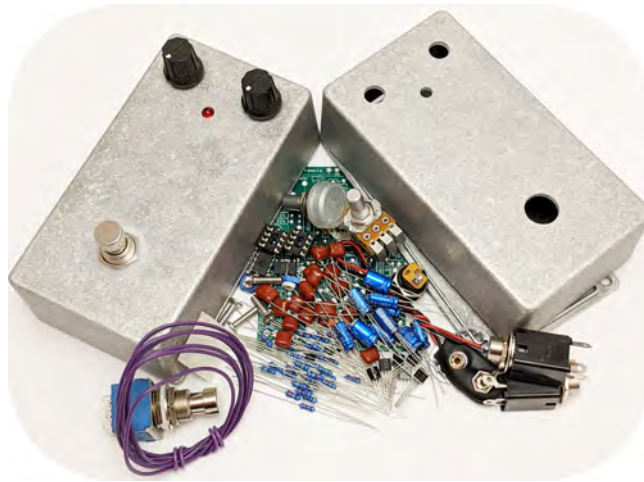


Build Your Own Clone

Brown Face Tremolo

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 customers 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 manner. 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.

<http://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 are 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. (Not just, "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 answer yes to 6 and 7, what does the pedal do when it is "on"?
9. Battery or adapter.(if battery, is it good? If adapter, what type?)

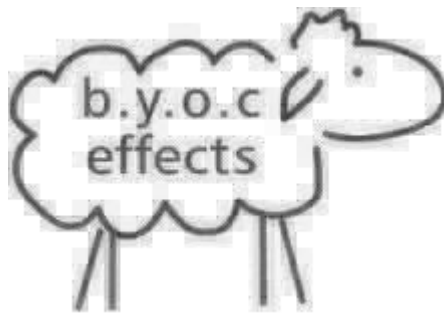
Also, please only post pics that are in focus. You're only wasting both parties' time if you post out of focus, low-res pics from your cell phone.

Revision Notes:

- 1.0 discontinued
- 2.0 R28, 29, 31, and 33 and C13, 15, 17, and 21 have different values printed on the PCB
- 2.1 Printed resistor and capacitor values on PCB have been corrected.

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Parts Checklist for BYOC Brown Face Tremolo

Resistors:	5-Band Metal Film (blue)		4-Band Carbon Film (light brown)
1 - 1k8	(Brown/Gray/Black/Brown/Brown)	or	(Brown/Gray/Red/Gold)
5 - 2k2	(Red/Red/Black/Brown/Brown)	or	(Red/Red/Red/Gold)
2 - 6k8	(Blue/Gray/Black/Brown/Brown)	or	(Blue/Gray/Red/Gold)
6 - 10k	(Brown/Black/Black/Red/Brown)	or	(Brown/Black/Orange/Gold)
2 - 12k7*	(Brown/Red/Purple/Red/Brown)	or	(Brown/Orange/Orange/Gold)**
1 - 22k	(Red/Red/Black/Red/Brown)	or	(Red/Red/Orange/Gold)
4 - 47k	(Yellow/Purple/Black/Red/Brown)	or	(Yellow/Purple/Orange/Gold)
1 - 100k	(Brown/Black/Black/Orange/Brown)	or	(Brown/Black/Yellow/Gold)
2 - 180k*	(Brown/Gray/Black/Orange/Brown)	or	(Brown/Gray/Yellow/Gold)
3 - 330k	(Orange/Orange/Black/Orange/Brown)	or	(Orange/Orange/Yellow/Gold)
4 - 470k	(Yellow/Purple/Black/Orange/Brown)	or	(Yellow/Purple/Yellow/Gold)
2 - 1M	(Brown/Black/Black/Yellow/Brown)	or	(Brown/Black/Green/Gold)
1 - 2M2	(Red/Red/Black/Yellow/Brown)	or	(Red/Red/Green/Gold)

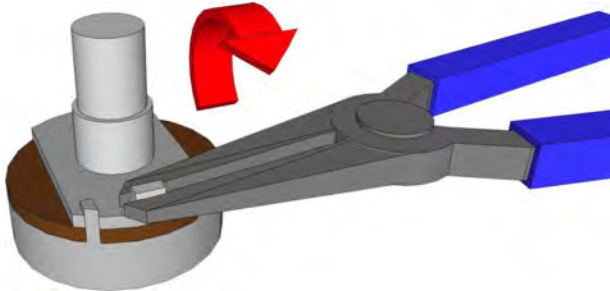
Capacitors:

- 2 - 0.01 μ /10n film (will have 103 printed on the PCB and capacitor)
- 1 - 0.047 μ /47n film (will have 473 printed on the PCB and capacitor)
- 4 - .15 μ /150n film (will have 154 printed on the PCB and capacitor)*
- 3 - .22 μ /220n film (will have 224 printed on the PCB and capacitor)
- 3 - .47 μ /470n film (will have 474 printed on the PCB and capacitor)
- 7 - 4 μ 7 aluminum electrolytic
- 3 - 22 μ aluminum electrolytic
- 1 - 100 μ aluminum electrolytic

Transistors:

- 3 - 2N5089
- 5 - 2N5088

Potentiometers: Be sure to snap off the small tab on the side of each panel mounted pot.



- 1 - B10k dual gang (DEPTH)
- 1 - C100k (SPEED)
- 2 - 100k Trimpot

Hardware:

- 1 - drilled enclosure w/ 4 screws (optional)
- 1 - BYOC BrownFace Tremolo PCB
- 1 - 3PDT footswitch
- 2 - Enclosed stereo jack w/ lock washer
- 1 - LED
- 1 - DC jack (optional)
- 2 - knobs (optional)
- 1 - battery snap
- hook-up wire

*The value printed on the PCB differs from the actual intended value. See page 7 and 8 for more details

