

# **B.Y.O.C. Analog Chorus Build Instructions.**

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# Parts Checklist

## Resistors:

- 1 47ohm (yellow/purple/black/gold)
- 1 470ohm (yellow/purple/brown/gold)
- 2 1k (brown/black/red/gold)
- 1 3.3k (orange/orange/red/gold)
- 1 4.7k (yellow/purple/red/gold)
- 2 6.8k (blue/gray/red/gold)
- 6 10k (brown/black/orange/gold)
- 1 12k (brown/red/orange/gold)
- 1 20k (red/black/orange/gold)
- 1 22k (red/red/orange/gold)
- 3 33k (orange/orange/orange/gold)
- 4 39k (orange/white/orange/gold)
- 1 47k (yellow/purple/orange/gold)
- 2 56k (green/blue/orange/gold)
- 1 68k (blue/gray/orange/gold)
- 1 82k (gray/red/orange/gold)
- 1 100k (brown/black/yellow/gold)
- 1 120k (brown/red/yellow/gold)
- 1 180k (brown/gray/yellow/gold)
- 2 220k (red/red/yellow/gold)
- 1 470k (yellow/purple/yellow/gold)
- 1 1MegC pot (rate)
- 1 10kB pot (depth)
- 100k trimpot

## Capacitors:

- 1 150pf ceramic disc(151)
- 1 180pf ceramic disc(181)
- 1 470pf ceramic disc(471)
- 1 .0027uf film (272)
- 1 .0033uf film (332)
- 1 .0047uf film (472)
- 2 0.01uf film(103)
- 1 .015uf film (153)
- 1 .033uf film (333)
- 1 .047uf film (473)
- 3 1uf electrolytic
- 1 2.2uf tantalum (yellow dipped)
- 5 10uf electrolytic
- 1 220uf electrolytic

