B.Y.O.C. Wah Kit Instructions

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The assebly portion of the instructions are very important. Please read them before building this kit.

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Parts Checklist for Wah Kit

Resistors:
3 - ZERO resistors (single black band)
1 - 1k (brown/black/red/gold)
1 - 10k (brown/black/orange/gold)
1 - 22k (red/red/orange/gold)
1 - 100k (brown/black/yellow/gold)
2 - 470k (yellow/purple/yellow/gold)
2 - 2.2M (red/red/green/gold)

Capacitors:
2 - .01uf film (103)
1 - .022uf film (223)
1 - .1uf film (104)
2 - .22uf film (224)
1 - 4.7uf NON-POLARIZED (NP)aluminim electrolytic
1 - 10uf aluminum electrolytic

Inductor:
1 - halo replica

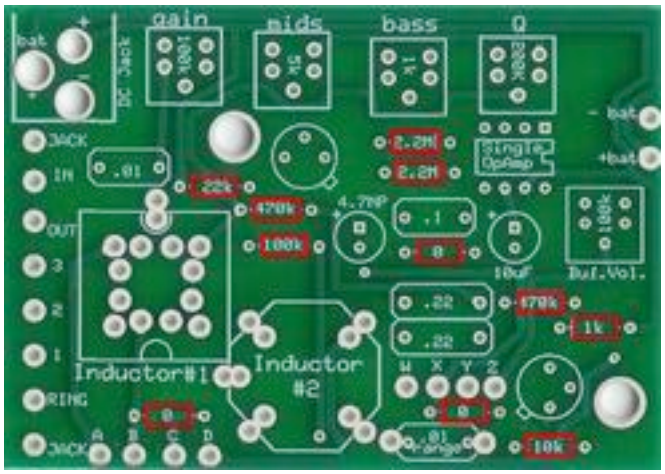
IC:
1 - TL081 single op amp

Transistors:
2 - CV10805 or BC108
2 - transistor sockets

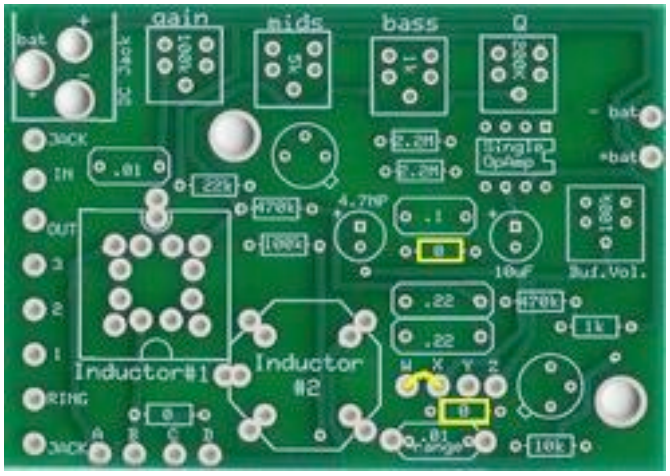
Potentiometers:
1 - 100k ICAR taper pot with pinion gear and dust jacket
1 - 1k trimmer (102)
1 - 5k trimmer (502)
2 - 100k trimmers (104)
1 - 250k trimmer (254) or 200k trimmer (204)

Hardware:
1 - rocker enclosure w/ base plate, 4 screws,2 mounting screws, and rubber feet **(not included in drop in kit)**
1 - wah kit circuit board
1 - 3pdt footswitch
1 - board mounted DC adaptor jack
1 - ¼"stereo jack
1 - ¼" mono jack
1 - battery snap
2 - wire ties
hook-up wire

