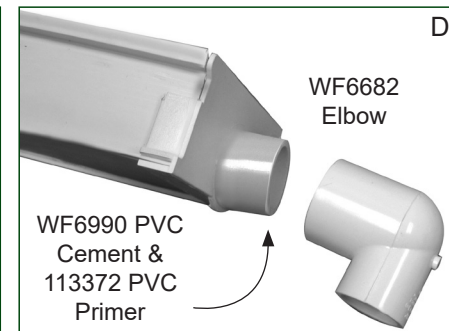
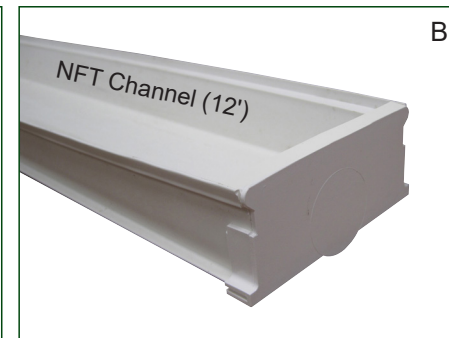
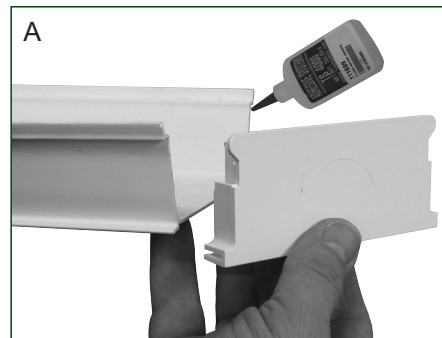


Apply primer and cement in a well-ventilated area. Read container information for additional instructions.

- Once all end caps and drain elbows are in place, carefully flip all channels over so the bottom is facing up and the open top is down.
- Apply the 112509 adhesive along the edges to secure end caps to each 12' channel. Photos show an end cap with an outlet. Secure the plain end caps in the same manner.

**NOTE:** Be sure to coat all edges and seams of the end caps to prevent leaks.

- Allow the adhesive to dry before moving the channels or testing the system.

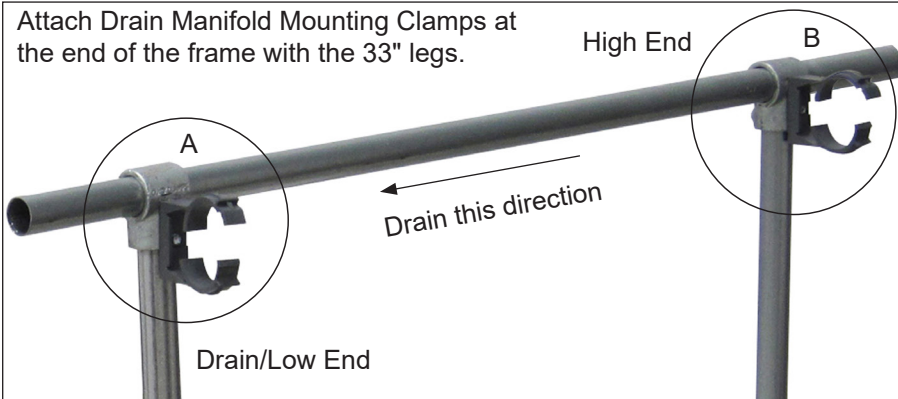


## 4

### ATTACH DRAIN MANIFOLD HANGERS TO FRAME

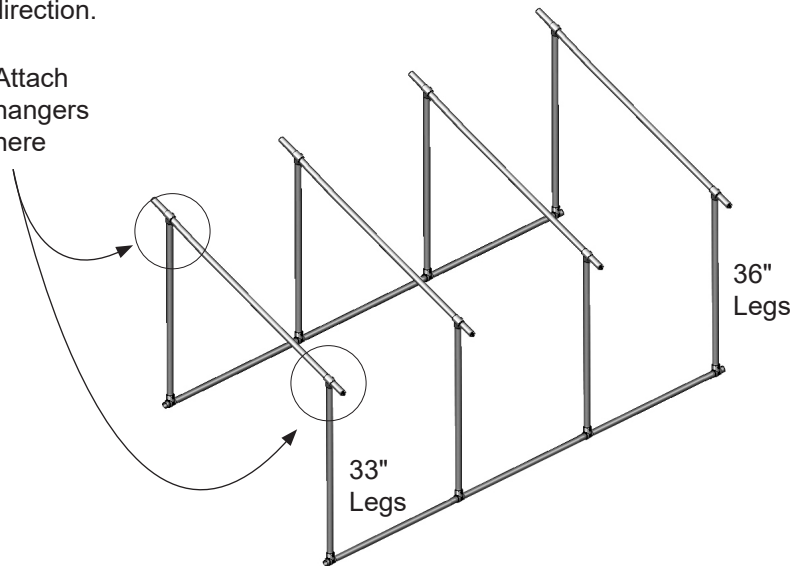
Before assembly, dry fit all pvc connections before applying the adhesive. Apply adhesive as instructed only.

Use the photos to the right to attach the drain manifold mounting hangers to the frame using the FA4470 Tek screws and the magnetic nut setter.

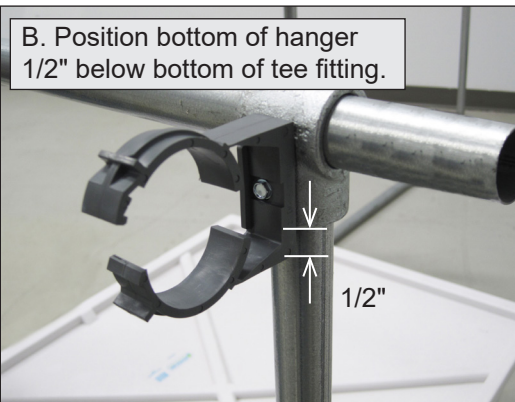
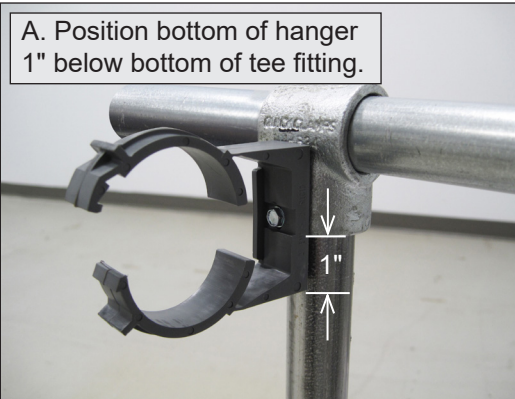


**NOTE:** Reverse clamp position if you want table to drain in the opposite direction.

Attach hangers here



**ATTENTION:** Install the drain manifold at the low end of the frame, which has the shorter (33") leg pipes.



FA4470  
Tek Screw



112539 Hanger

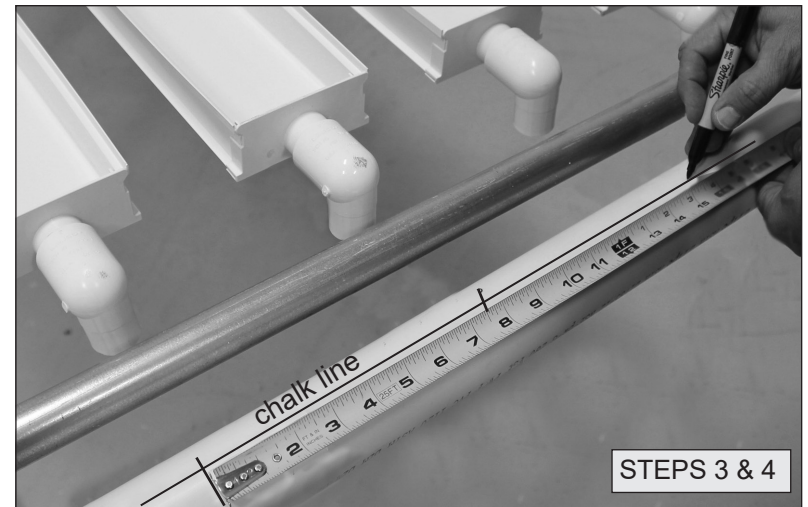


## 5

### ASSEMBLE AND ATTACH PVC DRAIN MANIFOLD

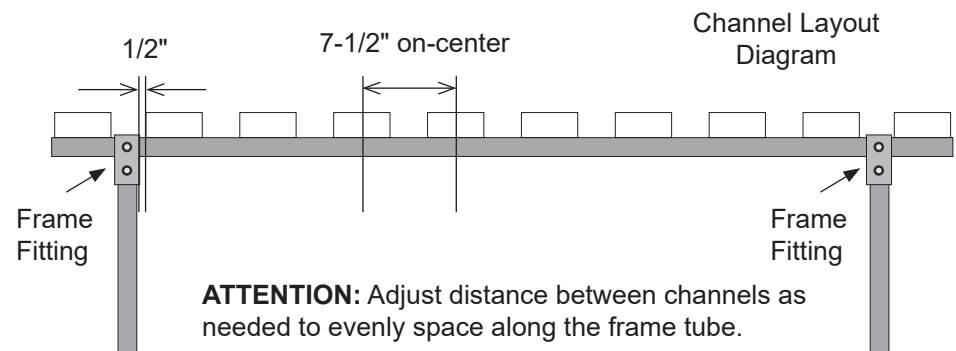
Complete these steps:

1. Position all channels on the frame (if this has not been done yet) with the drain elbow at the low or drain manifold end of the frame. This is the end with the 33" legs. Slide channels back and away from the frame cross tube as shown. See photo to the right.
2. Slide a 72"- 74" piece of 2" pvc into hangers and press evenly to lock tube in place.



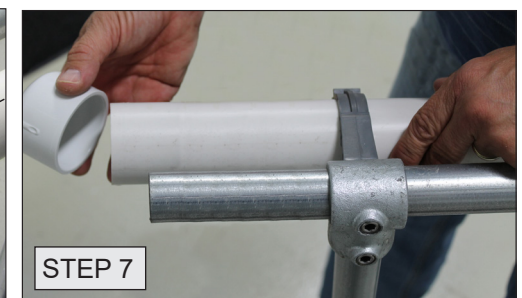
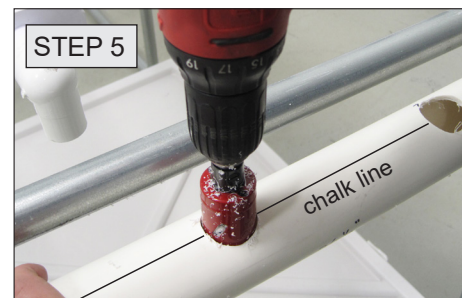
Press against hanger to lock assembly in place.

