



8x8 and 8x12 Freedom Greenhouse Operating Instructions

Powered roof operation

Your greenhouse roof is powered by a 12 volt battery on the shelf above the thermostat. The gray thermostat (with black knob) controls the opening and closing of the roof based solely on the air temperature at the thermostat. Under the cover of the thermostat there is an adjustment that can be made to the temperature “differential.” The differential is the temperature difference between when the roof will open and when it will close. It is a small sliding arm that has “min” stamped at one end and “max” at the other end. For most applications the roof works best when set at or near the “max” differential. This will keep the roof from opening and closing (cycling) more than necessary to cool the greenhouse.



Turn the switch labeled “roof” on to provide power to the thermostat. To test the roof operation turn the thermostat down if the roof is already closed or turn it higher if it is already open.

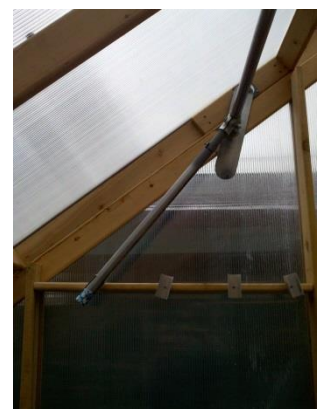
Important – Do not turn the thermostat while the roof is moving. If you need to stop the roof in mid cycle shut the switch off. To complete the test wait until the roof has finished moving and turn the thermostat in the opposite direction. Set the thermostat at the minimum temperature you’d like to have the greenhouse maintain. The roof will open at the temperature setting on the thermostat knob and close at several degrees (depending on differential setting) lower than the knob setting. In most sites, the greenhouse will maintain a temperature (with the roof open) about 5-15 degrees warmer than the ambient (outside) temperature. If your site is surrounded by tall trees or buildings it may prevent a breeze from aiding the cooling thru the open roof. If your greenhouse does not cool adequately there are several shade cloth options that can help.

Lastly, the long tube running from end to end that rotates to open the roof may be used to hang flower baskets. Keep the total weight to less than 50 pounds and spread the baskets out along the length. The tube will hold the most weight near the ends. You may place some hooks for hanging baskets on the stationary roof members, but not the opening roof side. No baskets placed on the stationary roof (using owner installed hooks) should weigh more than 10 pounds.

Manual roof operation

Manual roof greenhouses have a swing arm and multiple positions that hold the arm and roof in closed, partially, and fully open modes. The arm is easy to move but should always be locked into one of the positions so the wind can’t move it and possibly damage the mechanism.

Note: Should you find your lifestyle changes and makes it difficult to manage a manual roof it is possible to convert it to the solar-powered (automatic) roof.



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Benches

Cedar slat and wire mesh benches can support any tray or pot sizes. ***Do not sit on or stand on any of the supplied benches.***

Flood Bench – There is a separate instruction sheet for the timer operation which controls the water level and the schedule. A customer supplied water container is required to be placed underneath each flood bench that has a pump. An 8' long bench will require a 20 gallon or larger container. A 12' long bench would require at least a 30 gallon container. If the bench has not been accurately leveled put some water on the bench surface and see where it flows. If it flows to a corner place a shim (flat stone or small stick) between the bench and the support in that corner. Continue adjusting until the bench is level. All flood benches are built with a small slope towards the fill/drain fittings. This helps all the water drain after a watering cycle.

Maintenance

There is very little maintenance required for your greenhouse. Follow these simple steps for years of trouble free growing.

1. Flood bench – clean the filters at the drains and the outside of the pump strainer (bottom of pump) a couple times per season. The fill and drain fittings have a removable strainer that turns counterclockwise to remove.
2. **Spring tuneup – Very important** – When you first try to open the roof in the spring (assuming it hasn't opened for a few months) turn the roof switch on, check the battery condition on the solar panel controller, and run the roof thru a full opening and closing cycle. Sometimes a roof will stick after a winter of being closed and will blow a fuse when trying to open. If it appears to be stuck disconnect one end of the linear actuator and open the roof manually.

Troubleshooting problems

Roof won't open or close

1. Check the voltage of the battery by pressing the button of the monitor. All three (red, yellow, and green) lights should be on. If not, the battery needs to be charged or replaced. If only the red light is on you may want to check to see if the solar panel is getting adequate sunlight each day. If there is no light check the fuse near the positive (red +) terminal of the battery. If the fuse is OK the battery is likely dead. The solar panel will not initiate a charge to a fully dead battery. It will be necessary to remove the

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battery and attach it to any small 12 volt dc charger for a short period of time (a 2 amp charge for an hour or a 4-5 amp charge for 30 minutes). When the partially charged battery is re-installed the solar panel should complete the charging cycle. Check the fuse in the round fuse holder on the switch panel. There will be a very fine wire visible thru the glass that should be intact. If it's not visible replace the fuse. It is a likely a 5 or 7 amp fuse. There will be a replacement fuse taped to the back of the black power panel. If not, they are available at any Radio Shack or auto parts store. Do not use a fuse larger than the one that needs replacing.

2. Check for obvious loose or broken wires. A circuit tester for 12vdc circuits is included with most greenhouses. It can help identify the problem. Attach the spring clip to the negative terminal of the battery or to the "buss bar" near the bottom of the back side of the switch panel. The "buss bar" has 6 tabs and are all negative with black wires. The pointed probe can be touched to any of the tabs that are positive. These include the positive terminal of the battery and any wires connected to it, including switches and fuses. If a switch is turned on touching the tip to either tab of the switch should make the tester light up.

For other problems or issues please call 207-354-0138.

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