Build Your Own Clone
Classic Delay
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 manor. 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.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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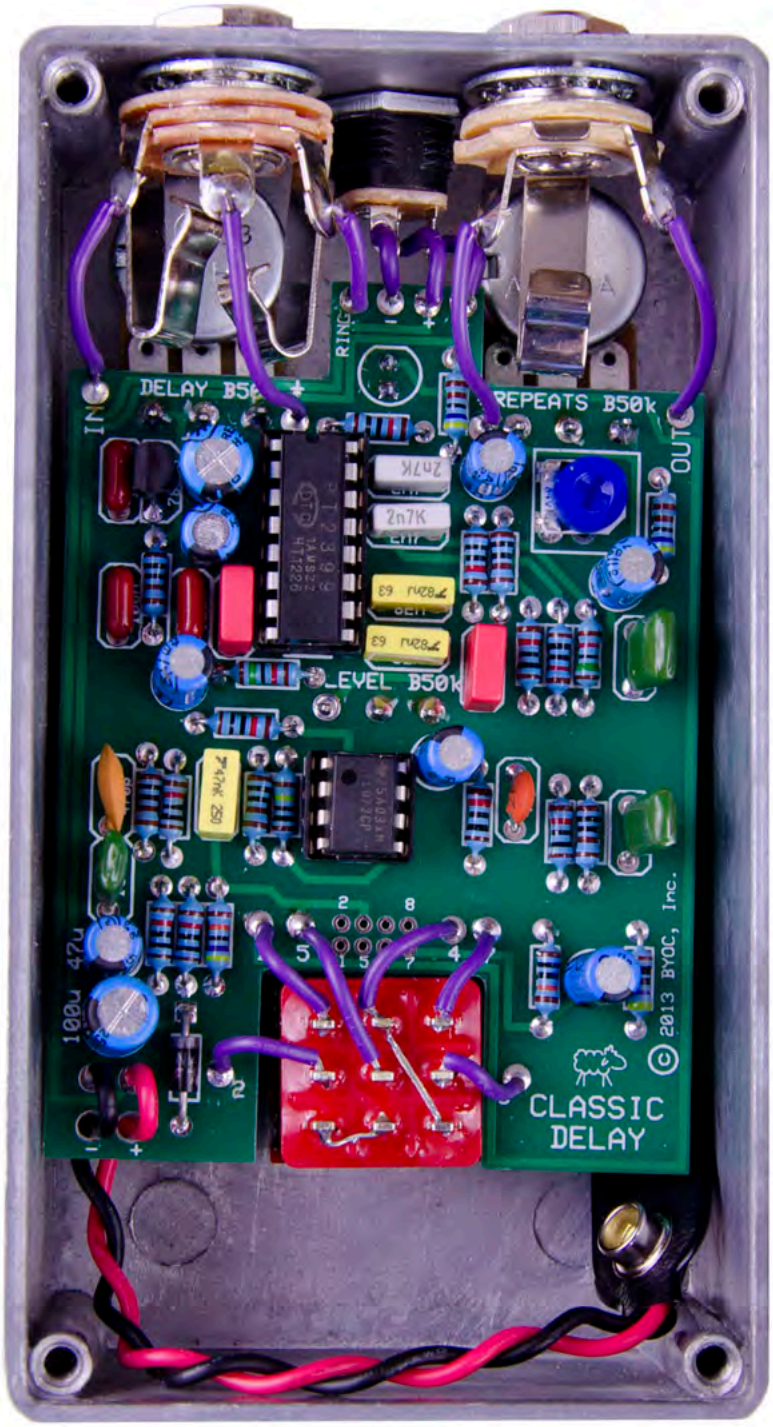
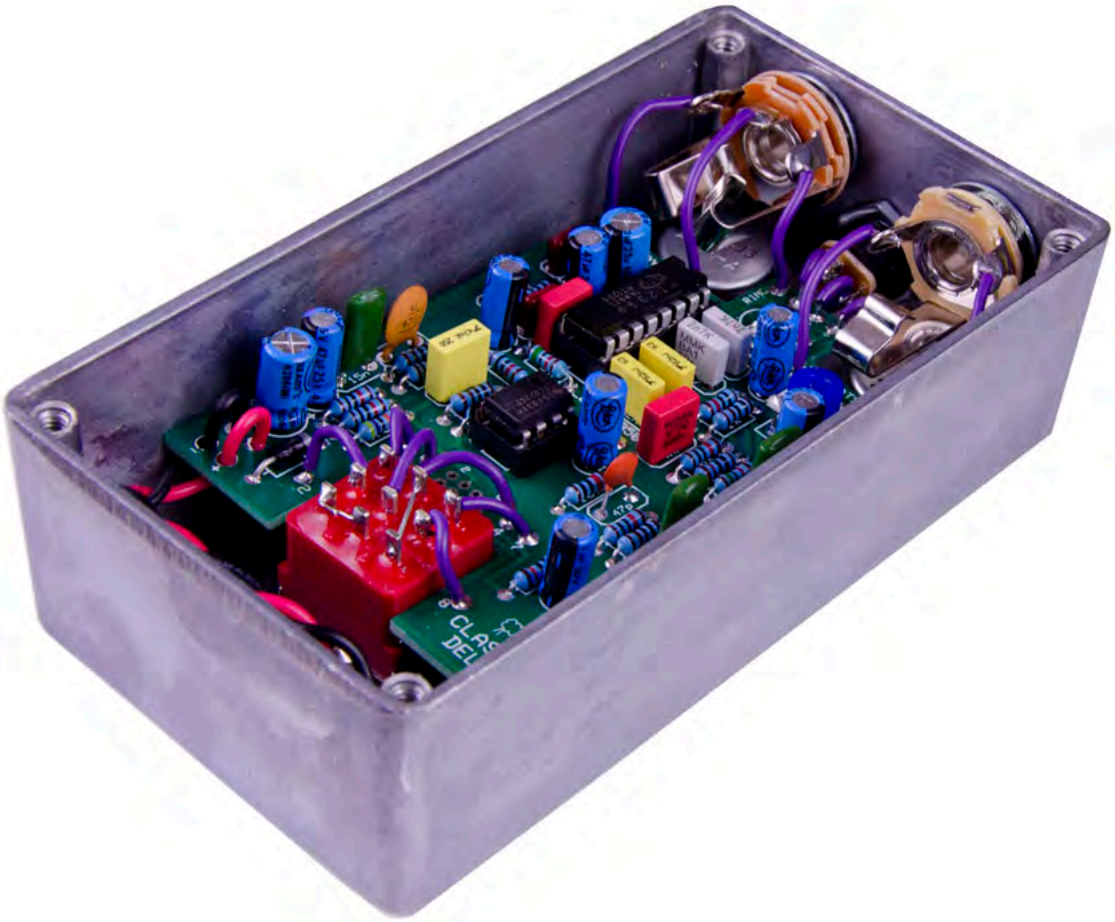
This is what your kit should look like with it's complete. Your kit may come with different color capacitors, switches, trimpots, ect. Don't be alarmed by this. They all still do the exact same thing.



DELAY



Parts Checklist for Classic Delay Kit

Resistors:
1 - 470 ohm (Yellow/Purple/Black/Black/Brown)
5 - 1k (Brown/Black/Black/Brown/Brown)
2 - 4k7 (Yellow/Purple/Black/Brown/Brown)
10 - 10k (Brown/Black/Black/Red/Brown)
2 - 15k (Brown/Green/Black/Red/Brown)
1 - 100k (Brown/Black/Black/Orange/Brown)
1 - 470k (Yellow/Purple/Black/Orange/Brown)
1 – 1M (Brown/Black/Black/Yellow/Brown)
Visit www.byocelectronics.com/resistorcodes.pdf for more information on how to differentiate resistors.

Capacitors:
1- 47p ceramic disc
1- 470p ceramic disc (may say "471" on the body)
2- 2n7 film cap (may say "272" or ".0027", or "2700p" on the body)
2- 4n7 film cap (may say "472" or ".0047", or "4700p" on the body)
2- 15n film cap (may say "153" or ".015" on the body)
1- 27n film cap (may say "273" or ".027" on the body)
1- 47n film cap (may say "473" or ".047" on the body
2- 82n film cap (may say "823" or ".082" on the body)
3- 100n film cap (may say "104" or ".1" or "u1" on the body)
5- 1uf film cap (may say "105" or "1u" on the body)
2 - 47uf Aluminum Electrolytic
2 - 100uf Aluminum Electrolytic
Visit www.byocelectronics.com/capcodes.pdf for more info on how to differentiate capacitors.

