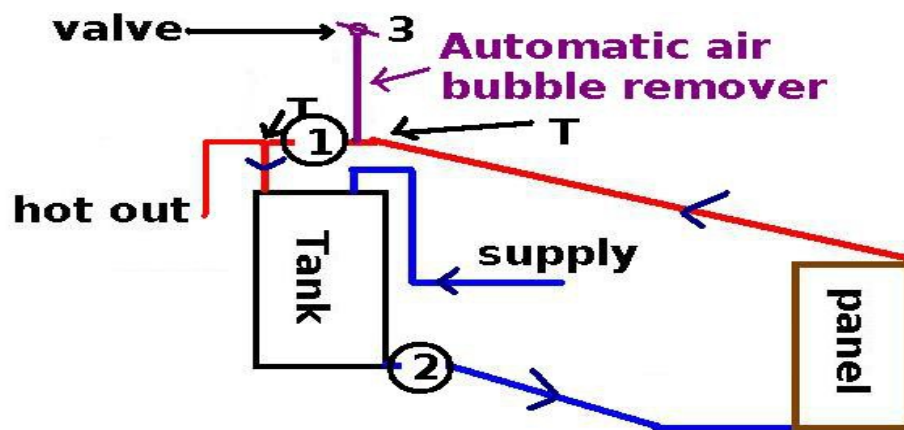


Thanks for sending your question because the system will work and we also really want it to work for you. Here is what happens: when the water heats up, air bubbles will come out of the water. These need to be removed from the system or the thermalsiphon will stop almost as soon as it starts. To remove air bubbles, we invented our own "automatic air bubble remover" which is a pipe connected to a T which has a valve on the top. The pipe we use is about 1 foot long. In the diagram below it is shown in purple.

It is also important that the connection between the top of the solar panel and the water tank have an angle (ours is not too big but it does exist). This pipe needs also to not have dips in it since that will be a block to the thermosiphon current.

Here is a diagram of the essential parts of our system. We insulated the "red" pipes close to the tank and we used a lot of insulation here. This is because water is not smart enough to know if it is inside the tank or outside the tank. This means that water can go over the hump into the tank (thus you do not need a special tank with holes in the side). Valves 1,2, and 3 are indicated. We also put extra insulation around the tank.



Another source of difficulty is with air in the system itself. To purge the system of air, you can close valve 1, open valve 2 and valve 3 and the system will purge provided the supply has pressure. This will remove air from the system. We also insulated the blue feed to the panel but not as much as the red feed to the tank.

Make sure though that you do not do anything to the pressure-temperature release valve on the tank. It is there to make sure that the tank does not explode which is a good thing.

Don't be afraid to replumb your system. It took us several modifications till we got things working pretty well, but then again we were doing it kind-of in the blind. I hope that you will have an easier time of it. One final note: all our connections except for the fittings to the panel are  $\frac{3}{4}$  inch copper pipe. The connections at the panel are flexible hot water heating hose. Our connections between panels are short flexible copper hot water heater connecting tubes. Our connection at the cold inlet to the panel is a brass union (which has proven to be expensive but worth the cost). We also have a valve there to drain the system.

One additional source of problems comes from calcium Our tank had (and still has) a lot of calcium in it. If this blocks the flow then the thermalsiphon will not happen so you may need to clean calcium. At night, we close valves 1 and 2 to prevent reverse thermalsiphon.