

Build Your Own Clone Silver Pony 2 Kit Instructions



Warranty:

BYOC, Inc. guarantees that your kit will be complete and that all parts and components will arrive as described, functioning and free of defect. Soldering, clipping, cutting, stripping, or using any of the components in any way voids this guarantee. BYOC, INC guarantees that the instructions for your kit will be free of any majors errors that would cause you to permanently damage any components in your kit, but does not guarantee that the instructions will be free of typos or minor errors. BYOC, INC does not warranty the completed pedal as a whole functioning unit, nor do we warranty any of the individual parts once they have been used. If you have a component that is used, but feel it was defective prior to you using it, we reserve the right to determine whether or not the component was faulty upon arrival. Please direct all warranty issues to: sales@buildyourownclone.com This would include any missing parts issues.

Return:

BYOC, Inc. accepts returns and exchanges on all products for any reason, as long as they are unused. We do not accept partial kit returns. Returns and exchanges are for the full purchase price less the cost of shipping and/or any promotional pricing. Return shipping is the customer's responsibility. This responsibility not only includes the cost of shipping, but accountability of deliver as well. Please contact sales@buildyourownclone.com to receive a return authorization before mailing.

Tech Support:

BYOC, Inc. makes no promises or guarantees that you will successfully complete your kit in a satisfactory manner. Nor does BYOC, Inc. promise or guarantee that you will receive any technical support. Purchasing a product from BYOC, Inc. does not entitle you to any amount of technical support. BYOC, Inc. does not promise or guarantee that any technical support you may receive will be able to resolve any or all issues you may be experiencing.

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

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.

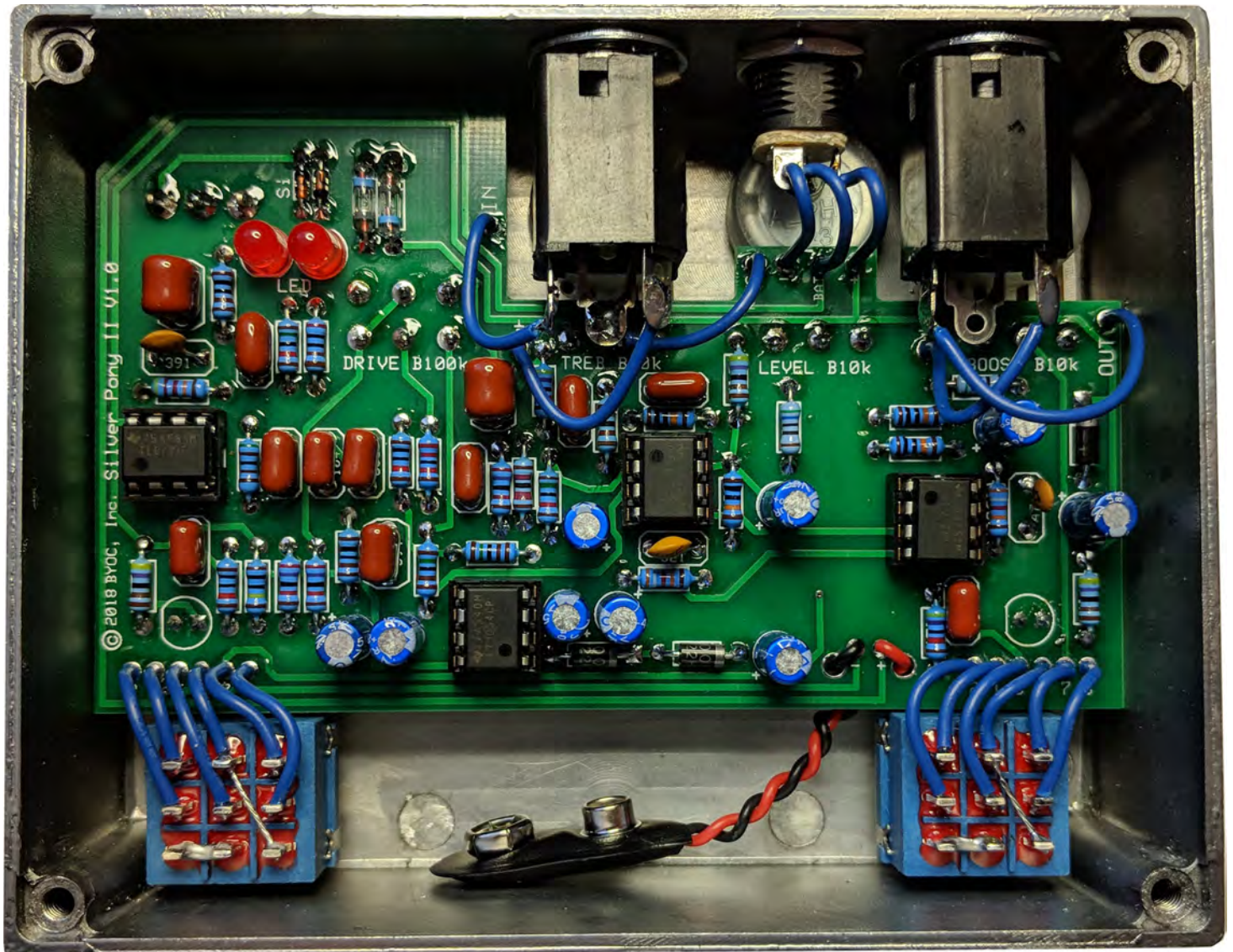
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This is what your kit should look like when it's complete. Your kit may come with different color capacitors, switches etc. Don't be alarmed by this. They all still do the exact same thing.



Parts Checklist for Silver Pony 2 Kit

Metal Film (5-band)

Carbon Comp (4-band)

Resistors:

2 - 560R	(Green/Blue/Black/Black/Brown)	or (Green/Blue/Brown/Gold)
2 - 1k	(Brown/Black/Black/Brown/Brown)	or (Brown/Black/Red/Gold)
2 - 1k5	(Brown/Green/Black/Brown/Brown)	or (Brown/Green/Red/Gold)
1 - 1k8	(Brown/Gray/Black/Brown/Brown)	or (Brown/Gray/Red/Gold)
1 - 2k	(Red/Black/Black/Brown/Brown)	or (Red/Black/Red/Gold)
3 - 4k7	(Yellow/Purple/Black/Brown/Brown)	or (Yellow/Purple/Red/Gold)
1 - 5k1	(Green/Brown/Black/Brown/Brown)	or (Green/Brown/Red/Gold)
2 - 10k	(Brown/Black/Black/Red/Brown)	or (Brown/Black/Orange/Gold)
1 - 12k	(Brown/Red/Black/Red/Brown)	or (Red/Red/Orange/Gold)
2 - 15k	(Brown/Green/Black/Red/Brown)	or (Brown/Green/Orange/Gold)
1 - 22k	(Red/Red/Black/Red/Brown)	or (Red/Red/Orange/Gold)
3 - 27k	(Red/Purple/Black/Red/Brown)	or (Red/Purple/Orange/Gold)
2 - 47k	(Yellow/Purple/Black/Red/Brown)	or (Yellow/Purple/Orange/Gold)
4 - 100k	(Brown/Black/Black/Orange/Brown)	or (Brown/Black/Yellow/Gold)
2 - 392k	(Orange/White/Red/Orange/Brown)	
1 - 422k	(Yellow/Red/Red/Orange/Brown)	
1 - 1M	(Brown/Black/Black/Yellow/Brown)	or (Brown/Black/Green/Gold)

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

Capacitors:

- 1 - 47pf Ceramic Disc (may say "47" on the body)
- 1 - 390pf Ceramic Disc (may say "391" on the body)
- 1 - 820pf Ceramic Disc (may say "821" on the body)
- 1 - .0022uF/2n2 film cap (may say "222" on the body)
- 1 - .0039uF/3n9 film cap (may say "392" on the body)
- 1 - .027uF/27n film cap (may say "273" on the body)
- 2 - .068uF/68n film cap (may say "683" on the body)
- 1 - .082uF/82n film cap (may say "823" on the body)
- 3 - .1uF/100n film cap (may say "104" on the body)
- 1 - .39uF/390n film cap (may say "394" on the body)
- 2 - 1uF Film cap (may say "105" on the body)
- 5 - 1uf Aluminum Electrolytic
- 2 - 4u7 Aluminum Electrolytic
- 2 - 47uf Aluminum Electrolytic

Visit www.byocelectronics.com/capcodes.pdf for more info on how to differentiate capacitors.

