

Lazy Sprocket Kit Instructions

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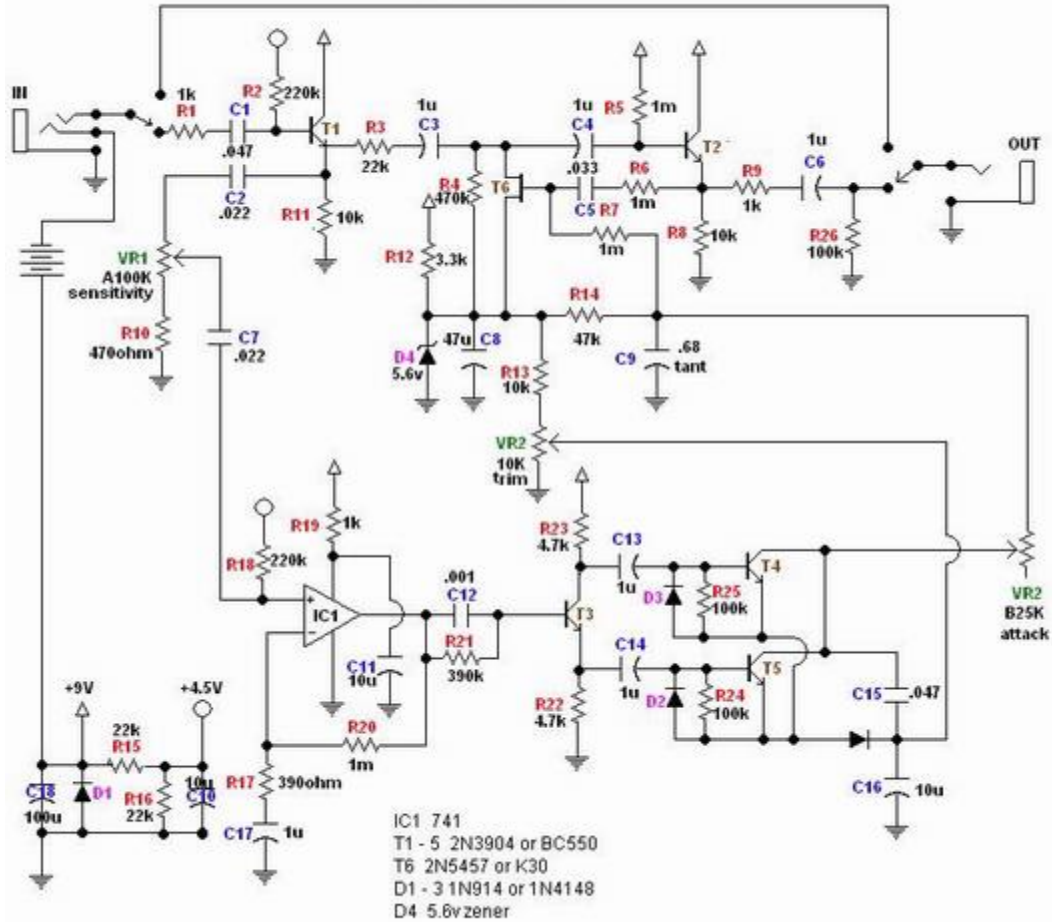
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The Lazy Sprocket (a.k.a. true bypass Boss SG-1)

drawn by b.y.o.c.



Parts Checklist for The Lazy Sprocket Kit

Resistors:

- 1 - 390ohm (orange/white/brown/gold)
- 1 - 470ohm (yellow/purple/brown/gold)
- 3 - 1k (brown/black/red/gold)
- 1 - 3.3k (orange/orange.red/gold)
- 3 - 4.7k (yellow/purple/red/gold)
- 3 - 10k (brown/black/orange/gold)
- 3 - 22k (red/red/orange/gold)
- 1 - 47k (yellow/purple/orange/gold)
- 3 - 100k (brown/black/yellow/gold)
- 2 - 220k (red/red/yellow/gold)
- 1 - 390k (orange/white/yellow/gold)
- 1 - 470k (yellow/purple/yellow/gold)
- 4 - 1M (brown/black/green/gold)

Capacitors:

- 1 - .001uf film (102)
- 2 - .022uf film (223)
- 1 - .033uf film (333)
- 2 - .047uf film (473)
- 1 - .68 tantalum
- 6 - 1uf aluminum electrolytic
- 3 - 10uf aluminum electrolytic
- 1 - 47uf aluminum electrolytic
- 1 - 100uf aluminum electrolytic

IC:

- 1 - 741 or TL071 single op amp

Transistors:

- 5 - 2n3904
- 1 - 2n5457
- 1 - K30(optional)

Diodes:

- 4 - 1N914 or 1N4148(smaller diodes)
- 1 - 5.6v zener (larger diode)

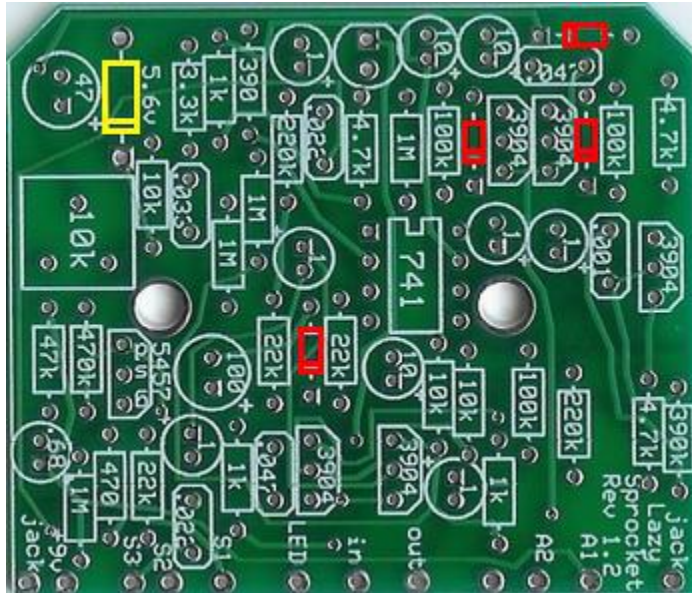
Potentiometers:

- 1 - 10 trim pot
- 1 - A100K Audio pot "sensitivity"
- 1 - B25k Linear pot "attack"

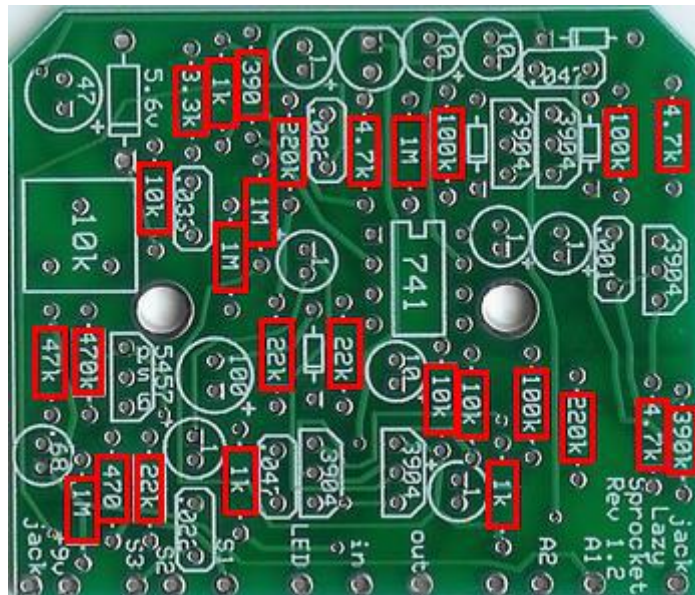
Hardware:

- 1 - enclosure w/ 4 screws
- 1 - lazy sprocket circuit board
- 1 - 3pdt footswitch
- 2 - knobs
- 1 - AC adaptor jack
- 1 - 1/4" stereo jack
- 1 - 1/4" mono jack
- 1 - battery snap
- 1 - red LED
- hook-up wire