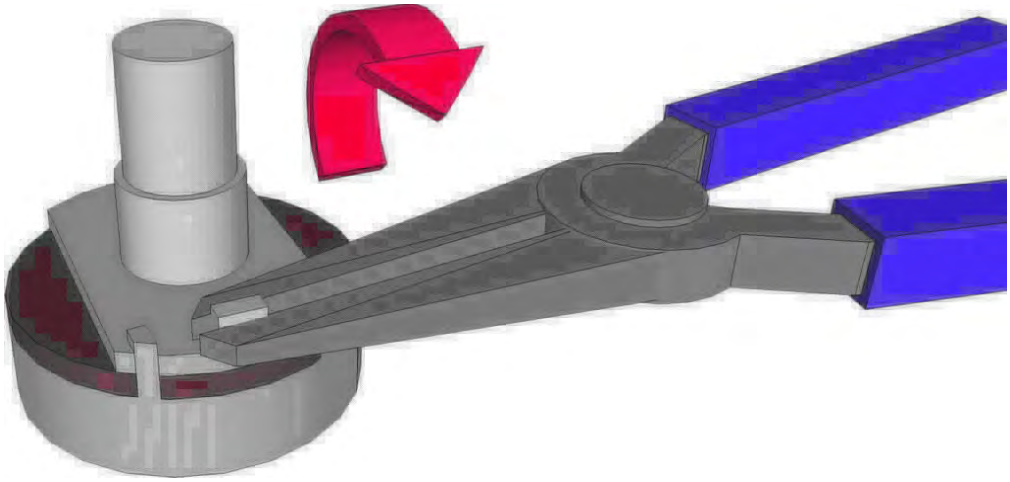
Diodes:
1-1N4001 diodes

TrimPots:
1- 25k

Voltage Regulator:
1- 78L05

IC's:
1-DIP 16 socket
1-PT2399
1-DIP 8 socket
1-TL072

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

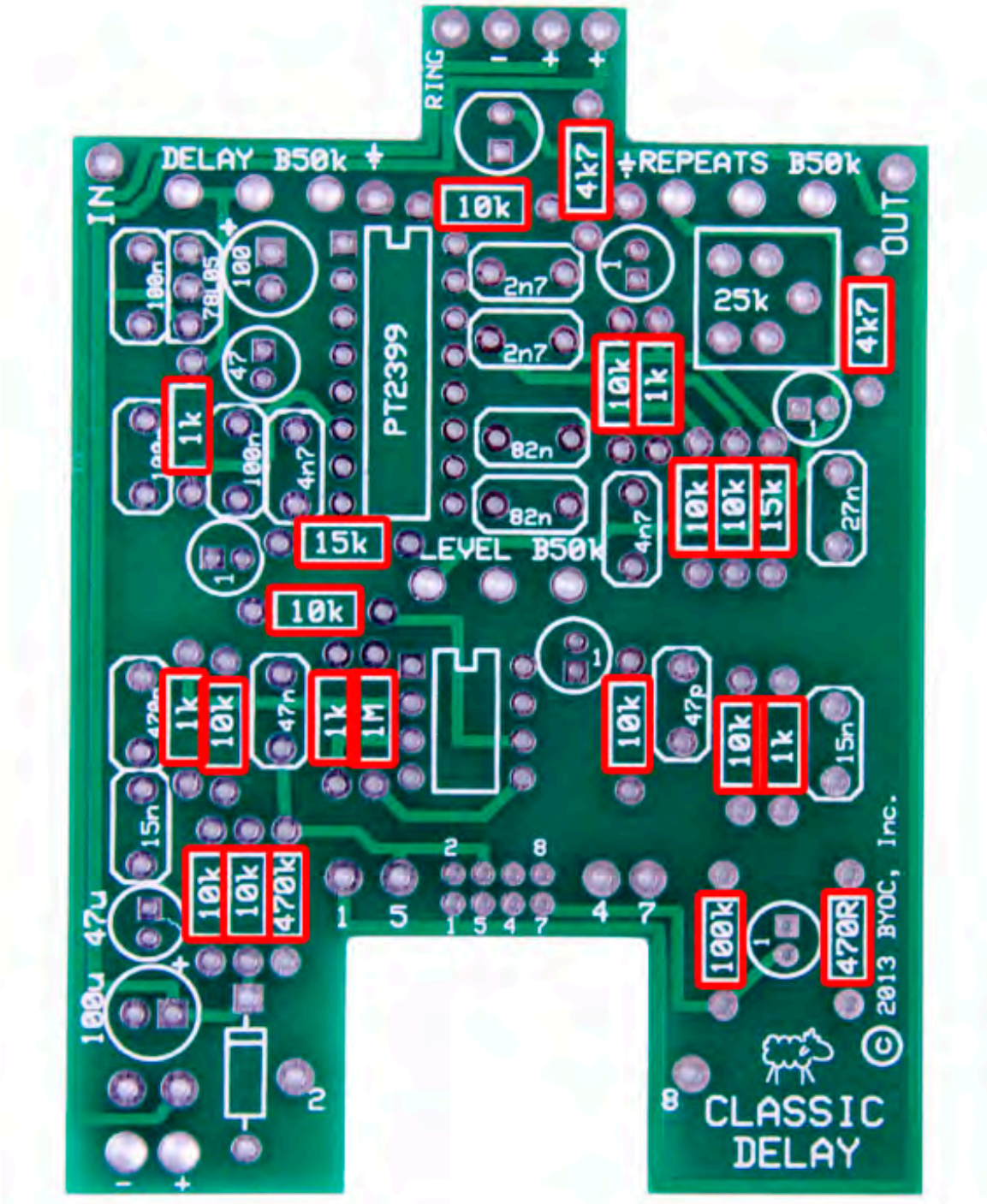


3– B50k Linear taper

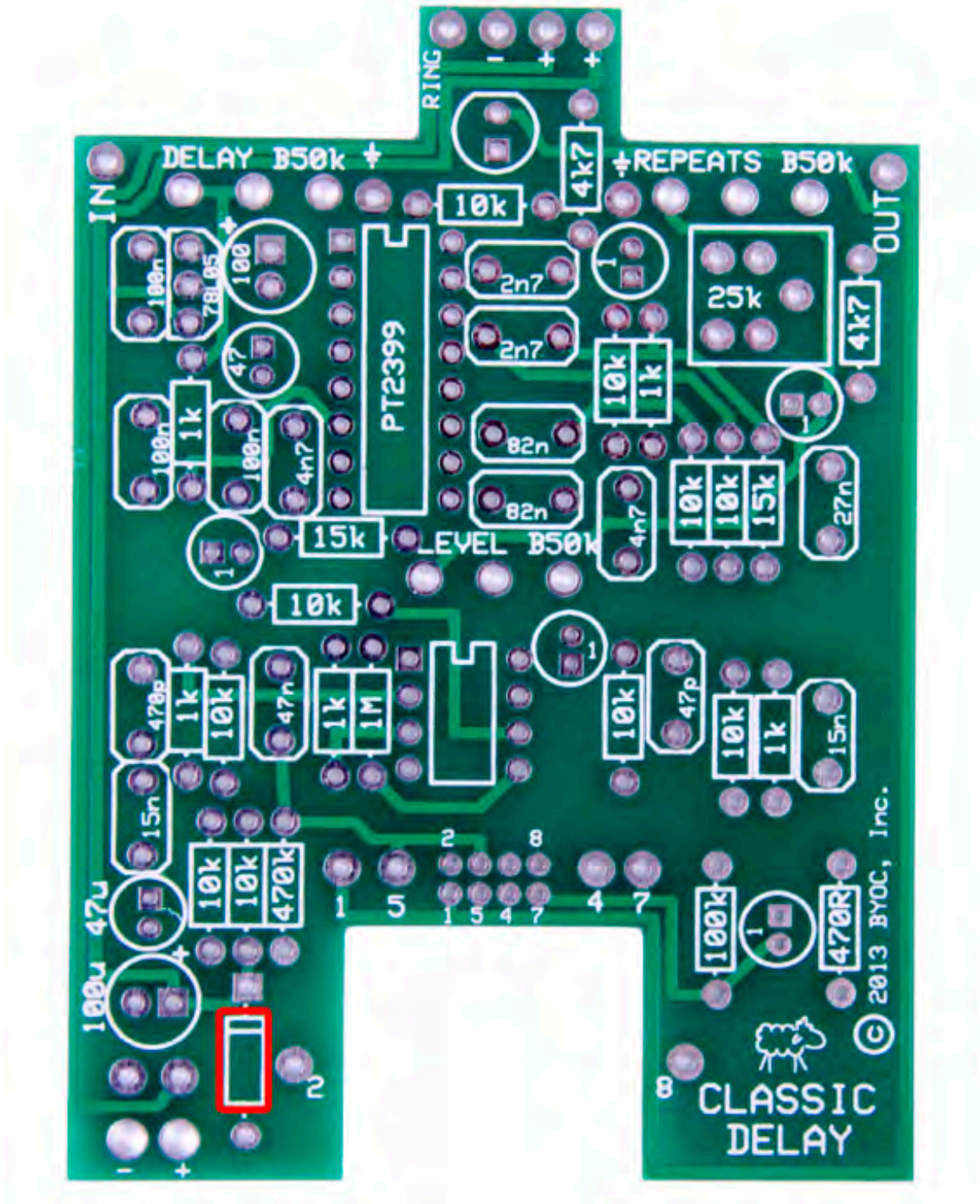
Hardware:
1 - predrilled enclosure w/ 4 screws
1 – Classic Delay circuit board
1 - 3pdt footswitch
3 - knobs
1 - AC adaptor jack
1 - ¼"stereo jack
1 - ¼" mono jack
1 - battery snap
1 - red LED
4 – rubber bumpers
2 – lock washers (for in and out jacks)
hook-up wire