Diodes:

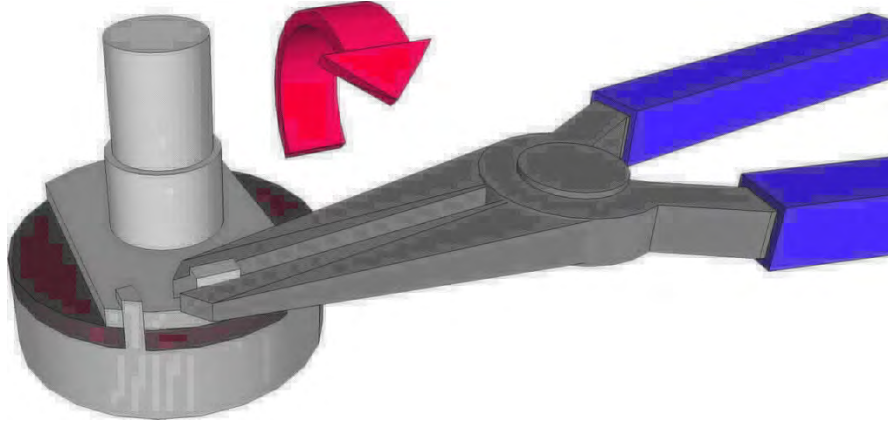
- 2 - 1N4148 silicon diodes (orange with black stripe)
- 3 - 1N4001 diodes (black body with silver stripe)

- 2 - Germanium Diodes (clear glass body with black, blue, red, or green stripes)
- 2 - 5mm Red LEDs

IC's:

- 4 - DIP 8 socket
- 3 - TL072 or similar dual opamp
- 1 - LT1054 or similar charge pump (Max 1044, 7660SCPA, etc.)

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



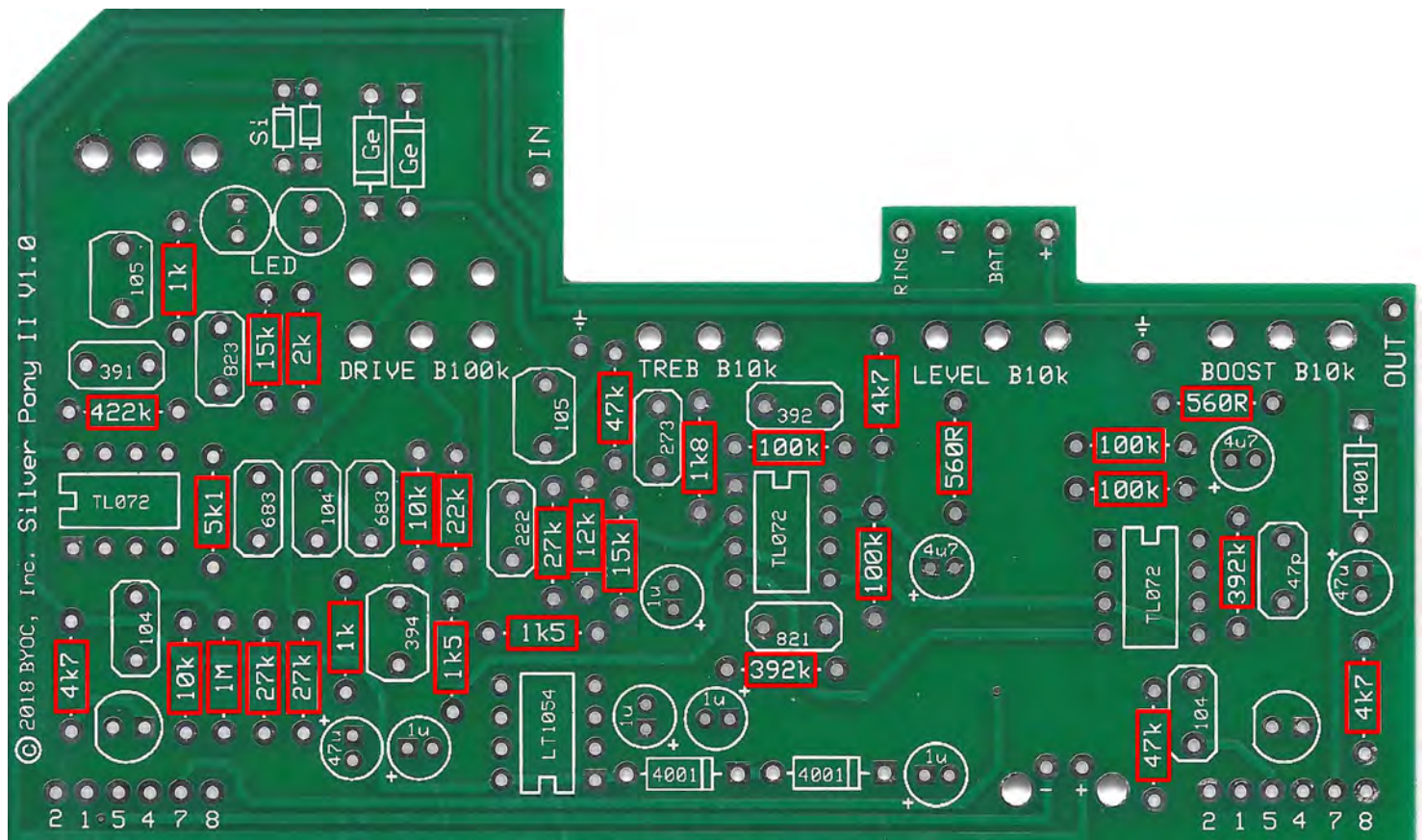
- 3 - B10k (Boost, Output, Treble)
- 1 - B100k Dual Gang (Gain)

Hardware:

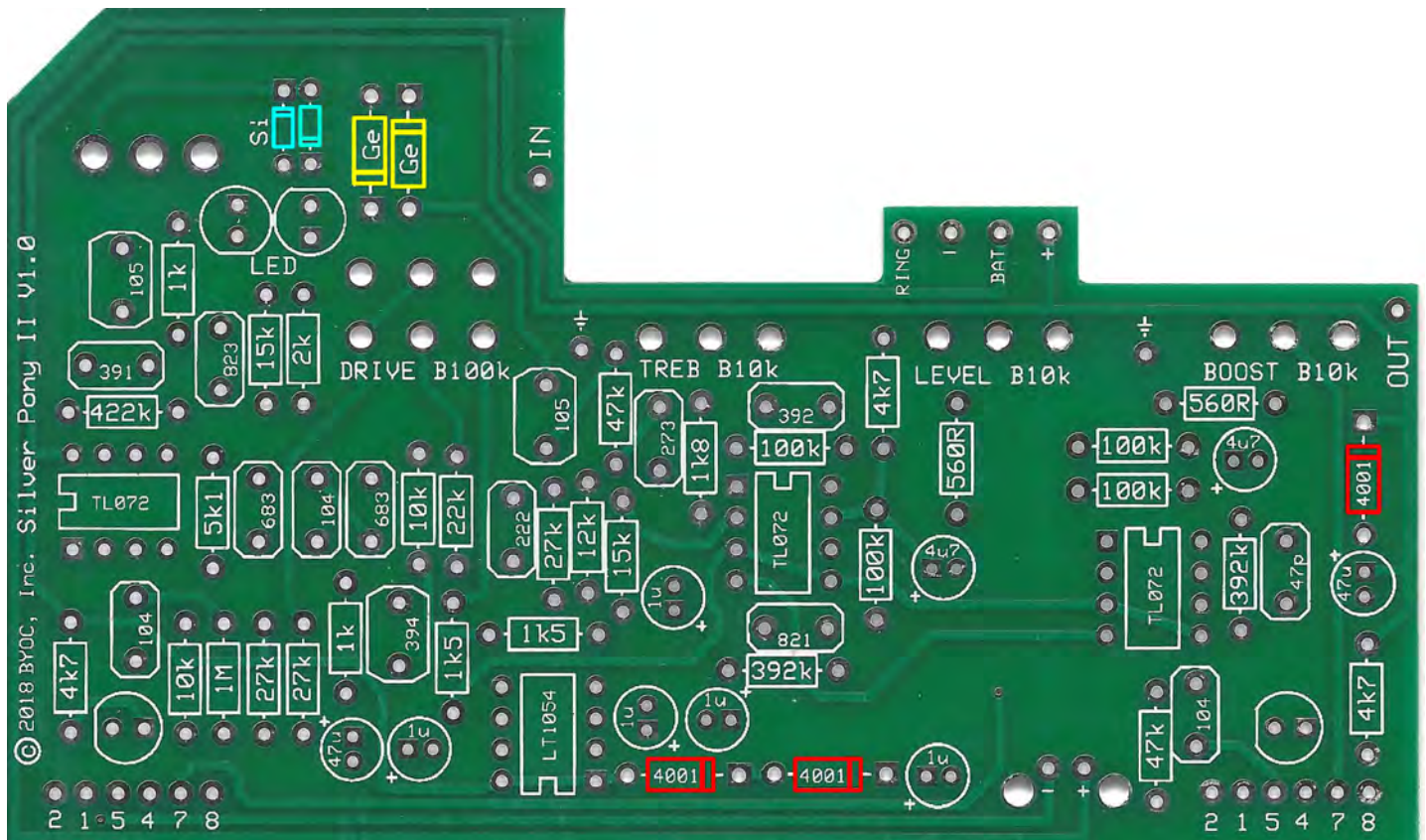
- 1 - predrilled enclosure w/ 4 screws (optional)
- 1 - Silver Pony 2 circuit board
- 2 - 3pdt footswitch
- 1 - On-Off-On Toggle Switch
- 2 - Enclosed Jacks
- 1 - Battery Snap
- 4 - rubber bumpers
- 2 - lock washers (for in and out jacks)
- hook-up wire