**Carbon film resistors are not available in 12.7k value. 13k may be used instead.

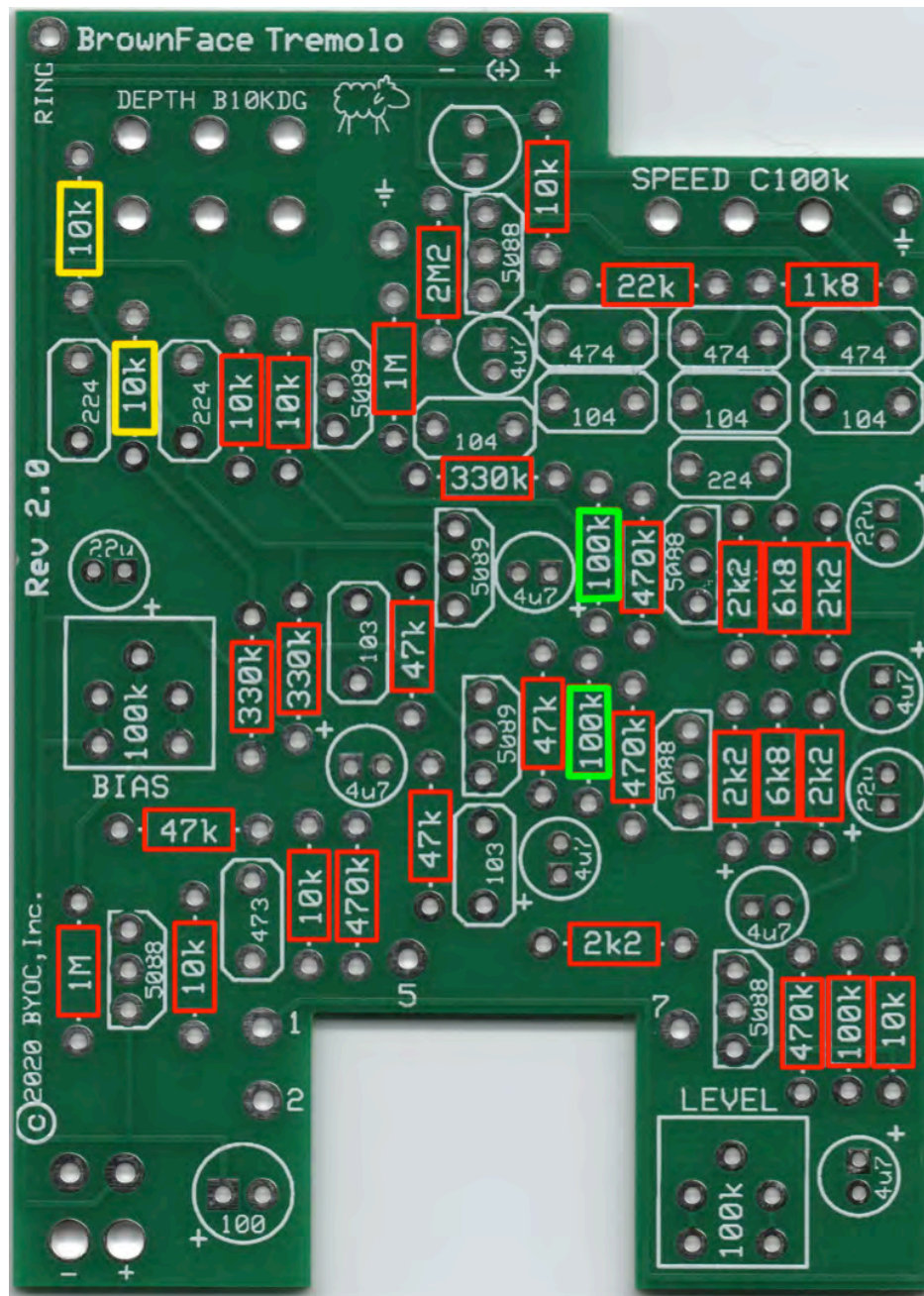


Your finished build will look something like this. Don't be alarmed if some of the components are different colors. As long as they are the correct values, they will work just fine.

Populating the Circuit Board

STEP 1: Add the resistors. Resistors are not polarized, so it does not matter which end goes in which solder pad.

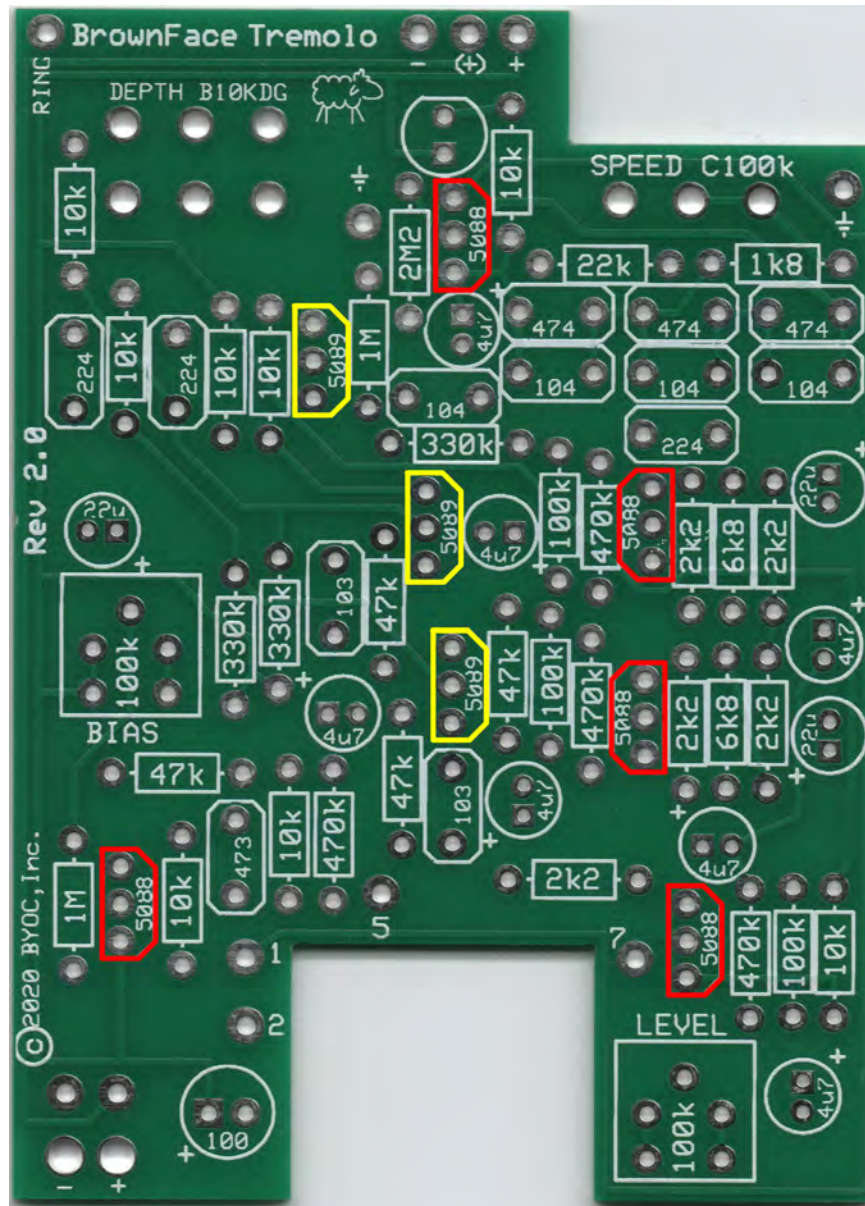
For Rev2.0 PCB use the 12.7k resistors in the 10k spaces highlighted in yellow. Use the 180k resistors in the 100k spaces highlighted in green.



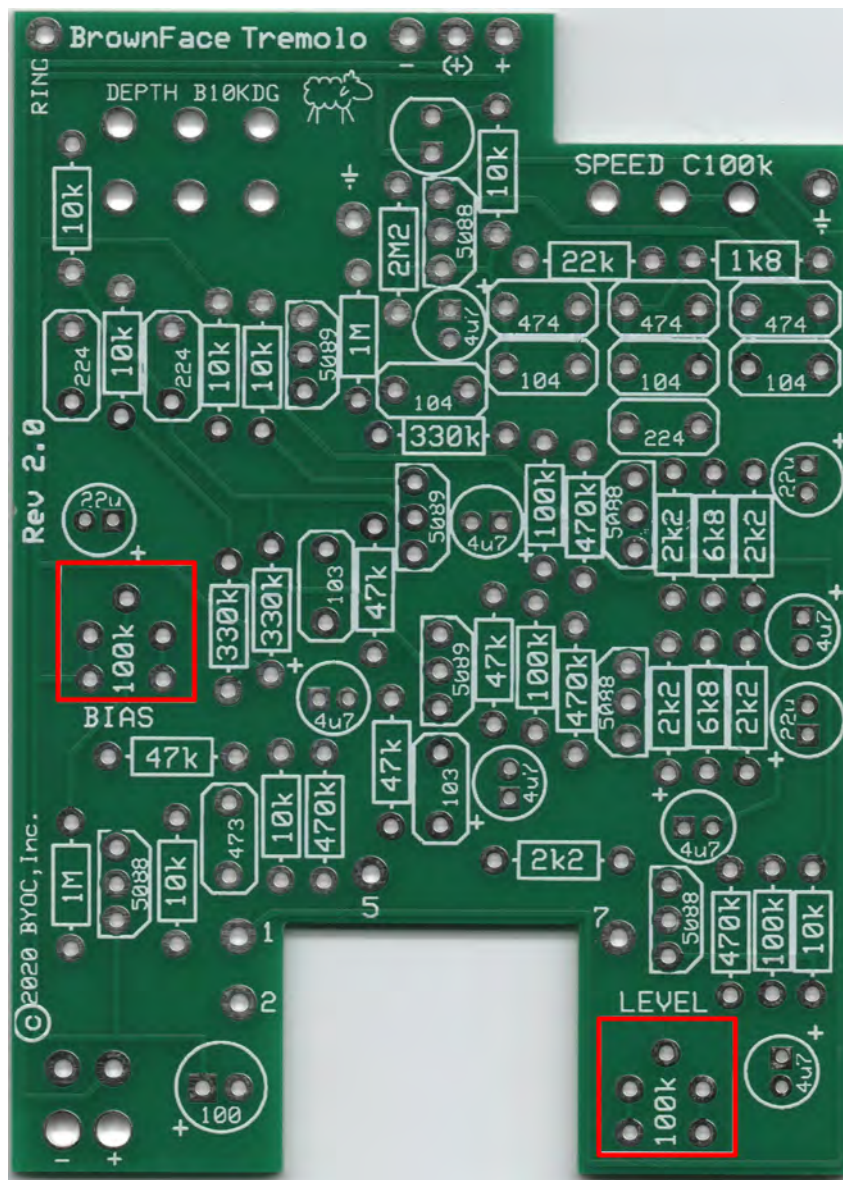
For Rev2.0 use .15uF(154) film capacitors in the 104 spaces highlighted in green.



