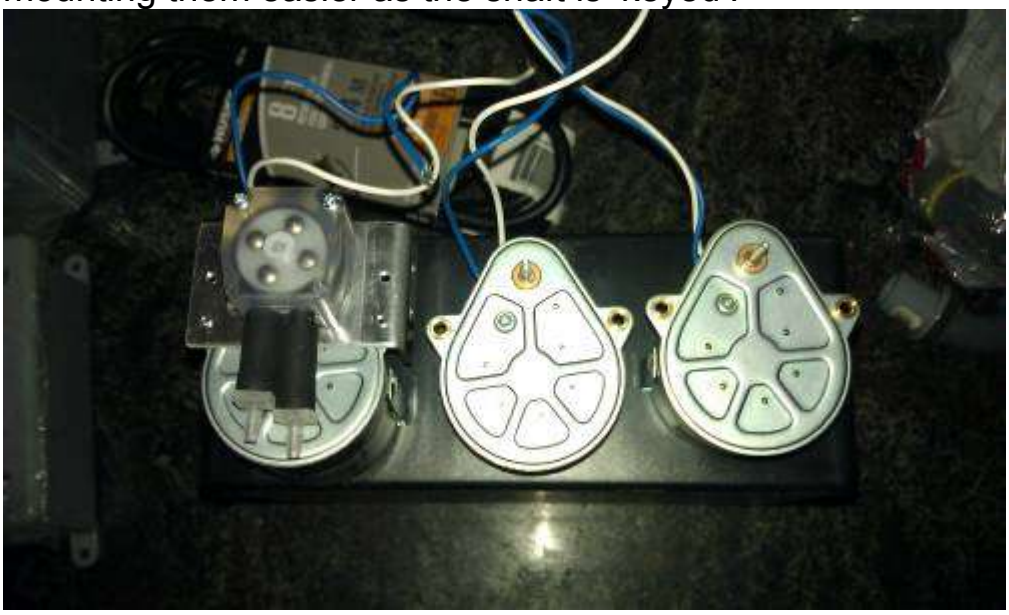
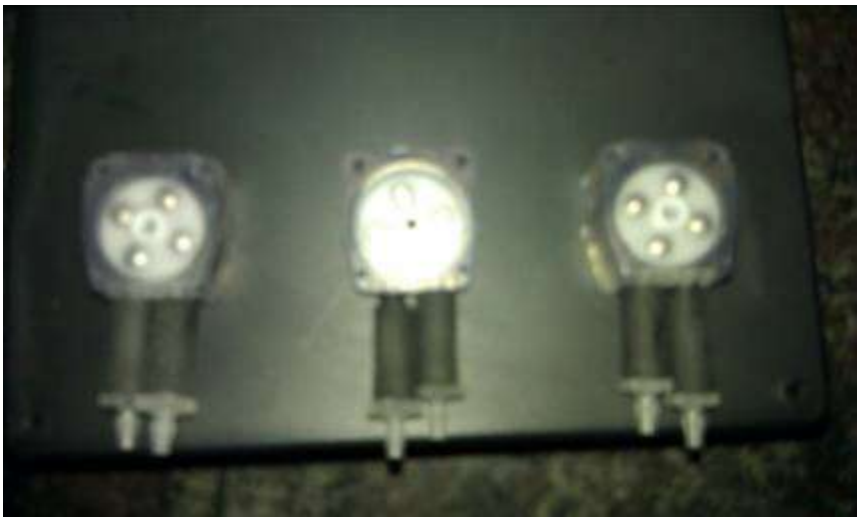
Mounting the Pumps:

These are the peristaltic pumps. They come with mounting bracket, which must be removed. Know which pump face came off which pump. Makes mounting them easier as the shaft is ‘keyed’.



What they will look like once mounted:



For the pump housing I used a ‘Project Box’ from Radio Shack. I picked it because it was ‘local’ and it would house the 3 pumps I needed for this project. If you choose different sized or quantity pumps, you should find something that works for you.

You could also mount your nute/additives in one box and your pH pump in another.