Populating the Circuit Board

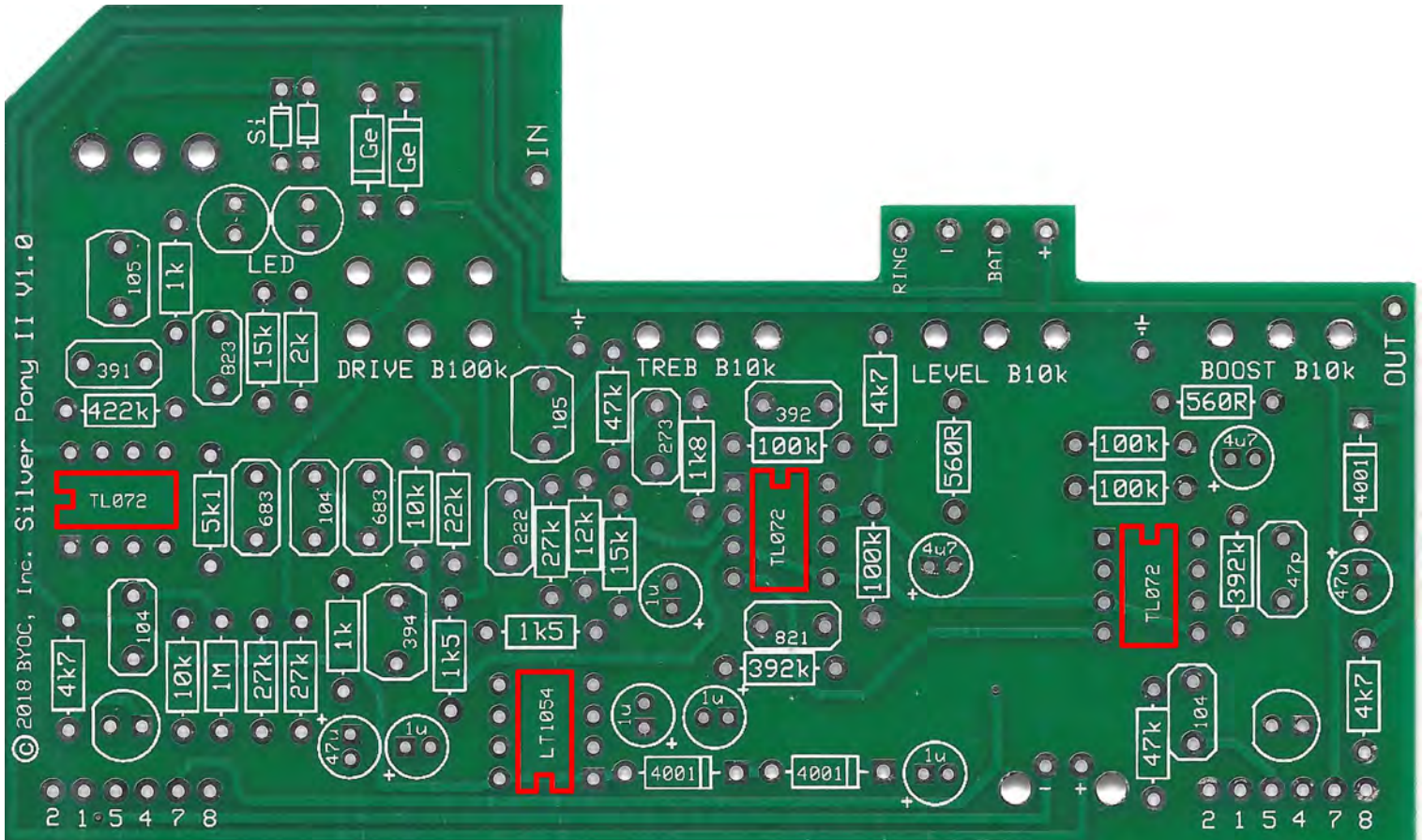
Step 1: Add all the resistors. Resistors are not polarized and can be inserted in either direction.



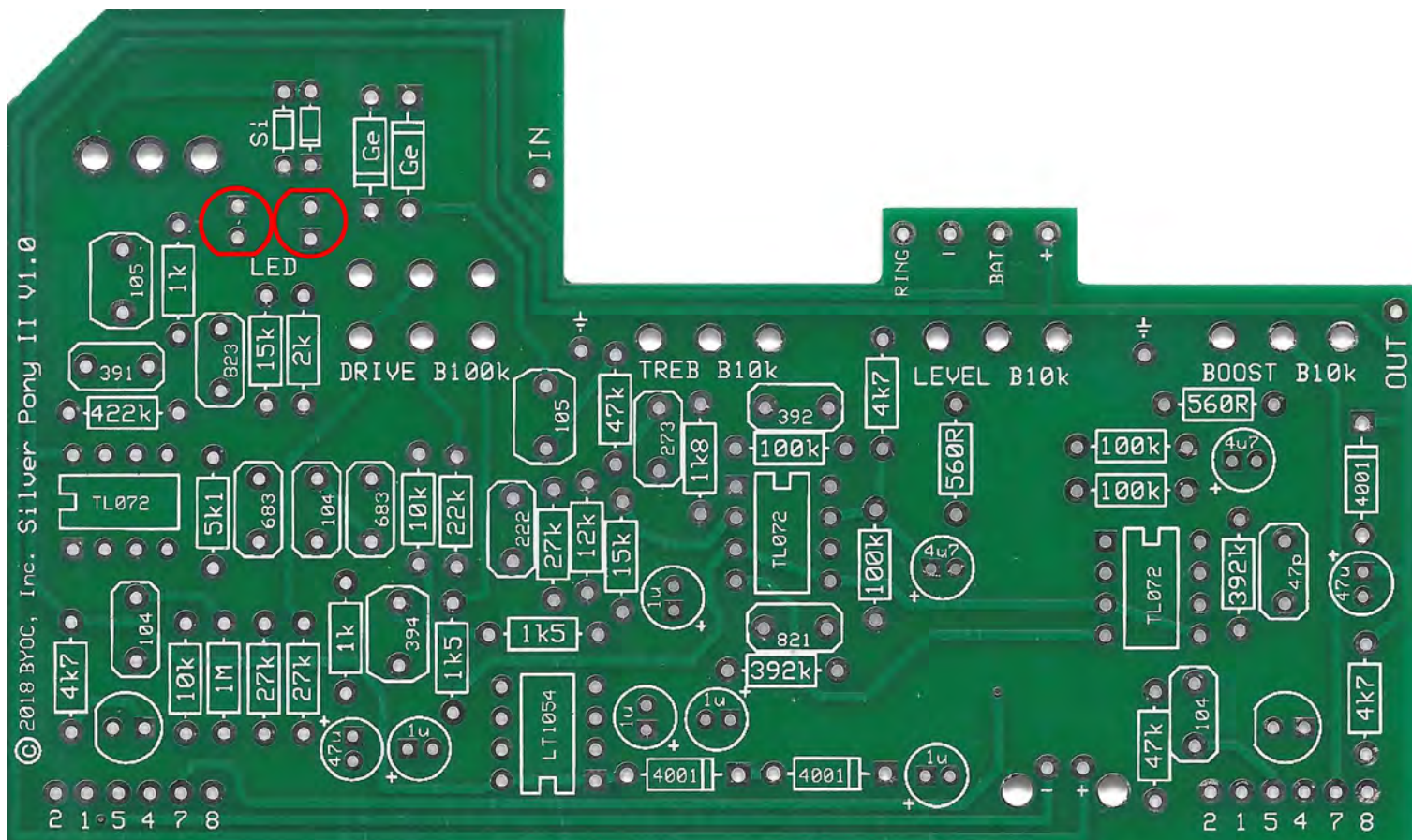
Step 2: Add the diodes. Be sure to match the end of the diode with the stripe to the layout on the PCB. The striped end should go in the square solder pad. The diodes highlighted in yellow are the Germanium (Ge) diodes. Your Ge diodes may have two stripes. Match the darker stripe up with the lines on the PCB layout. Ultimately, it doesn't matter since the Ge diodes are only clipping diodes. As long as you have the two Ge diodes oriented in different directions, they will work just fine. The diodes highlighted in blue are the 1N4148 Silicon diodes. The diodes highlighted in red are the 1N4001 diodes.



