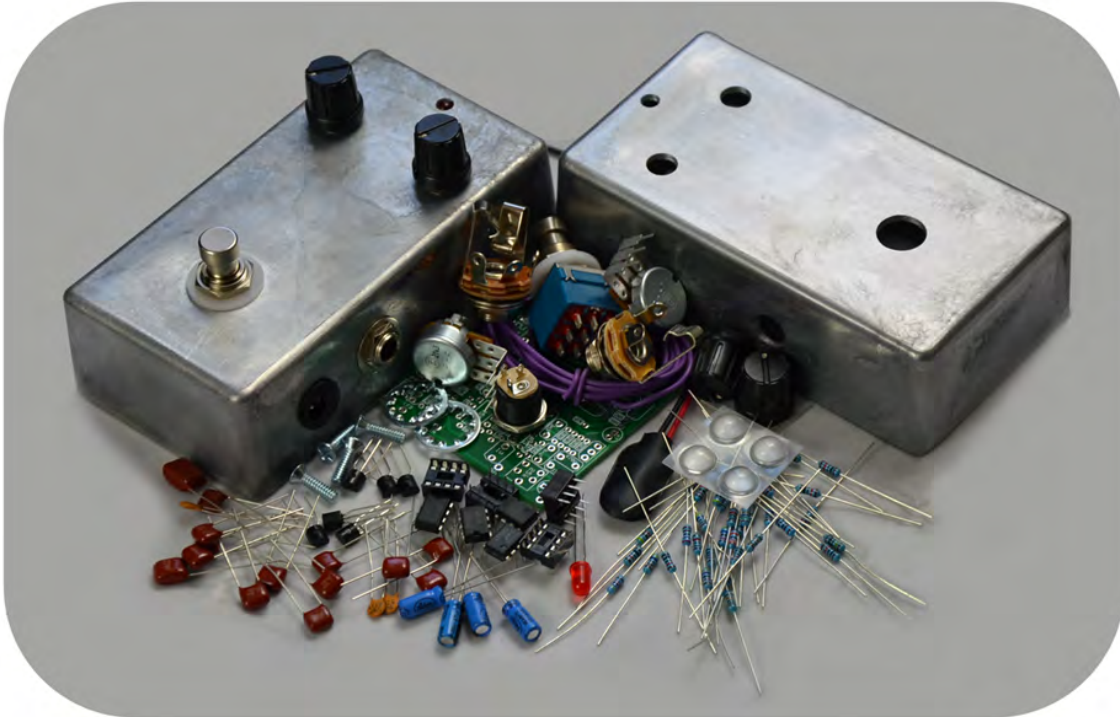


Build Your Own Clone

Analog Chorus

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.

Revision Notes: These instructions apply to Rev3.0 and 3.1. Rev3.1 uses the 3207/3102 chipset. Rev3.0 uses the 3007/3101 chipset and has an error in the R16 56k resistor. The fix for this error is explained in the "populating the circuit board" section of the instructions.

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Analog Chorus Kit Instruction Index

Parts Checklist.....	page 6
Populating the Circuit Board.....	page 8
Main PCB Assembly.....	page 20
Wiring.....	page 22
Installing the IC/Finishing up.....	page 30
Operation Overview.....	page 31
Schematic.....	page 32

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 Analog Chorus Kit

Resistors:

1 – 100R (101)	(Brown/Black/Black/Black/Brown)
1 – 470R (471)	(Yellow/Purple/Black/Black/Brown)
1 - 1k (102)	(Brown/Black/Black/Brown/Brown)
2 – 2k7 (272)	(Red/Purple/Black/Brown/Brown)
3 - 4k7 (472)	(Yellow/Purple/Black/Brown/Brown)
15 - 10k (103)	(Brown/Black/Black/Red/Brown)
2 – 33k (333)	(Orange/Orange/Black/Red/Brown)
6– 47k (473)	(Yellow/Purple/Black/Red/Brown)
1 – 56k (563)	(Green/Blue/Black/Red/Brown) *special instructions for 3007
Rev3.0 version	
3 - 100k (104)	(Brown/Black/Black/Orange/Brown)
1 – 150k (154)	(Brown/Green/Black/Orange/Brown)
1 – 220k (224)	(Red/Red/Black/Orange/Brown)
2 – 330k (334)	(Orange/Orange/Black/Orange/Brown)
1 – 1M (105)	(Brown/Black/Black/Yellow/Brown)

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

Capacitors:

- 1 – 47p Ceramic Disc
- 2 – 470p Ceramic Disc (may say “471” on the body)
- 2 – 3n3/.0033uF film cap (may say “332” on the body)
- 2 – 6n8/.0068uF film cap (may say “682” on the body)
- 2 – 8n2/.0082uF film cap (may say “822” on the body)
- 1 – 10n/.01uF film cap (may say “103” on the body)
- 3 – 33n/.033uF film cap (may say “333” on the body)
- 1 – 47n/.047uF film cap (may say “473” on the body)
- 1 – 100n.1uF film cap (may say “104” or “u1” on the body)
- 1 – 470n.47uF film cap (may say “474” or “u33” on the body)
- 1- 1uf film cap (may say “105” or “1u” on the body)
- 3 – 10uf Aluminum Electrolytic
- 1 – 47uf Aluminum Electrolytic

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

Diodes:

- 1 - 1N4001
- 2 – 1N4148

IC's:

- 4 - DIP 8 Socket

1- TL022
1- 3102 (Rev3.1) or 3101 (Rev3.0)
1- 3207 (Rev3.1) or 3007 (Rev3.0)
1- 4558

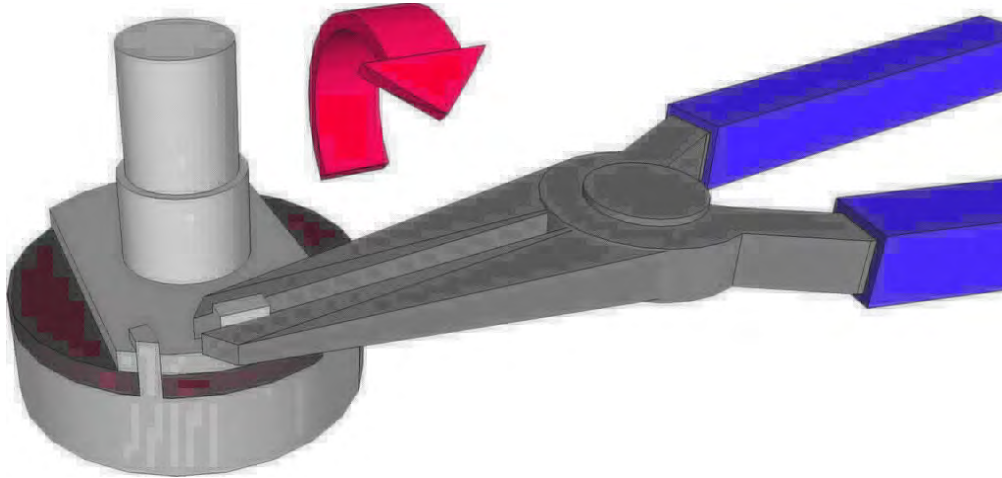
Transistors:

6 – 2N3904, 2N5088, 2N2222 or other similar transistor with EBC pinout.