STEP 3: Add the transistors. Orient the transistors so that the flat side matches up with the flat side of the PCB layout. Be sure to put the 2N5089 transistors in the spaces highlighted in yellow.



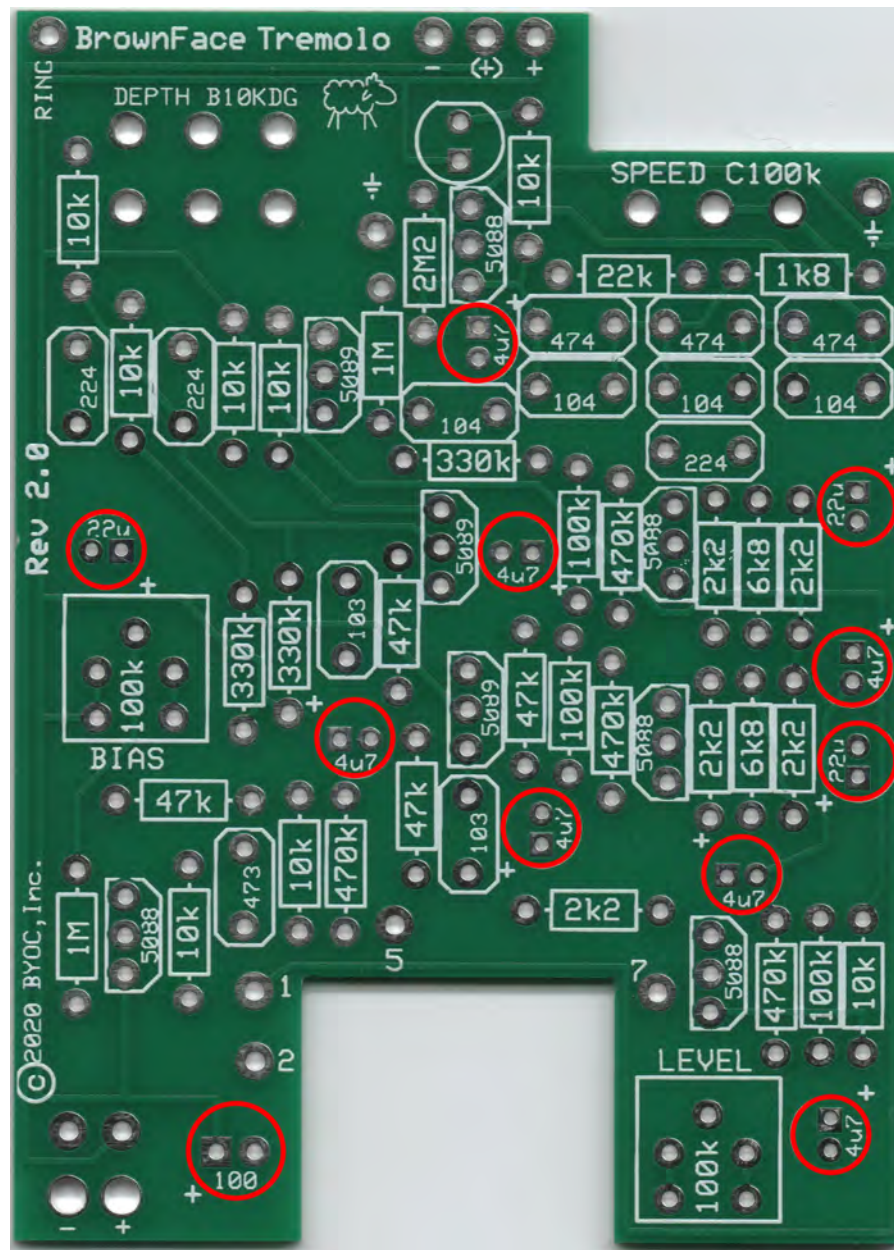
Step 4: Add the trimpots. There are three legs on the trimpot, but 5 holes on the PCB. This is to allow for the use of various sizes of trimpots. Your trimpots will fit into three of them nicely.



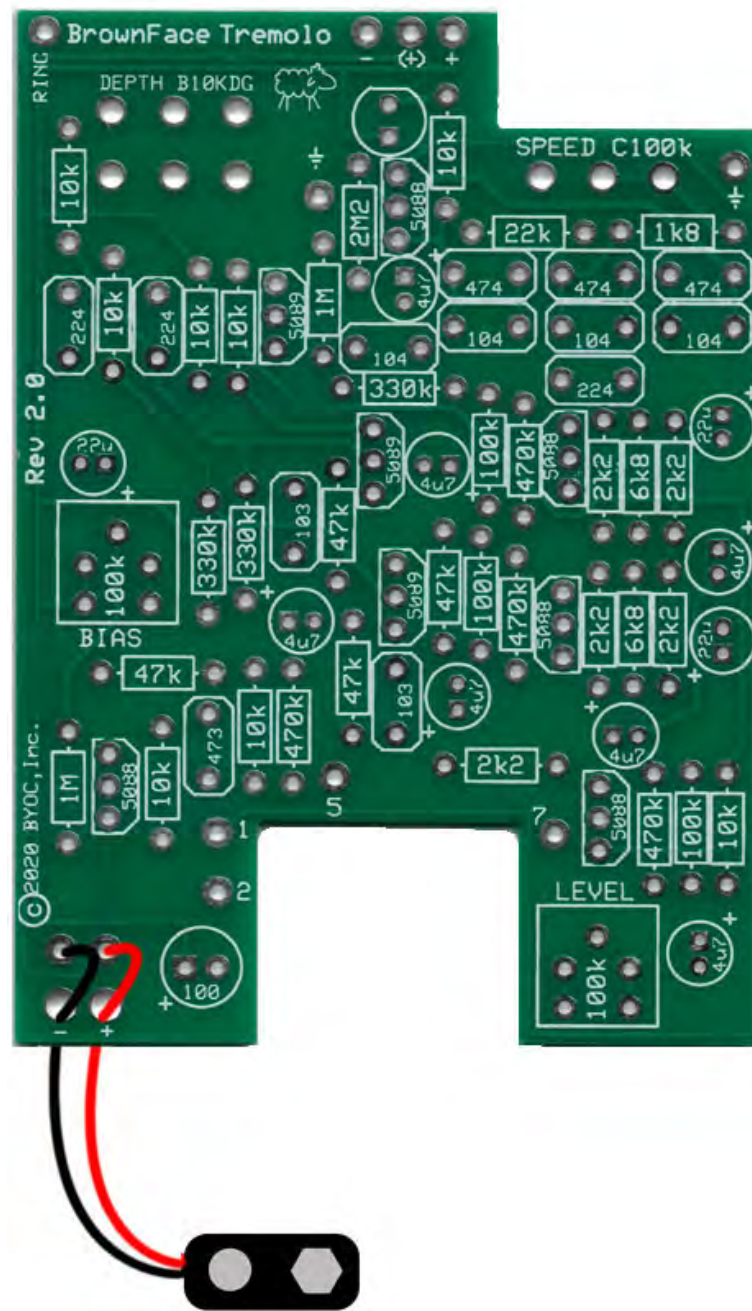
When you are done with your build, you will need to adjust the trim pots before your build will work properly.

