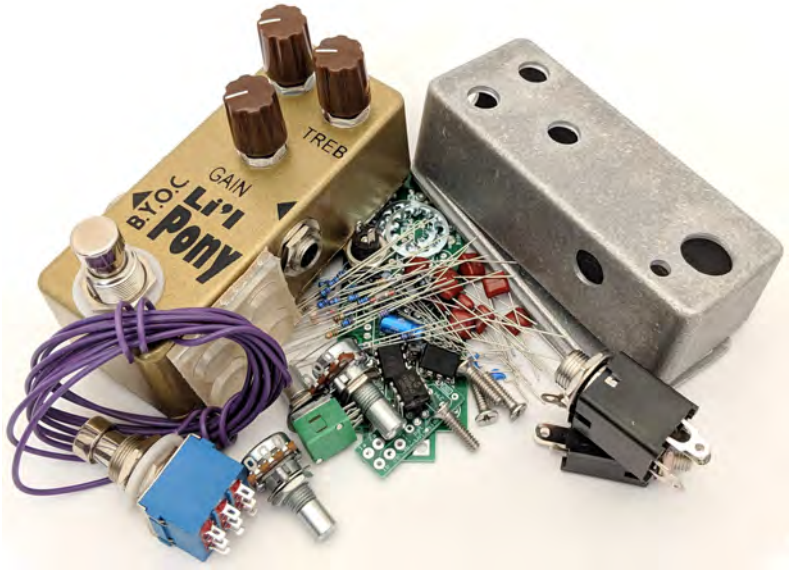
Build Your Own Clone
Li'l Pony
Kit Instructions



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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 the Li'l Pony Kit

Resistors:	Metal Film	Carbon Comp
1 - 560R/ 561	(Green/Blue/Black/Black/Brown)	(Green/Blue/Brown/Gold)
2 - 1k / 102	(Brown/Black/Black/Brown/Brown)	(Brown/Black/Red/Gold)
2 - 1k5/ 152	(Brown/Green/Black/Brown/Brown)	(Brown/Green/Red/Gold)
1 - 1k8 / 182	(Brown/Gray/Black/Brown/Brown)	(Brown/Gray/Red/Gold)
1 - 2k/ 202	(Red/Black//Black/Brown/Brown)	(Red/Black/Red/Gold)
2 - 4k7/ 472	(Yellow/Purple/Black/Brown/Brown)	(Yellow/Purple/Red/Gold)
1 - 5k1/ 512	(Green/Brown/Black/Brown/Brown)	(Green/Brown/Red/Gold)
2 - 10k/ 103	(Brown/Black/Black/Red/Brown)	(Brown/Black/Orange/Gold)
1 - 12k / 123	(Brown/Red/Black/Red/Brown)	(Brown/Red/Orange/Gold)
2 - 15k / 153	(Brown/Green/Black/Red/Brown)	(Brown/Green/Orange/Gold)
1 - 22k/ 223	(Red/Red/Black/Red/Brown)	(Red/Red/Orange/Gold)
1 - 27k/ 273	(Red/Purple/Black/Red/Brown)	(Red/Purple/Orange/Gold)
1 - 47k/ 473	(Yellow/Purple/Black/Red/Brown)	(Yellow/Purple/Orange/Gold)
2 - 100k/ 104	(Brown/Black/Black/Orange/Brown)	(Brown/Black/Yellow/Gold)
1 - 390k/ 394	(Orange/White/Black/Orange/Brown)	(Orange/White/Yellow/Gold)
1 - 422k/ 424	(Yellow/Red/Red/Orange/Brown)	
2 - 1M/ 105	(Brown/Black/Black/Yellow/Brown)	(Brown/Black/Green/Gold

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

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

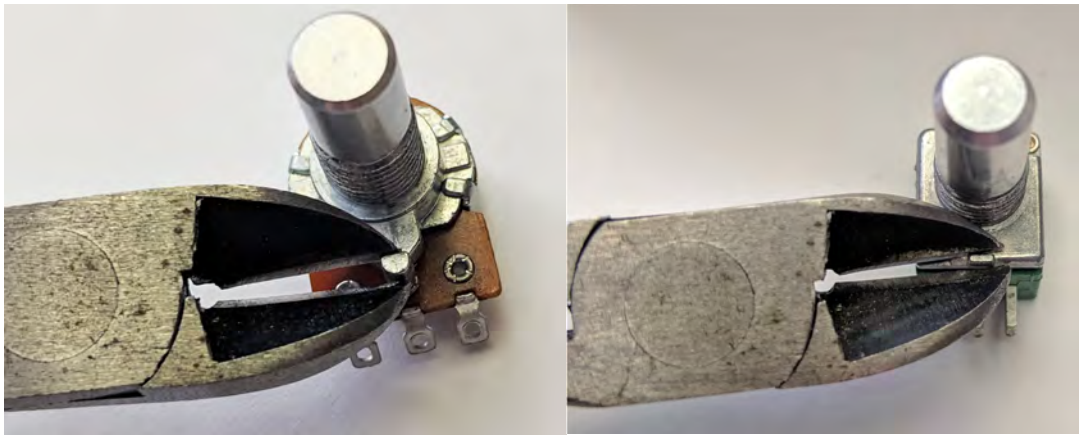
Visit www.byocelectronics.com/capcodes.pdf for more info on how to differentiate capacitors.

Diodes:
2 - Germanium Diodes (clear glass body with black, blue, red, or green stripe)

IC's:

2 - TL072
1 - Charge Pump –MAX1044 or 7660SCPA or LT1054

Potentiometers: SNAP OFF THE SMALL TABS ON THE TOP OF THE POTS OFF WITH A PAIR OF NEEDLE NOSE PLIERS OR SNIP THEM OFF WITH WIRE CUTTERS.



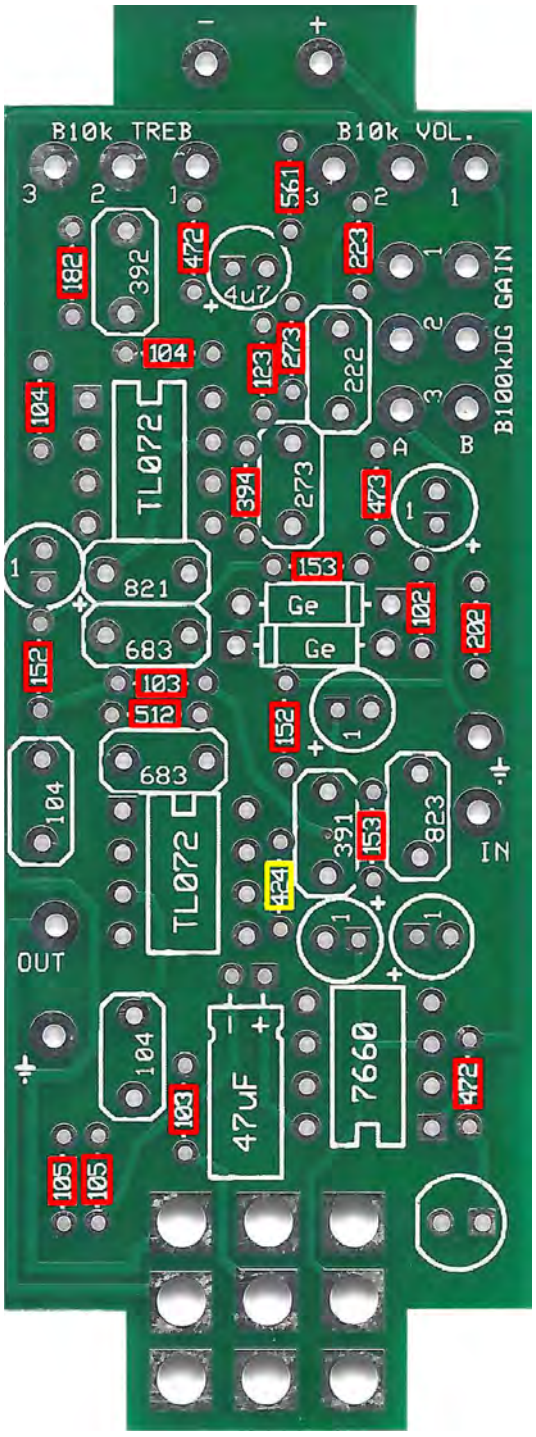
2 - B10k (TONE, VOL)
1 - B100k Dual Gang (DRIVE)

