

Build Your Own Clone El Distorto Segundo Kit Instructions



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<http://www.byocelectronics.com/board>

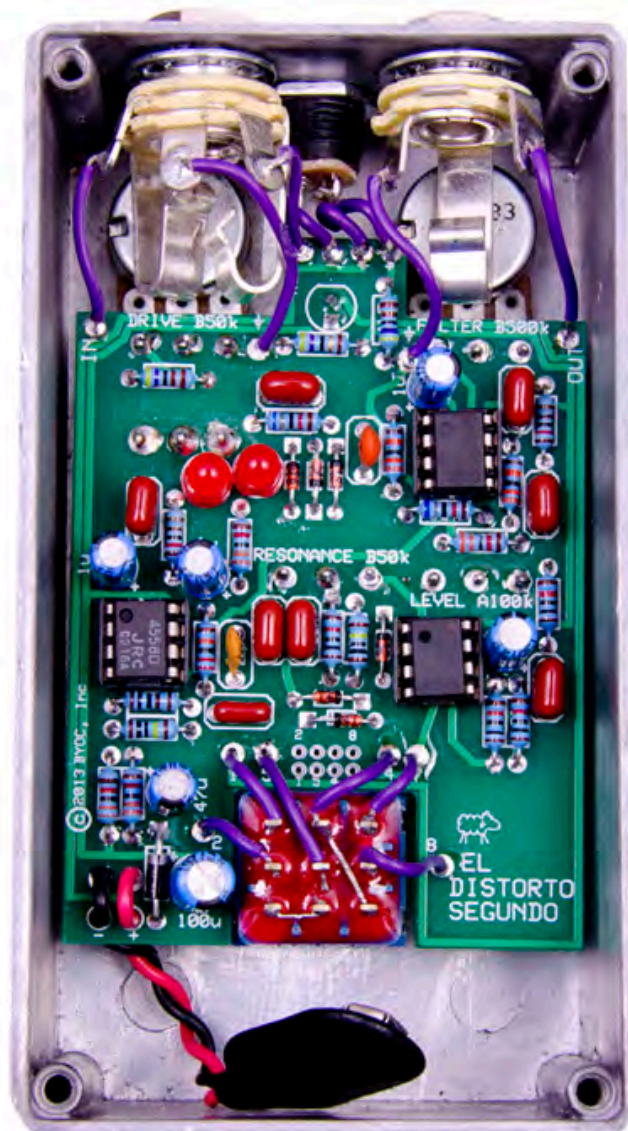
When posting a tech support thread on the BYOC forum, please post it in the correct lounge, and please title your thread appropriately. If everyone titles their threads "HELP!" then it makes it impossible for the people who are helping you to keep track of your progress. A very brief description of your 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 El Distorto Segundo Kit

Resistors:	Metal Film (5-band)	/	Carbon (4-band)
1 – 47R	(Yellow/Purple/Black/Gold/Brown)	/	(Yellow/Purple/Black/Gold)
1 - 1k	(Brown/Black/Black/Brown/Brown)	/	(Brown/Black/Red/Gold)
2 – 1k2	(Brown/Red/Black/Brown/Brown)	/	(Brown/Red/Red/Gold)
2 - 4k7	(Yellow/Purple/Black/Brown/Brown)	/	(Yellow/Purple/Red/Gold)
4 - 10k	(Brown/Black/Black/Red/Brown)	/	(Brown/Black/Orange/Gold)
4 - 33k	(Orange/Orange/Black/Red/Brown)	/	(Orange/Orange/Orange/Gold)
2 – 68k	(Blue/Grey/Black/Red/Brown)	/	(Blue/Gray/Orange/Gold)
1 - 220k	(Red/Red/Black/Orange/Brown)	/	(Red/Red/Yellow/Gold)
2 - 330k	(Orange/Orange/Black/Orange/Brown)	/	(Orange/Orange/Yellow/Gold)
2 – 1M	(Brown/Black/Black/Yellow/Brown)	/	(Brown/Black/Green/Gold)

Capacitors:

- 1 - 22p ceramic disc
- 1 - 47p ceramic disc
- 1 - 1n0 film (may say “.001u” or “102” or “1000p” on the body)
- 4 - 22nF film (may say “.022u” or “223” on the body)
- 2 - 33nF film (may say “.033u” or “333” on the body)
- 1 - 0.1 film (may say “.1u” or “104” on the body)
- 4 - 1uF Aluminum Electrolytic
- 1 - 47uF Aluminum Electrolytic
- 1 - 100uF Aluminum Electrolytic

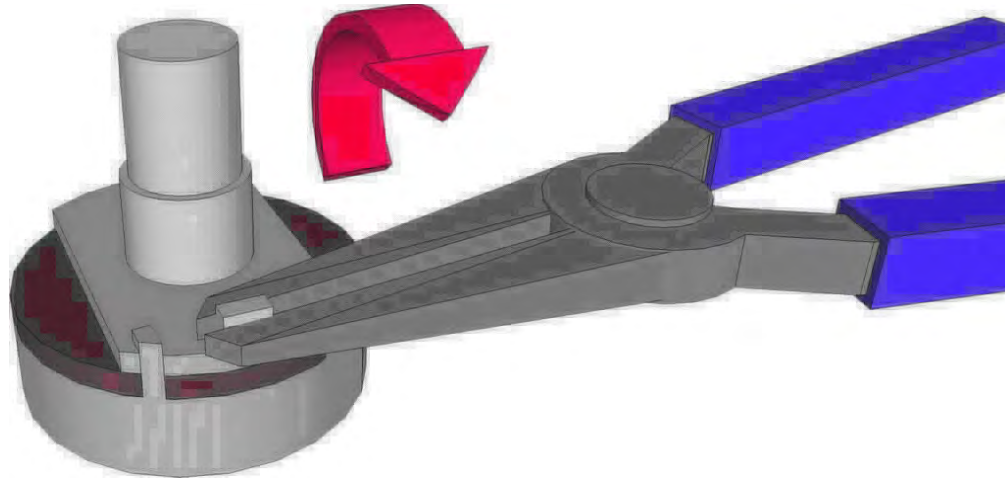
Diodes:

- 6 – 1N4148 (small orange glass diodes with black stripe on one end)
- 1 – 1N4001 (larger black diode with silver stripe on one end)
- 3 – Red LED (2 are for clipping diodes, one is for the status LED)

IC's:

- 3 - DIP 8 socket
- 1 – 4558
- 2 – TL072

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



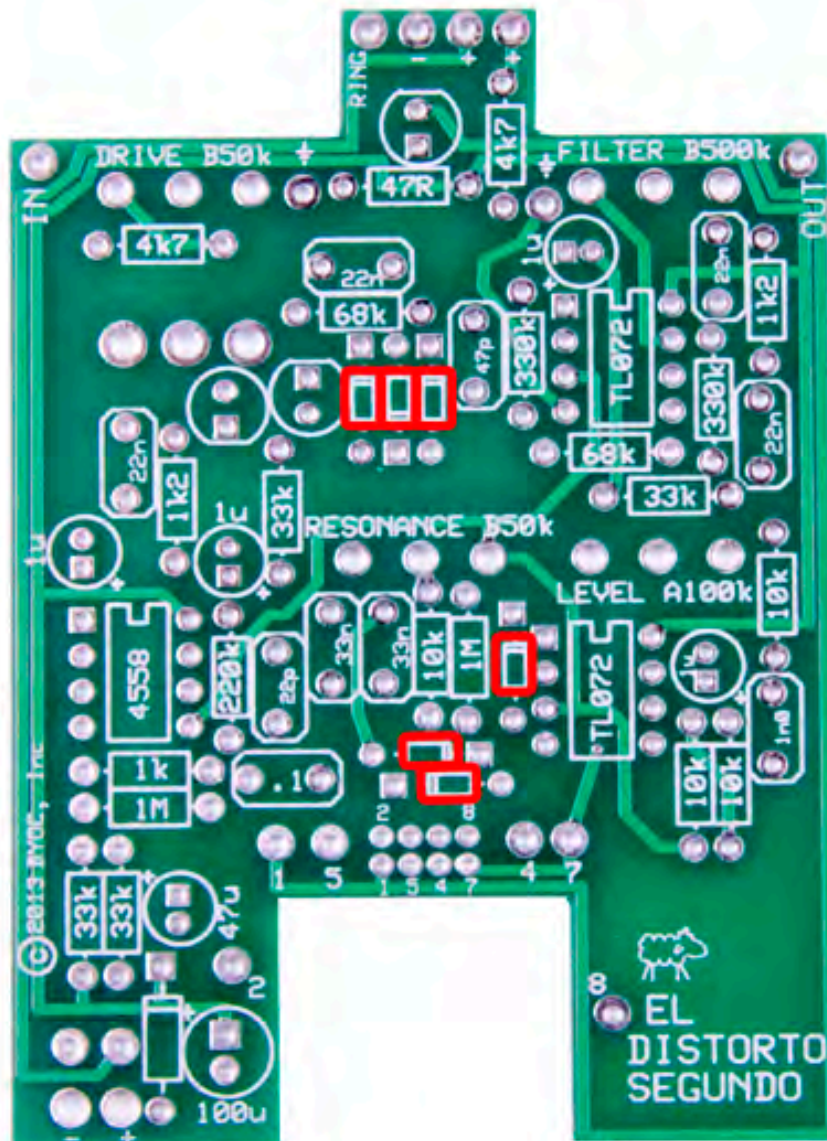
- 1 – B50k Drive pot
- 1 – B500k Filter pot
- 1 – B50k Resonance pot
- 1 – A100k Level pot