1. Set the BIAS trim pot to the middle of its rotation as a starting point.
2. Set the LEVEL trim pot so that the effect volume is the same as the bypass volume.
3. Adjust the BIAS trim pot so that the tremolo effect sounds symmetrical, i.e., so that the even pulses are the same duration as the odd pulses. The ideal setting probably won't be far off from the center of the trim pot's rotation.

Step 5 Add the aluminum electrolytic capacitors. These are polarized. The positive end will have a longer lead and should go in the square solder pad. The negative end will have a shorter lead with a black strip running down the body of the capacitor.



Step 9: Add the battery snap. Thread the solder ends of the battery snap into the strain relief holes from the bottom solderside 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.



BrownFace Tremolo

DEPTH B10KDG

SPEED C100k

BIAS

LEVEL

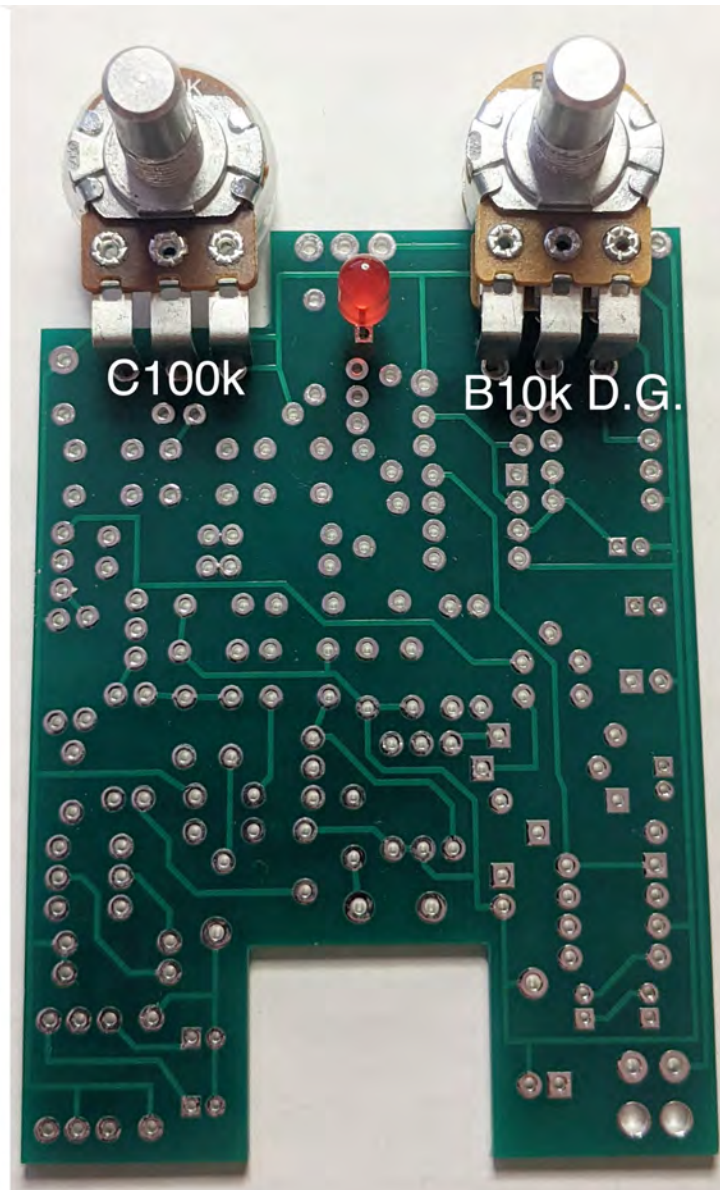
RING

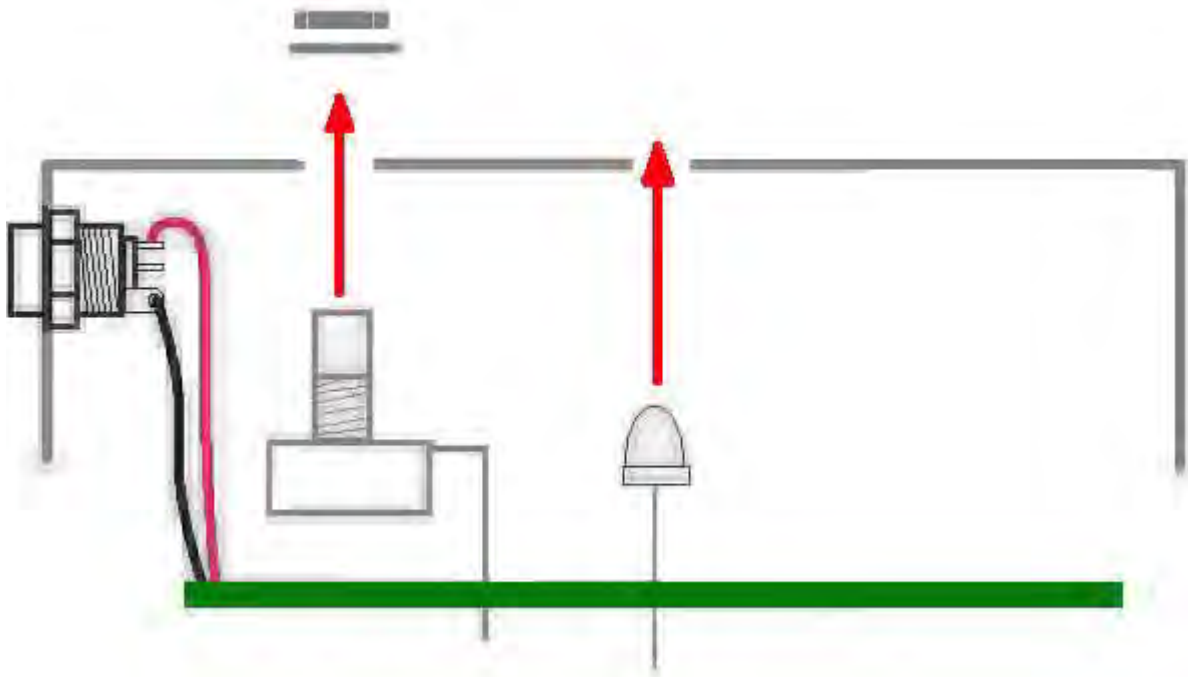
Rev 2.0

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Assembly

Step 1: Flip the PCB over so that the bottom or solder side is up. Insert the B10k dual gang (DEPTH), C100K (SPEED) potentiometers, and the LED into the bottom side of the PCB. **DO NOT SOLDER YET!!!** The LED will have one lead that is longer than the other. **The longer lead goes in the hole with the square solder pad.**