Trimpot:

1 - 25k

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



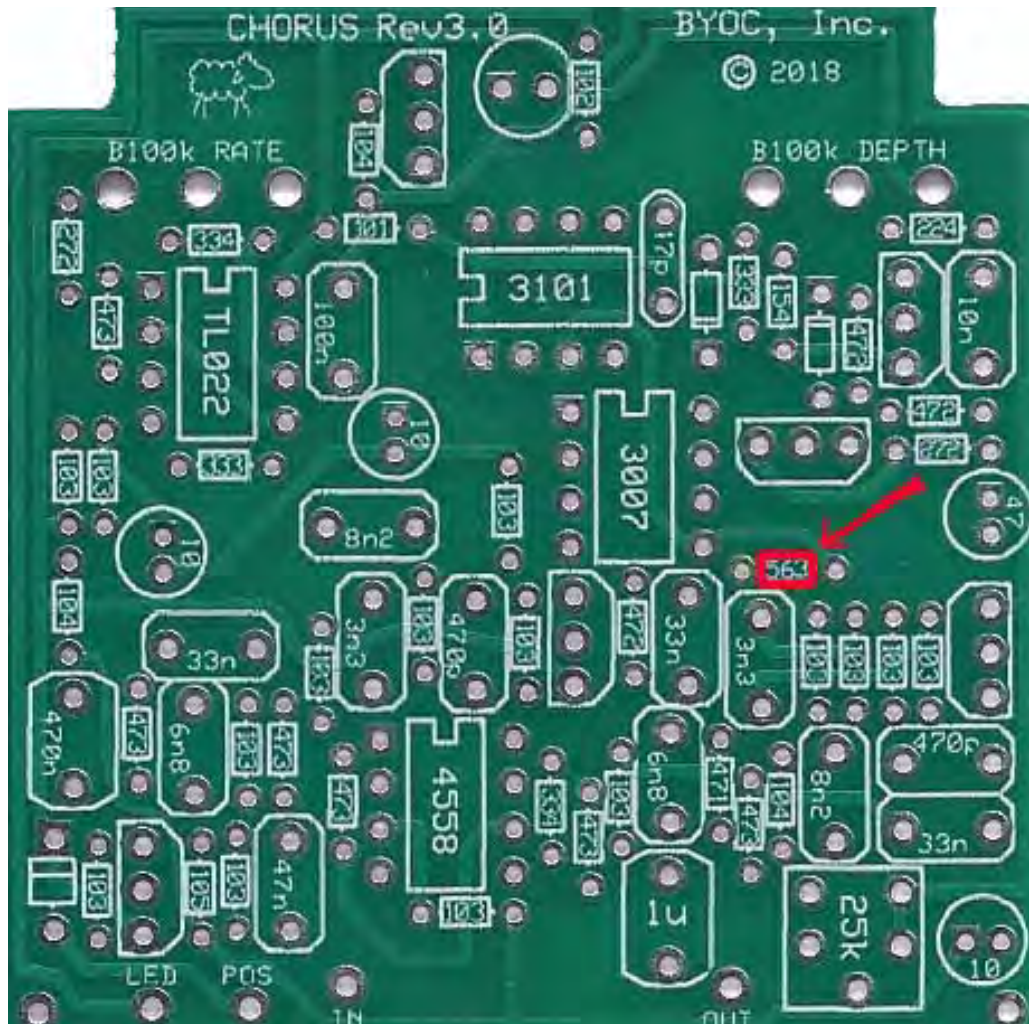
2 – B100k (Rate and Depth)

Hardware:

1 - predrilled enclosure w/ 4 screws (optional)
1 – Analog chorus circuit board
1 - 3pdt footswitch
2 - knobs (optional)
1 - DC power adapter jack
1 - ¼" stereo jack
1 - ¼" mono jack
1 - battery snap
1 - LED (color optional)
4 – rubber bumpers
2 – lock washers (for in and out jacks)
hook-up wire

Populating the Circuit Board

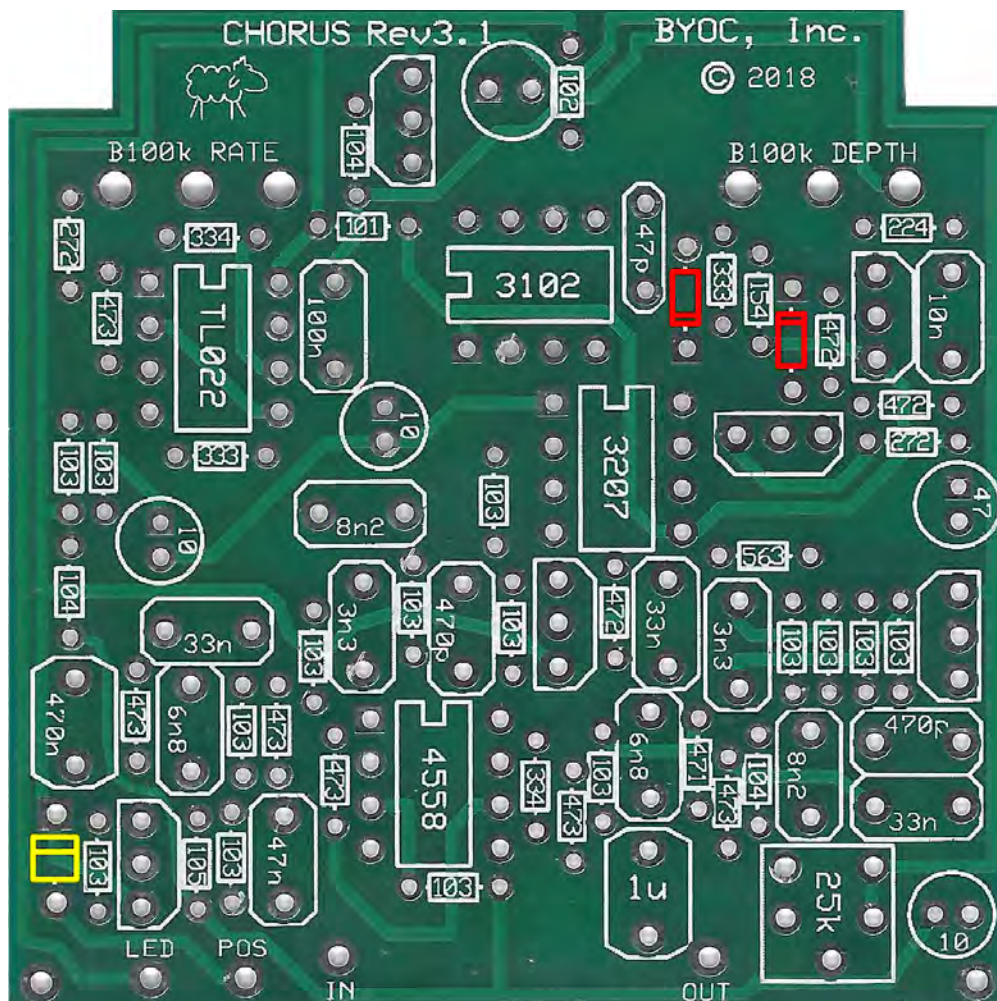
Before you begin, if you have a Rev3.0 3007 version kit, you will need to omit the 56k (563) resistor. Do not add this resistor to the PCB in step 1. You will need to add this resistor after you install the IC sockets in step 3.



