Lazy Sprocket 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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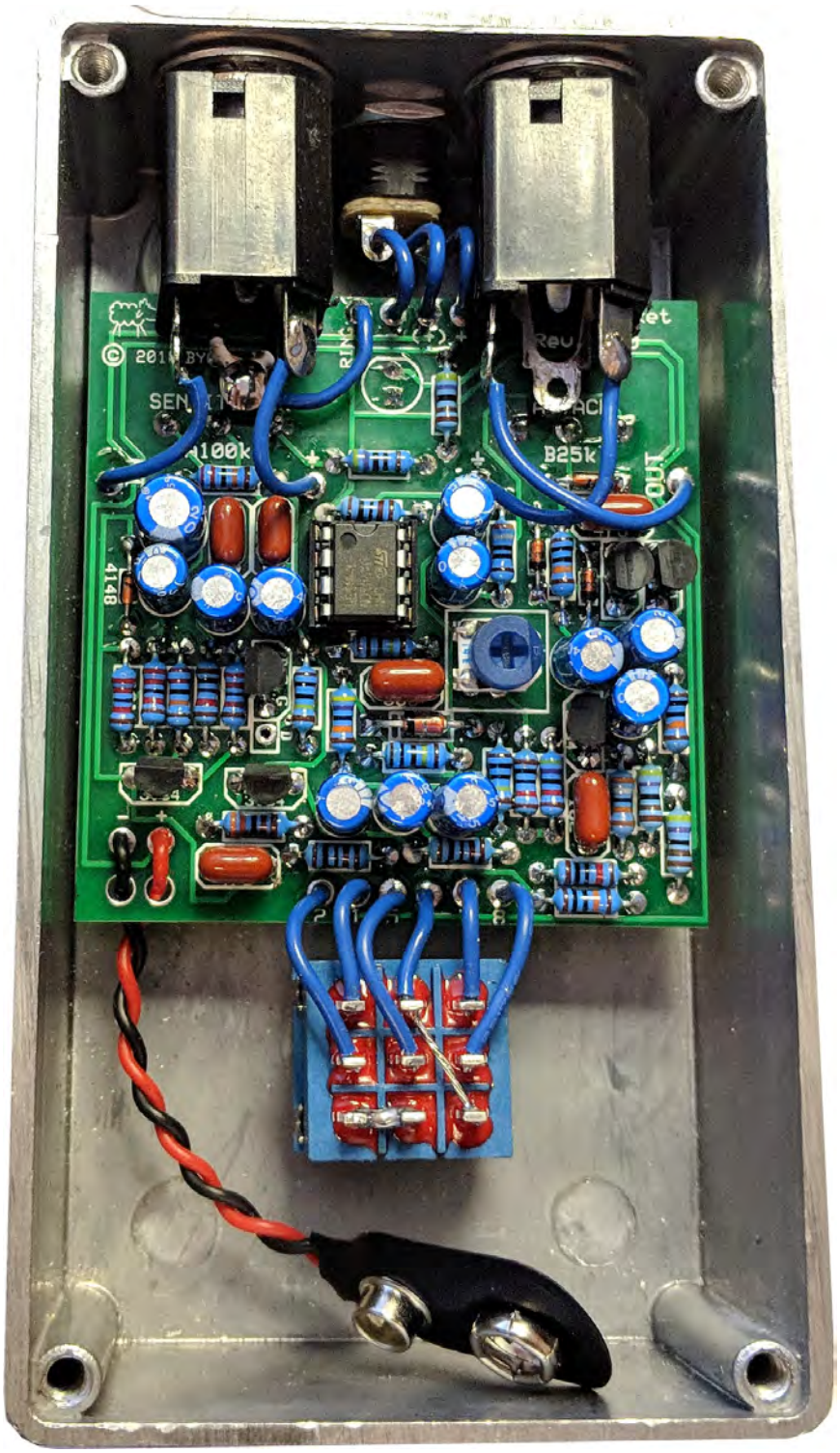


This is what your build should look like when it's done. Your kit may include different color components; this is nothing to worry about as long as the values are correct.

Parts Checklist for The Lazy Sprocket Kit

Resistors:

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

Capacitors:

1 - .001uf film (may say 102 on the body)
2 - .022uf film (may say 223 on the body)
1 - .033uf film (may say 333 on the body)
2 - .047uf film (may say 473 on the body)
7 - 1uf aluminum electrolytic
3 - 10uf aluminum electrolytic
1 - 47uf aluminum electrolytic
1 - 100uf aluminum electrolytic

IC:

1 - 741 or TL071 or similar single op amp

Transistors:

5 - 2n3904 or similar NPN silicon transistor
1 - 2n5457 or similar JFET

Diodes:

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

Potentiometers:

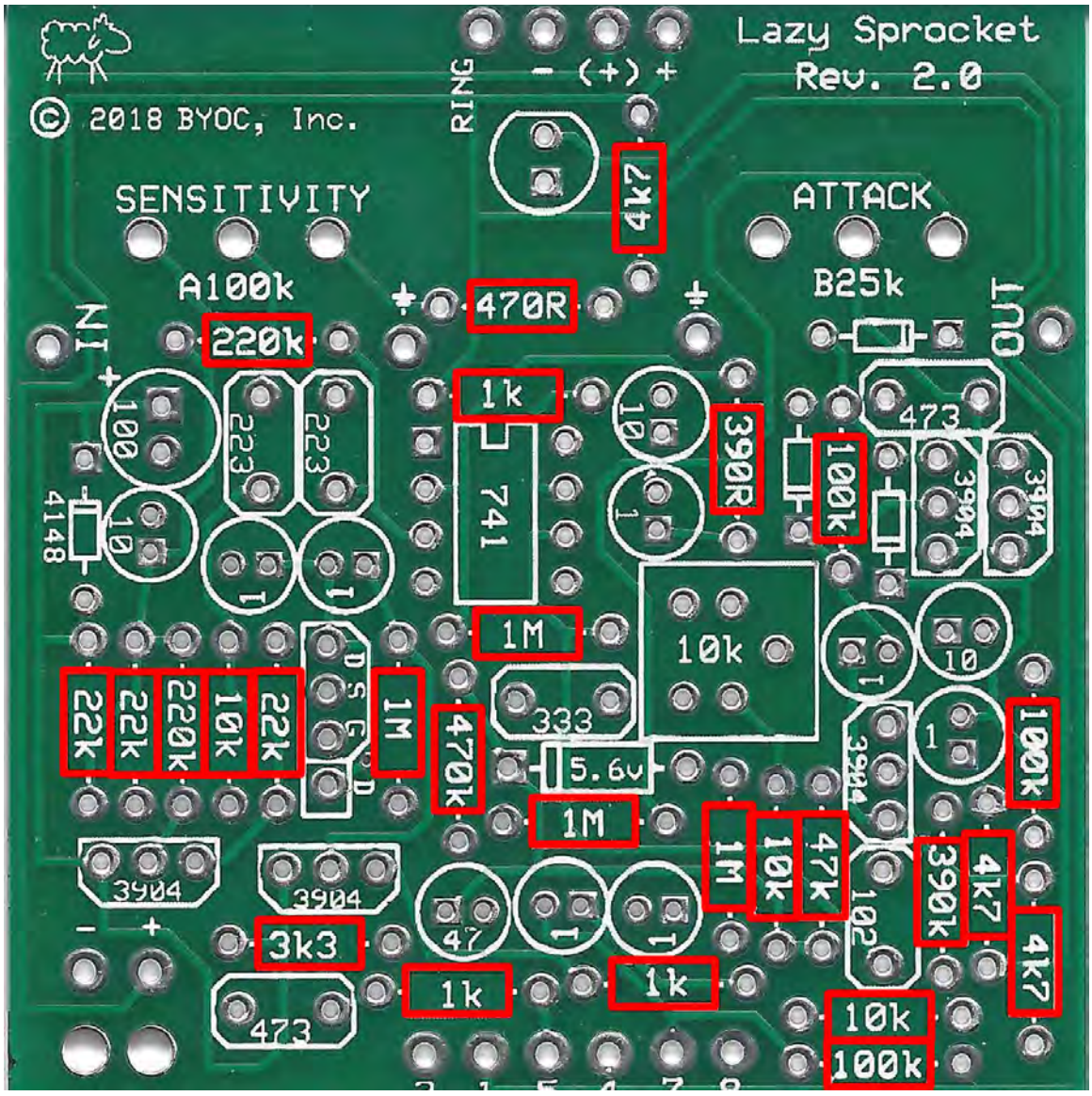
1 - 10k trimpot
1 - A100k Audio pot “sensitivity”
1 - B25k Linear pot “attack”