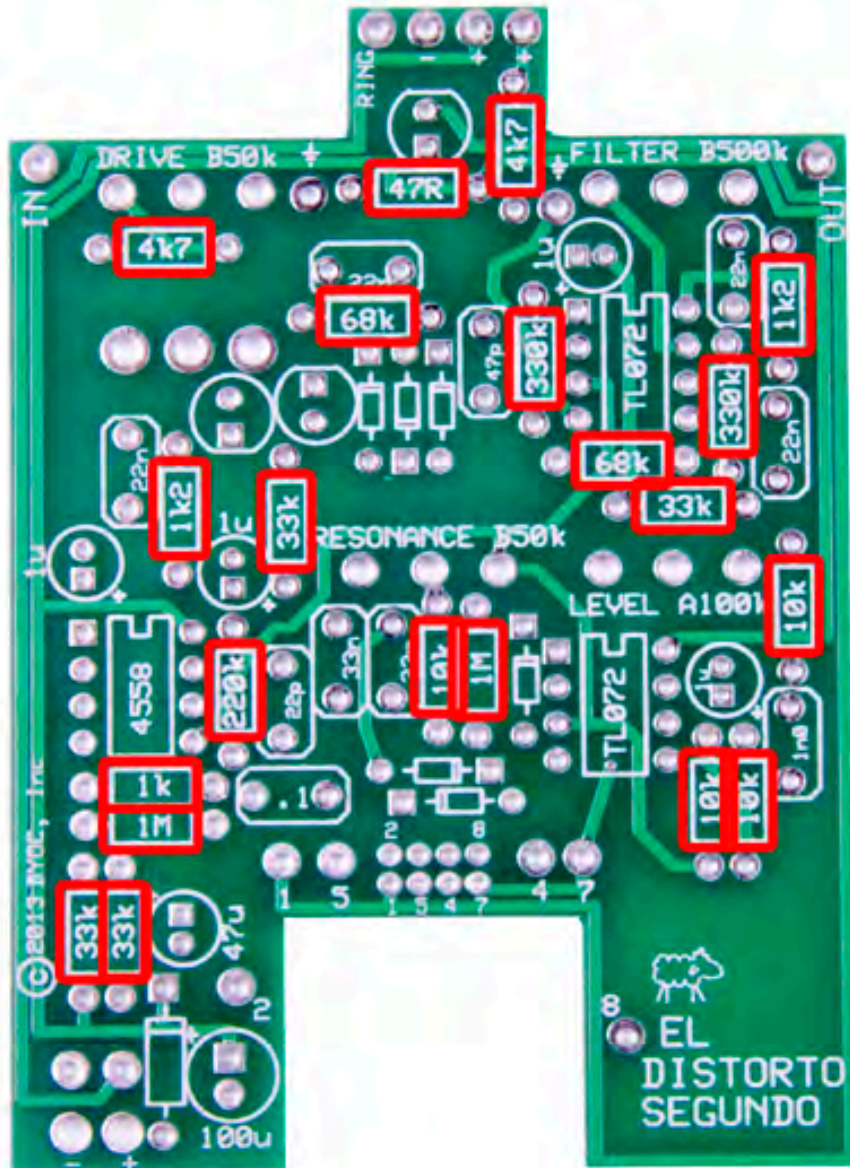
Hardware:

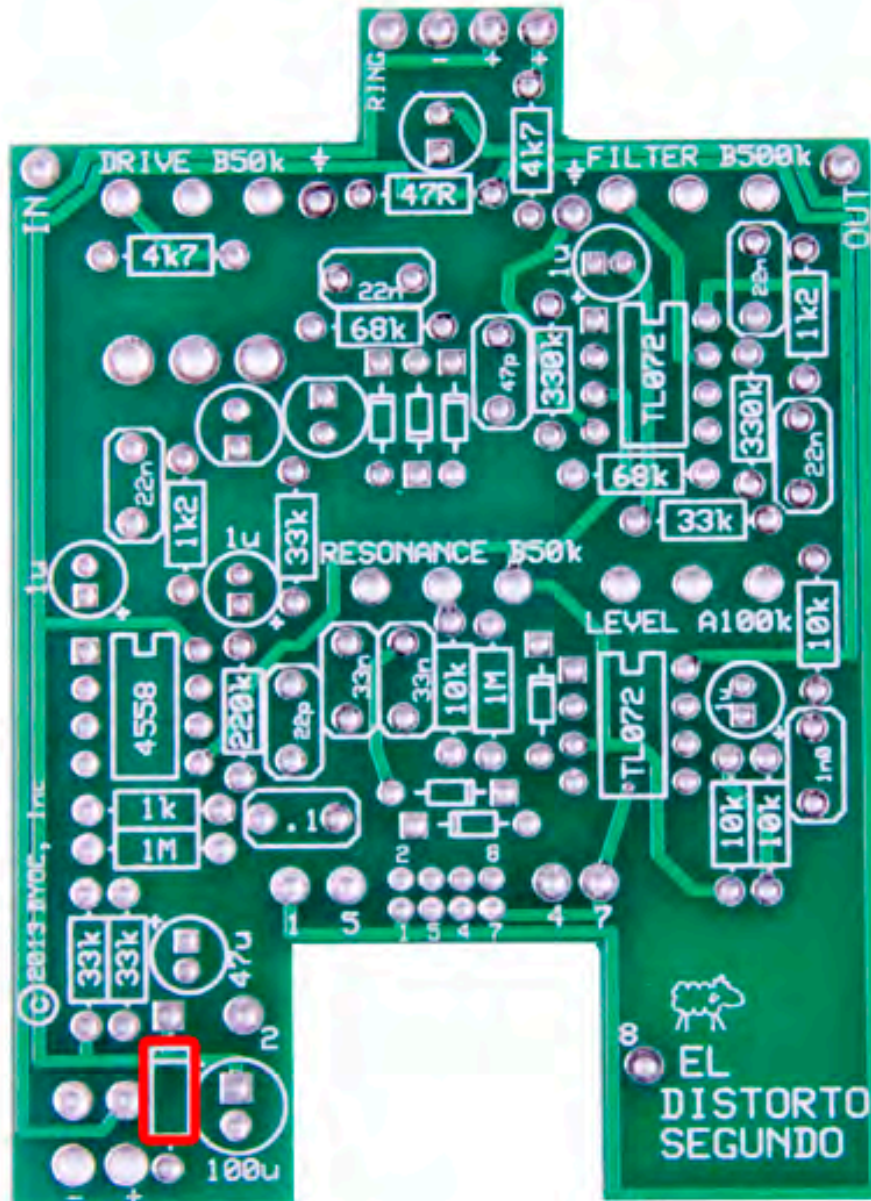
- 1 - predrilled enclosure w/ 4 screws
- 1 – El Distorto Segundo kit circuit board
- 1 - 3pdt footswitch
- 1 – spdt toggle switch
- 4 - knobs
- 1 - AC adaptor jack
- 1 - ¼" stereo jack
- 1 - ¼" mono jack
- 2 – internal tooth lock washers
- 1 - battery snap
- hook-up wire