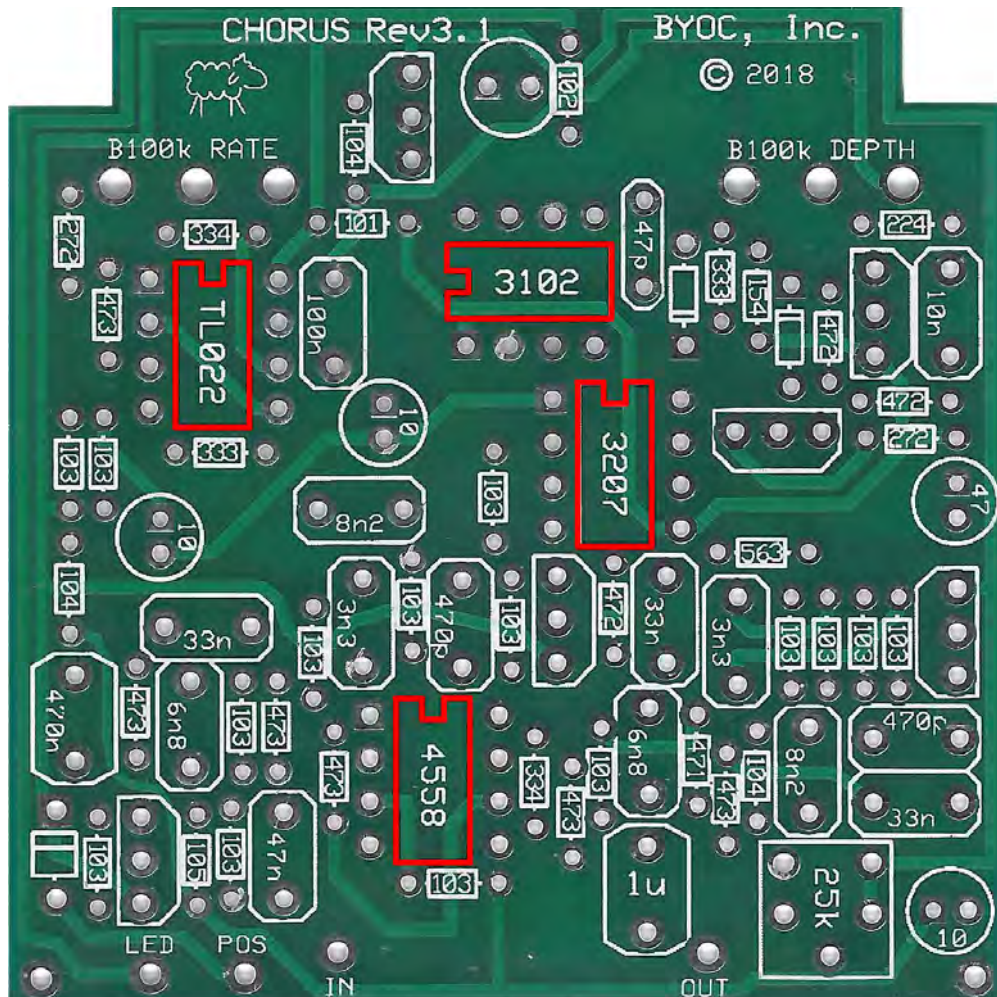
Remember not to add the 56k (563) resistor if you have a Rev3.0 PCB!



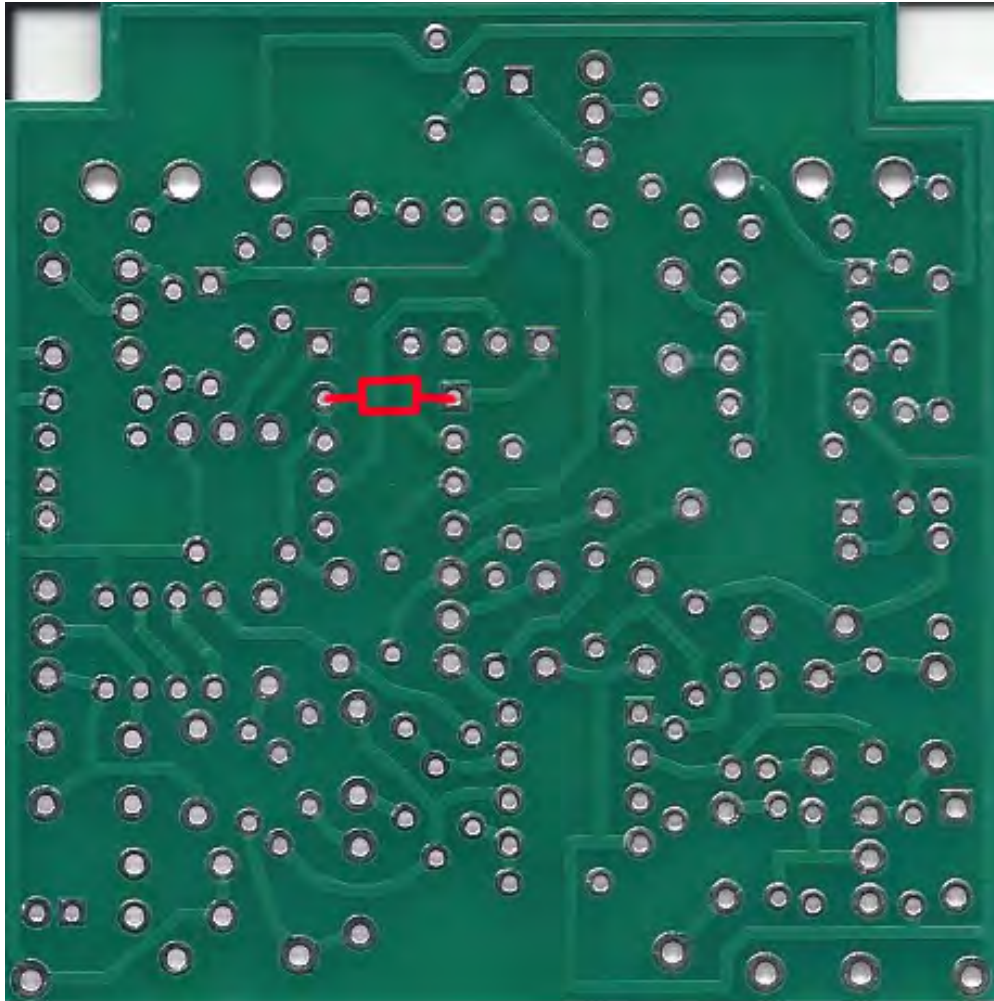
Step 2: Add the diodes. Be sure to match the end of the diode with the stripe to the layout on the PCB. The striped end should go in the square solder pad. The 1N4148 diodes are highlighted in red and will go in the 2 smaller spaces. The 1N4001 goes in the larger space. The 1N4001 is highlighted in yellow and will need to stand vertically on one end.



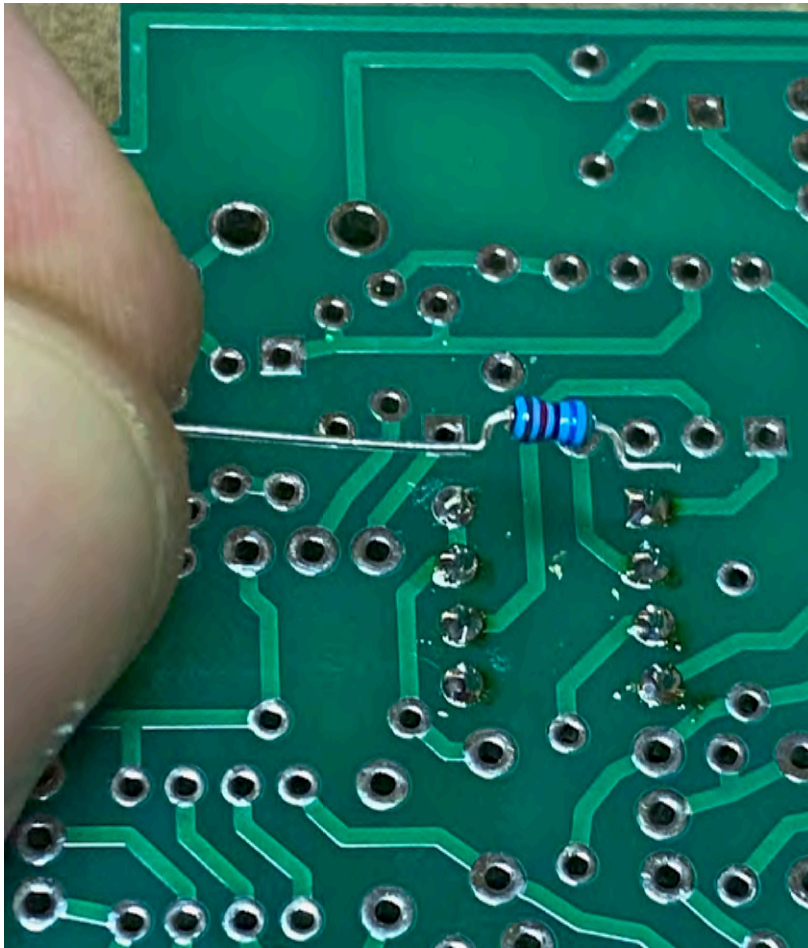
Step 3a: Add 4 pin IC sockets. **ONLY SOLDER THE SOCKET! NOT THE ACTUAL IC!** This is a socket. The sockets get soldered to the PCB. The ICs get inserted into the sockets. The actual IC chip itself, never gets soldered. You will insert the IC into the socket after the entire pedal has been built.