Hardware:

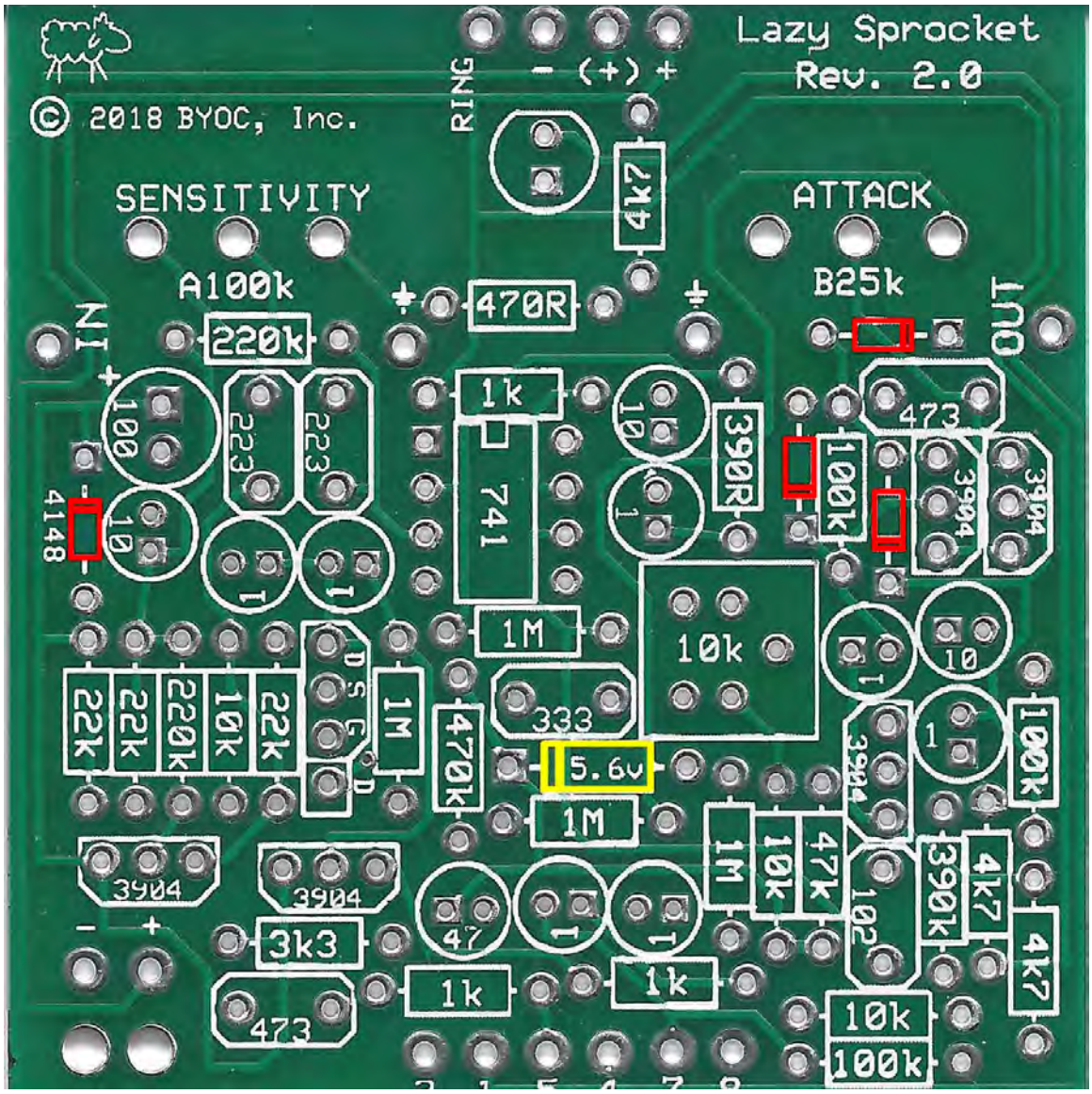
1 - enclosure w/ 4 screws
1 - lazy sprocket circuit board
1 - 3pdt footswitch
2 - knobs
1 - AC adaptor jack
2 - Enclosed jacks
2 - Lock Washers
1 - battery snap
1 - red LED
4 - Rubber Bumpers
hook-up wire

Populating the Circuit Board

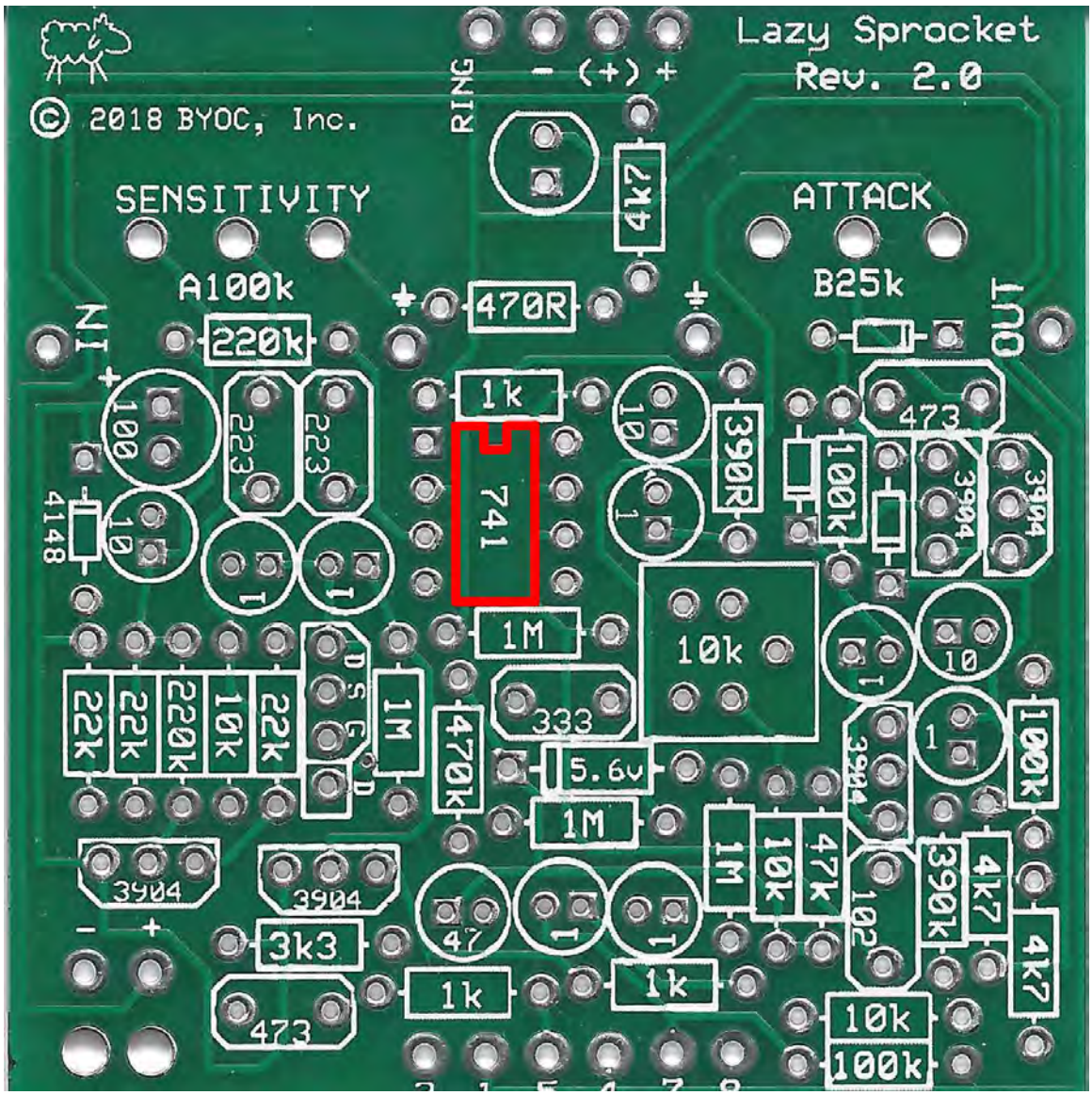
Step 1: Add all the resistors. Resistors are not polarized, so they can face in either direction.