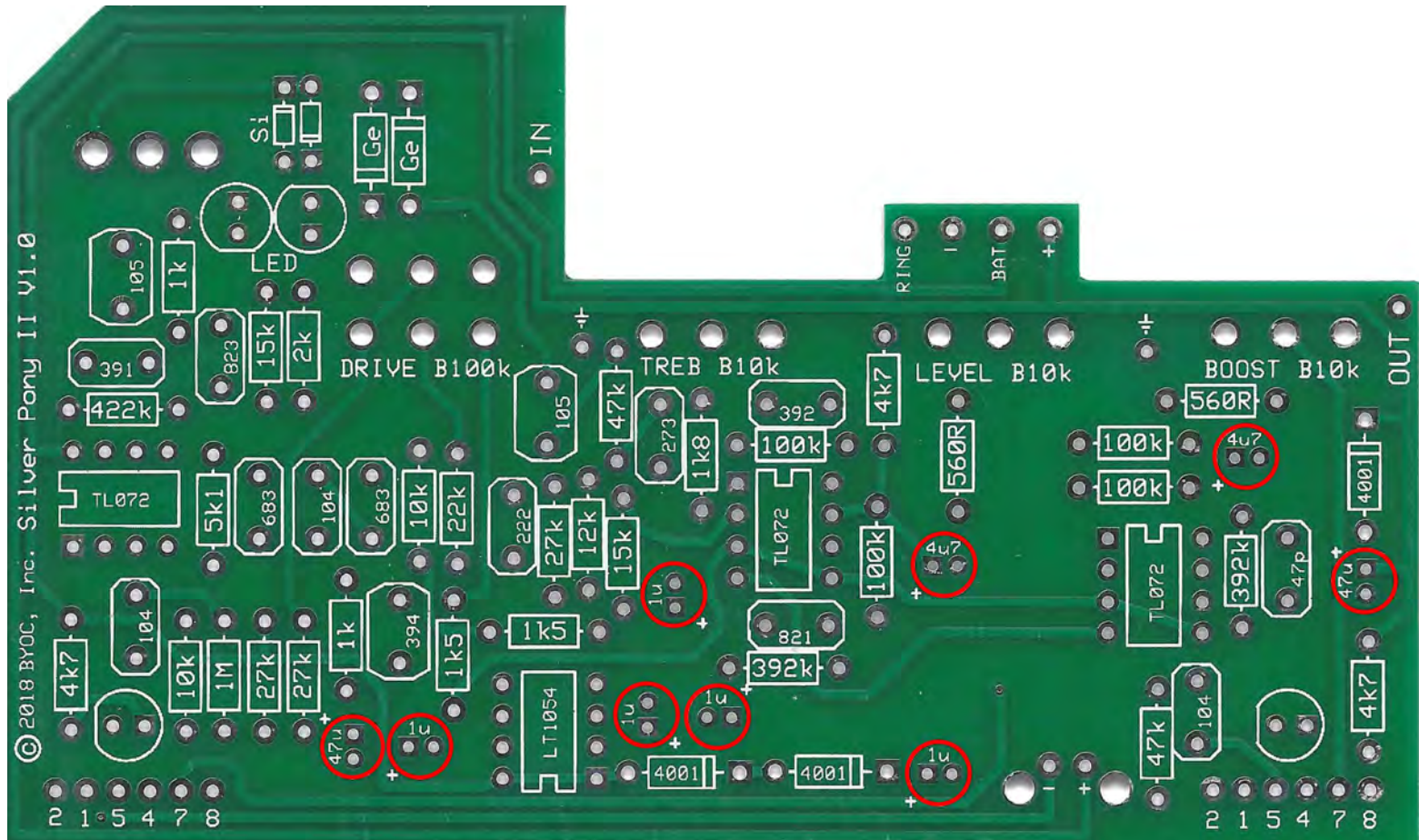
Step 3: Add the four 8 pin IC sockets. **ONLY SOLDER THE SOCKET! NOT THE ACTUAL IC!** This is a socket. The sockets get soldered to the PCB. The ICs get inserted into the sockets. The actual IC chip itself, never gets soldered. You will insert the IC into the socket after the entire pedal has been built.



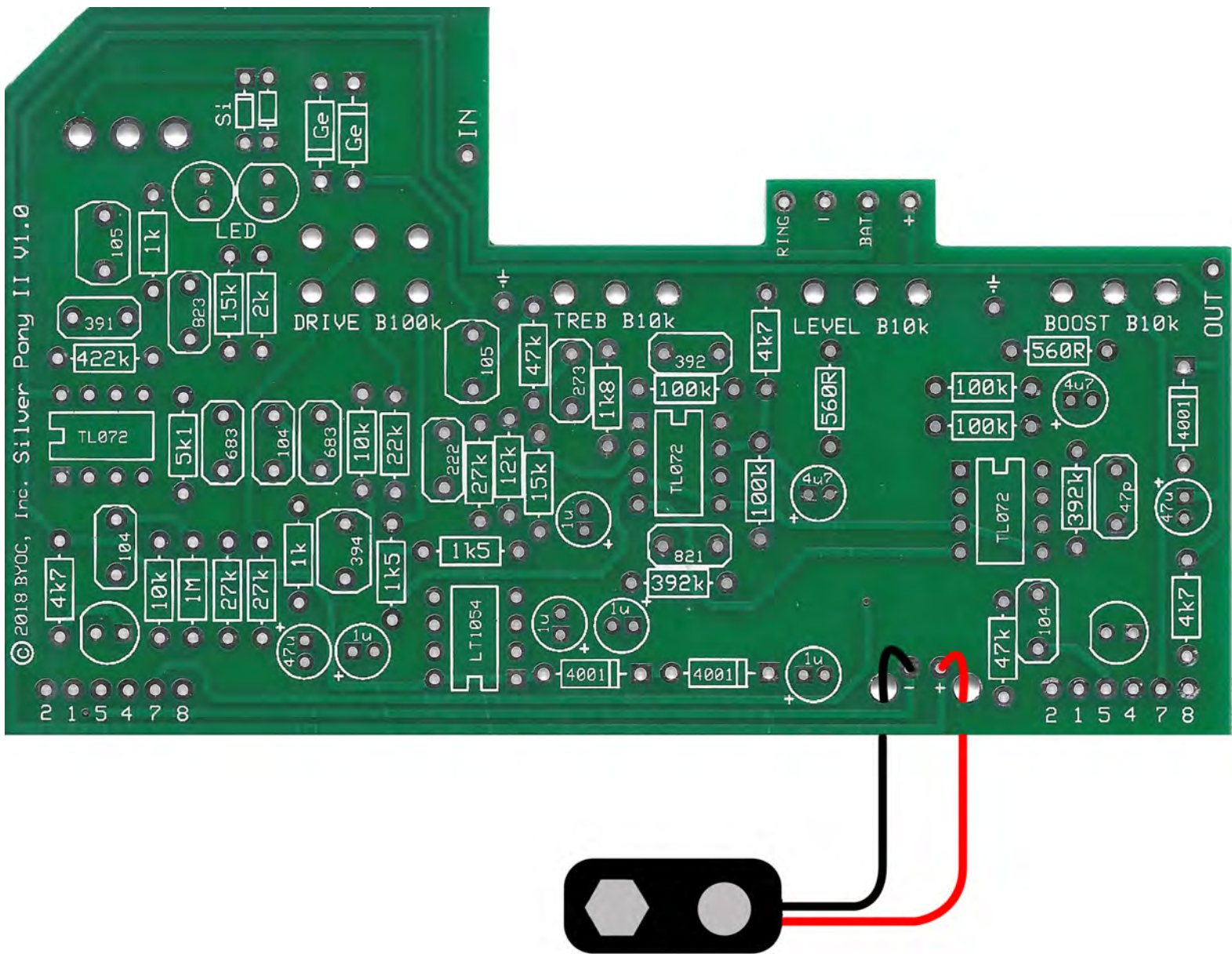
Step 6: Add the two clipping LEDs. Orient them so the long lead goes into the square hole.