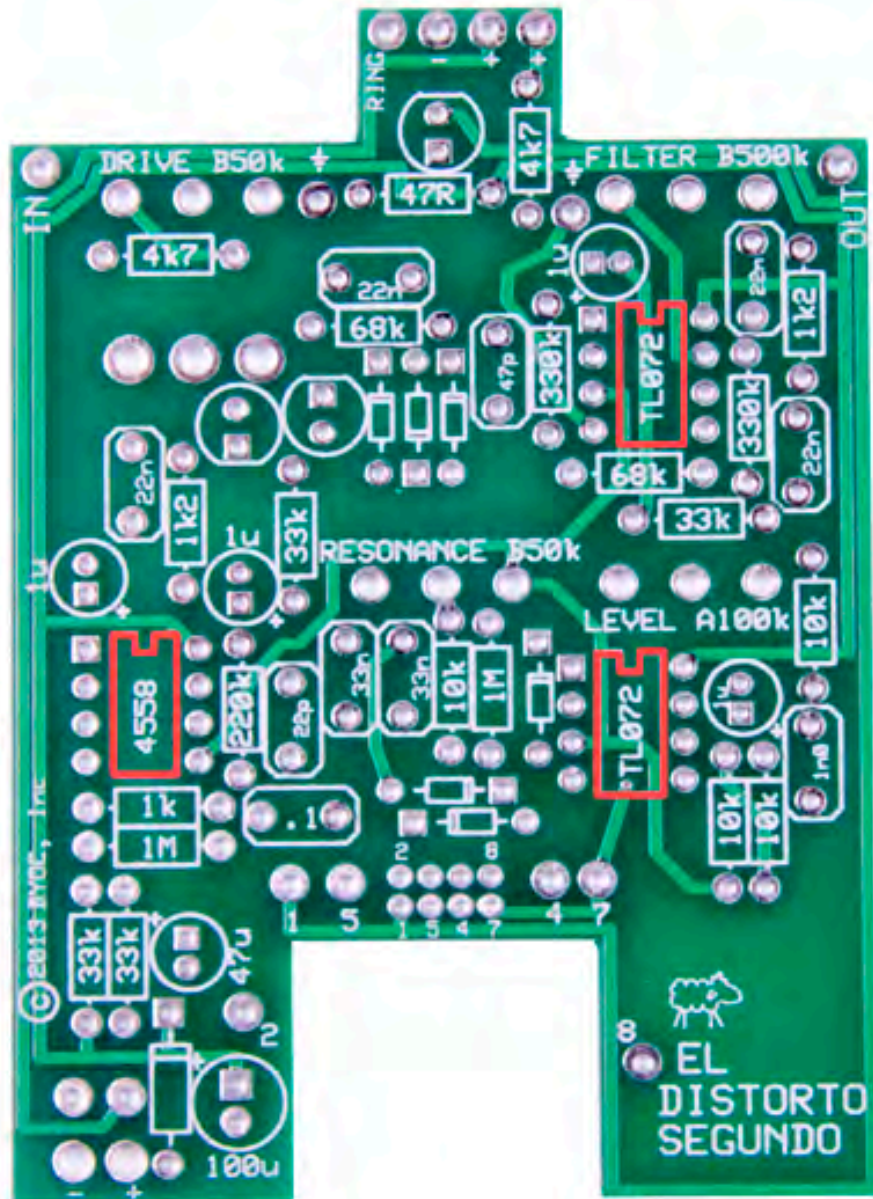
Populating the Circuit Board

Step 1: Add the 1N4148 diodes. Be sure to match the end of the diode with the stripe to the layout on the PCB. The striped end should go in the square solder pad.