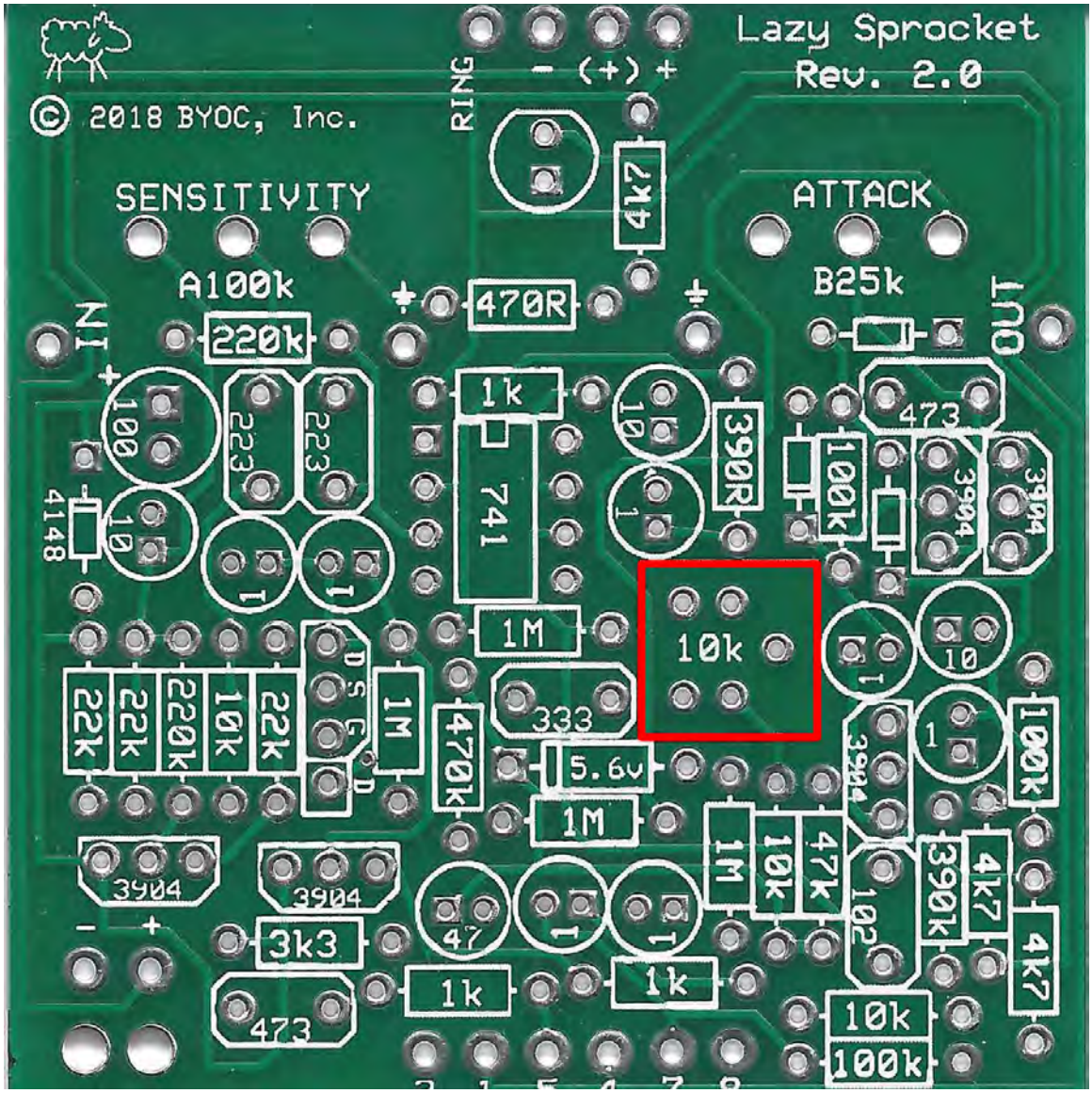
Step 2: Add the diodes. The smaller 1N914 are highlighted in red. The larger zener is highlighted in yellow. Make sure the black stripe on each diode matches with the stripe on the layout.



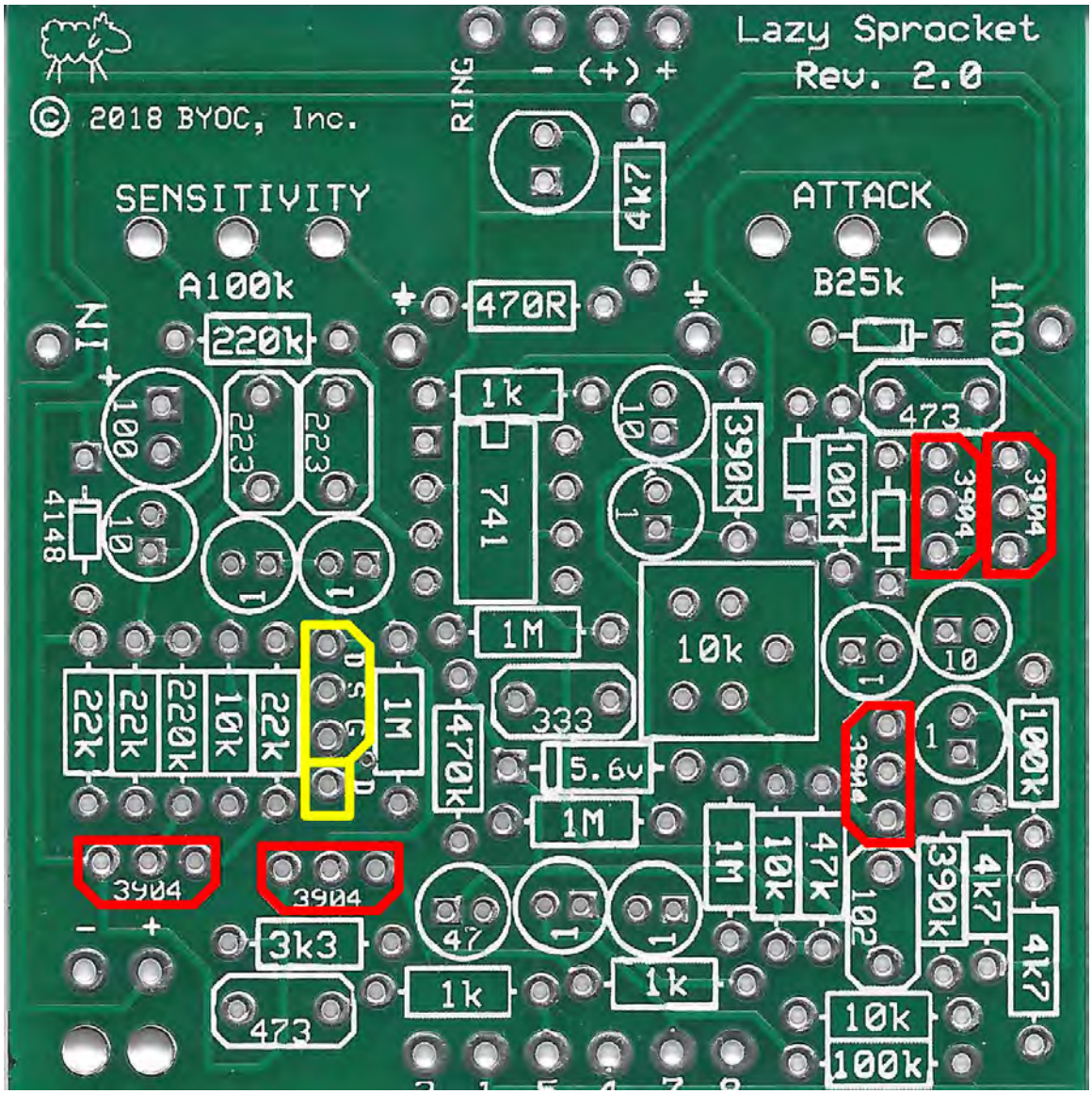
Step 3: Add the IC socket. Match up the u-shaped notch in the socket with the notch on the layout. If the op amp that is supplied with your kit does not have a notch in it, there will be a small dot in one corner. This denotes pin #1. Pin #1 of the op amp should go in the square solder pad.



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 sweet spot where you get a smooth, slow swell, but not too much volume loss.