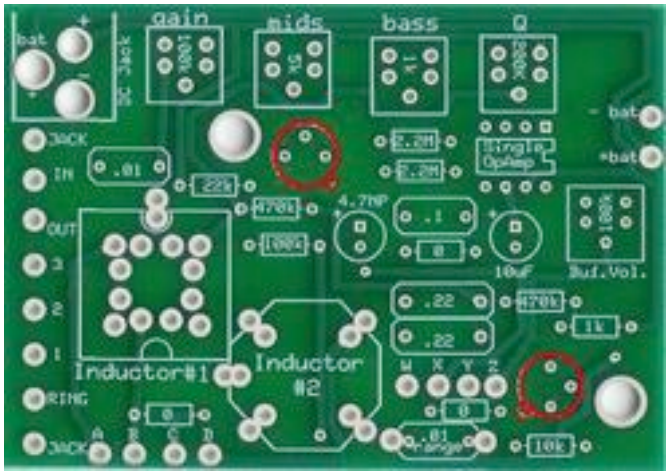
Populating the Circuit Board



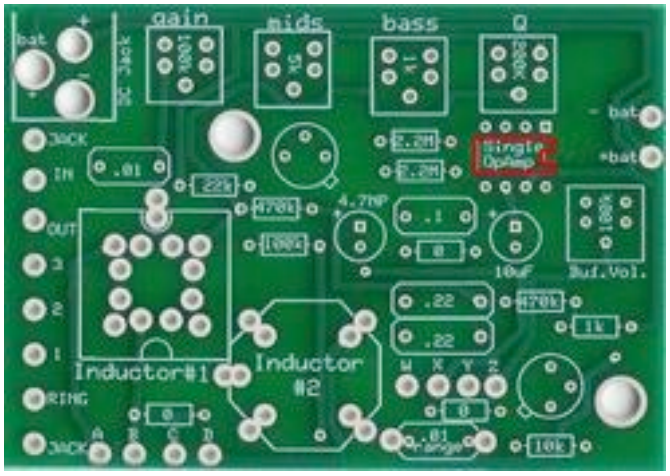
Step 1: Add the resistors. Resistors are not polarized and can go in either direction.



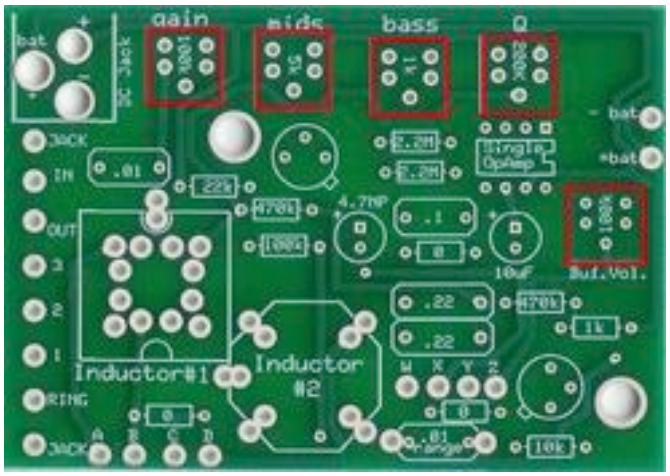
Step 2: This step is only if you want to disconnect the output buffer. It is recommended that you use it, but if you wish not to, omitt the zero resistor highlighted in yellow and make a jumper between the “X” and “Y” eyelets.



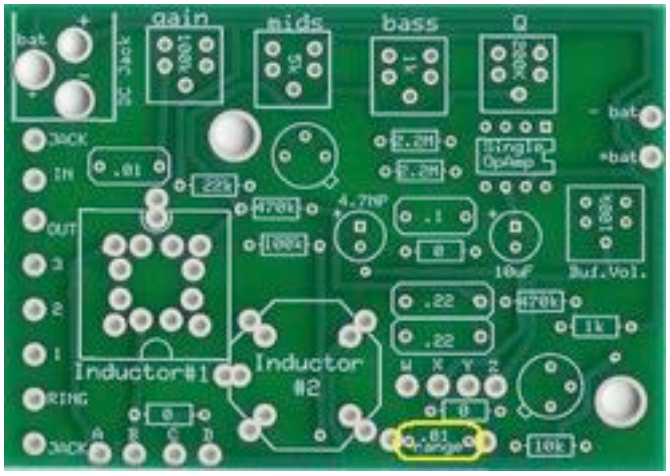
Step 3: Add the transistor sockets. Make sure that the tabs on the sockets line up with the tabs on the layout.



