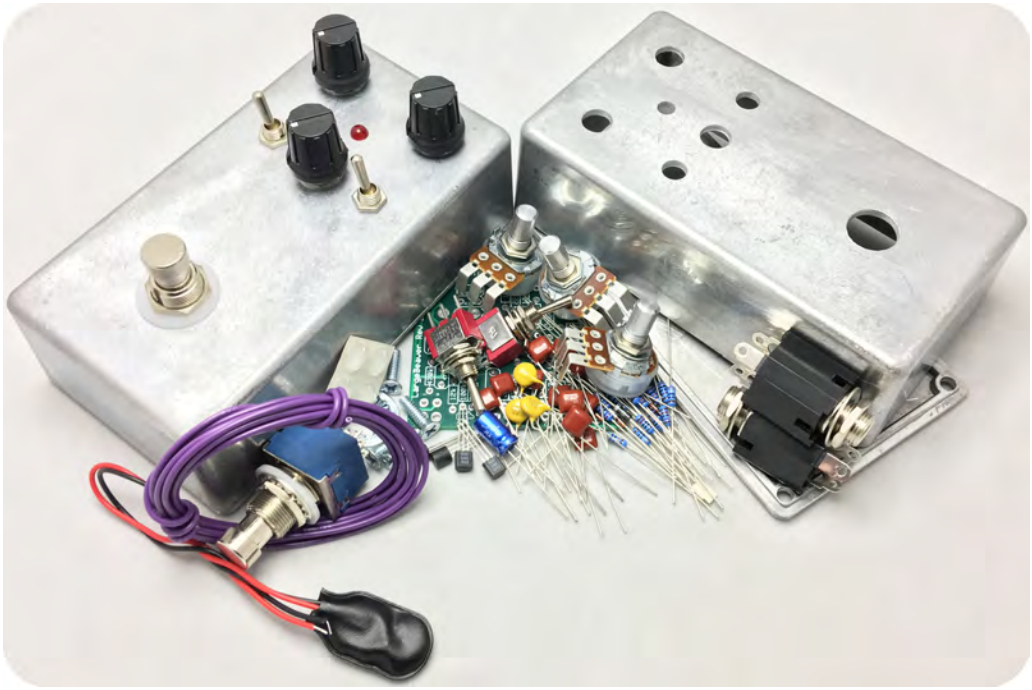
Build Your Own Clone
Large Beaver Triangle
Kit Instructions



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www.byocelectronics.com/board

When posting a tech support thread on the BYOC forum, please post it in the correct lounge, and please title your thread appropriately. If everyone titles their threads "HELP!" then it makes it impossible for the people who are helping you to keep track of your progress. A very brief description of your specific problem will do. It will also make it easier to see if someone else is having or has had the same problem as you. The question you are about to ask may already be answered. Here is a list of things that you should include in the body of your tech support thread:

1. A detailed explanation of what the problem is. (more than, "It doesn't work, help")
2. Pic of the topside of your PCB.
3. Pic of the underside of your PCB.
4. Pic that clearly shows your footswitch/jack wiring and the wires going to the PCB
5. A pic that clearly shows your wiring going from the PCB to the pots and any other switches(only if your kit has non-PC mounted pots and switches)
6. Is bypass working?
7. Does the LED come on?
8. If you answered yes to 6 and 7, what does the pedal do when it is in the "on" position?
9. Battery or adapter (if battery, is it good? If adapter, what type?)

Also, please only post photos that are in focus.

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Parts Checklist for the Large Beaver Triangle Kit

Resistors

3 – 150 Ohm	(Brown/Green/Black/Black/Brown) or (Brown/Green/Brown/Gold)
1 - 820 Ohm	(Gray/Red/Black/Black/Brown) or (Gray/Red/Brown/Gold)
1 - 2k7	(Red/Purple/Black/Brown/Brown) or (Red/Purple/Red/Gold)
1 - 4k7	(Yellow/Purple/Black/Brown/Brown) or (Yellow/Purple/Red/Gold)
2 - 8k2	(Gray/Red/Black/Brown/Brown) or (Gray/Red/Red/Gold)
3 - 12k	(Brown/Red/Black/Red/Brown) or (Brown/Red/Orange/Gold)
1 - 15k	(Brown/Green/Black/Red/Brown) or (Brown/ Green/Orange/Gold)
3 - 33k	(Orange/Orange/Black/Red/Brown) or (Orange/Orange/Orange/Gold)
4 - 100k	(Brown/Black/Black/Orange/Brown) or (Brown/Black/Yellow/Gold)
5 - 470k	(Yellow/Purple/Black/Orange/Brown) or (Yellow/Purple/Yellow/Gold)

Visit www.byocelectronics.com/resistorcodes.pdf for more information on how to differentiate resistors.

Capacitors:

3 - 470pF Ceramic Disc capacitor (round yellow or orange with '471' on the body)
1 - 3n9/.0039uF Film cap ("392" on the body)
1 - 8n2/.0082uF Film cap ("822" on the body)
1 - 10n/.01uF Film cap ("103" on the body)
3 - 47n/ .047uF Film cap ("473" on the body)
6 - 100n/.1uF Film Cap ("104" on the body)
1 - 100uF Aluminum Electrolytic
Visit www.byocelectronics.com/capcodes.pdf for more info on how to differentiate capacitors.

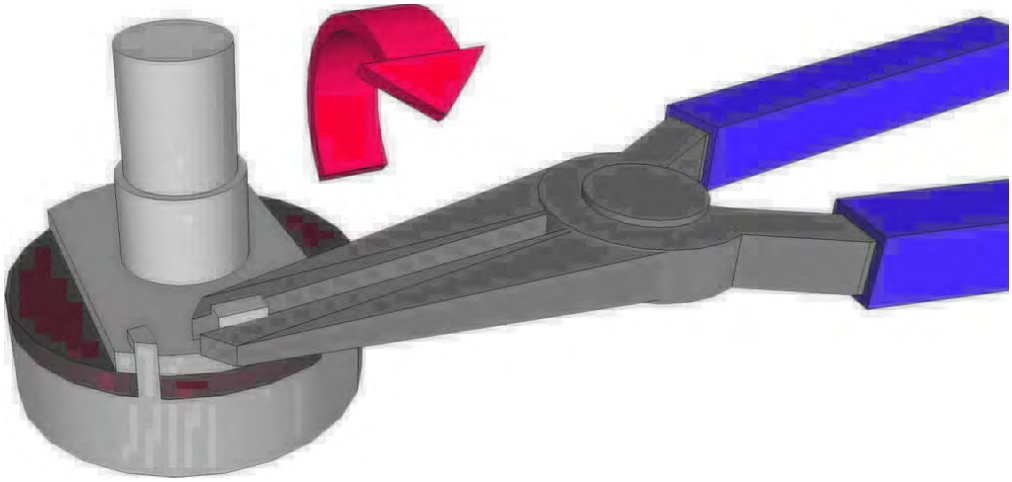
Diodes:

1 - 1N4001
4 - 1N4148 or 1N914

Transistors:

4 - 2N5133

Potentiometers: SNAP THE SMALL TABS ON THE TOP OF THE POTS OFF WITH A PAIR OF NEEDLE NOSE PLIERS

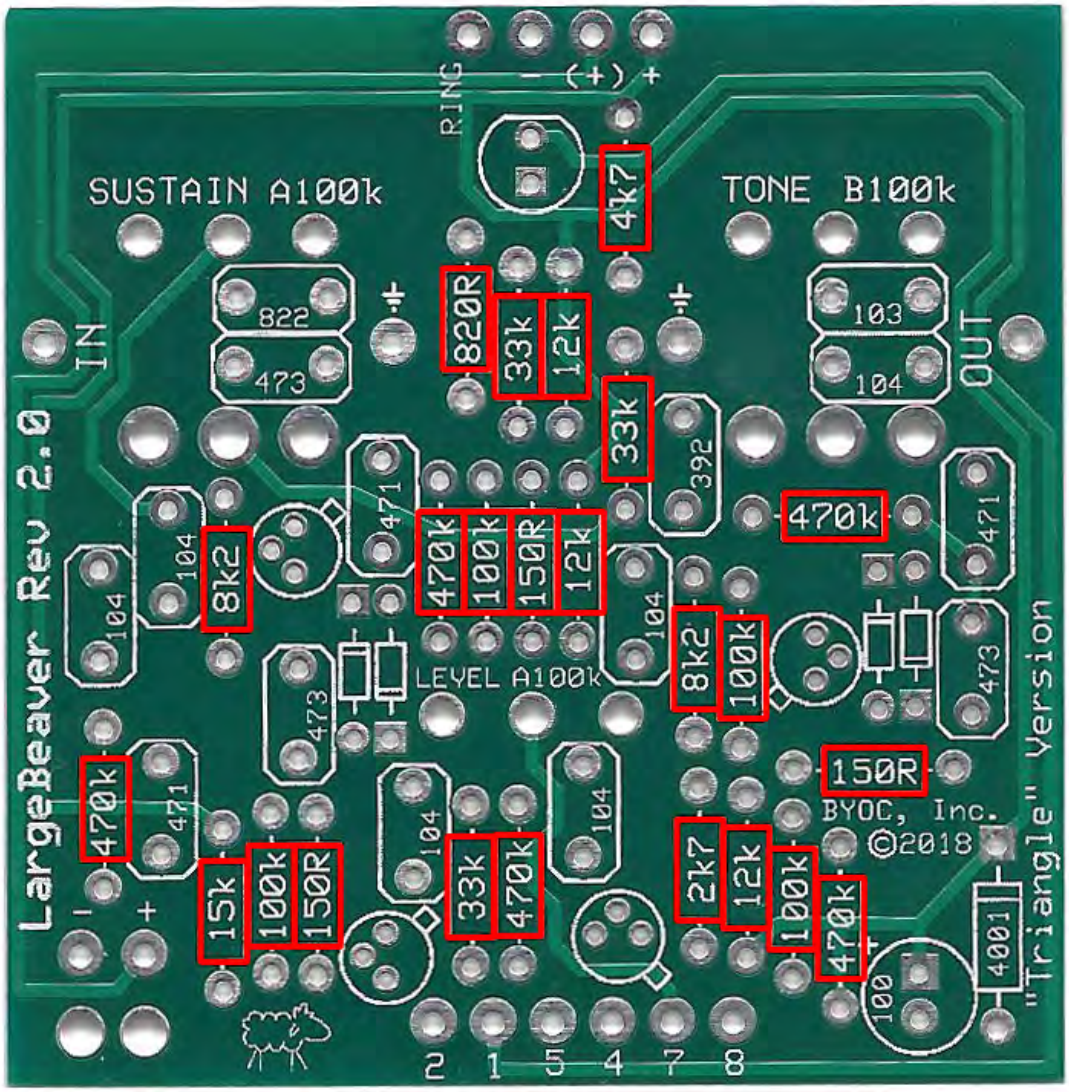


2 - A100k (SUSTAIN, VOLUME)
1 - B100K (TONE)

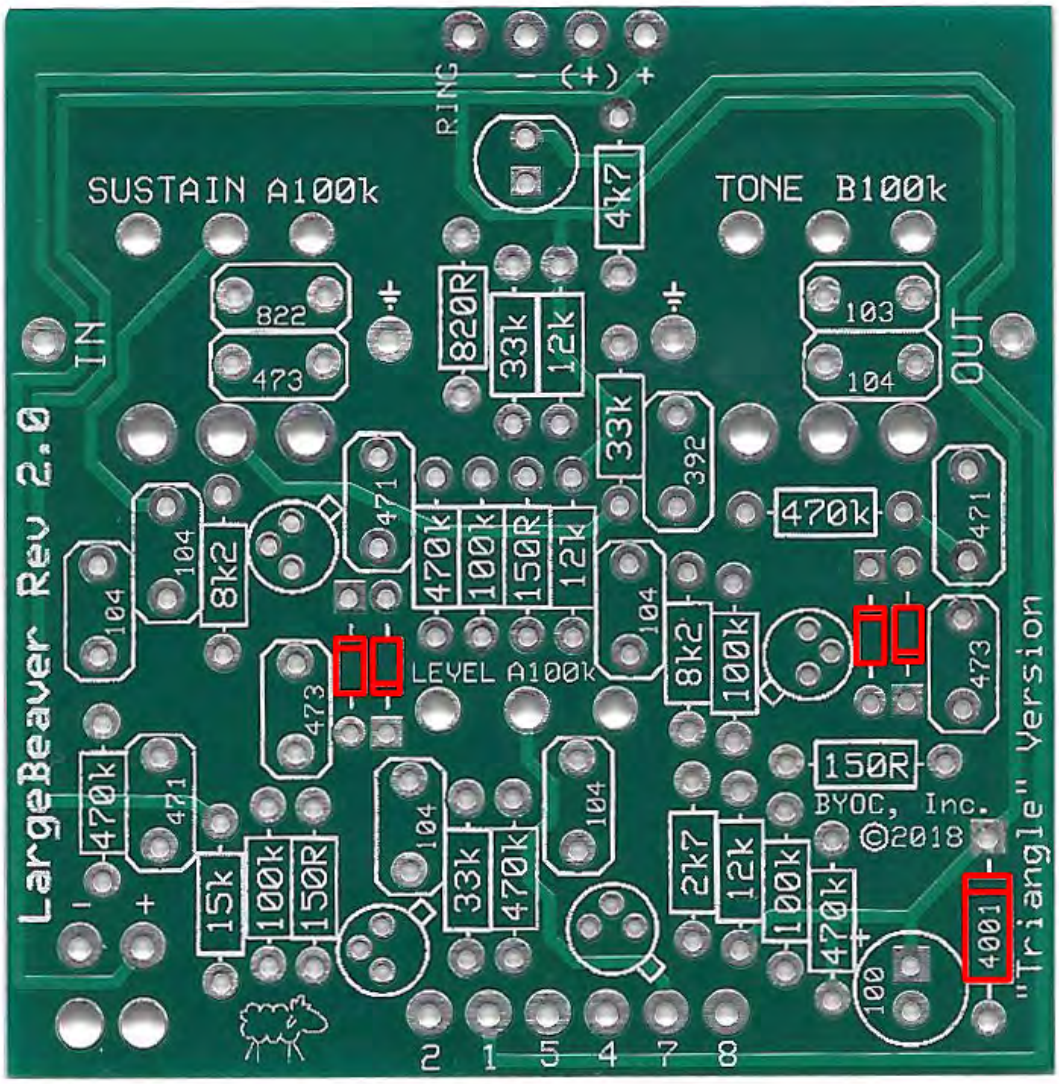
Hardware:
1 - predrilled enclosure w/ 4 screws
1 - Large Beaver Triangle PCB
1 - 3pdt footswitch
1 - SPDT On-On Toggle Switch
1 - SPDT On-Off-On Toggle Switch
2 - Enclosed Audio Jacks
1 - Battery Snap
4 - rubber bumpers
2 - lock washers (for in and out jacks)
hook-up wire