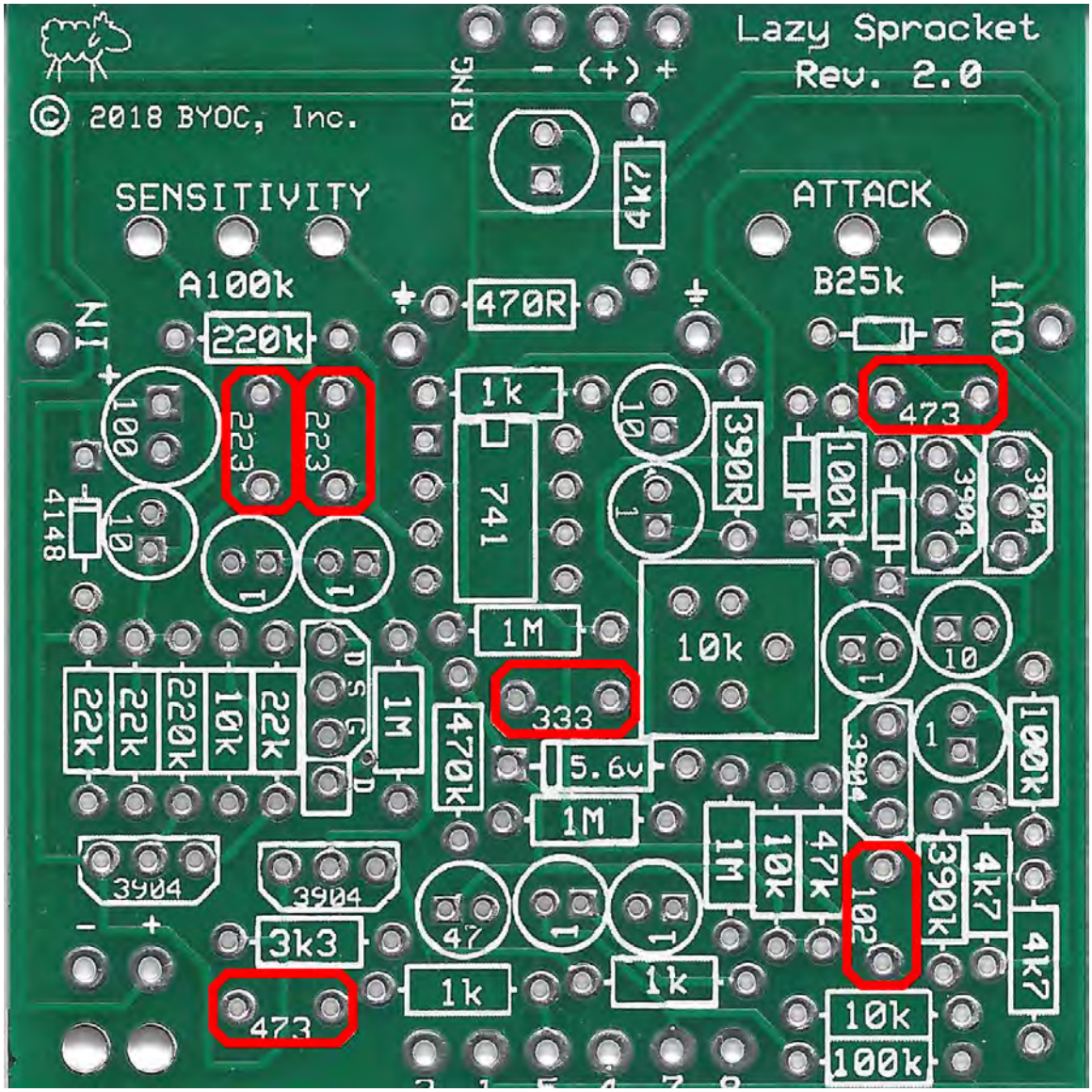


Step 5: Add the transistors. The 2N3904s are highlighted in red. The 2N5457 is highlighted in yellow. Make sure that the transistors' curved sides and flat sides match the layout.

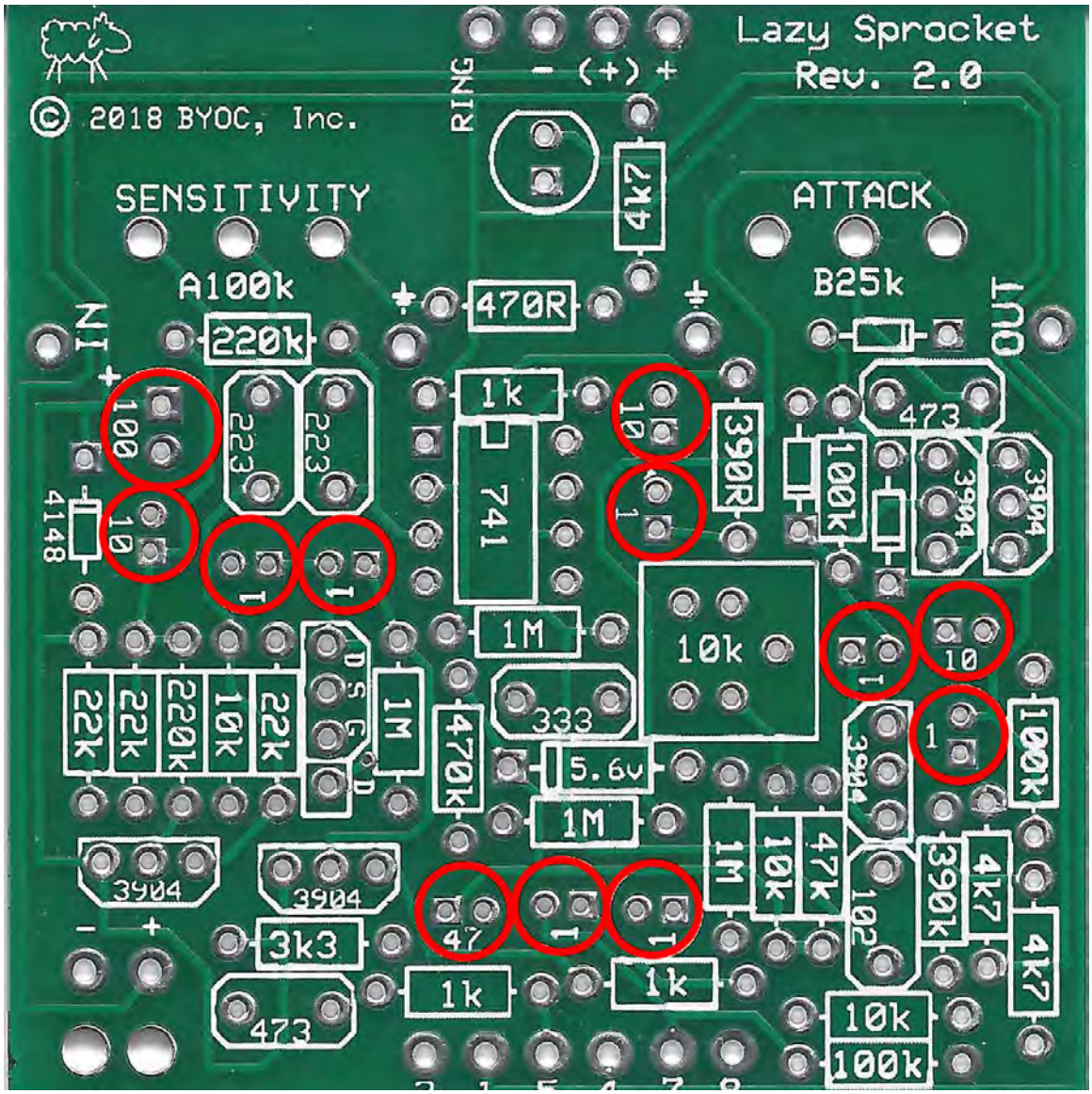


Using a SK30 JFET: If you wanted to use an SK30 JFET, the PCB has eyelets to accommodate this. The SK30 has a different pinout from 2N5457. Insert the SK30 into the PCB in the transistor space highlighted in yellow following the same orientation, but with the lower leg of the transistor going into the lower 'D' eyelet.