Hardware:
1 - predrilled enclosure w/ 4 screws (optional)
1 - Li'l Pony Overdrive circuit board
1 - Li'l Pony Secondary Board
1 - 3pdt footswitch
3 - knobs (optional)
1 - AC adaptor jack
2 - Enclosed ¼" Jacks
1 - red LED (optional)
4 - rubber bumpers
2 - lock washers (for in and out jacks)
hook-up wire

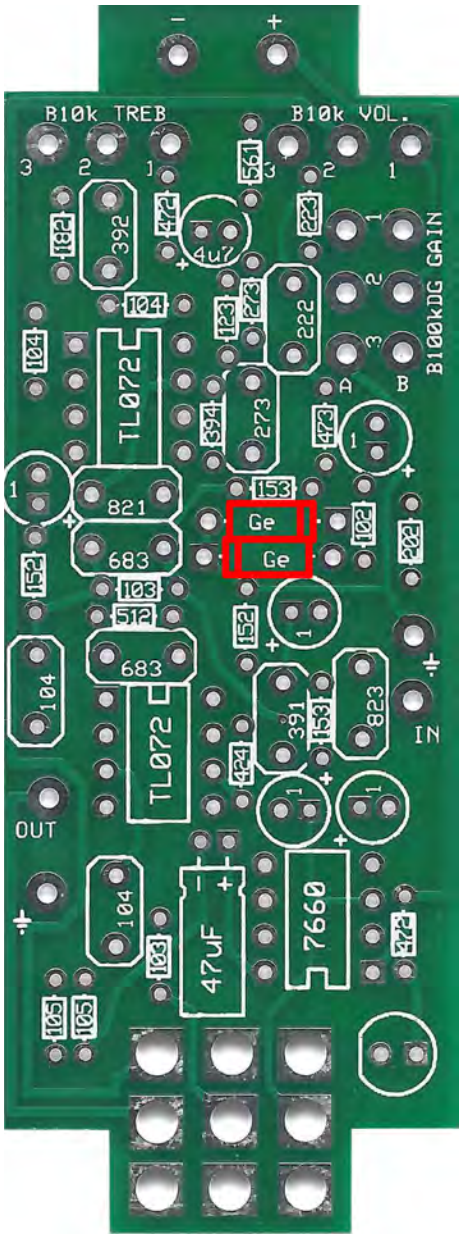
Your build should look similar to this when you're finished.

Populating the Circuit Board

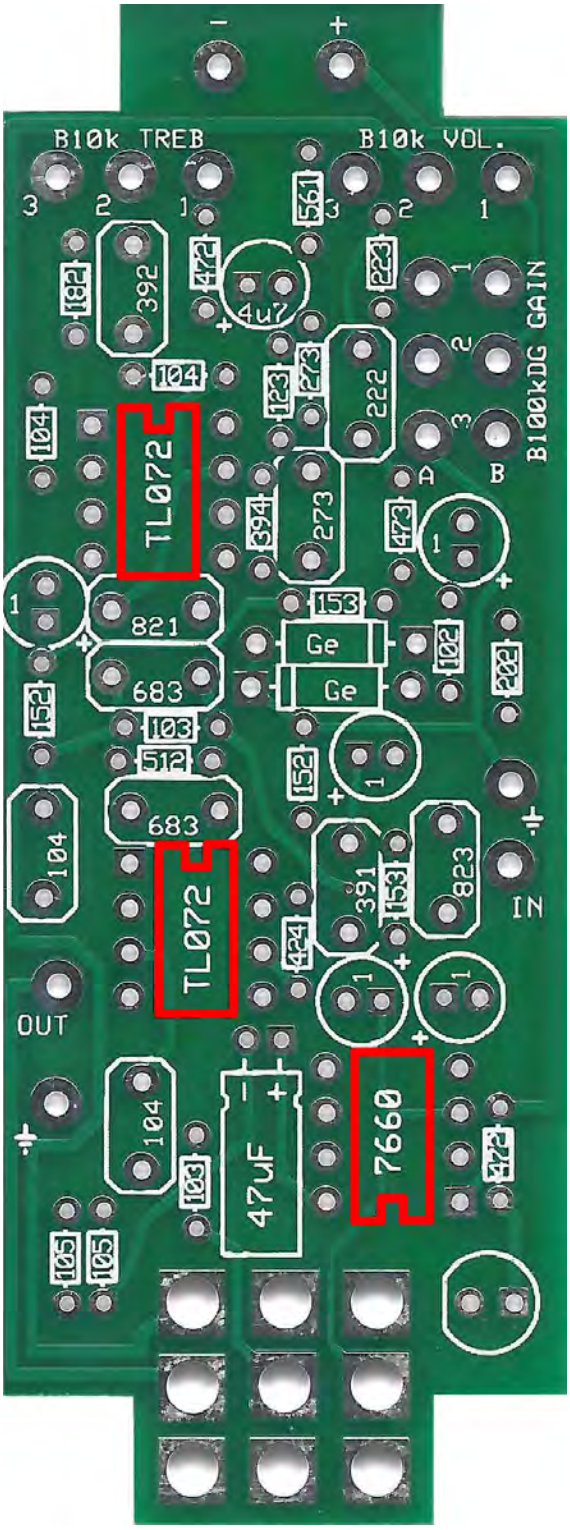
Step 1: Add all the resistors. Resistors are not polarized and can be inserted in either direction. **The resistor highlighted in yellow is 422k.**