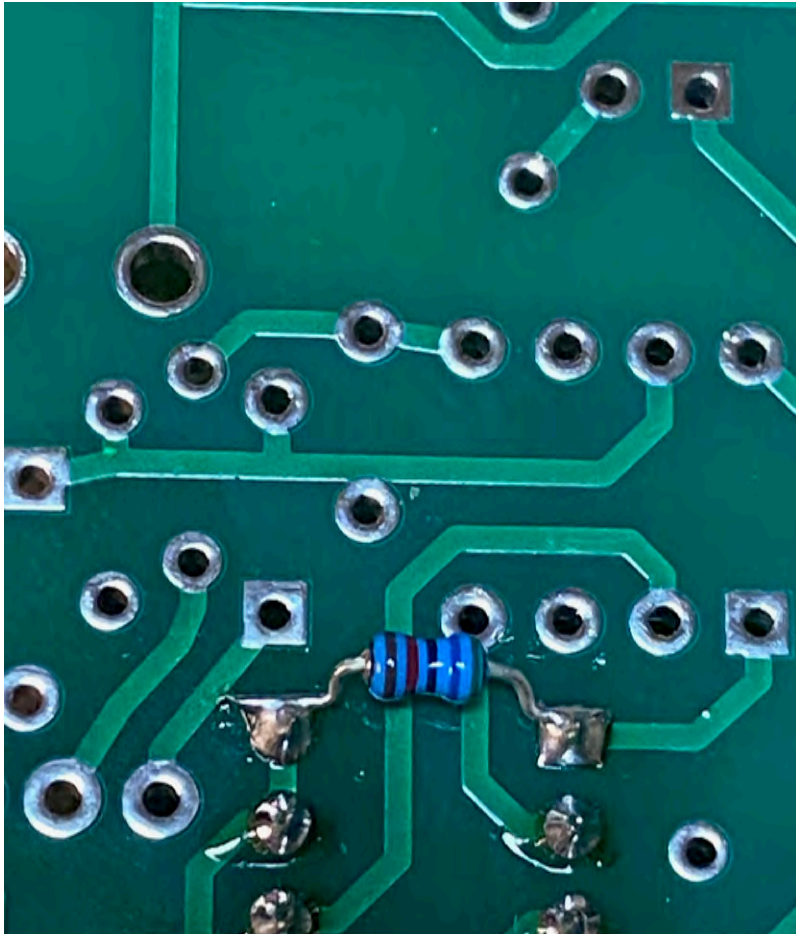
STEP 3b: ONLY If you have the 3007 Rev3.0 kit! You will now tack solder the 56k resistor to the back side of the PCB. You will make a jumper between the pin 1 (the square solder pad) and pin 8 solder pads of the 3007 space on the PCB.



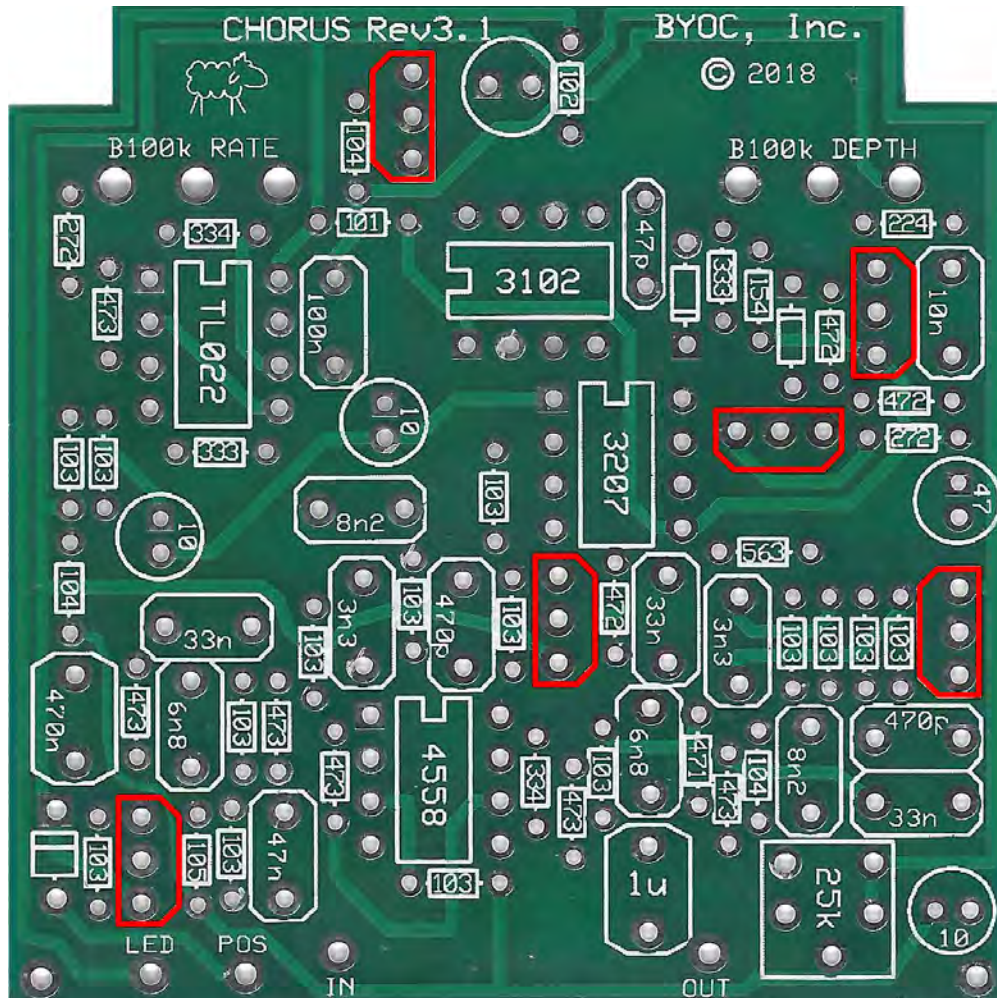
STEP 3c: ONLY if you have the 3007 Rev3.0 kit! Bend the resistor as show and clip one side. Use the long side as a “handle”. Solder the other side first. Tack solder means that you do not insert the component leads into the solder pad holes. You place the component lead on top of the pad and solder.



STEP 3d: ONLY if you have a 3007 Rev3.0 kit! Clip the long “handle” end of the 56k resistor. Move into place and solder.

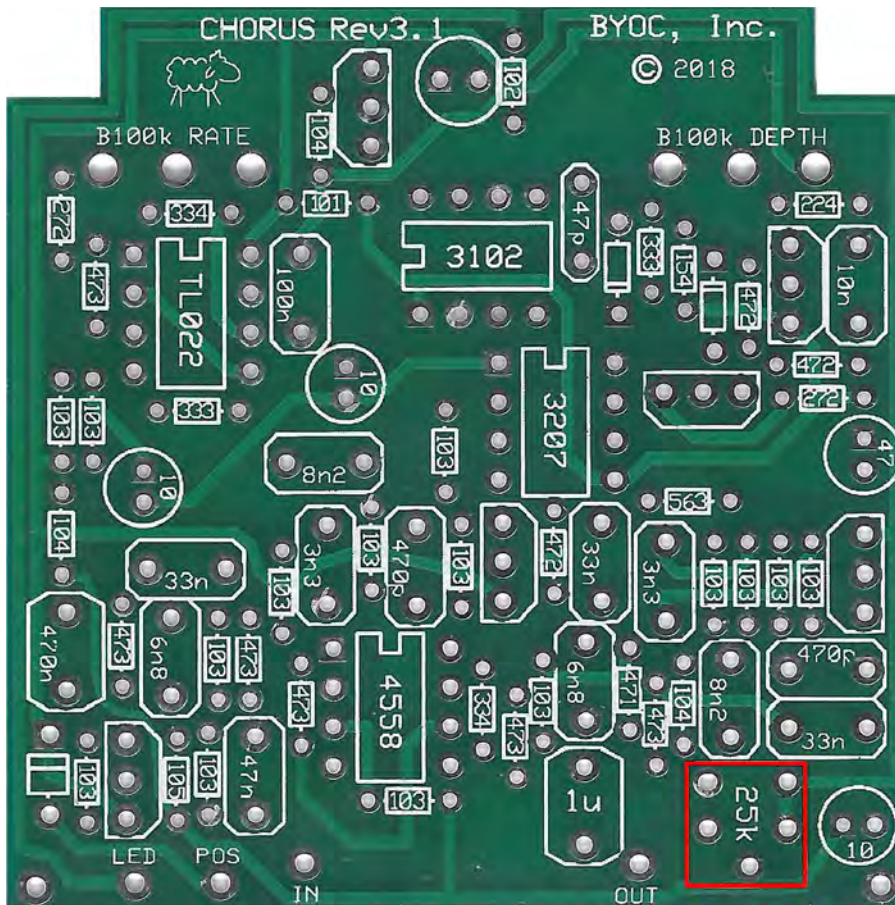


Step 4: Add the transistors. Orient them so that the flat side matches up with the flat side on the PCB layout.