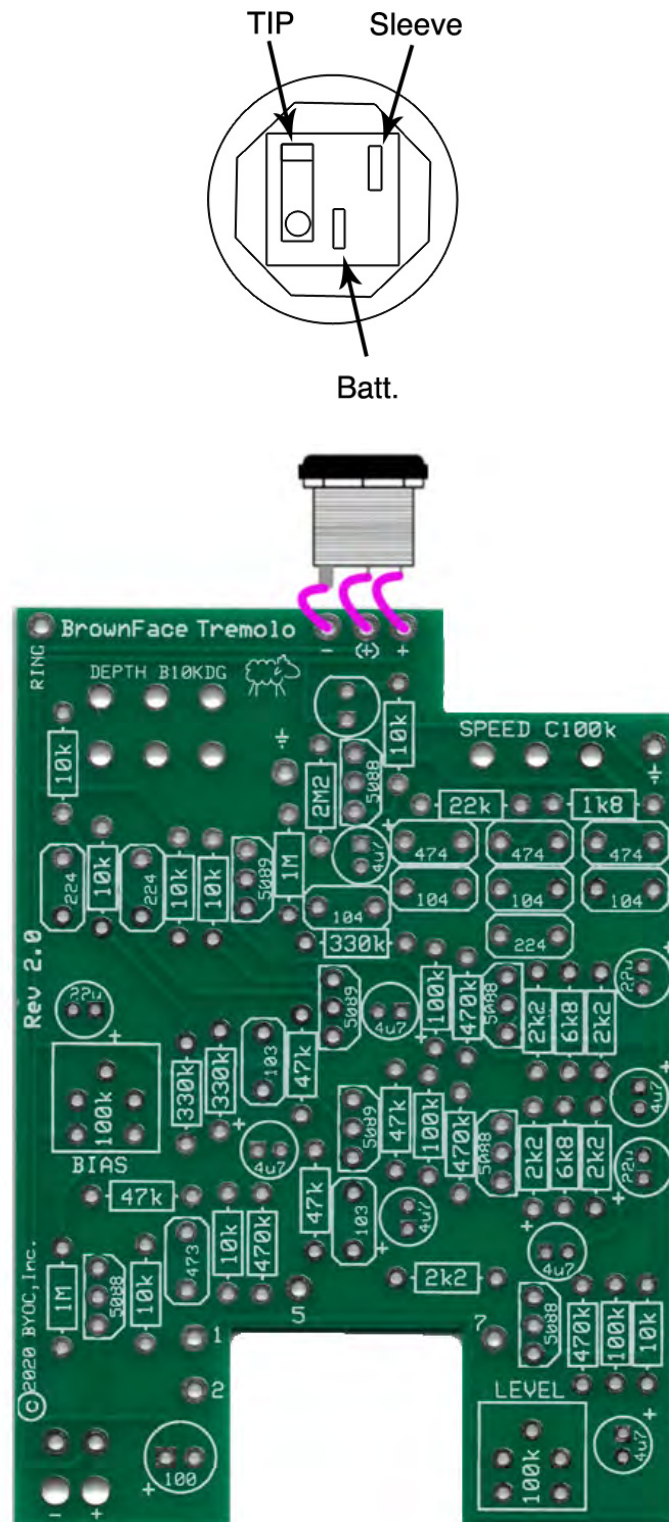


Step 2: Hold the PCB in one hand so that the component side of the PCB is in the palm of your hand and the bottom side with the pots, toggle switch and LED is facing up. Now use your other hand to guide the predrilled enclosure onto the PCB assembly so that the pots and LED all go into their respective holes. Once the PCB assembly is in place, secure it by screwing on the washers and nuts for the pots and toggle switch. Only tighten them with your fingers. You do not want them very tight yet. Be sure to keep your hand on the PCB so that it does not fall off the PC mounting posts of the pots and toggle switch.

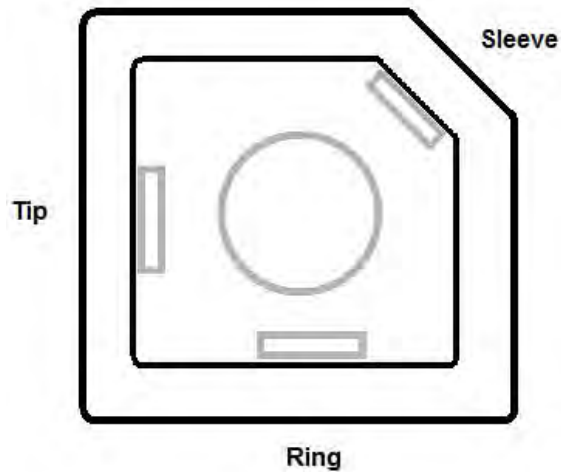
Step 3: Turn the entire pedal over so that the component side of the PCB is facing up. Lift the PCB up off the pots and toggle switch about 2mm just to make sure that the back of the PCB does not short out against the pots. Make sure the PCB is level and symmetrically seated inside the enclosure.

Step 4: Solder the pots and LEDs. 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 5: Install the DC jack into the enclosure. Connect the TIP (negative) terminal of the DC jack to the “-” eyelet on the PCB with 1 inch of hook-up wire. Connect the SLEEVE of the DC adapter jack to the “+” eyelet on the right side of the PCB with 1 inch of hook-up wire. Connect the battery disconnect terminal of the DC jack to the “(+)” eyelet with 1 inch of hook-up wire.

