BYOC Envelope Filter Kit Instructions

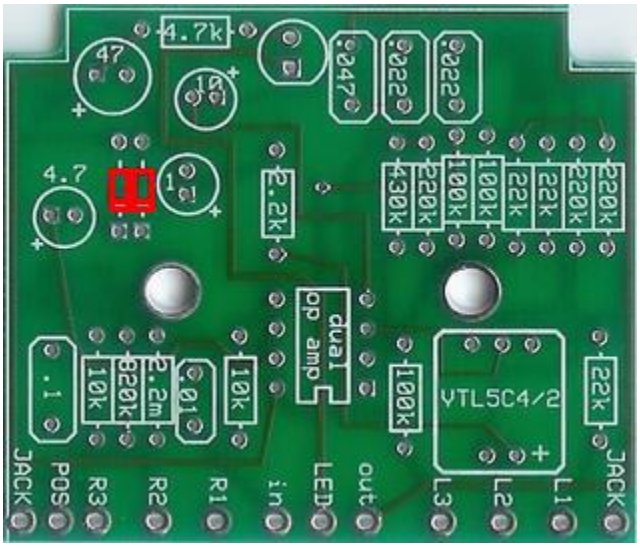
These are the instructions for the newer "bezel free" version. If you have an older kit with a bezel, there really isn't much difference. You could use these instructions without much trouble, but you should download the older instructions at this URL:

www.buildyourownclone.com/440V1.pdf

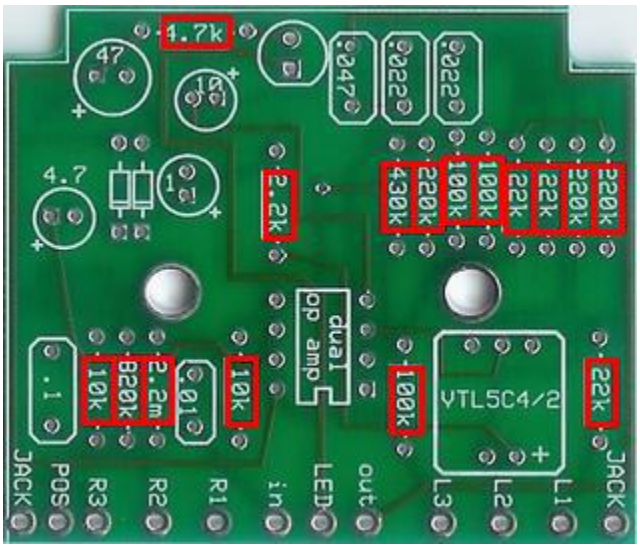
Parts Checklist for Envelope Filter Kit

Resistors:
1 - 2.2k (red/red/red/gold)
1 - 4.7k (yellow/purple/red/gold)
2 - 10k (brown/black/orange/gold)
3 - 22k (red/red/orange/gold)
3 - 100k (brown/black/yellow/gold)
3 - 220k (red/red/yellow/gold)
1 - 430k (yellow/orange/yellow/gold)
1 - 820k (gray/red/yellow/gold)
1 - 1M (brown/black/green/gold)
1 - 2.2M (red/red/green/gold)
Capacitors:
1 - .01uf film (103)
2 - .022uf film (223)
1 - .047uf film(473)
1 - 0.1uf film (104)
1 - 1uf aluminum electrolytic
1 - 4.7uf aluminum electrolytic
1 - 10uf aluminum electrolytic
1 - 47uf aluminum electrolytic
Diodes:
2 - 1N914
IC's:
TL022, 4558, TL072, or some other similar dual op amp
Opto-Coupler:
VTL5C4/2
Potentiometers:
2 - A100k log
Hardware:
1 - enclosure w/ 4 screws
1 - byoc envelope filter kit circuit board
1 - 3pdt footswitch
2 - knobs
1 - AC adaptor jack
1 - ¼"stereo jack
1 - ¼" mono jack
1 - battery snap
1 - red LED
hook-up wire