Populating the Circuit Board

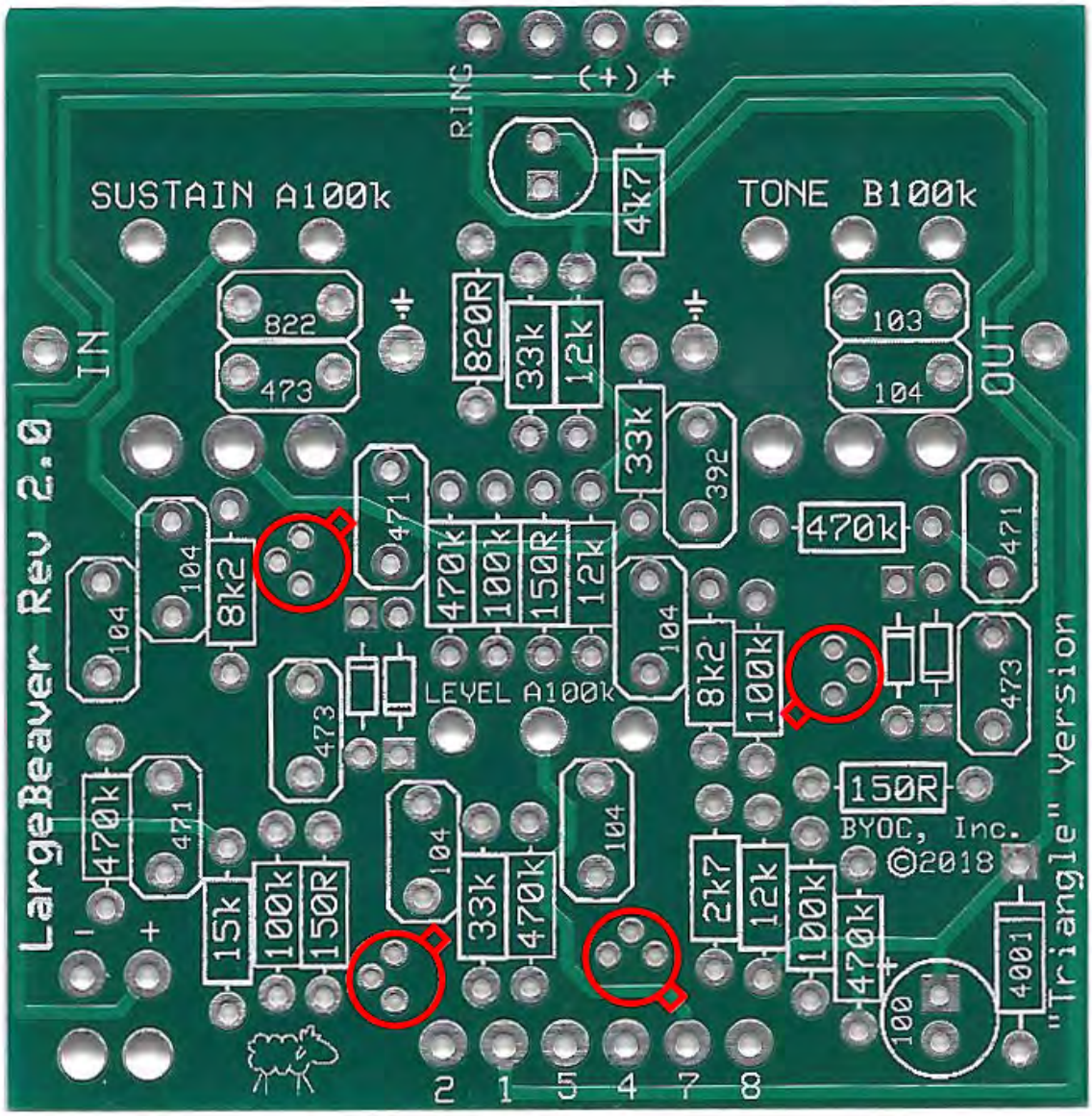
Step 1: Add all the resistors. Resistors are not polarized and can be inserted in either direction.



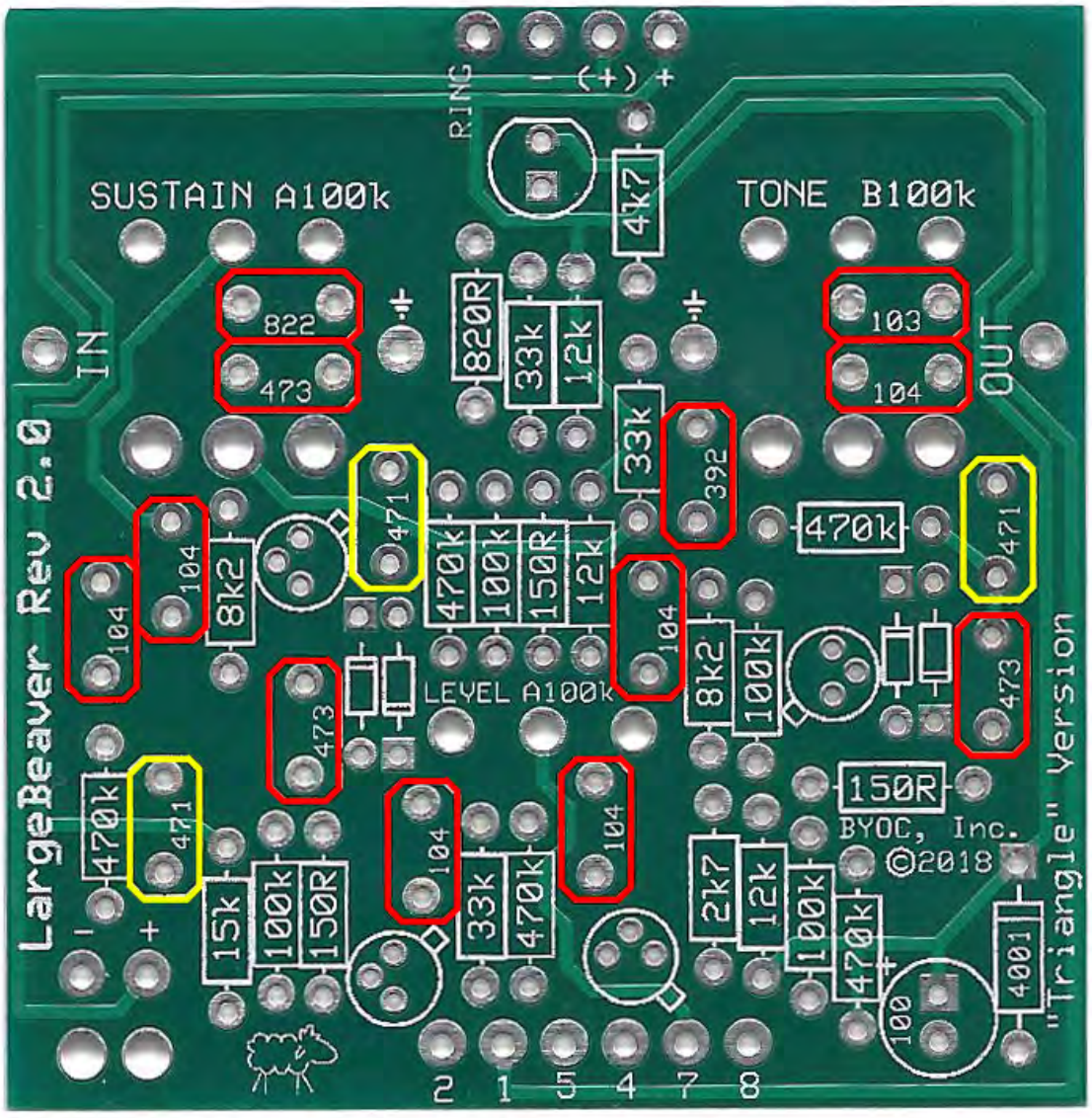
Step 2: Add the diodes. Be sure to match the end of the diodes with the stripe to the layout on the PCB. The striped end should go in the square solder pad.