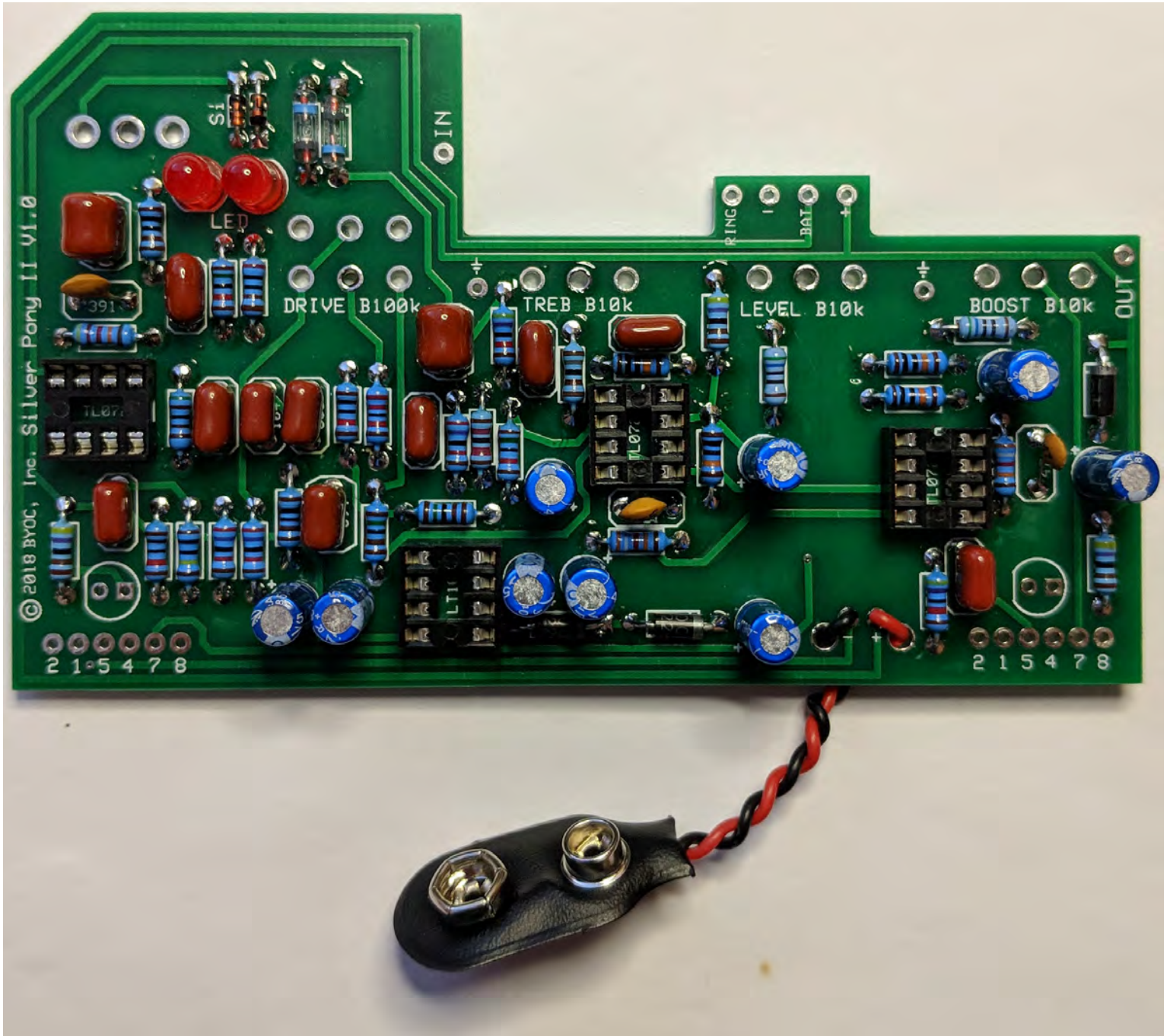
Step 7: Add the aluminum electrolytic capacitors. These ARE polarized, meaning there is a positive and negative end. The positive side will have a longer lead and goes in the square solder pad. The negative side will have a shorter lead and a stripe running along the body of the cap, and goes in the round solder pad.



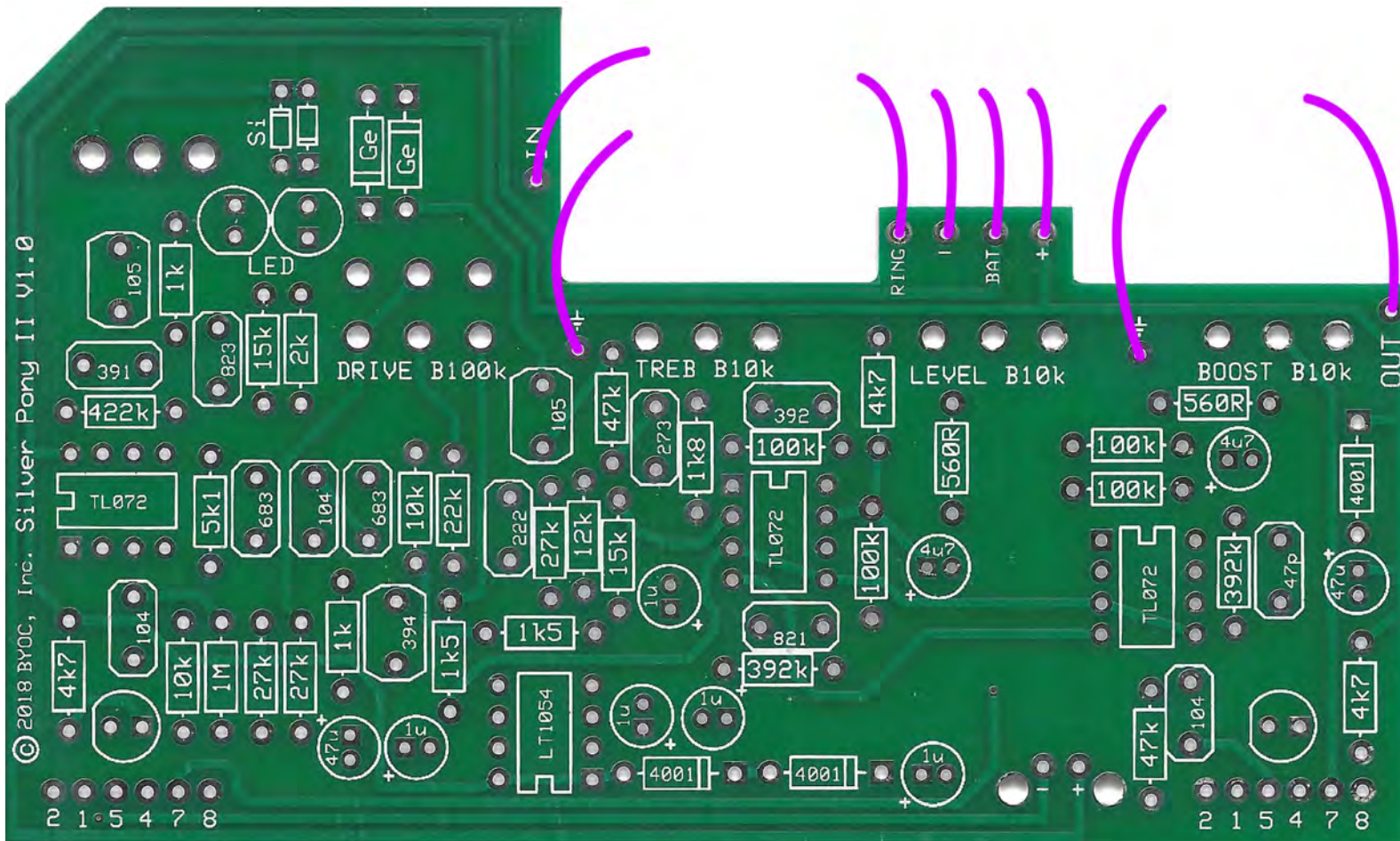
Step 8: Add the battery snap.