Populating the Circuit Board

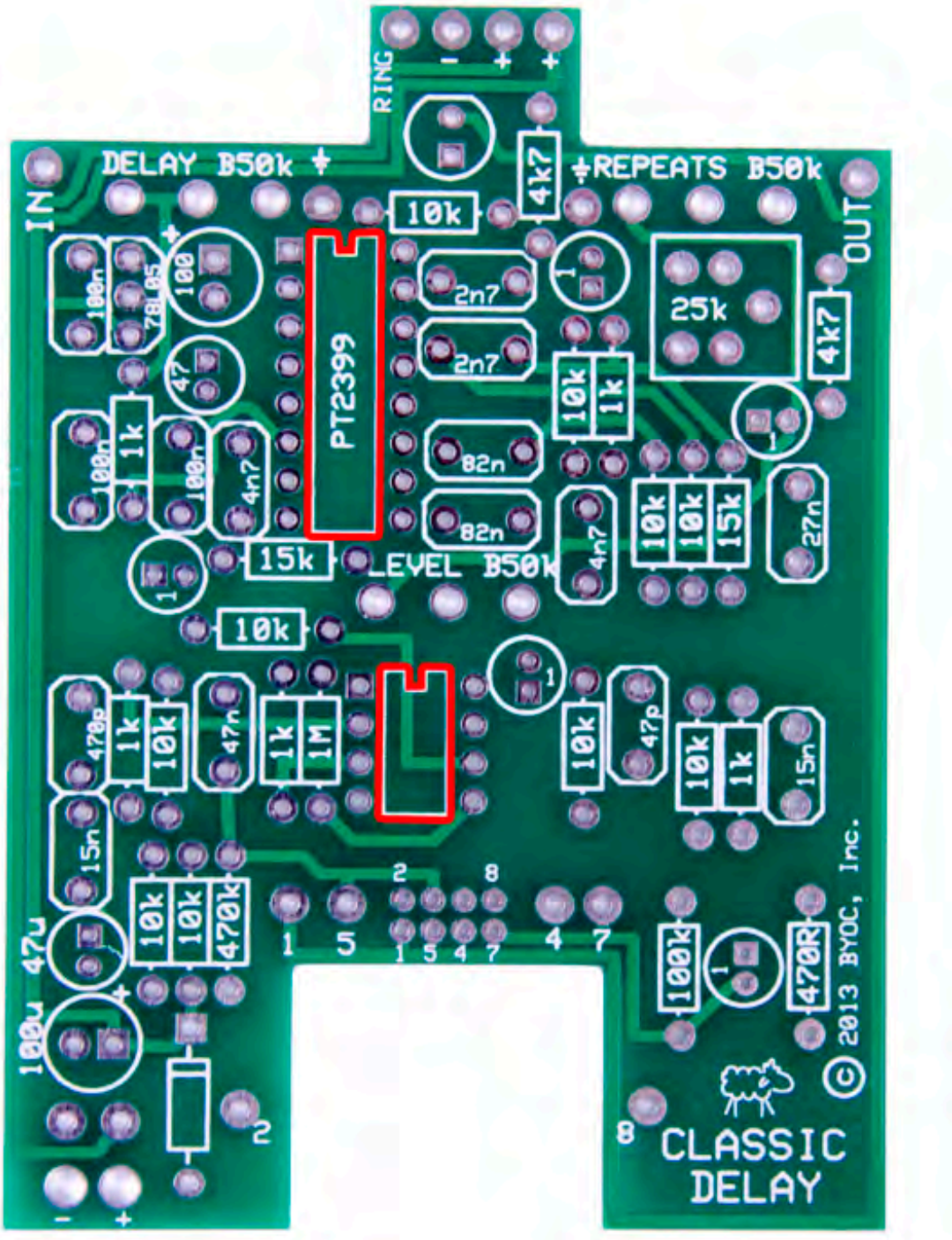
Step 1: Add all the resistors. Resistors are not polarized and can be inserted in either direction.



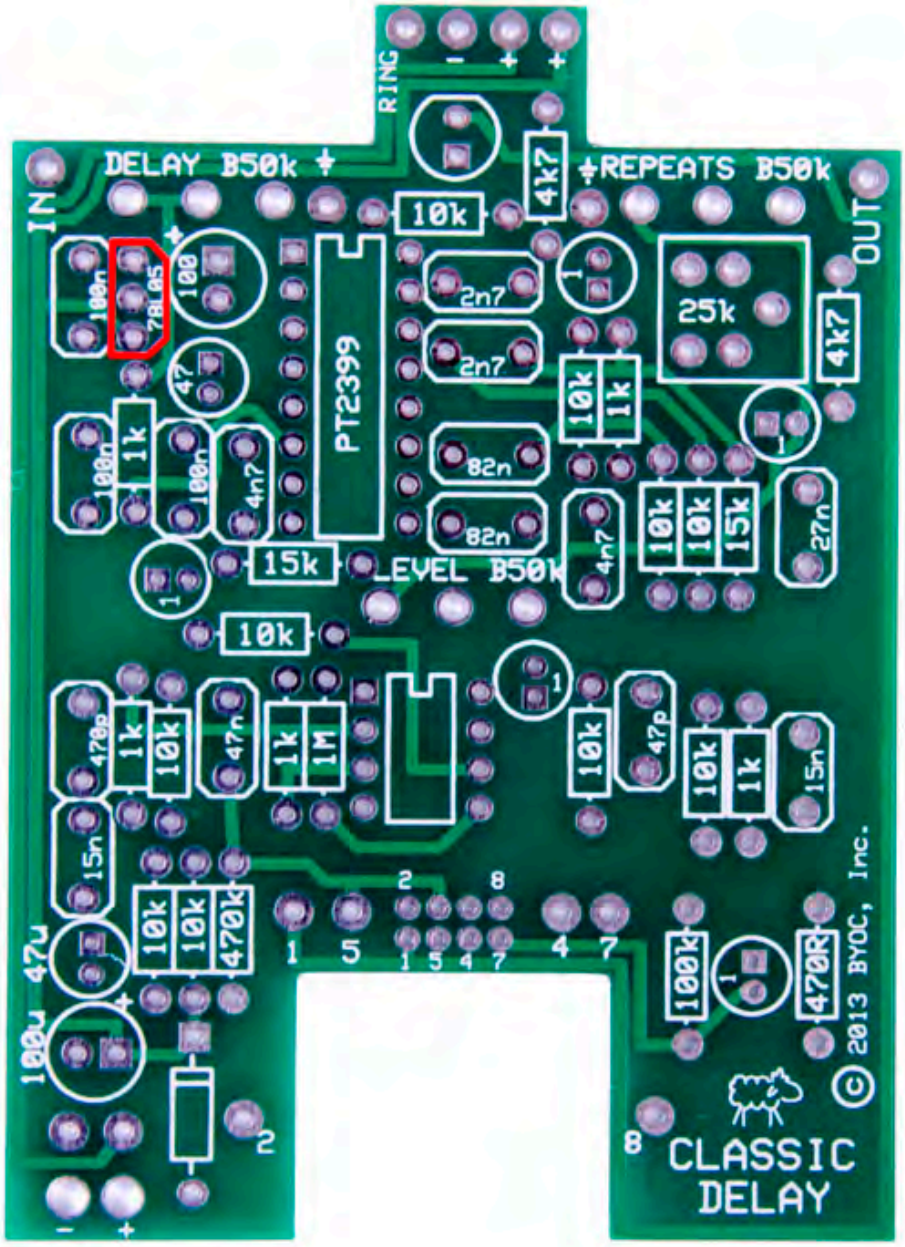
Step 2: Add the diode. Be sure to match the end of the diode with the stripe to the layout on the PCB. The striped end should go in the square solder pad.



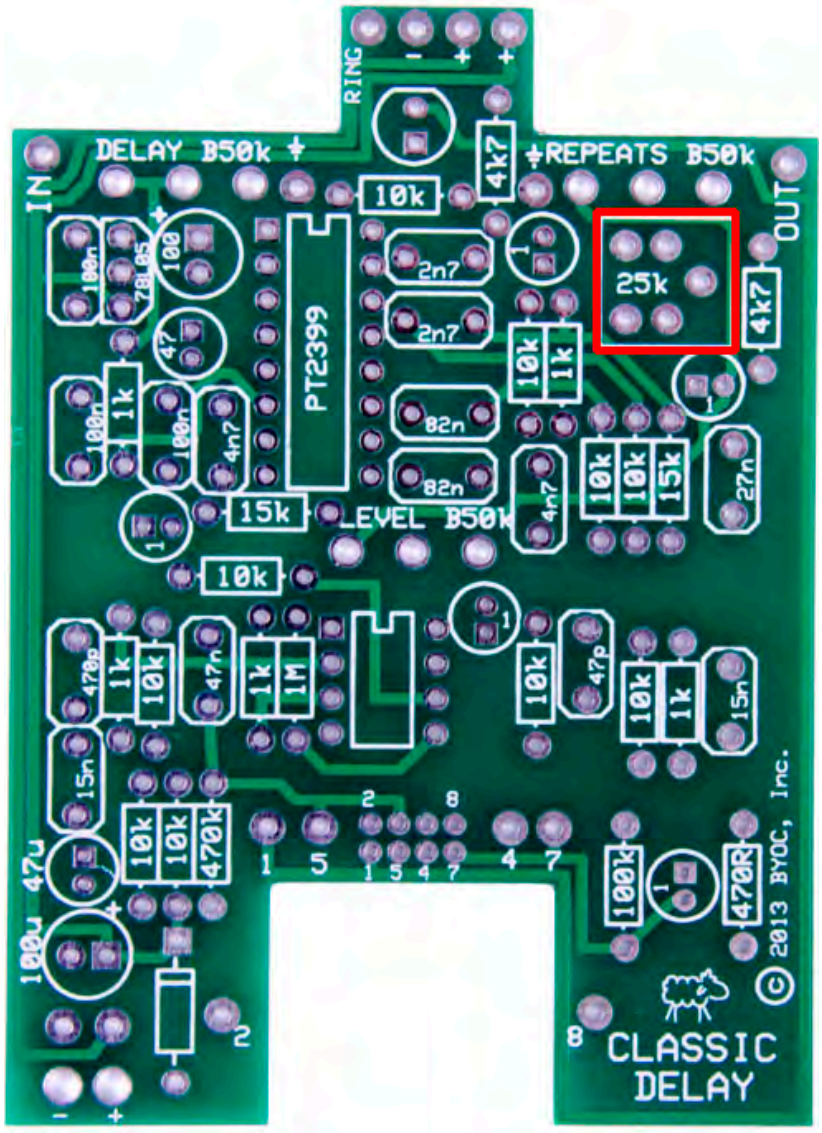
Step 3: Add the 16 pin and 4 pin IC sockets. **ONLY SOLDER THE SOCKET! NOT THE ACTUAL IC!** This is a socket. The sockets get soldered to the PCB. The ICs get inserted into the sockets. The actual IC chip itself, never gets soldered. You will insert the IC into the socket after the entire pedal has been built.