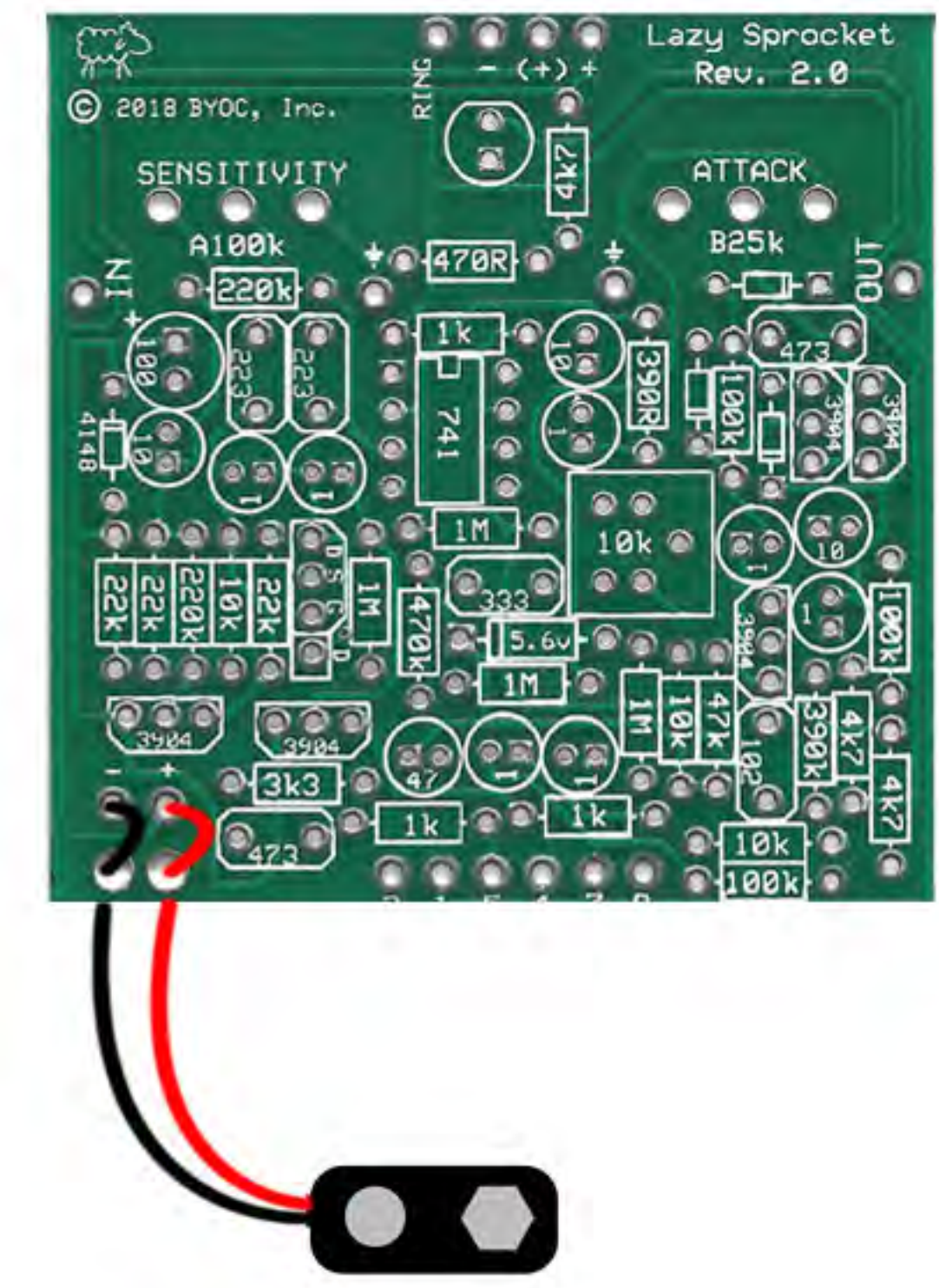
Step 6: Add the film caps. These are not polarized and can go in either direction.



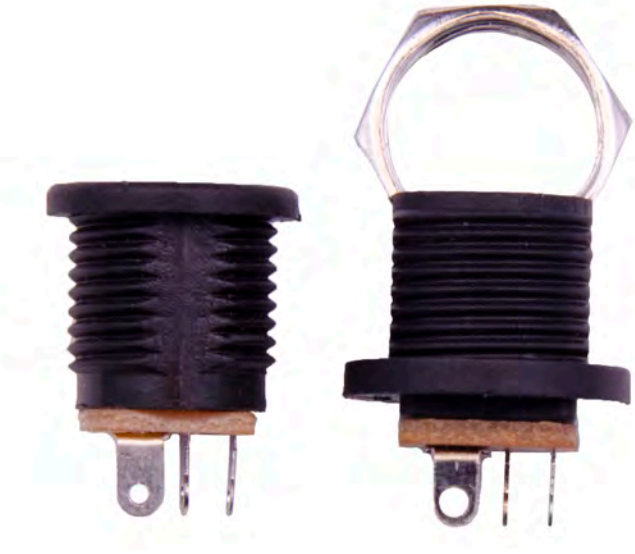
Step 7: Add the electrolytic capacitors. These are polarized, meaning they have a positive and negative end. The positive end of the cap will have a longer lead and should go in the square solder pad.



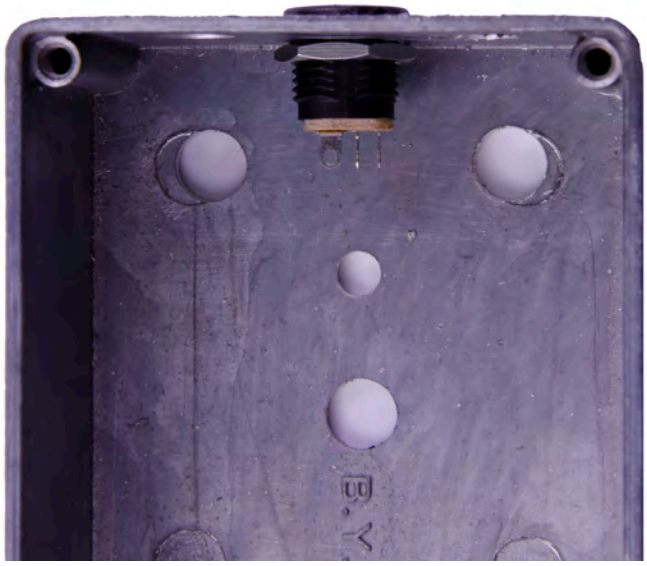
Step 8: Add the battery snap. Thread the wires of the battery snap through the holes in the PCB before soldering as shown below.