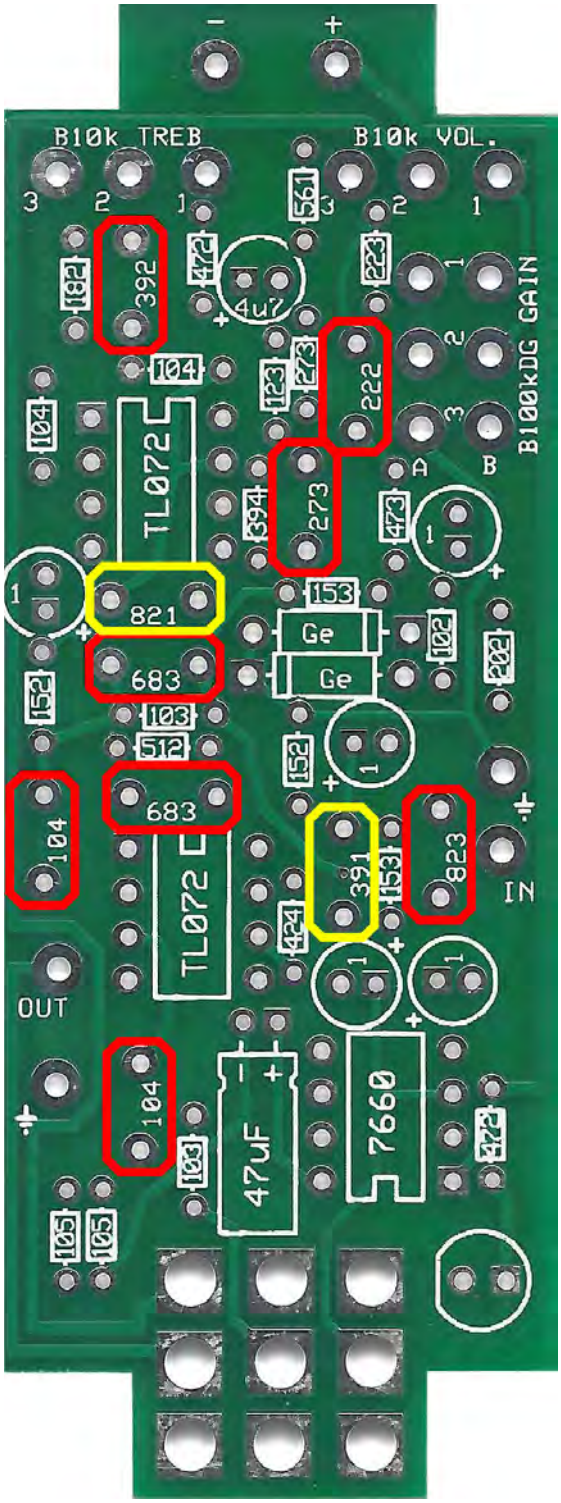
Step 2: Add the diodes. Be sure to match the end of the diodes with the stripe to the layout on the PCB. The striped end should go in the square solder pad. If your diodes have one gray stripe and one white stripe, place the gray stripe in the square hole. If your diodes have one white dot, that side will go into the square hole. **Since these are clipping diodes, the orientation isn't very critical. The important part is that the same side goes into the square hole of both diodes. So if one diode has the dot, or gray stripe, or black stripe going into the square hole, the other one has to be oriented the same way.**



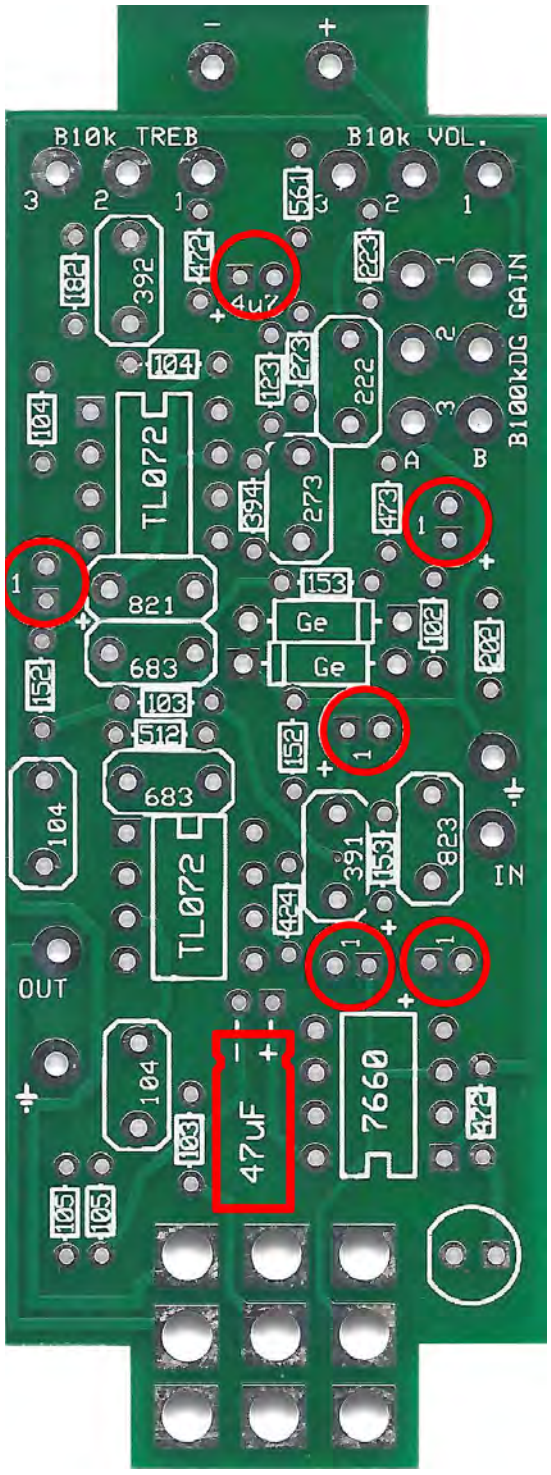
Step 3: Add the ICs. Orient them so that the notch or ‘U-shaped’ indentation on the IC matches the notch on the screenprint. If your ICs don’t have a notch, they will have a dot. This will indicate pin 1 and goes in the square hole.