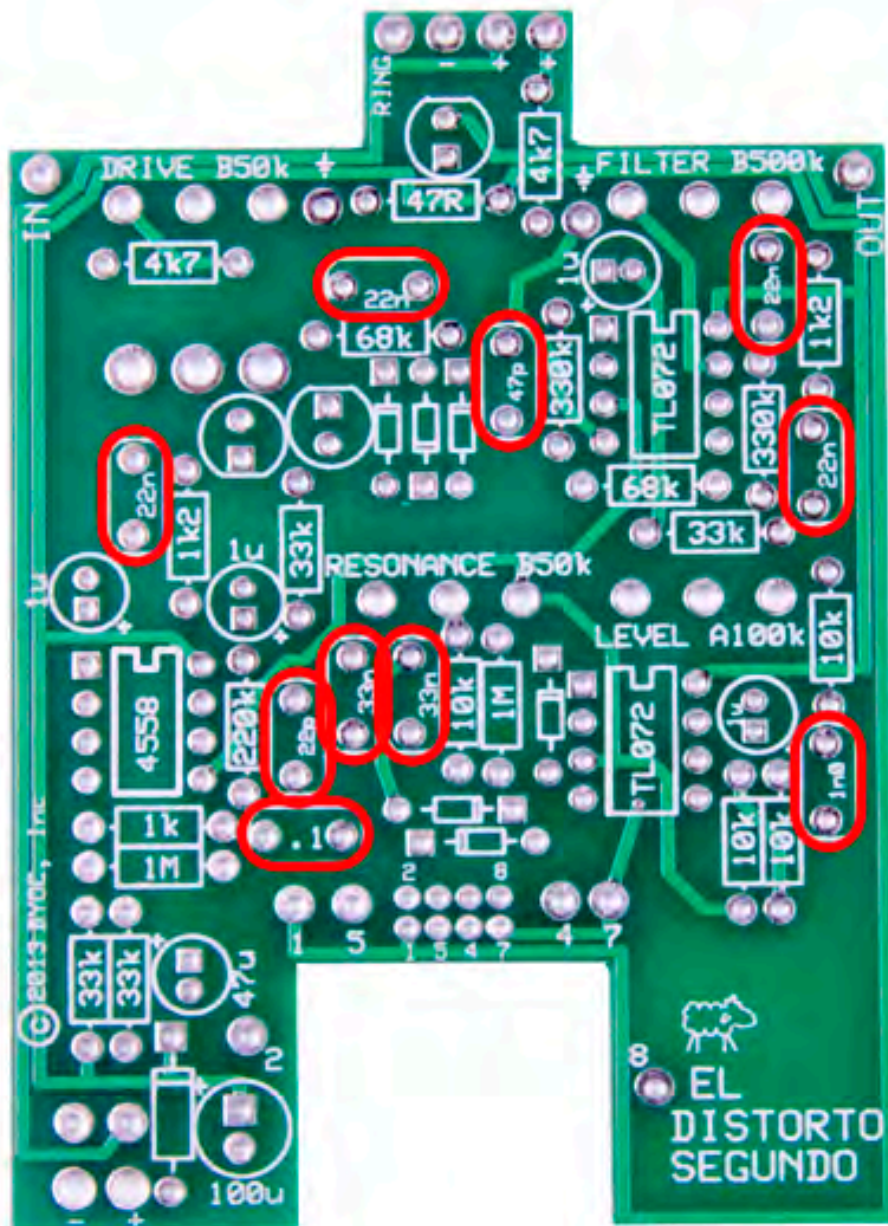




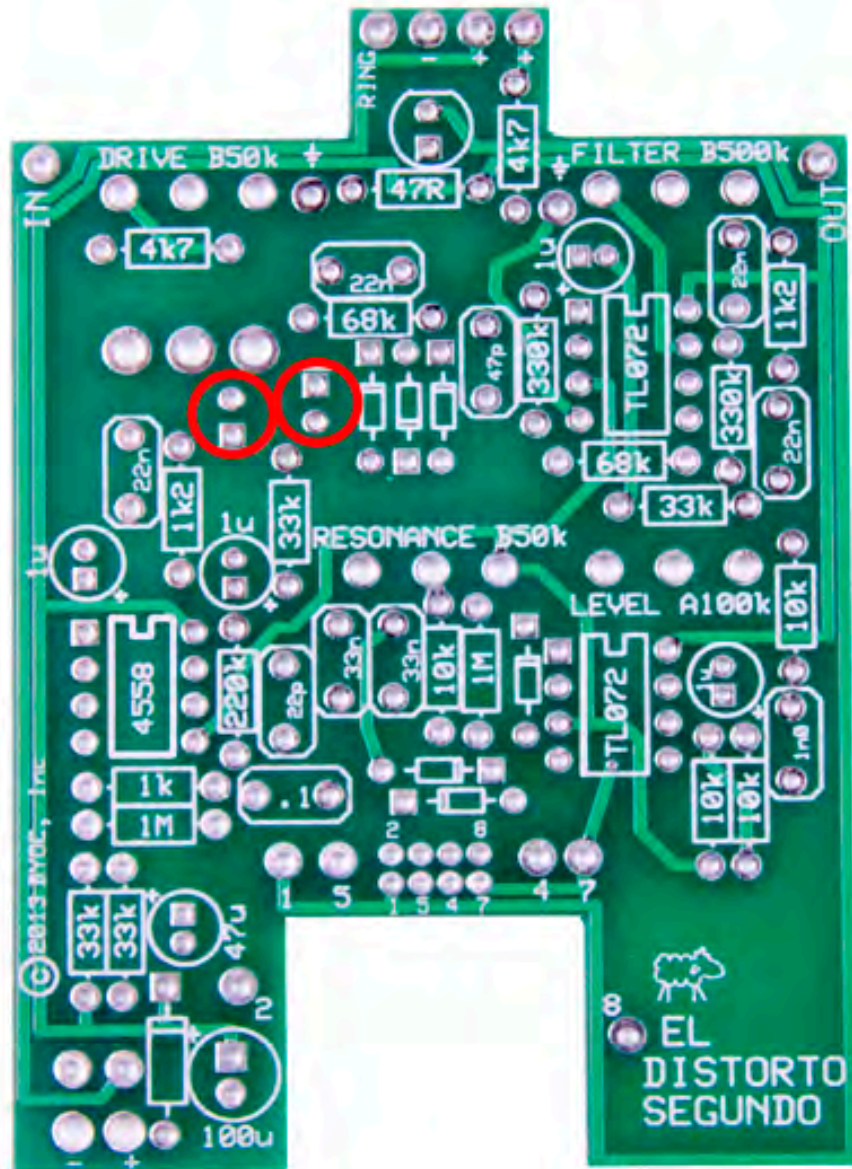


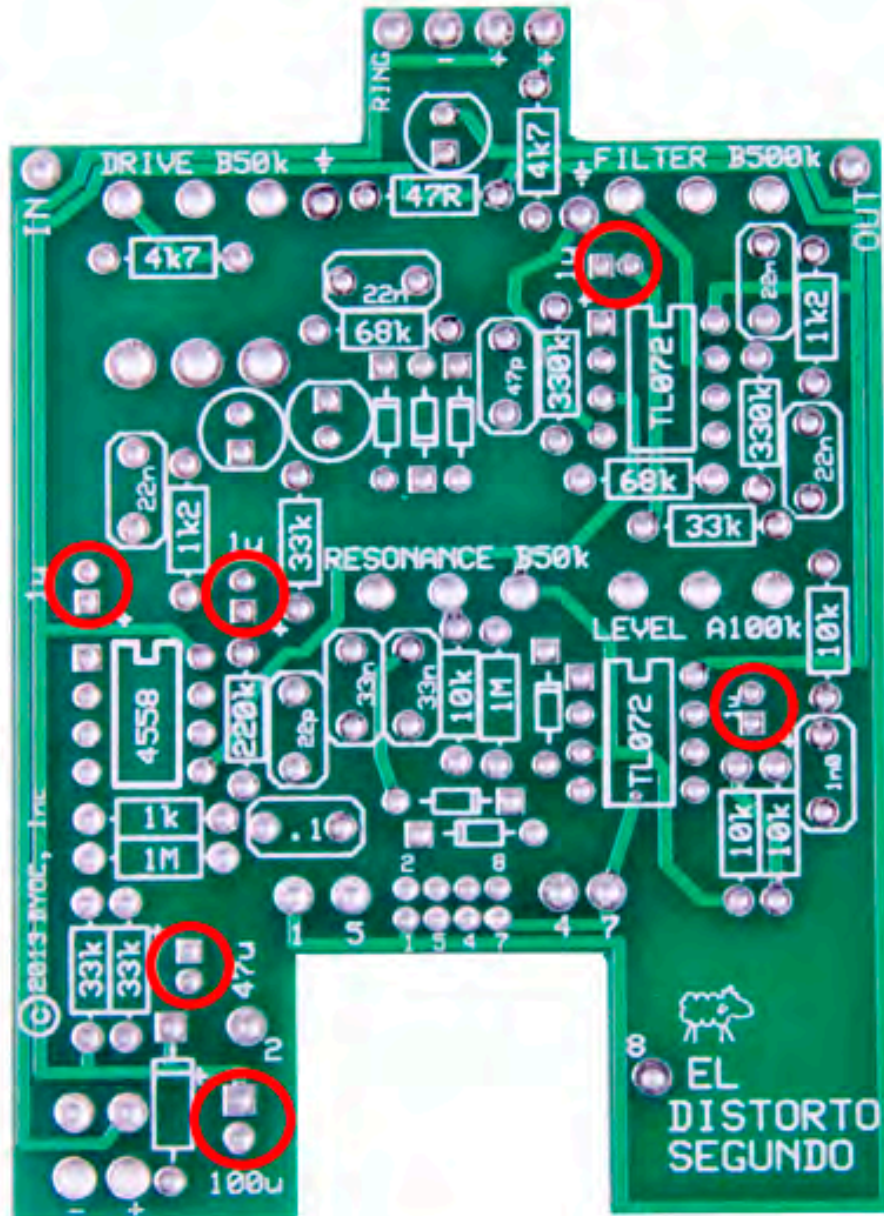


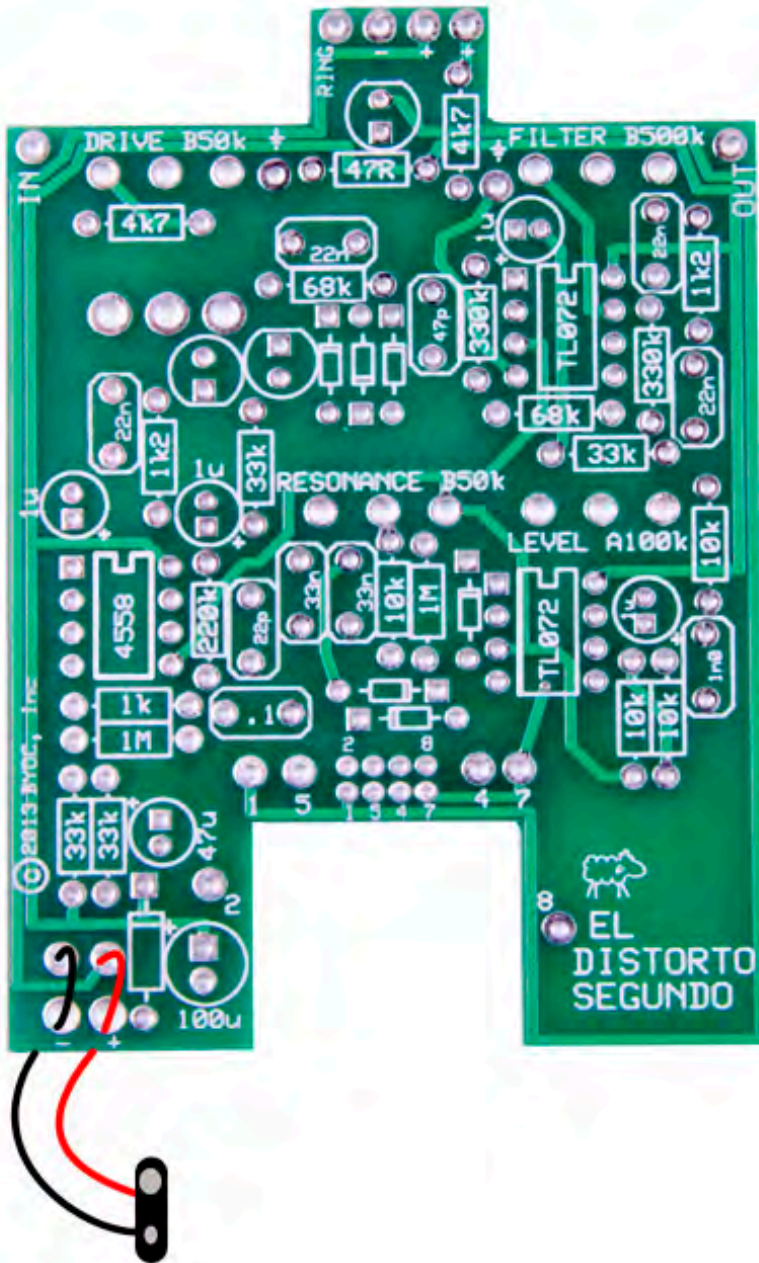
Step 5: Add the film and ceramic disc capacitors. These are non-polarized so they can go into the PCB in either direction.