At this point your board should look like this:



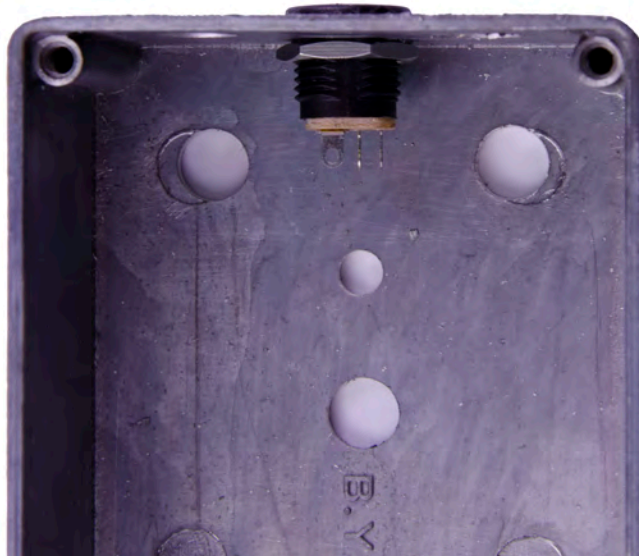
Step 9: Add wires to the IN, OUT, RING, -, +, (+), and the two Ground eyelets. Start by cutting five 2.5" pieces of wire and three pieces of 1.5" wire. Strip 1/4" off each end and tin the ends. Tinning means to apply some solder to the stripped ends of the wires. This keeps the strands from fraying and primes the wire for soldering. Solder one end of a 2.5" piece of wire to each of the IN, OUT, RING, and Ground eyelets on the PCB. Load the wires in from the top and solder on the bottom of the PCB. Do the same with the 1.5" pieces of wire for the -, +, and (+) eyelets.



Main PCB Assembly

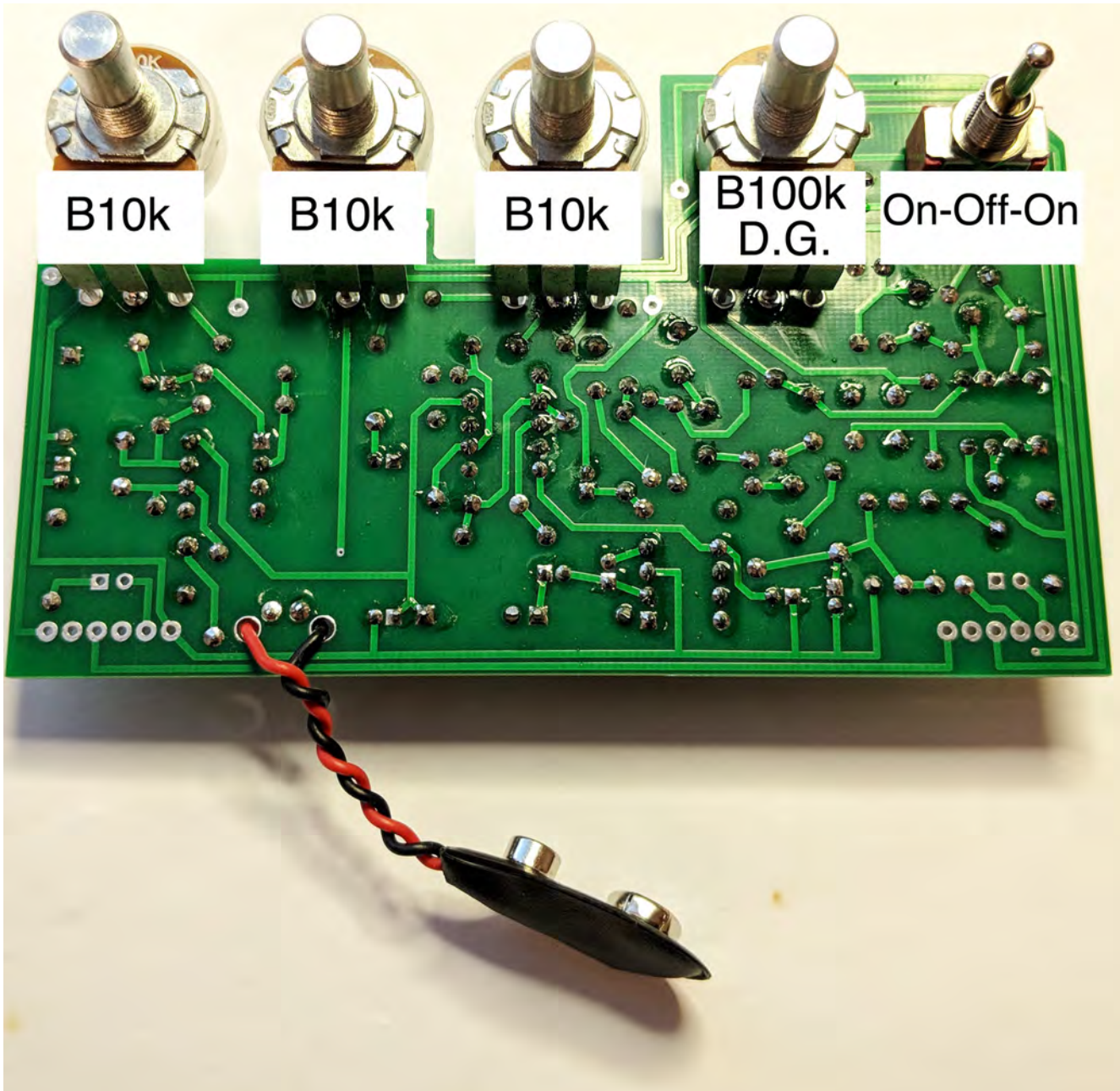


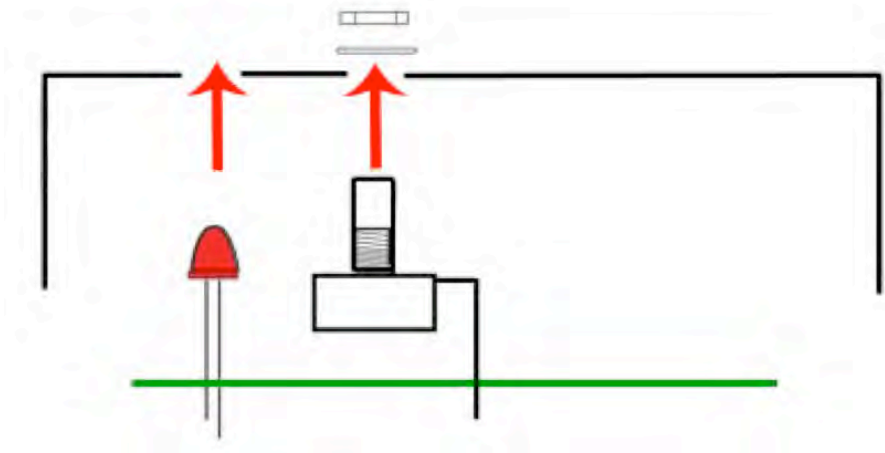
Step 1: Mount the AC adapter jack to the enclosure. Your kit may come with either an external thread or internal thread. Don't get confused by this. They still function exactly the same. You just thread the external nut on the outside and the internal nut on the inside. The picture below is of an internal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



Step 2: Flip the PCB over so that the bottom or solder side is up. Insert the four potentiometers, toggle switch and the LEDs 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.**