3. Take a chalk line with non-permanent chalk and snap a center line along the top of the tube from end-to-end.
4. Evenly mark the channel positions on tube. There should be eight (8) marks *between the frame fittings*. Position channels at each end on the pipe that extends outside the fitting. See layout diagram.



**NOTE:** Evenly space the channels between the frame fittings. Approximate on-center spacing of channels between the fittings is 7-1/4", depending on frame fitting position and the distance channels are set from these fittings.

5. Using a 1-3/8" hole saw, drill a hole at each mark.
6. Clean the drain manifold tube. Remove if necessary
7. Add one WF6717 cap to the high end of the manifold. *Do not cement this to the manifold.* It is removed during routine cleaning and maintenance.
8. Slide the channels into position, insert drain elbows into drain manifold, and continue with the next procedure.



## 6

### PREPARE NUTRIENT SUPPLY MANIFOLD FOR INSTALLATION

1. Take the 1-1/4" PVC tube (110827) and cut it to 78". Remove loose material and shavings from the cut and wipe the ends of the tube with a clean, dry cloth.

**NOTE:** If you are connecting this manifold to another supply manifold, you may want to cut this pipe to a different length. Steps in this guide are specific to a single 110830 kit. Connecting this system to another is beyond the scope of this manual.

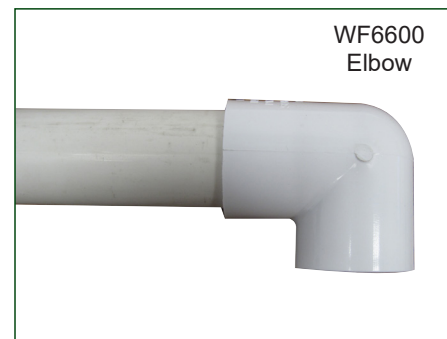
2. Apply PVC primer and cement to one end and slide the WF6600 (90° elbow) onto the tube. Wipe excess cement from around the connection.
3. Set the assembly aside to dry and continue with the next procedure.



Cut PVC tube to length and gather the parts and materials.



Apply PVC primer and cement to one end of the PVC tube and to inside the fitting end.



Slide elbow onto PVC tube and wipe excess cement from around elbow. Allow to dry.

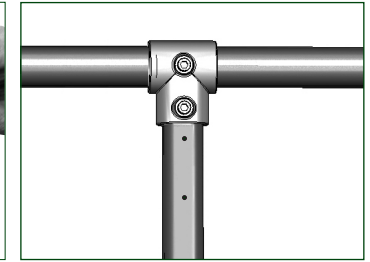
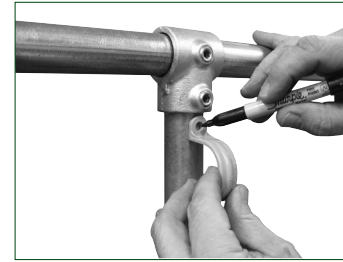
#### PVC PRIMER & CEMENT

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.**

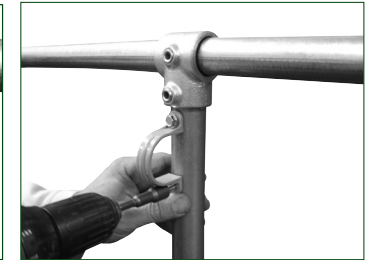
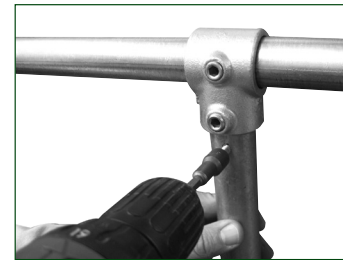
## 7

### INSTALL NUTRIENT SUPPLY MANIFOLD AND ADD TUBE FITTINGS

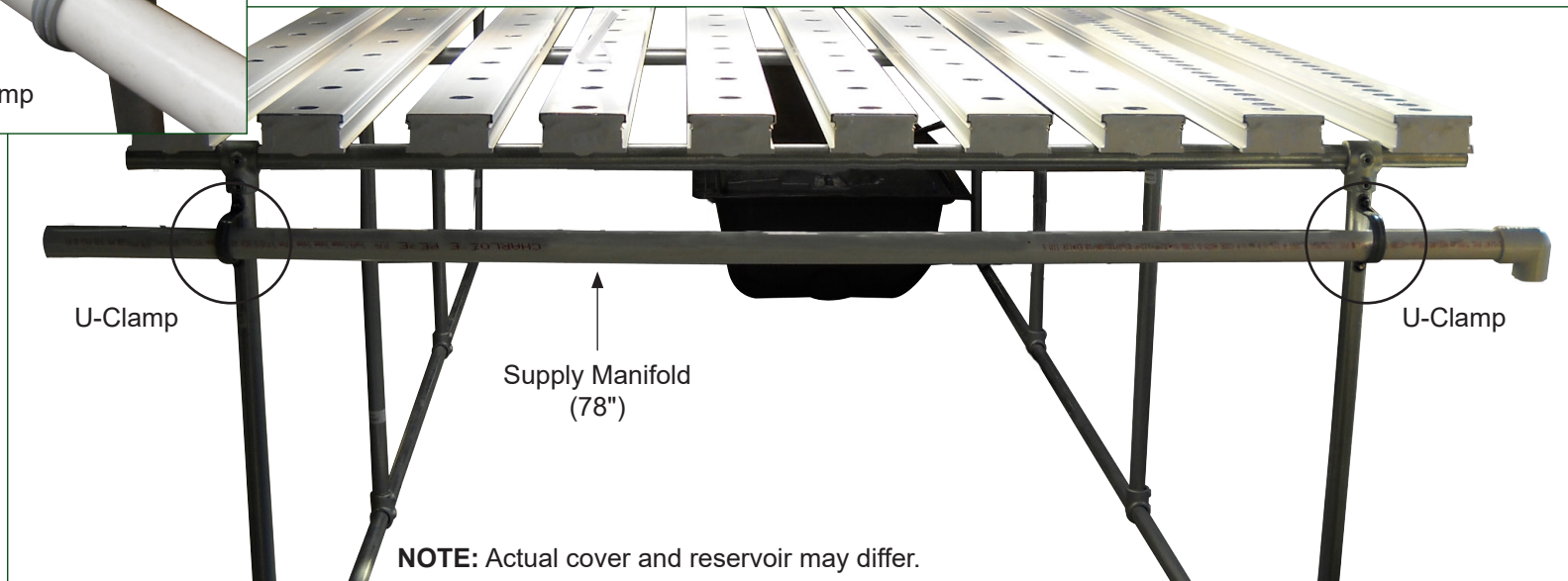
1. Move to the end of the support frame *opposite the return channel* and attach the two (2) FAPA13 U-clamps using FA4472B Tek screws and the 5/16" x 2-9/16" magnetic nut setter. Do not fully tighten the screws at this time. Consult the diagram below for U-clamp positions.
2. Take the supply manifold with the attached elbow and slide it into the U-clamps. (Loosen the U-clamp mounting screws slightly if needed.) Position the elbow at the end where the supply line from the reservoir will be located.
3. Position the PVC tube in the clamps as desired and tighten the U-clamp mounting bolts to secure the tube (if these were loosened in previous step).



Use clamp to mark the mounting screw locations on the leg pipes. Attach clamps to the 36" legs of the frame.



Drill the holes using the self-tapping FA4472B screws, the 5/16" x 2-9/16" magnetic nut setter, and drill. Remove screws and attach the u-clamp.



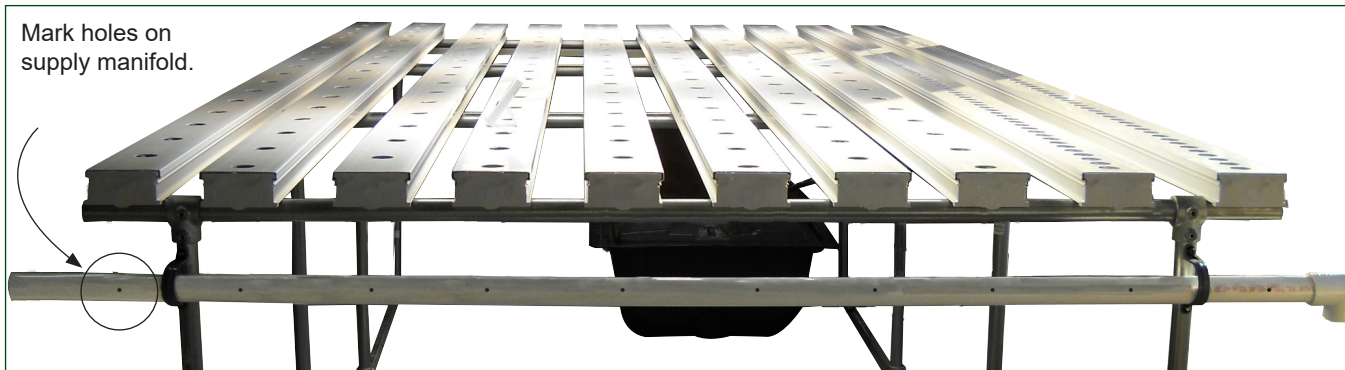


## 7

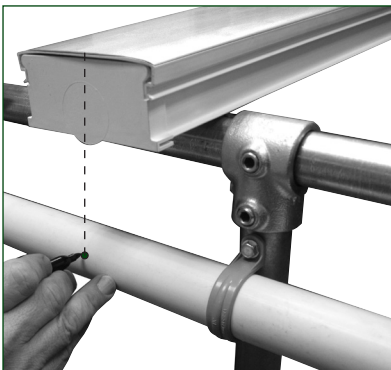
### INSTALL NUTRIENT SUPPLY MANIFOLD AND ADD TUBE FITTINGS (continued)

4. Using the 12' channel positions as a guide, mark one (1) supply line location on the PVC tube *for each 12' channel*.
5. Using a **3/8" drill bit** — a step bit is highly recommended — drill holes in PVC tube for top hat grommets at each of the marks. Repeat this step to drill the remaining supply manifolds.
6. Next, disassemble each manifold and clean the pvc pipe to remove debris from inside the tube. **Keep parts for each manifold together.**
7. Insert one 115820 top hat grommet into each 3/8" hole in the PVC tube. Dip grommet in water for easier installation. Wipe off chalk line if desired. Verify through holes in grommets. Puncture if necessary.

