

Build Your Own Clone The Swede 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 major 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 delivery 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.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.

Copyrights:

All material in this document is copyrighted 2015 by BYOC, Inc.

The Swede Kit Instruction Index

Parts Checklist.....page 6

Populating the Circuit Board.....page 8

Main PCB Assembly.....page 18

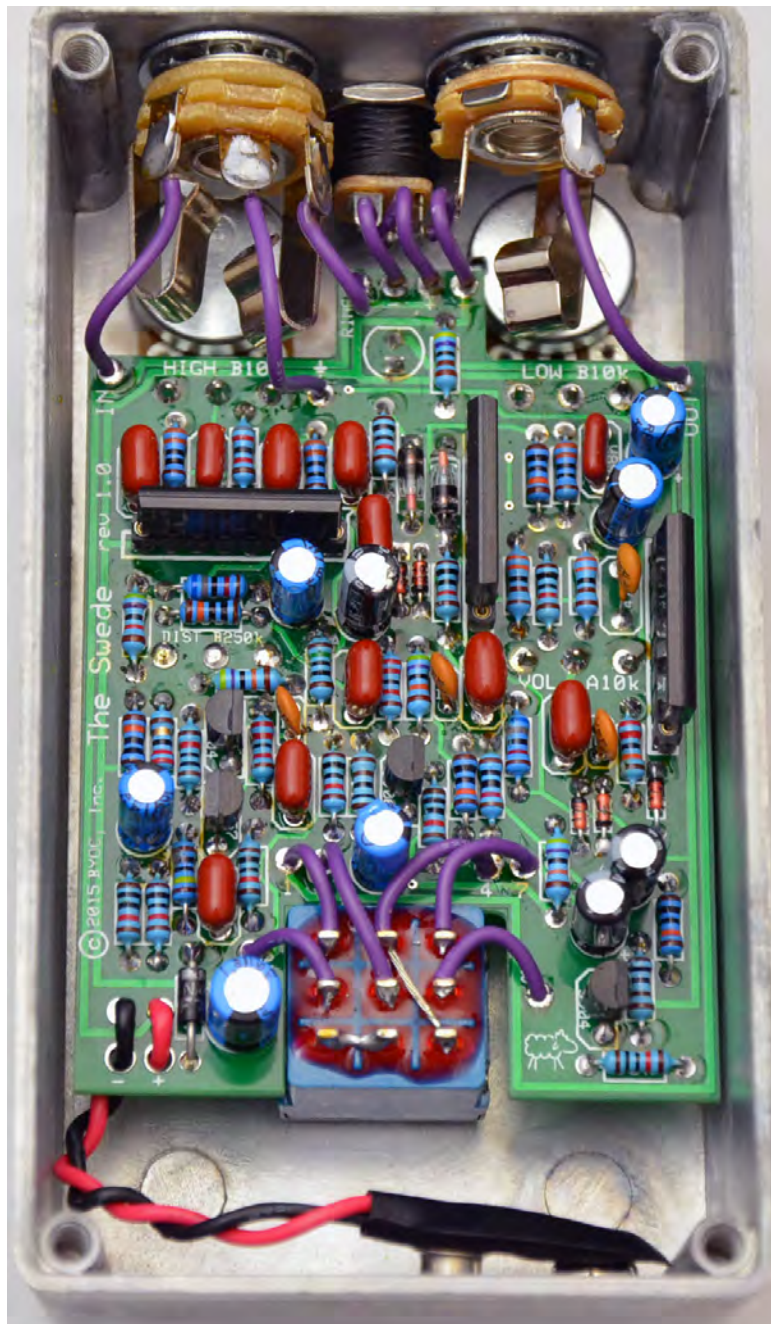
Wiring.....page 21

Installing the IC/Finishing up.....page 27

Operation Overview.....page 28

Schematic.....page 29

This is what your kit should look like when it's complete. Your kit may come with different looking components, don't be alarmed by this.



Parts Checklist for The Swede Kit

Resistors:

1 - 22 Ohm	(Red/Red/Black/Gold/Brown)
1 - 120 Ohm	(Brown/Red/Black/Black/Brown)
1 - 150 Ohm	(Brown/Green/Black/Black/Brown)
4 - 330 Ohm	(Orange/Orange/Black/Black/Brown)
2 - 1k	(Brown/Brown/Black/Brown/Brown)
2 - 3k3	(Orange/Orange/Black/Brown/Brown)
1 - 4k7	(Yellow/Purple/Black/Brown/Brown)
10 - 10k	(Brown/Black/Black/Red/Brown)
2 - 22k	(Red/Red/Black/Red/Brown)
1 - 47k	(Yellow/Purple/Black/Red/Brown)
2 - 68k	(Blue/Gray/Black/Red/Brown)
1 - 82k	(Gray/Red/Black/Red/Brown)
5 - 100k	(Brown/Black/Black/Orange/Brown)
1 - 220k	(Red/Red/Black/Orange/Brown)
3 - 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 - 1n0 Film Cap	(may say "102" on the body)
1 - 4n7 Film Cap	(may say "472" on the body)
1 - 6n8 Film Cap	(may say "682" on the body)
5 - 47n film Cap	(may say "473" on the body)
1 - 68n Film Cap	(may say "683" on the body)
1 - 100n Film Cap	(may say "104" on the body)
1 - 150n film Cap	(may say "154" on the body)
3 - 100pf Ceramic	(101)
1 - 470pf Ceramic	(471)
1 - 1.5uf Aluminum Electrolytic	
3 - 1uf Aluminum Electrolytic	
3 - 10uf Aluminum Electrolytic	
1 - 47uf Aluminum Electrolytic	
1 - 100uf Aluminum Electrolytic	

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

Diodes:

- 1 - 1N4001 diodes
- 5 - 1n4148 diodes
- 2 - Germanium Diodes (1N34A, 1N60, D9E, etc.)