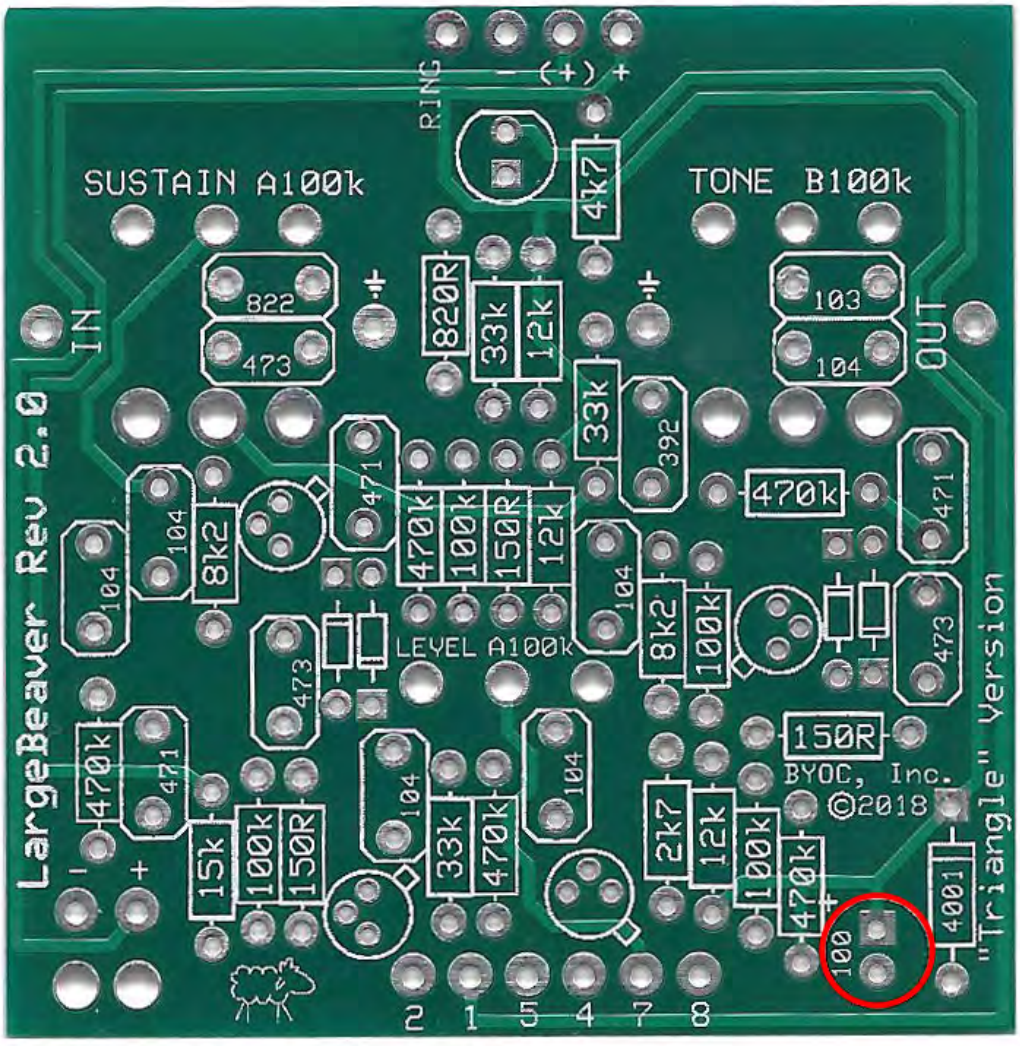
Step 2: Add the transistors. Orient them so that the tab on the transistors matches up with the tab on the PCB layout.



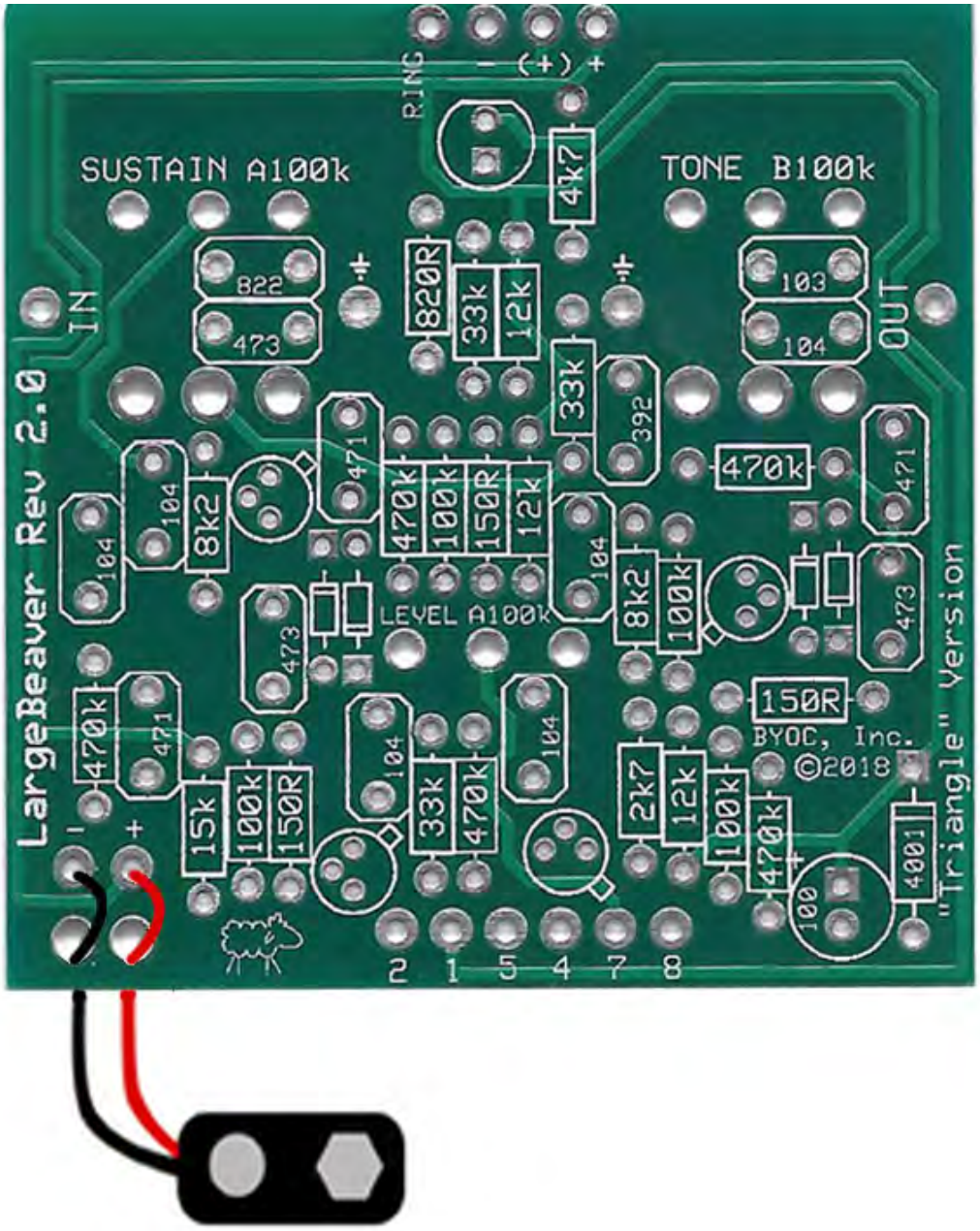
Step 3: Add the film and ceramic disc capacitors. These are not polarized and can go in either orientation. The capacitors highlighted in yellow are the ceramic disc capacitors.