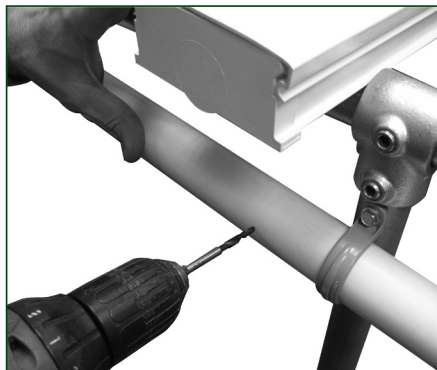
**ATTENTION:** Grommet fit should be snug. If grommet seems loose or slides into hole with little effort, verify you have drilled holes using a 3/8" bit. **Grommets will leak if hole diameter is too large.**



**IMPORTANT:** Verify there is an open hole through the grommet before installing. Puncture through if necessary.



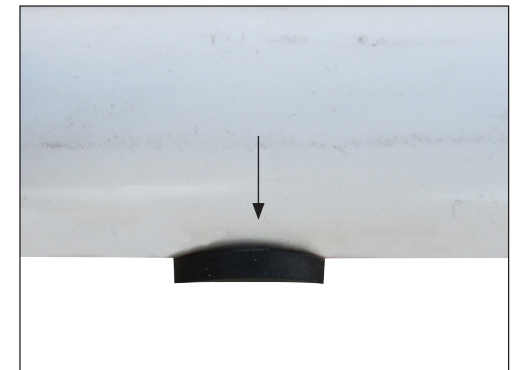
Align marks with centers of the channels.



Drill holes.



Insert grommets.

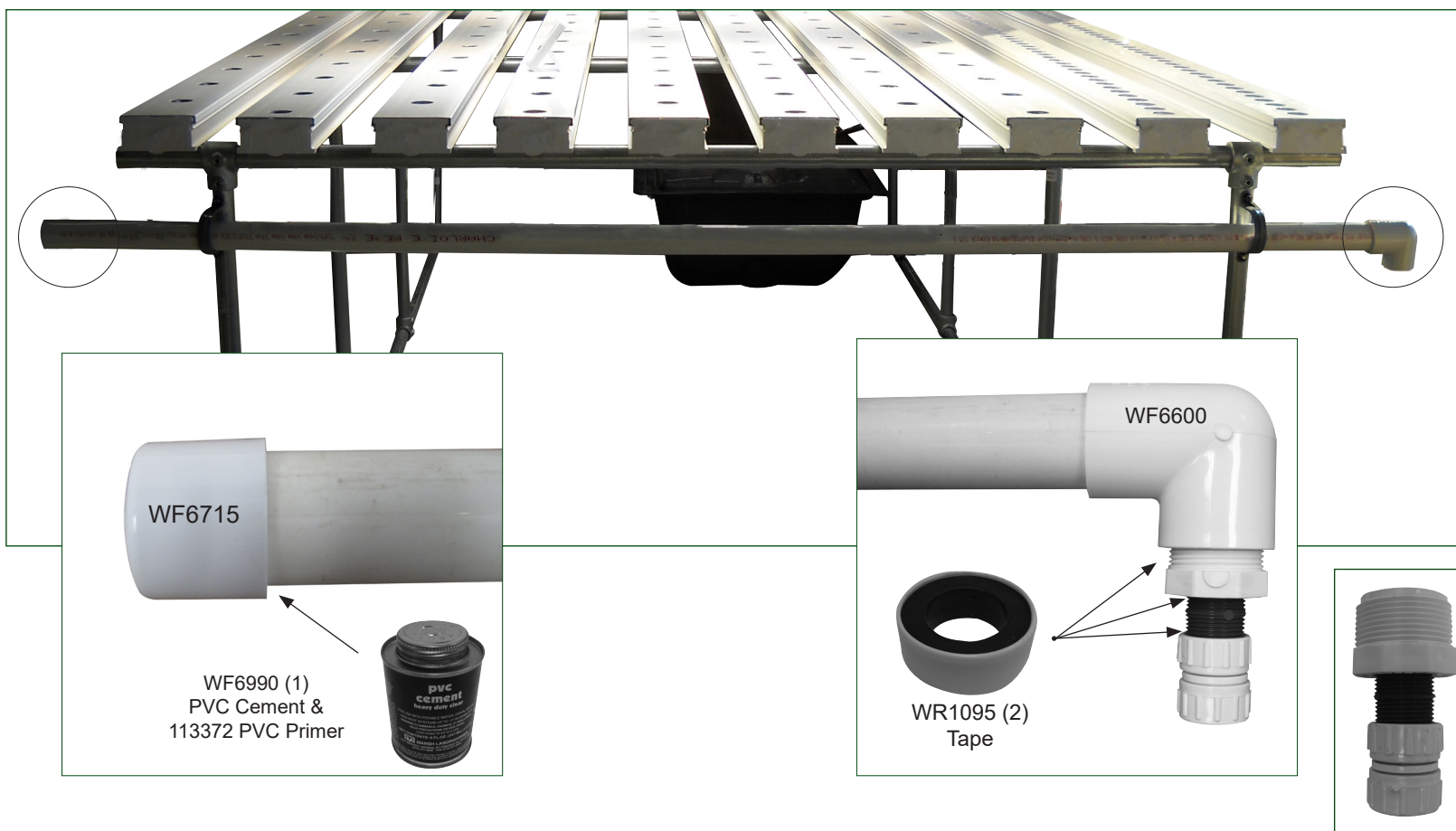


Grommets to be tight to the PVC.

## 7

### INSTALL NUTRIENT SUPPLY MANIFOLD AND ADD TUBE FITTINGS (continued)

8. Verify that the manifold is clean, apply PVC primer and cement around the open end, and slide the WF6715 cap onto the tube to seal the end. Wipe off excess cement if needed and allow to dry.
9. Move to the elbow (WF6600) end of the manifold and install the Nutrient Manifold: Supply End fitting assembly. Wrap threads 3-4 times with thread-sealing tape and thread fitting into the elbow. Tighten until snug, but do not overtighten. Have an assistant hold the elbow with a pipe wrench or pliers to prevent applying unwanted force to the elbow. Consult the Quick Start section of this guide if you need to assemble the fittings.
10. Continue with the next procedure.



Nutrient Manifold: Supply End Fitting—See Page 28 for parts.

## 8

### CUT AND INSTALL SUPPLY LINES

1. Cut ten (10) twelve inch (12") pieces of 111046 hose. Use a utility knife or scissors to create a clean, smooth cut.
2. Slide one twelve inch (12") hose into each of the supply manifold grommets (115820)—ten in all. Wet the hose end for easier installation if needed.
3. Take the lids for the 12' channels and slide these into place on each channel. Have an assistant brace the end of each channel to keep it in place. For best results and plant growth, verify that the holes in the lids are offset as shown in the photo below.

**NOTE:** If it is too difficult to hold the channels and slide the lids into place, lift each channel from the support frame and snap the lid into place. Wetting the lips of the lid with a damp cloth may also help with the installation.

4. At the supply manifold end of support frame, mark the one (1) supply hose location on the lid. Marks should align with the fittings and tubes on the supply manifold.
5. Slide the first lid so it extends over the end of the 12' channel. Mark the one (1) supply hose hole location on the lid and drill the holes using a 5/16" drill bit.

**NOTE:** Sliding the lid out over the end of the channel prevents shavings and debris from dropping into the channel during drilling. Holes can be drilled with the lids in place; try not to allow debris to drop into the channels.

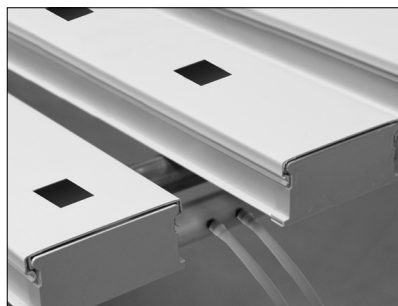
6. After drilling the hole, wipe the shavings from the lid (top side and underside), slide the lid back into position, and insert the hose into the hole for that channel. *Trim the end of each hose at an angle for easier installation.*
7. Repeat this process to drill the holes and connect the supply hoses for all remaining 12' channels.
8. Continue with the next procedure.



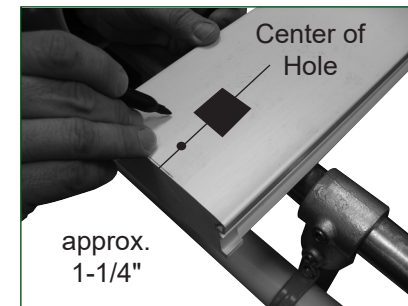
1. Cut the 12" supply tubes from the 111046 poly tubing



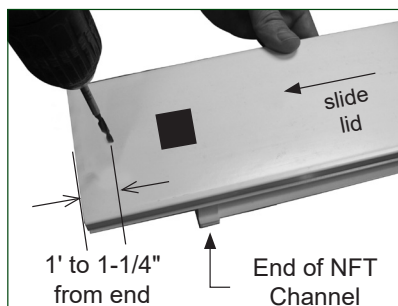
2. Slide one tube onto each of the supply manifold 115820 grommets.



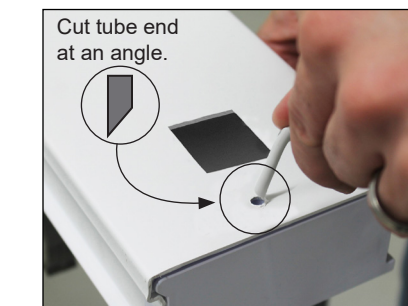
3. Installed lids with holes offset to promote plant growth. Return channel end is shown.