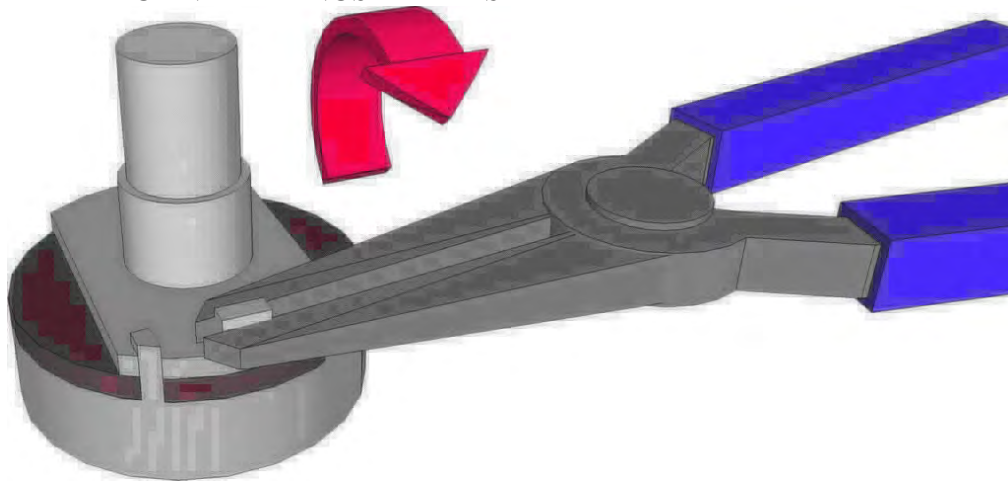
IC's:

- 3 - SIP 8 socket
- 3 - M5218L Chips

Transistors:

- 2 - 2N3904
- 1 - 2N3906
- 1 - 2N5457

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



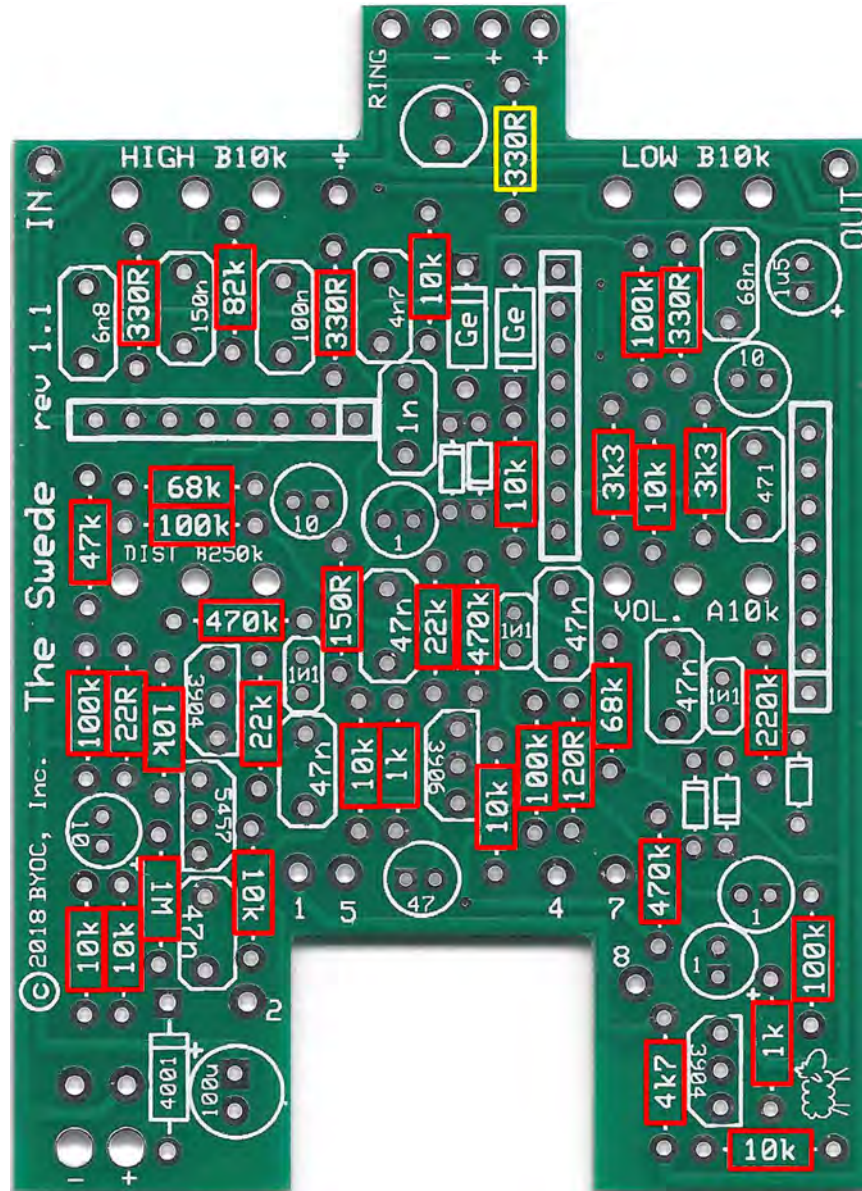
- 1 - A10K (Volume)
- 2 - B10k (Low and High)
- 1 - C250k (Distortion) (PCB says 'B250K' use C taper instead)

