

# Build Your Own Clone Li'l Fuzz Kit Instructions



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That being said, we will do our best to help you as much as we can. Our philosophy at BYOC is that we will help you only as much as you are willing to help yourself. We have a wonderful and friendly DIY discussion forum with an entire section devoted to the technical support and modifications of BYOC kits.

[www.byoelectronics.com/board](http://www.byoelectronics.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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# **Li'l Fuzz**

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## Parts Checklist for the Li'l Fuzz Kit

### Resistors:

- 1 - 330ohm (Orange/Orange/Black/Black/Brown)
- 1 - 4k7 (Yellow/Purple/Black/Brown/Brown)
- 1 - 33k (Orange/Orange/Black/Red/Brown)
- 1 - 100k (Brown/Black/Black/Orange/Brown)
- 1 - 1M (Brown/Black/Black/Yellow/Brown)

Visit [www.byocelectronics.com/resistorcodes.pdf](http://www.byocelectronics.com/resistorcodes.pdf) for more information on how to differentiate resistors.

### Capacitors:

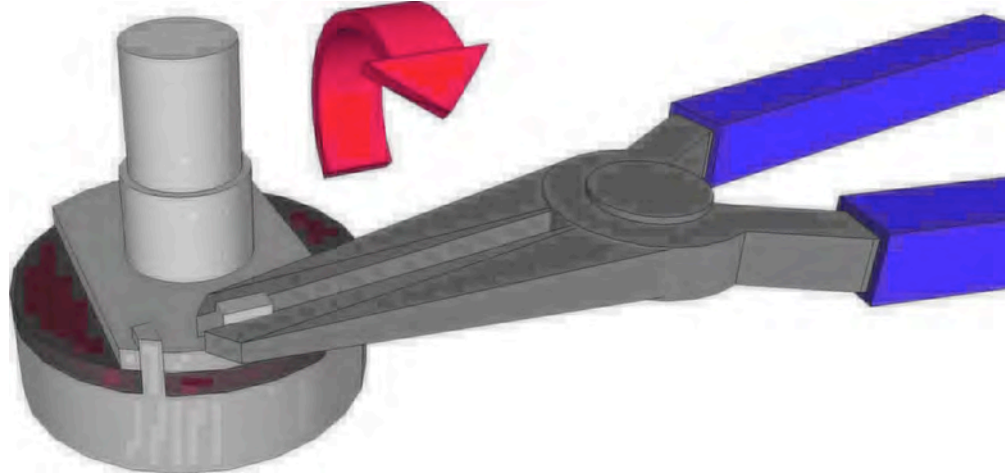
- 1 - 150p Ceramic Disc
- 1 - 10n/ .01uF film cap (may say "103" on the body)
- 1 - 2.2uF Aluminum Electrolytic
- 1 - 22uF Aluminum Electrolytic

Visit [www.byocelectronics.com/capcodes.pdf](http://www.byocelectronics.com/capcodes.pdf) for more info on how to differentiate capacitors.

