

This do-it-yourself project involves household 120 volt electricity, which, if mishandled can cause shock or death by electrocution. If you are not comfortable working with electricity, do not assemble this kit. Proceed at your own risk.

How your finished system will work: The float switch mounts at the top of your tank. The float on the switch rises when the water reaches the spot where you have mounted the float switch. The float switch then turns on a 12 volt relay. The relay cuts power to the pump that fills your tank and turns on a red LED warning light on the control box. Once power to the pump has been cut, it cannot be restored until the float drops AND you hit the reset button on the control box. This allows you to determine the cause of the high water level condition before resetting the system.

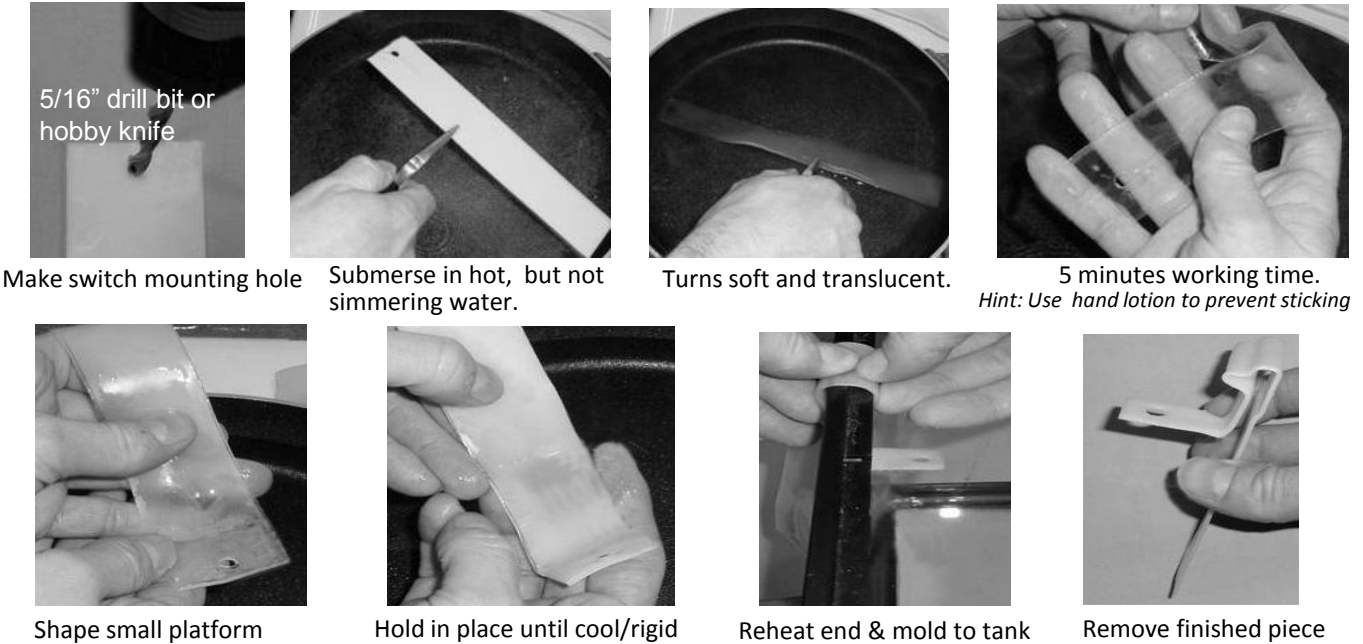
Your kit includes:



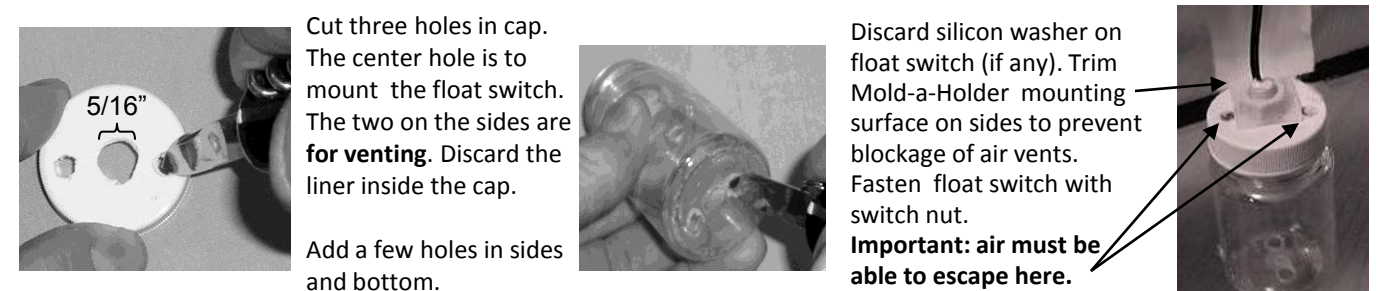
You need to purchase an extension cord to complete this kit. Choose a two or three wire cord, depending on whether your pump has a two or three prong plug. If you will not be plugging your system into a GFCI outlet, we strongly suggest using an extension cord with a GFCI plug on its end for safety (available at aquahub.com).

1. Create a switch mount using your Mold-a-Holder™

The steps below are an illustration. The Mold-a-Holder material affords great flexibility, so you can create your float switch mount however you want – just make sure that the float can move freely up and down in your design.



2. Optional Slosh & Snail Guard. Needed *only* if wave action or snails could interfere with the float movement.



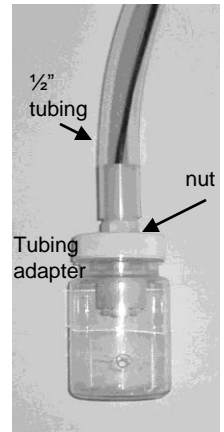
Cut three holes in cap. The center hole is to mount the float switch. The two on the sides are **for venting**. Discard the liner inside the cap.
Add a few holes in sides and bottom.

Discard silicon washer on float switch (if any). Trim Mold-a-Holder mounting surface on sides to prevent blockage of air vents. Fasten float switch with switch nut. **Important: air must be able to escape here.**

3. Optional Tubing Adapter. Needed *only* if water will ever rise enough to touch float switch wires. **Important: submersion of the float switch wires can lead to internal switch corrosion and failure.**

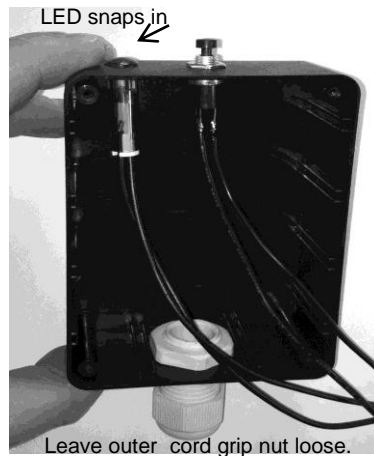
Using the Tubing Adapter: Thread the float switch wires through the i-float tubing adapter with the threaded end of the adapter down. Screw the adapter onto the top of the switch stem above the nut. Thread wires through 1/2" tubing and fit tubing onto adapter, trimming tubing so that its length is just greater than the highest water level. Use silicon sealant in the end of the tubing and where it connects to the adapter. Allow silicon to dry and test the seal to make sure that water cannot get to the top of your switch. Inspect seal periodically.

If your tubing is longer than 3-4", you may need to support it to keep the Mold-a-Holder stable.



4. Drill holes in box and mount LED, Cord Grip and Reset Switch.

5/16" Drill Bit
Center holes
between ridges



Leave outer cord grip nut loose.