Hardware:

- 1 - predrilled enclosure w/ 4 screws (optional)
- 1 - The Swede circuit board
- 1 - 3pdt footswitch
- 4 - knobs (optional)
- 1 - AC adaptor jack
- 1 - 1/4" stereo jack
- 1 - 1/4" mono jack
- 1 - battery snap
- 1 - LED
- 4 - rubber bumpers
- 2 - lock washers (for in and out jacks)
- hook-up wire

Step 1: Add all of the resistors.

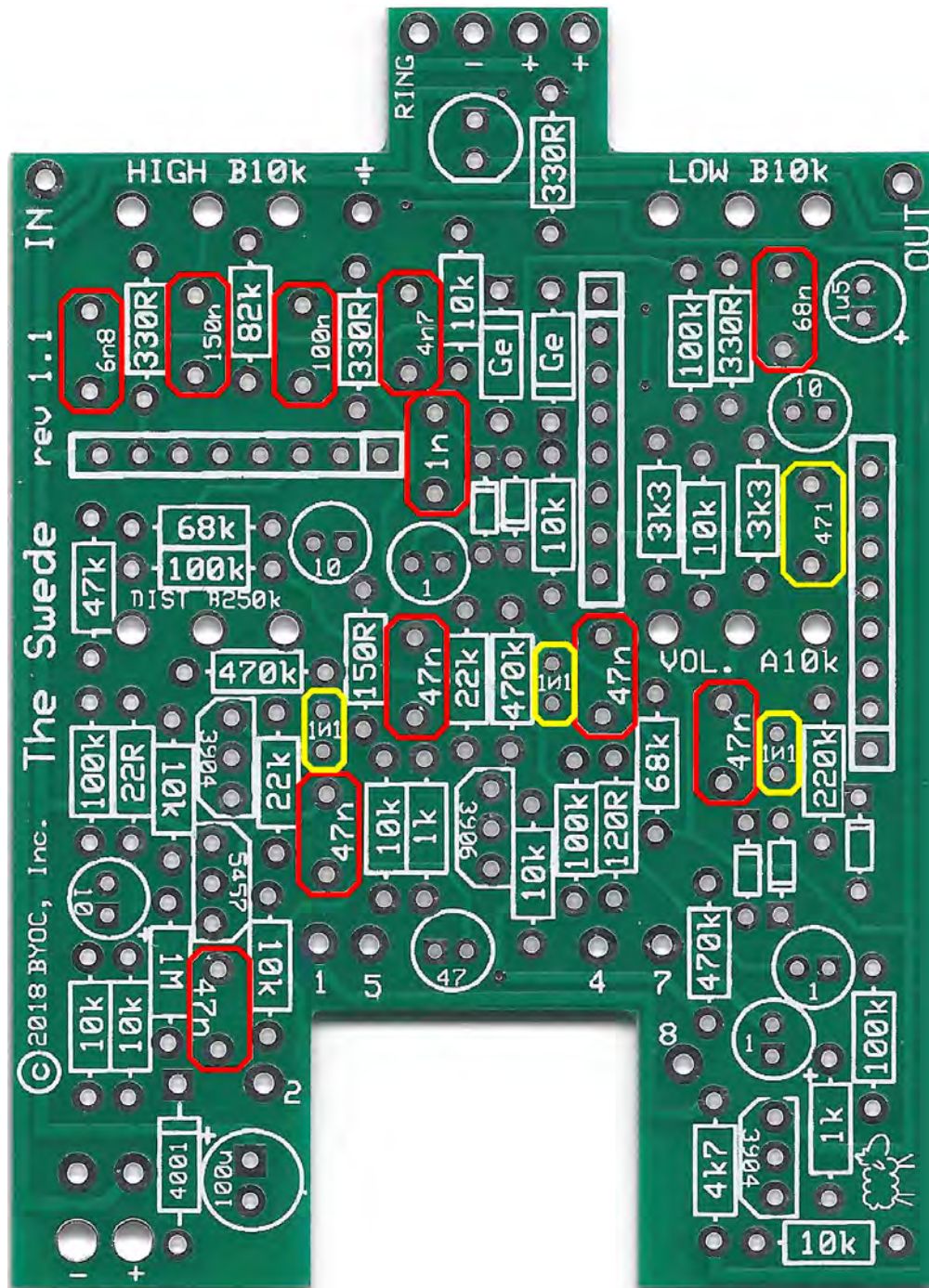
Step 1: Add all of the resistors.