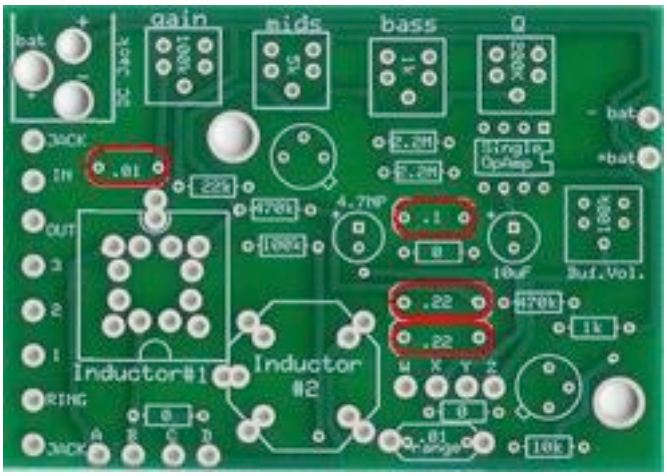
Step 4: Add the op amp. Match up the notch on the op amp with the notch on the layout. If your op amp does not have a notch it should have a small dot in one corner. This dot represents pin #1. Match pin #1 up with the square solder pad. If your op amp has both a notch and a dot, always refer to the notch first.



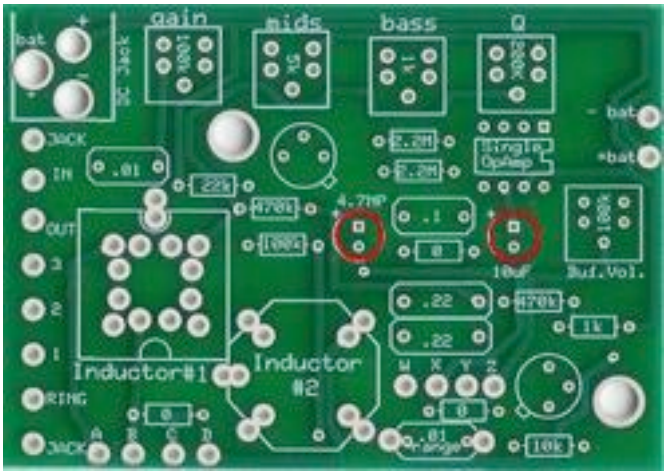
Step 5: Add the trimpots. The Q trimmer can either be a 250k or 200k.



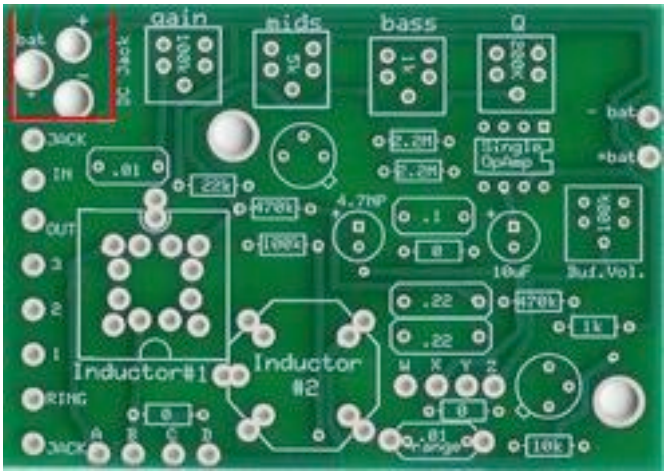
Step 6: Add the “range” cap. The kit will come with an extra .022uf film cap too. A larger value cap will increase the bass or “heel down” end of the sweep, but decrease the treble or “toe down” end of the sweep. A smaller value cap will do the opposite. The stock .01uf cap is probably the most optimal range for guitar.



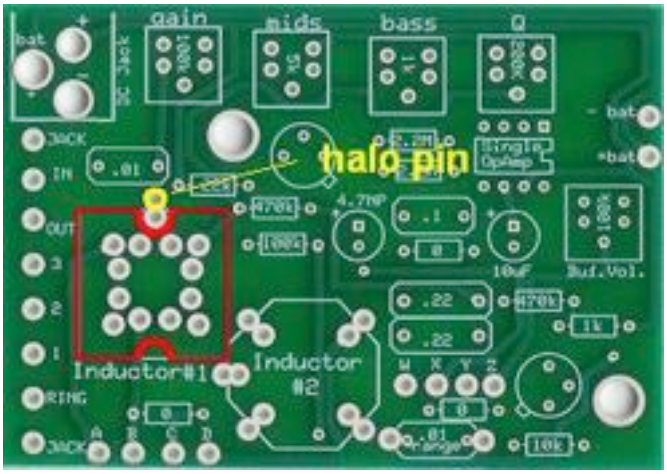
Step 7: Add the rest of the film caps.