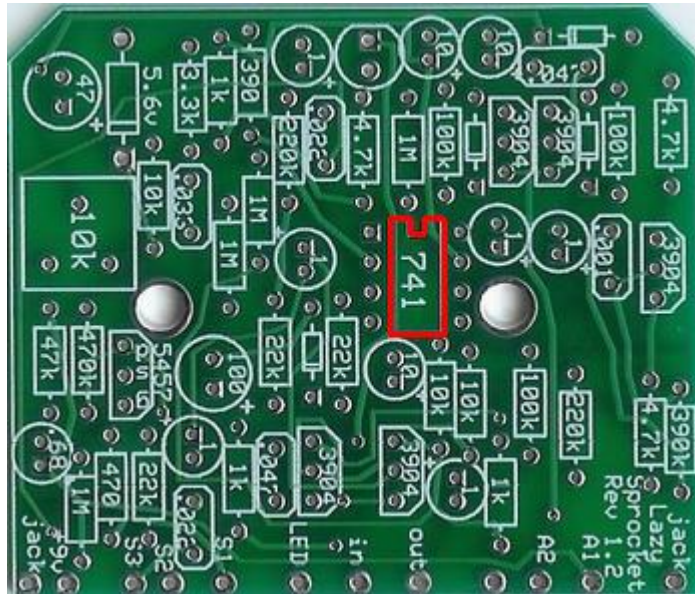
Populating the Circuit Board



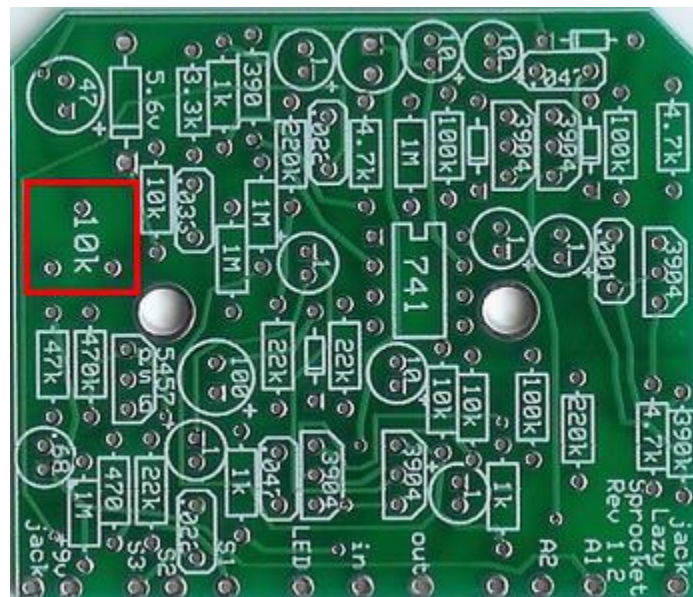
Step 1: Add the diodes. The smaller 1N914 are highlighted in red. The larger zener is highlighted in yellow. Make sure the black stripe on each diode matches with the stripe on the layout



Step 2: Add all the resistors. Take your time and only add them one at a time. Resistors are not polarized, so they can face in either direction.