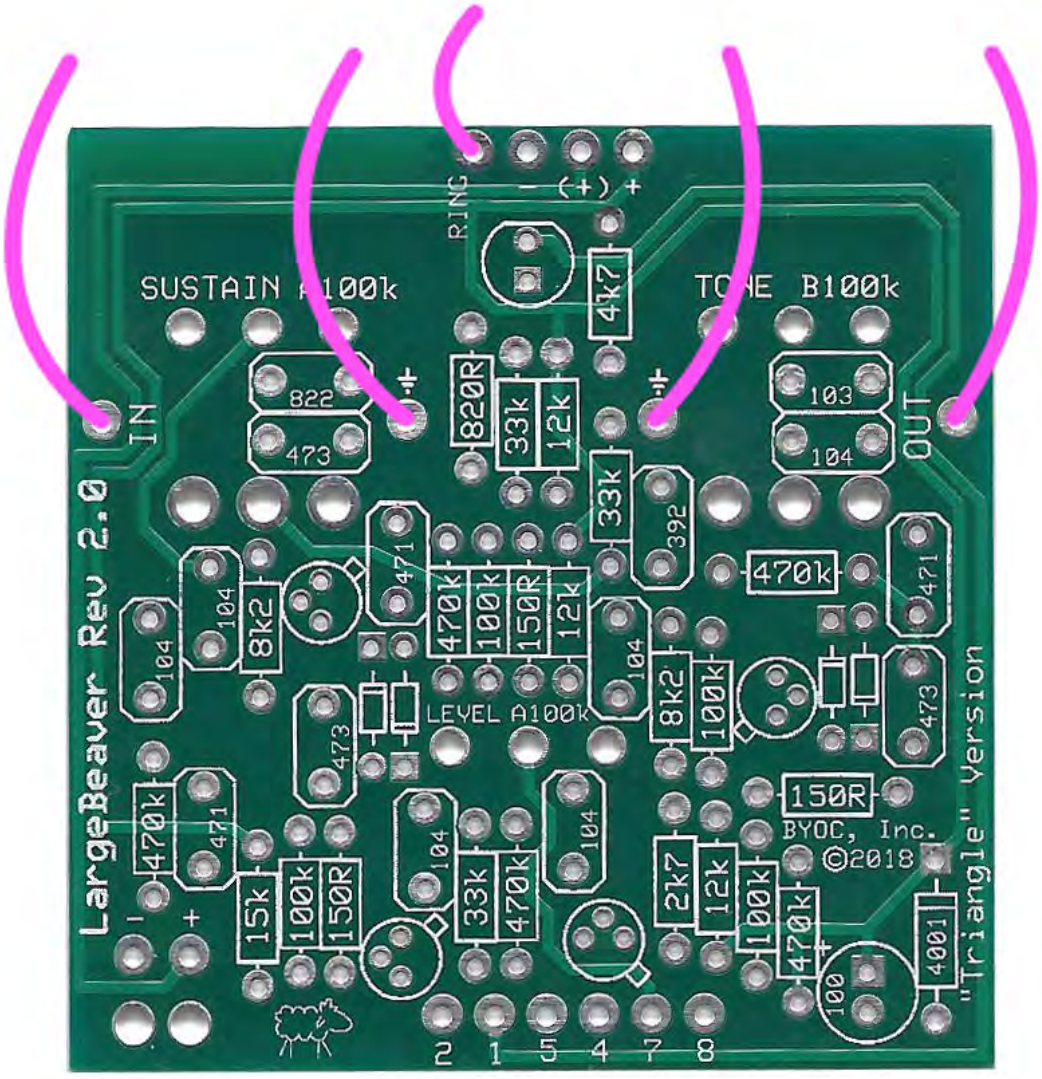
Step 4: Add the aluminum electrolytic capacitor. These ARE polarized, meaning there is a positive and negative end. The positive side will have a longer lead and goes in the square solder pad. The negative side will have a shorter lead and a stripe running along the body of the cap, and goes in the round solder pad



Step 5: Add the battery snap. Thread the leads into the strain relief holes first through the bottom side of the PCB. Then insert the leads into their respective solder pad hole on the top side of the PCB. The red lead goes in the + hole and the black lead goes in the – hole.

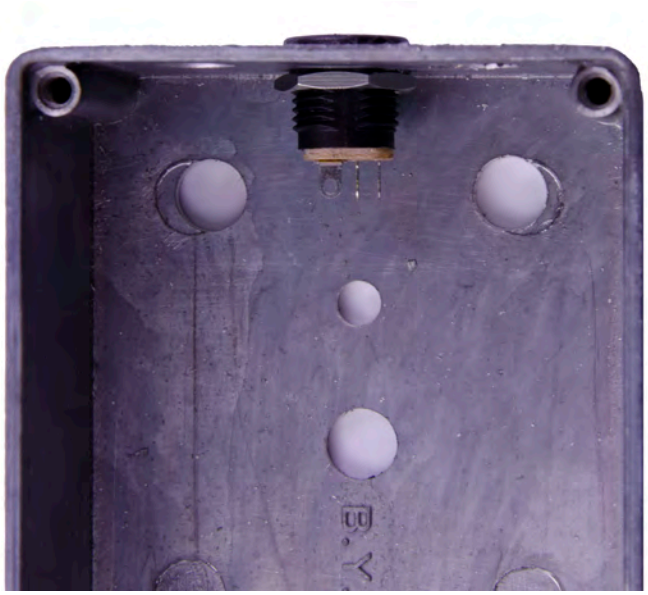


Step 6: Add wires to the IN, OUT, LED, POS, and the Ground eyelet located in the top of the board. . Start by cutting 4 3.5” pieces of wire. Strip 1/4” off each end and tin the ends. Tinning means to apply some solder to the stripped ends of the wires. This keeps the strands from fraying and primes the wire for soldering. Load the wires in from the top and solder on the bottom of the PCB.