## Diodes:

- 2 1N914 (small orange with black stripe)
- 1 Red T 1 3/4 (5mm)LED

## Transistors:

- 2 2N5088
- 1 2n5087

## IC's:

1 MN3007 BBD

1 8 pin socket

1 CD4047

1 LM324

**Hardware:**

1 LED bezel

2 self adhesive nylon standoffs

2 knobs

1 heavy duty battery snap

1 3PDT footswitch

1 1/4" mono jack

1 1/4" stereo jack

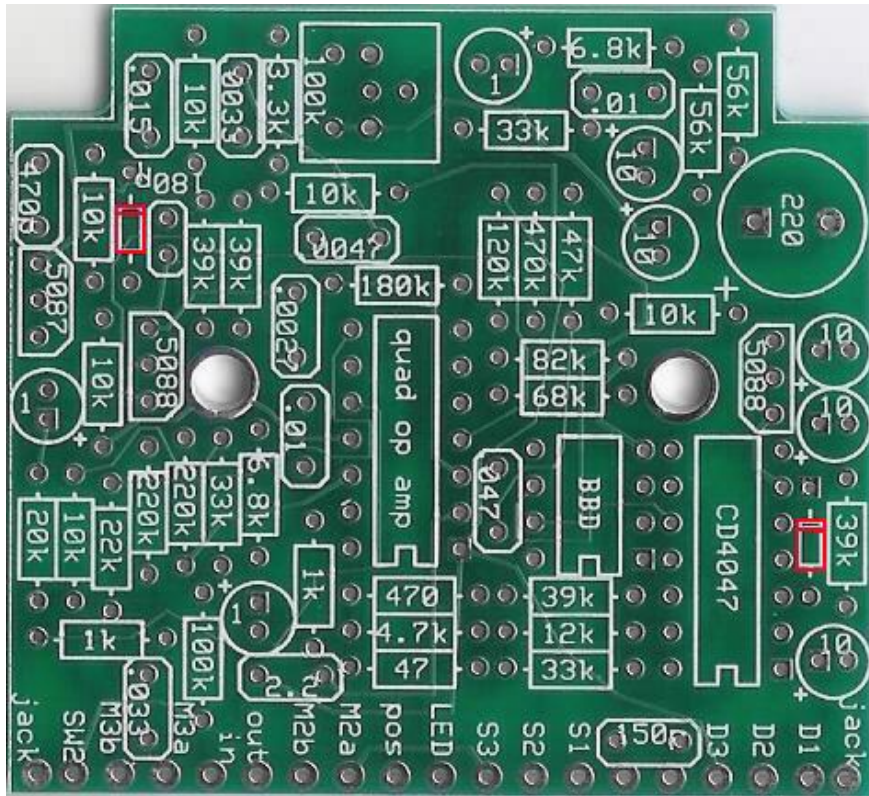
1 AC adaptor jack

1 125b size enclosure

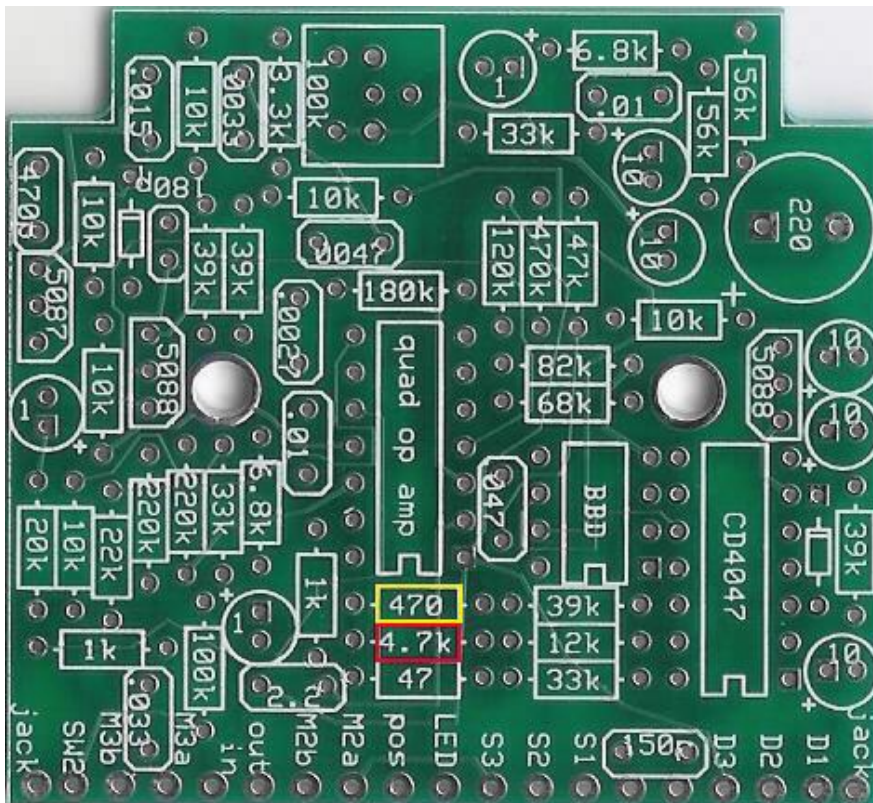
1 circuit board

hookup wire

## Populating the Circuit Board



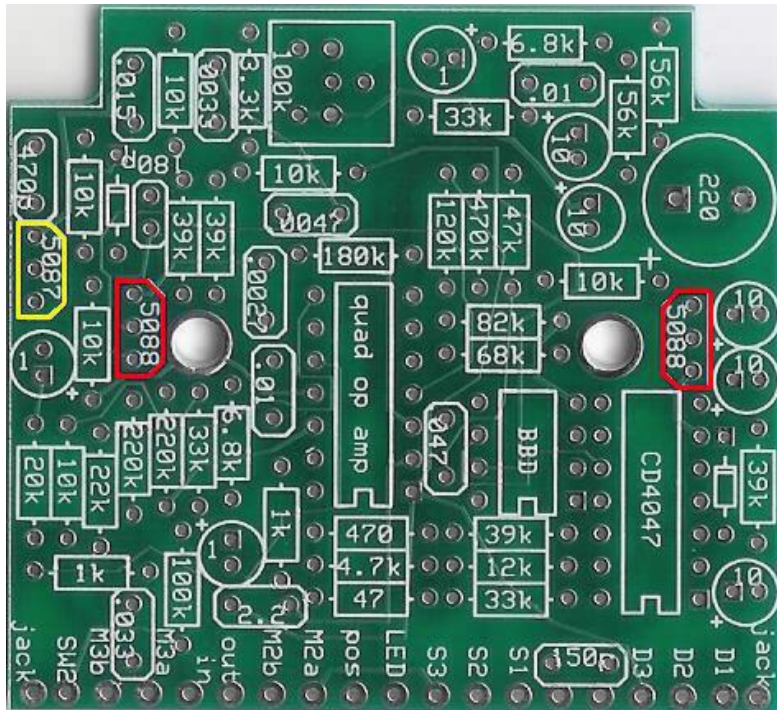
Step 1: Add the diodes. Make sure the black stripe (anode) is facing the correct way.