4. Mark hole locations for the nutrient supply tubes.



5. Slide lid out over the end of the channel and drill 5/16" holes for the supply tubes.



6. Slide lid back into position flush with the end of the channel and insert a supply tube from the manifold into each hole.



## 9

### DRILL HOLES IN RESERVOIR AND COVER

#### Drill the 1-3/4" Hole for Bulkhead Fitting

Drill a hole in the reservoir for the main pump fittings using a 1-3/4" hole saw. Wipe the reservoir clean to prevent loose shavings from clogging the filter and fittings once the system is running. **NOTE:** Actual reservoir and cover may differ from what is shown.

Tank dimensions as measured at the top are approximately 35" W x 39" L. Determine how tank will sit under main frame. See page 23 for an example.

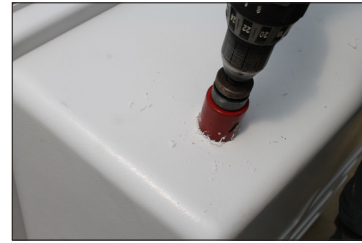
These photos show drilling the hole in the tank end, which is approximately 35" wide.



Set tank on a flat, level surface. At the end where you want to install pump, measure 3-3/4" up from the surface and mark the spot near a tank corner.



Using the rubber seal from the 112964 bulkhead fitting, verify that hole position allows seal to remain fully seated against tank surface. Do not position hole lower than 3-3/4" or too close to tank corner.



Using a 1-3/4" hole saw and drill, drill a hole in the reservoir.



Remove shavings from around the hole and from inside reservoir.

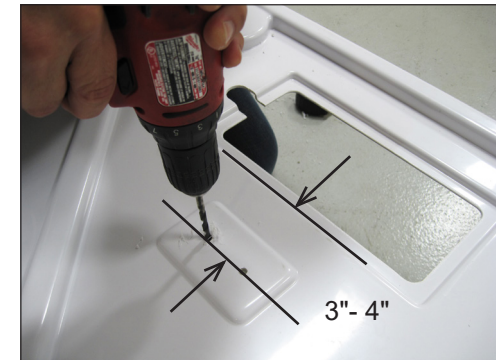
#### Drill the 2-1/2" Drain Tube Hole

1. Determine which corner you want to drill drain tube hole. This is the corner directly under the tee fitting outlet in the drain manifold. See diagram on page 23 for an example.
2. Remove the cover from the reservoir and drill the drain hole in the corner using a 2-1/2" hole saw. *Do not drill cover over the reservoir.* Debris will damage the pump and clog the filter.

**ATTENTION:** Use a 2-1/2" hole saw to drill the holes in the reservoir cover.

#### Drill the 5/16" Holes for the Air Pump Tubing

1. Take a 5/16" drill bit and drill two holes 2" apart through cover. See photo below for location.



2. Remove all debris from the cover and around all holes to prevent it from dropping into the reservoir when cover is set in place.



**NOTE:** Depending on tank position, hole for the return drain pvc can be drilled through the cover in any position that best suits layout of system and tank.

This example shows using the corner for the drain tube position.

**ATTENTION:** Reservoir and lid style shown throughout this guide may vary. When needed, critical dimensions are noted for hole locations.

Move cover off reservoir. Place on support to drill the 2-1/2" drain hole.

## 10

### INSTALL FITTINGS AND CONNECT CIRCULATION PUMP

CONSULT THE QUICK START SECTION NEAR THE BACK OF THIS GUIDE TO IDENTIFY THE FITTINGS.

1. Install fitting assembly *inside* the reservoir. Consult Quick Start section (Page 28) for fitting identification numbers.



Inside the Reservoir Assembly



Take assembly for inside the reservoir, remove lock collar (if needed) and insert assembly through hole as shown. **Position rubber washer over threads and install assembly.**



Slide thin plastic washer over fitting threads (A) and turn lock collar onto fitting. Hand-tighten to secure the assembly to the reservoir. Connection can be **tightened slightly** with a large pair of adjustable pliers if needed.

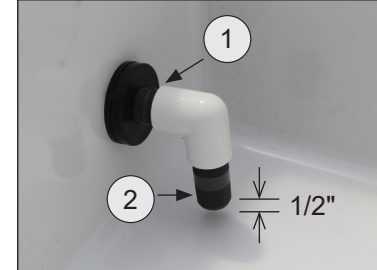
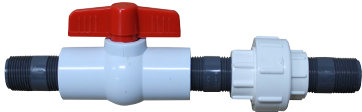


Photo shows the assembly installed inside the reservoir.

**NOTE:** Nipple fittings (1 & 2) are different lengths. Depending on assembly position, you can remove the nipple if it is too close to tank bottom tank, or you can remove and flip the assembly to adjust distance from the end of the nipple to bottom of tank.

For best results, maintain at least 1/2" between tank bottom and nipple fitting.

2. Install Shutoff Valve and Union Assembly *outside* reservoir. Separate WF3411 union fitting as shown.



Shutoff Valve and Union Assembly



Attach A to bulkhead fitting. Attach B to Pump and Filter Assembly. See Step 9.



Tape all threads before assembly.



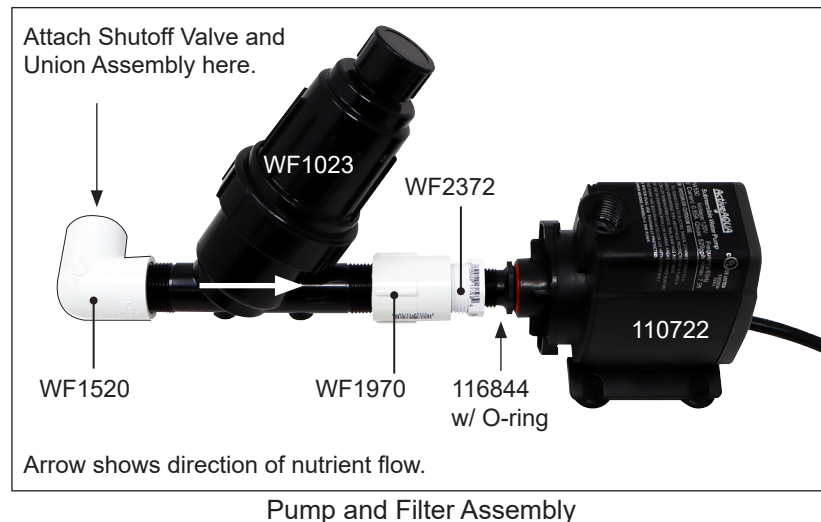
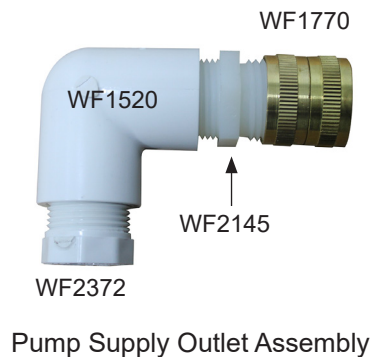
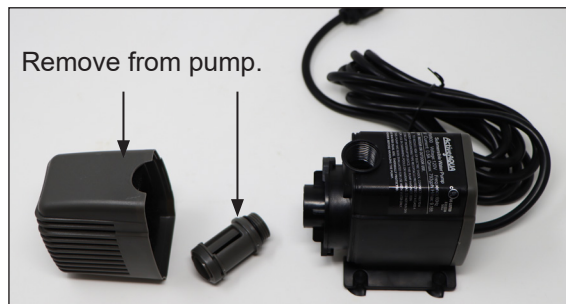
Attach section A to bulkhead fitting.

## 10

### INSTALL FITTINGS AND CONNECT CIRCULATION PUMP—continued

- Gather the parts and assemble Pump Supply Outlet Assembly and Pump and Filter Assembly. Tape all threads before assembly. Verify that filter is angled toward the pump—water flow direction—as shown.

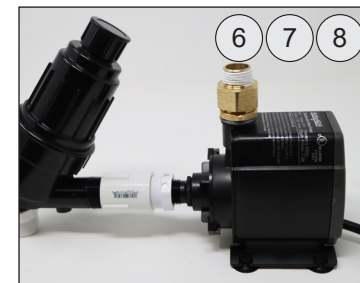
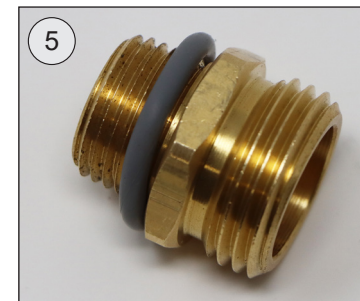
**ATTENTION:** Remove pump cover and fitting from pump intake port. Remove the small O-ring from fitting 116844. *These parts are not needed for this application.*



- Locate the **large O-ring** included in the pump box with the pump parts. It is typically packaged in a plastic bag. Many cases the O-ring color is gray.
- Carefully slide the O-ring over the **1/2" (smaller) threads** of the WF1752 fitting.
- Wrap the fitting threads with thread tape and attach fitting to water pump outlet as shown. Hand-tighten until fitting is snug.

**ATTENTION:** *Do not overtighten! Doing so may crack the pump housing and deform the O-ring causing leaks.*

- Attach WF1755 fitting to the WF1752 fitting and tighten. **Hold the WF1752 fitting with a wrench to prevent it from turning as you tighten the fitting.**
- Wrap the threads of the WF1755 fitting with thread tape.





## 10

### INSTALL FITTINGS AND CONNECT CIRCULATION PUMP—continued

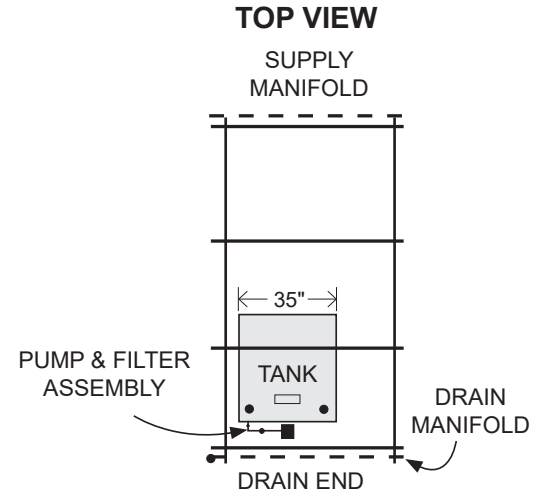
9. Set reservoir in place under table frame at drain manifold end and connect pump to reservoir. Tape all threads before assembly. See diagram — above right.