### Transistors:

- 2 - BC108

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



- 1 - A100k (Vol.)
- 1 - C1k (FUZZ)
- 1 - 25k Trimpot

**Hardware:**

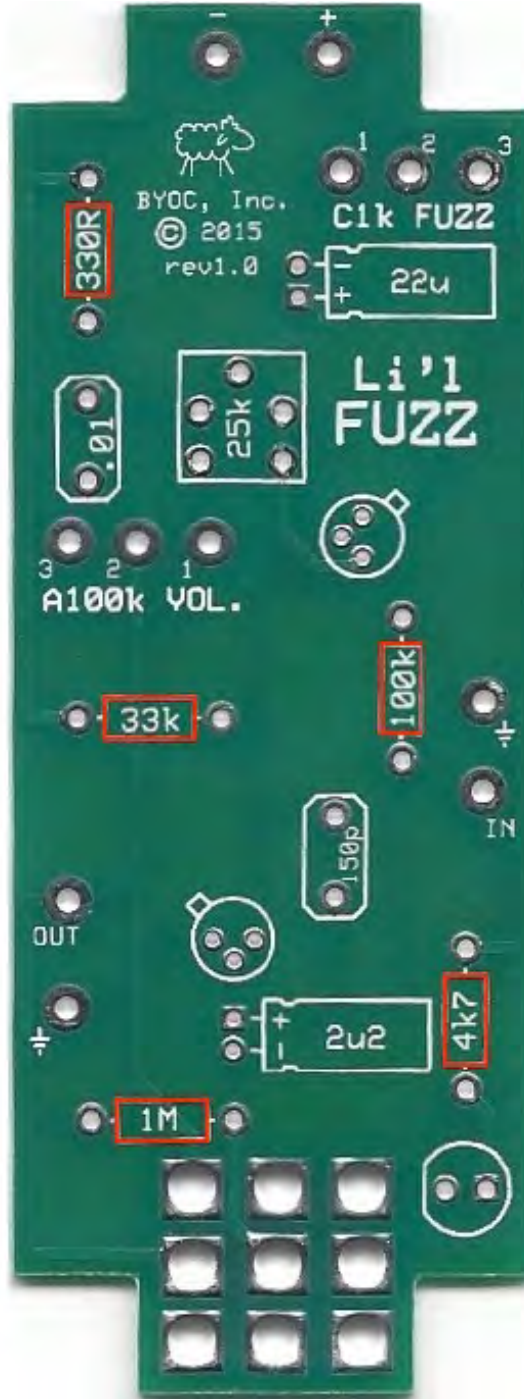
- 1 - predrilled enclosure w/ 4 screws
- 1 - Li'l Fuzz PCB
- 1 - 3pdt footswitch
- 1 - LED
- 1 - External Nut AC Jack
- 2 - enclosed Jacks
- 4 - rubber bumpers
- 2 - lock washers (for in and out jacks)
- hook-up wire



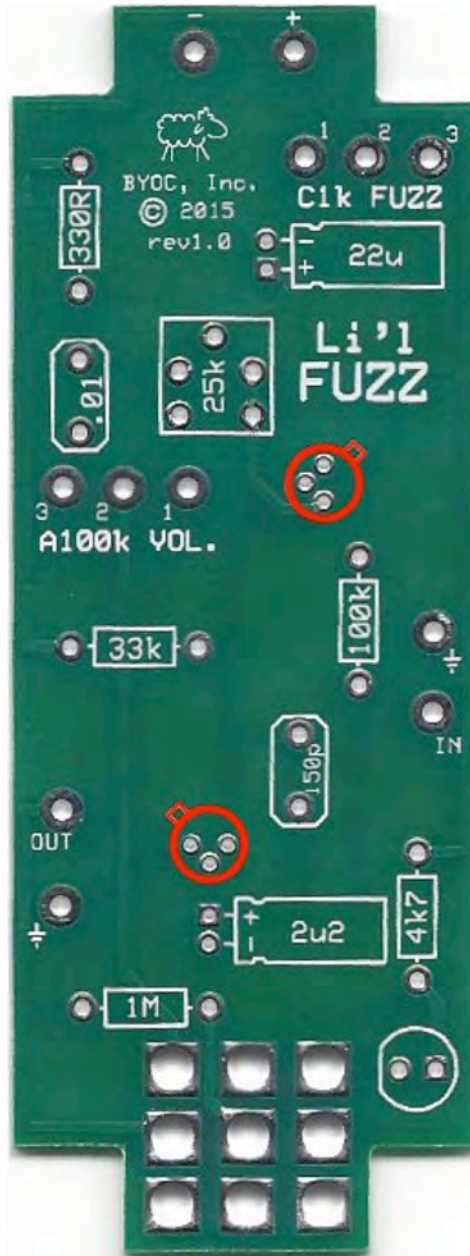
**Your build should look something like this when you're done.**