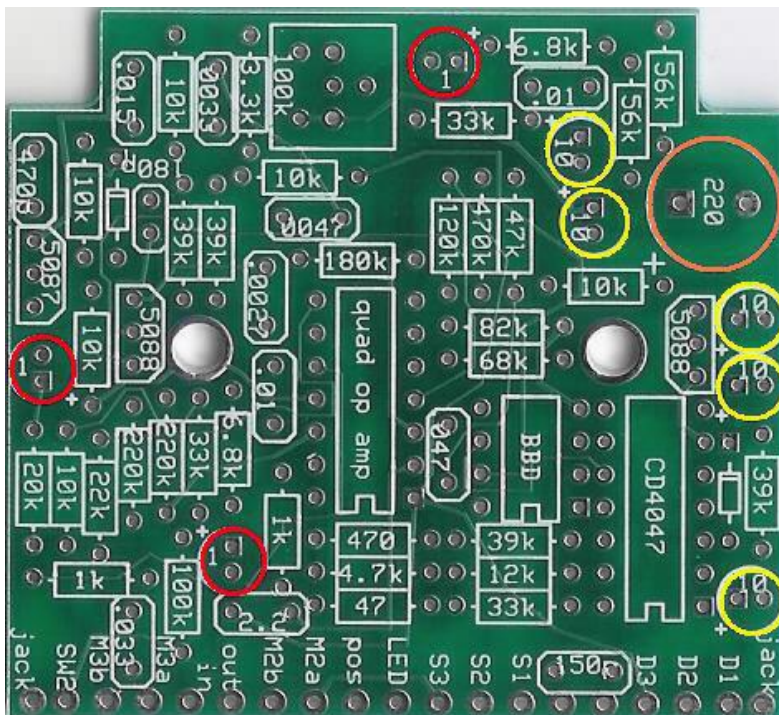
Step2: Add the LED limiting resistor. Use the 470ohm for a blinking light or 4.7k for a static light.







Step 7: Add the transistors. The 2N5088 are highlighted in red. The 2N5087 is highlighted in yellow. Be sure to orientate the transistors so that the flat sided match up with the circuit board layout.

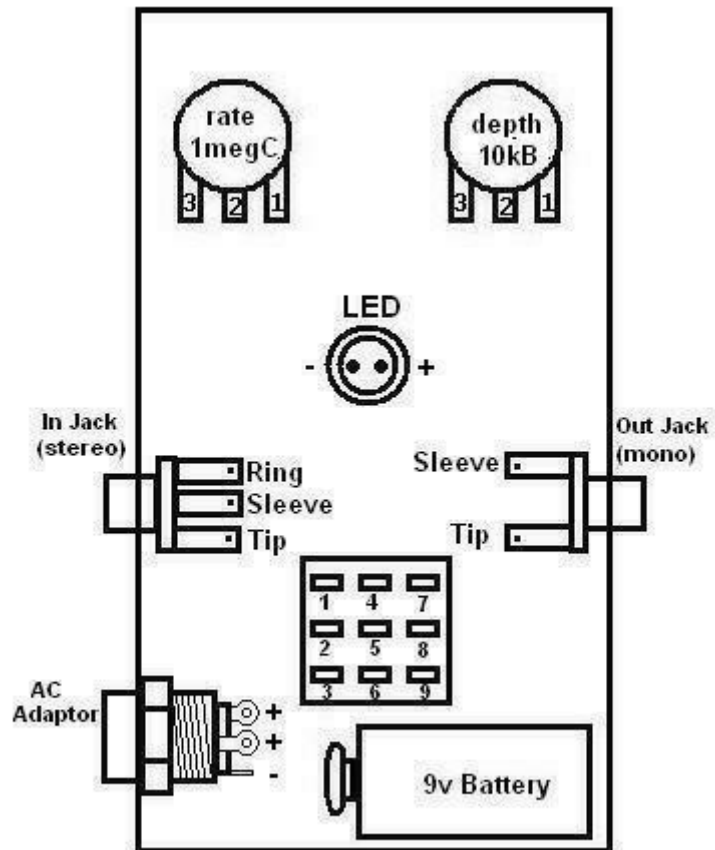


Step 8: Add the electrolytic caps. These are polarized. The positive lead will be the longer of the two and will go in the square solder pad.