Wrap fitting end with thread tape. Attach section B of union (previous page) to Pump and Filter Assembly.



Next attach assembly to ball valve assembly. Hand-tighten connection. *Do not use pliers for this connection.* Doing so could damage fitting and seal.



**NOTE:** Place pump and filter assembly in an accessible location for maintenance.

10. Connect Pump Supply Outlet Assembly to outlet of pump.



Install the assembly. Hand-tighten only! Turn fitting outlet in the direction needed to attach the supply hose.



Continue with the next procedure.

**IMPORTANT: DO NOT ALLOW THE WF1752 FITTING TO TURN AND CRUSH THE O-RING AT THE PUMP HOUSING. HOLD FITTING WITH A WRENCH TO PREVENT OVER-TIGHTENING THIS FITTING!**

**ATTENTION:** Reservoir and lid style shown throughout this guide may vary. When needed, critical dimensions are noted for hole locations.

**ATTENTION: ACTUAL PUMP ASSEMBLY MAY DIFFER FROM EXAMPLE SHOWN IN PHOTOS.**



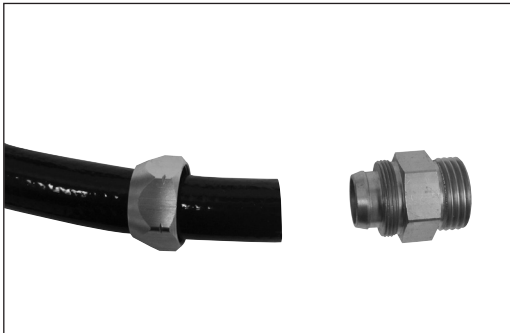
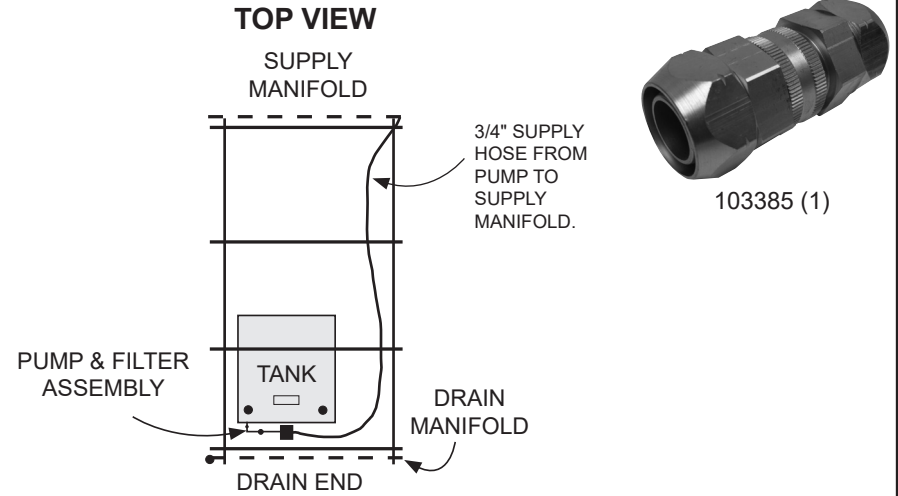
**ATTENTION:** Photo above shows the 110722 pump and related fittings. Photos (left) show a different pump and fitting assembly. **Pump assembly above is the most current design.**

## 11

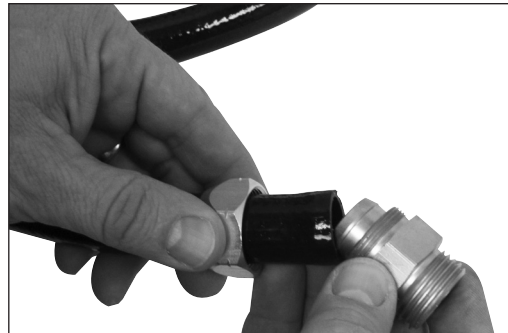
### CREATE SUPPLY HOSE

1. Position reservoir and pump in desired location at the return channel end of main channels (if this has not been done). Use caution when moving the assembly. **Support the pump to prevent damage to the fittings and reservoir.**
2. Using the 103385 brass male and female fitting and the WF6504A hose, create a supply hose. Photos below show assembly of a single hose. *Hose will have a male and female end.*

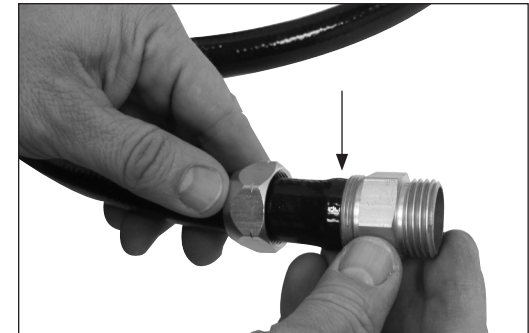
**NOTE:** Approximately 12' of hose is provided for supply hose. Reposition reservoir as needed so supply hose will reach. Review Procedure 13 for pvc drain tube assembly.



1. Slide brass collar onto the hose.



2. Insert fitting into hose end.



3. Verify that hose is seated tightly against the fitting.



4. Start collar onto the fitting treads and tighten.



5. Completed male fitting end.



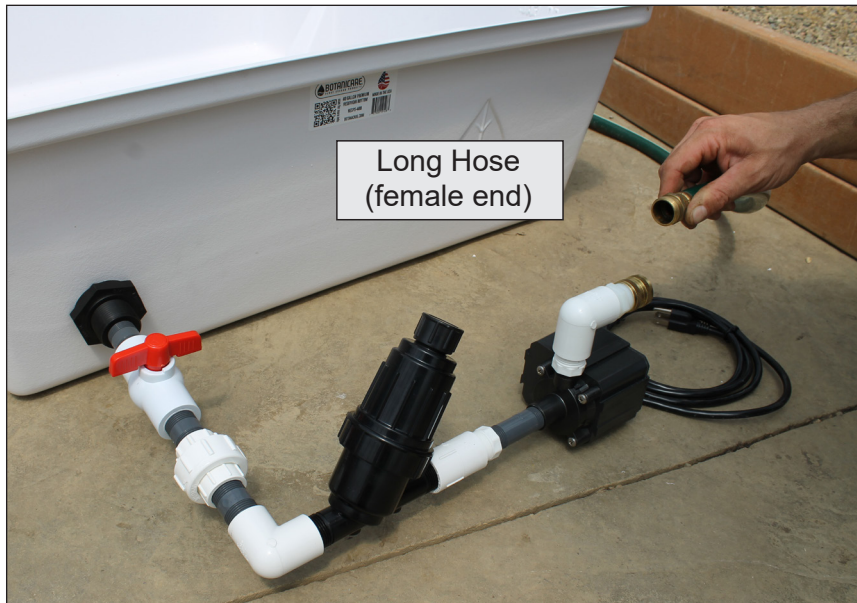
Completed female fitting end.



# 12

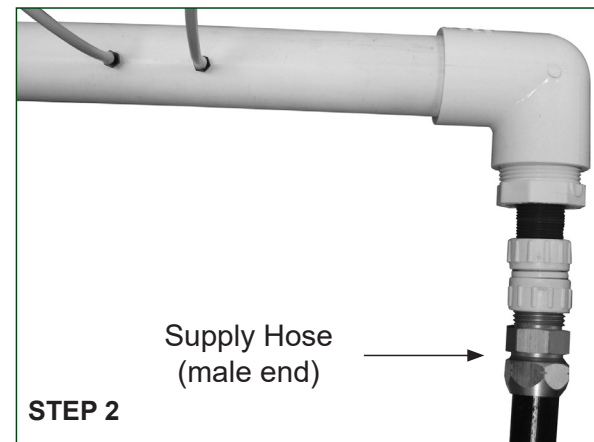
## CONNECT SUPPLY HOSE TO OUTLET FITTING OF PUMP

1. Take supply hose and connect it to outlet side of main pump.
2. Connect hose to inlet side of nutrient supply manifold.
3. Verify that all connections are tight.



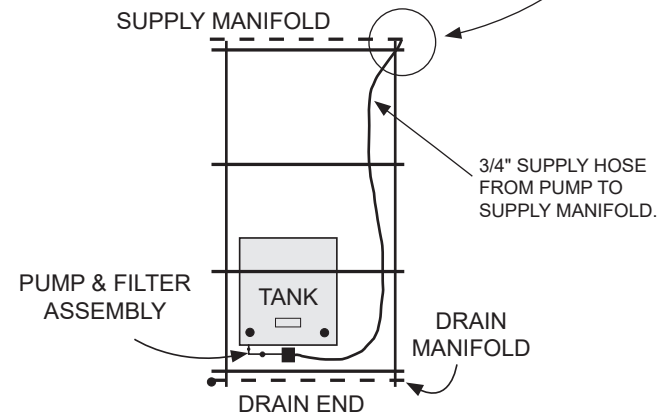
**STEP 1:** Connect supply hose to the outlet side of the pump (above) and to the inlet side of the nutrient manifold (right),

**ATTENTION: ACTUAL PUMP ASSEMBLY WILL RESEMBLE THE SETUP SHOWN AT THE RIGHT. CONNECTING THE HOSE IS THE SAME.**



Inlet side of the nutrient supply manifold.

### TOP VIEW



## 13

### ASSEMBLE AND INSTALL DRAIN MANIFOLD

Use the photos below to assemble the drain manifold. Read these notes before you continue.

- A ten (10') section of pvc is included to construct this manifold.
- Length of each pvc tube depends on the position of the reservoir and frame.
- Dry fit all connections before applying primer and cement. Apply cement only as directed to allow for cover removal. *Do not cement the short tube that extends from final elbow to reservoir.* This allows for cover removal and reservoir maintenance.
- Manifold will drain through the hole drilled in the cover—Procedure 9.
- Remove slip cap to periodically clean the drain tube.

Dry fit all pieces to get the best fit. Do not apply primer and cement until all pieces are cut and ready to slide together.