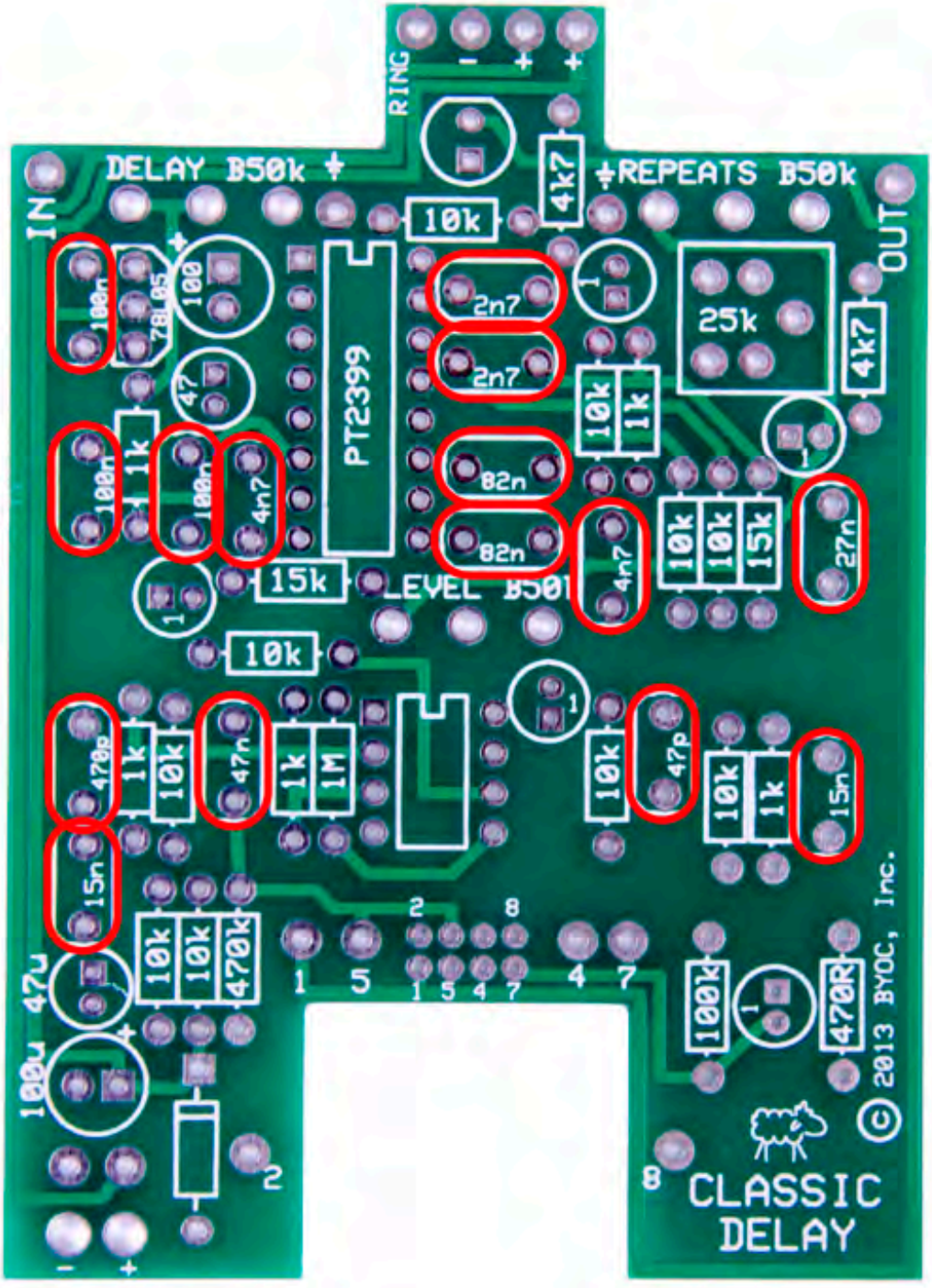
Step 4: Add the voltage regulator. Orient the 78L05 so that the flat side matches up with the flat side on the PCB layout.



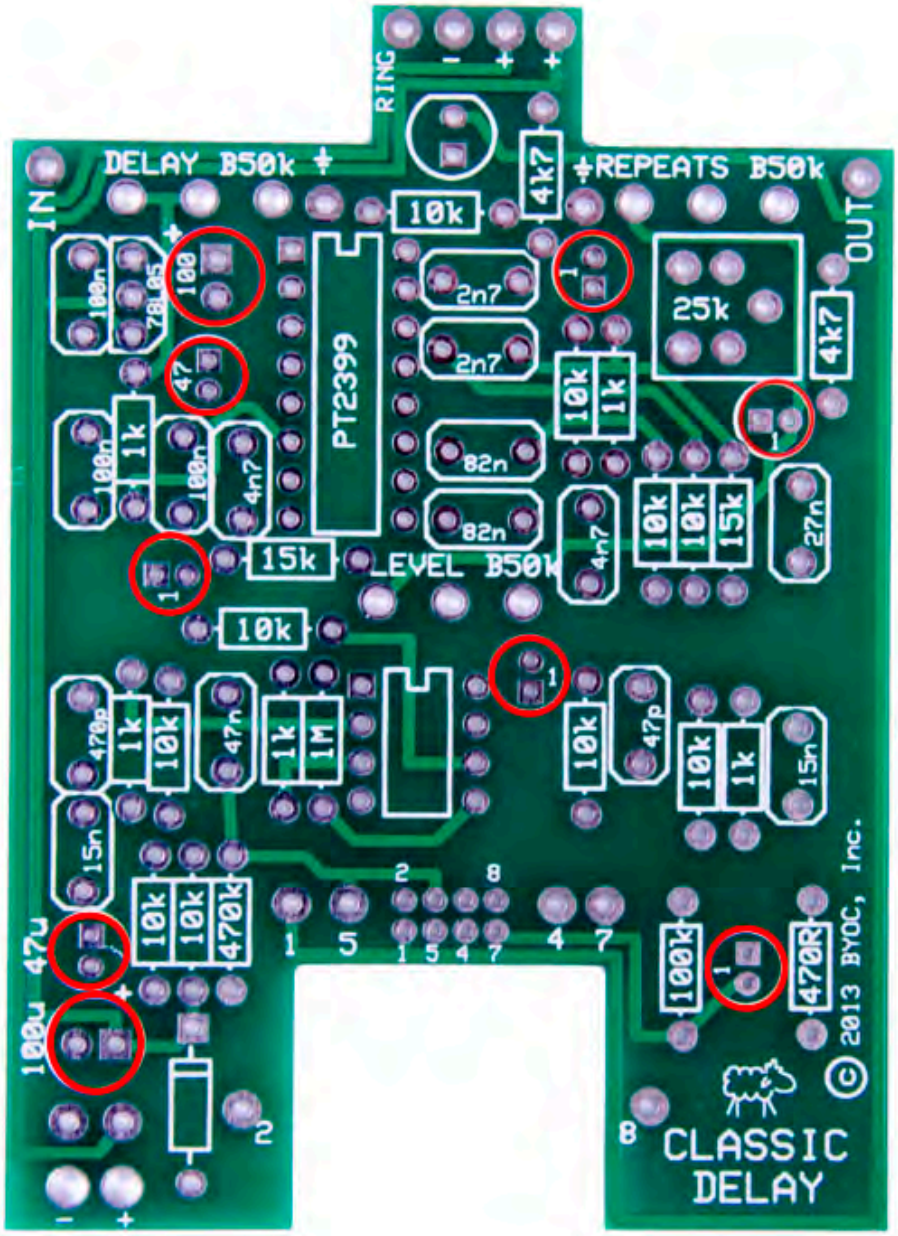
Step 5: Add the trimpot. This limits the amount of repeats. Most people what to set this so that the repeats eventually fade away after 10 seconds or so when the repeats knob is full turn clockwise. If you want infinite repeats, turn this trimpot up a little more. If you want self-oscillation (when the repeats runaway and keep getting louder) turn it up even more. You'll need to set this trimpot when you're all done building and you actually plug the pedal in for the first time.



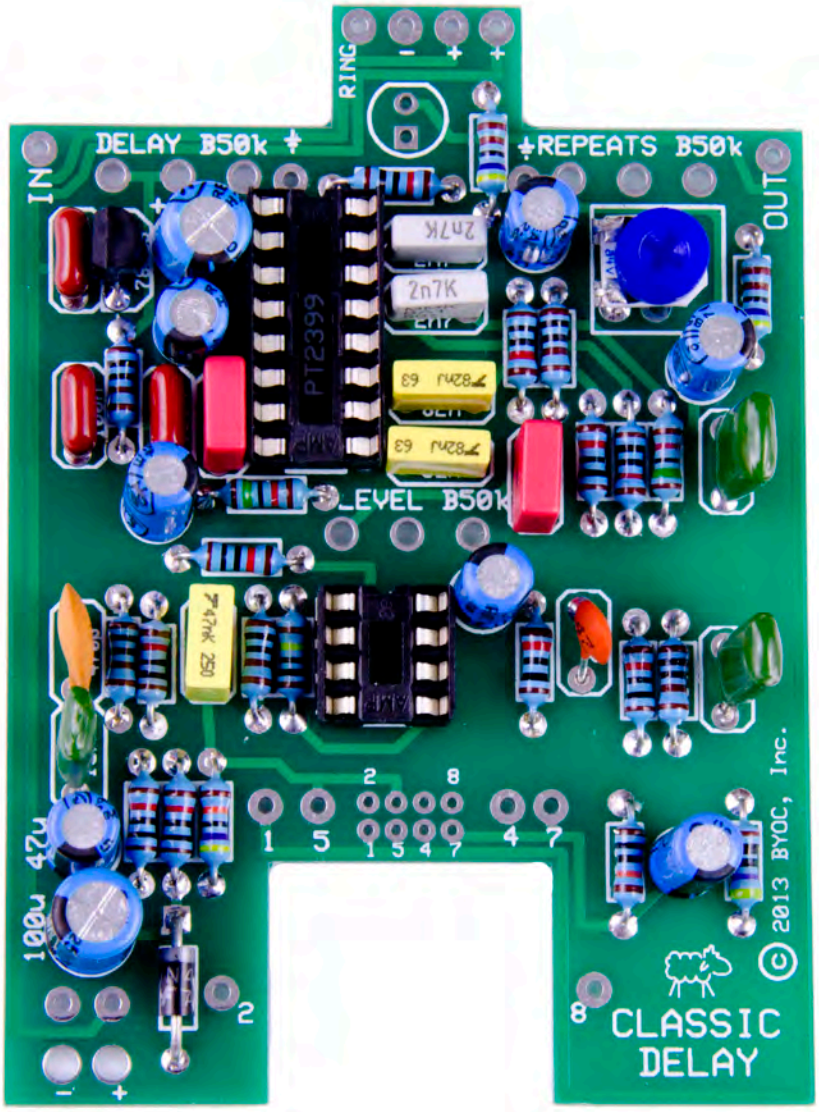
Step 6: Add the film capacitors. These are non-polarized so it can go in either direction.