Step 8: Add the electrolytic caps. The 4.7uf is non polarized and can go in either way. The 10uf is polarized. The longer lead should go in the square solder pad.

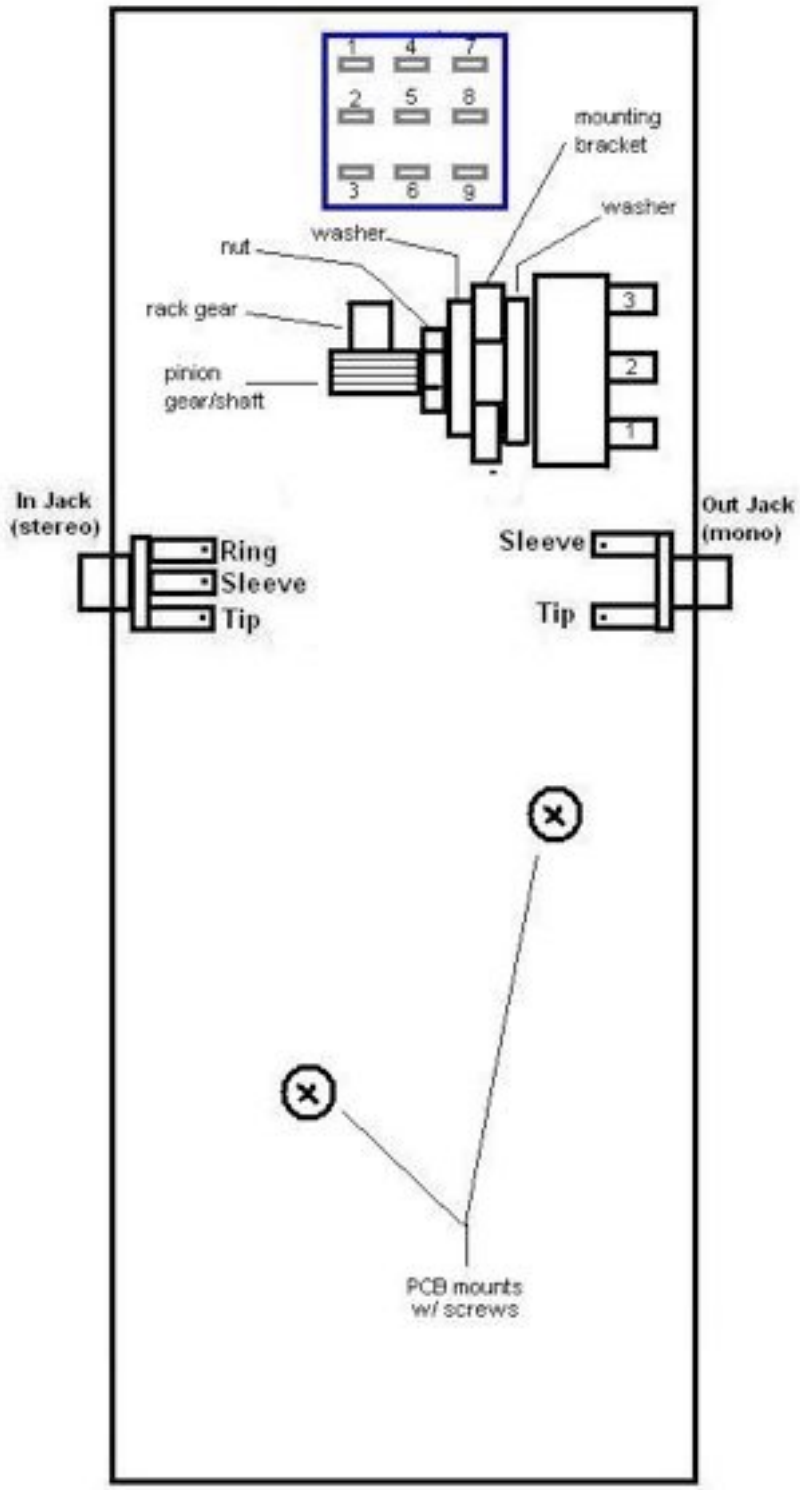


Step 9: Add the DC adaptor jack.