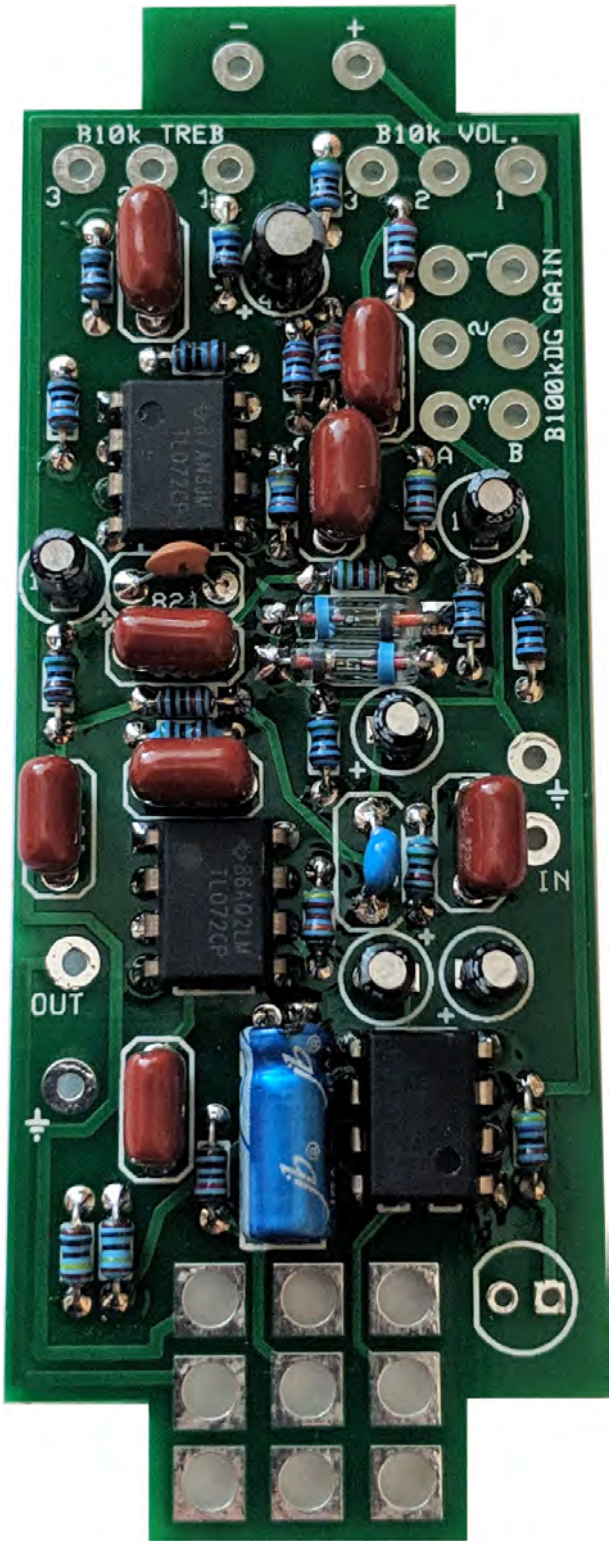


Step 4: Add the film and ceramic disc capacitors. These are non-polarized and can go in either direction. **The ceramic disc capacitors are highlighted in yellow**. Depending on the height of your ceramic disc capacitors, you may need to lay them on their side.

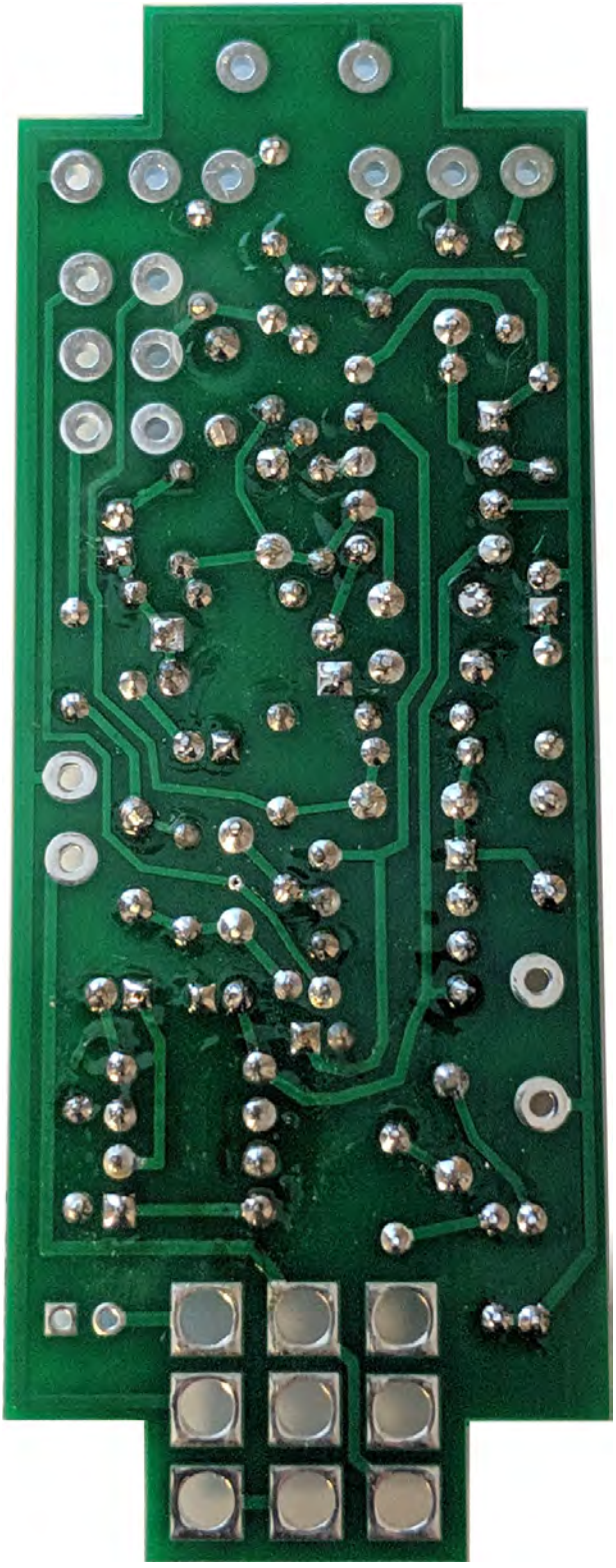


Step 5: Add the electrolytic capacitors. These are polarized meaning they have a positive and negative side. The positive side will have a longer lead and goes in the square hole. The negative side will have a stripe running along the length of the capacitor body. Lay the 47uF electrolytic on its side along the screenprint.





This is what your main board will look like at this point.

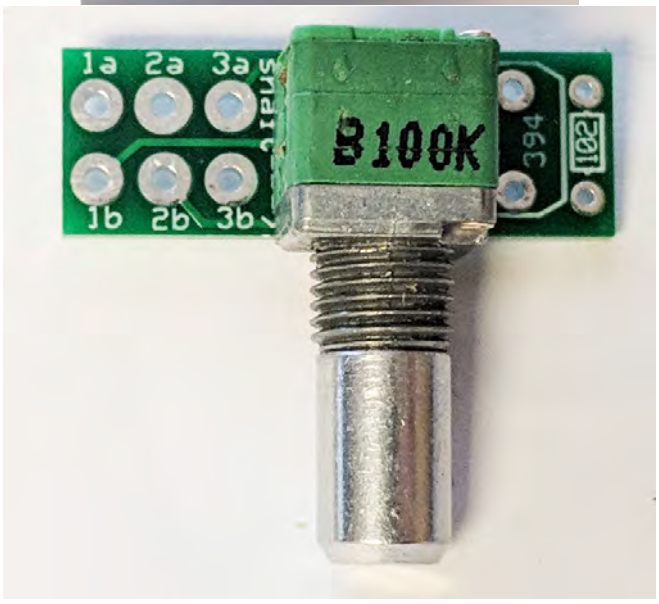


Back of main board.

Notice the short trim of the leads, and no shorts between any of the eyelets.

Step 6: Add the Capacitor, resistor, and dual gang potentiometer to the Li'l Pony Secondary Board and solder them. The capacitor and resistor are not polarized and can be installed in any orientation. The potentiometer will have to be installed in a specific way as outlined on the board itself. Make sure the shaft of the potentiometer is facing along the arrow on the board.