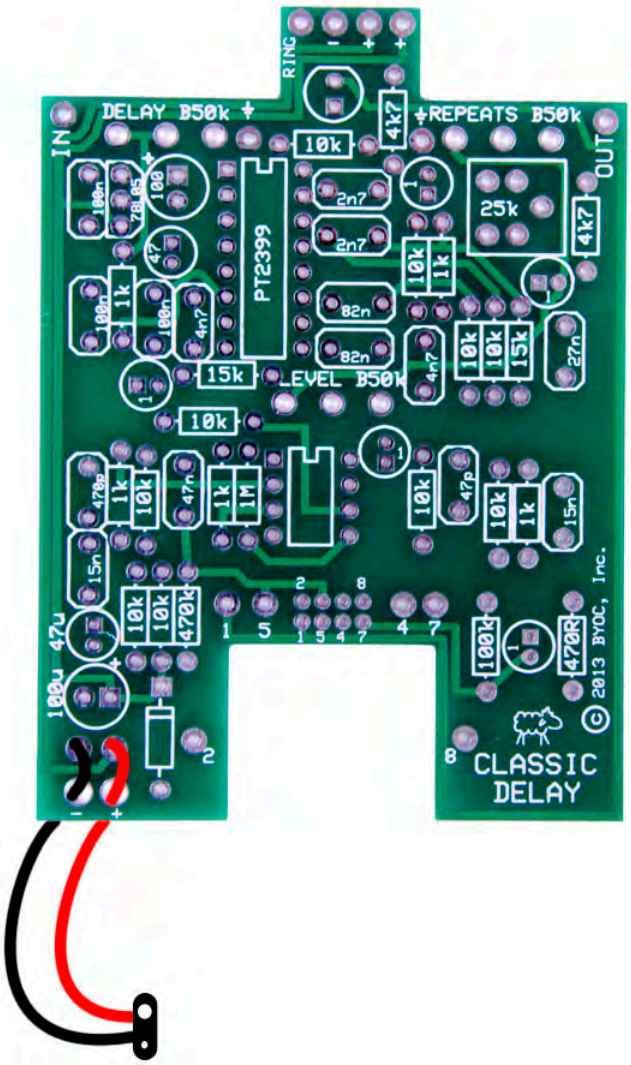
Step 7: Add the aluminum electrolytic capacitors. These ARE polarized, meaning there is a positive and negative end. The positive side will have a longer lead and goes in the square solder pad. The negative side will have a shorter lead and a stripe running along the body of the cap, and goes in the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



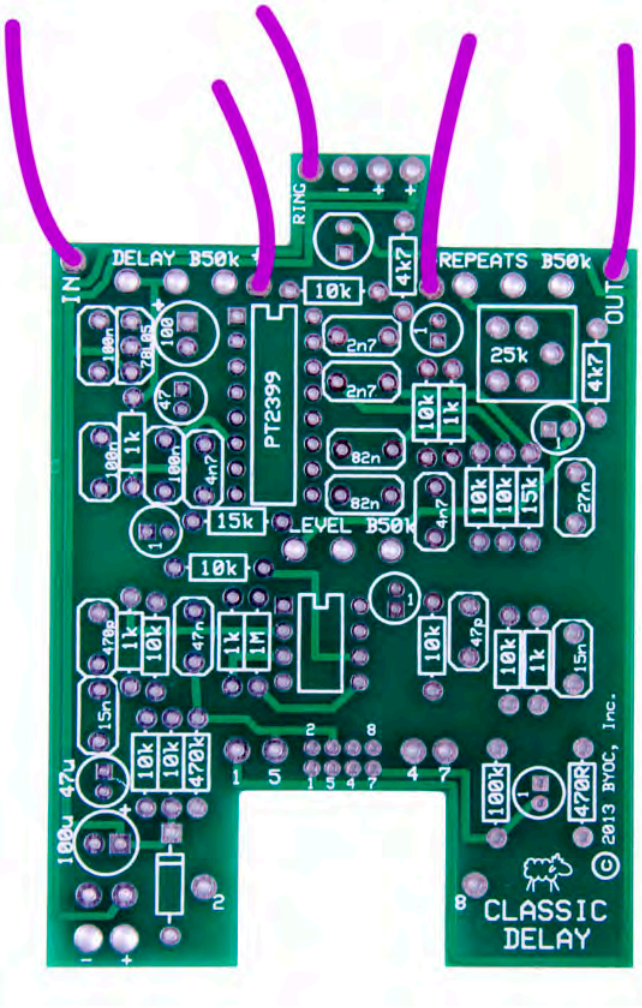
By this time, your PCB should look like this.



Step 7: Add the battery snap. Thread the solder ends of the battery snap into the strain relief holes from the bottom solder side of the PCB and out through the top. Insert the solder ends of the battery snap wires into the topside of their respective solder pads. Solder on the bottom side of the PCB. Remember the red wire goes in the "+" hole and the black wire goes in the "-" hole.

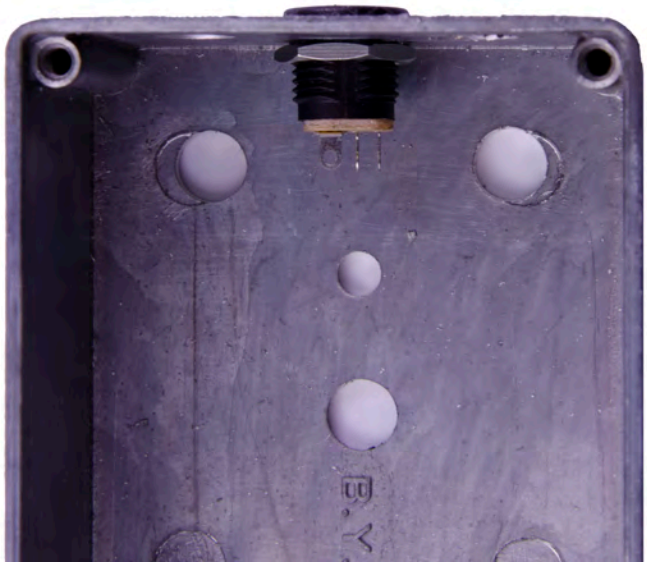


Step 8: Add wires to the IN, OUT, RING, and two Ground eyelets. Start by cutting four 2.5” pieces of wire, and one 1.5” piece. Strip 1/4” off each end and tin the ends. Tinning means to apply some solder to the stripped ends of the wires. This keeps the strands from fraying and primes the wire for soldering. 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.