Main PCB Assembly

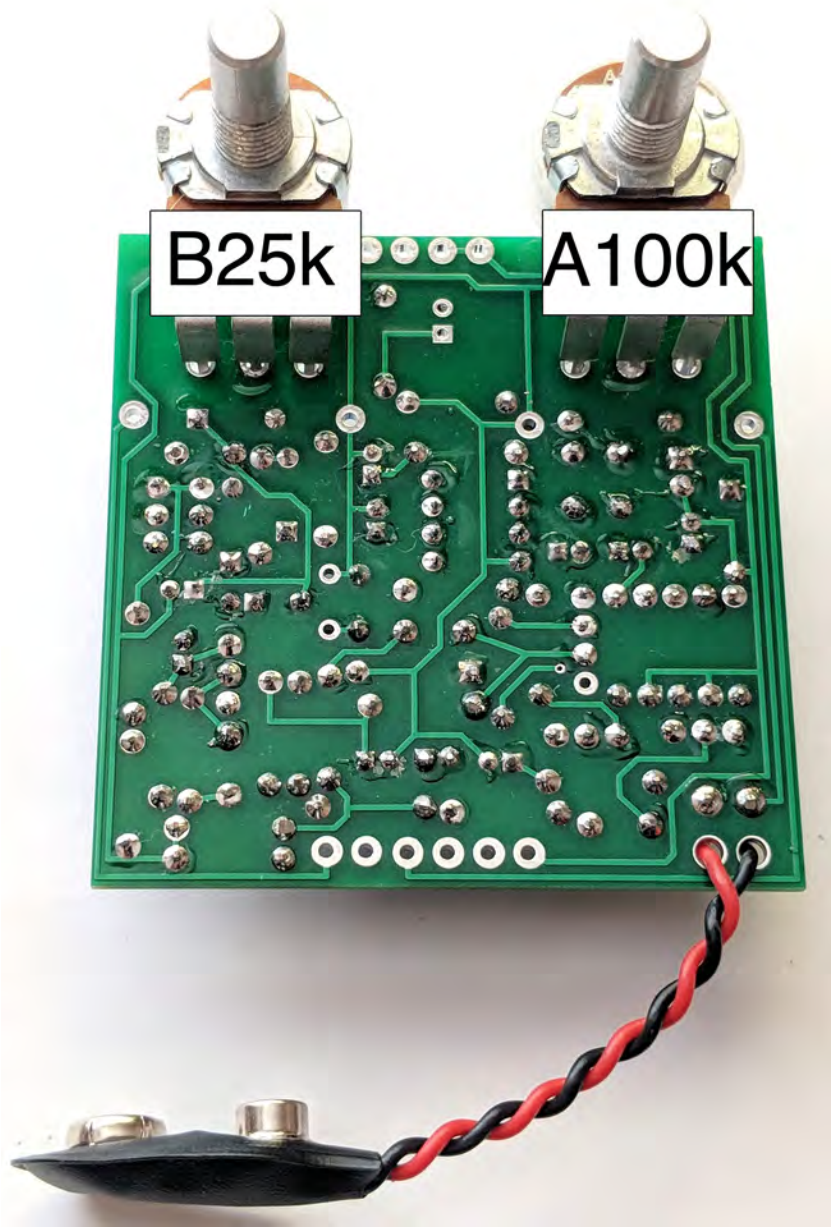


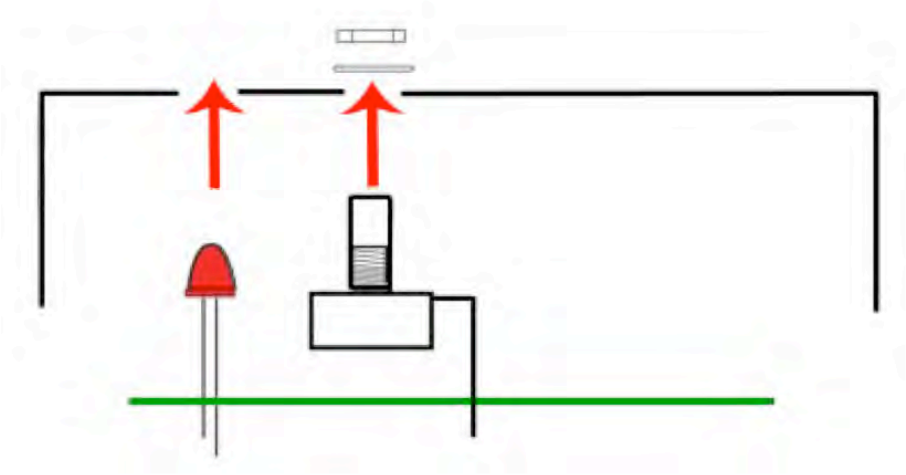
Step 1: Mount the AC adapter jack to the enclosure. Your kit may come with either an external thread or internal thread. Don't get confused by this. They still function exactly the same. You just thread the external nut on the outside and the internal nut on the inside. The picture below is of an internal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



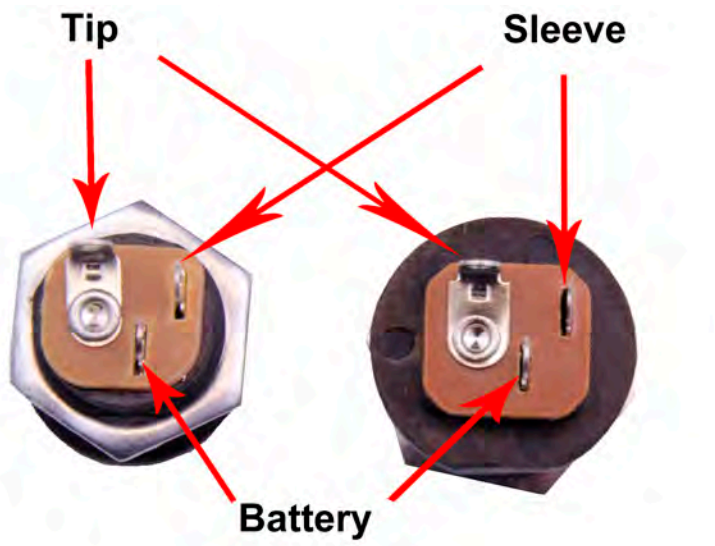


Step 3: Hold the PCB in one hand so that the component side of the PCB is in the palm of your hand and the bottom side with the pots, toggle switch and LED is facing up. Now use your other hand to guide the predrilled enclosure onto the PCB assembly so that the pots, toggle switch and LED all go into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

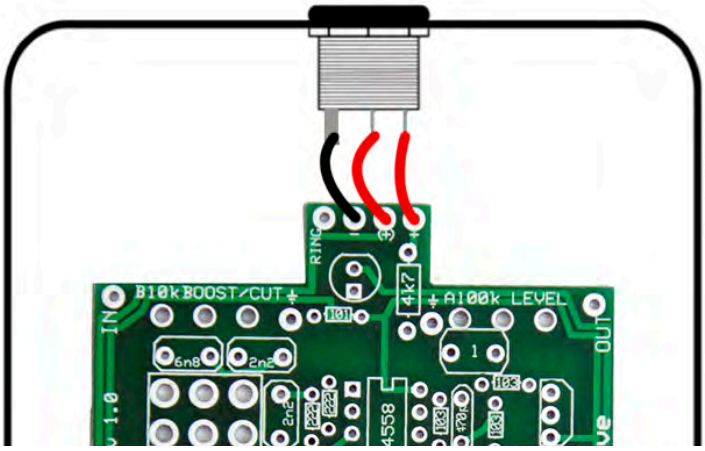
Step 4: Turn the entire pedal over so that the component side of the PCB is facing up. Lift the PCB up off the pots about 2mm just to make sure that the back of the PCB does not short out against the pots. Make sure the PCB is level and symmetrically seated inside the enclosure.

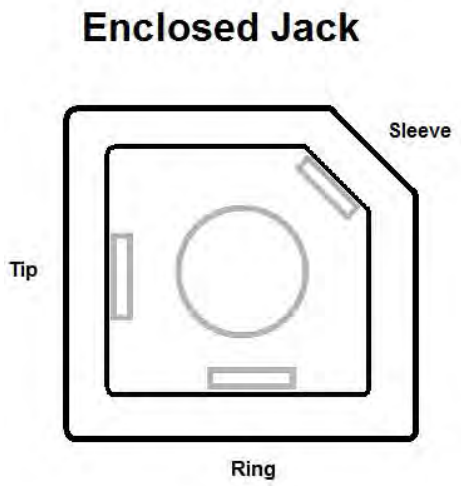
Step 5: Solder the pots, toggle switch and LED. You will be soldering on the component side (top) of the PCB. After you have soldered them in place, be sure to tighten up their nuts. TIP: only solder one lug of each component at first. This will secure everything in place and still allow you to wiggle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

WIRING

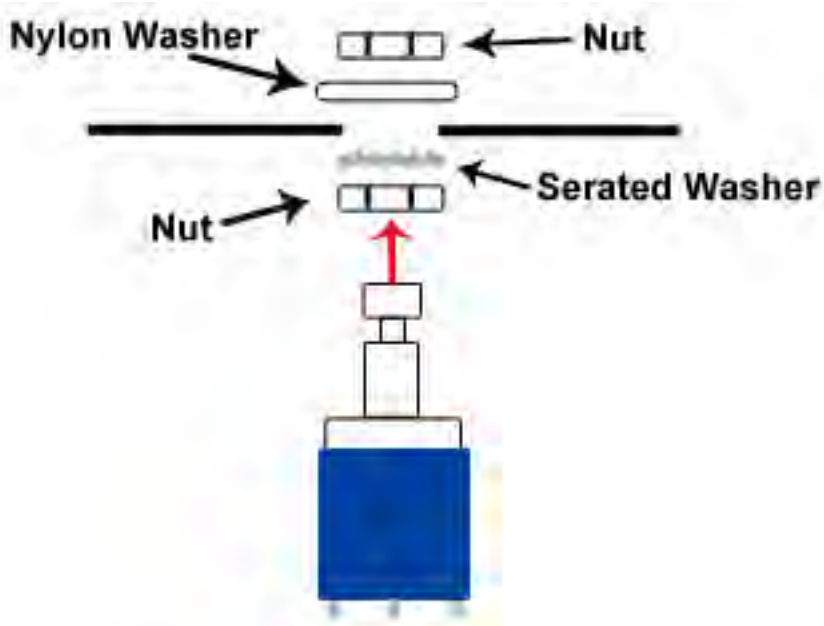


Step 6: Connect the TIP (negative) terminal of the DC adapter jack to the eyelet on the PCB labeled “-“. Connect the SLEEVE of the DC adapter jack to the eyelet on the PCB labeled “+” farthest to the right. Connect the battery disconnect terminal of the DC adapter jack to the second eyelet on the PCB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



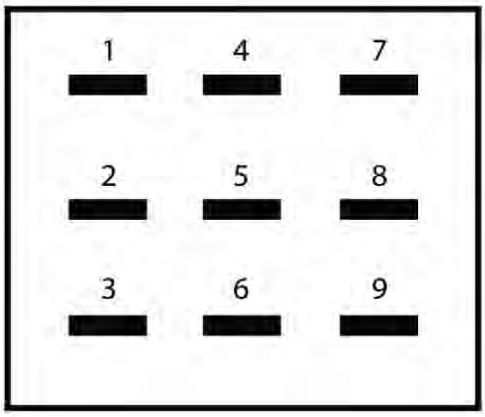


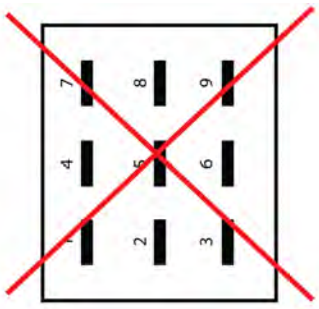
You will want to place the jacks into the enclosure so the sleeve terminal is facing the right like the picture above. Be sure to remember the lock washers so the jacks don't spin on their own.