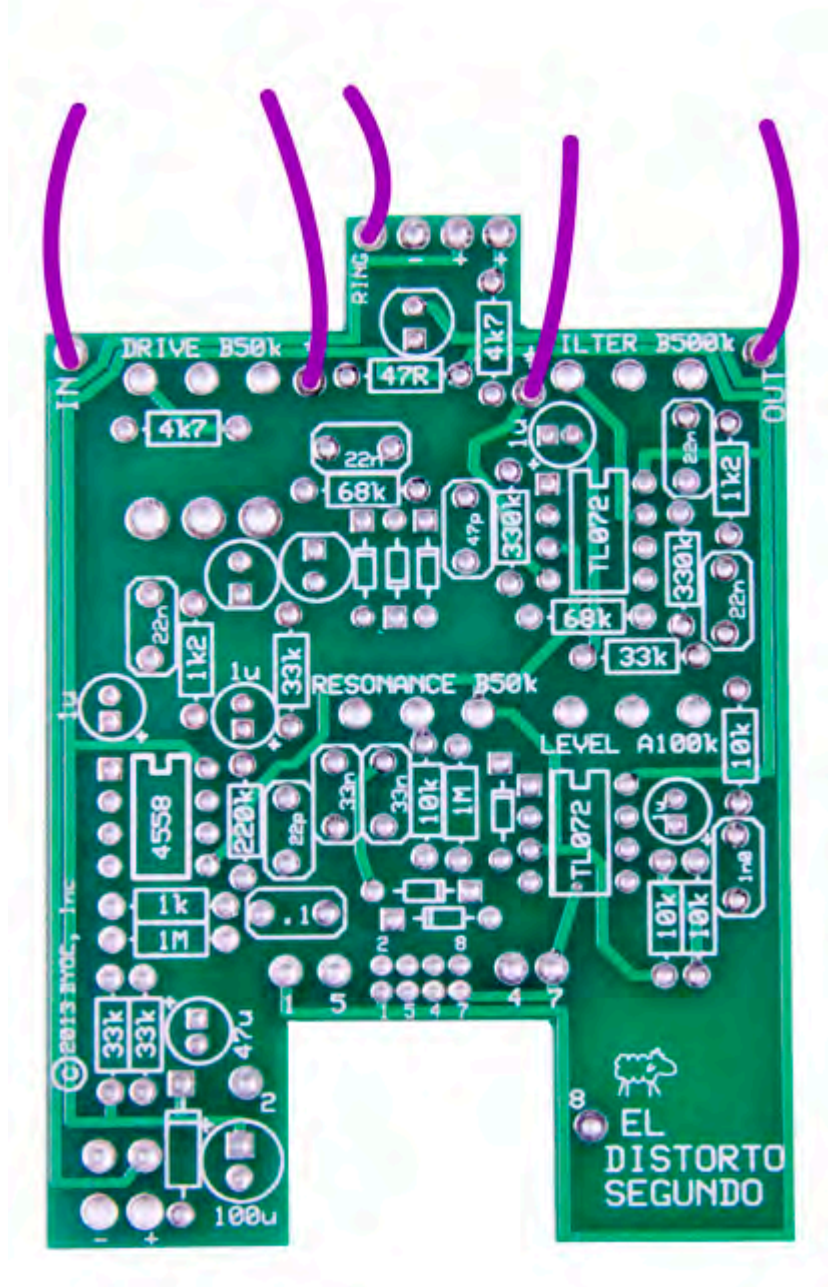
Step 6: Add 2 LED's. These are polarized, meaning there is a positive and negative end. The positive side will have a longer lead and goes in the square solder pad. The negative side will have a shorter lead and goes in the round solder pad. Remember that you should have one red LED left over for a later step.







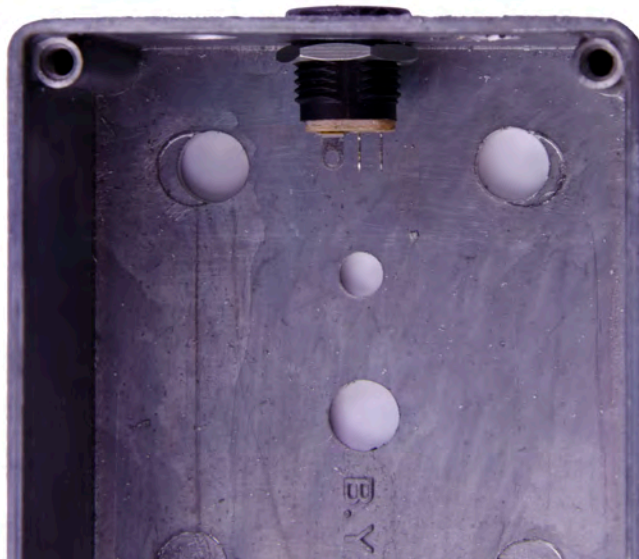
Step 7: Add wires to the IN, OUT, RING, and two Ground eyelets. Start by cutting four 2.5" pieces of wire, and one 1.5" piece. Strip 1/4" off each end and tin the ends. Tinning means to apply some solder to the stripped ends of the wires. This keeps the strands from fraying and primes the wire for soldering. Solder a 2.5" piece of wire to each of the IN, OUT, and Ground eyelets on the PCB. Solder the 1.5" piece to RING eyelet on the PCB. Load the wires in from the top and solder on the bottom of the PCB.

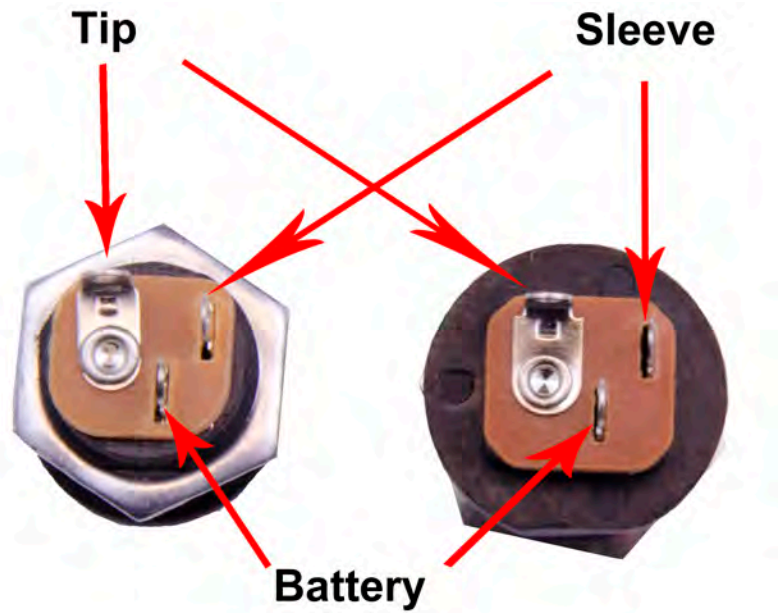


Main PCB Assembly

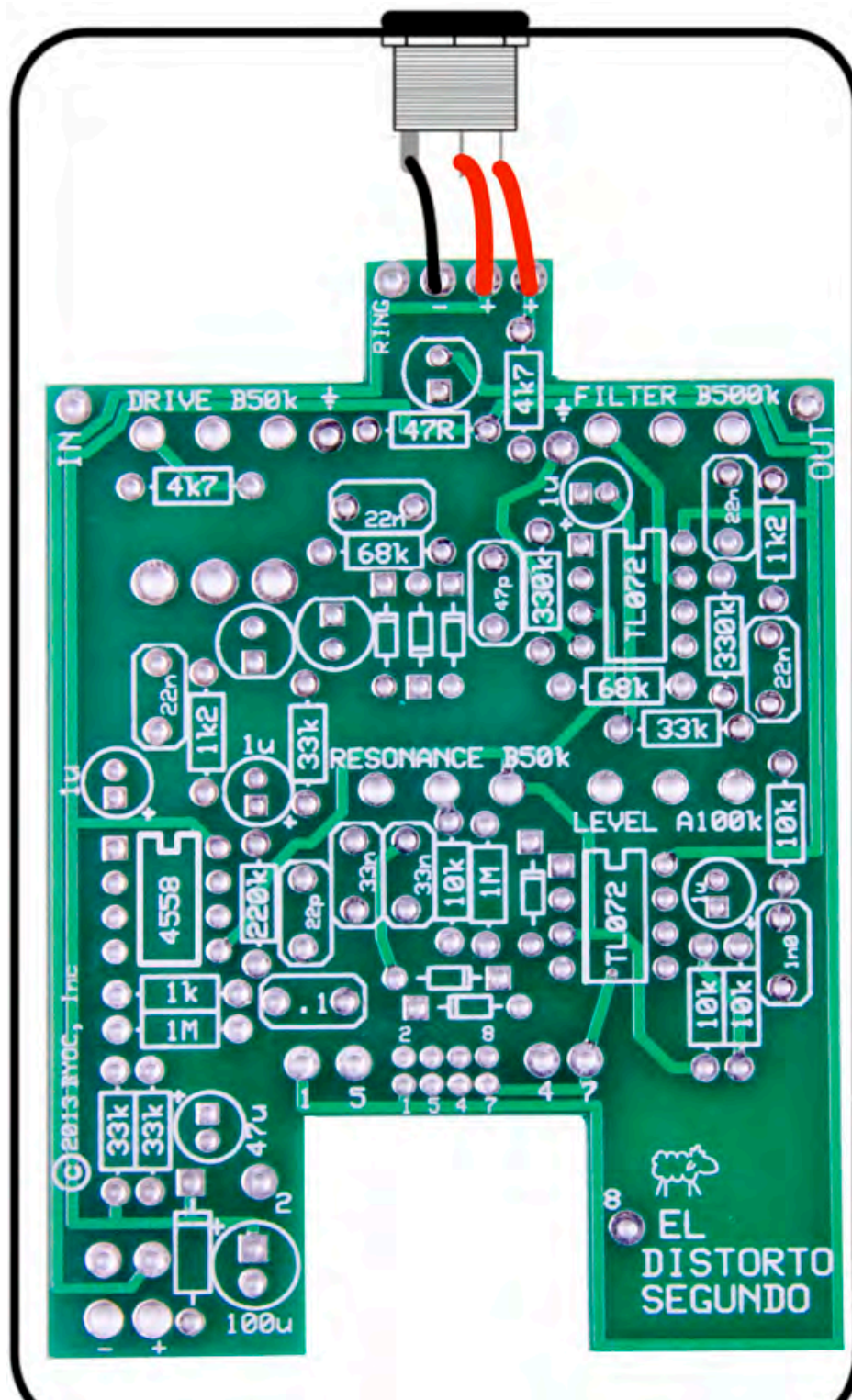


Step 1: Mount the AC adapter jack to the enclosure. Your kit may come with either an external thread or internal thread. Don't get confused by this. They still function exactly the same. You just thread the external nut on the outside and the internal nut on the inside. The picture below is of an internal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