MAKE SURE YOU CUT THE TAB OFF THE POT

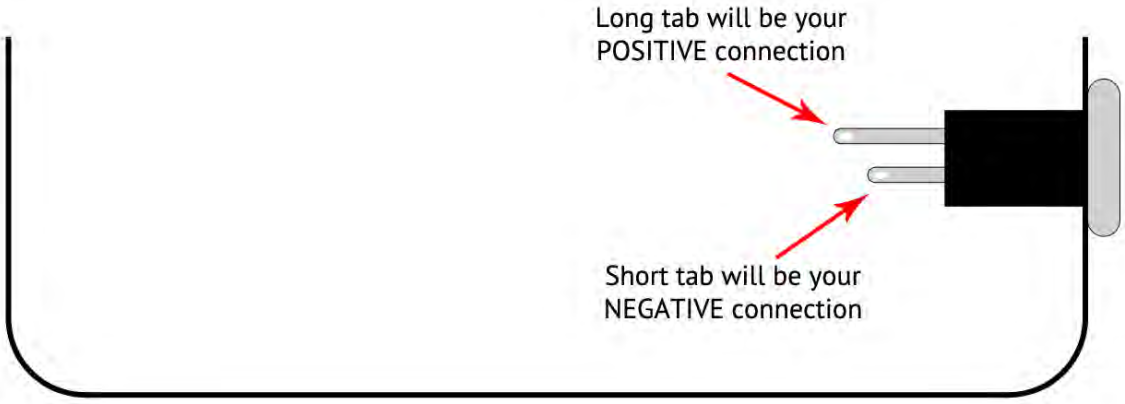


Potentiometer orientation. This is important.

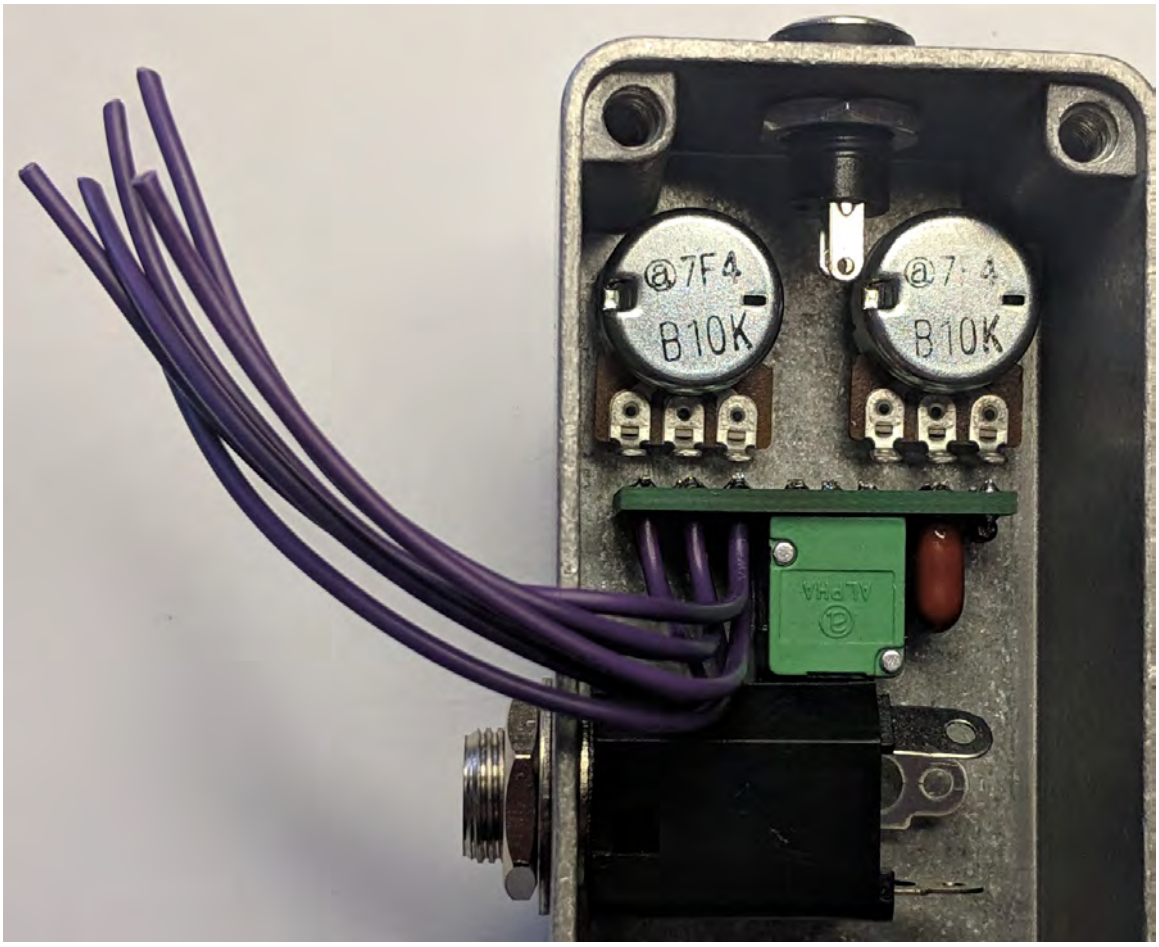
Enclosure Hardware Assembly

Step 1: Mount the DC adapter jack.

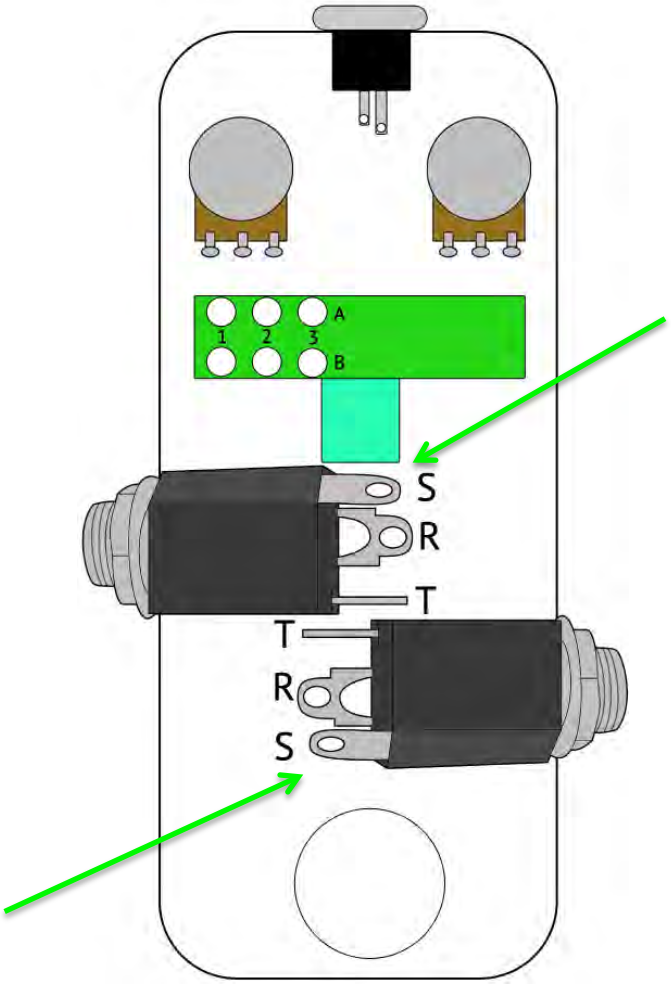
Note: Install the AC jack with the tabs vertical as shown in the images. The orientation is important so that the tabs don't contact the potentiometers.