Assemble on the drain tube to set the correct angle of the manifold back to the reservoir drain hole.

Set reservoir in the desired position. Estimate length of tubes and fit together.



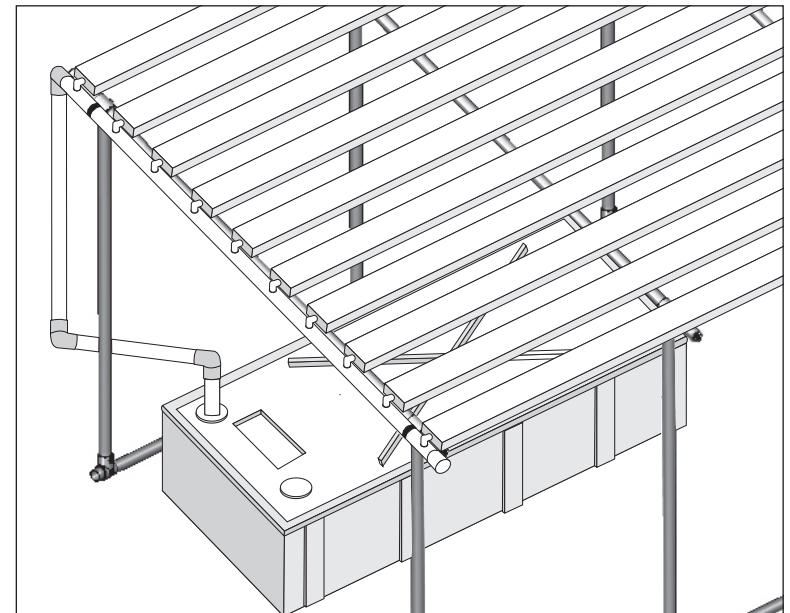
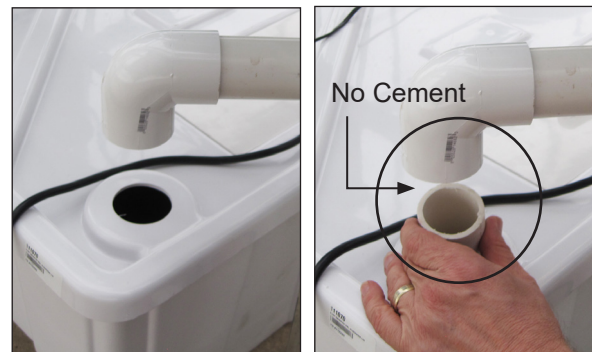
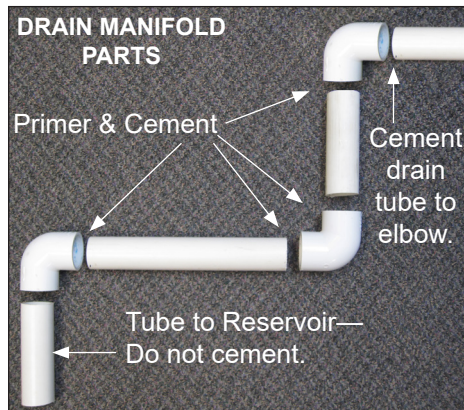
WF1576  
PVC 2" Elbows



WF6990  
PVC Cement &  
113372 Purple  
Primer

**ATTENTION:** Dimensions for tube sections are not provided to allow for minor adjustments in reservoir position. A ten foot (10') section of pvc tube is included for this manifold.

**DRY FIT ALL FITTINGS BEFORE YOU APPLY CEMENT!**



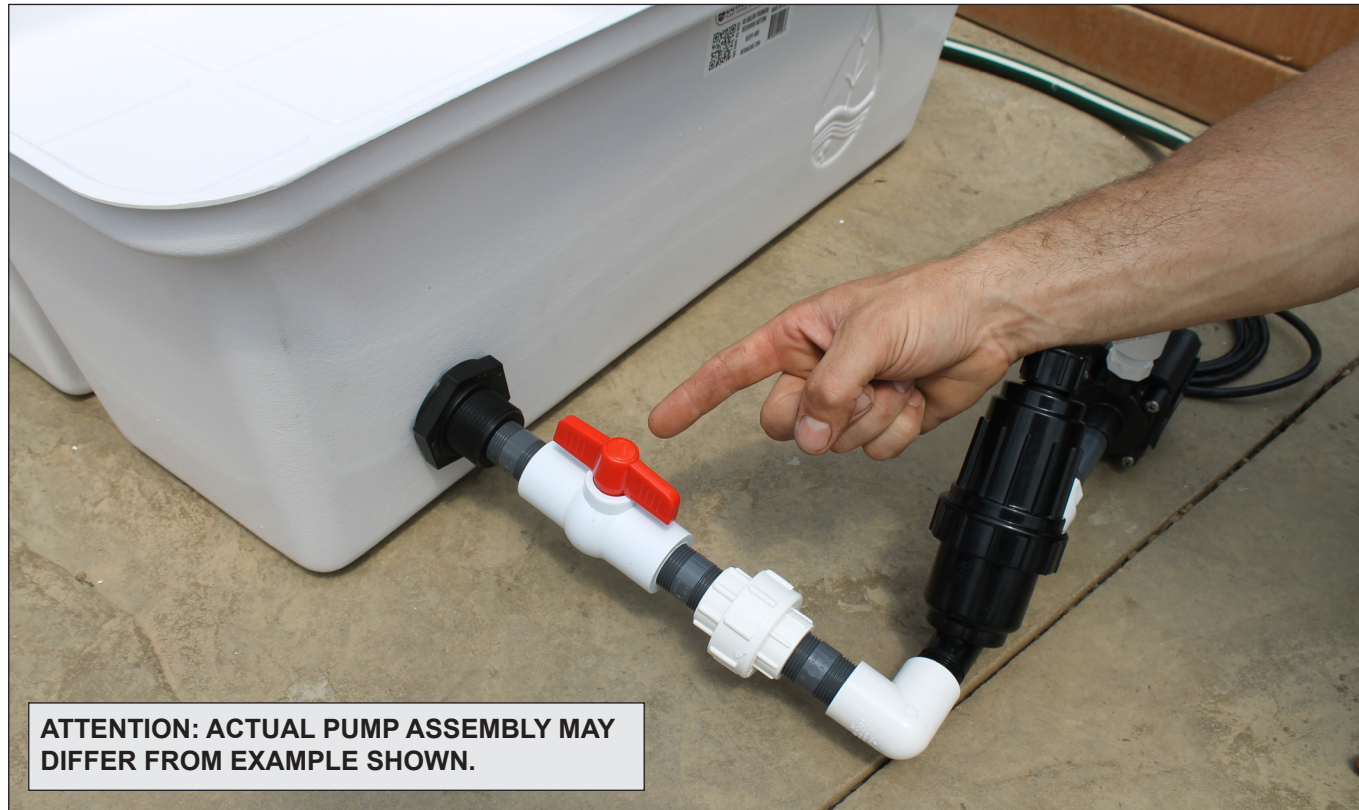
# 14

### TEST SYSTEM AND CHECK FOR LEAKS

1. Verify that the ball valve (WF3310) is open and supply hose is connected at both ends.
2. Fill reservoir to submerge inside fitting assembly. Check all fittings and connections for leaks. If no leaks are found, continue filling reservoir.

**NOTE:** If leaks are found, tighten the loose fittings. If that does not work, close the ball valve and take the external fitting assembly apart. Apply additional thread-sealing tape to the threads and reassemble. Open ball valve and test for leaks.

3. Place cover on reservoir and ensure that all hose connections are tight. Check all supply manifold connections and tubes.
4. Connect main pump to power to begin circulating water throughout the system.
5. Check all channel end caps and PVC fittings for leaks. *If leaks are detected*, turn off pump and allow water to drain back to reservoir. Next, dry the channel and end cap and apply additional cement to seal the seam. After cement is dry, test again for leaks. Once system has passed leak test, it is ready for your plants.



**ATTENTION: ACTUAL PUMP ASSEMBLY MAY DIFFER FROM EXAMPLE SHOWN.**



## 15

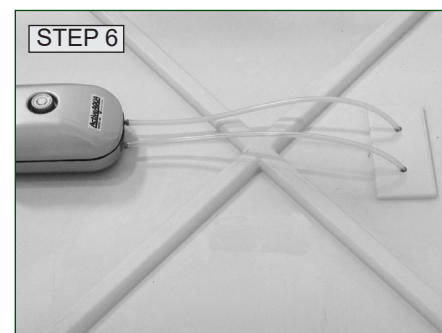
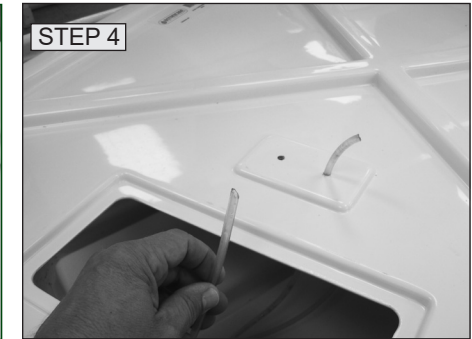
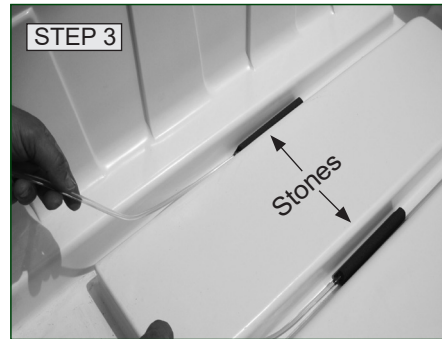
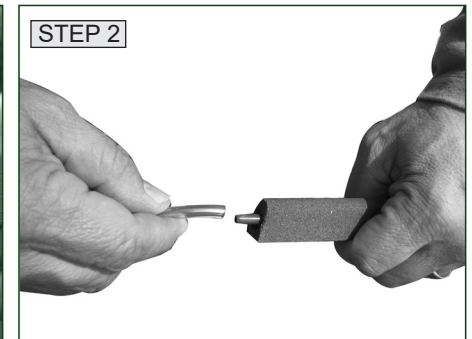
### ATTACH AIR PUMP AND AERATOR STONE

1. Choose a pump position and use it to determine the length of each air tube. This system requires two air supply tubes to connect the pump to each air stone, which will be placed at the bottom of the reservoir. Cut two air tubes from the supplied 110091 tubing. These must be long enough to run from the pump position, through the cover opening, and to the bottom of the reservoir.