# Populating the Circuit Board

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

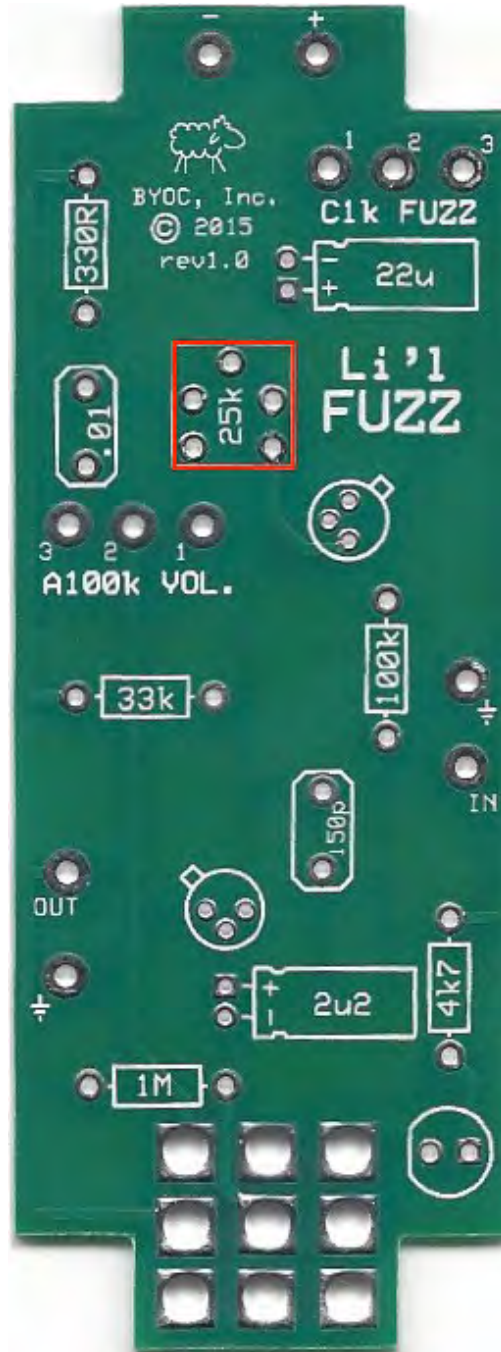


**Step 2:** Add the transistors. Be sure to align the tab on the body of the transistor with the tab outline on the screenprint.