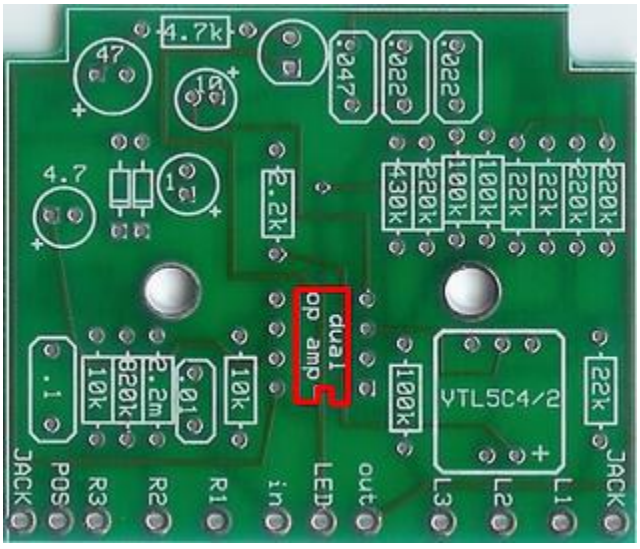
Populating the Circuit Board



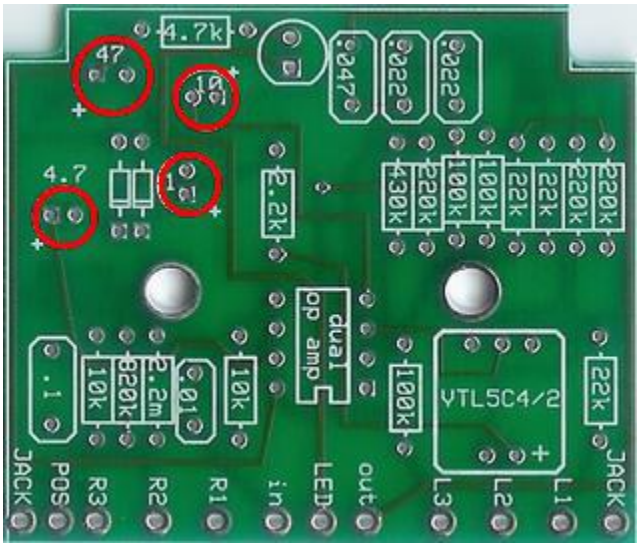
Step 1: Add the diodes. Make sure the black stripes are facing the same way as show on the layout.



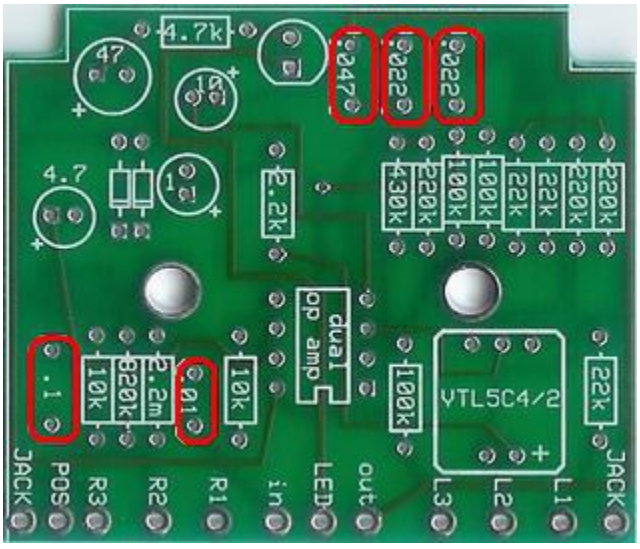
Step2: Add the resistors. Resistors are non-polarized, so you can put them in either way. The 820k is the "sweep" resistor. Increasing this resistor will increase the range of the sweep. . The kit comes with an extra 1M resistor to use here as well for even more range.



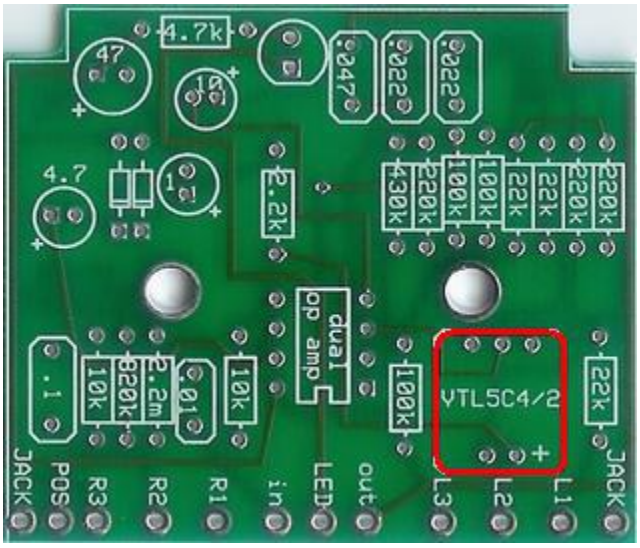
Step3: Add the Op Amp. Pin 1 of the op amp will go in the square solder pad. Pin 1 is sometimes denoted by a small dot on the top of the chip. Sometimes there will also be a U-shaped notch in one end. Match this notch up with the notch in the layout. Sometimes there is only one or the other, but if there are both markers, always defer to the U-shaped notch first.