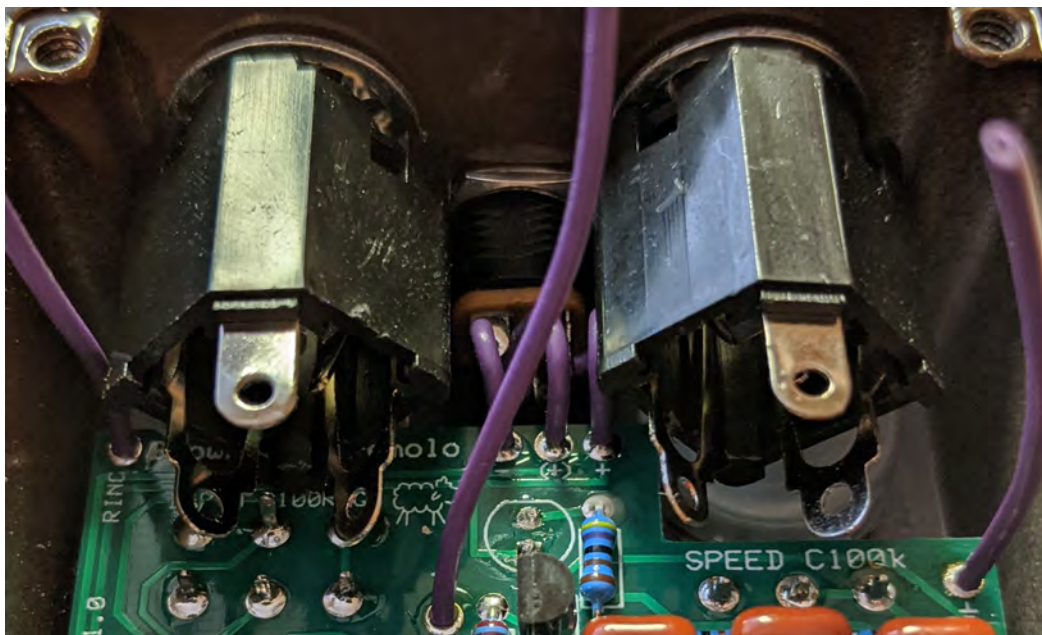


Enclosed Jack

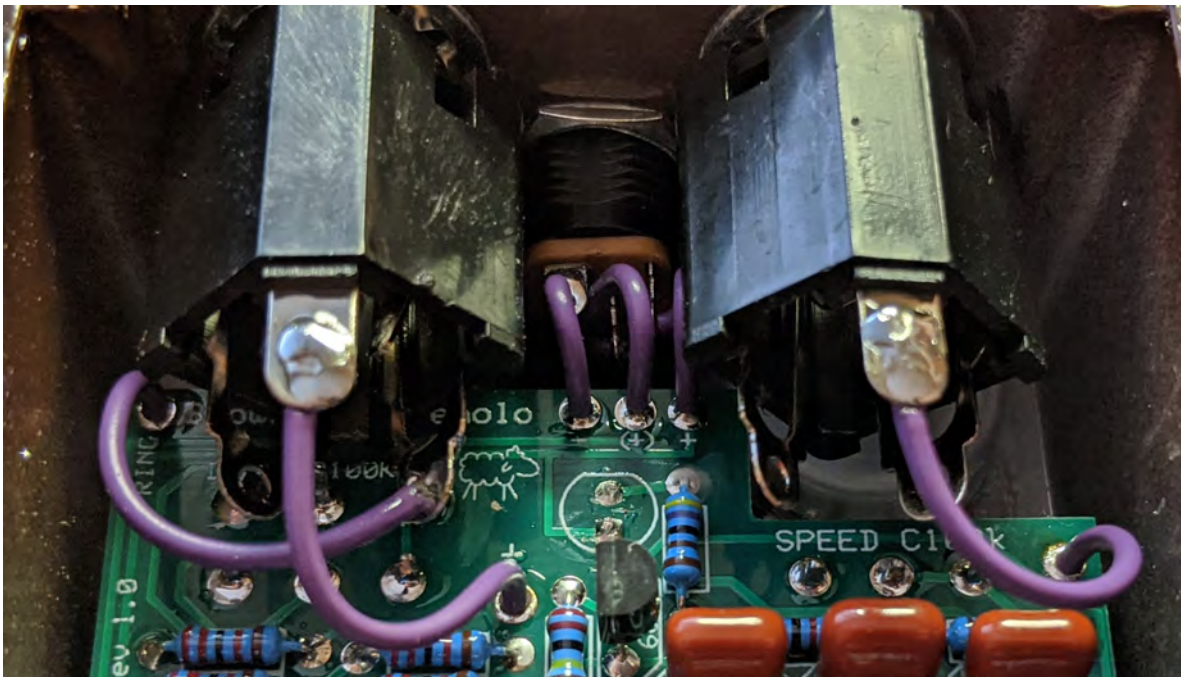


Wiring the jacks

Step 1: Install the enclosed jacks into the enclosure. Be sure to ‘clock’ the jacks. In other words, make sure to orient them in such a way that the solder terminals of the jacks don’t come into contact with anything they’re not supposed to. Any orientation will work, as long as you are mindful of the terminal designations as shown above.

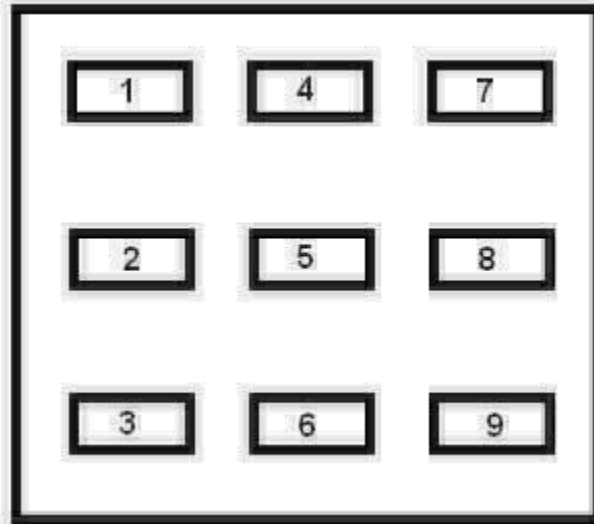


Step 2: Connect the three 2.5 inch pre stripped and tinned wires to the enclosed jacks.



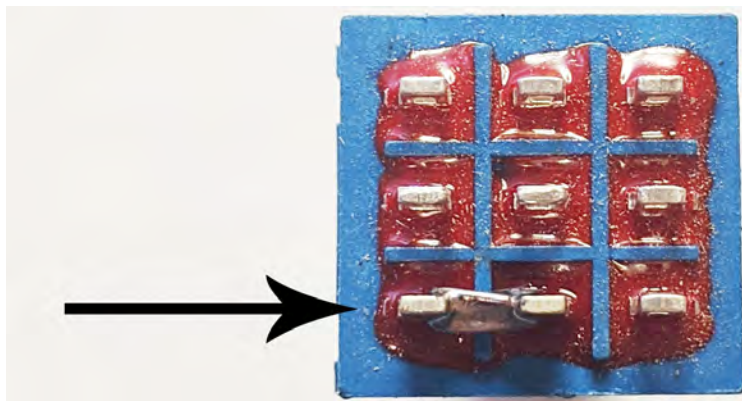
Footswitch Wiring/Assembly

Footswitch Solder Lug Designations

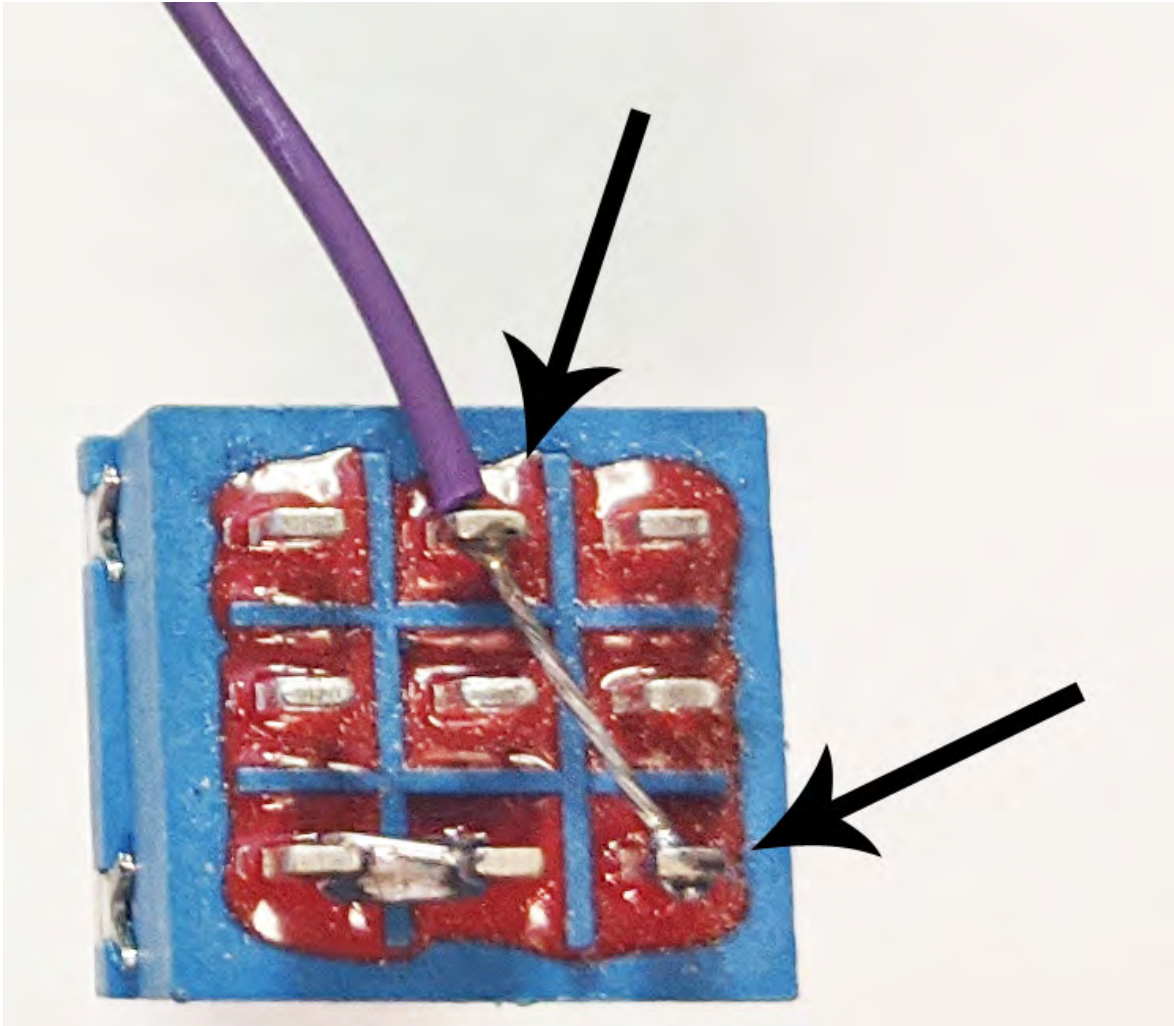


There are no actual number markings on the footswitch. Orient the footswitch so that the flat sides of the solder lugs are running horizontally, not vertically. There is no "top side" or "bottom side" of the switch until you actually solder something to it and designate it as such.