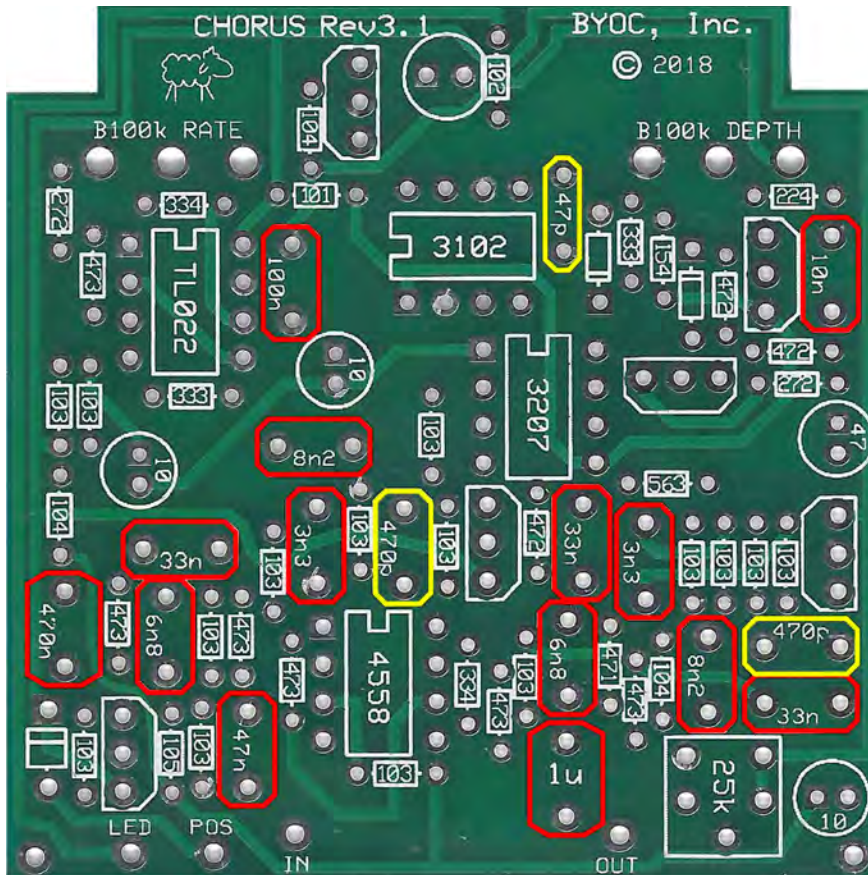


Step 5: Add the 25k Trim pot. Note that there are 5 holes on the PCB, but only 3 leads on the actual trimpot. Please do not let this confuse you. This is so that the PCB can accommodate a variety of trimpots. There should only be one way to fit the trimpot into the PCB. You do not need to bend the leads to make it fit (unless the leads were bent in shipping).

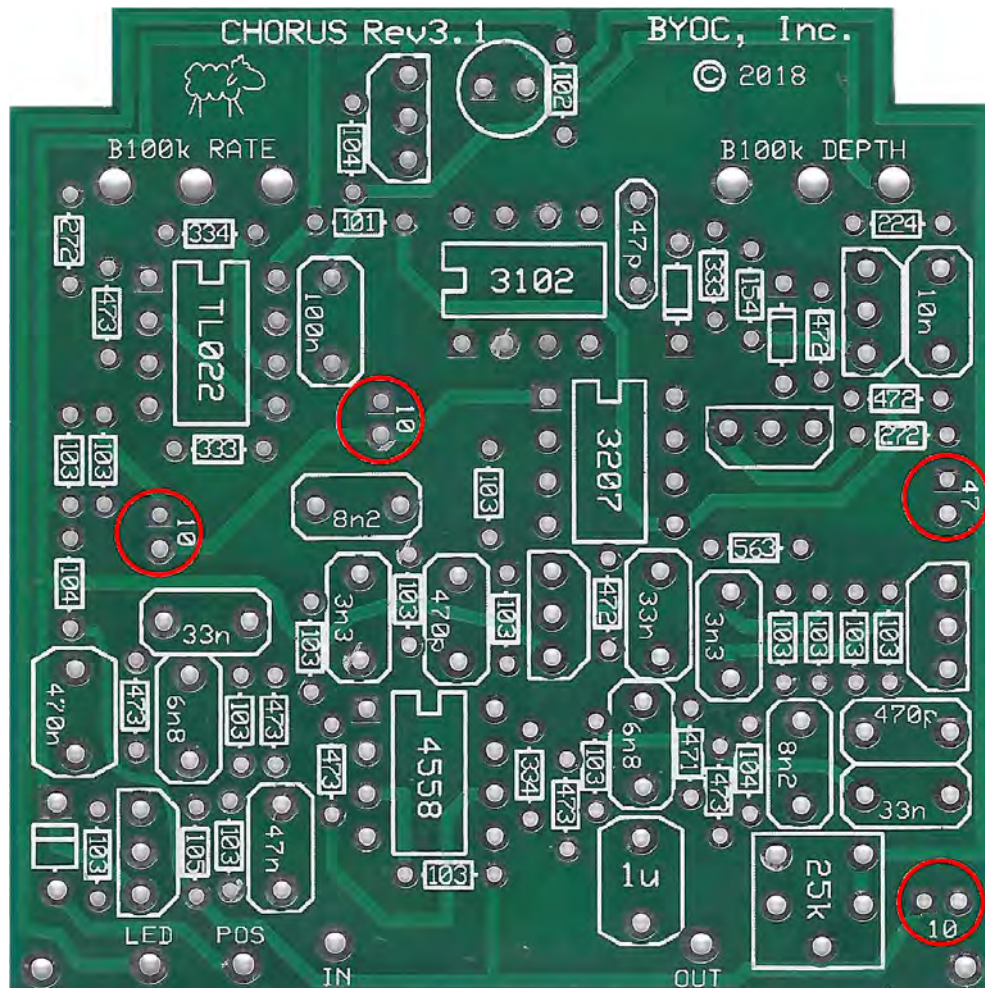
You will need to adjust the trimpot when you are finished building the pedal. It controls the circuit's bias voltage. You start by setting the trimpot at the middle of its rotation or "noon". This will get you started and should definitely produce a chorus sound when you plug in for the first time. You fine tune the trimpot by strumming or plucking as hard as you can and dialing the trim pot till you get the least amount of distortion. If you have a guitar with hotter pickups, you should use it for this step.