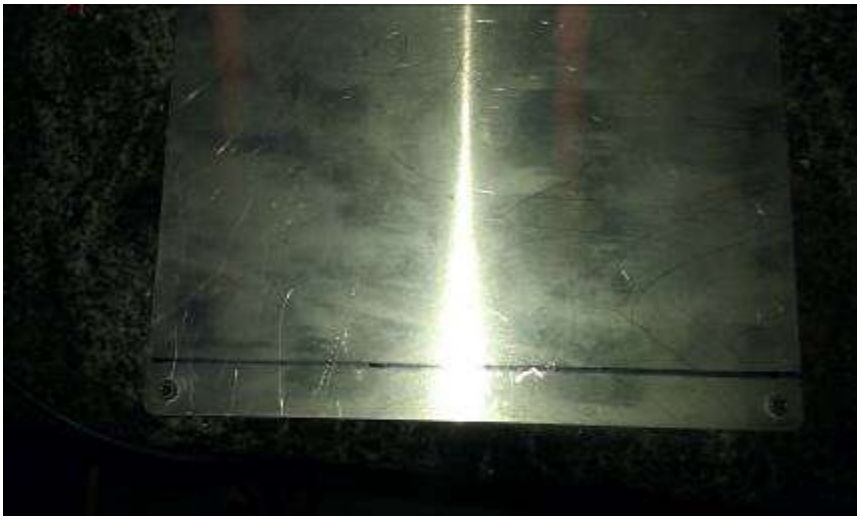
Had I had more time, I might have ordered a project box with mounting tabs/ears, like this one:

Find something that suits your situation/setup.

First, I drilled two pilot holes in the back of the project box, an inch in and an inch down that I will use to mount it to the wall. Once its mounted, the faceplate will be reattached. Pain in the ass to unmount/move, but so it goes…

Next I used the aluminum cover vs the plastic cover that came with my project box (because I thought it looked cooler). I flipped it over lightly screwed in the retaining screws to hold it in place:

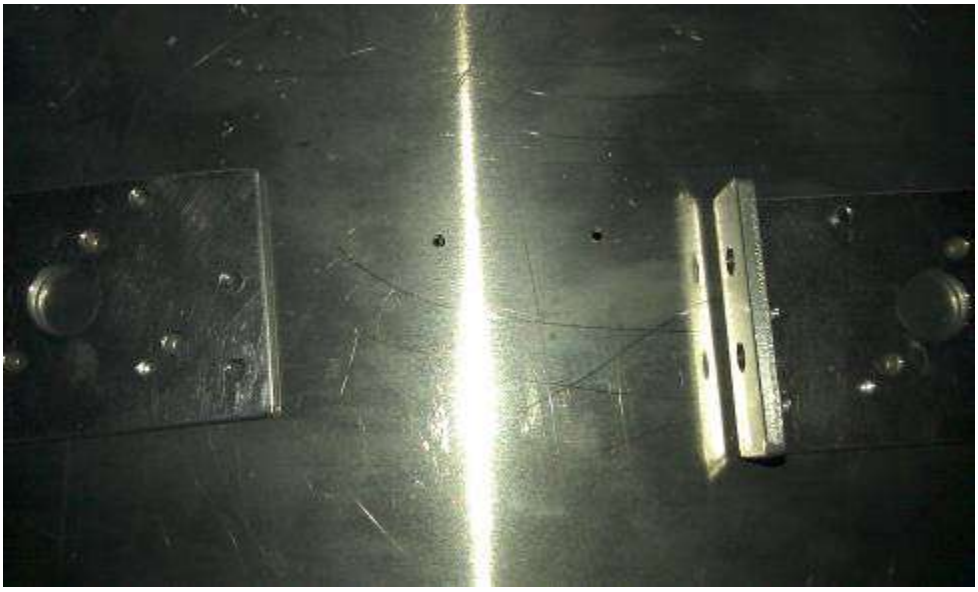
I used a straight edge to mark where the pumps would ‘bottom out’ in the box.