Step 4: Add the aluminum electrolytic caps. These are polarized. The positive end will have a longer lead and goes in the square solder pad.

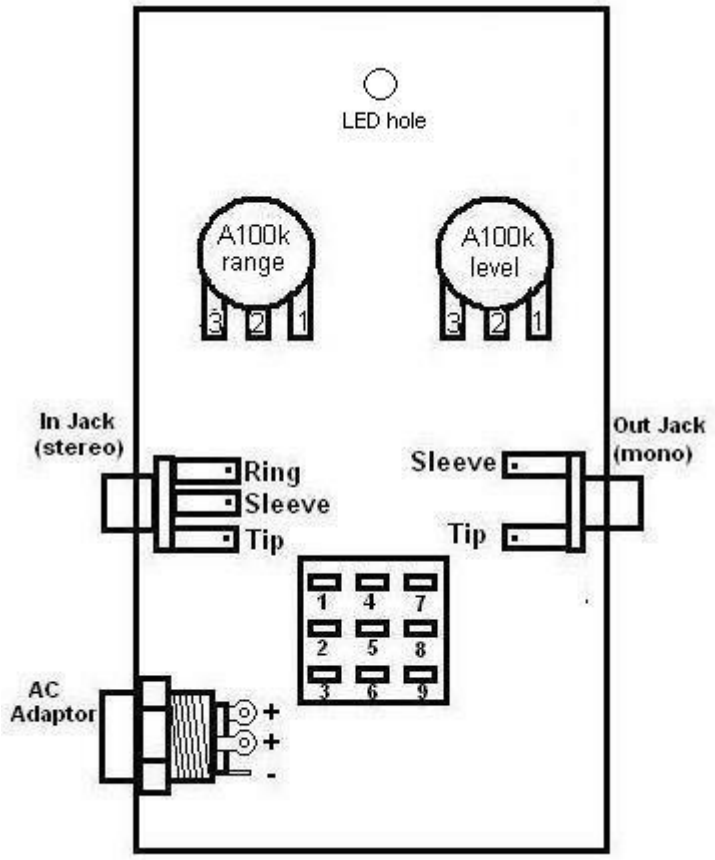


Step5: Add the film caps. These are not polarized and can go in either way.



Step6: Add the Opto-Coupler. It should be fairly obvious that the side with 3 leads goes in the side that has 3 solder pads and the side that has 2 leads goes in the side that has 2 solder pads. The writing on the opto-coupler should be facing up. The positive end will be marked with a "+" and should match up with the "+" on the layout.