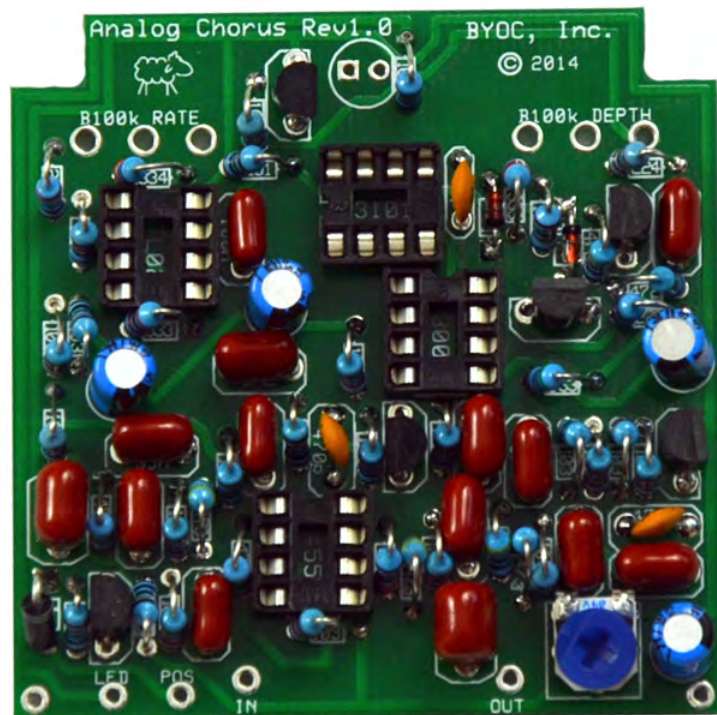
Step 6: Add the film and ceramic disc capacitors. These are non-polarized so they can go in either direction. The ceramic disc capacitors are highlighted in yellow.



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.



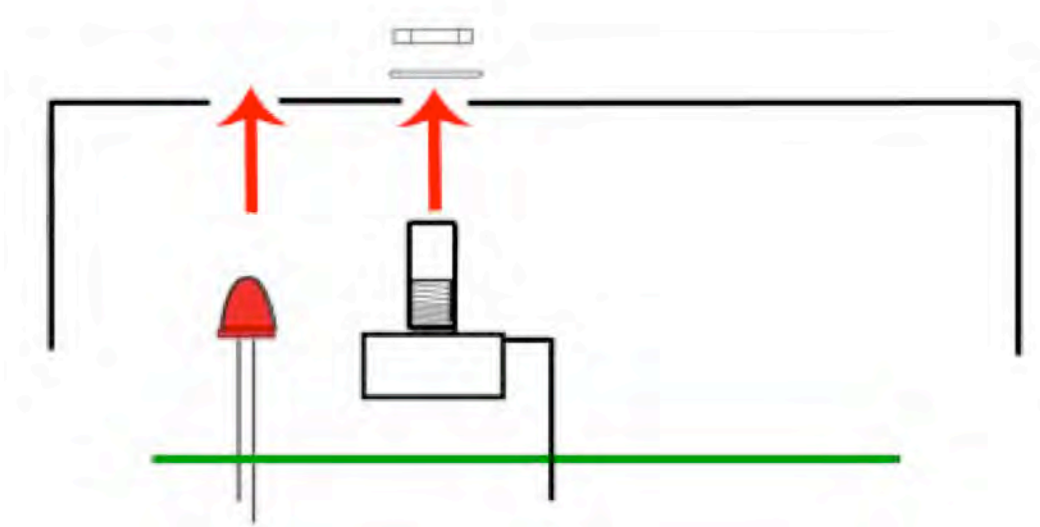
At this point your board should look like this:



Main PCB Assembly

Step 1: Flip the PCB over so that the bottom or solder side is up. Insert the two 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.** Don't forget to remove the nuts and washers from the pots and also to snap off the tabs before you do this step.



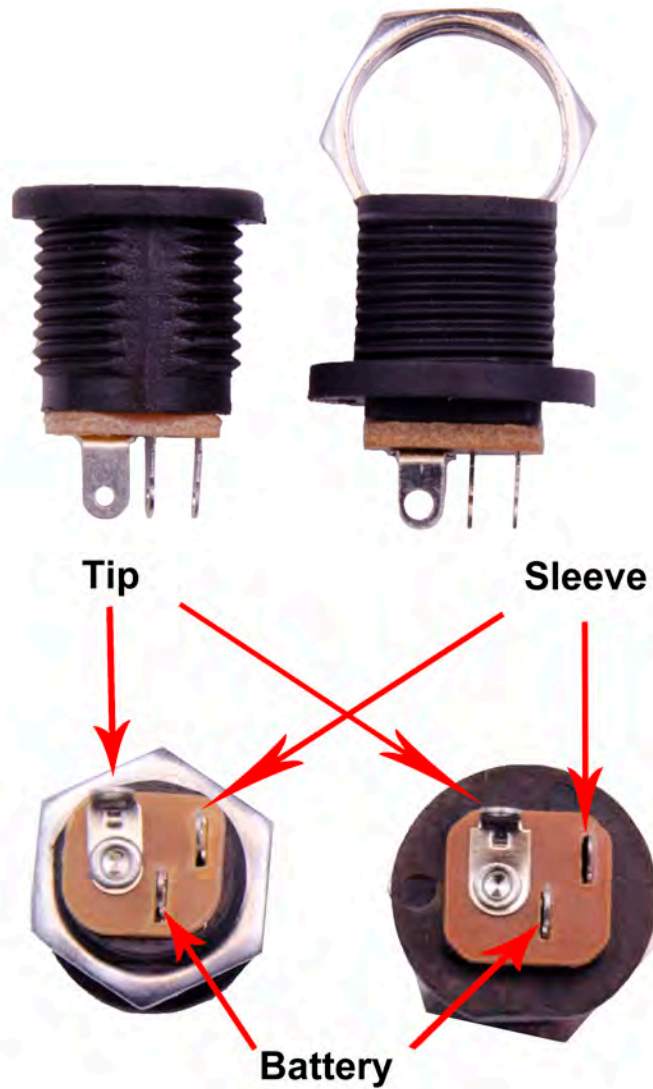


Step 2: Hold the PCB in one hand so that the component side of the PCB is in the palm of your hand and the bottom side with the pots and LED are facing up. Now use your other hand to guide the predrilled enclosure onto the PCB assembly so that the pots and LED all go into their respective holes. Once 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 before installing.

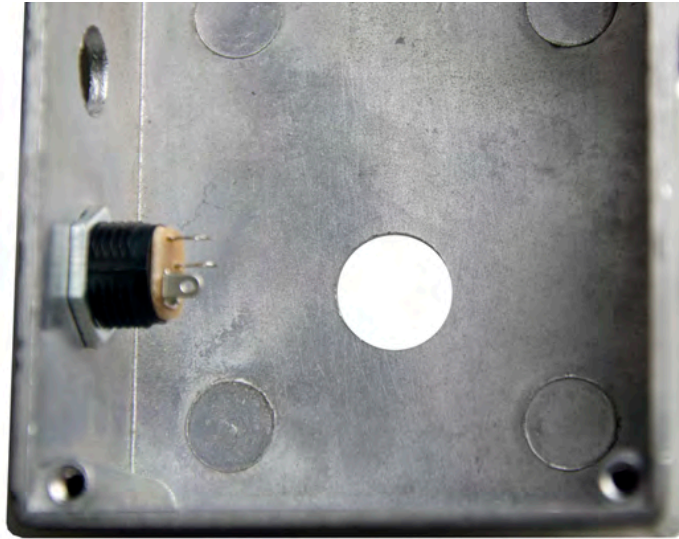
Step 3: Turn the entire pedal over so that the component side of the PCB is facing up. Lift the PCB up off the pots about 2mm just to make sure that the back of the PCB does not short out against the pots. Make sure the PCB is level and symmetrically seated inside the enclosure.

Step 4: 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. Be careful not to burn any of the components on the PCB. If you do, it won't harm anything, but it will look ugly.

Wiring



Step 1: Mount the DC 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.



Stereo (Input) Jack



Mono (Output) Jack



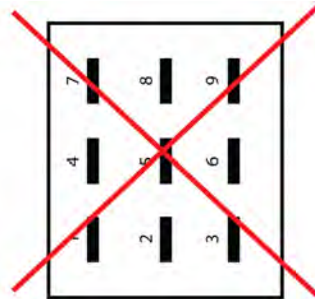
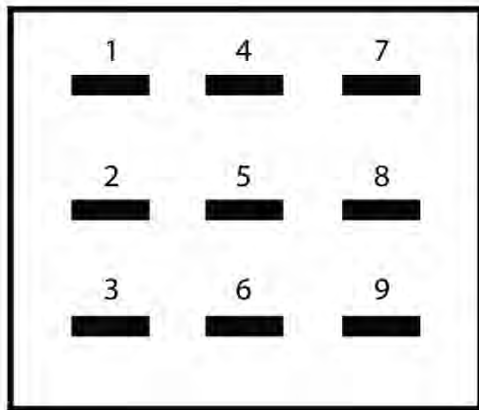
Step 2: Install the 1/4" jacks to the enclosure. The stereo IN jack mounts on the same side as the DC adapter jack.