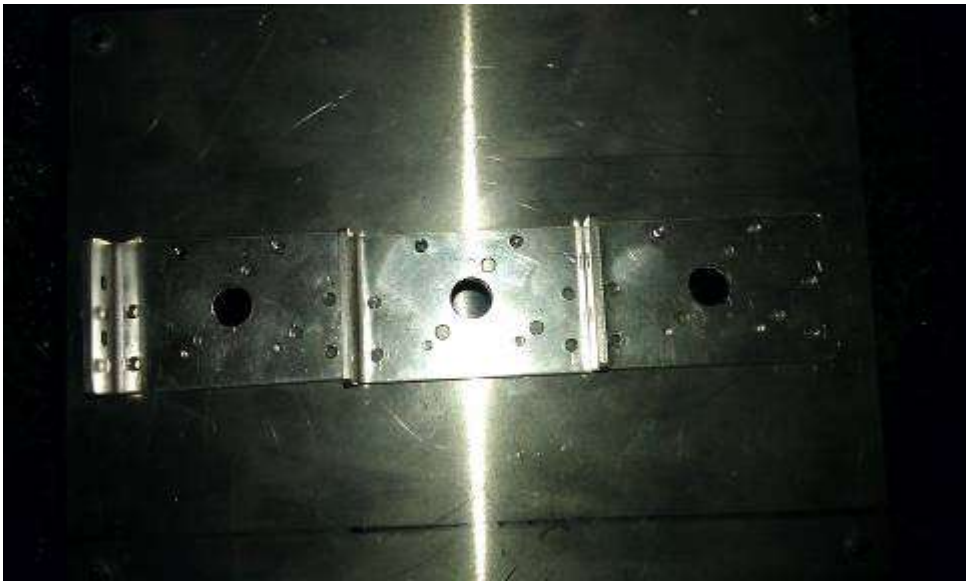
Align the brackets, making sure the pump bottom does not cross the line:
Verify the brackets are positioned properly, screw hole wise, there are two long screws that hold the pump housing to the bracket and two short screws that hold the pump motor to the bracket.

Use your marker to mark screw holes for the LONG screws and the large center hole (for pump shaft) only. The short screws are internal to the box.

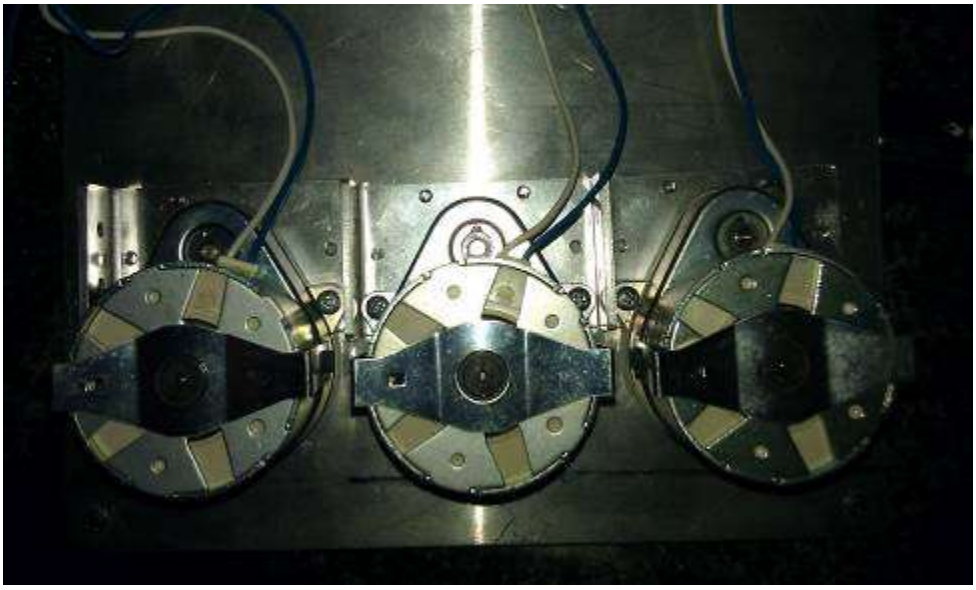
Because I am going in to metal, I drilled pilot holes first, then followed up with the correct size bits. The bit sizes are pump dependent. I want to say 1/8” for the long screws and 3/8” for the center shaft hole.