Step 10: Add the inductor. The halo inductor gets its name from the halo shaped clamp that holds the core together. Older versions of the kit may come with a 5 pin inductor. You would orientate this inductor by inserting the 5th "halo" pin into the inductor eyelet that is off set. More recent versions of the kit will come with an 8 pin inductor that has two u-shaped notches in the base. Orientate the inductor by lining up the two u-shaped notches with the layout on the PCB. Inductors are not polarized so it can go in either way as long as the shapes are lined up.

Assembly



1. Install the jacks first. If you are looking down inside the enclosure, the mono jack goes on the right side and the stereo jack goes on the left. Place the washer on the outside of the enclosure. Use a 1/2" wrench to tighten.
2. The pot will come with the nut and washers in order. You want to install the pot so that enclosure mounting brackets fit inbetween the two large flat washers. Mount the pot

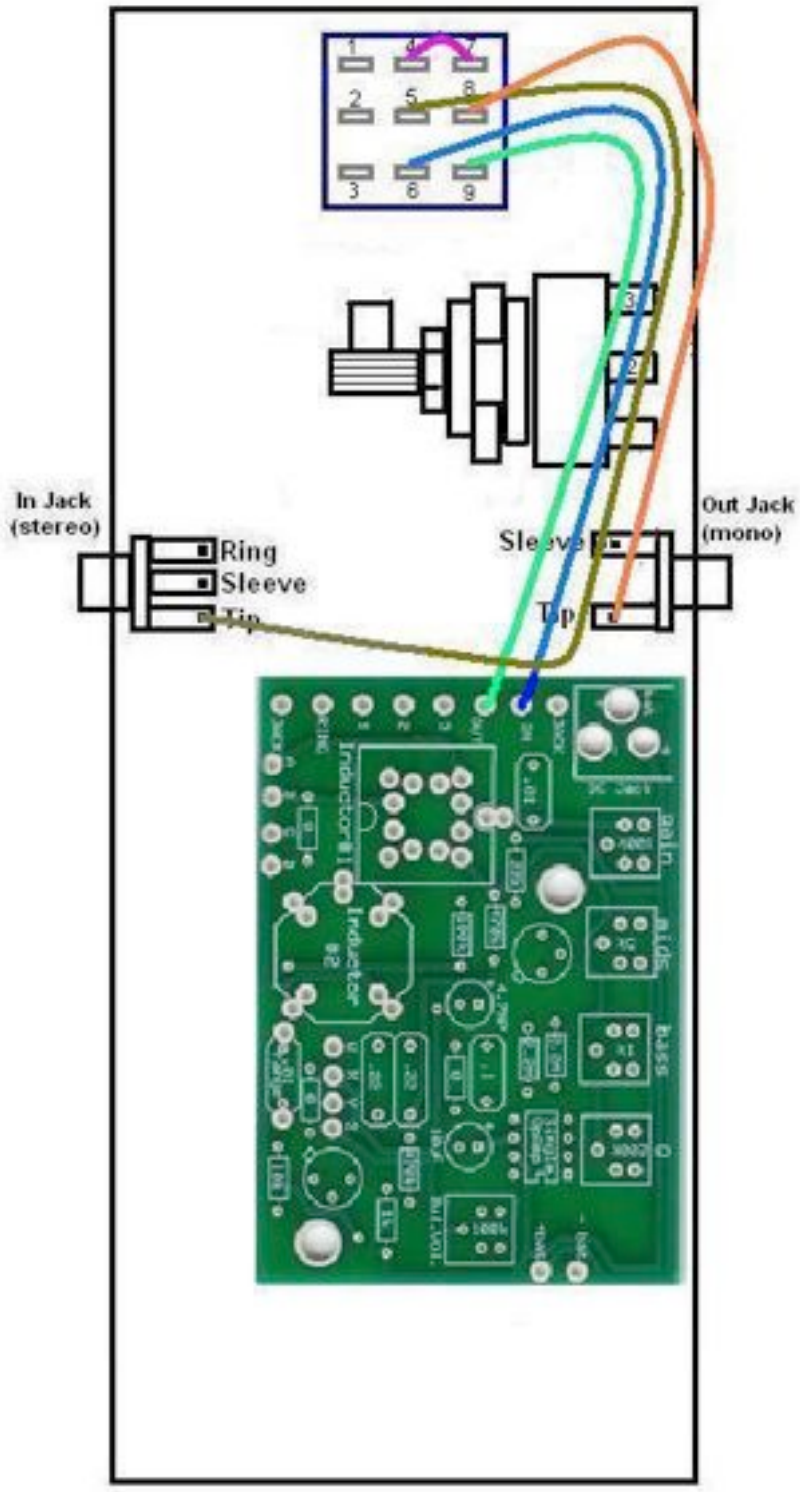
so that the solder lugs are facing up if you are looking down into the enclosure.