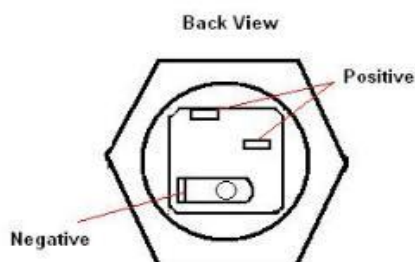
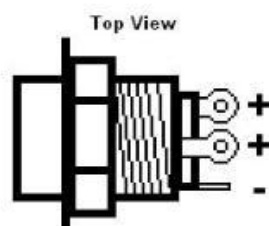


## Assembly



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.

### AC Adaptor

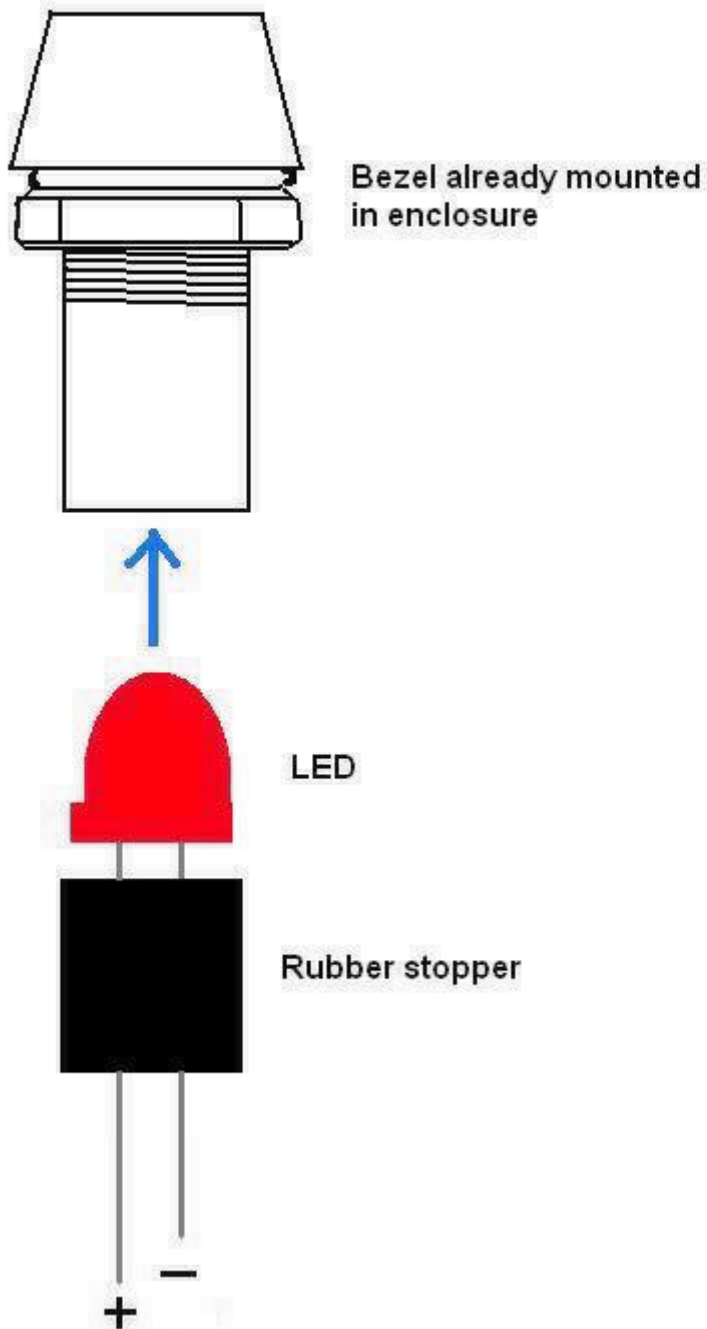


This is a “disconnect” ac adaptor jack. That means that when you have a battery connected and you plug in the adaptor, it will disconnect the battery. That is why there are 2 positive terminals. They are both connected when there is no plug in the jack, but when the plug is inserted only one of the terminals (the uppermost terminal in the “back view”) is connected to the sleeve of the adaptor. The advantage of this is that you can leave batteries in your pedals as a back up power source if you are a “working” musician and they will stay fresh even when you have the input jack plugged in as long as you keep the adaptor plugged in.

3. Install the bezel. The washer and bolt go on the inside. Use a 10mm wrench to tighten.
4. Install the potentiometers so that the solder lugs are pointing down towards the footswitch side of the enclosure. Use a 10mm wrench to tighten but only snug. Do not over tighten the pots.
5. 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. Use a 14mm wrench to tighten.

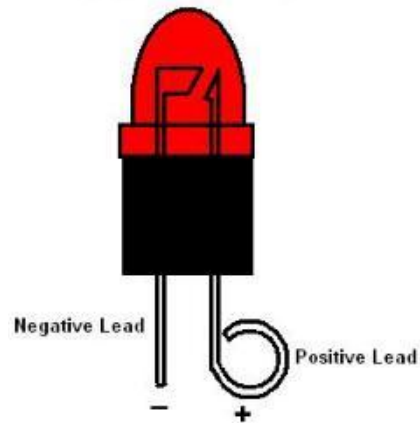
# Wiring

So many people make the mistake of inserting the LED in through the top of the bezel. You insert the LED in through the bottom



## LED

(Light Emitting Diode)



After you mount and install the LED/bezel, Bend the leads of the LED into circles so that you will have something to solder the hookup wire to. DON'T lose track of which lead is negative and positive. The positive lead will be longer. The negative side has a flat side.



## Keith's tips to for a cleaner build

1. Use the left over clippings from you capacitors and resistors when ever possible. But don't use them if it may cause a short. You wouldn't want to use them to make the connection from the sw2 eyelet to lug 2 of the footswitch and for sw1 to lug 1 of the footswitch because those would overlap and probably touch. I like to use them to make the jumper from Lug 3 of the footswitch to lug 6 of the footswitch and Lug 4 to lug 9 as well. I also like to use the clippings to