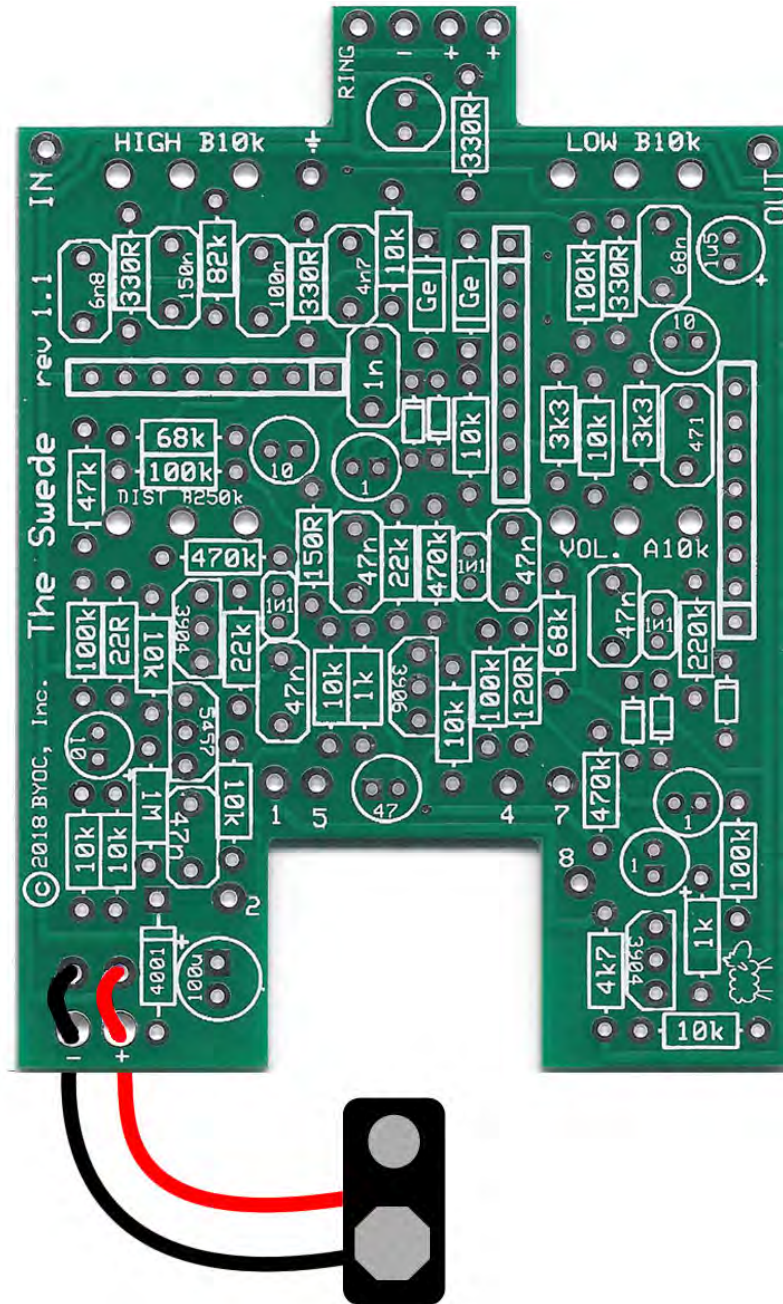


Note: The 120 Ohm and 10k resistors have the same color bands, just reversed. Find the 120 Ohm resistor with your multimeter before soldering any 10k resistors. One of the brown bands is the tolerance band, and will be slightly offset on the 120 Ohm relative to the 10k resistors.

Note 2: Instead of installing the 330 Ohm resistor highlighted in yellow, place a jumper in that spot using a piece of lead clipping or a zero ohm resistor.

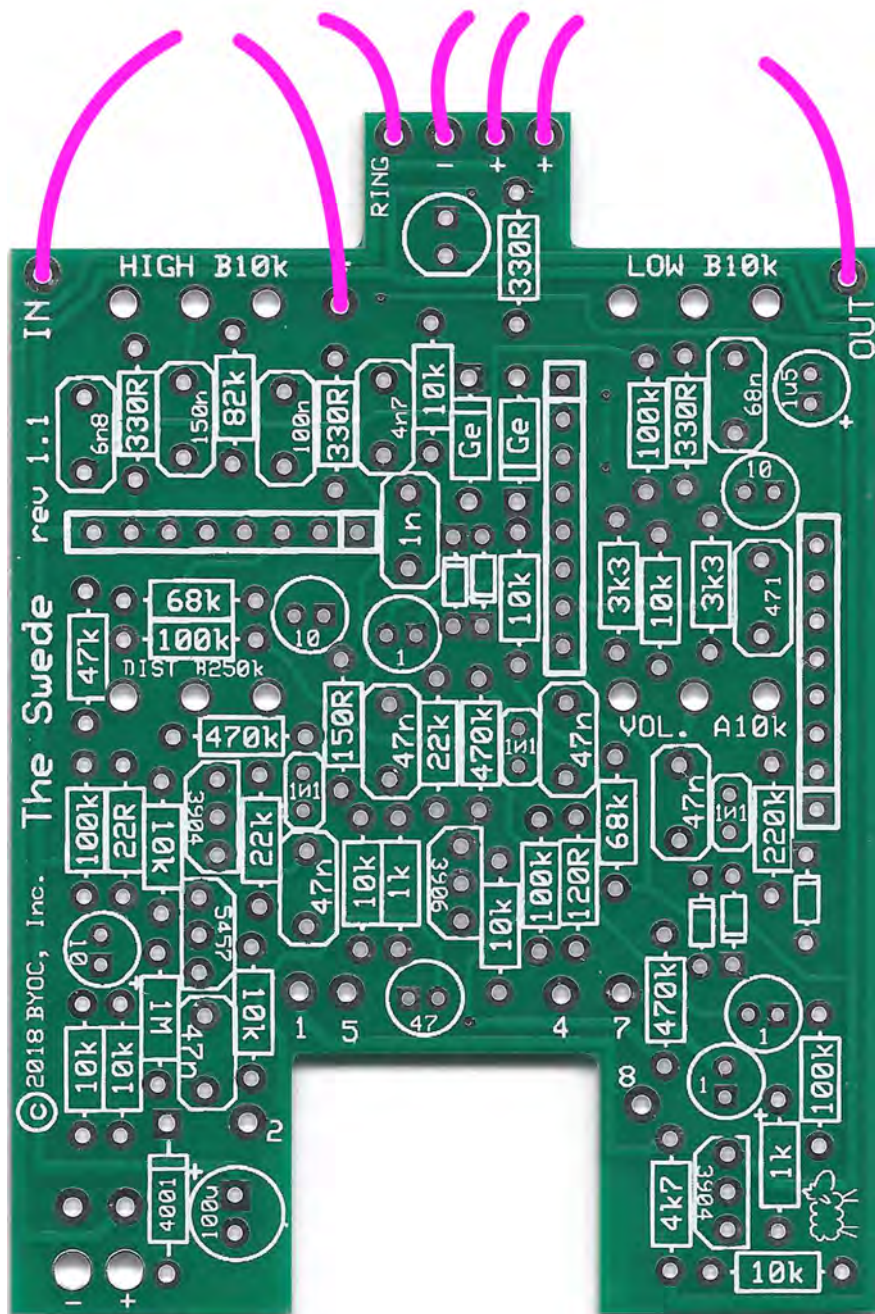
Step 6: Add the film (red outline) and the ceramic disc (yellow outline) capacitors. These are non-polarized so they can go in either direction.