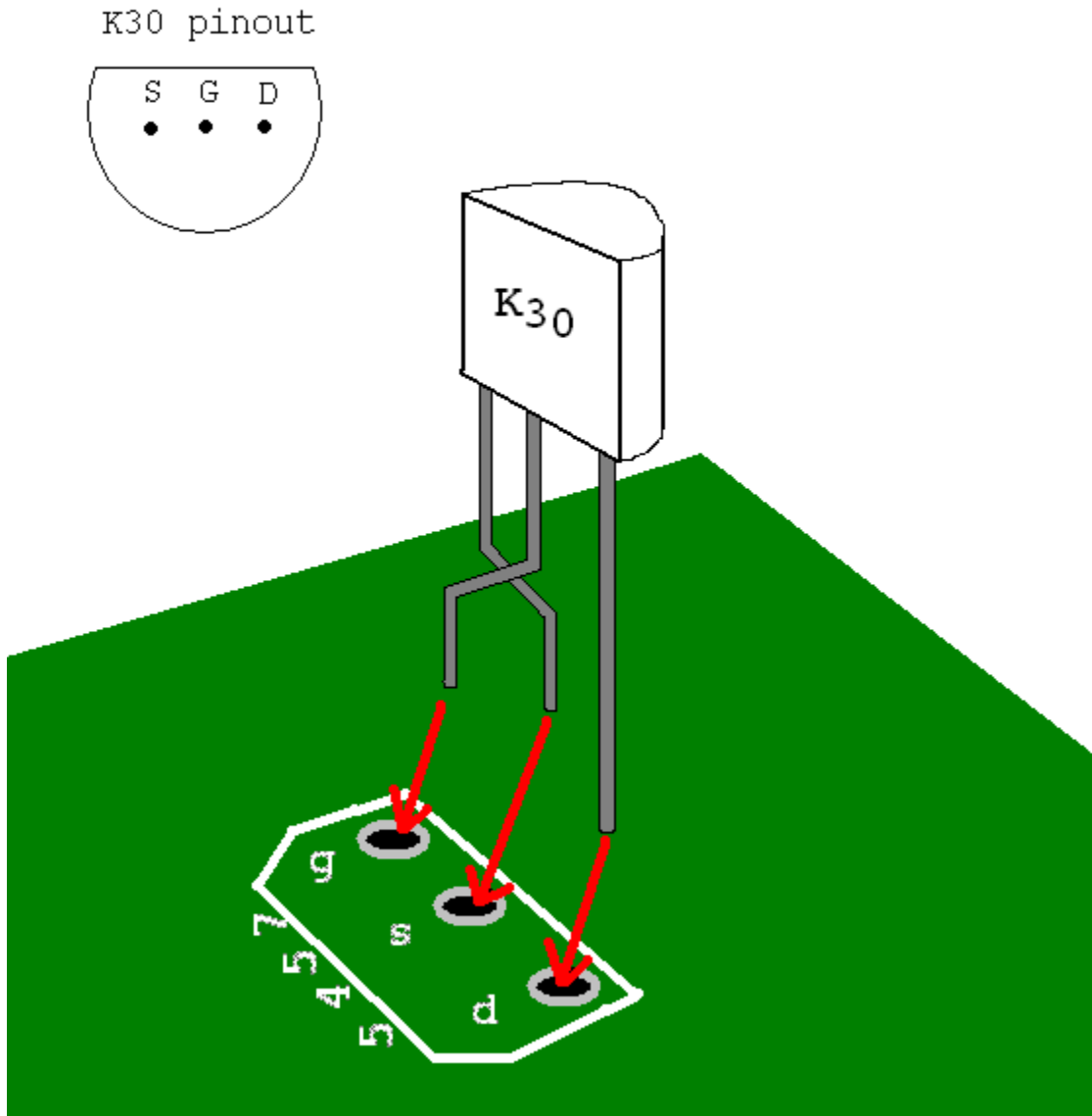


Step 3: Add the op amp. Match up the u-shaped notch in the op amp with the notch on the layout. If the op amp that is supplied with your kit does not have a notch in it, there will be a small dot in one corner. This denotes pin #1. Pin #1 of the op amp should go into the square solder pad.



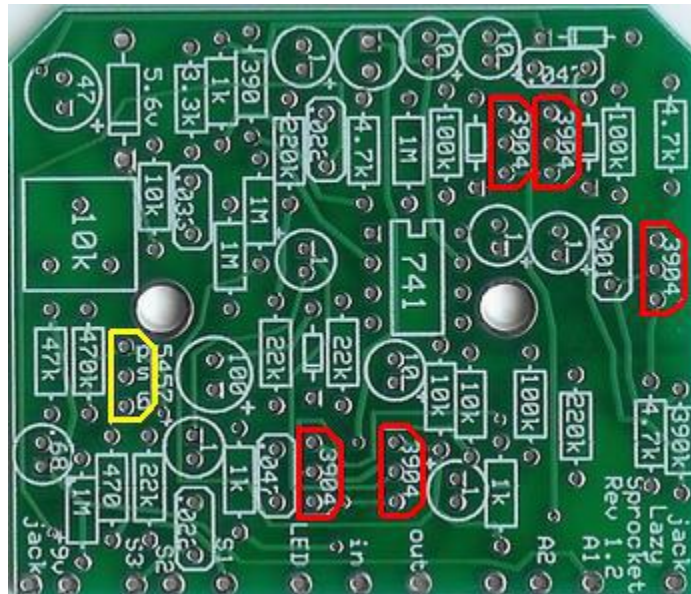
Step 4: Add the trimpot. When you are finished with your build, adjusting this trimpot will be very important. When you set the trimpot, you want to have the attack knob turned full turn clockwise so that it should produce the slowest swell. Then adjust the trimpot to the sweetspot where you get a smooth, slow swell, but not too much volume loss.