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.

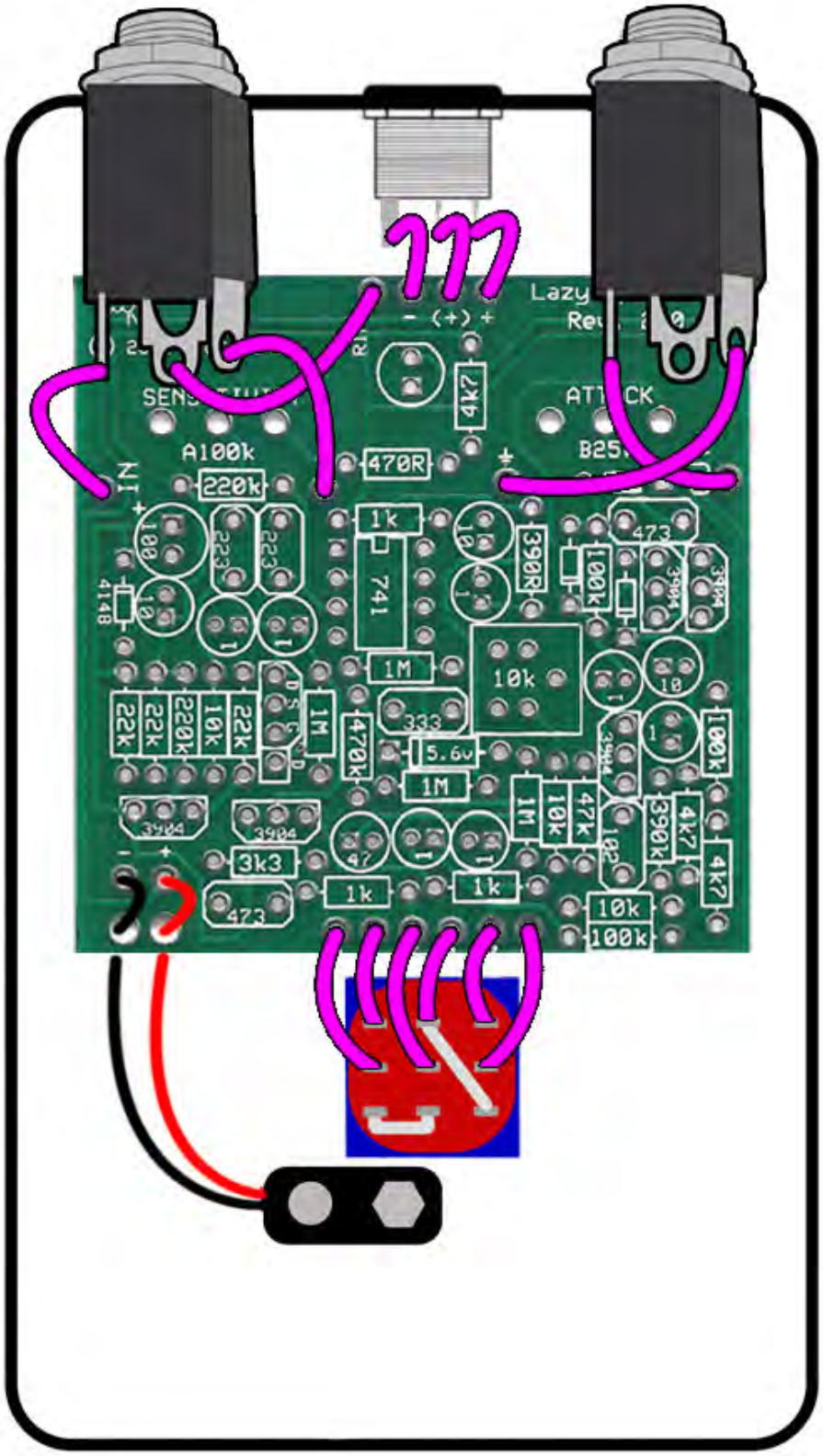
FOOT SWITCH SOLDER LUG DESIGNATIONS





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.

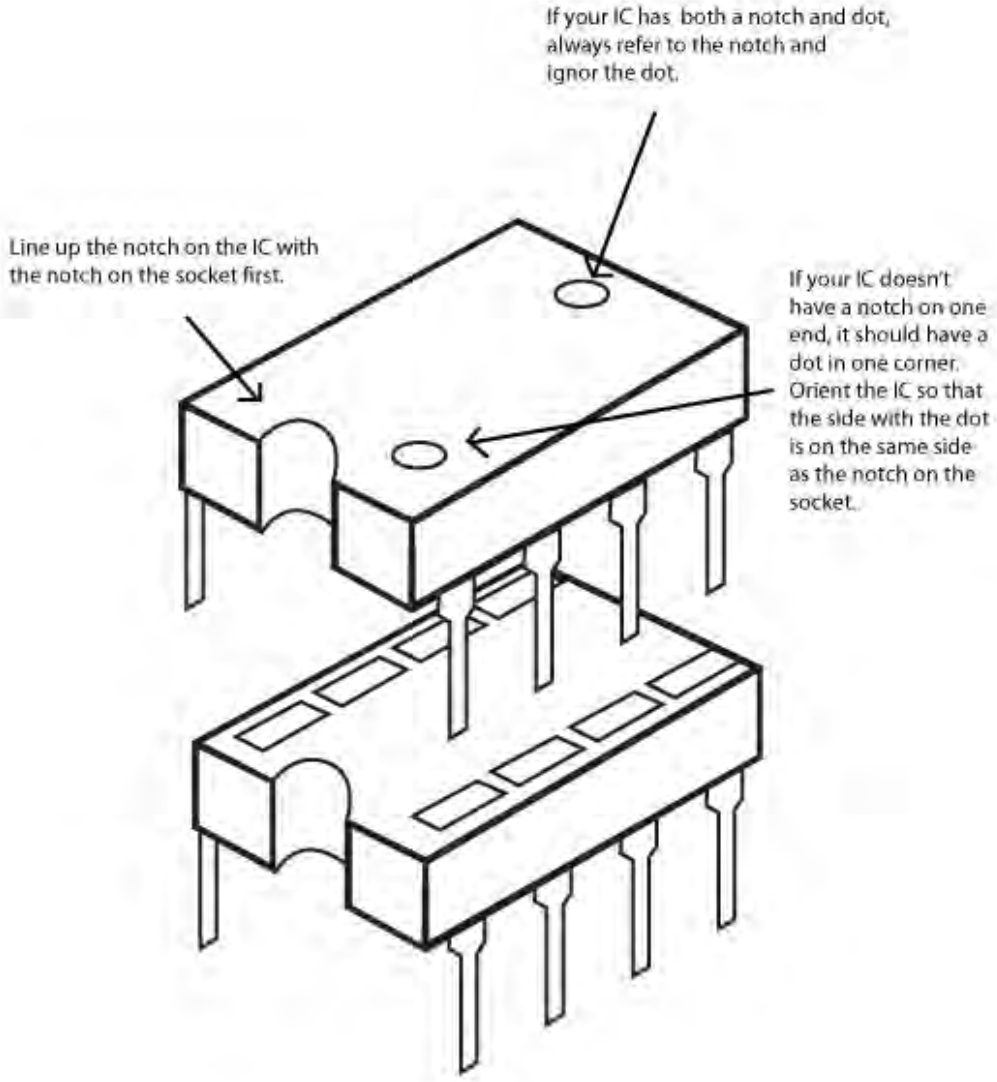
Step 9: Connect the wires at the top end of the PCB to the IN and OUT jacks. The "out" eyelet will go to the tip of the OUT jack and the "in" eyelet will go to the tip of the IN jack. Connect the ground eyelet on the left to the sleeve of the IN jack and the ground eyelet on the right to the sleeve of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