The image shows a green PCB for "The Swede" guitar pedal by ©2018 BYOC, Inc. The board is densely packed with electronic components. Key features include:

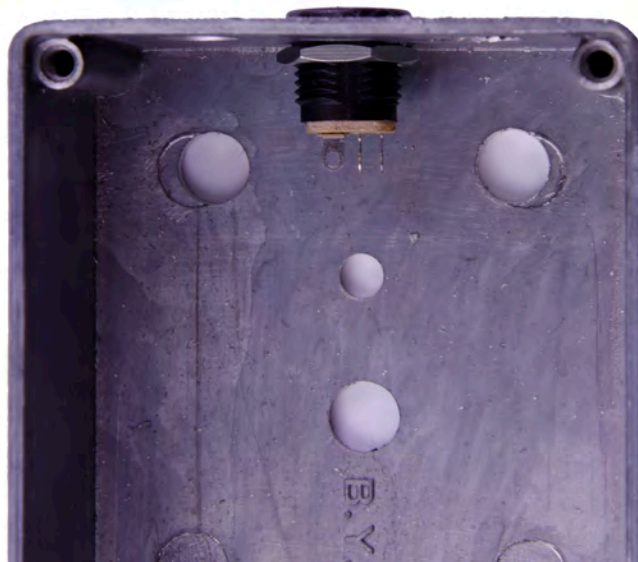
- Input Section (Left):** An input jack labeled "IN" with a volume potentiometer (10k) and associated resistors/capacitors.
- Power Section (Bottom Left):** A power switch and a 100µF electrolytic capacitor connected to a 9V battery terminal.
- Central ICs:** Two operational amplifiers (op-amps) are used for signal processing, surrounded by numerous resistors and capacitors.
- Output Section (Right):** An output jack labeled "OUT" with a volume potentiometer (10k) and a 100k resistor.
- Jumpers:** Four red jumpers are located at the top edge, connecting different sections of the circuit.
- Labels:** Various component values are printed on the board, such as "10k", "100k", "1M", "100n", "1µ", "Ge", and "DIST #250k". Specific areas are labeled "HIGH B10k" and "LOW B10k".



Main PCB Assembly



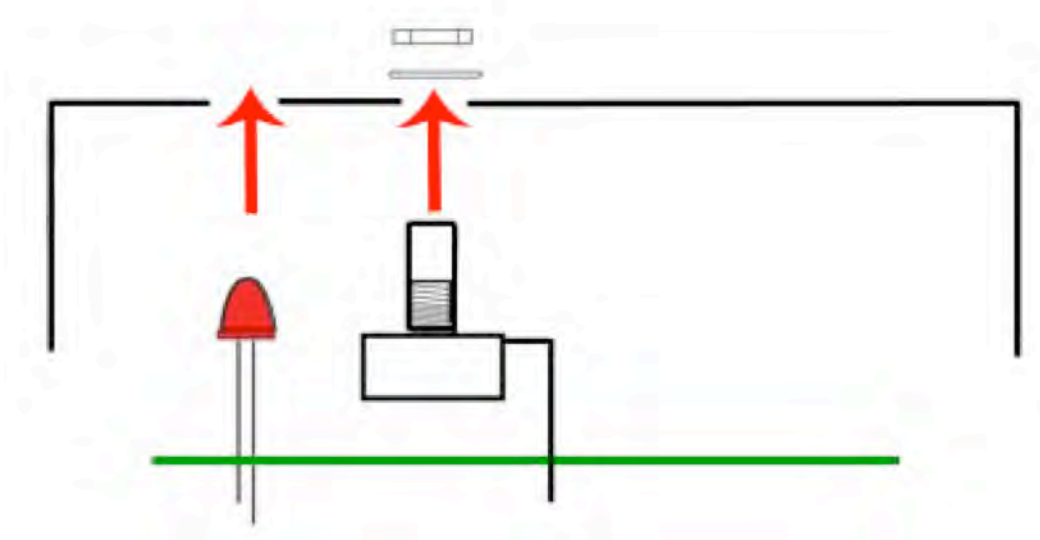
Step 1: Mount the AC adapter jack to the enclosure. Your kit may come with either an external thread or internal thread. Don't get confused by this. They still function exactly the same. You just thread the external nut on the outside and the internal nut on the inside. The picture below is of an internal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