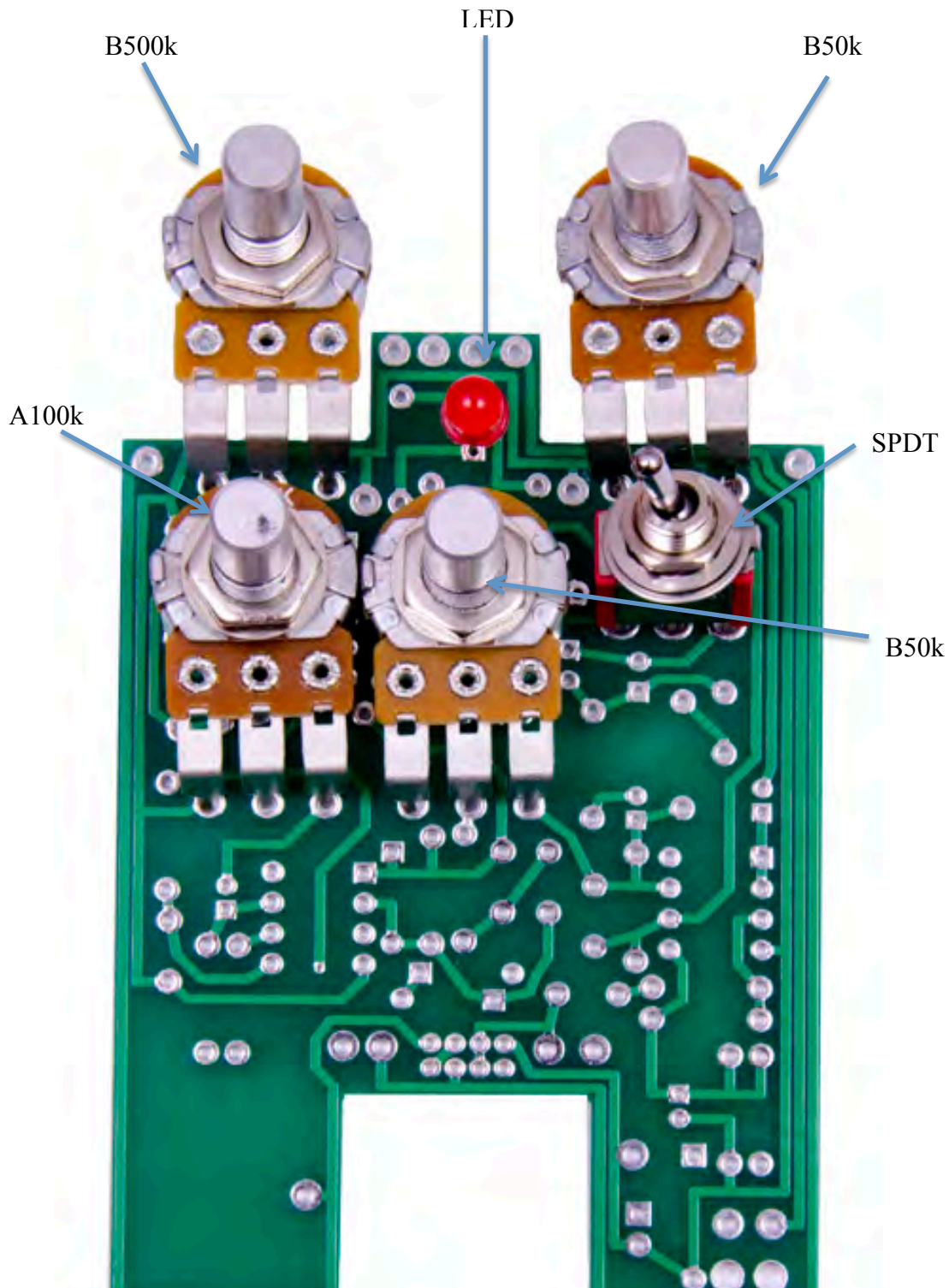


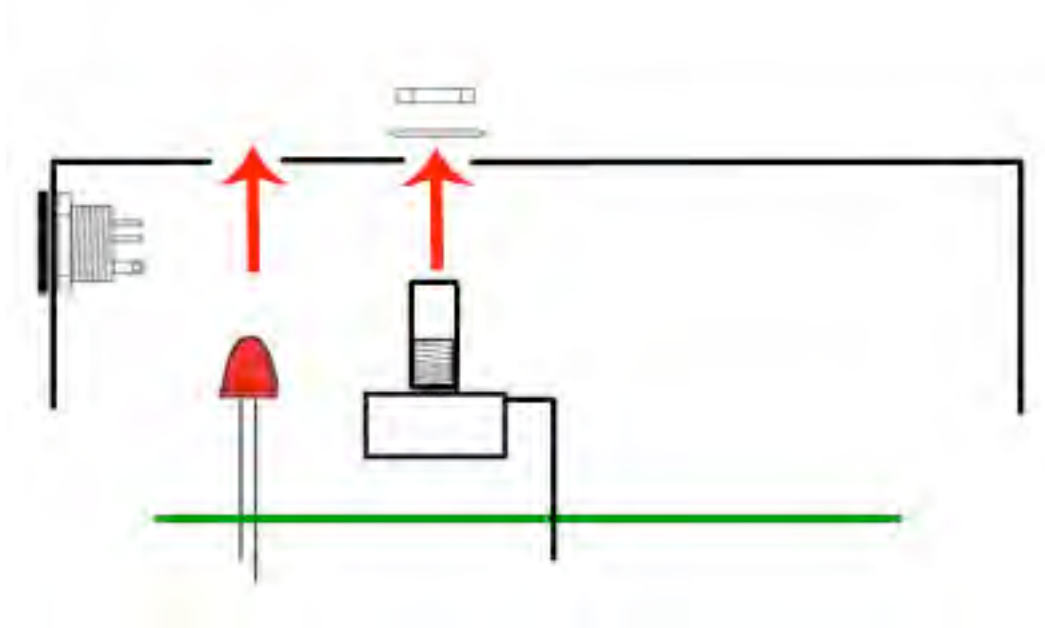


Step 2: Connect the TIP (negative) terminal of the DC adaptor jack to the eyelet on the PCB labeled “-“. Connect the SLEEVE of the DC adaptor jack to the eyelet on the PCB labeled “+” farthest to the right. Connect the battery disconnect terminal of the DC adaptor jack to the second eyelet on the PCB labeled “+” located in the middle of the other two eyelets . See diagram on the next page.



Step 3: Flip the PCB over so that the bottom or solder side is up. Insert the A100k (Volume), B50k (Resonance), B500k (Filter) & B50k(Gain) 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.**





Step 4: 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, toggle switch and LED is 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.**

Step 5: 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 6: 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.

Wiring

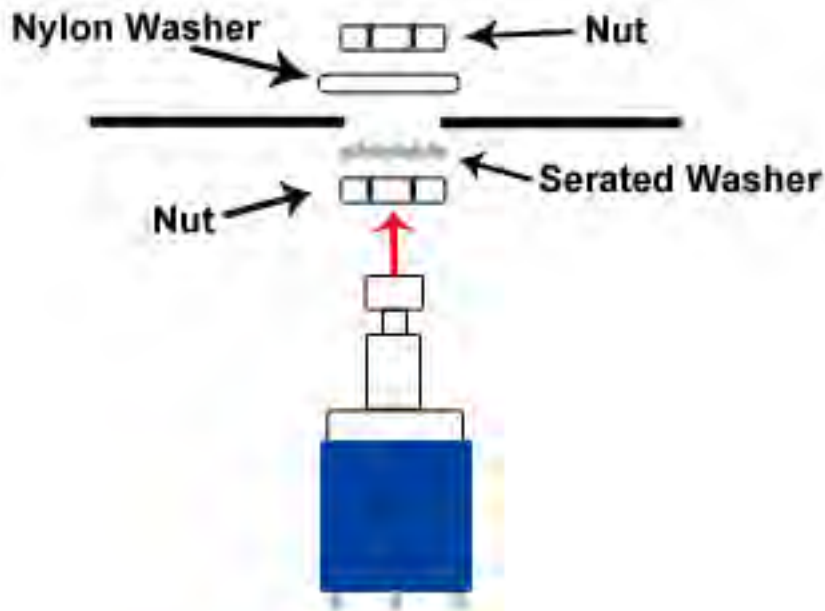
Stereo (input) Jack



Mono (output) Jack



Step 1: Install the 1/4" jacks to the enclosure.