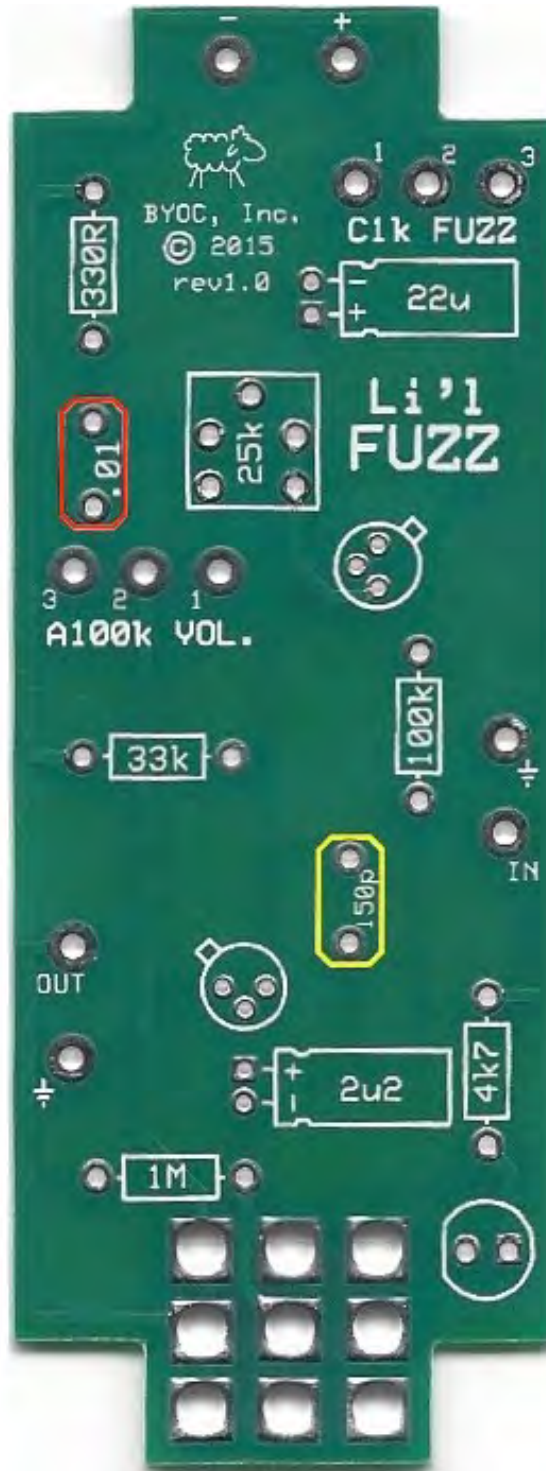




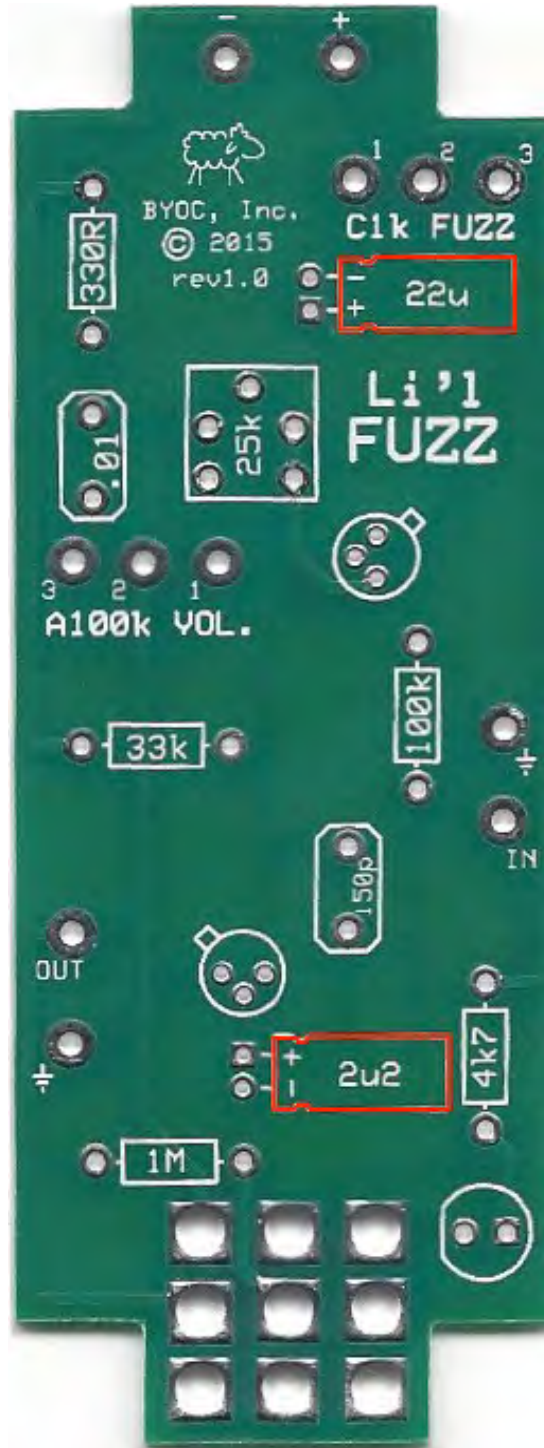
**Step 3:** Add the trimpot. A trimpot only has 3 legs. Your PCB has 5. This is so that the PCB can accommodate a variety of different brands of trimpot. Don't let this confuse you. There is only 1 way your trimpot can fit in the PCB.



**Step 4:** Add the film and ceramic disc capacitors. These are non-polarized and can go in either direction. The film caps are highlighted in red; the ceramic disc caps are highlighted in yellow. Leave the ceramic disc capacitor sticking out just a little bit so you can bend it down flat against the PCB.



**Step 5:** Add the aluminum electrolytic capacitors. 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. Before soldering, bend the capacitor so it is laying down like below