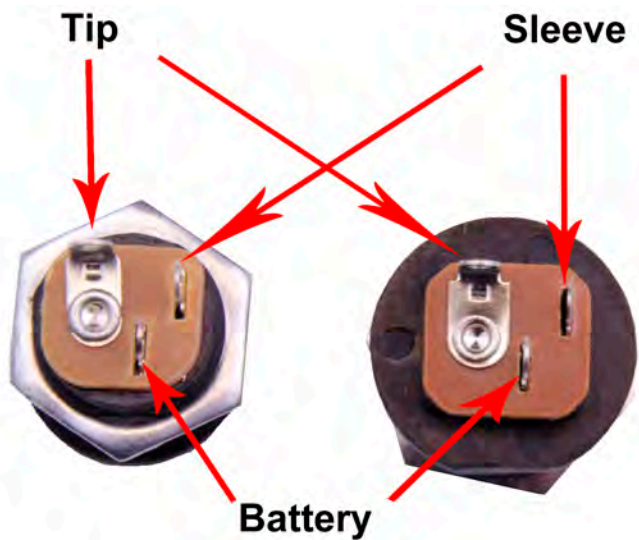


Step 3: Hold the PCB in one hand so that the component side of the PCB is in the palm of your hand and the bottom side with the pots, toggle switch and LED is facing up. Now use your other hand to guide the predrilled enclosure onto the PCB assembly so that the pots, toggle switch and LED all go into 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.

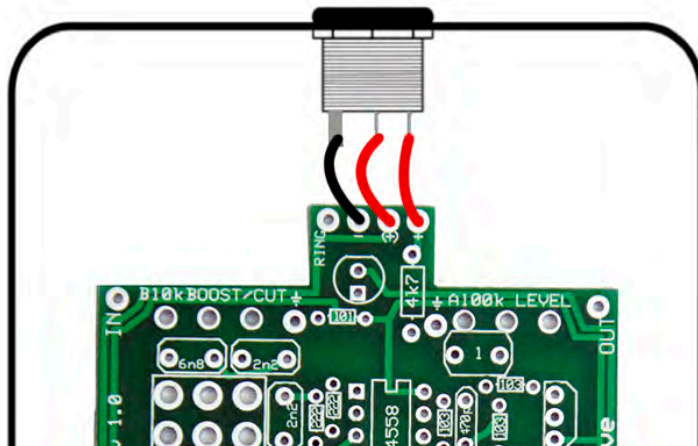
Step 4: Turn the entire pedal over so that the component side of the PCB is facing up. Lift the PCB up off the pots about 2mm just to make sure that the back of the PCB does not short out against the pots. Make sure the PCB is level and symmetrically seated inside the enclosure.

Step 5: Solder the pots, toggle switch and LED. You will be soldering on the component side (top) of the PCB. After you have soldered them in place, be sure to tighten up their nuts. **TIP:** only solder one lug of each component at first. This will secure everything in place and still allow you to wiggle things around if you need to adjust the fit of anything. Once you have everything perfect, go ahead and solder everything else.

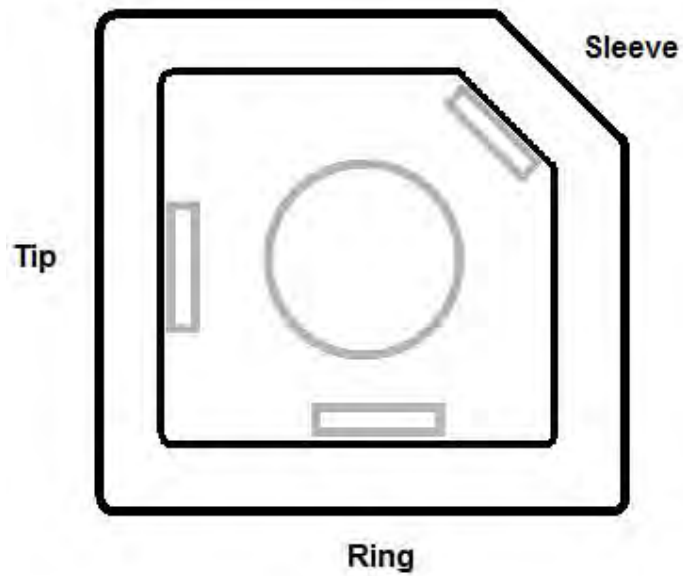
WIRING



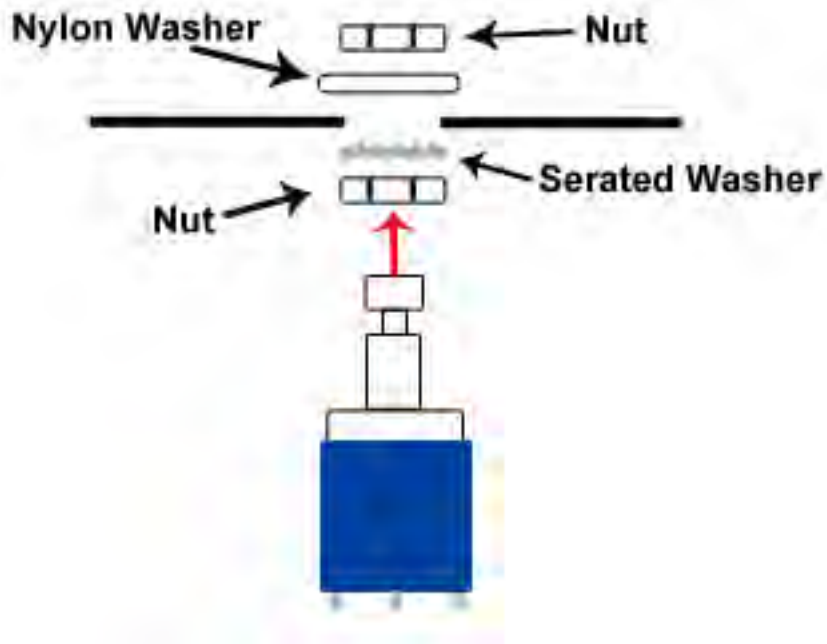
Step 6: Connect the TIP (negative) terminal of the DC adapter jack to the eyelet on the PCB labeled “-“. Connect the SLEEVE of the DC adapter jack to the eyelet on the PCB labeled “+” farthest to the right. Connect the battery disconnect terminal of the DC adapter jack to the second eyelet on the PCB labeled “+” located in the middle of the other two eyelets .



Enclosed Jack



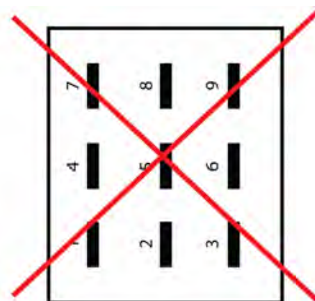
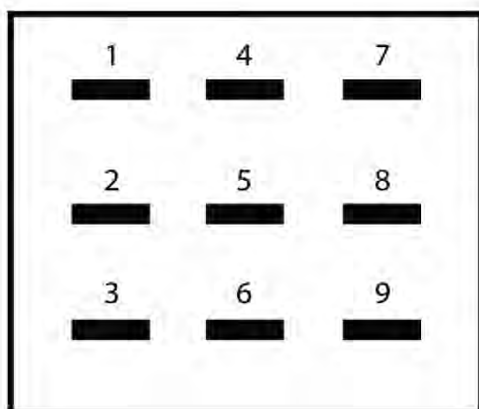
You will want to place the jacks into the enclosure so the sleeve terminal is facing the right like the picture above. Be sure to remember the lock washers so the jacks don't spin on their own.



Step 7: 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 8: 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.

Wiring The Footswitch

Cut 10 pieces of wire, 1.5 inches long. Strip 1/8 in. off each end. These will be used to connect lugs/eyelets 1, 2, 5, 7, & 8 of both switches.

Cut 2 pieces of wire 2 inches long. Strip 1/8 in. of one end. Strip 1/2 in. off the other end. This will be used to connect lug/eyelet 4. The longer stripped end will be used to jumper lug 4 to 9.