Step 2: Flip the PCB over so that the bottom or solder side is up. Insert the five 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.**



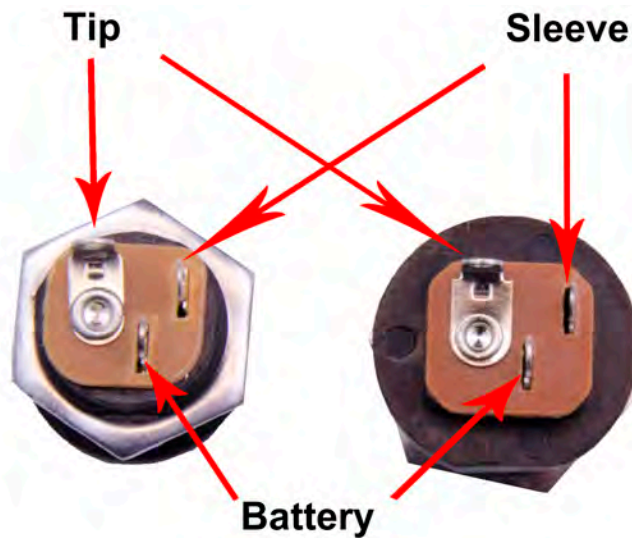


Step 3: Hold the PCB in one hand so that the component side of the PCB is in the palm of your hand and the bottom side with the pots, toggle switch and LED is facing up. Now use your other hand to guide the predrilled enclosure onto the PCB assembly so that the pots, toggle switch and LED all go into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

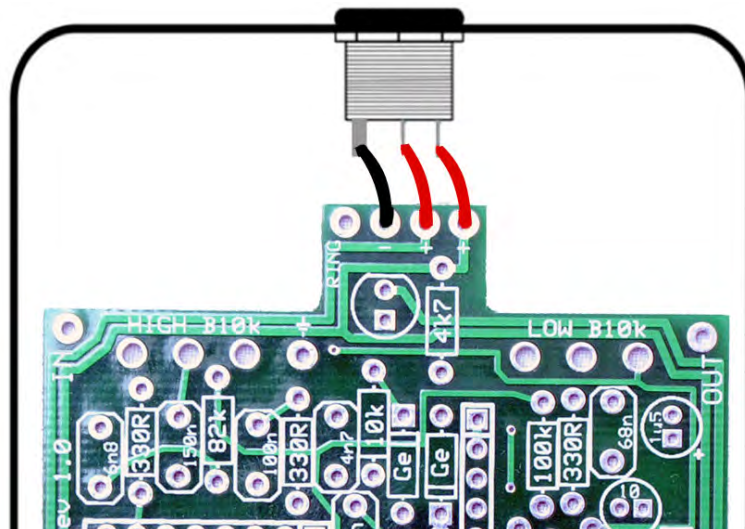
Step 4: Turn the entire pedal over so that the component side of the PCB is facing up. Lift the PCB up off the pots about 2mm just to make sure that the back of the PCB does not short out against the pots. Make sure the PCB is level and symmetrically seated inside the enclosure.

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 .