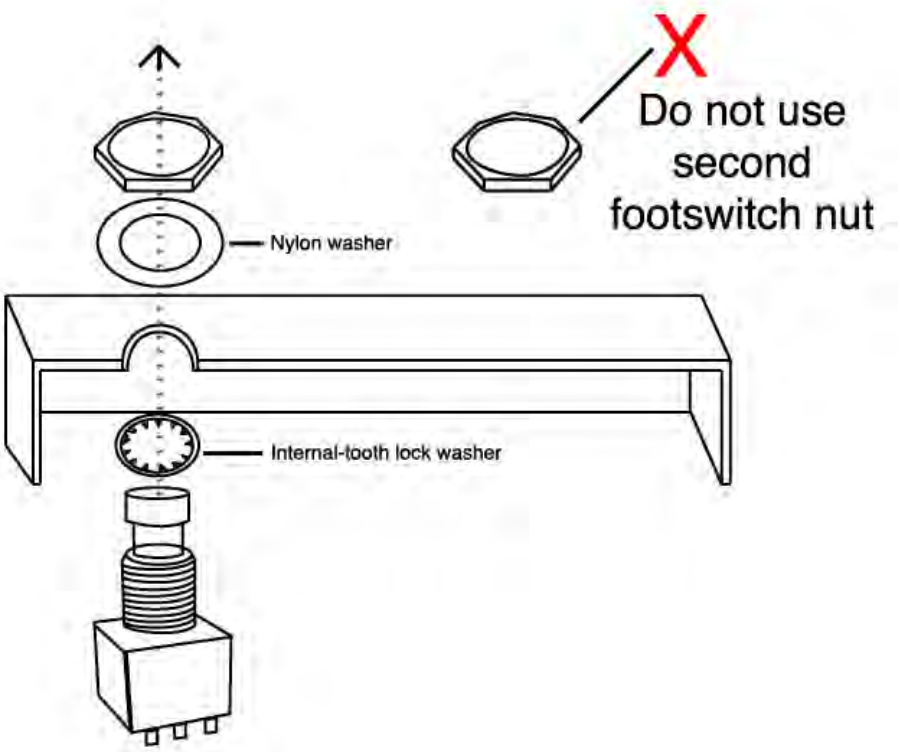
Step 2: Mount the potentiometers. You will mount the top pots with the solder lugs facing away from the DC Jack. **Cut (6) 3 inch pieces of wire and solder them to the potentiometer board**. Mount the lower pot and PCB assembly with the board facing the DC jack as shown below.



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**.



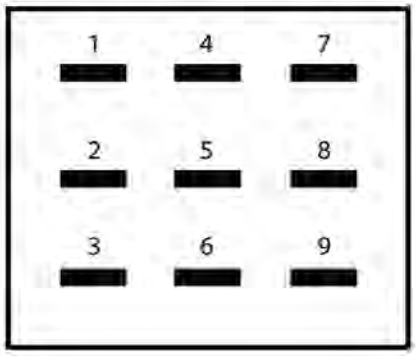
Step 4: Remove both nuts from the footswitch and mount the footswitch.

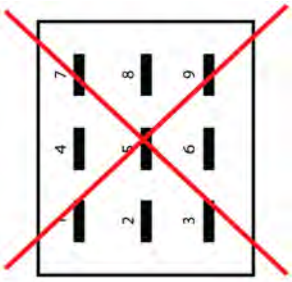


Orient the footswitch so that the flat sides of the solder lugs are like the diagram below.

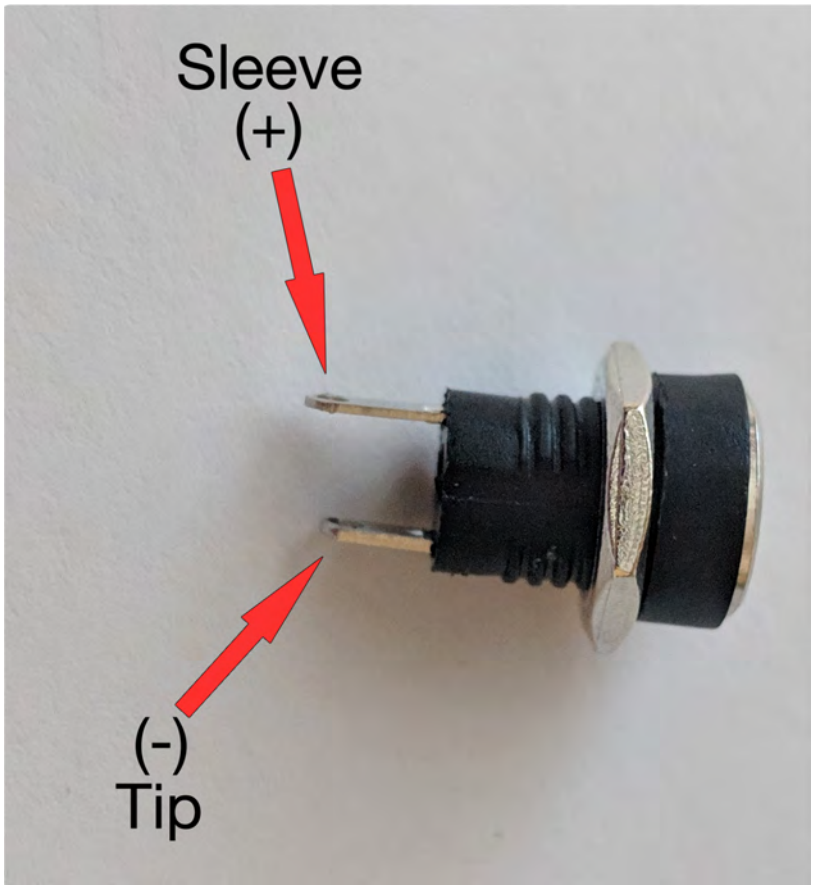
NOTE: There are no actual number markings on the footswitch. There are two correct ways you can orient the footswitch. They are both 180 degrees of each other. Either way is fine. It does not matter as long as the flat sides of the solder lugs are running horizontal, not vertical.