connect the "Jack" eyelets of the circuit board to the sleeves of the jacks because these are very very short connections. When you use wire for these connections you have to use a length that is longer than what is actually needed because the distance from the sleeve lug to the eyelet when the board is mounted is much to short to strip. **BUT!!!** If you do use the clippings to connect the board to the jacks, you should save this till near the end when you've got your board mounted because you aren't going to be able to move the board very much after that. When you use solid wire without a protective plastic coating, it's called bare bus wire.
2. Wire up the potentiometer first and then do a mock up mount. By this I mean, install the self adhesive standoffs, but DO NOT remove the paper backings. Then put the circiut into position as if you were actually going to mount it. From here, you will be able to better measure the shortest length of wire needed for the rest of the connections...which means a cleaner build.
3. Solder the pot wires to the underside of the circuit board. It's a doublesided board! The less wire you see, the cleaner it will look.
4. Make one joint for each lug. Take the negative terminal of the AC jack for example. You have 2 wires connected to it, right? It is infinitely easier if you stick both wires in the hole and solder them at the same time then if you solder one first, then try to heat up the joint so you can fit the second wire in. The same thing goes for the sleeve of the in jack and lug 4 of the footswitch.
5. Take your time. Don't strip the wires any more than is needed. You'll only need to strip the wires about 1mm for the footswitch lugs. But for the jack and pot lugs you'll want about 1/4". This will make it look cleaner and also help prevent shorts.

# Finishing Touches

1. If you were holding out to bare bus wire the sleeves of the jacks don't forget to do that.
2. Install the base of the enclosure with the 4 screws that came with your kit.
3. Add the rubber bumper feet...unless you're a velcro person.

If you've got any problems that you can't figure out yourself, visit

[board.buildyourownclone.com](http://board.buildyourownclone.com)

for technical support.