Using the K30 JFET in place of the 2N5457

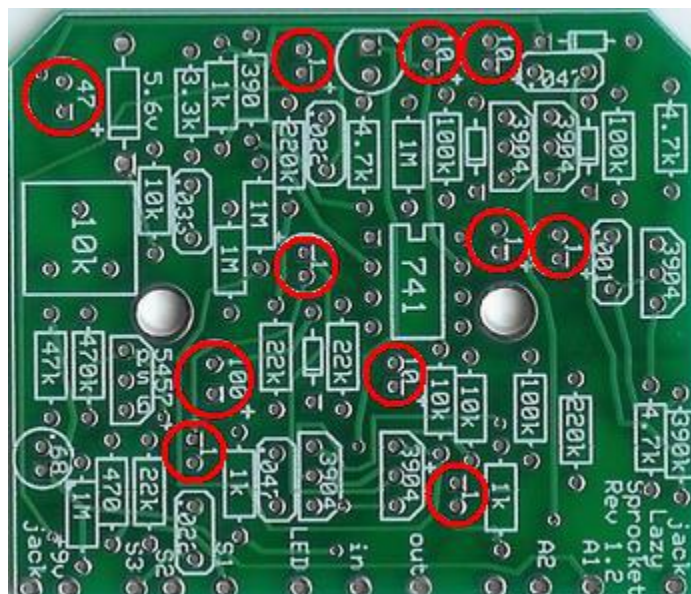


The Lazy Sprocket PCB was designed to use a 2N5457 JFET with a “D-S-G” pinout. The K30 JFET has a “S-G-D” pinout. To use the K30 in place of the 2N5457, insert the K30 so that it is turned 180 degrees. Then cross the left (source) and center (gate) leads so that the gate is now on the left and the source is now in the center.

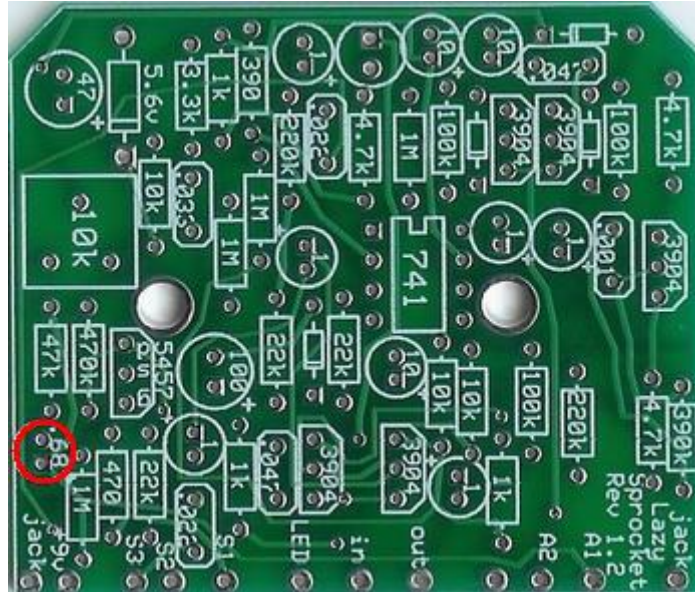
WHAT'S THE DIFFERENCE BETWEEN THE K30 and 2N5457? The 2SK30A jfet was what was originally used in the real SG-1. The 2N5457 was chosen for the Lazy Sprocket kit because they are much easier to source and provide a smoother swell, longer sustain, and a less abrupt decay. Unfortunately after this kit's initial release, many people reported that the pedal did not function properly and most believed that it was due to the 2N5457 not being compatible with the circuit. So the kit now comes with both.



Step 5: Add the transistors. The 2N3904 are highlighted in red. The 2N5457 is highlighted in yellow. Make sure that the transistors' curved sides and flat sides match the layout.