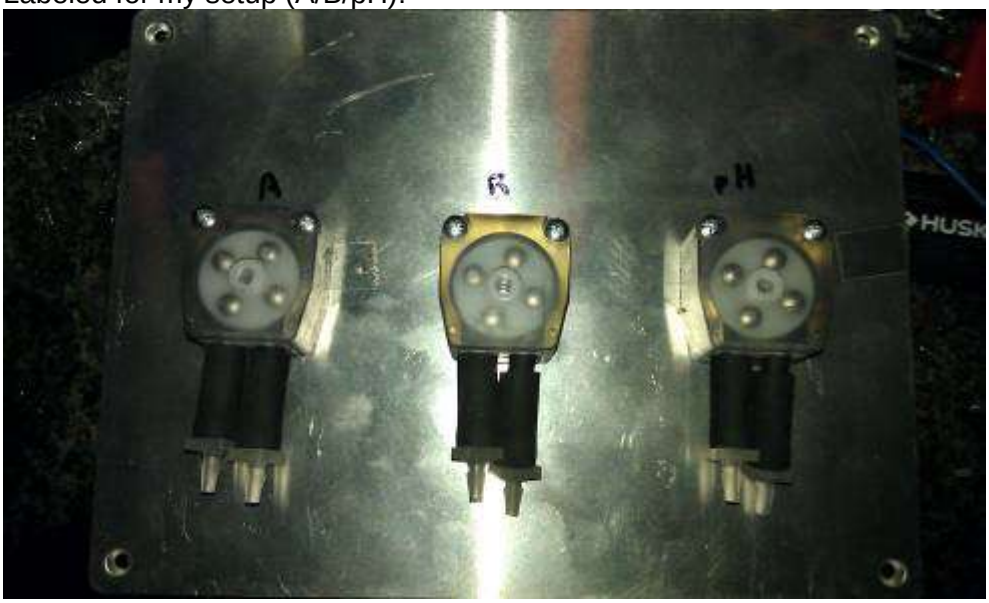
All drilled. Brackets are mounted. Long screws through the pump faceplate that you removed earlier from the FRONT of the housing cover:



Mount the corresponding pump on to the bracket with the short screws. The shafts are ‘keyed’ and you remember which faceplate went to which pump…



Labeled for my setup (A/B/pH):

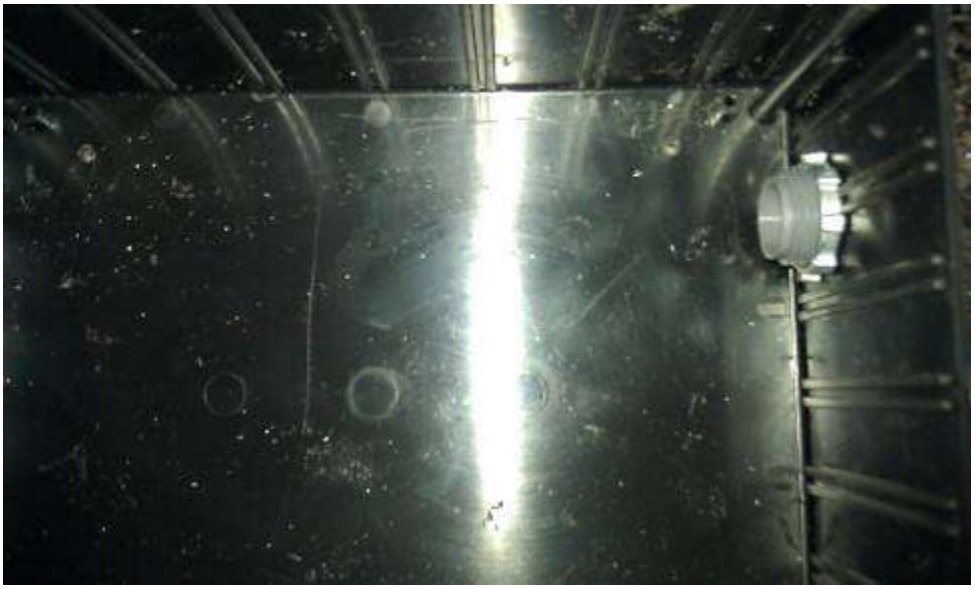


Wiring the pumps:

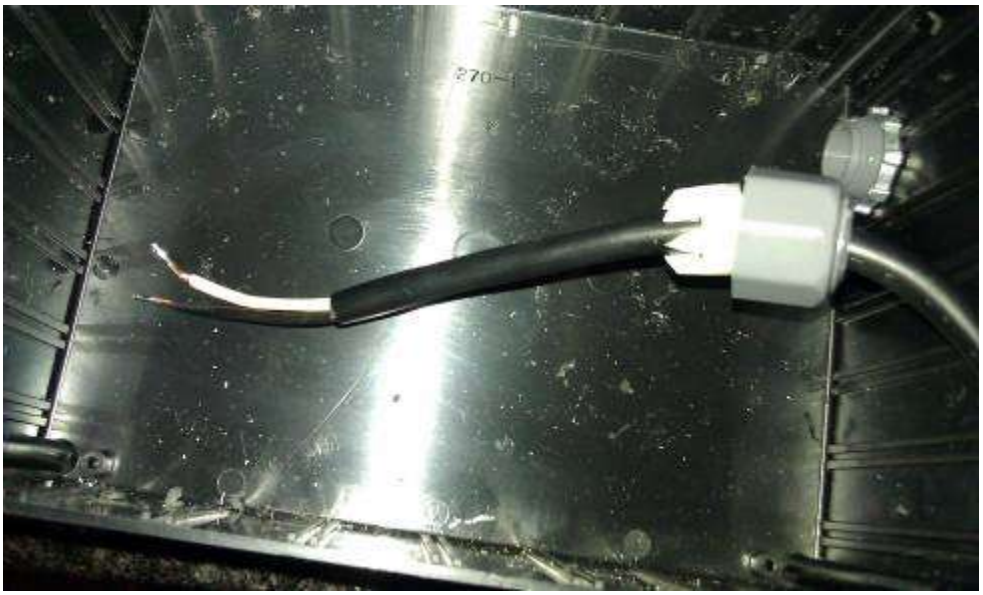
If you made it this far in to the project, this should be mindlessly simple…

Drilled some holes (7/8” forstner bit) for the power cord connectors. One on each side, at the top, could have put them wherever, just make sure it doesn’t hit the pump bodies.

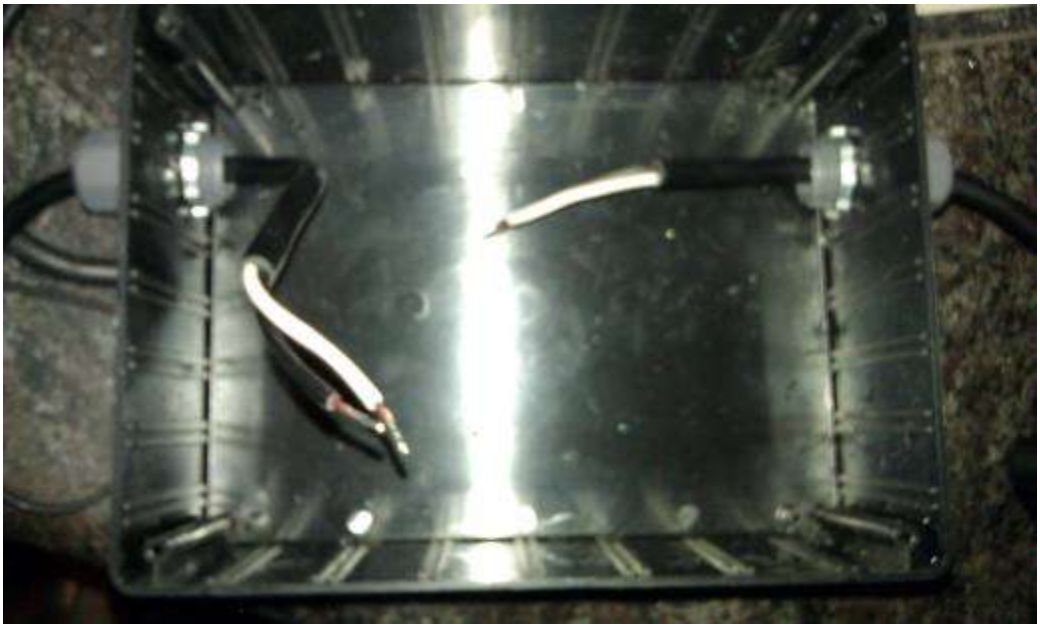
I went ~1” in from the edge, slightly elevated from the bottom to allow for the nut inside.



Feed the end caps on the 16/2 cords.