**ATTENTION:** Position the air pump at a level that is **above the reservoir at all times to prevent siphoning** of the reservoir nutrient solution. In this example, the air pump will rest on the reservoir cover.

2. Attach one 109260 air stone to the end of a tube. Repeat for the remaining air supply tube.
3. Lower each stone and air tube into the reservoir solution. Position the stones away from the intake end of the main pump fitting assembly.
4. Place the cover on the reservoir and feed the tubes up and through the opening.
5. Place the cover on the reservoir and connect the free end of each air tube to the air pump.
6. Place the air pump on the cover (as shown) or in the position chosen in Step 1.
7. Connect the pump to power and test the operation. Lift the reservoir cover to verify that air is filtering through each air stone.
8. Monitor the air system regularly to ensure proper operation of the aerator system.

**ATTENTION:** Do not attach air pump to timer. Pump must run continuously when system is in operation.



**ATTENTION:** Always position the air pump above the reservoir/nutrient level to prevent siphoning of the nutrient solution.

Reservoir in STEP 3 is empty to better show the positions of the stones when placed inside.

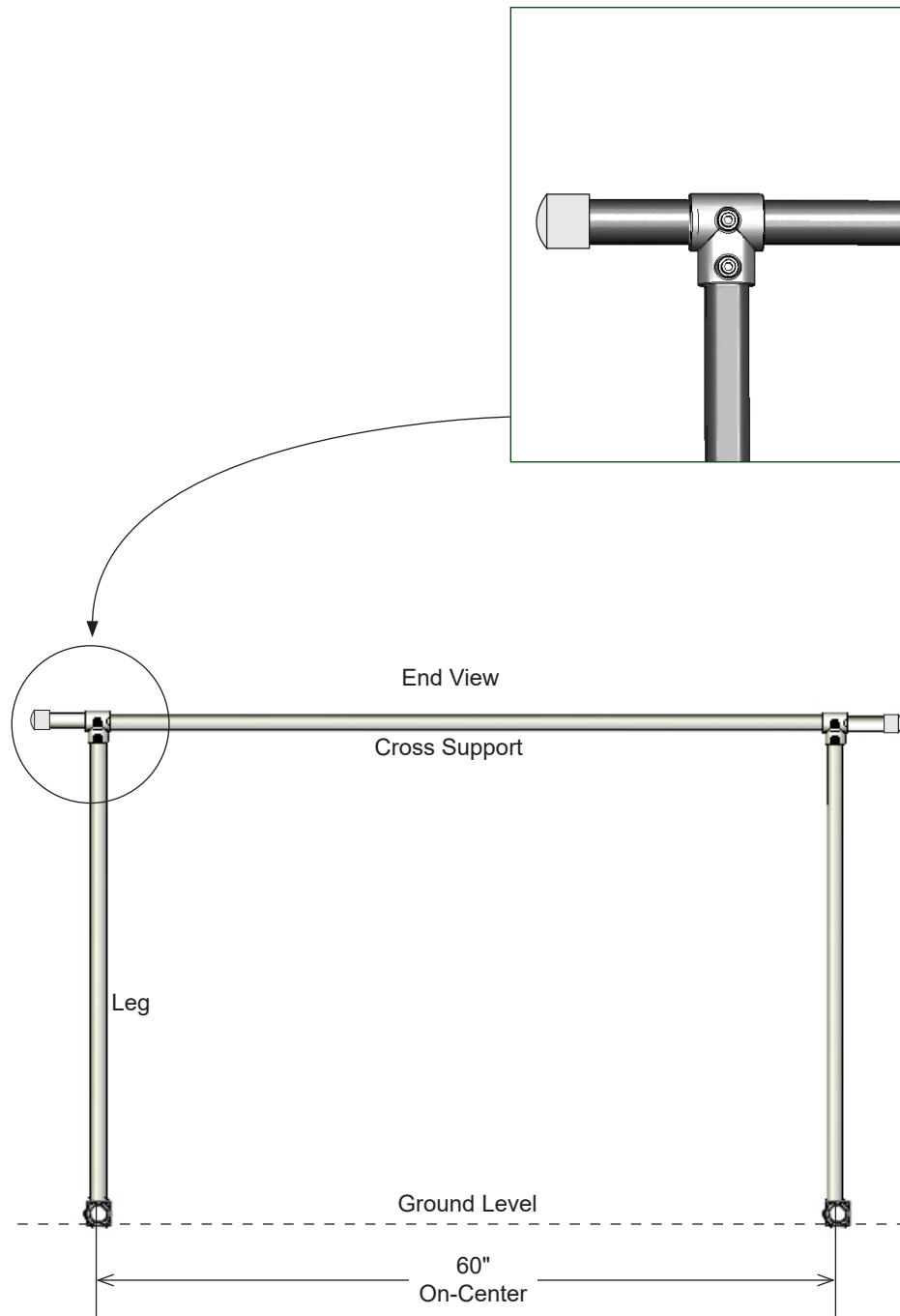
16

INSTALL FRAME CAPS

Install the WF2995 pvc caps to cover the end of each open pipe.



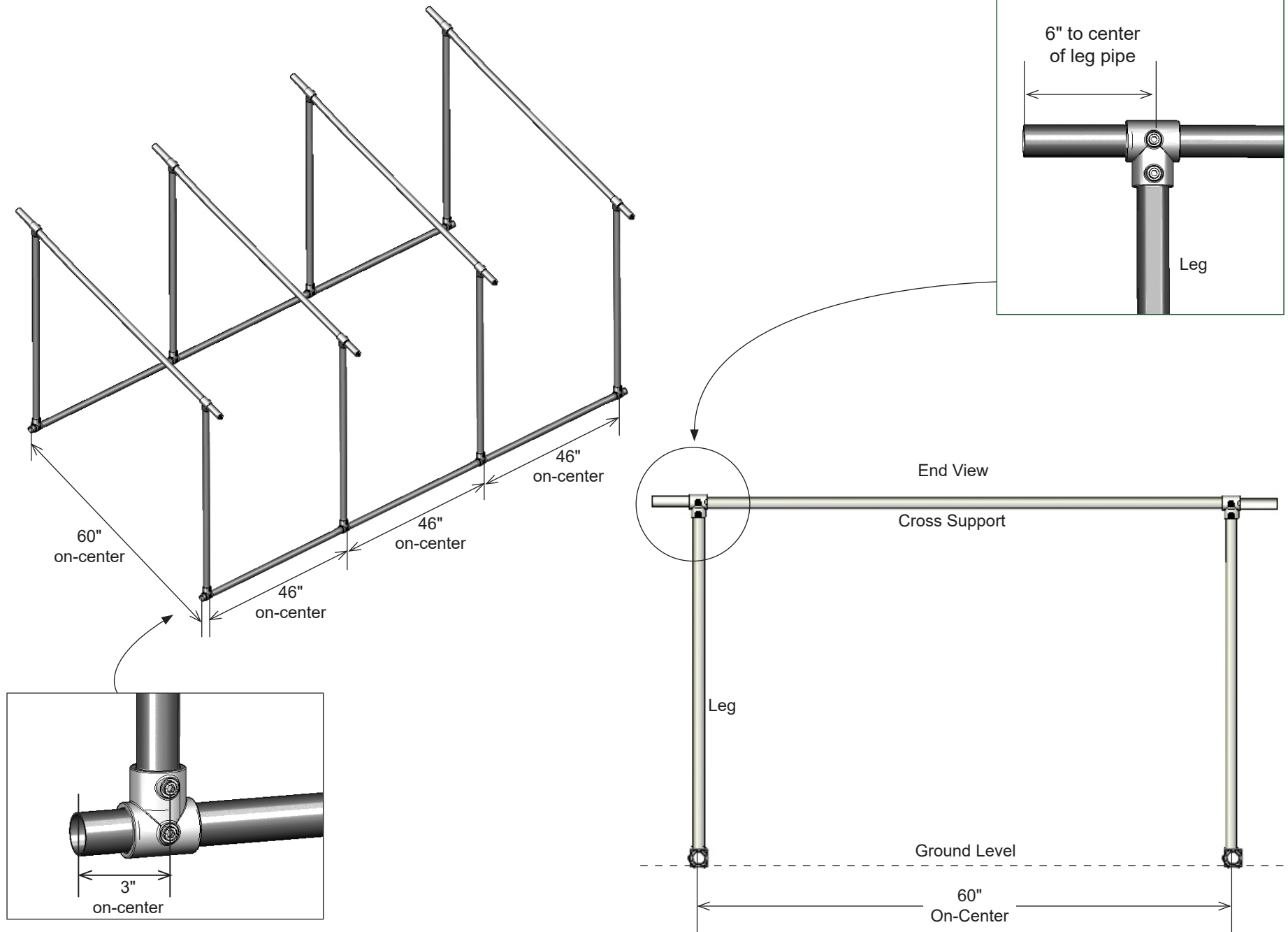
**ATTENTION:** Do not cement or drive the caps onto the pipe using a hammer. If needed, lightly tap to start on pipe and to hold in place.





# 110830 Quick Start Guide

## SUPPORT FRAME DIMENSIONS AND VIEWS

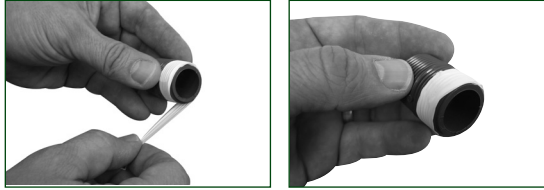


# Quick Start Guide

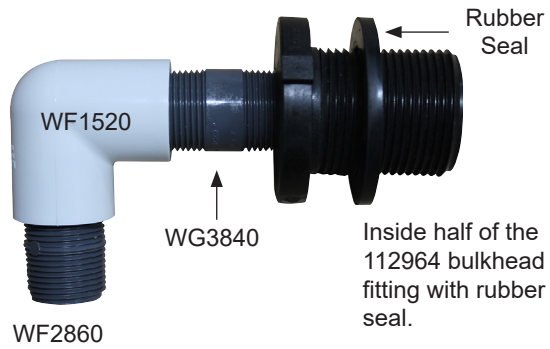
## CONSTRUCT ALL FITTING ASSEMBLIES

1. Wrap all fitting threads 3-4 times in a clockwise direction with the supplied thread-sealing tape as shown.
2. Construct fitting assemblies as shown and set aside until needed.

