POWERGROWER 8-PACK PARTS:

1: Reservoir & Controller (2)
2: Reservoir & Controller Lid (2)
3: Hatch Cover (2)
4: Reservoir & Controller Connecting Hose
5: Float Valve with pipe thread compound
6: Controller Drain Level Tube
7: Circulating Pump Column with Collar
8: Circulating Pump Connector with Split Tee
9: Drip Rings (8)
10: Clear Airline (8)
11: Pumping Columns with Support Tubes (8)
12: Individual Drain Level Tube with 1” grommet reducer
13: Blue Tubing (20 ft.)
14: Split Tees (8)
15: Single Output Air Pump
16: Individual Reservoir (8)
17: Growing Chamber (8)
18: Dual Diaphragm Air Pump
STEP 1
Disassemble the Float Valve (part 5) and insert the threaded end with the washer on the inside of the Controller (part 1), through the predrilled hole in the Controller and secure from the outside with the nut. Coat the remaining threads with the Pipe Thread Compound and screw on the brass 1/2” barbed hose fitting.
STEP 2
Insert the **Drain Level Tube** (*part 6*) into the 1/2” grommet on the side with the support tab. Insert **Circulating Pump Connector with Split Tee** (*part 8*) into the 1” grommet opposite the Drain Level Tube and support the grommet from the backside while securing the Split Tee into the grommet.

![Assembly images](Image)

STEP 3
Insert the **Circulating Pump Column** (*part 7*) into the tabs on the bottom of the **Controller** (*part 1*) and push the collar down over the tabs. Insert the **Y-fitting** from the Circulating Pump Column into the elbow from the **Circulating Pump Connector** (*part 8*)

![Assembly images](Image)
STEP 4
Make sure the black airline is securely inserted into the Y-fitting and thread the other end thru the cap in the Controller Lid (part 2). Place one of the Hatch Covers (part 3) over the access hole in the Controller Lid.

STEP 5
Place the Reservoir (part 1) on top of the assembled Controller. Connect the Reservoir to the Controller by inserting the 1/2” straight barbed fitting of the Connecting Hose (part 4) into the 1/2” grommet on the Reservoir and connect the other end of the blue tubing to the brass barbed fitting of the float valve. Place the Reservoir Lid (part 2) with the Hatch Cover (part 3) on the Reservoir.
**STEP 6**
The individual growing units can be arranged in a compact honeycomb design or all 8 can be used in two rows (See Diagrams in Step 12). If you choose the compact honeycomb design, set one of the **Individual Reservoirs** (part 16) aside to be used in assembling a stand alone unit. Insert a **Split Tee** (part 14) into the 1” grommet for each of the remaining Individual Reservoirs.

**STEP 7**
Place the **Growing Chambers** (part 17) on the remaining Individual Reservoirs.

**STEP 8**
Push the beveled end of the **Support Tubes** (part 11) into the large hole in the bottom of the Growing Chambers. Push the PVC pipe down until it barely touches the bottom of the reservoir.
STEP 9
Attach a Drip Ring (part 9) to the end of each Pumping Column Assembly (part 11). Ensure that the holes in the ring itself are facing downwards.

STEP 10
Push the entire drip ring assembly down into the pumping column support tubes. Being careful not to catch the tube clamps on the support tube. Push the assembly into the tubes until they barely touch the bottom of the reservoir.

STEP 11
Move drip ring out of way and fill growing chamber with rinsed clay pellets or your favorite growing media.
**STEP 12**
To setup the individual growing units in a compact honeycomb pattern, arrange the controller assembly and the individual growing units according to the following diagram. Cut the **Blue Tubing (part 13)** into eight 20” long pieces, and connect the individual units to each other and the controller assembly.

The individual units can also be arranged in two rows or any other custom configuration. Place the individual growing units according to the following diagram or your own custom configuration and cut the **Blue Tubing (part 13)** to custom lengths to connect the individual growing units to each other and the controller assembly.

**STEP 13**
Securely attach the **Clear Airlines (part 10)** to the flexible tubing of the Pumping Column Assemblies.
**STEP 14**
Connect the manifold to the **Dual Diaphragm Air Pump (part 18)** and connect the airline tees (that are packaged with the Dual Diaphragm Air Pump) to the manifold. If you choose the compact honeycomb configuration, connect the Clear Airlines from the 7 growing units to the tees and connect a Clear Airline to the Black Airline from the circulating pump. Otherwise, connect the Air Lines from the 8 growing units and connect the circulating pump to the **Single Output Air Pump (part 15)**.

![Image of Dual Diaphragm Air Pump](image1)

**STEP 15**
*If you only used 7 of the growing units in the circulating system*, remove the 1" Grommet Reducer that is connected to the **Individual Drain Level Tube (part 12)** and insert the 1" Grommet Reducer into the 1" grommet of the left over **Individual Reservoir (part 16)**. Insert the Individual Drain Level Tube into the 1/2" opening of the 1" Grommet Reducer and complete the stand alone unit just as the other units used in the circulating system. After completed, connect the **Single Output Air Pump (part 15)** to the flexible tubing of the pumping column assembly.