FOOT SWITCH SOLDER LUG DESIGNATIONS





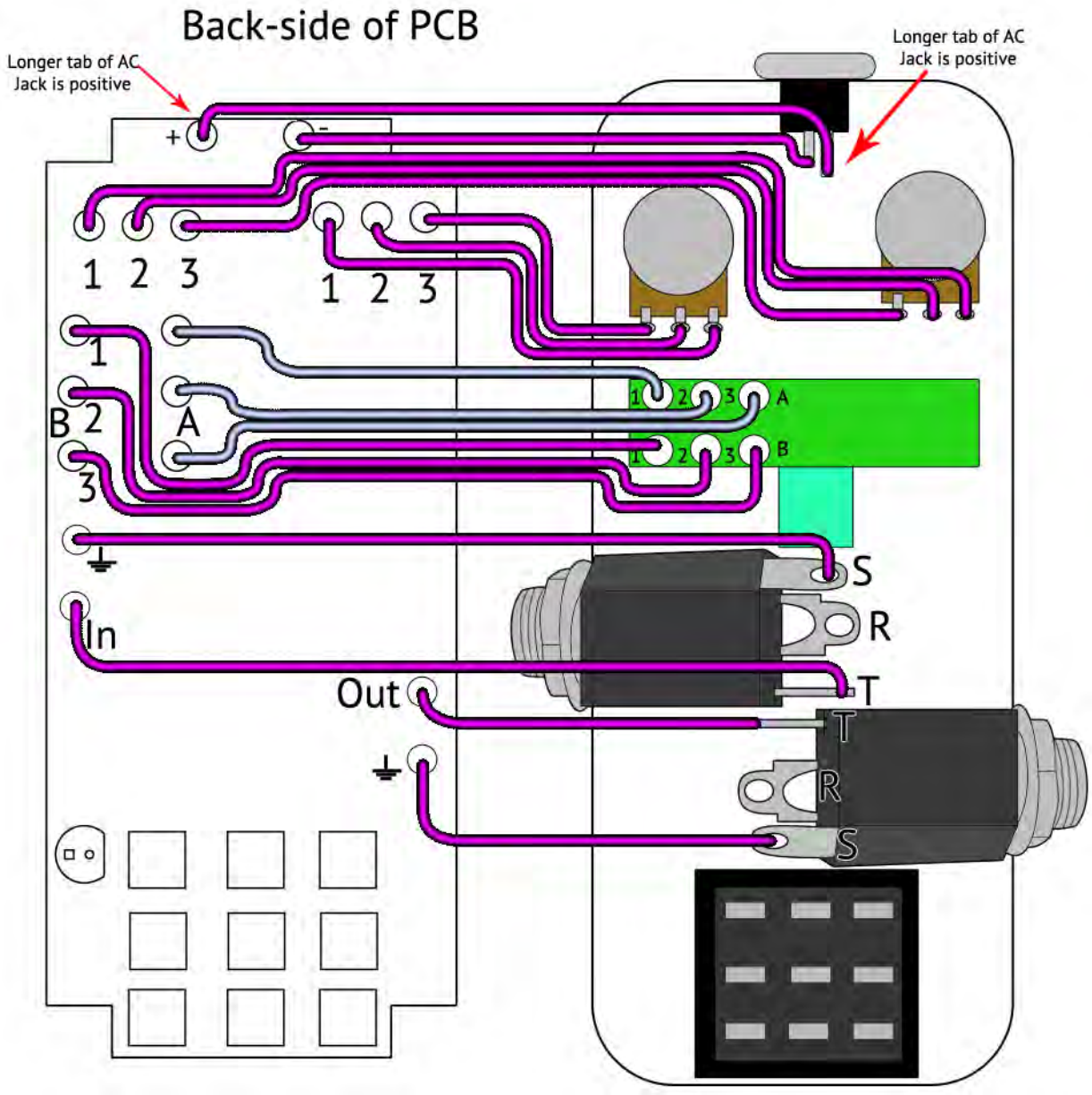
Wiring



Important note: The longer tab will be your (+) connection.

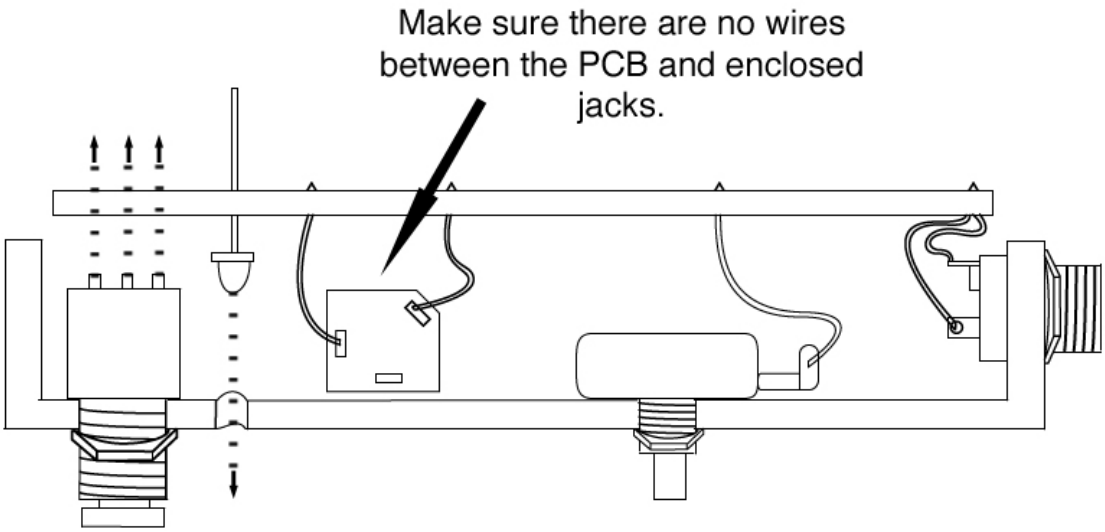
FLIP PCB OVER!!!

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, potentiometer, 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.

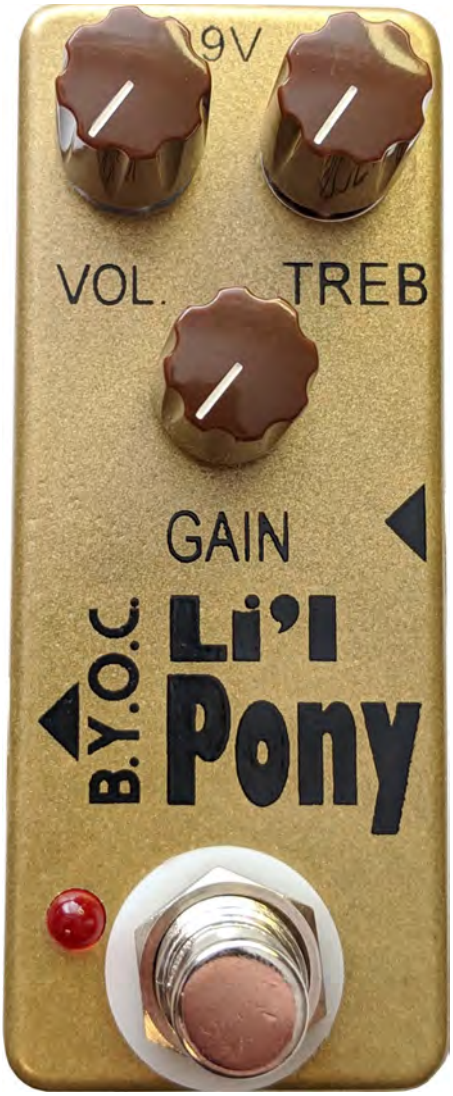
Your PCB should be recessed inside the enclosure about 1cm. It should be level.

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.