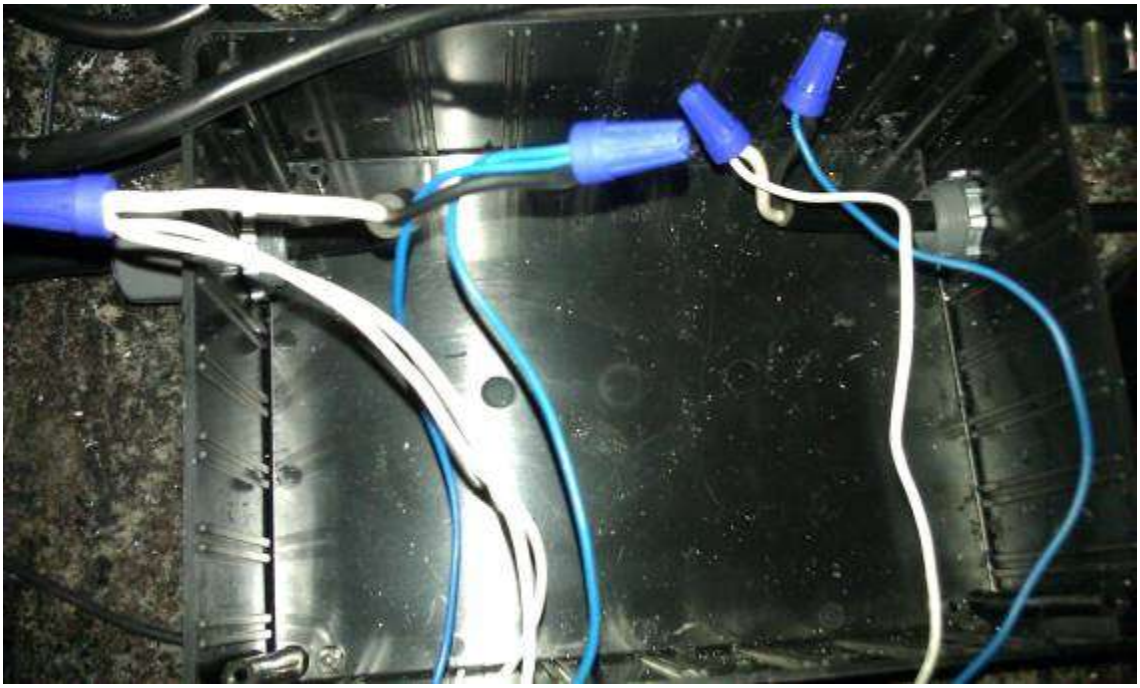


Insert through the connector, give yourself some slack, don’t tighten the connector down yet.



On my pH pump, I used wirenuts to connect to the power cord coming in from that side.

I used wirenuts to attach the nutrient pumps to the power cord coming in on that side. 2 pumps, same power, same outlet, both will activate at the same time. If I had another pump for an additive, I would wire that in to the same bundle.



Put the faceplate on the box, pull the slack out of the power cords and snug down the cord connectors.

Completed and operational:

Part 2: Nutrient Stock Tank/Rack

Part 3: Calibrating and Operation

Pump Info:

Based on APT's charts, I chose the SP100FO 30RPM unit with 3mm NORPRENE tubing with a fixed output of 5.6ml/min.
Norprene will last for years in this application and 3mm is standard aquarium airline size for easier availability and connectivity.

SP100 Alternating Current(Vac) Pumps

Motor RPM	Voltage(ac)	Amps(mA)	Maximum Flowrates (mL/min)		
			3.0mmID	1.6mmID	0.8mmID
30	115	30	5.6	1.5	0.5
15	115	30	3.3	0.9	0.3
8	115	30	1.5	0.40	0.16
3	115	30	0.65	0.18	0.06

For increased flow rates, you could also use the SP200FO or SP300FO pumps.
I would still stick with 3mm hose for ease of connectivity.

SP200 Alternating Current(Vac) Pumps

Motor RPM	Voltage(ac)	Amps(mA)	Maximum Flowrates (mL/min)			
			5.0mmID	3.0mmID	1.6mmID	0.8mmID
30	115	30	29	15	3.9	1.1
18	115	30	17.5	9.3	2.3	0.66
3	115	30	3.5	1.8	0.45	0.13

SP300 Alternating Current(Vac) Pumps

Motor(rpm)	Voltage(ac)	Amps(mA)	Flow(mL/min)
300	115	1000	600
150	115	800	300
96	115	600	190
60	115	400	120
30	115	400	60