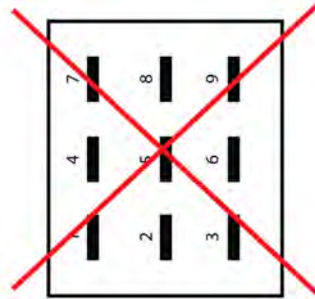
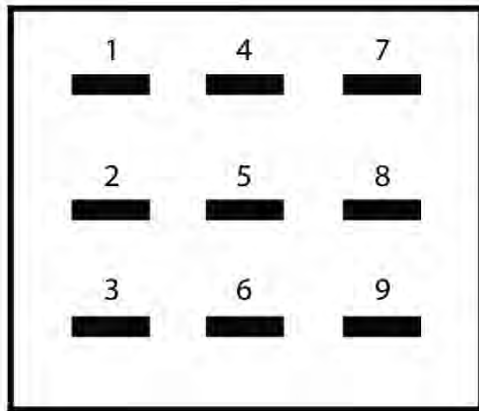


Step 2: Install the footswitch. Orient the footswitch so that the flat sides of the solder lugs are like the diagram below.

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.

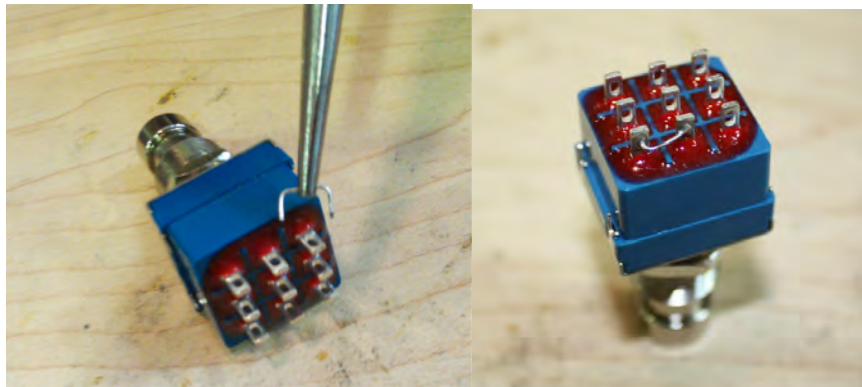
NOTE: It may be easier to wire up the foot switch before installing it into the pedal. There will be more room to work & it will be much easier to thread the lug 4 to lug 9 jumper.

FOOT SWITCH SOLDER LUG DESIGNATIONS



Step 3: Wiring the foot switch.

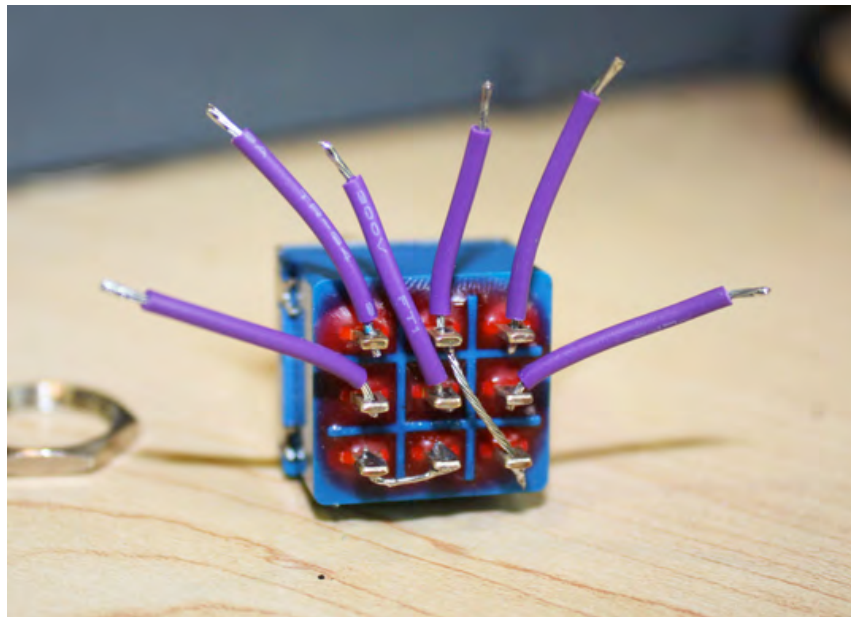
- Make a jumper between lugs 3 & 6 from clippings from the resistors. Simply use your needle nose pliers to make a U shape & insert into lugs 3 & 6, then solder.



- Cut a 1.5" piece of wire. Strip 1/8" of one end. Strip 1/2" off the other end. Tin both ends. This will be used to connect lug/eyelet 4. The longer stripped end will be used to jumper lug 4 to 9.

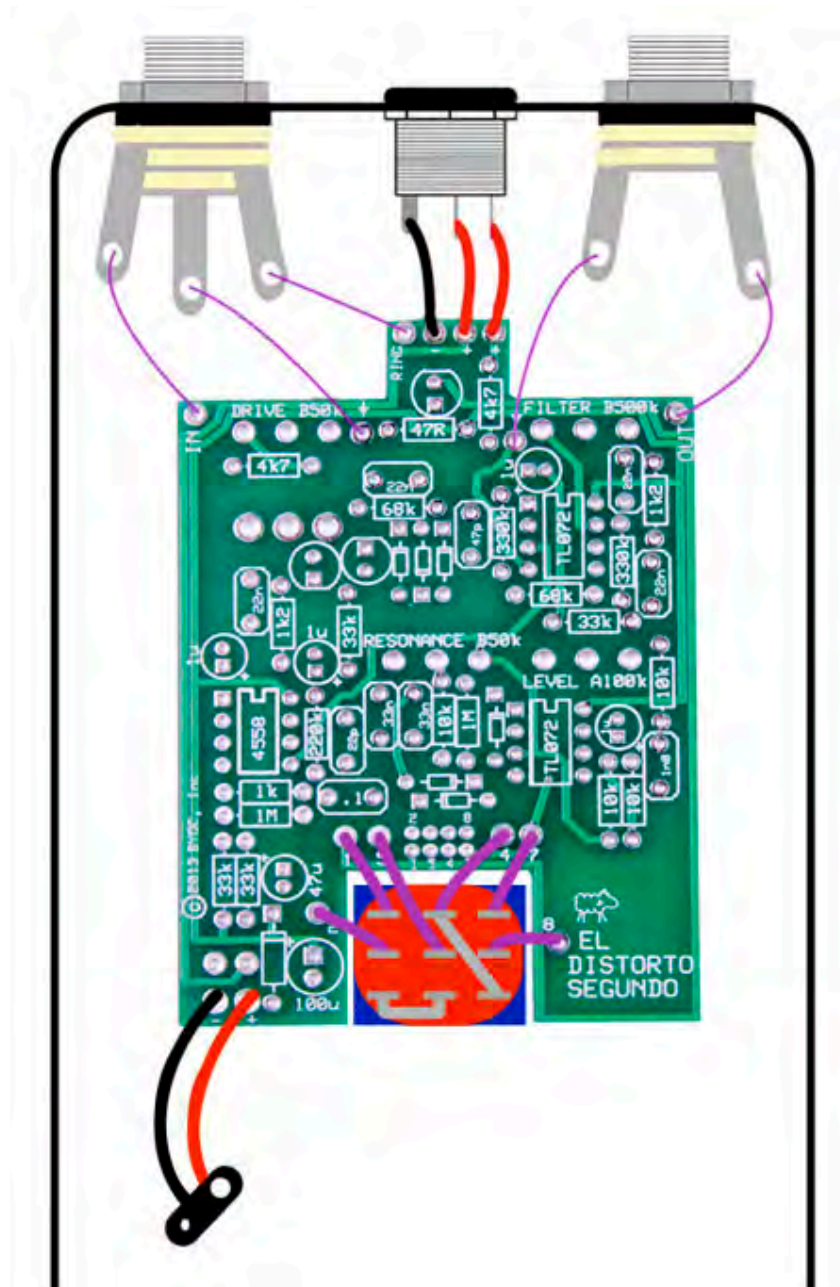


- Cut two 1" pieces of wire. Strip 1/8" off each end and tin. These will be used to connect lugs/eyelets 1 & 7
- Cut three 1.25" pieces of wire. Strip 1/8" off each end and tin. This will be used to connect lugs/eyelets 2, 5, & 8