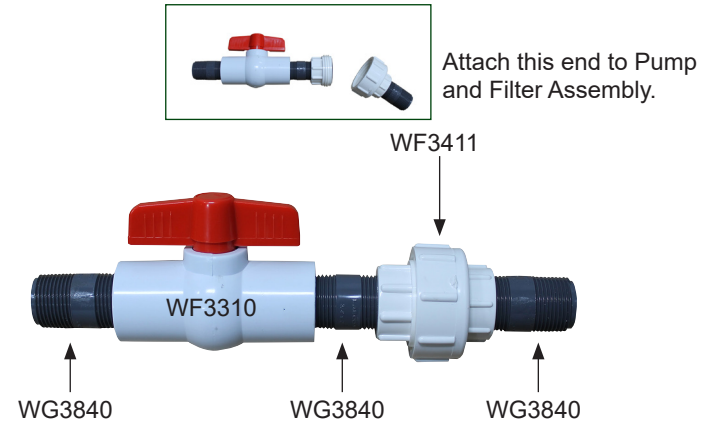
Apply tape to all threads.



Nutrient Manifold:  
Supply End (Page 15)



Inside the Reservoir Assembly (Page 18)



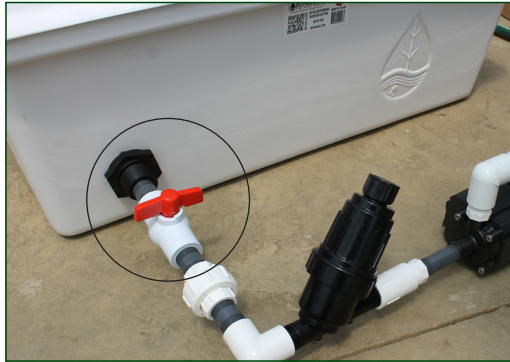
Shutoff Valve and Union Assembly (Page 18)

# Additional Information

## CLEAN FILTER SCREEN

For best results, clean filter screen regularly or when flow rate changes unexpectedly. Complete these steps to clean filter screen.

1. Turn off main circulation pump.
2. Close ball valve outside reservoir.



3. Unscrew filter screen housing and set aside.

**ATTENTION:** While removing filter screen housing, hold assembly steady to prevent damage to bulkhead seal and all other connections.

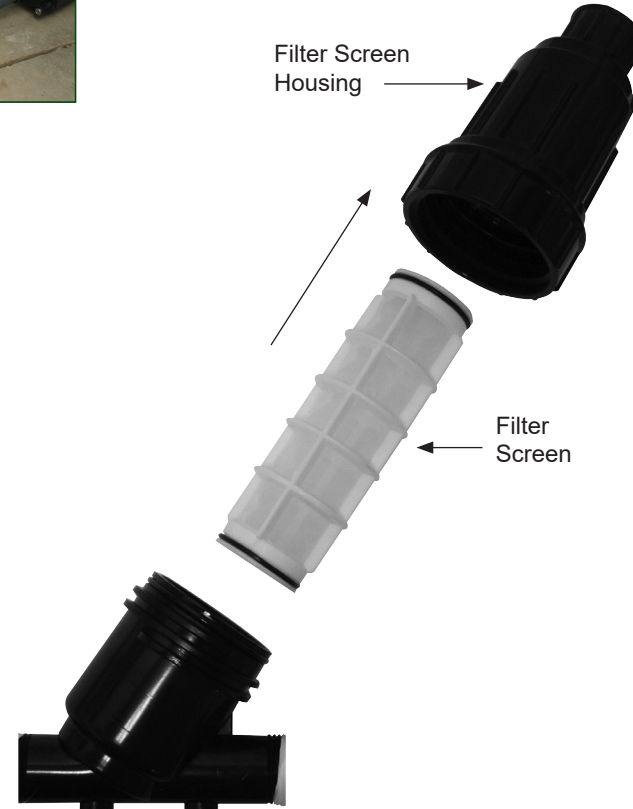
**DO NOT APPLY FORCE TO BULKHEAD FITTING ATTACHED TO RESERVOIR.**

4. Carefully lift filter screen from assembly.
5. Rinse filter and filter screen housing with clean water.
6. After cleaning, reassemble screen and filter housing.
7. Open ball valve. **DO NOT RUN PUMP WITH VALVE CLOSED!**



8. Turn on main pump and check filter for leaks.

**ATTENTION: ACTUAL PUMP ASSEMBLY MAY DIFFER FROM EXAMPLE SHOWN IN PHOTOS.**



## Additional Information

### DRAIN RESERVOIR

The 110830 Hydroponic System is designed to easily drain the reservoir. These steps describe one way to drain and refill the reservoir.

1. Turn off power to main pump and air pump and allow nutrient solution to drain back into reservoir.
2. Close ball valve outside reservoir.
3. If supply hose is long enough to reach container where solution will be transferred, disconnect supply hose from supply manifold. If you are using a different, longer hose to drain reservoir, disconnect supply hose from main pump fitting and connect customer-supplied hose to pump.



**STEP 2:** With the pump off, close ball valve.



**STEP 3:** Disconnect hose here if using supply hose to drain reservoir. If you are using a different hose to drain reservoir, disconnect supply hose from pump fitting and connect customer-supplied drain hose. Ball valve is shown in the closed position.

4. Place free end of drain hose in container where used nutrient solution will be stored.
5. Open ball valve, turn on pump, and pump the solution from reservoir. **Turn pump off when reservoir is empty.**



**ATTENTION:** Do not run pump with ball valve closed. Verify valve is open before turning the pump on. Photo shows open valve.

6. Clean reservoir.
7. After cleaning reservoir, disassemble and clean the in-line filter. See previous page for additional details.
8. Remove drain hose if needed and reconnect system hose to supply manifold or water pump.
9. Refill reservoir.
10. Verify ball valve is open and turn on pump. **DO NOT RUN PUMP WITH VALVE CLOSED!**
11. Check for operation and check filter and hose fittings for leaks.
12. Continue to use the system.

**ATTENTION: ACTUAL PUMP ASSEMBLY MAY DIFFER FROM EXAMPLE SHOWN IN PHOTOS.**



## Additional Information

### REMOVE AND REPLACE MAIN PUMP

The 110830 Hydroponic System is designed for easy maintenance. Complete these steps to remove main pump.

1. Disconnect power from main pump and air pump and allow nutrient solution to drain back into reservoir. *Be sure to keep air pump above level of reservoir solution to prevent siphoning.*
2. Close ball valve (WF3310) to prevent solution from running out of reservoir when pump is removed.
3. Disconnect supply hose from the WF1770 brass swivel fitting attached to pump.
4. Loosen the WF3411 union and remove pump, filter, and related fittings.



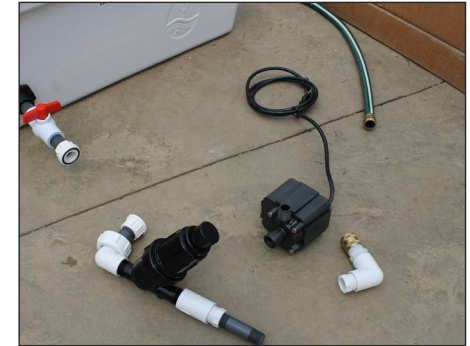
**STEP 2:** Close ball valve.



**STEP 3:** Remove supply hose from pump fitting assembly.



**STEP 4:** Disconnect pump assembly from reservoir.



**STEP 5:** Remove fittings and replace pump as needed.

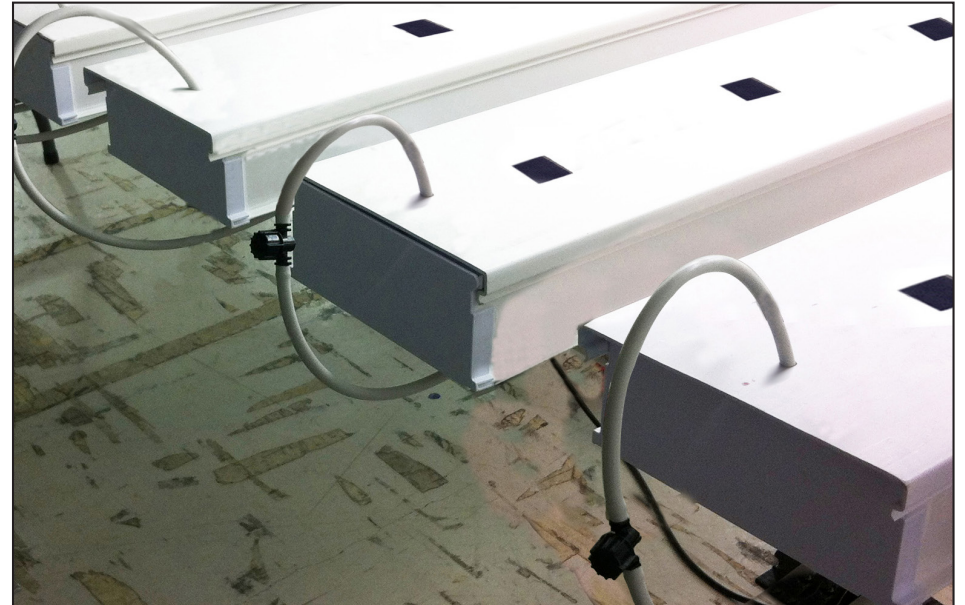
5. Disconnect pump.
6. Clean filter.
7. Reverse steps (or consult Procedure 10) to install a new pump.

**ATTENTION: ACTUAL PUMP ASSEMBLY MAY DIFFER FROM EXAMPLE SHOWN IN PHOTOS.**

## *Additional Photos for Reference*



**ATTENTION:** NFT system shown with additional holes in two lids for nursery channels. Customer cuts holes in lids if nursery channels are desired.



**ATTENTION:** Reservoir and lid style shown throughout this guide may vary. When needed, critical dimensions are noted for hole locations.