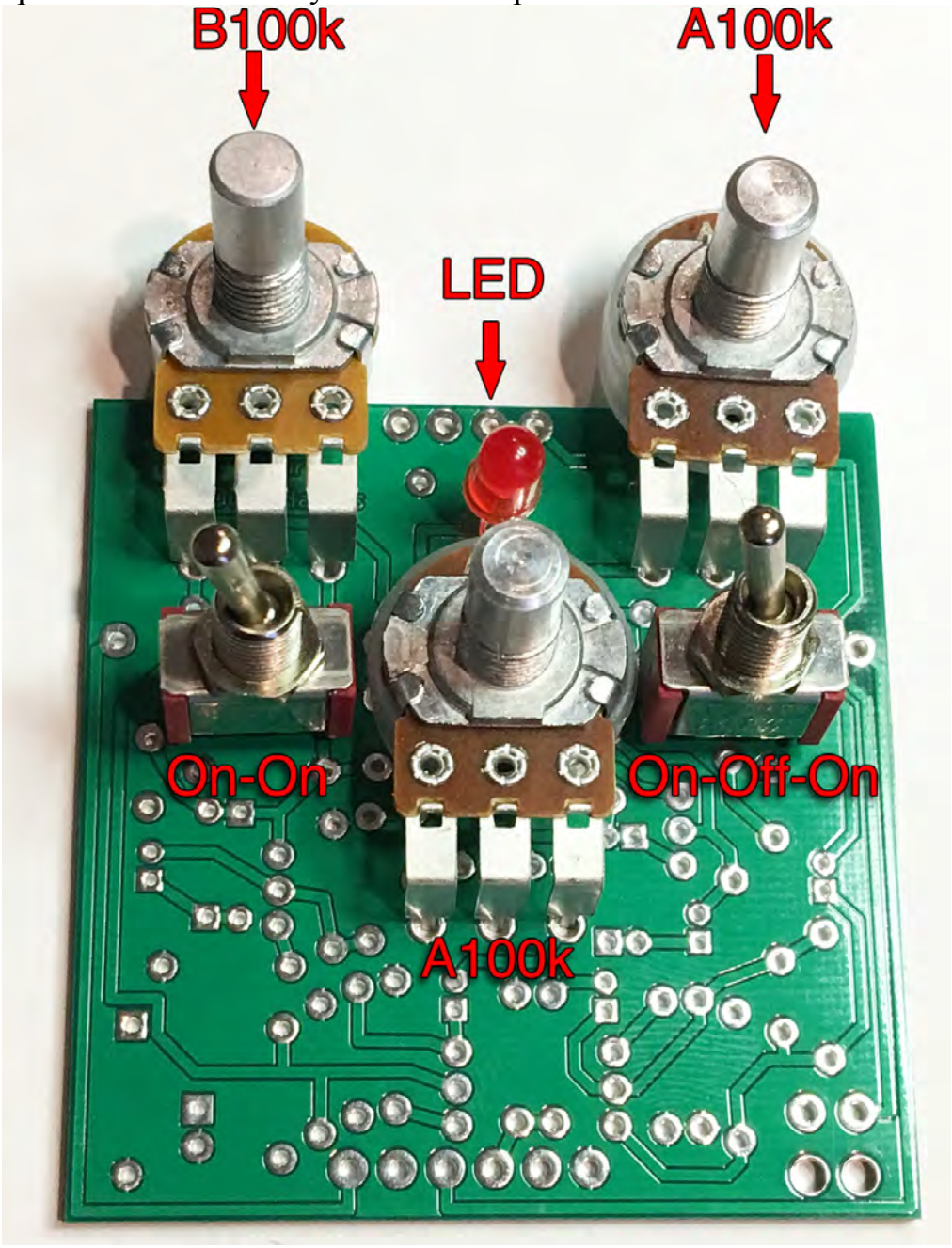


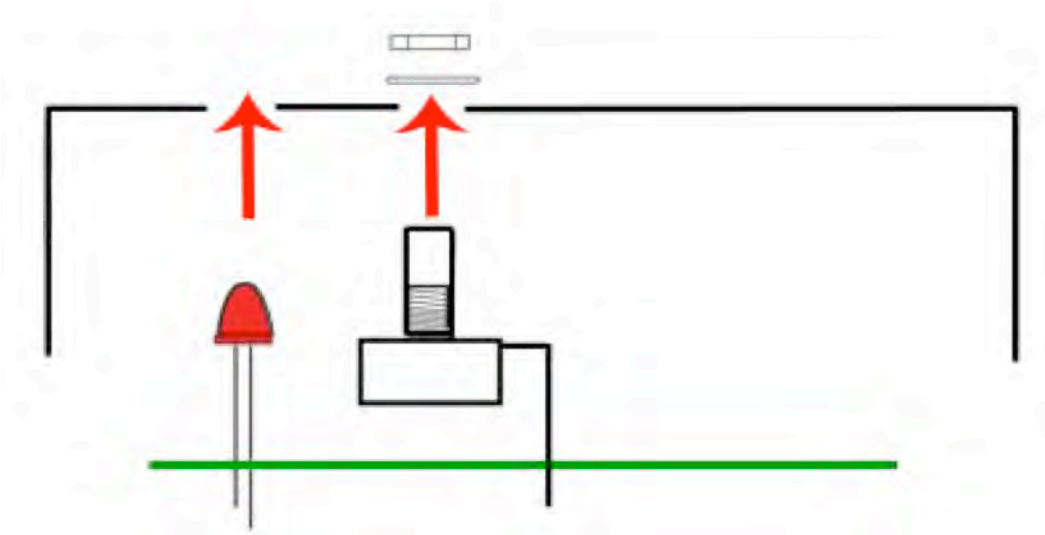
Main PCB Assembly

Step 1: Mount the DC adapter jack to the enclosure. Your kit may come with either an external thread or internal thread. Don't get confused by this. They still function exactly the same. You just thread the external nut on the outside and the internal nut on the inside. The picture below is of an internal nut jack.



Step 2: Flip the PCB over so that the bottom or solder side is up. Insert the three potentiometers, and the LED into the bottom side of the PCB. DO NOT SOLDER ANYTHING YET!!! The LED will have one lead that is longer than the other. THIS WILL GO INTO THE SQUARE SOLDER HOLE. Don't forget to remove the nuts and washers from the pots and also to snap off the tabs before you do this step.

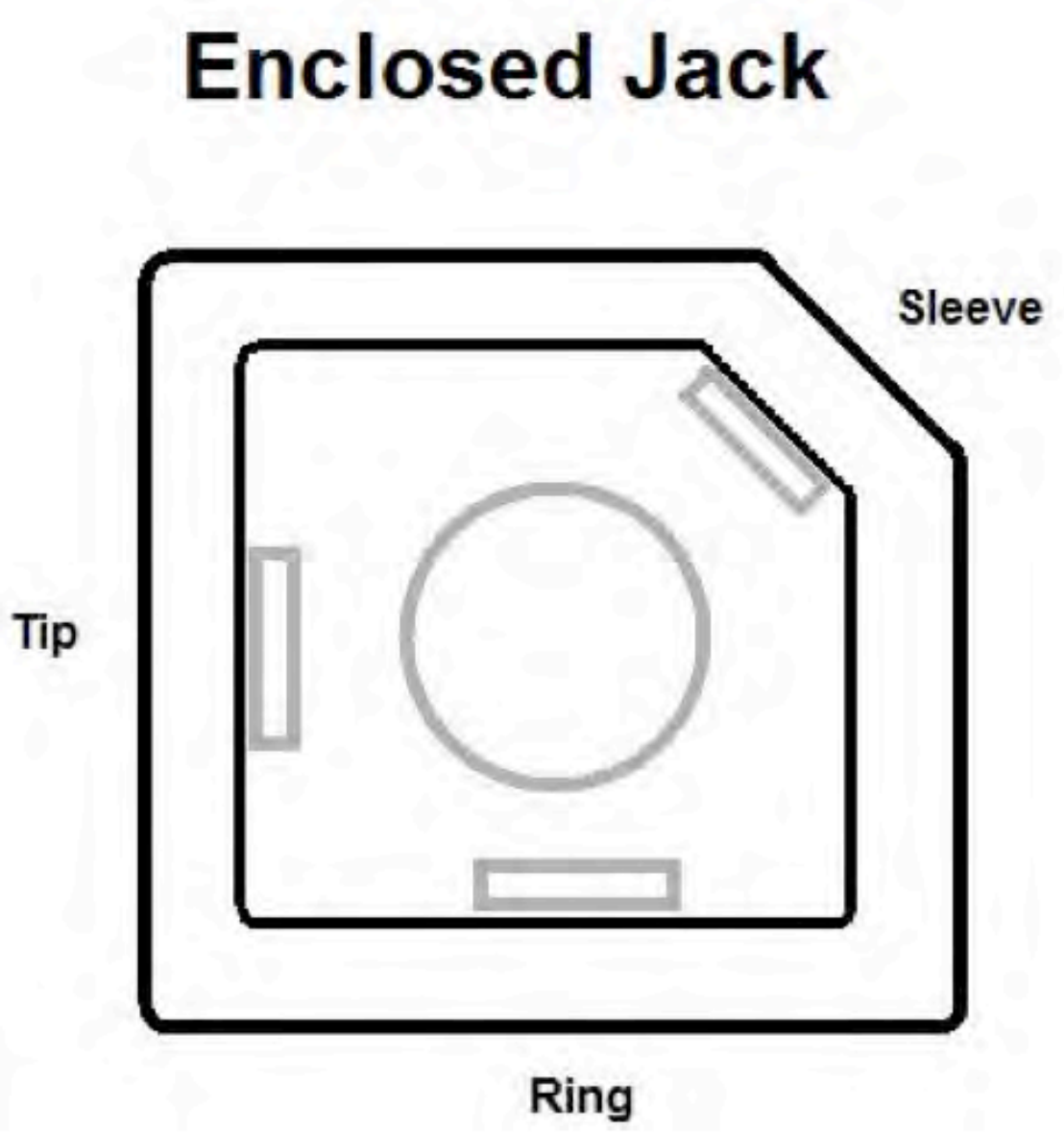




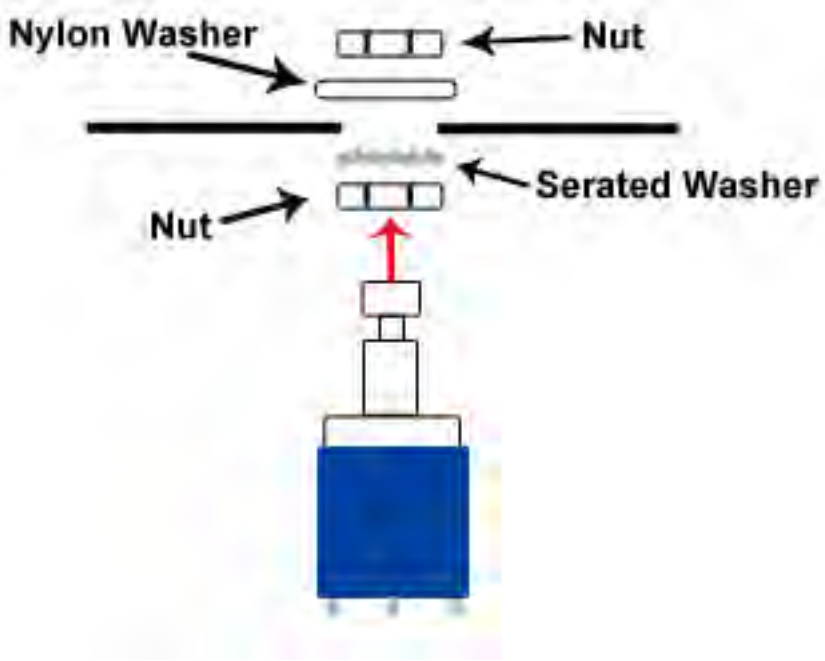
Step 3: Hold the PCB in one hand so that the component side of the PCB is in the palm of your hand and the bottom side with the pots and LED are facing up. Now use your other hand to guide the predrilled enclosure onto the PCB assembly so that the pots and LED all go into their respective holes. Once the PCB assembly is in place, secure it by screwing on the washers and nuts for the pots. Only tighten them with your fingers. You do not want them very tight yet. Make sure you've removed the nuts and washers from the pots and that you've also snapped the tabs off the pots as well before installing.