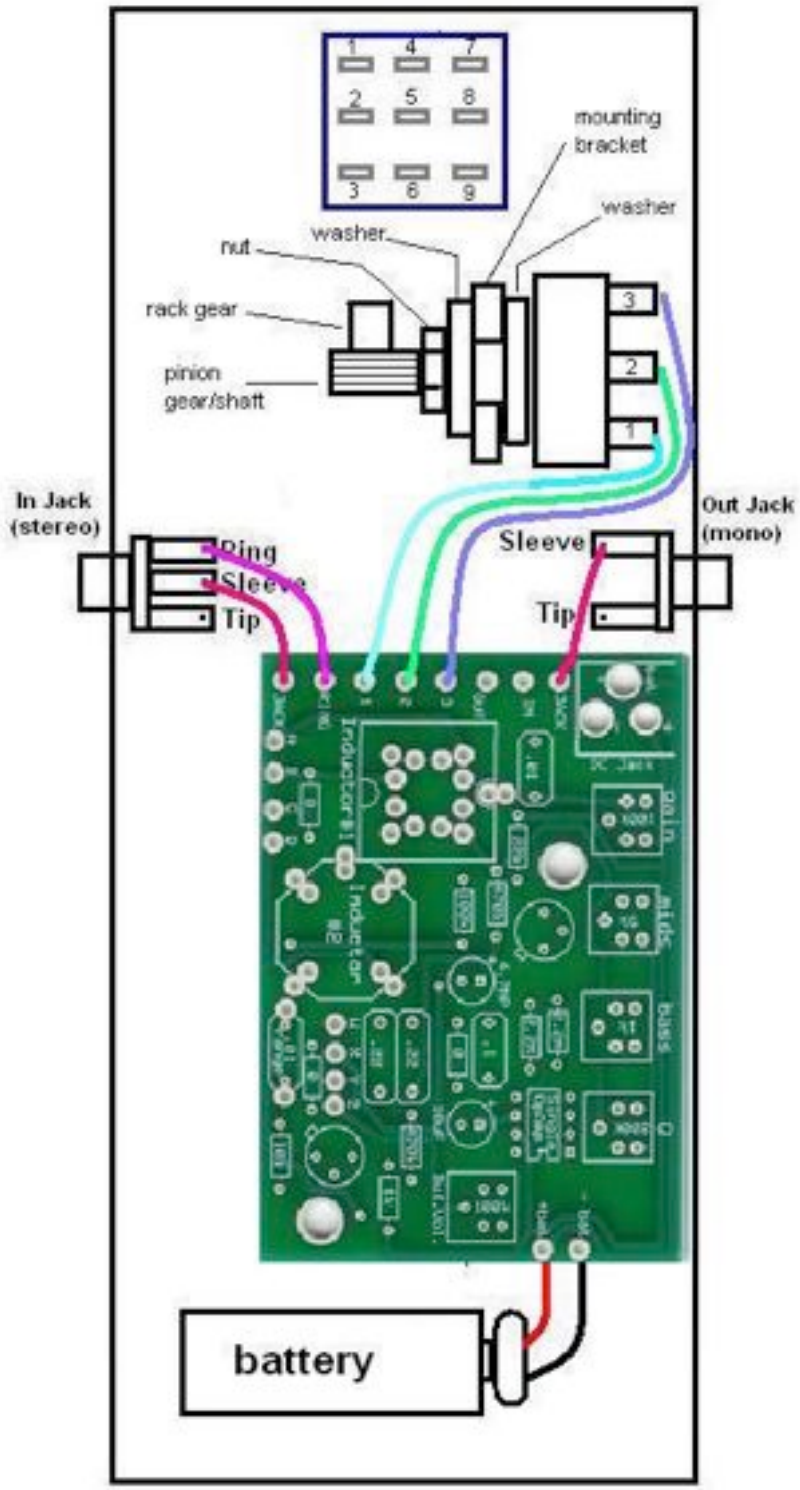
IMPORTANT!!!!Once you have secured the pot, you will need to orientate the gears. You want to set the gears so that the pot does not come to a stop at either full heel down or at full toe down when you activate the footswitch. You need to set the gears so that you still have a little rotation left in the pot at either extreme of the sweep. I you don't set the gear properly, you can and probably will break the shaft of the pot.