3/4" Spade Drill Bit

5. Wire the system.

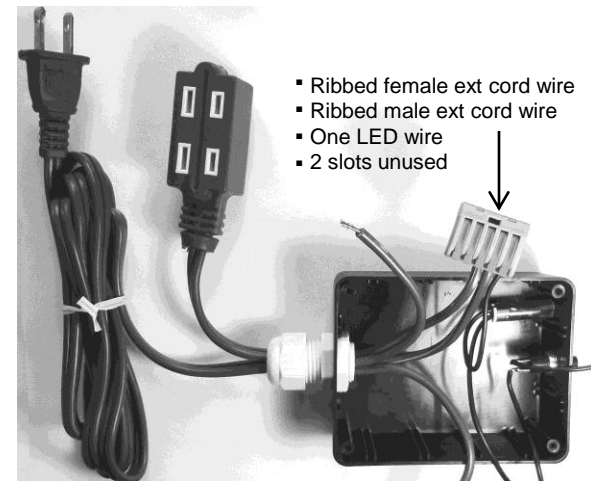
Wiring the extension cord can be very dangerous. **Always plug your system into a GFCI outlet or use an extension cord with a GFCI end for safety. WE CANNOT BE RESPONSIBLE IF YOU SHOCK OR ELECTROCUTE YOURSELF OR YOUR FISH.**

Cut your extension cord in half near the female end. If your cord has three prongs either do not cut the ground wire (usually it's green) or cut and reconnect once it is inside the project box using a twist-on connector (not included). Three prong cords may not fit through the cord grip provided. In this case, eliminate the cord grip and size the hole for the cables to pass through. Create strain relief using a zip cord or knots in the wires; seal the hole with silicon sealant.

Split or "unzip" the extension cord wires to separate the two conductors. Strip 1/2" of insulation from the ends of the extension cord, LED and reset switch wires.

Connect one LED wire (either one) and both neutral extension cord wires (white color or ribbed texture) using a WAGO connector. See photo, below left.

To use a WAGO connector: lift an orange finger until it holds at a 90-degree angle (the springs inside are strong). Insert stripped wire. Finger snaps closed, holding the wire securely. Tug firmly on the wire to test.



- Ribbed female ext cord wire
- Ribbed male ext cord wire
- One LED wire
- 2 slots unused

Small post numbers are engraved on the relay socket.

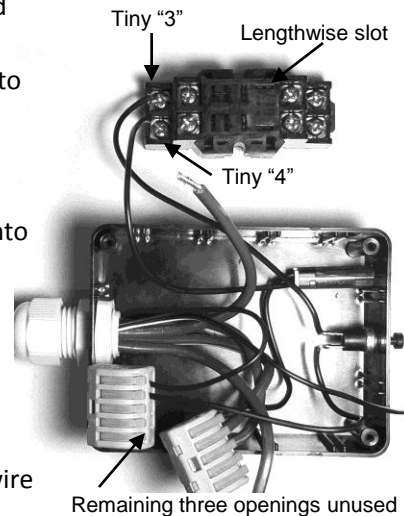
Connect the remaining LED wire to **post 4** on the socket.

Connect one reset switch wire (either) to **post 3** on the socket.

Run the 12V transformer wires into the box through cord grip.

Connect one wire from the 12V transformer (either) to the remaining wire from the reset switch using a WAGO connector. See photo, right.

Connect the other transformer wire to **post 7** on the socket.



Remaining three openings unused

Remove the bottom clip from the float switch. Remove the float and turn it upside down. Put the float back on and replace clip. This reverses the float switch to normally-open, which is required for this application.

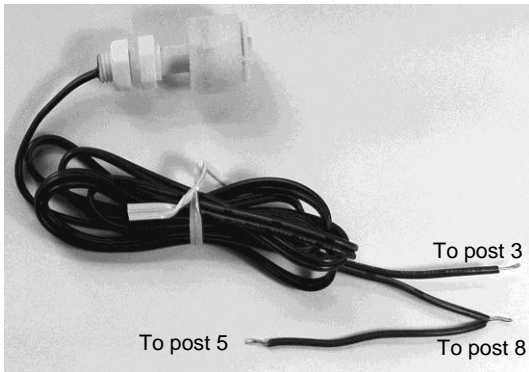
Unzip the two float switch wires about 4" and cut off about 3" to create two 3" pieces of wire. Discard one. Take the other and strip ½" of insulation off both ends. Then strip the ends of the two float switch wires. Twist one end of the stripped 3" wire to one (either) of the float switch wires. See photo below, left

Push float switch wires through the cord grip (slide the wires back and forth to get the float switch wire through).