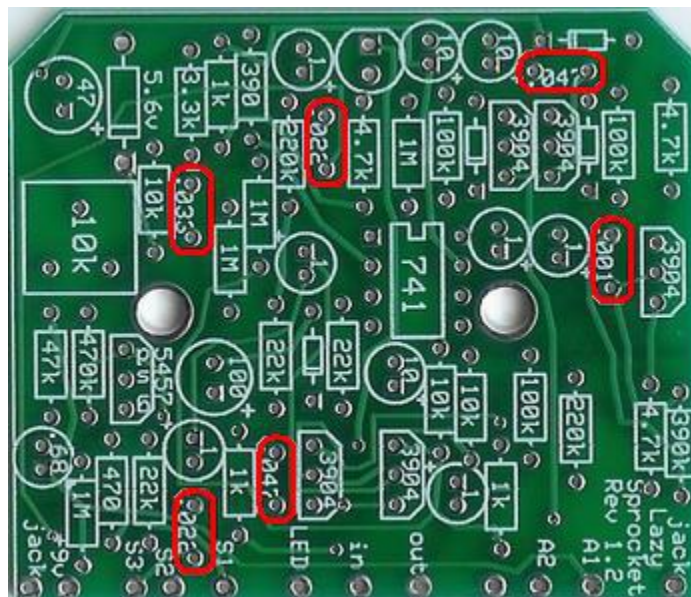


Step 6: Add all the aluminum electrolytic caps. These are polarized. The positive end of the cap will have the longer lead and should go in the square solder pad.

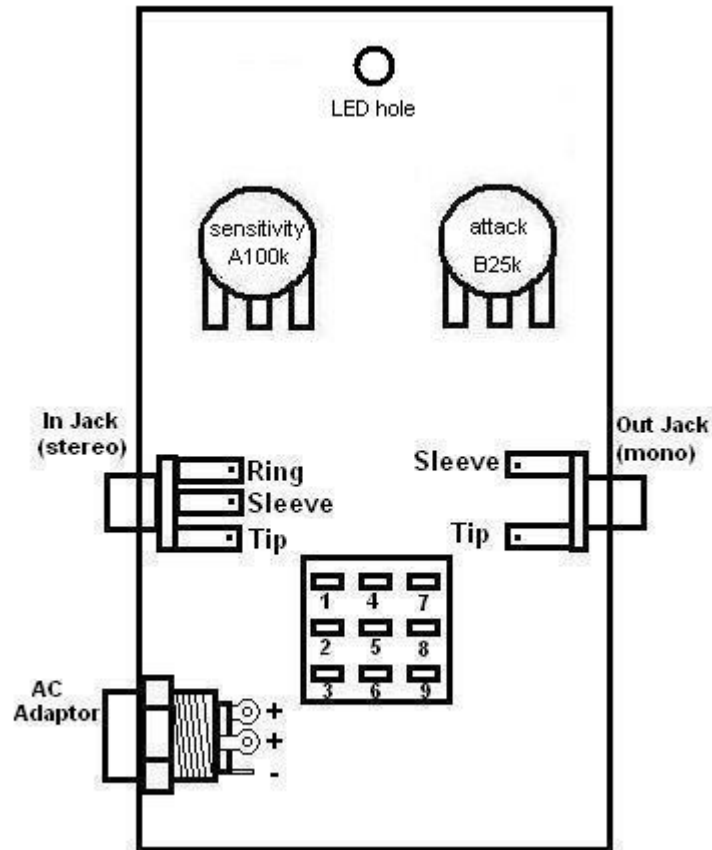


Step 7: Add the .68 tantalum cap. This cap is polarized. The longer lead goes in the square pad. If the cap that comes with your kit does not have a longer lead on one side then there will be “++” printed on the positive side of the cap and this lead should go in the square solder pad.

Step 8: Add the film caps. These are not polarized and can go in either direction.