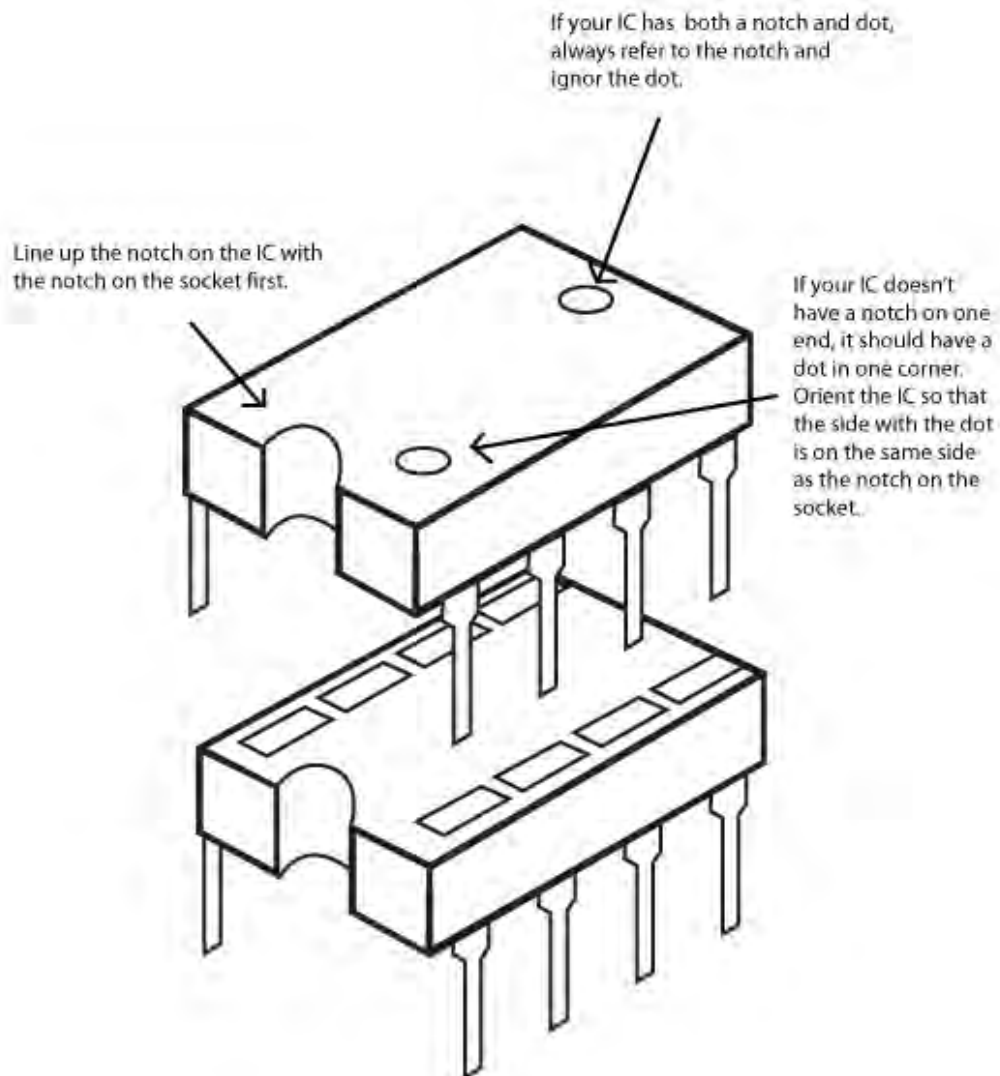
Cut 5 pieces of wire 3 1/2 in. long. Strip 1/4 in. off each end. These will be used to connect the tip and sleeve of the IN jack and the tip and sleeve of the OUT jack to the PCB.

Step 9: Connect the wires at the top end of the PCB to the IN and OUT jacks. The "out" eyelet will go to the tip of the OUT jack and the "in" eyelet will go to the tip of the IN jack. Connect the ground eyelet on the left to the sleeve of the IN jack and the ground eyelet on the right to the sleeve of the OUT jack. Connect the "ring" eyelet to the ring of the IN jack. See diagram below for the complete wiring layout.



Installing IC/Finish up

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



Operating Overview



Boost: This controls the volume of the boost channel. The boost channel is wired behind the OD circuit, so it can act as a master volume if you have both channels activated.

Output: This controls the amount of volume for the OD circuit.

Treble: Boosts or cuts the treble.

Gain: Controls the amount of gain.

Si-LED-Ge: Selects between three different hard clipping configurations.

Si = 1N4148 diodes

LED = Clipping LEDs

Ge = Germanium Diodes

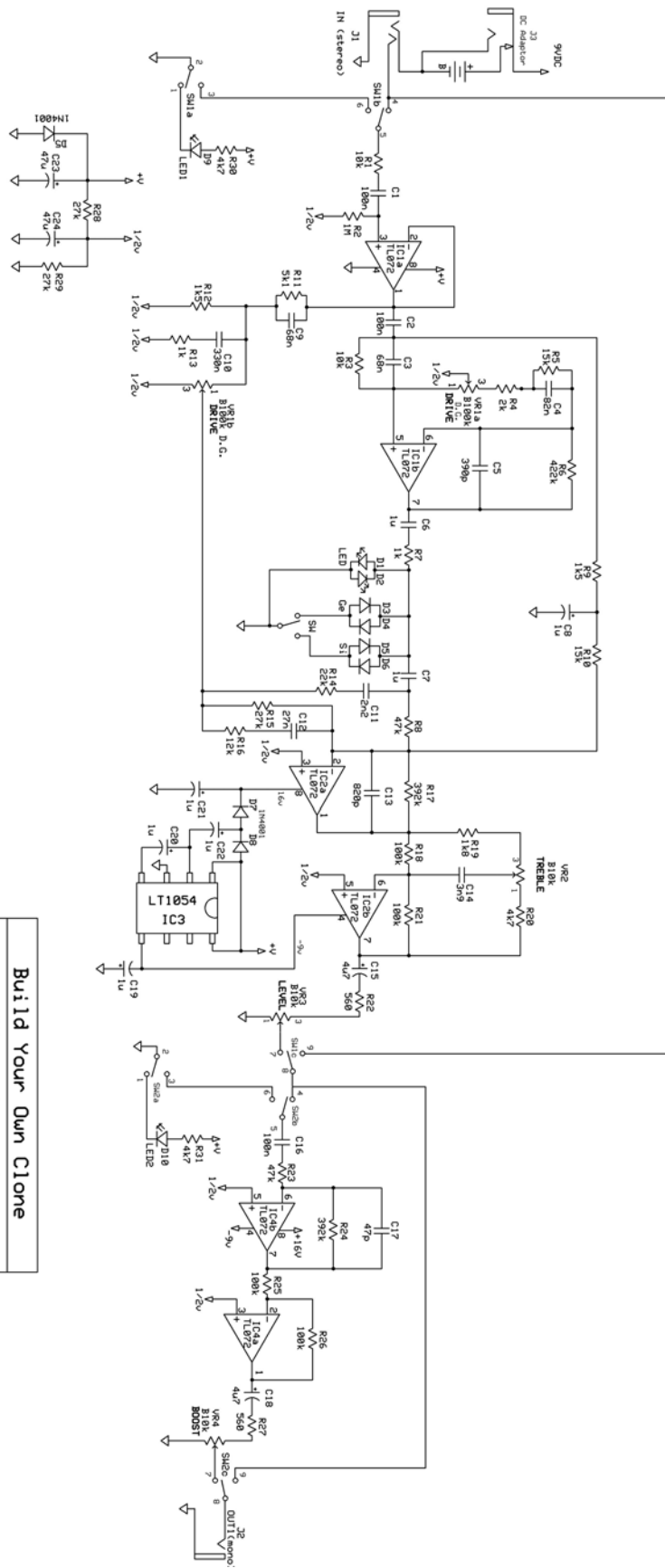
Power supply: 9V battery or 2.1mm negative tip 9V ONLY! This has a charge pump, so you don't want to use more than 9V.

Current Draw: 7.5mA

Input Impedance: 1M ohms

Output Impedance: 100k ohms

NOTE: The picture above is an example of the Silver Pony 2 kit with painted/silk screened enclosure with black BYOC style knobs and red LEDs. Your kit may not look like this depending upon which options you selected.



Build Your Own Clone		
Silver Pony II		
Designed by: N.H. KENNEDY	Rev. 1.0 88/17/2018	TEV = LOML

For hi-res schematic visit
<http://www.byoelectronics.com/silverpony2schematic.pdf>

Please visit
<http://byoelectronics.com/board>
for any technical support

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