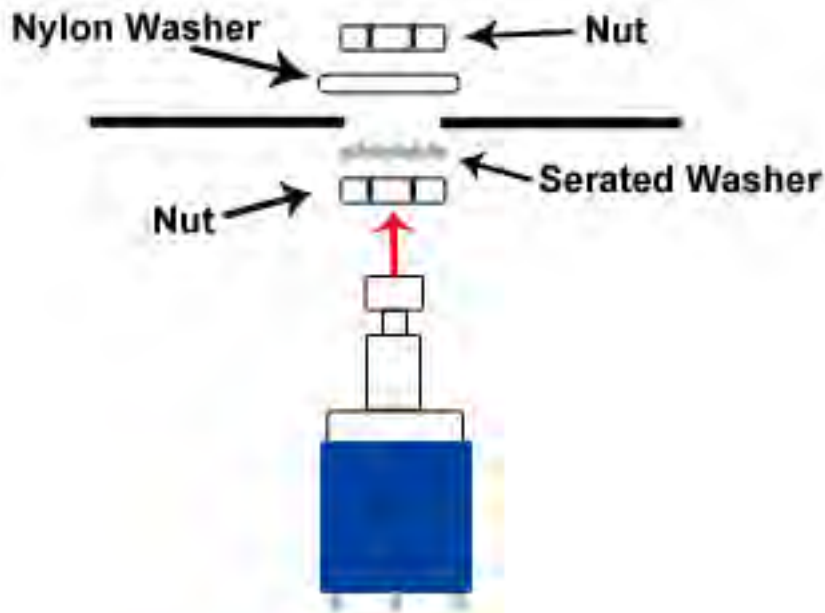
Stereo (input) Jack



Mono (output) Jack



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

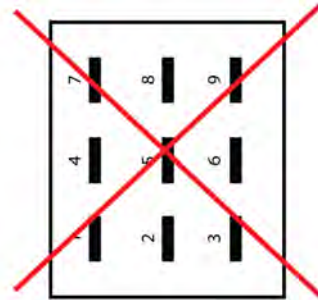
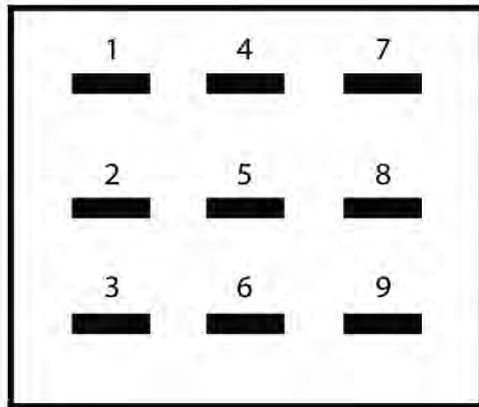


Step 2: Install the footswitch. Orient the footswitch so that the flat sides of the solder lugs are like the diagram below.

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.

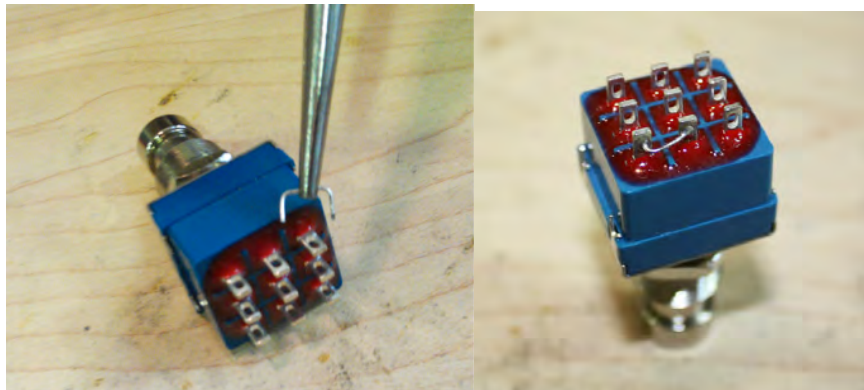
NOTE: It may be easier to wire up part of the foot switch before installing it into the pedal. There will be more room to work & it will be much easier to thread the lug 4 to lug 9 jumper.

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 bend a piece of clipping into a U shape & insert into lugs 3 & 6, then solder.



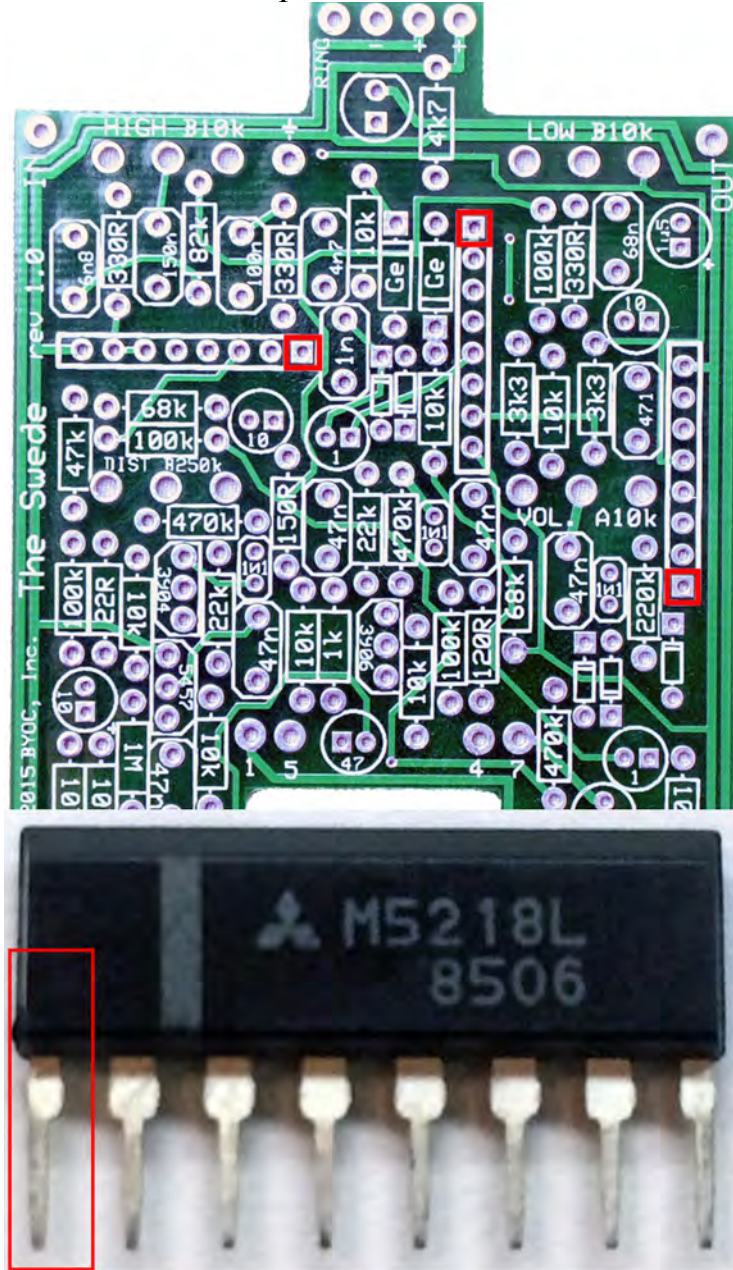


- Cut a two 2" piece of wire. Strip 1/8" off each end and tin.
- Strip 3/4" off the other end and very carefully tin. You do not want too much solder on this end.
- Thread the longer stripped end into LUG4 and through to LUG9.
- Solder both lugs 4 and 9.
- This step can be tricky. If it is too difficult or frustrating for you, you can simply insert two pieces of wire into LUG4 and solder. Then connect the other end of one of the wires to LUG9. It won't look as pretty, but it will accomplish the exact same thing.