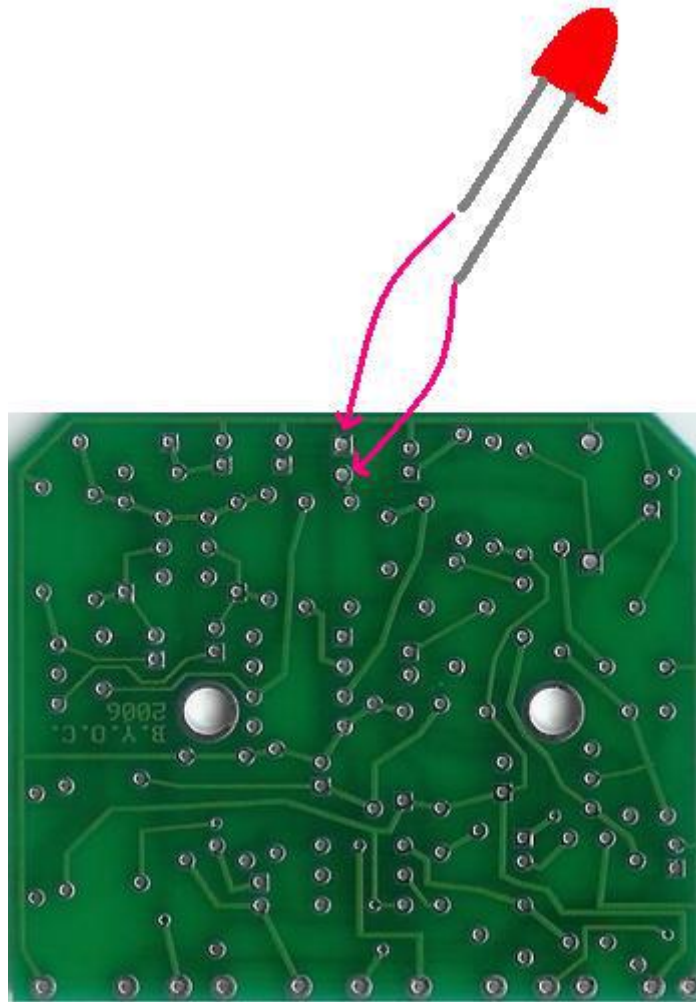
Assembly



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 25k (attack) pot goes on the right side and the 100k (sensitivity) pot goes on the left. The washers go on the outside. Use a 10mm wrench to tighten but only snug. Do not over tighten the pots.
3. 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.

Installing the LED and Mounting the Circuit Board

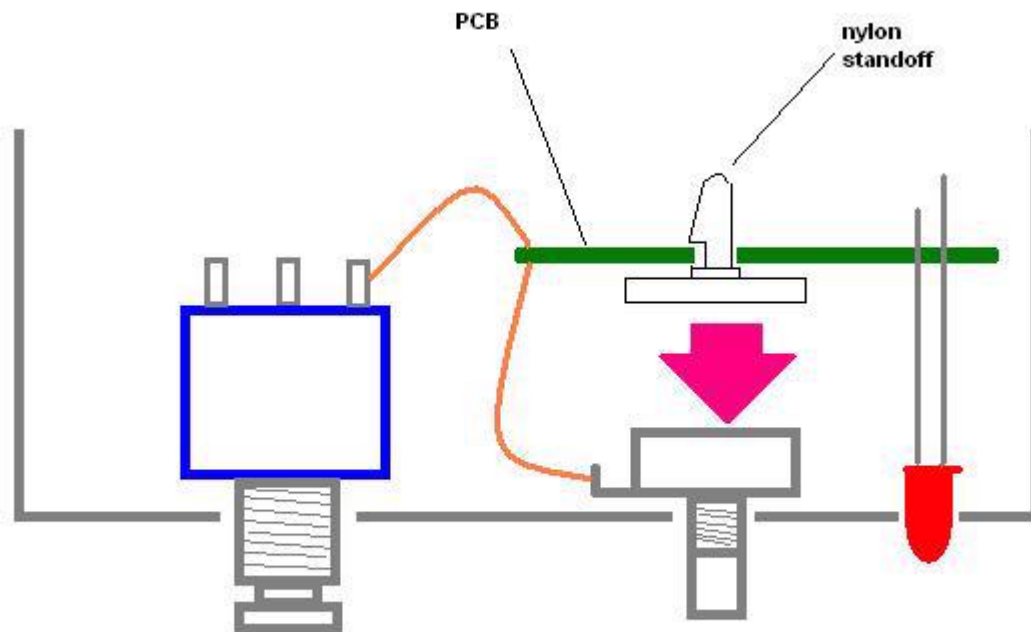
1. Insert the LED into its slot on the underside or solder side of the circuit board, but DO NOT SOLDER it yet. Make sure the anode (the long leg) goes in the round solder pad and the cathode (the short leg) goes in the square solder



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 Up

1. Test it out and don't forget to adjust the trimpot as mentioned earlier.
2. 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.

If you've got any problems that you can't figure out yourself, visit board.buildyourownclone.com for technical support. Please post pics of you build and include as much detail as possible.