Assembly



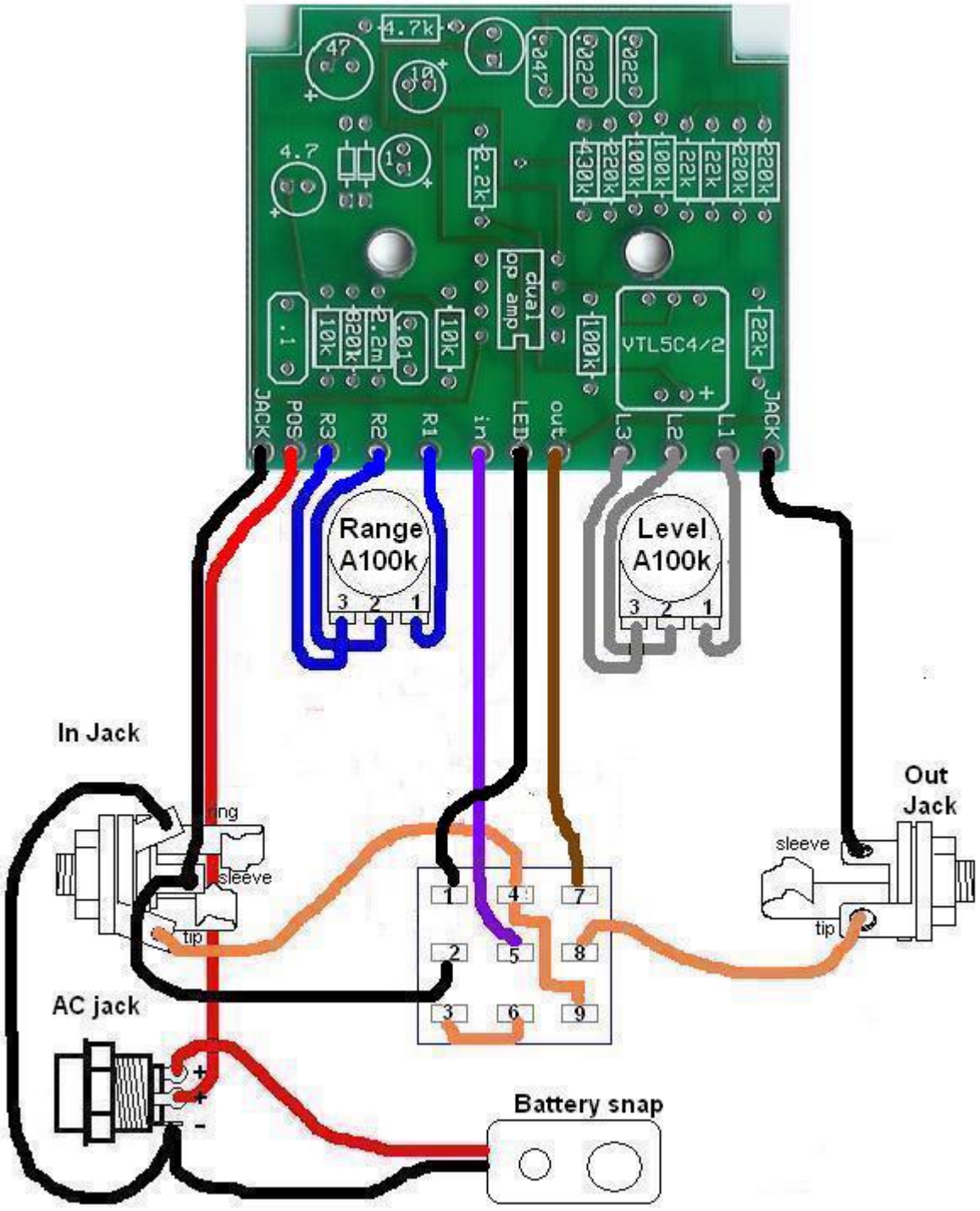
1. Install the jacks first. If you are looking down inside the enclosure, the mono jack goes on the right side and the stereo jack goes on the left. Place the washer on the outside of the enclosure. Use a 1/2" wrench to tighten.

2. Install the AC adaptor jack. The bolt goes on the inside. Use a 3/4" or 14mm wrench to tighten.

3. Install the potentiometers so that the solder lugs are pointing down. The washers go on the outside. Use a 10mm wrench to tighten but only snug. Do not over tighten the pots.

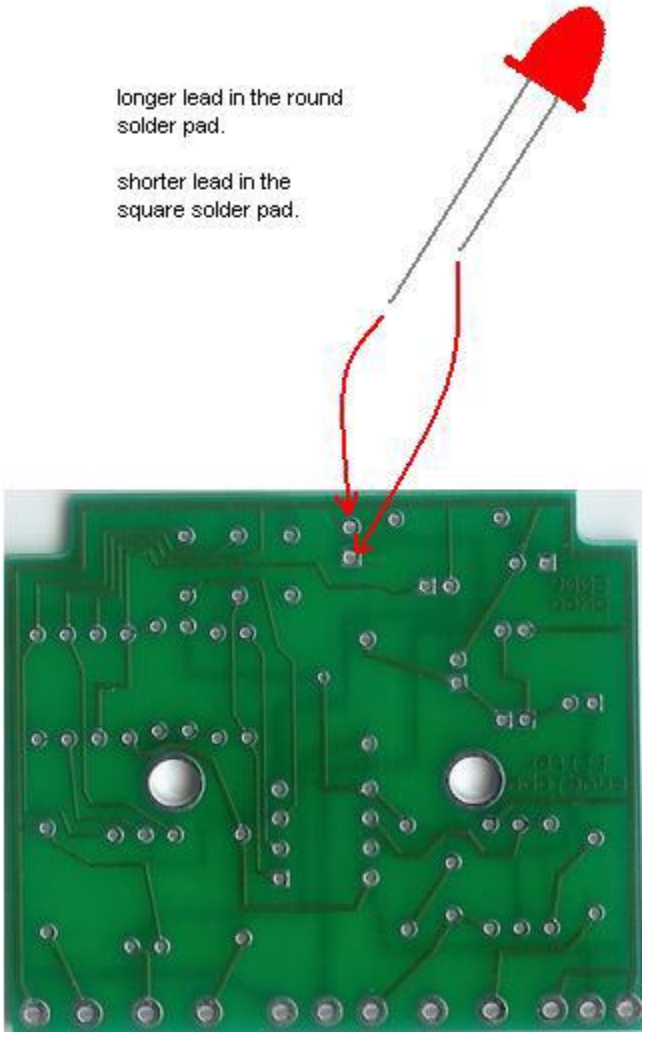
4. Install the footswitch. The first bolt and metal washer go inside. The plastic washer and second bolt go on the outside. It does not matter which side you designate as the "leading edge" of the footswitch as long as you orientate it so that the flat sides of the solder lugs are aligned in horizontal rows, not vertical columns.