Step 4: Turn the entire pedal over so that the component side of the PCB is facing up. Lift the PCB up off the pots about 2mm just to make sure that the back of the PCB does not short out against the pots. Make sure the PCB is level and symmetrically seated inside the enclosure.

Step 5: Solder the pots and LED. You will solder these parts on the component side of the PCB. After you have soldered them in place, be sure to tighten up their nuts. Be careful not to burn any of the components on the PCB. If you do, it won't harm anything, but it will look ugly.

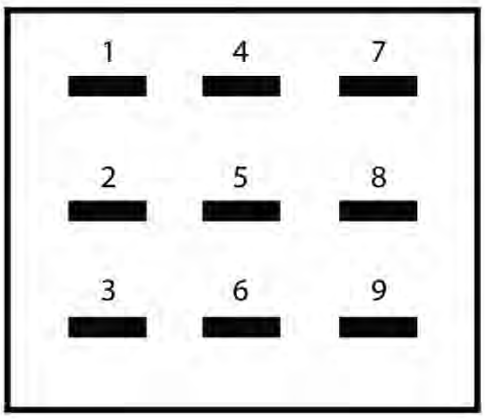


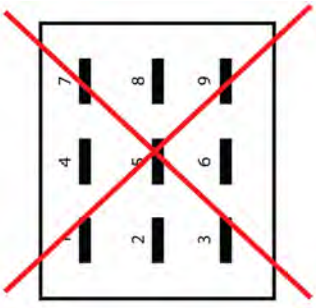
Step 2: Install the 1/4” enclosed jacks to the enclosure.



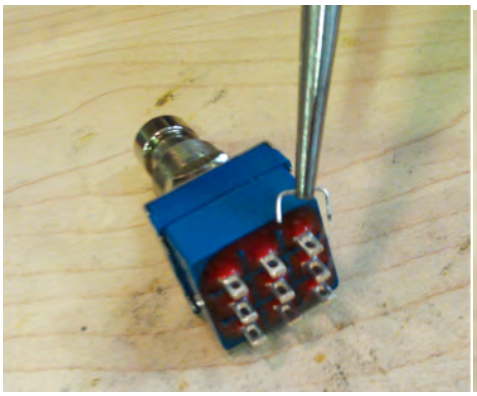
Step 3: Install the footswitch. Orient the footswitch so that the flat sides of the solder lugs are like the diagram below.
NOTE: There are no actual number markings on the footswitch. There are two correct ways you can orient the footswitch. They are both 180 degrees of each other. Either way is fine. It does not matter as long as the flat sides of the solder lugs are running horizontal, not vertical.

FOOT SWITCH SOLDER LUG DESIGNATIONS

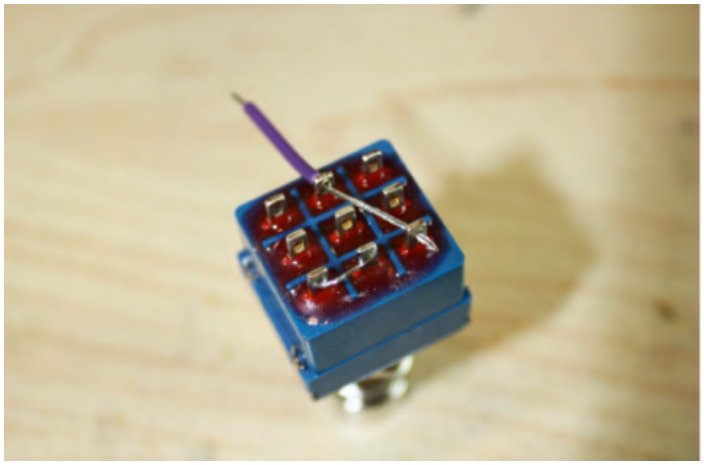




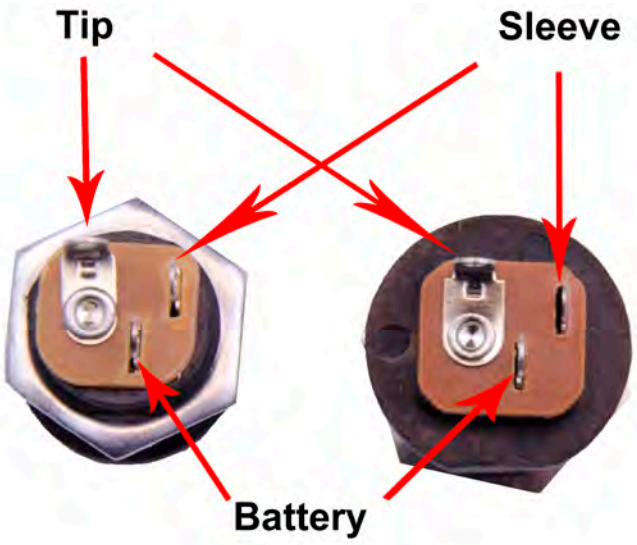
Step 3a: Make a jumper between lugs 3 & 6 from clippings from the resistors. Simply use your needle nose pliers to make a U shape & insert into lugs 3 & 6, then solder.



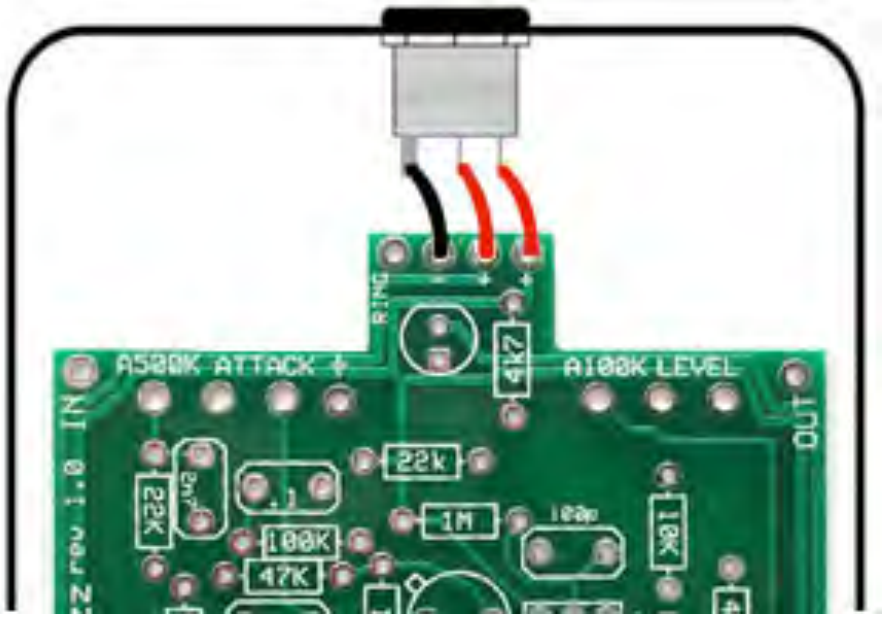
Step 3b: Connect a wire to LUG 4 that also jumpers to LUG9. Strip about 1" off one end. Make sure there is enough insulated wire to make the connection to the TIP of the in jack. Carefully tin the stripped end. You may want to twist the wire strands together tightly before tinning. Thread the stripped end through LUGs 4 and 9. This can be a little tricky. If this part is too frustrating for you, you can just run a separate wire to connect LUGs 4 and 9. Just be sure to solder the two wires at LUG 4 at the same time so you only need to make one solder joint.