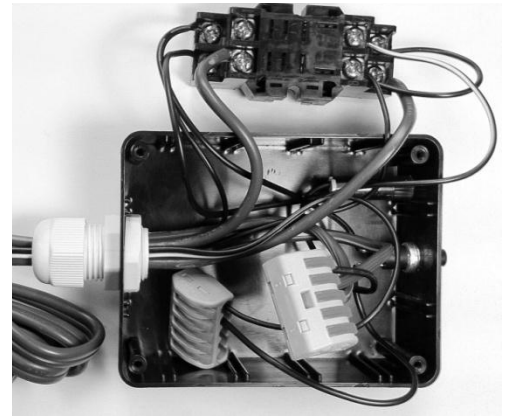
Take the 3" piece of wire and connect the twisted end to **post 8** on the socket and the other end to **post 5**. The free float switch wire connects to **post 3**, where one wire from the reset switch is already connected. See photo below, left.

You have two hot extension cord wires left (black color or smooth texture). Connect the one from the male side of your extension cord (the side that plugs into your wall outlet) to **post 6** on the socket. Connect the one from the female side of your extension cord (the side that your pump plugs into) to **post 2**.

All wires should now be connected. See photo below, right.



When connecting wires to the sockets, insert the wires between the metal plates and be certain that no exposed wire is showing. Screw the relay socket posts very tightly.



6. Insert relay into socket and complete assembly.

Line up the relay prongs with the socket openings. Insert the relay into the relay socket. Push it all the way down until the prongs are no longer exposed.

Gently put the relay and socket into the box, filling the open space with the WAGOs. Do not bend the reset switch or LED base. If the LED base is not tight, use silicon or epoxy to secure it. Orient the relay as shown in the photo below.

Tighten the cord grip firmly by turning the dome-shaped outer nut. This compresses an inner gasket to grip the wires.

Place the cover on the box and attach with the small project box screws. Assembly is complete.

Note: Never expose this assembly or touch any part of the relay when the extension cord is plugged into a 120V wall outlet. The project box provides basic insulation and protection. **The assembly is not waterproof.**



Your PumpStopper Kit is complete!

- Making sure the extension cord is not plugged in, mount your Mold-a-Holder / float switch assembly in the tank.
- **The float switch must not be too close to any pump; pump motors can create magnetic interference.**
- **If your relay buzzes or chatters, a pump is too close. Relay buzzing can destroy the float switch & relay.**
- Mount the project box containing the relay assembly where it cannot fall into any water.
- Plug in the 12V wall transformer.
- Plug the pump into the extension cord end and the extension cord into a GFCI outlet (or use a GFCI ended cord).
- Your system is now functional – see below for important notes.
- Test your system often and remember to clean float switch stems with a soft cloth every month or so.
- Whenever the float rises, the pumps stops and the LED illuminates.
- Hit the reset button with the float down to restore power to the pump. **Maximum pump amperage is 10 Amps.**

Drip loops

Create drip loops with the cords to route any water droplets away from connections. Mount your relay assembly away from all water.

Magnetic Fields

Don't place your float switch too close to a pump or in strong magnetic fields. Float switches use magnetic reeds that can malfunction or cause relay buzzing if the magnets inside other devices are too close. Normally float switches should be 4-5" away from pumps, but this can vary depending upon the size, power and number of pumps located in the chamber.

Maintain your system

Occasionally test the system by lifting the float . The pump should turn off. Clean the lower switch float and stem with a soft cloth whenever build-up is evident. This will vary depending on how often the float is exposed to water in your system.

Troubleshooting & GFCI re-sets

If your system will not initially function, **try hitting the reset button on your GFCI outlet or GFCI extension cord.** Sometimes the button needs to be pushed once when the cord is new. Electrical spikes can cause a GFCI cord or outlet to occasionally trip. If your system stops working, try pressing the reset button on your GFCI first to see if that is the problem.

Make sure that air can easily escape from the top of your sloop & snail guard (see p. 1). If the venting holes become blocked, this can cause an air pocket and prevent the float switch from turning off your pump.

Questions or comments?

We always appreciate your feedback. Email us at service@aquahub.com.

Thank you for purchasing your PumpStopper Kit from aquahub.com