Finished Wiring

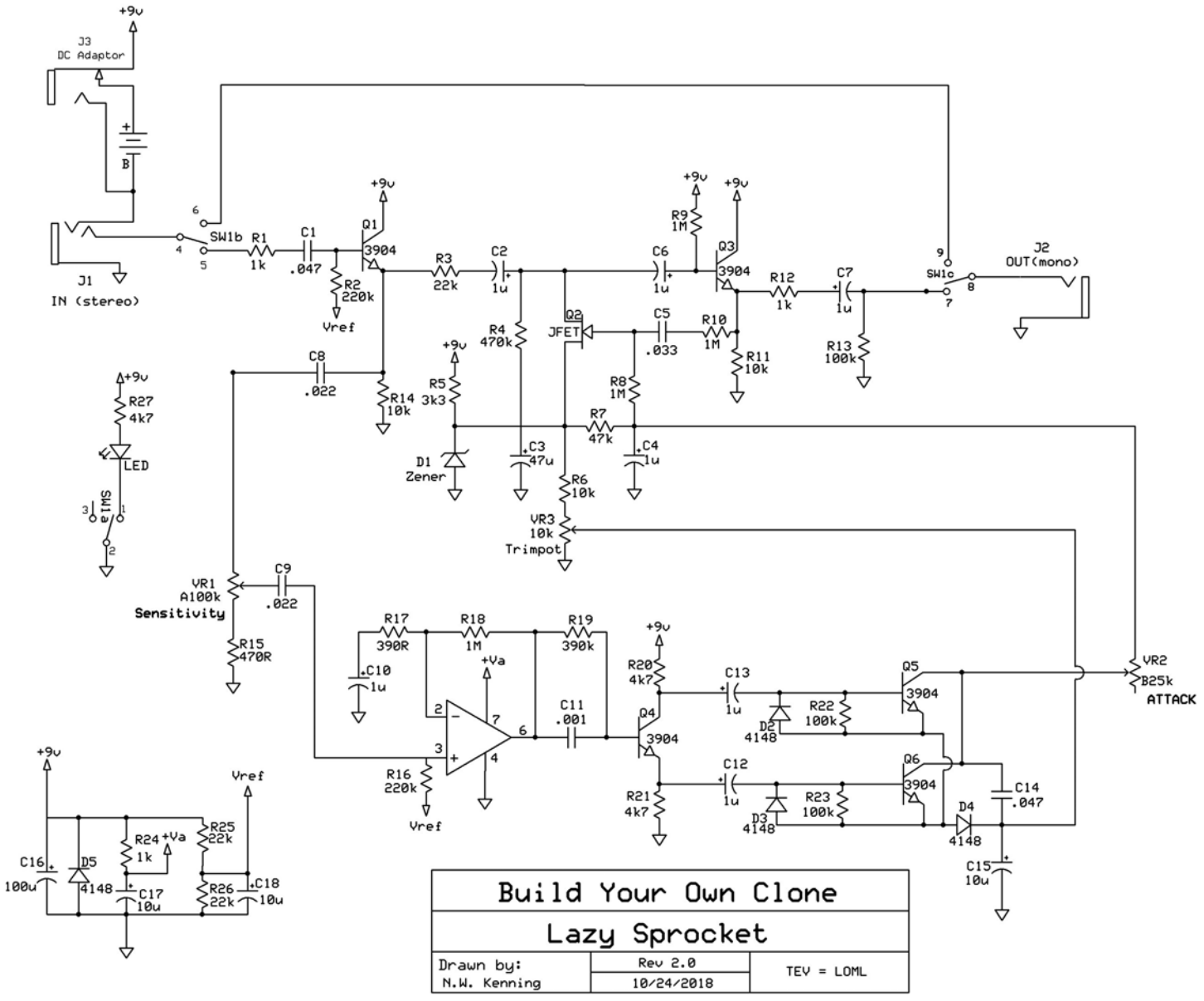
Installing IC/Finish up

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



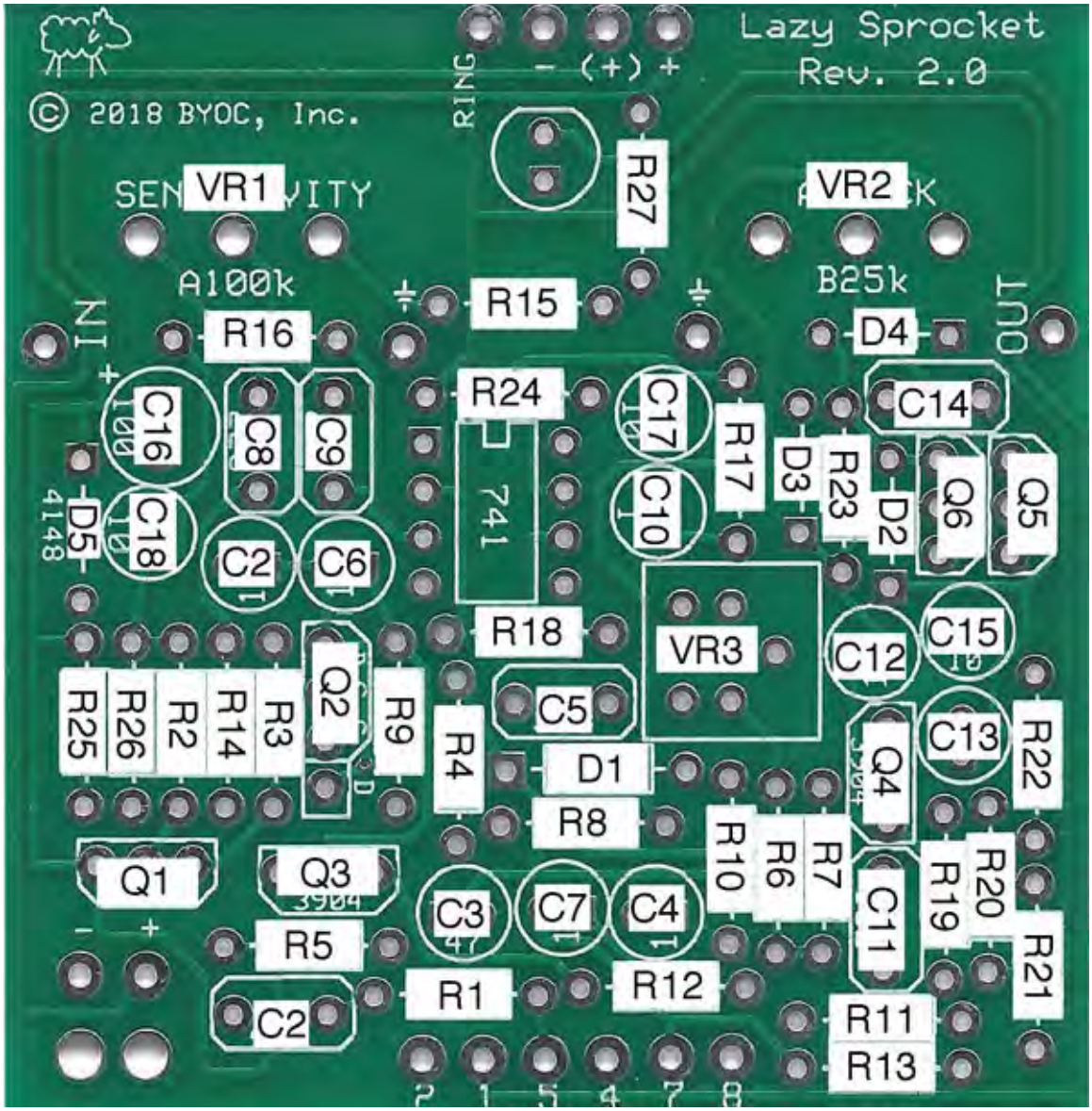
Operating Overview

ATTACK: Controls the speed of the effect. CCW is a slower swell effect; CW is a faster swell effect.
SENSITIVITY: Controls the sensitivity of the effect, or how much signal must be present to trigger the swell effect. CCW requires a stronger signal to trigger the swell effect; CW lowers the amount of signal necessary to trigger the swell effect.
Power supply: 9V battery or 2.1mm negative tip 9V wall adapter.
Current Draw: 4.6mA
Input Impedance: 220k ohms
Output Impedance: 100k ohms



For High Resolution PDF visit: http://byocelectronics.com/lazysprocketschematic.pdf

PCB MAP



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