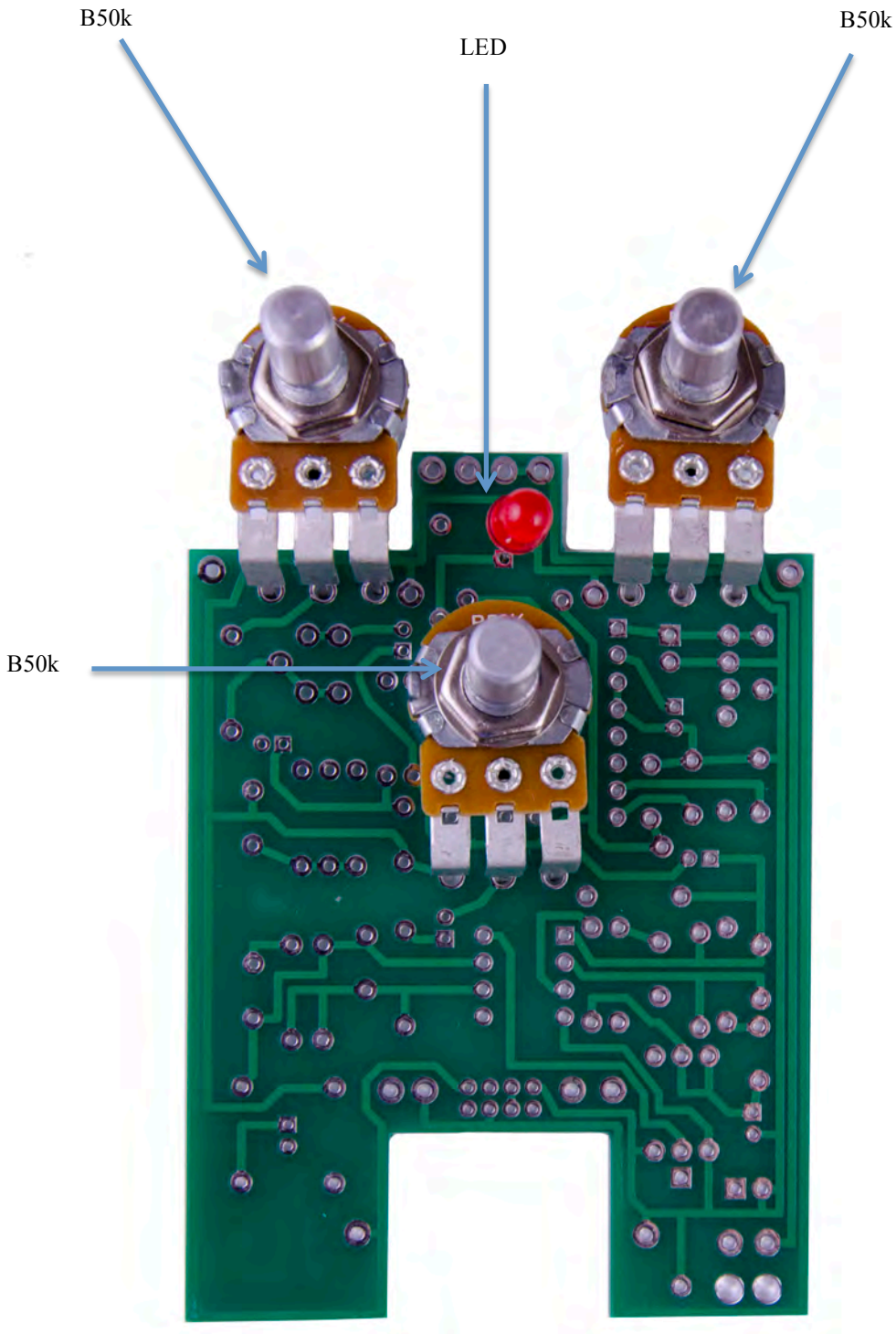


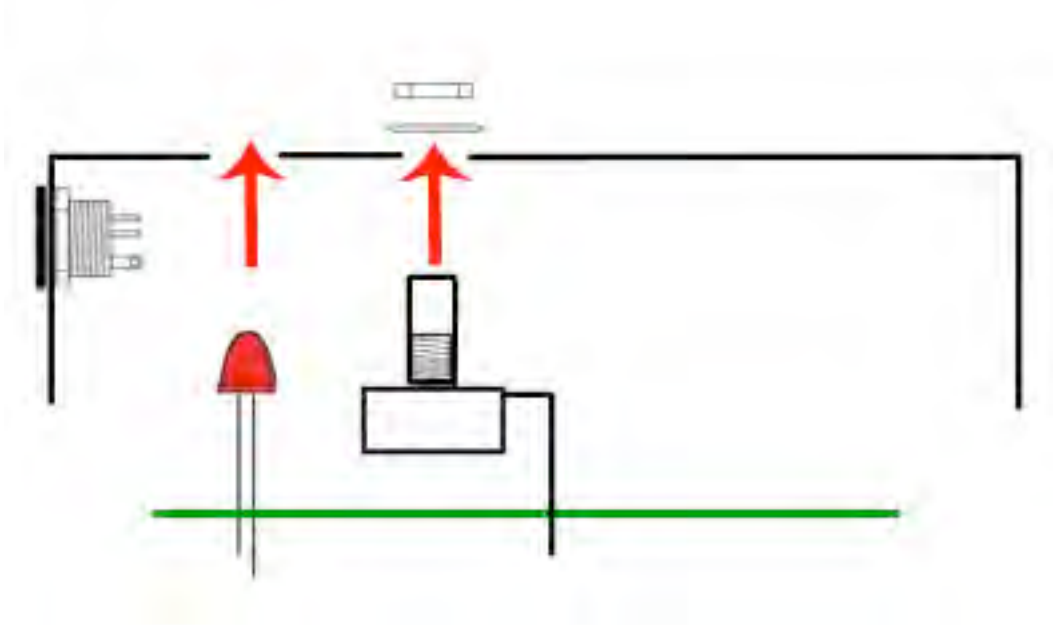
Main PCB Assembly

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: Flip the PCB over so that the bottom or solder side is up. Insert the three B50k 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.

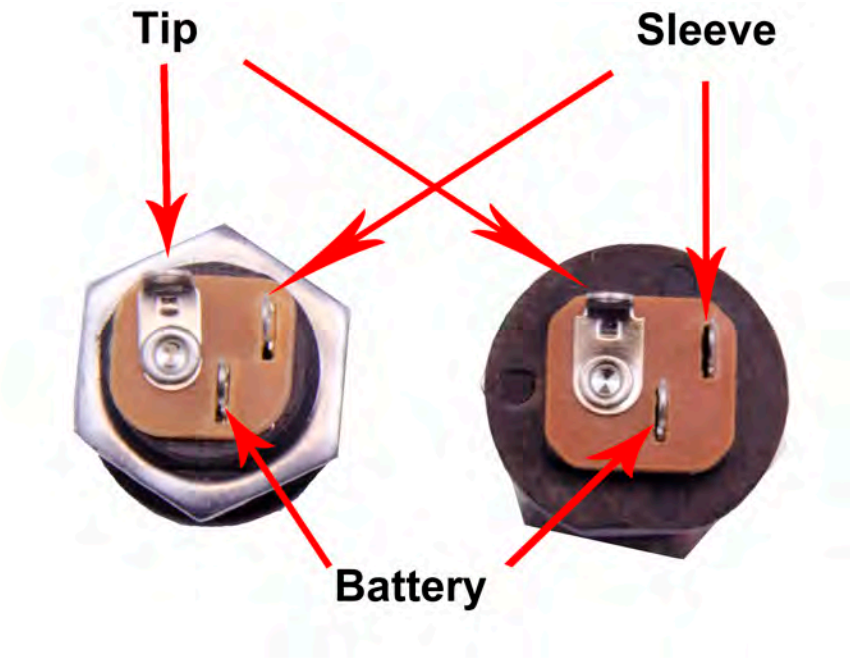




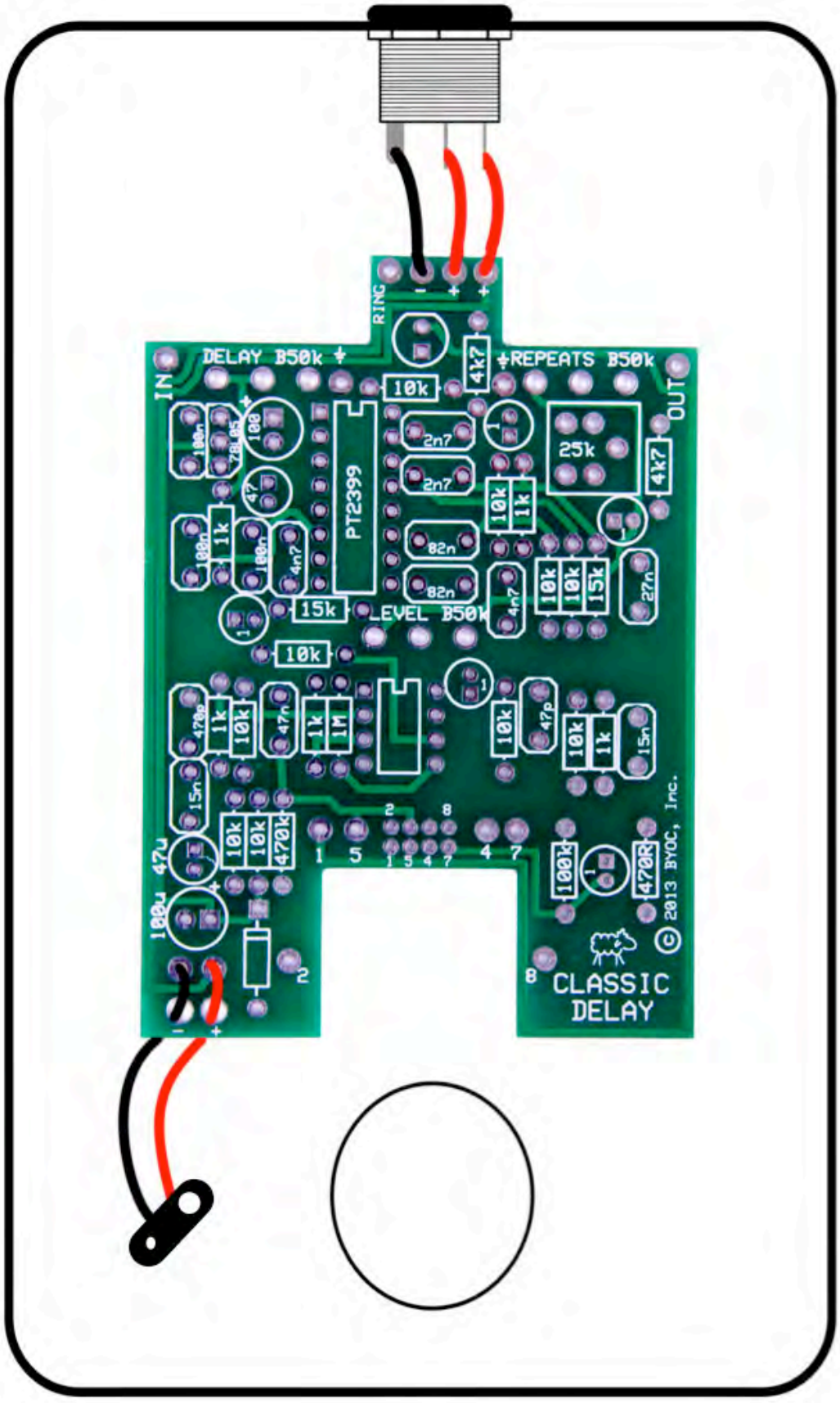
Step 3: Hold the PCB in one hand so that the component side of the PCB is in the palm of your hand and the bottom side with the pots, toggle switch and LED is facing up. Now use your other hand to guide the predrilled enclosure onto the PCB assembly so that the pots and LED all go into their respective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

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 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.