![Image of Individual Reservoir](image2)
HELPFUL GUIDELINES

FILLING
When filling the system with a nutrient solution it is best to mix the nutrients in a known volume of fresh water and pour into the controller until the system reaches the desired level. The controller and 7 individual growing units holds approximately 28 gallons. The controller and 8 individual growing units holds approximately 30 gallons. The float valve can be adjusted by bending the float valve arm so that the float valve is all the way up in the off position. Next, the reservoir can be placed on top of the controller and can be filled with an additional 15 gallons that will keep the system full for one to two weeks with small plants and may only last a few days to one week with larger plants.

PLANTING
To prepare a seedling or a plant for transplanting, remove all soil and/or organic material from around the roots. Plants must be sturdy with established roots before transplanting into the PowerGrower circulating 8-pack. Choose seedlings because it's more difficult to successfully transplant older plants. If your plant has been growing in soil or peat moss, gently remove the plant from its pot and carefully rinse as much soil as possible from the roots before transplanting. Although this method of transplanting from soil to hydroponics is somewhat risky, (soil may contain diseased organisms that proliferate in the rich hydroponic solution), we have been very successful in implementing, particularly with culinary herbs and encourage you to try it. Or, you can avoid these problems by starting plants from cuttings in one of our RainForest Systems.

PLACEMENT
Abundant light, proper temperature and adequate ventilation are crucial for fast growth, healthy plants and higher yields. Place the PowerGrower 8-pack in a warm, well-lit, well-ventilated location, such as an outdoor garden, sunlit window, patio or greenhouse. Keep your PowerGrower 8-pack away from areas where the inevitable dripping that occurs during filling, draining and pH adjustment could cause water damage.

If you plan to grow several small plants in the PowerGrower 8-pack, place your plants just outside the drip ring, near the drip holes. If you prefer a single large plant, place it in the center of the drip ring. Gently add Hydroton around the plant roots until thoroughly covered.
OPERATION
For moisture-loving plants, operate your PowerGrower 8-pack pump continuously. Plants preferring drier conditions grow best when the pump runs for 1/2 hour on and 1 hour off during daylight hours; off at night (a simple timer will turn the pump on and off for you automatically). Use mild to normal strength nutrient solution and avoid strong or aggressive nutrient. As your plants consume nutrient solution, the level in the reservoir will drop. Top off with half strength solution or plain water (the pump is more efficient when the reservoir is full). It is necessary to change the water and nutrients every one to two weeks depending upon the size of your plants and their rate of growth; with bigger plants change more often. Simply empty the reservoir by rotating the blue drain/level tube 90 degrees so water drains on the ground, or indoors in a pail. When changing or topping off solution, pour directly over the Hydroton (rather than into the reservoir itself) to flush out excess salts.

PREPARATION FOR REPLANTING
After harvesting and before replanting your PowerGrower 8-pack, dismantle the system and clean all parts with hot water. Rinse Hydroton in very hot water and soak overnight. It is a good idea to dis-assemble and wash the drip ring assembly and pumping tube from time to time in hot water.

TROUBLE SHOOTING
If white salt deposits form on the Hydroton:
1. Try using a milder nutrient solution and topping off with plain water only.
2. Occasionally drain your system, refill with plain water and run the pump overnight. After the overnight rinse, empty reservoir and refill with fresh nutrient.

If Plants are not growing well and you suspect “hard” water:
1. Use FloraMicro Hardwater in place of FloraMicro.
2. Try distilled or purified water. You should see a significant improvement in plant health and growth within one week.

If nutrient solution stops flowing from the drip ring:
1. Check to ensure that pump is plugged in and reservoir is filled with nutrient solution.
2. Disconnect air line from the air inlet and check whether the air is coming through (put end under water and look for bubbles if you are not sure). No air flow could mean that the pump is broken and must be replaced or that the air line is loose or blocked. Try cutting an inch off each end of the line to provide a tighter fit.
3. Blow into the air inlet to check whether it is clogged, and rinse the pumping column in hot water. This type of clogging is usually an indication that you have hard water or too strong a nutrient solution.
4. Check whether emitter holes in the drip ring are clogged. To clear, dis-assemble drip ring by pulling it apart at the tee, rinse drip ring and tee in hot water and clear the holes with a toothpick.
**RAPIDROOTER®**

Rapid Rooter’s advanced technology produces a unique matrix of composted organic materials bonded together with plant-derived polymers. Rapid Rooter plugs are manufactured using a scientifically controlled process that yields large populations of beneficial microbes in the media. These naturally-occurring microbes colonize young roots, helping plants resist disease while maximizing nutrient uptake. Rapid Rooter plugs are fortified with General Hydroponic micro nutrients for abundant root growth. The optimal air-to-water ratio within the plug matrix results in explosive early root growth.

*Rapid Rooter plugs are available in the following sizes:*
- 50 plug tray
- 50 plug bag
- 98 cell mat

**RAINFOREST®**

The Rainforest is perfect for propagation or growing plants to full maturity. Our patented Vortex Sprayer provides a super-oxygenated mist for rapidly developing plants. With a compact design and small footprint, the Rainforest is available with 2”, 3”, and 6”, site lid inserts to suit specific growing needs.

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**FLORANOVA®**

FloraNova represents a break-through in fertilizer technology. FloraNova gives users both the strength of a dry concentrate and the ease of a liquid. This unique formulation of highly purified minerals and natural additives combines the benefits of both organic and soil less gardening methods. Optimum nutrient absorption is aided by natural humic extracts for increased quality and superb yields. FloraNova is a one part formula that is pH stabilized outstanding for all plant types.