Lastly, you'll want to insert the stripped and tinned ends of both the black battery snap wire and the other end of the wire you just connected to the tip of the DC adapter jack into the RING of the IN jack. It will be much easier if you solder these wires to the RING together at the same time. That's why we saved it for last in this step.

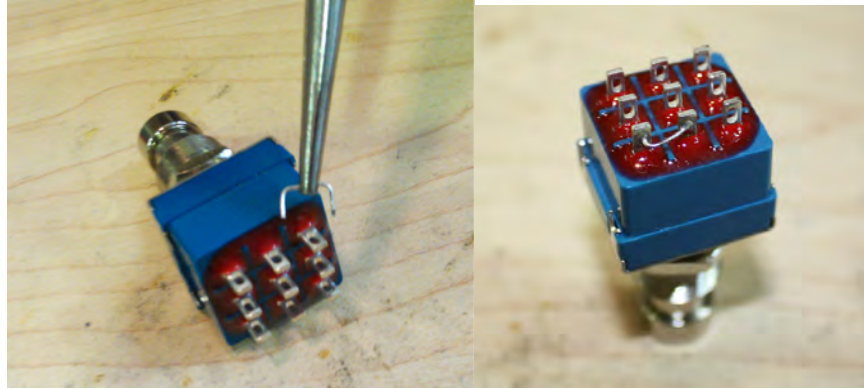
Step 4: Install the footswitch. Orient the footswitch so that the flat sides of the solder lugs are like the diagram below.

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.

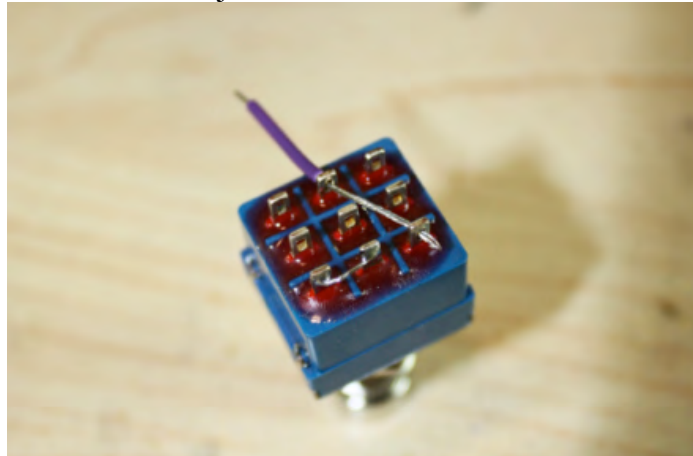
FOOT SWITCH SOLDER LUG DESIGNATIONS

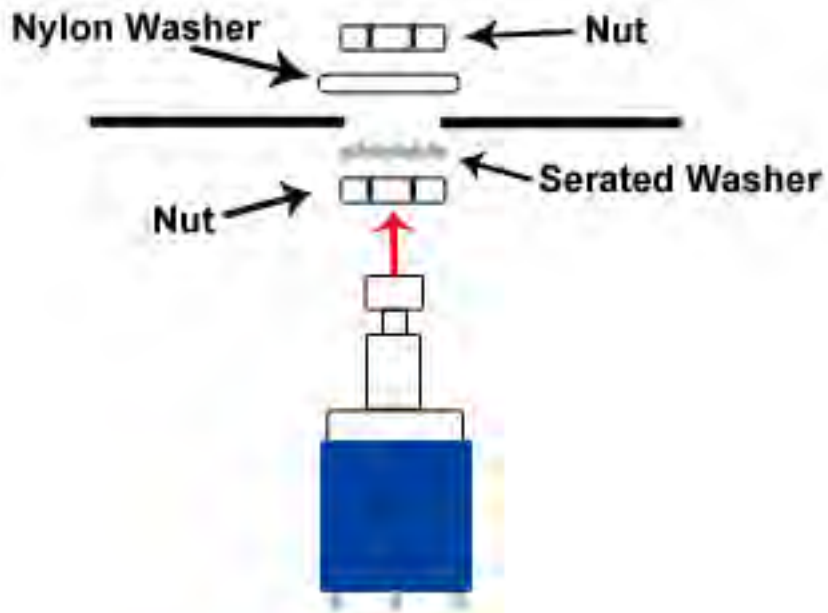


Step 5: Make a jumper between lugs 3 & 6 from clippings from the resistors. Simply use your needle nose pliers to make a U shape & insert into lugs 3 & 6, then solder.



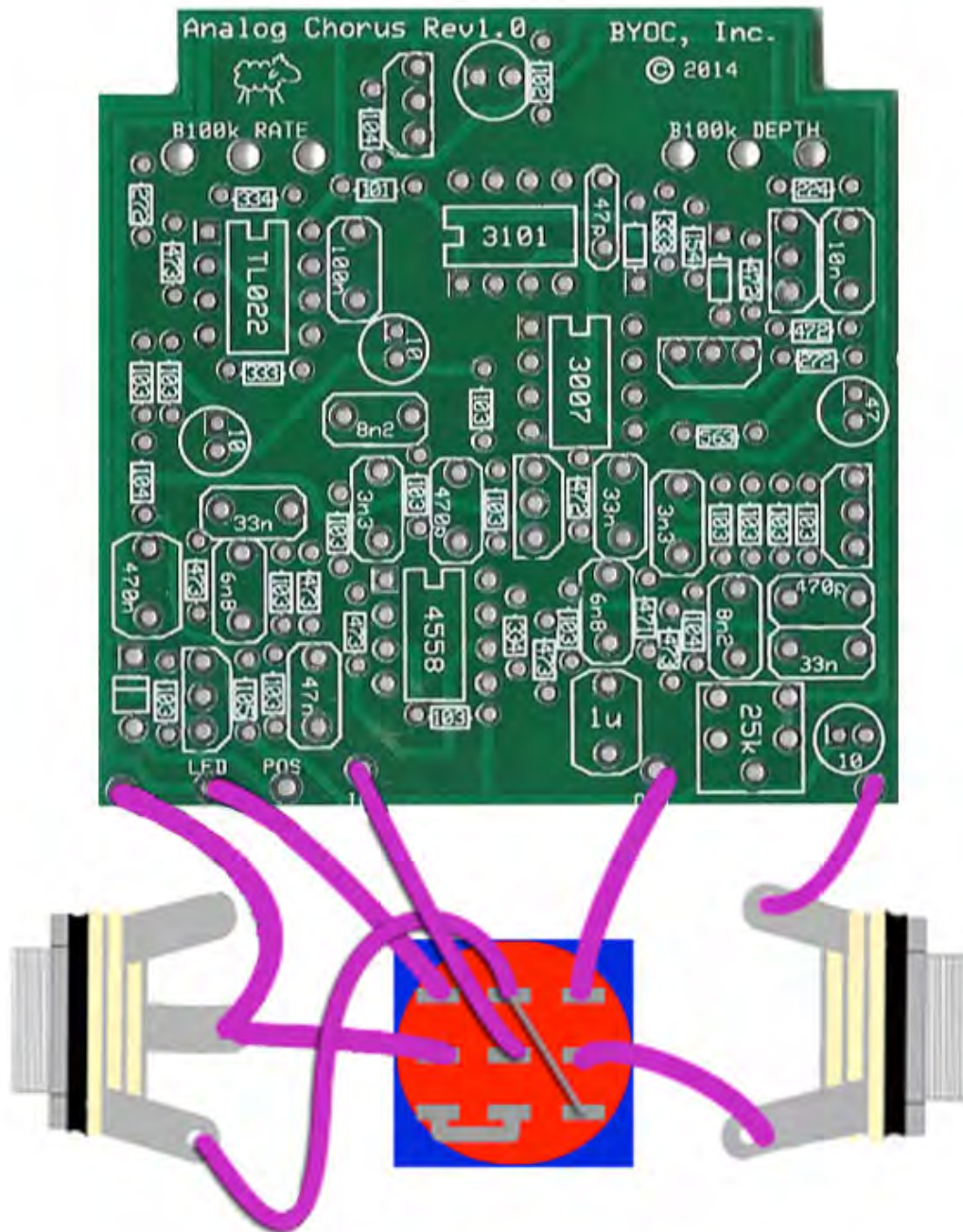
Step 6: Connect a 4" wire to LUG 4 that also jumpers to LUG9. Strip about 1" off one end. Make sure there is enough insulated wire to make the connection to the TIP of the IN jack. Carefully tin the stripped end. You may want to twist the wire strands together tightly before tinning. Thread the stripped end through LUGs 4 and 9. This can be a little tricky. If this part is too frustrating for you, you can just run a separate wire to connect LUGs 4 and 9. Just be sure to solder the two wires at LUG 4 at the same time so you only need to make one solder joint.