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. See diagram below.

Installing IC/Finish up

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



The red areas indicate pin 1 of the M5218L IC, and the location of those pins on the PCB.
Remember that you are not soldering the IC directly to the board, you will use the provided sockets.

Operating Overview



Low: This controls the low frequencies.

High: This controls the high frequencies.

Vol: This controls the overall output volume

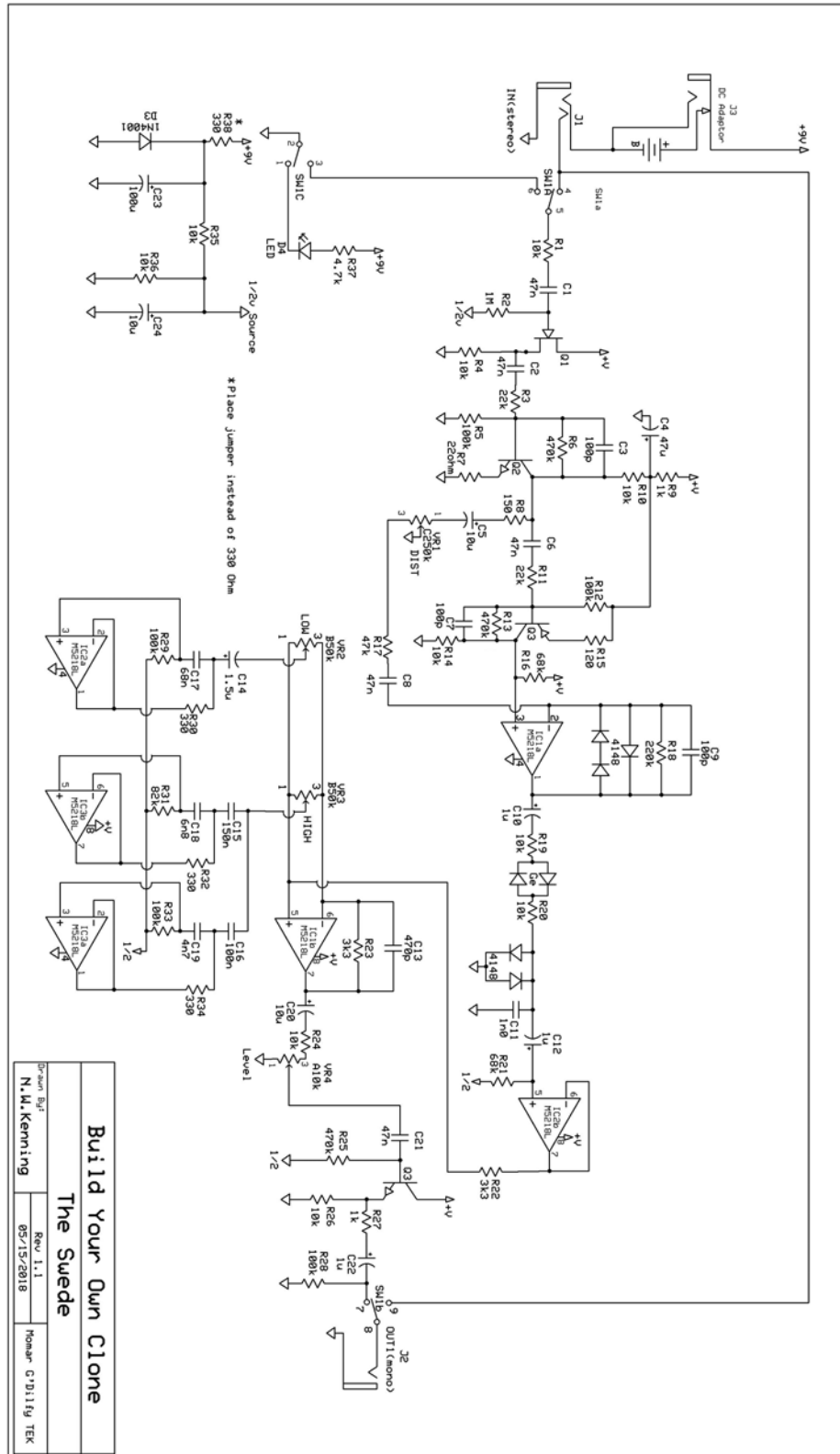
Dist.: This controls the amount of distortion

Power supply: 9V battery or 2.1mm negative tip

Current Draw: 12.5mA

Input Impedance: 1 Meg ohms

Output Impedance: 100k ohms



For hi-res schematic visit <http://www.byocelectronics.com/swedeschematic.pdf>

Please visit
<http://byoceletronics.com/board>
For any technical support

Copyright 2018
BYOC, Inc.