BYOC Envelope Filter Layout



Installing the LED and Mounting the Circuit Board

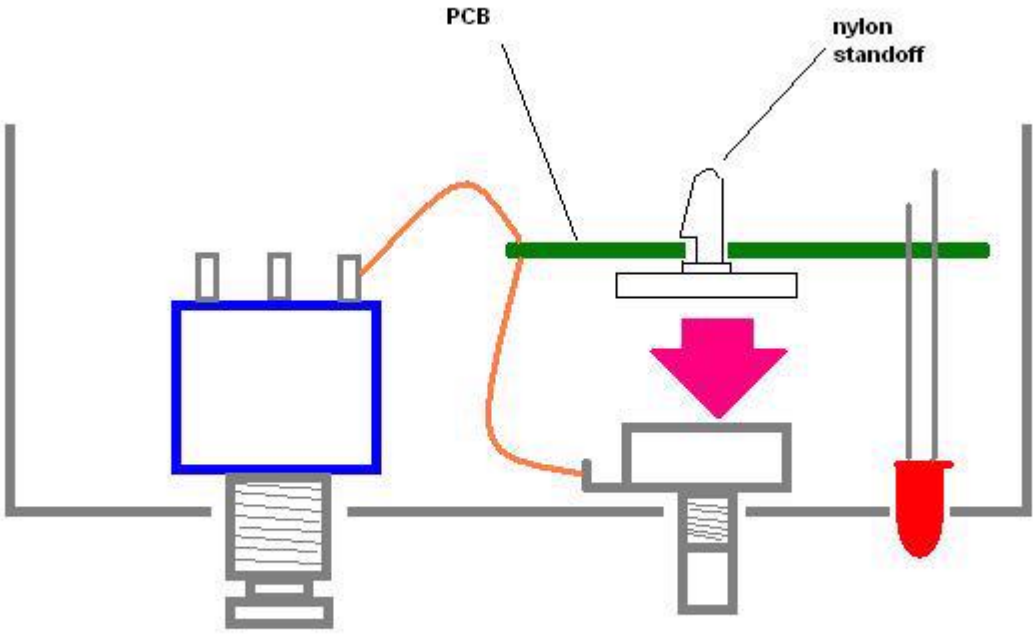
1. Insert the LED into its slot on the underside or solder side of the circuit board,but DO NOT SOLDER it yet. Make sure the anode(the long leg) goes in the round solder pad and the cathode(the short leg)goes in the square solder



2. Once you have the LED in place, bend the leads a little bit so that it will not fall out when you turn the PCB over
3. Install the nylon circuit board standoffs into the mounting holes.
4. Remove the paper backings on the standoff to expose the self-adhesive tape.
5. Insert the LED bulb into the LED hole in the enclosure.
6. Secure the Standoffs to the back of the potentiometers.

7. Your LED should still be free to move up and down slightly. You probably do not want your LED sticking all the way out of the hole. So pull up on the LED legs till you have it properly positioned and then solder.

8. Clip off the excess LED leg wire.



Finishing Touches

Install the base of the enclosure with the 4 screws that came with your kit. Add the rubber bumper feet...unless you're a velcro person. That's it. You're done. If you've got any problems that you can't figure out yourself, visit board.buildyourownclone.com for technical support.

Note that the “range” and “level” knobs don't really have much affect over their labelled parameters. This is just what DOD decided to call them. It's hard to give either one of the knobs on this pedal a specific name. They are both extremely interactive.

Here's a few quick trouble shooting tips for common problems:

1. NO SOUND AT ALL IN EITHER BYPASS OR “ON”. You have a problem with the wiring on your jacks and footswitch

2. BYPASS WORKS, BUT NO SOUND OR LED WHEN “ON”. You have a problem with your AC jack/battery wiring.

3. PEDAL WORKS BUT NO LED. Make sure you've got your LED in correctly.

4. BYPASS WORS AND LED COMES ON WHEN THE PEDAL IS “ON”, BUT NO WET SOUND. Most likely you did something wrong when populating the PCB. Double check your component placement and reflow your solder joints.