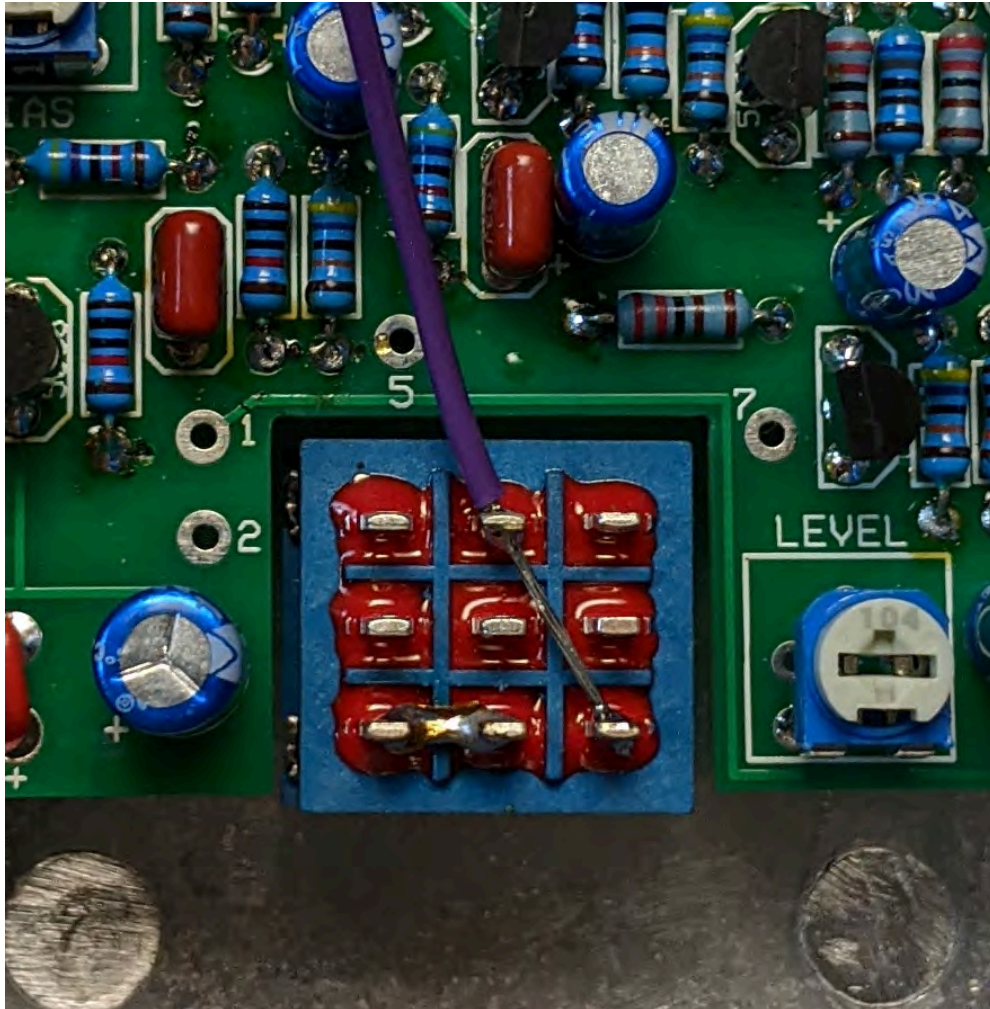
Step 1: Create a jump between lug 3 and lug 6. As stated above, the numbers are only designated once you start soldering to the footswitch.



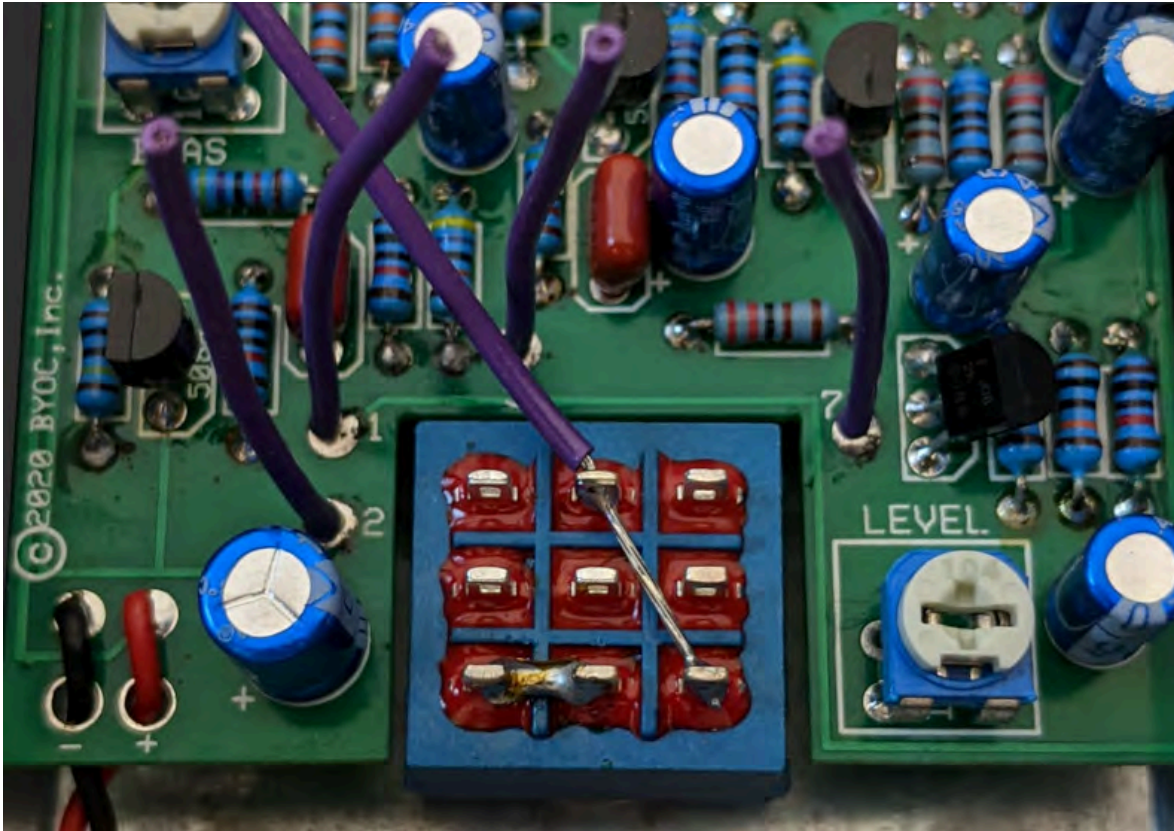
Step 2: Take one of the 6 inch pieces of wire from earlier and strip about 1.5 inches from one side. Run the striped end between lugs 4 and 9. Solder both lugs. Be careful not to short the bare metal striped end against any other lugs on the footswitch.



Step 3: Install the footswitch into the enclosure. Remember to place the footswitch lock washer on the inside of the enclosure to help prevent spinning. You can choose to use the nylon washer on the outside if you'd like, it helps reduce damage to the finish while tightening the outside nut, but it's not absolutely necessary.