Step 6: 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.


RING
DELAY B50k
REPEATS B50k
IN
OUT
PT2399
LEVEL B50k
25k
CLASSIC
DELAY
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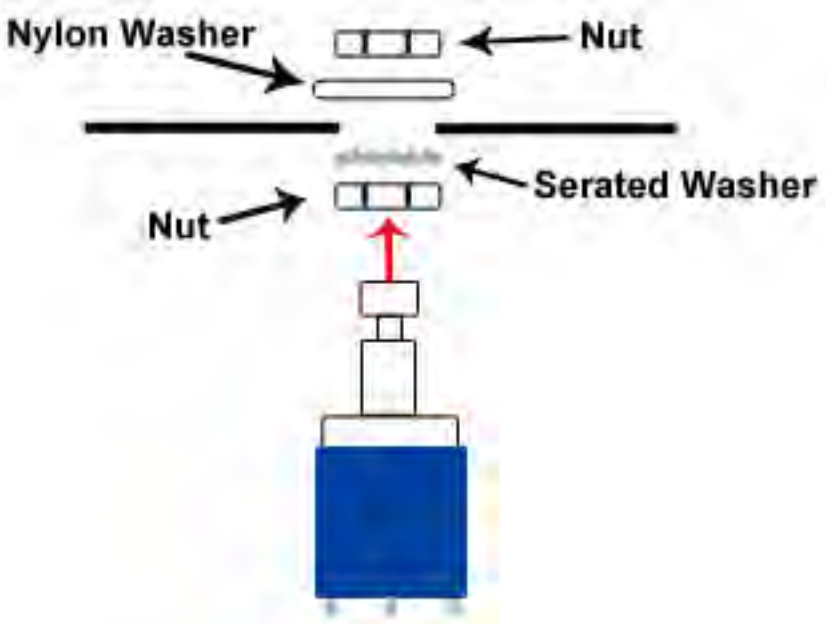
Wiring

Stereo (input) Jack

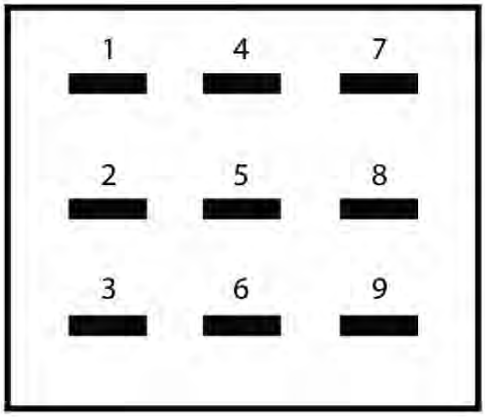
Mono (output) Jack

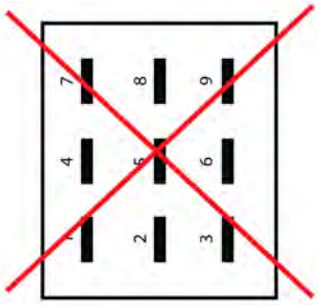
Step 1: Install the 1/4” jacks to the enclosure.



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.

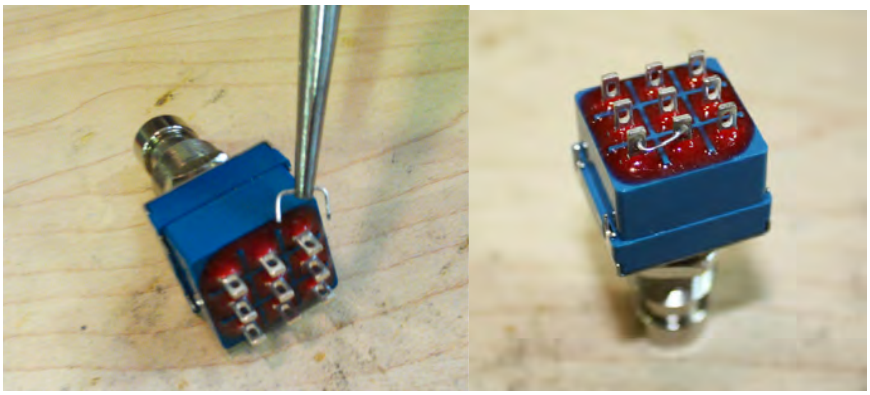
FOOT SWITCH SOLDER LUG DESIGNATIONS



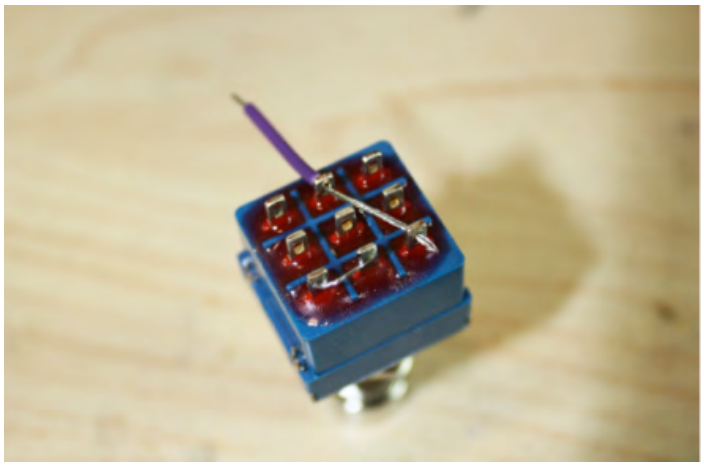


Step 3: Wiring the foot switch.

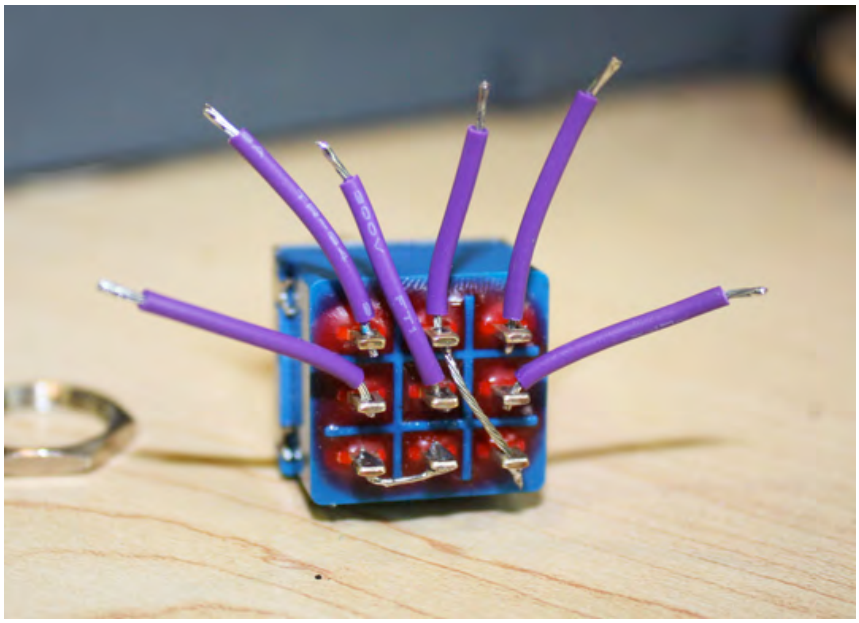
- Make a jumper between lugs 3 & 6 from clippings from the resistors. Simply use your needle nose pliers to make a U shape & insert into lugs 3 & 6, then solder.



- 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.

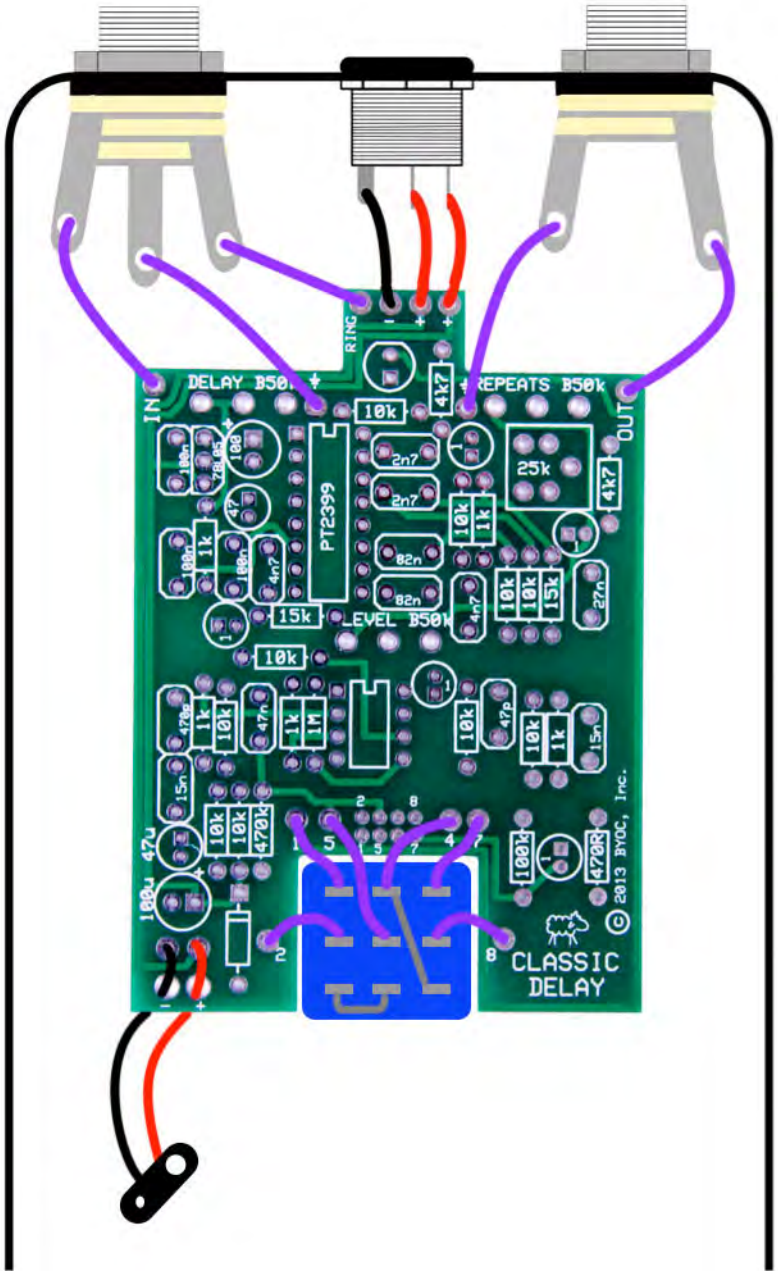


- Cut two 1” pieces of wire. Strip 1/8” off each end and tin. These will be used to connect lugs/eyelets 1 & 7
- Cut three 1.25” pieces of wire. Strip 1/8” off each end and tin. This will be used to connect lugs/eyelets 2, 5, & 8