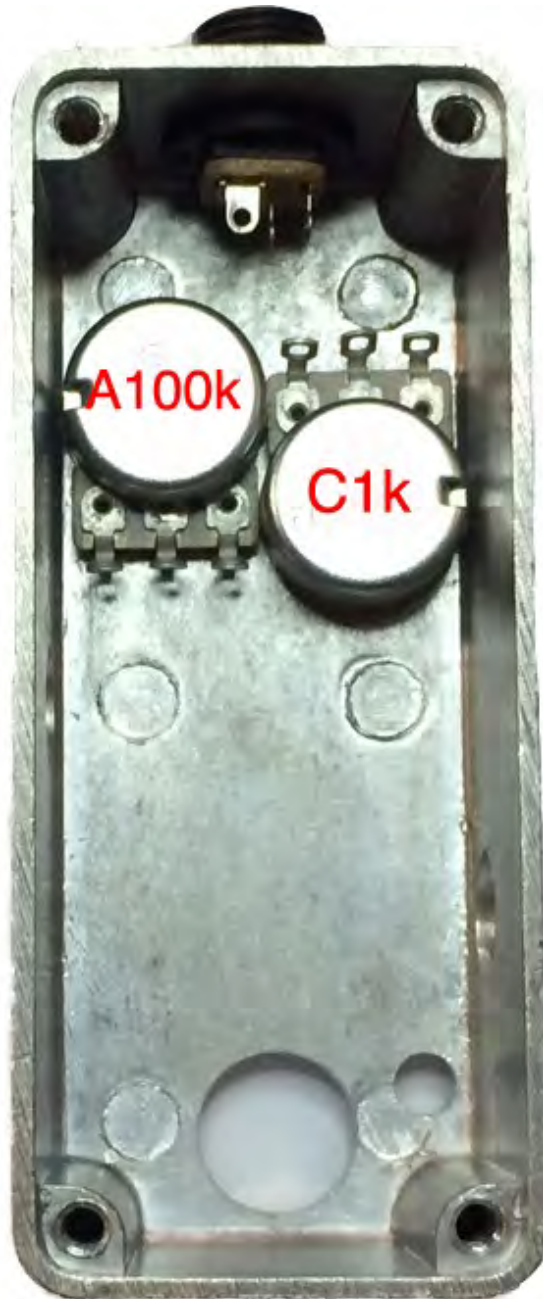


# Enclosure Hardware Assembly

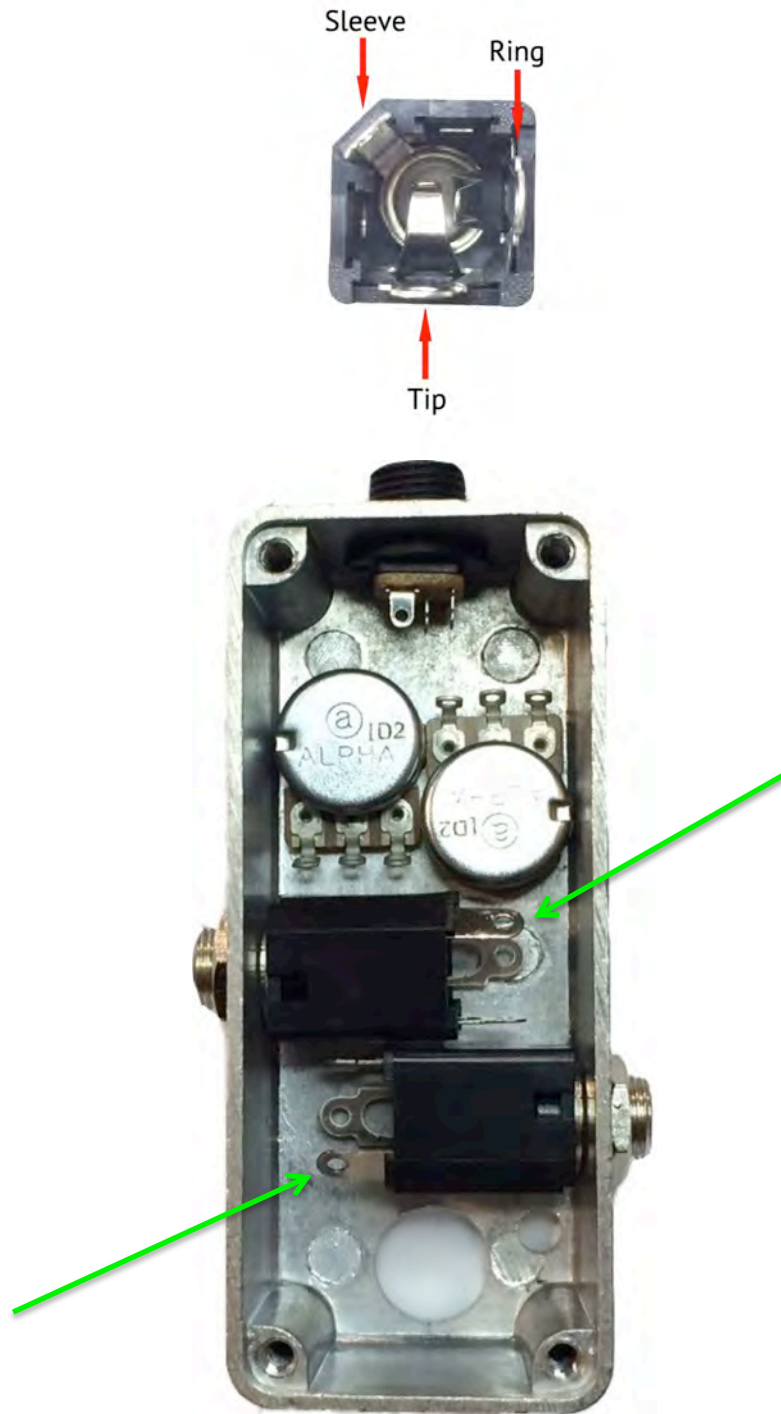
**Step 1:** Mount the DC adapter jack.



**Step 2:** Mount the potentiometers. You will mount them opposite each other, so that when looking into the enclosure, the right potentiometer will have its lugs facing towards the ac jack, and the left potentiometer will have its lugs facing the audio jacks.