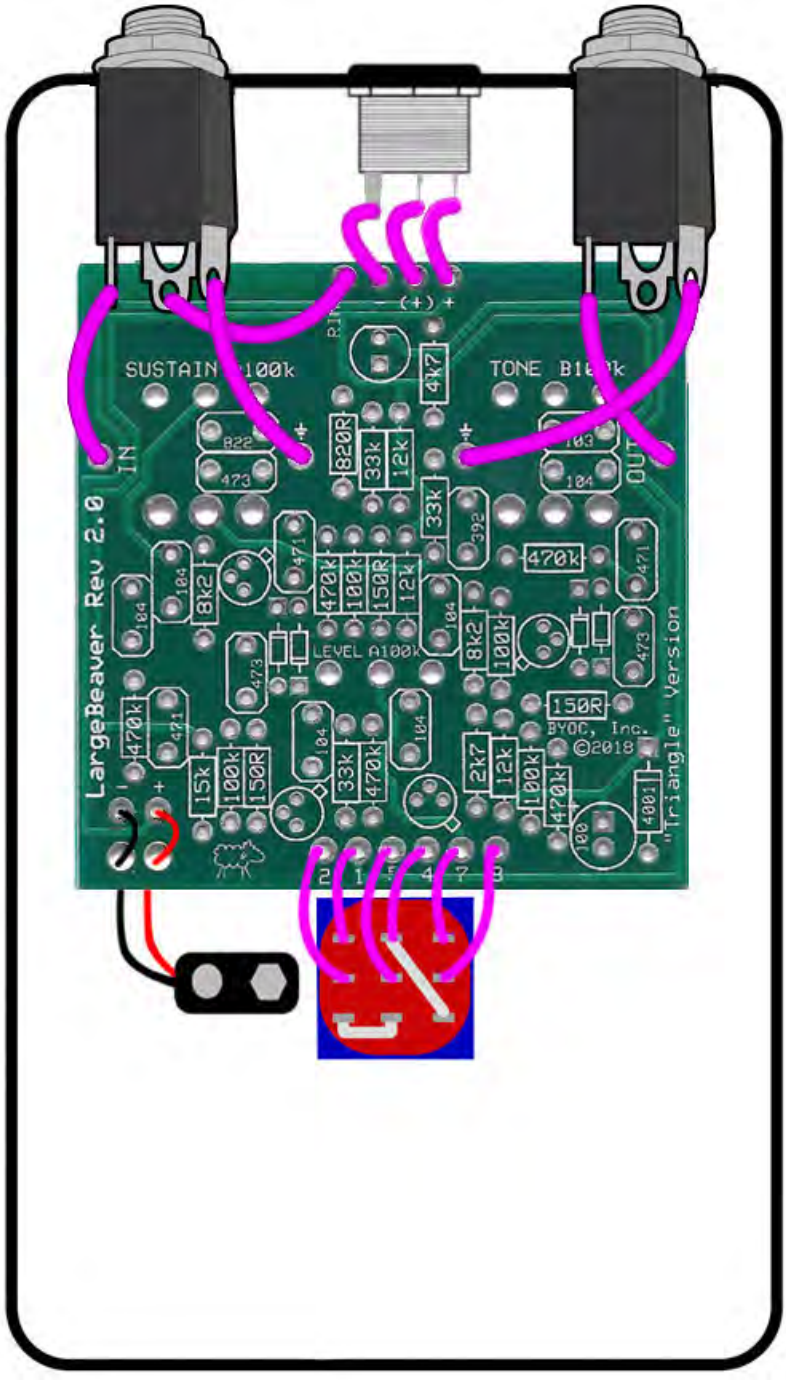
Wiring



Step 1: Connect the TIP (negative) terminal of the DC adapter jack to the eyelet on the PCB labeled “-“. Connect the SLEEVE of the DC adapter jack to the eyelet on the PCB labeled “+” farthest to the right. Connect the battery disconnect terminal of the DC adapter jack to the second eyelet on the PCB labeled “+” located in the middle of the other two eyelets .

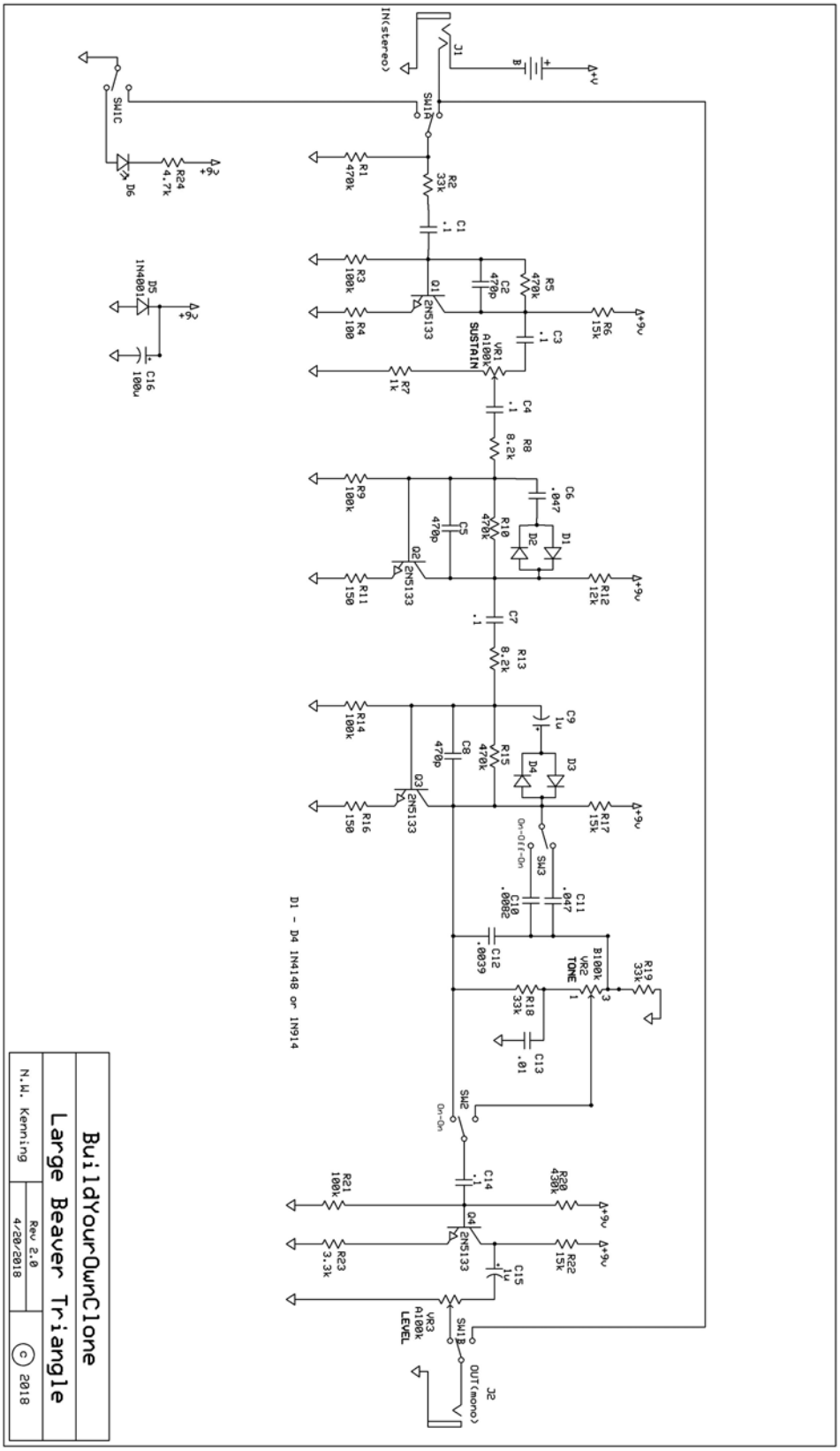


Step 2: Wire the PCB to the foot switch and jacks as shown.



Operating Overview

Volume: Controls the overall output level.
Tone: Controls the tone.
Sustain: Controls the amount of distortion.
Tone Toggle (right toggle switch): Selects between a mid flat, mid scoop, or mid hump EQ.
Tone Bypass Toggle (left toggle switch): This either activates the tone bypass (on) which deactivates the tone knob and Tone Toggle switch, or deactivates it (off) and allows you to select your mids, and use the tone knob.
Power supply: 9V battery or 2.1mm negative tip.



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