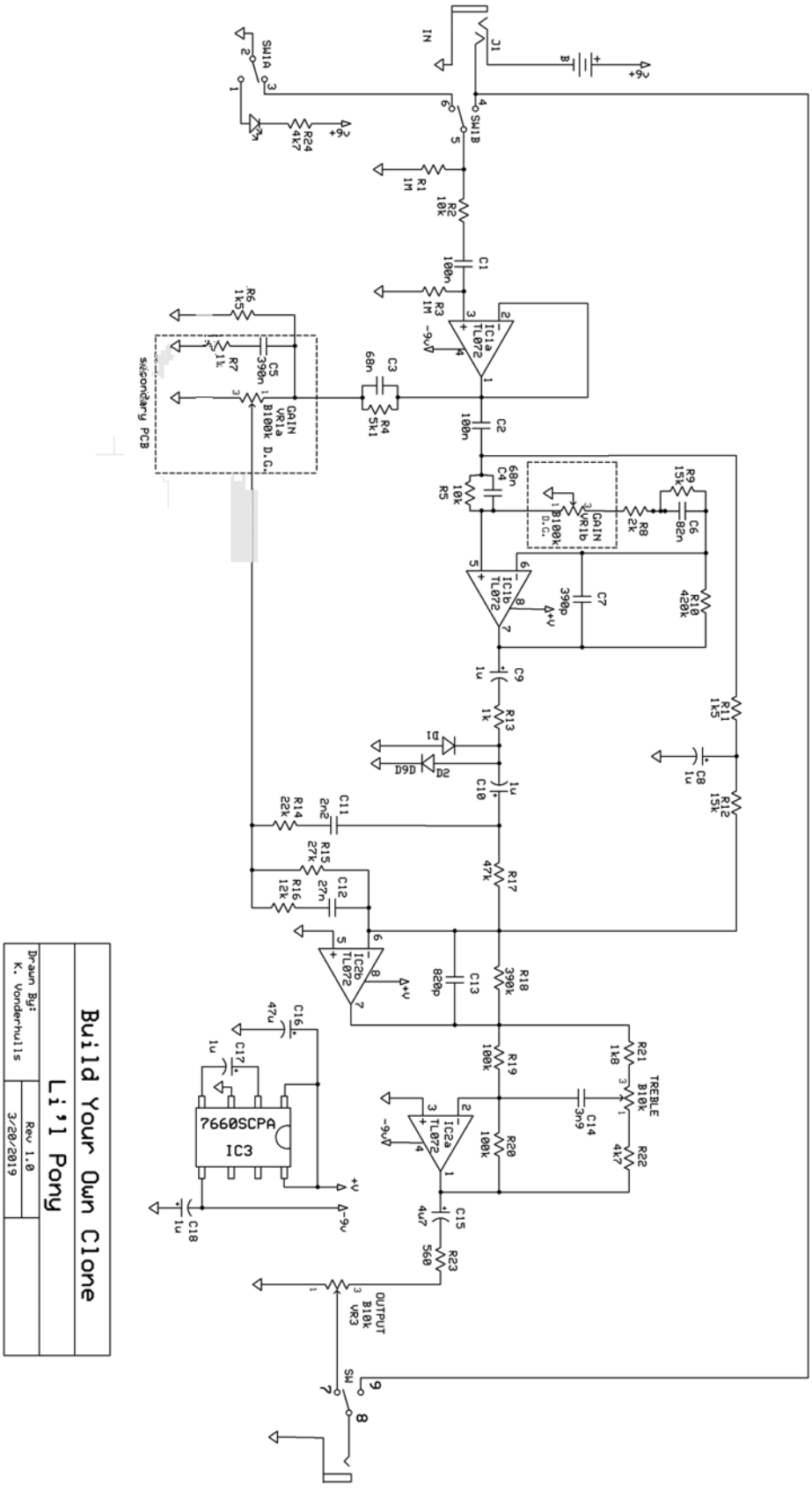
If you need to adjust the position of the PCB so that it fits correctly, reheat the single solder joint you just made on the footswitch. Adjust the position of the PCB while the keeping the solder joint hot. Remove the heat and hold the PCB in position while allowing the solder joint to cool completely. 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: This controls the amount of volume.
TREB: Boosts or cuts the treble
GAIN: Controls the amount of gain.
Power supply: 2.1mm negative tip.
Current Draw: 5.5mA
Input Impedance: 1M ohms
Output Impedance: 10k ohms


Build Your Own Clone
Li'l Pony
Drawn By:
K. Vonderhulls
Rev 1.0
3/20/2019
IN
J1
SW1A
SW1B
R1
1W
R2
10k
C1
100n
R3
1M
IC1a
TL072
-9v
R6
1k5
R7
1k
C5
390n
VR1a
B100k D.G.
GAIN
Secondary PCB
C3
68n
R4
5k1
C2
100n
C4
68n
R5
10k
VR1b
B100k D.G.
GAIN
R8
2k
R9
15k
C6
82n
IC1b
TL072
C7
390p
+v
R10
420k
C9
1u
R13
1k
D1
D2
1N4148
C10
1u
R11
1k5
C8
1u
R12
15k
R14
22k
C11
2n2
R15
27k
R16
12k
C12
27n
R17
47k
IC2b
TL072
C13
820p
R18
390k
C16
47u
C17
1u
7660SCPA
IC3
C18
1u
R19
100k
R21
1k8
TREBLE
B10k
C14
3n9
IC2a
TL072
R20
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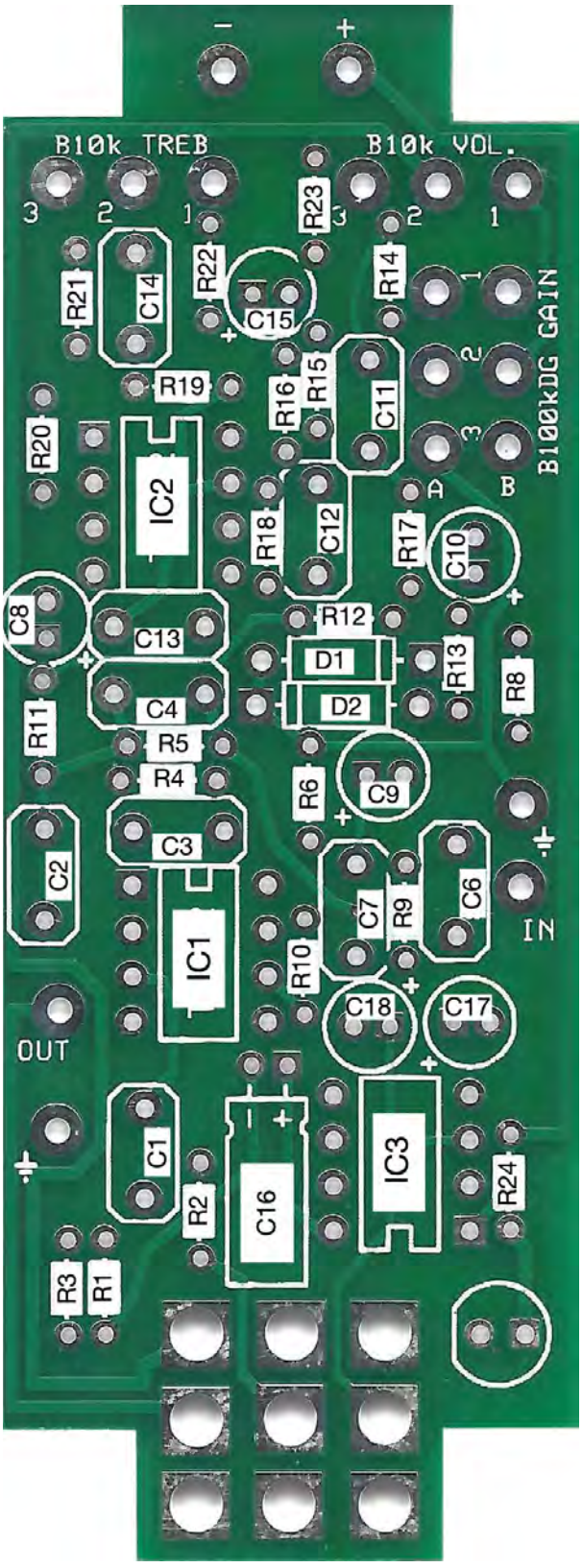
R24
4k7
+9v
B


B10k TREB
B10k VOL.
B100kDG GAIN
IC1
IC2
IC3
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
D1
D2
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
IN
OUT

PCB Map

Please visit
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for any technical support

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