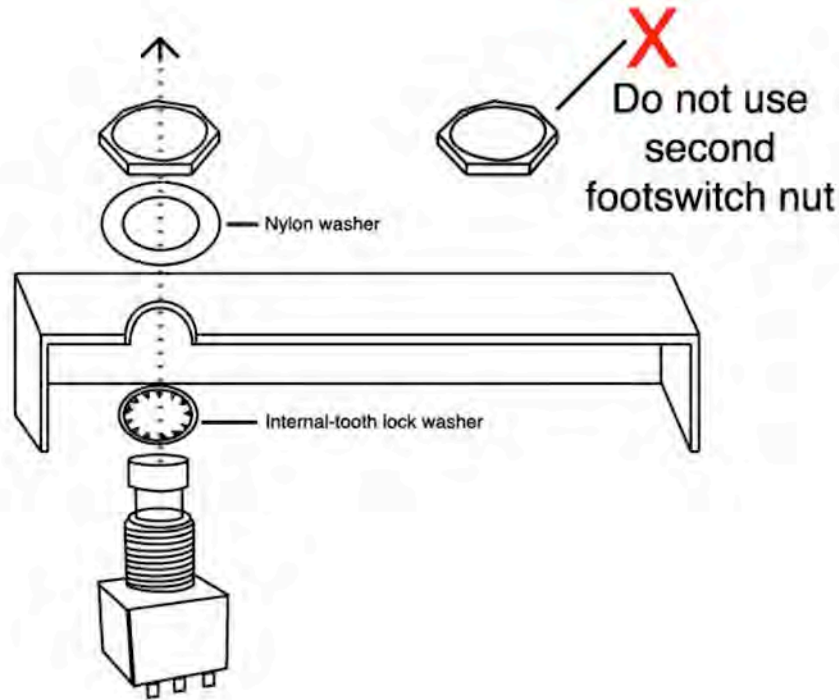


**Step 3:** Mount the Audio Jacks. You want to orient them so that the SLEEVE terminals (beveled corner of the jack) are facing away from each other. If looking at the inside of the enclosure, the INPUT jack will have its sleeve terminal facing towards the AC jack. The OUTPUT jack will have its sleeve terminal facing towards the footswitch hole. The green arrows are pointing at the sleeves.



**Step 4:** Remove both nuts from the footswitch and mount the footswitch.

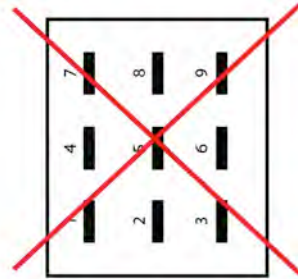
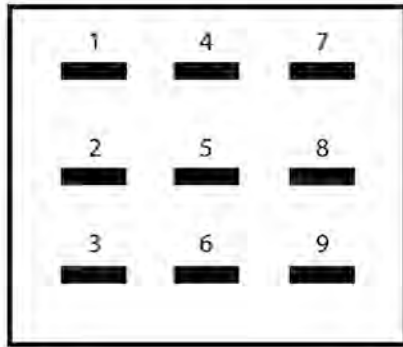
**Note:** Be careful not to over-tighten the footswitch during assembly, this can cause damage to the footswitch.