3. **important!!!!** The foot switch comes with two nuts, a serated washer, and a white plastic washer. You should remove the bottom nut and serated washer so that the base of the footswitch is flush against the inside wall of the enclosure. Only use the plastic washer and one nut on the outside of the enclosure to secure the footswitch. This is so that the plunger sticks up high enough to be actuated by the rocker platform.
It does not matter which side you designate as the "leading edge" of the footswitch as long as you orientate it so that the flat sides of the solder lugs are aligned in horizontal rows, not vertical columns.

4. Mount the circuit board using the mounting screws and washers that are supplied with the enclosure. Orientate the circuit board so that the DC adaptor jack is lined up with the DC adaptor jack hole.

Wiring


1
4
7
2
5
8
3
6
9
In Jack
(stereo)
Ring
Sleeve
Tip
Sleeve
Tip
Out Jack
(mono)


1 4 7
2 5 8
3 6 9
mounting bracket
washer
washer
nut
rack gear
pinion gear/shaft
3
2
1
In Jack (stereo)
Ring
Sleeve
Tip
Sleeve
Tip
Out Jack (mono)
battery

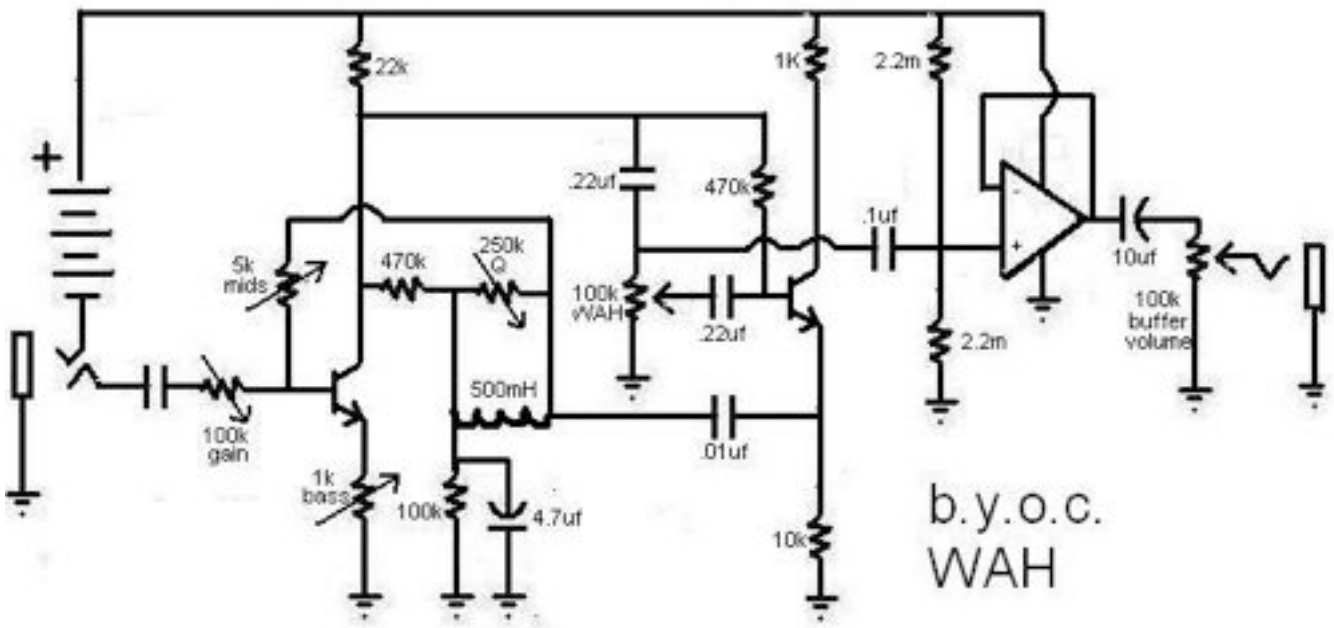
Finishing Touches

Once you have finished wiring, use the cable ties to “round up” the longer wires.