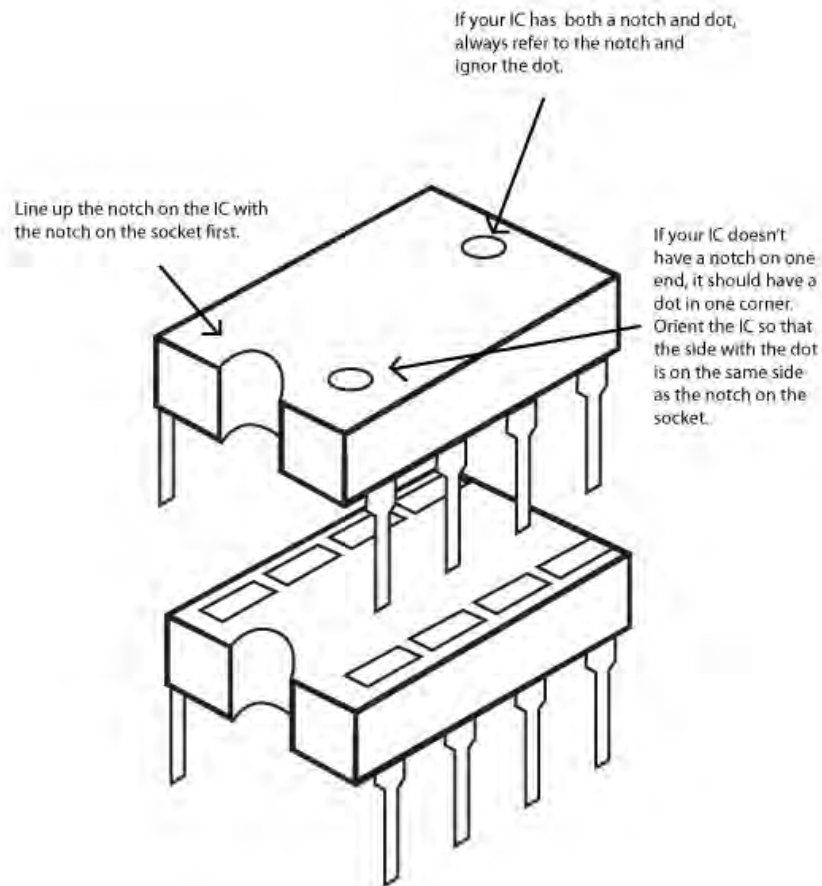


Step 4: Install the foot switch into the enclosure if it isn't already. Insert the foot switch wires into their respective eyelets on the PCB. You can insert them into the top side and solder on the top side as well. The solder pads should be large enough (if you are using a soldering iron that isn't too big) to allow you to do this without burning the PVC coating on the wires if you are careful. If you do singe the plastic on the wires, it's OK. It's not going to hurt anything. It's purely aesthetic.

NOTE: Wires shown in black & red are merely to indicate ground wires & positive power wires, respectfully. Your kit provides purple wire; you may choose to detonate these in a wire color of your choice

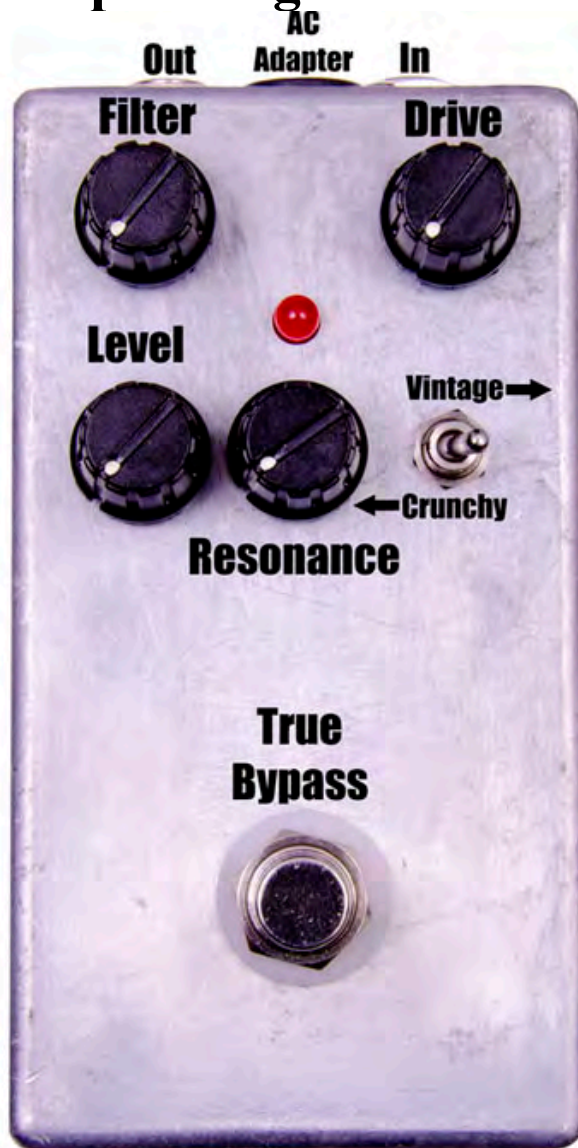


Installing IC/Finish up



Don't forget to put the cover on the enclosure and apply the bumpers to the cover.

Operating Overview



Drive: Controls the amount of distortion

Level: Controls the volume

Filter: Cuts high frequency when turned counter clockwise

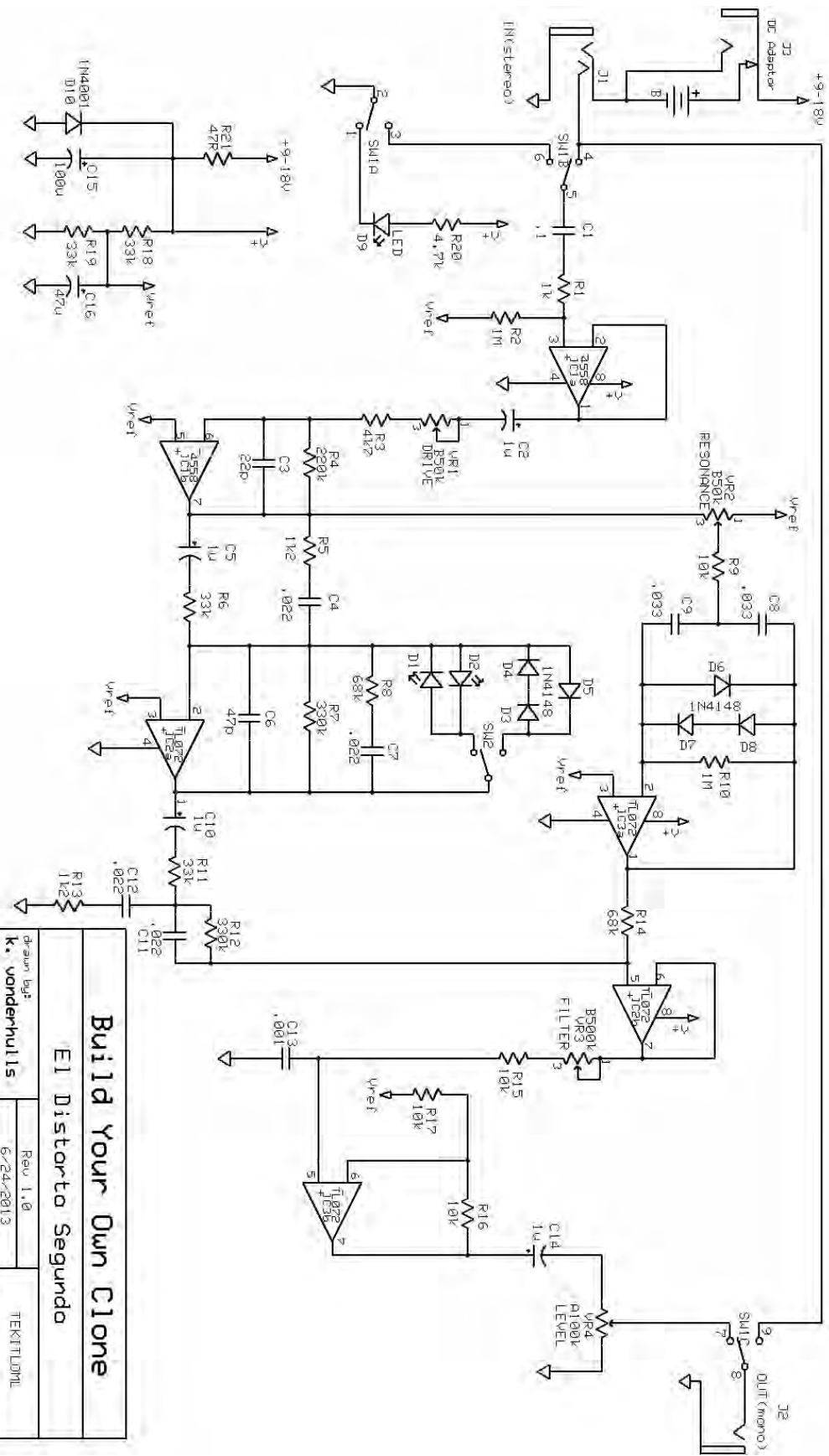
Resonance: Blends in a second distortion circuit when turned clockwise

Power supply: Standard 2.1mm negative tip 9VDC power supply

Current Draw: 4.5mA

Input Impedance: 1M ohms

Output Impedance: 100k ohms



Build Your Own Clone		
EI Distorto Segunda		
drawn by:	Rev 1.0	TEKITL07ML
k. vanderhulst		6/24/2013

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<http://byoceletronics.com/board>
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