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



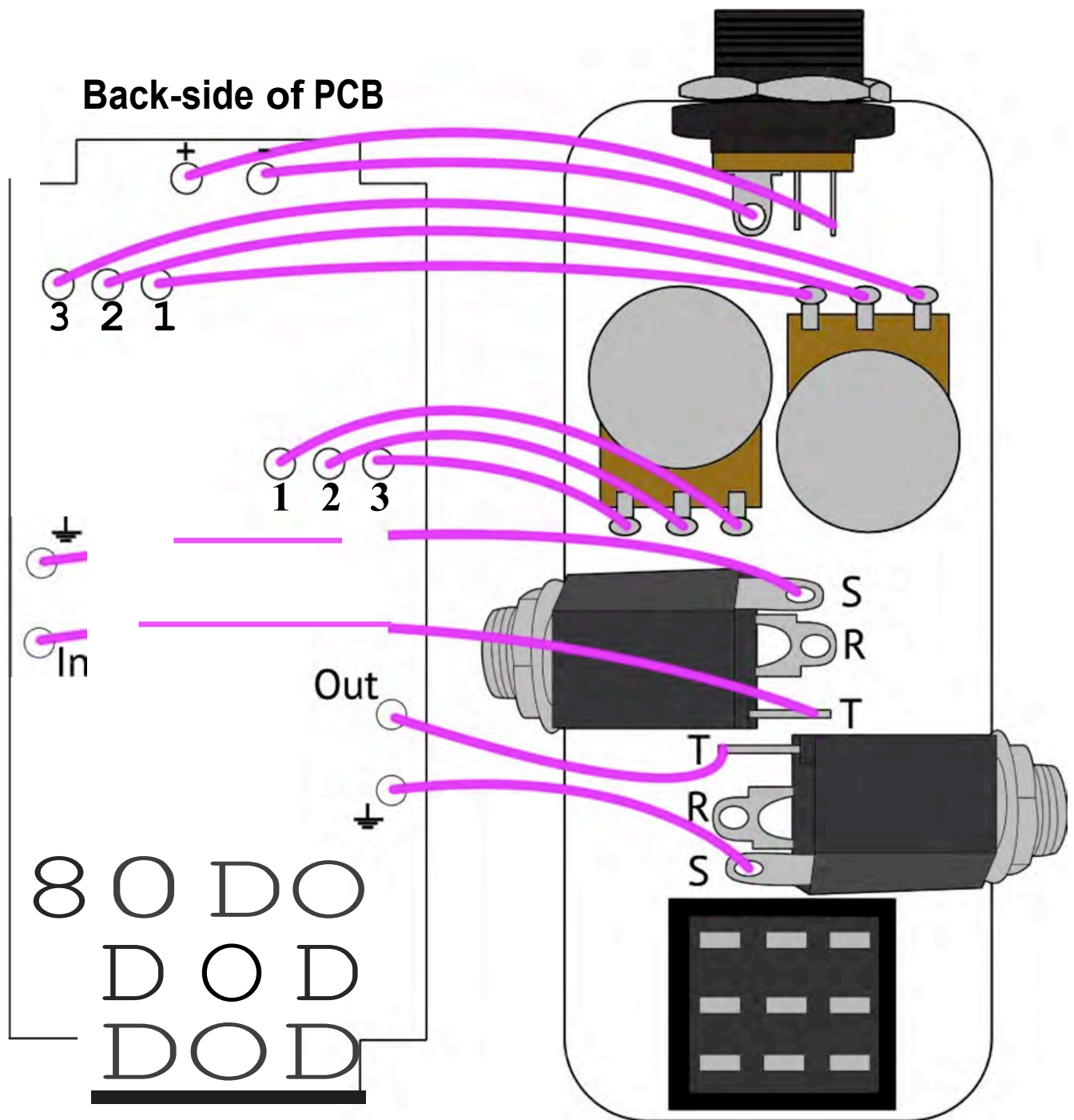


# Wiring



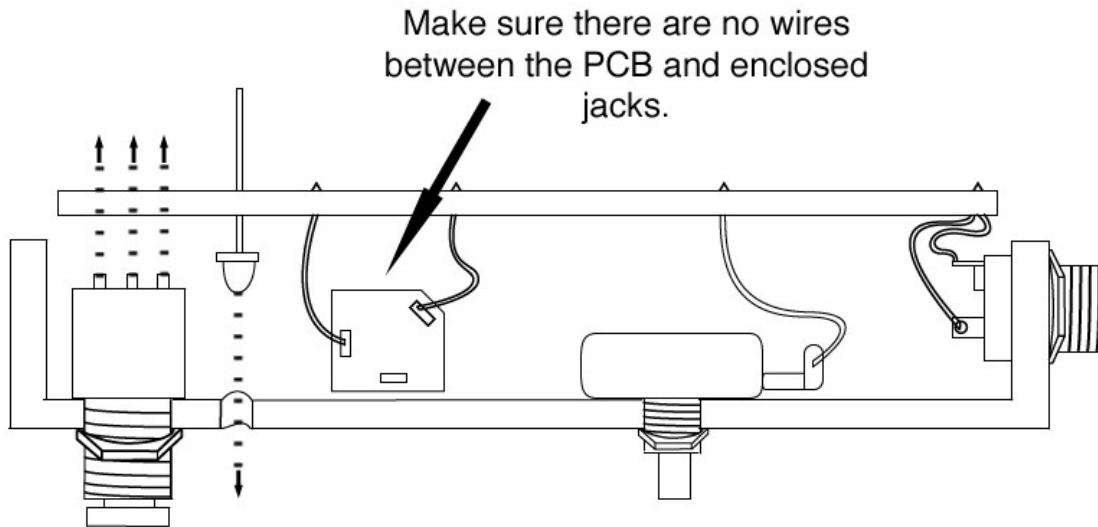
## **FLIP PCB OVER!!!**

STEP 1: Wire the PCB as shown in the diagram below. Make all connections to the back side of the PCB and solder on the top (screen printed) side of the PCB. Make the wires as short as possible but allow enough length so that if you need to do any trouble shooting later, you will be able to do so without having to remove all the enclosure mounted components.