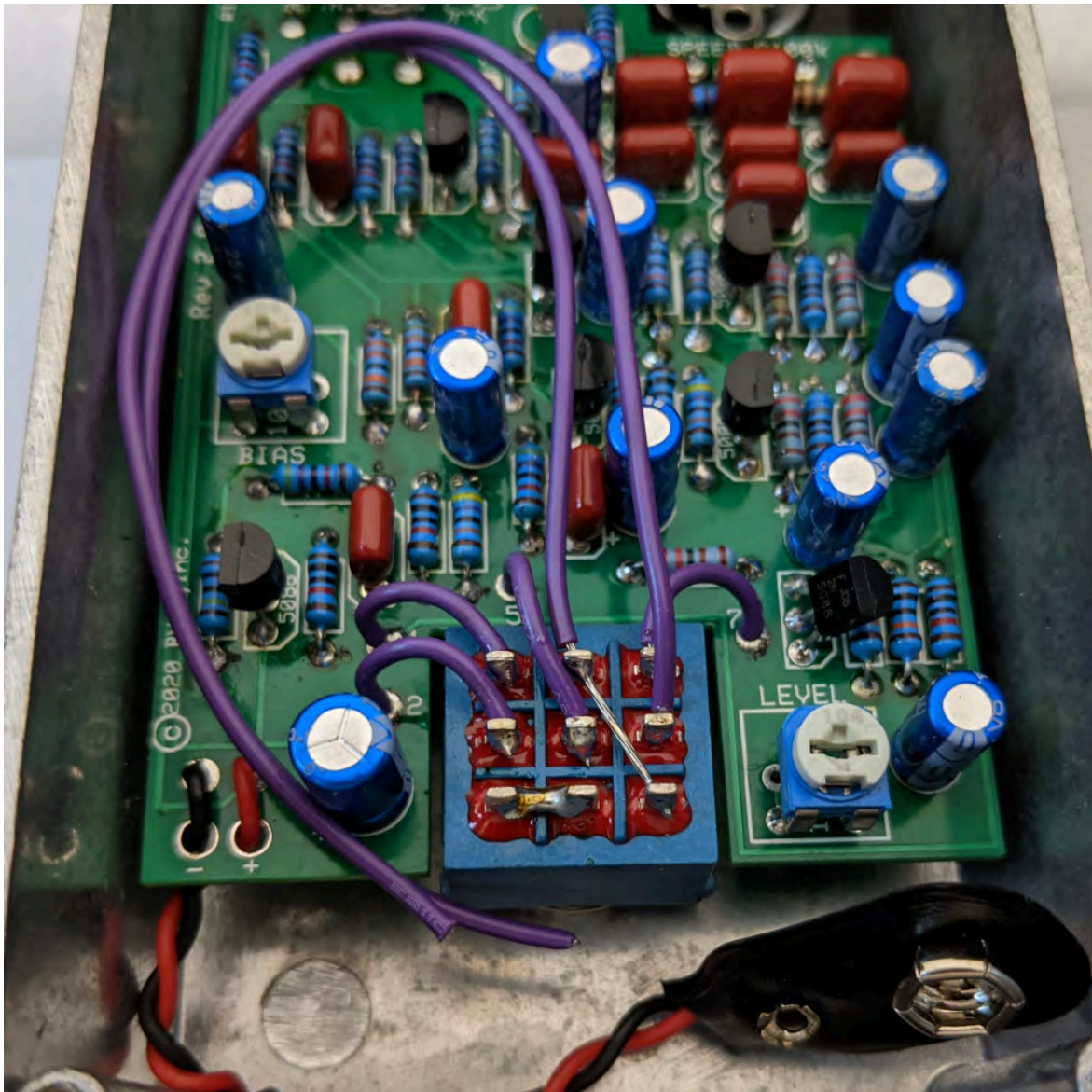
Step 4: Cut and tin four 2.5 inch wires. These will be for lugs 1, 2, 5, and 7. Once they are cut and tinned, insert them into the eyelets on the PCB and solder. You can remove the footswitch from the enclosure for more space if you need.



Step 5: Connect the short wires to their respective lugs on the footswitch. Refer to the information above about the lug numbers if you are unsure about the number scheme of footswitches.



Step 6: Add the second 6 inch piece of wire from the earlier steps to lug 8 of the footswitch. You will notice that both wires at lug 4 and lug 8 aren't connected to anything else yet. Those will be our final connections.



Step 7: Connect the wire from lug 4 to the INPUT jack TIP terminal, connect the wire from lug 8 to the OUTPUT jack TIP terminal. It's okay to leave the wire a little long to allow for movement of the wire if needed.





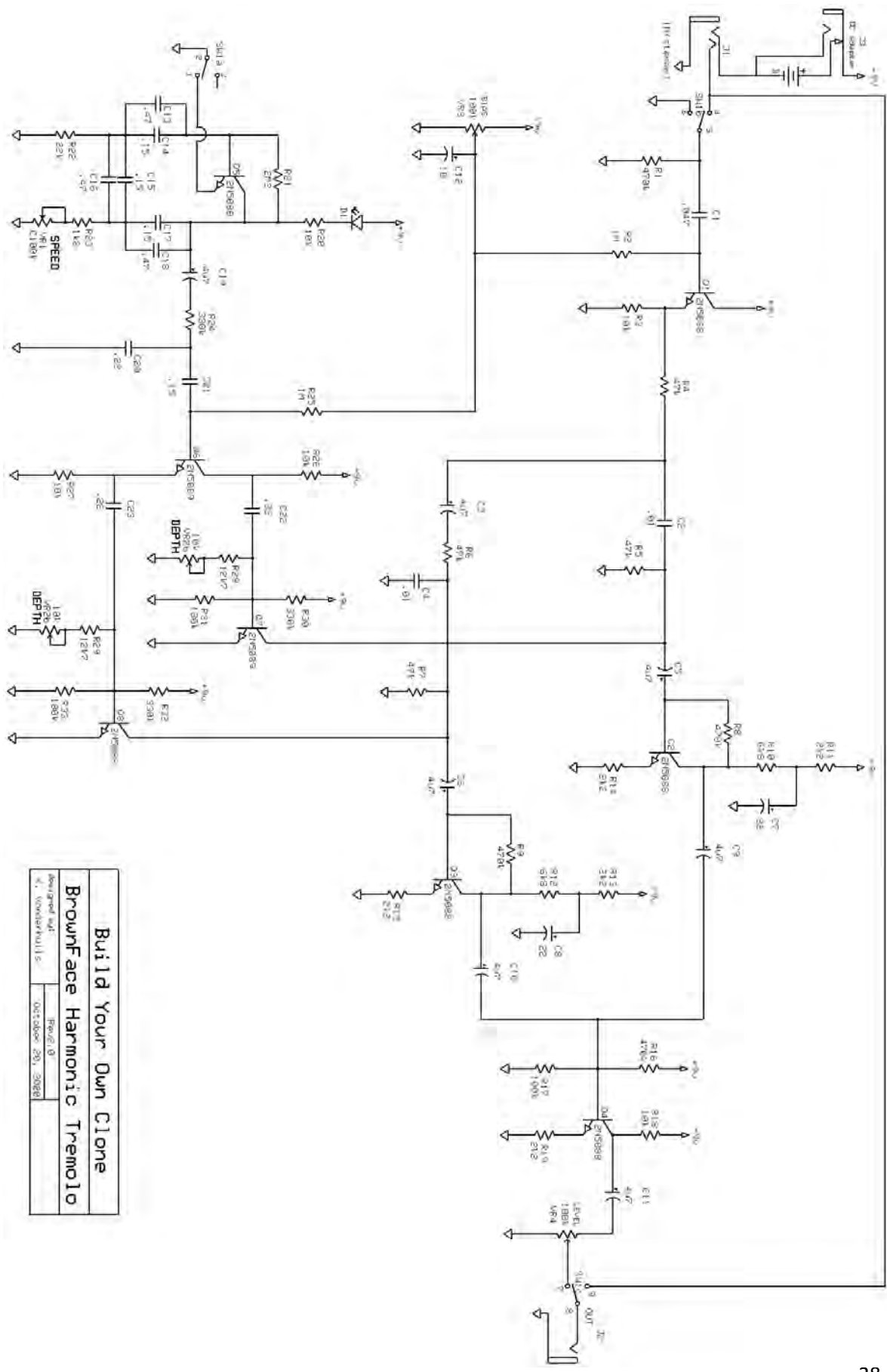
Operating Overview



SPEED: Controls the speed of the tremolo effect. CCW is a slower effect, CW is a faster effect.

DEPTH: Controls the depth of the tremolo effect. CCW is a shallower depth, CW is a deeper depth.

POWER: 9V Battery or 2.1mm tip-negative wall adapter.



Build Your Own Clone

Brownface Harmonic Tremolo

Designed and built by: [Name]

October 2015

For a high resolution schematic:

<http://byoelectronics.com/brownfaceschematic.pdf>

For tech support, visit: <http://byoelectronics.com/board>

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