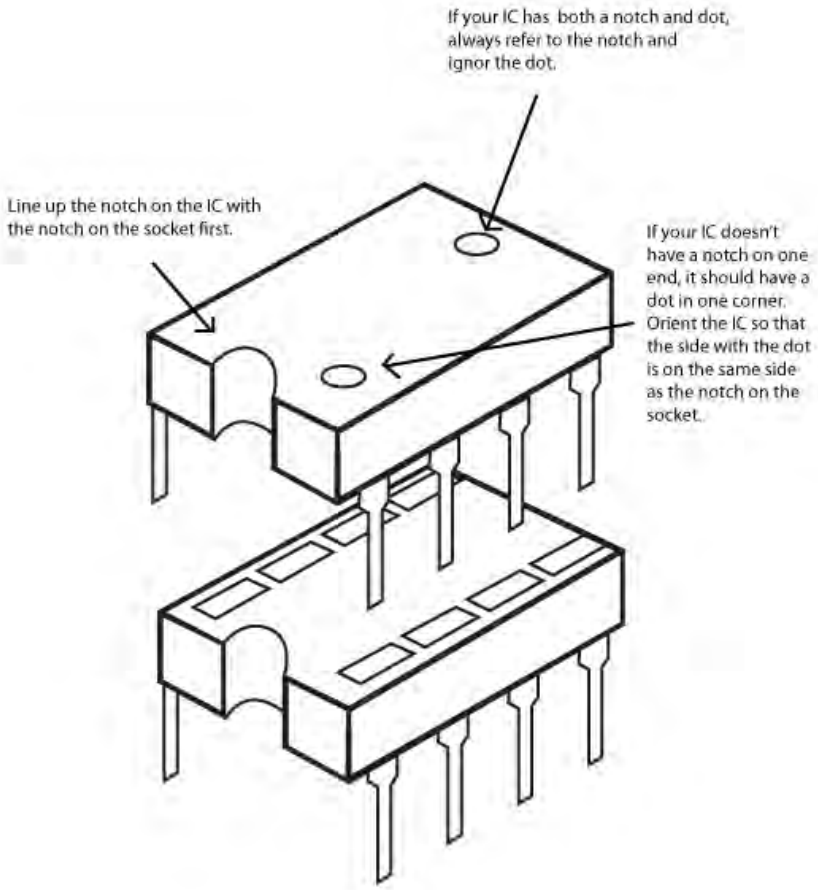


Step 4: Install the foot switch into the enclosure if it isn’t already. Insert the foot switch wires into their respective eyelets on the PCB. You can insert them into the top side and solder on the top side as well. The solder pads should be large enough (if you are using a soldering iron that isn’t 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.

Step 5: Connect the pre stripped and tinned wires to the 1/4” jacks and connect the wires from the footswitch to the PCB. The wire from the IN eyelet goes to the tip of the stereo jack. The wire from the RING eyelet goes to the ring of the stereo jack. The wire from the ⏚ eyelet closest to the stereo jack goes to the sleeve of the stereo jack. The wire from the OUT eyelet goes to the tip of the mono jack. The wire from the ⏚ eyelet closest to the mono jack goes to the sleeve of the mono jack. The wires on the footswitch go to the eyelets numbered correspondingly to the lug numbers.



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

Repeats: Controls how long the echoes repeat or how quickly they fade away.

Level: Controls how loud the echoes are.

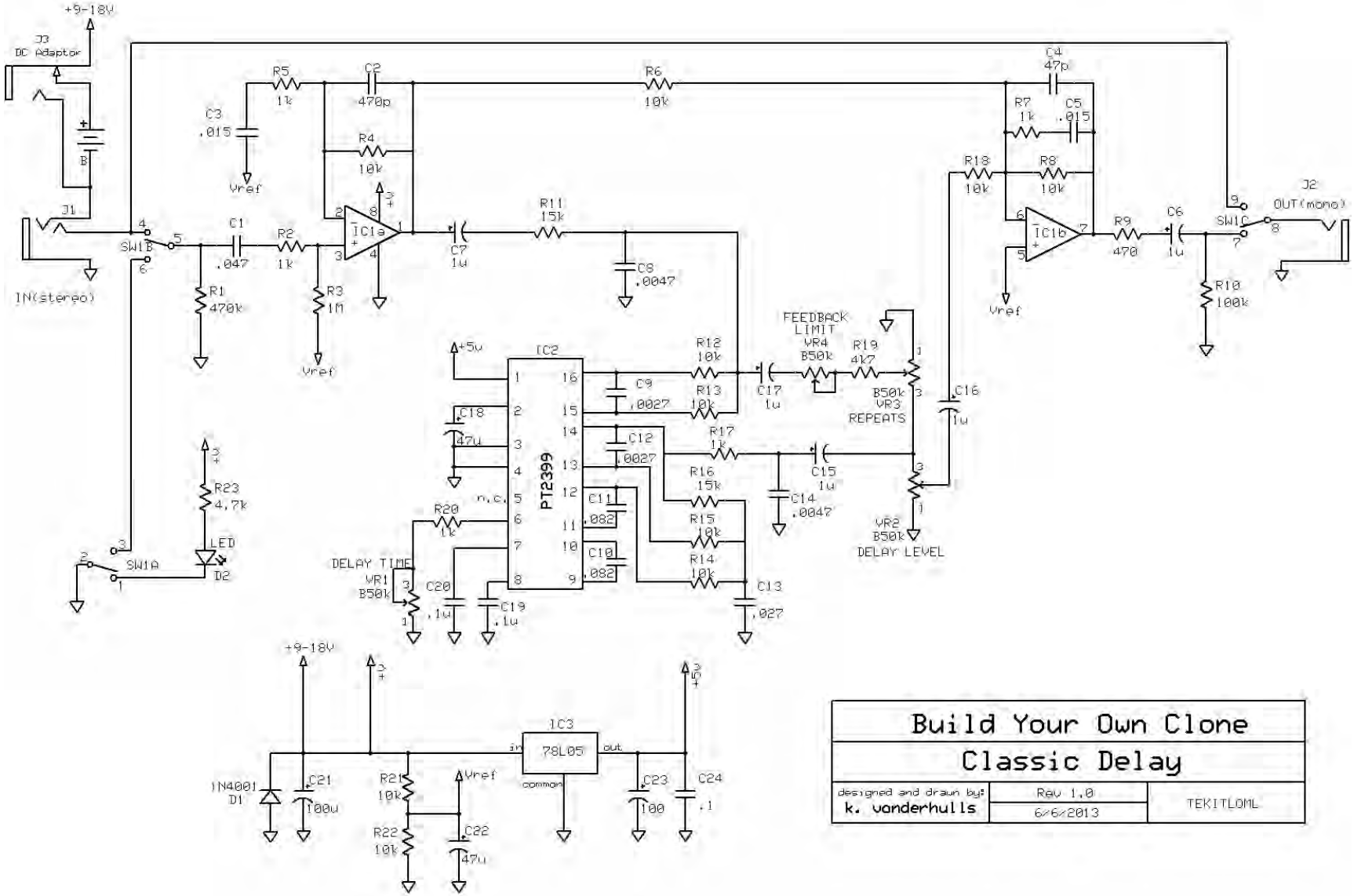
Delay time: Controls the time between echoes.

Power supply: 9V battery or 2.1mm negative tip, between 9 and 18VDC

Current Draw: 7.5mA

Input Impedance: 470k ohms

Output Impedance: 100k ohms


+9-18V
J3
DC Adaptor
B
J1
IN(stereo)
SW1B
R1
470k
C1
.047
R2
1k
R3
1M
Vref
C3
.015
R5
1k
C2
470p
R4
10k
IC1a
C7
1u
R11
15k
C8
.0047
R6
10k
C4
47p
R7
1k
C5
.015
R18
10k
R8
10k
IC1b
R9
470
C6
1u
R10
100k
SW1C
J2
OUT(mono)
IC2
PT2399
+5v
C9
.0027
R12
10k
R13
10k
C17
1u
FEEDBACK
LIMIT
VR4
B50k
R19
4k7
B50k
VR3
REPEATS
C16
1u
C18
47u
C12
.0027
R17
1k
R16
15k
C15
1u
C14
.0047
n.c.
C11
.082
R15
10k
C10
.082
R14
10k
C13
.027
R20
1k
DELAY TIME
VR1
B50k
C20
.1u
C19
.1u
VR2
B50k
DELAY LEVEL
R23
4.7k
LED
D2
SW1A
+9-18V
IC3
78L05
in
out
common
IN4001
D1
C21
100u
R21
10k
R22
10k
C22
47u
C23
100
C24
.1
Build Your Own Clone
Classic Delay
designed and drawn by:
k. vanderhulls
Rev 1.0
6/6/2013
TEKITLOML

Please visit
http://byocelectronics.com/board
for any technical support

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