**Step 2:** Once the AC jack, potentiometers, and IN/OUT jacks are wired, insert the LED in its hole. **Insert the long lead into the square hole!!!** You might want to slightly bend the leads away from each other to keep them in the holes for now. **DO NOT SOLDER YET**

**Step 3:** Flip the PCB right-side-up, tuck the wires into the enclosure, and place the PCB onto the footswitch. **DO NOT SOLDER YET!!!!**



**It is extremely important that when you place the PCB on the footswitch, you make sure to tuck all the wires out of the way so that that PCB can rest flush against the enclosed jacks and footswitch.**

#### **Step 4: Solder ONLY 1 of the footswitch lugs.**

Your PCB should be recessed inside the enclosure about 1cm. It should be level.

Some of your components may be sticking up out of the enclosure just a bit, particularly the film capacitors. This is to be expected. This is OK. The lid has a deep recess.

If you need to adjust the position of the PCB so that it fits correctly, reheat the single solder joint you just made on the footswitch. Adjust the position of the PCB while the keeping the solder joint hot. Remove the heat and hold the PCB in position while allowing the solder joint to cool completely. Now solder the rest of the footswitch lugs.

**Step 5:** Once you have your PCB positioned and soldered, guide the LED into its enclosure hole using the leads that are sticking up through the PCB. Once the LED is in position, solder and trim the excess leads.

# Operating Overview



**VOL:** Adjusts the overall output volume

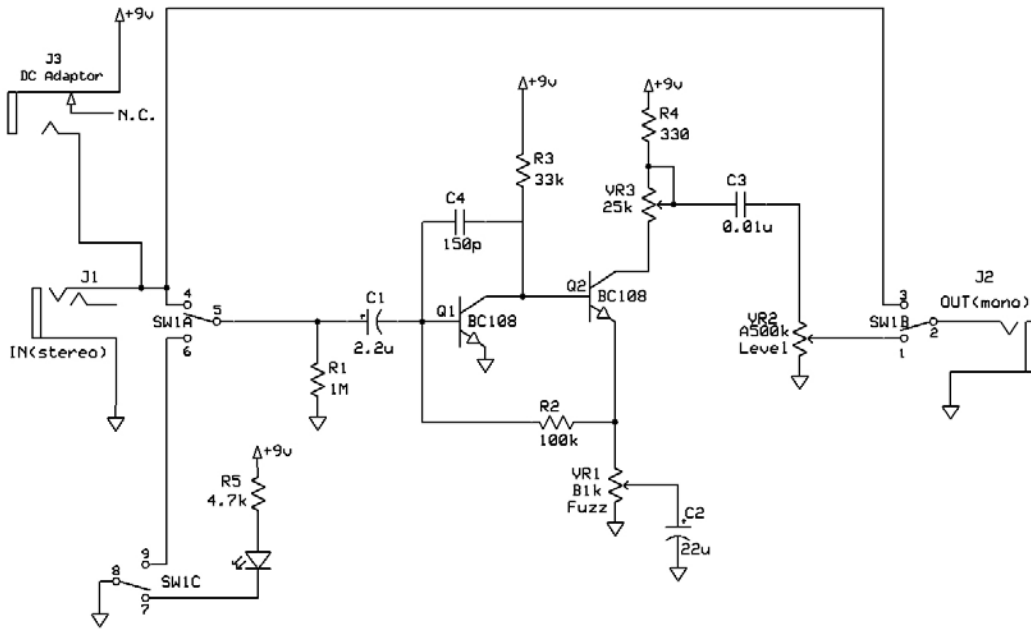
**GAIN:** Adjust the amount of distortion

**Power supply:** 2.1mm negative tip.

**Current Draw:** 2.5mA

**Input Impedance:** 1M ohms

**Output Impedance:** 100k ohms



|                             |                     |                  |
|-----------------------------|---------------------|------------------|
| <b>Build Your Own Clone</b> |                     |                  |
| <b>Li'1 Fuzz</b>            |                     |                  |
| drawn by:<br>k. vanderhull  | Rev 3<br>10/27/2015 | ©2015 BYOC, Inc. |

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