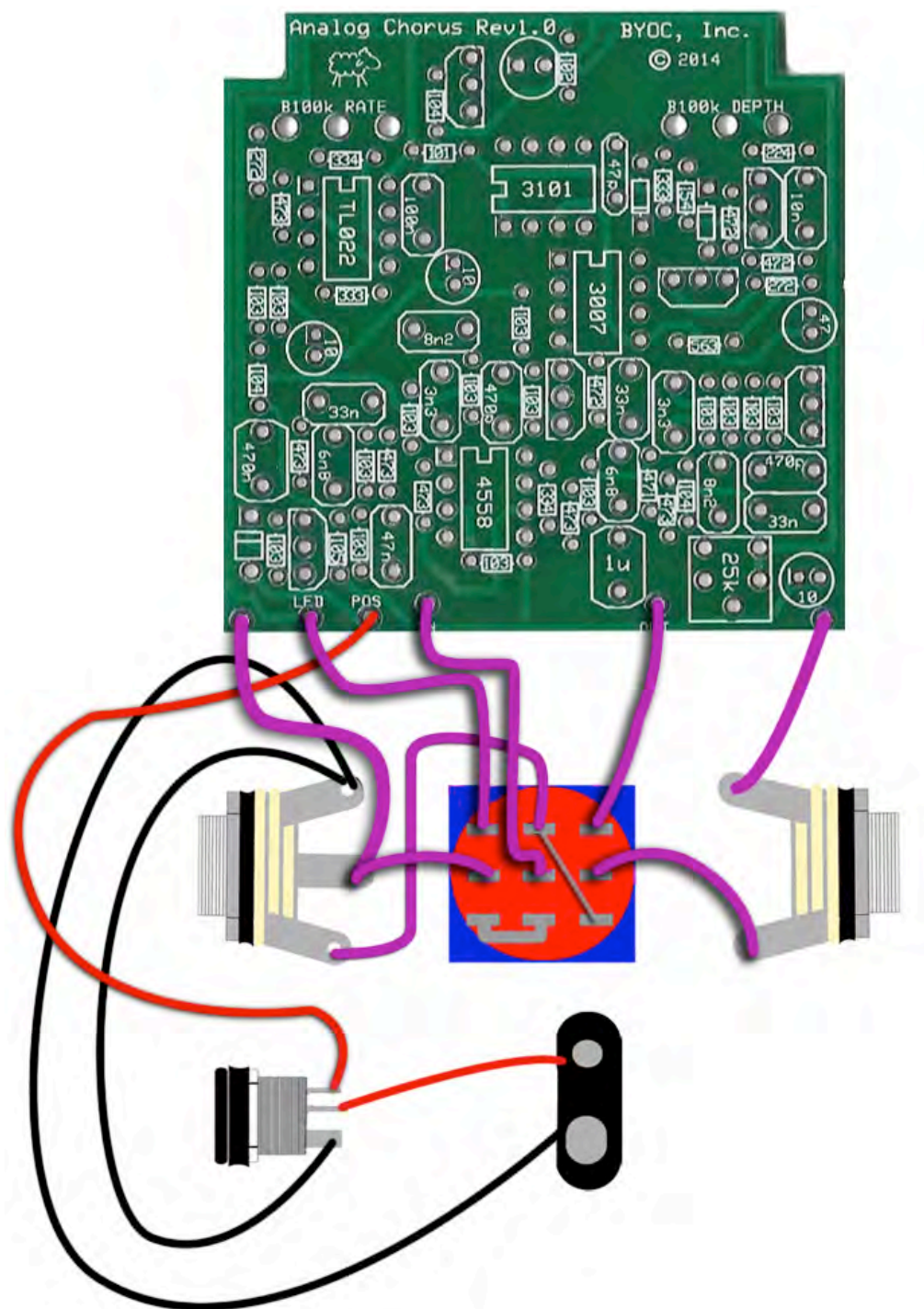


Step 7: Install the foot switch into the enclosure. Be sure to follow the order of nuts and washers in the diagram above.

Step 8: Wire the PCB to the foot switch and IN/OUT jacks.

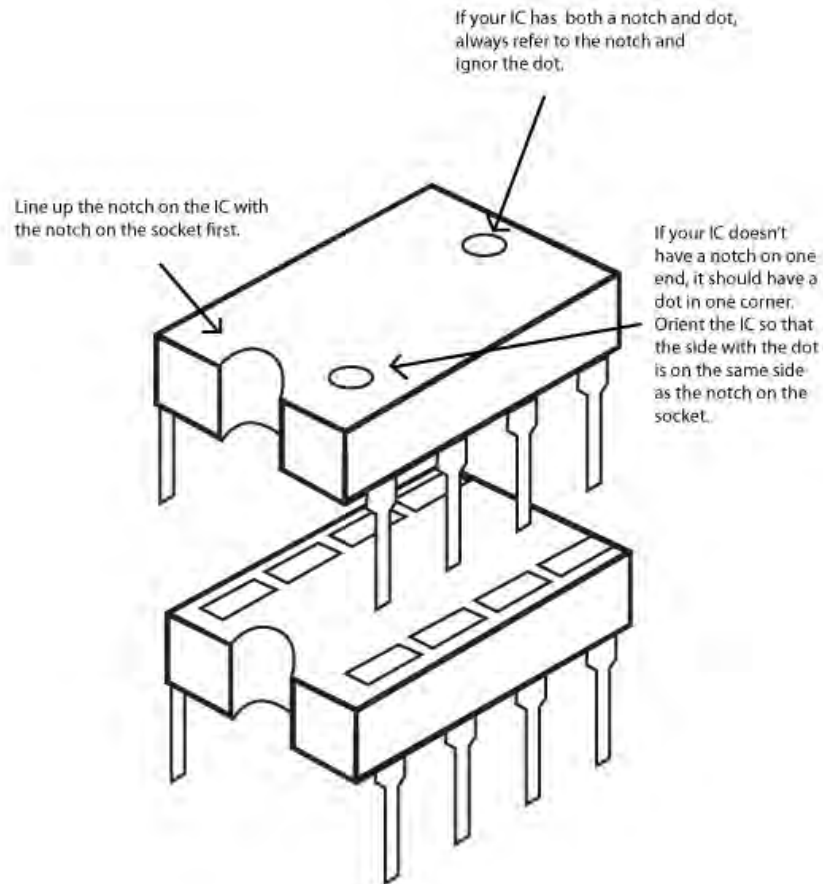


When you connect lug 2 of the foot switch and the ground eyelet on the left of the PCB to the sleeve of the IN jack, it is best to do this at the same time so you only need to make one solder joint.



Installing IC/Finish up

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



Operating Overview



Depth: Controls the intensity of the chorus effect.

Rate: Controls the speed of the chorus effect.

Power supply: 9V battery or 2.1mm negative tip. 9V ONLY!!!!

Current Draw: 12.5mA

Input Impedance: 1M ohms

Output Impedance: 100k ohms

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

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

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