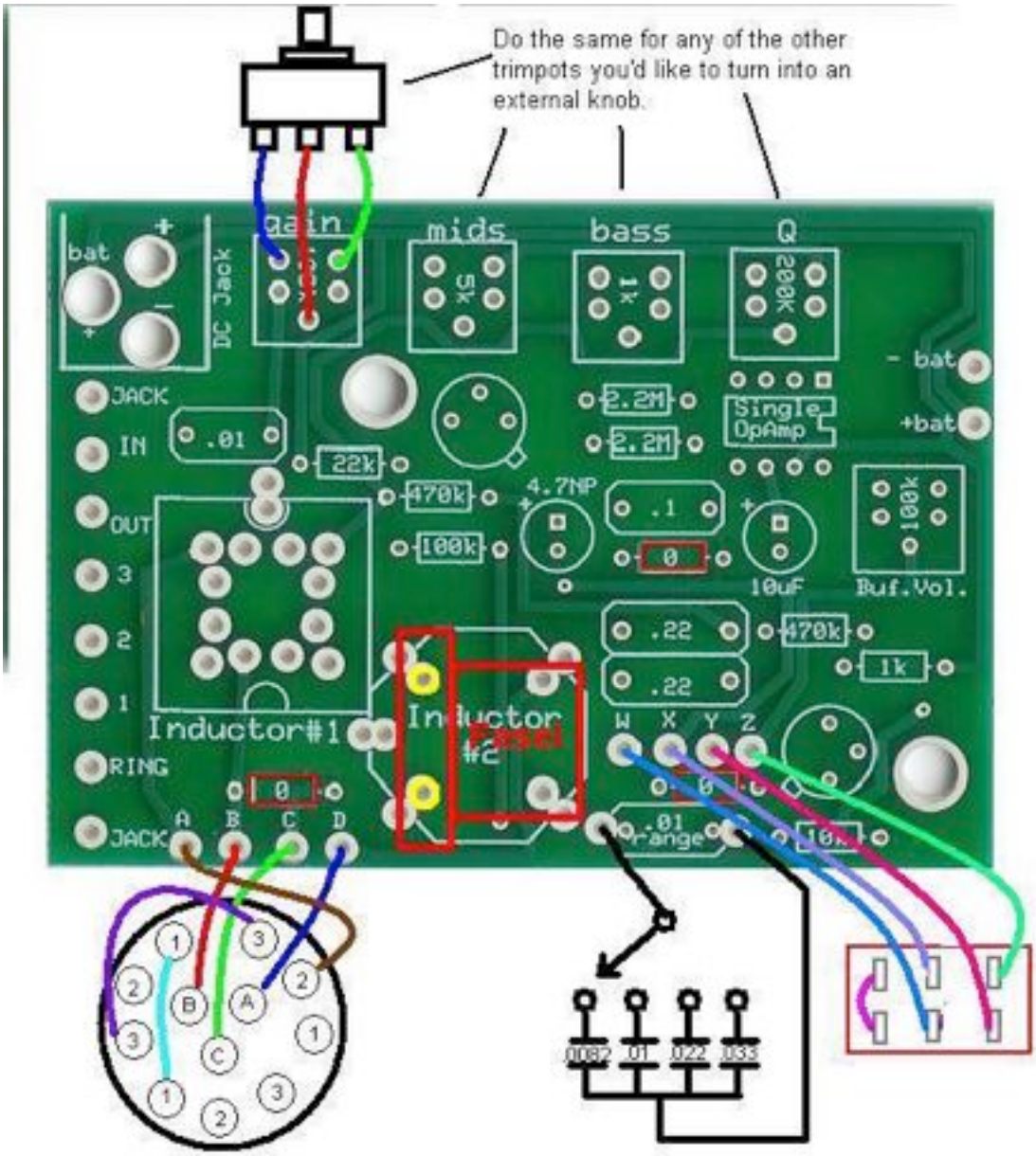
Install the transistors into their sockets. Simply make sure the tab on the transistor is lined up with the tab on the socket.

Install the base of the enclosure with the 4 screws that came with your kit. Add the rubber bumper feet...unless you're a velcro person. If you've got any problems that you can't figure out yourself, visit board.buildyourownclone.com for technical support

Schematic


22k
1K
2.2m
.22uf
470k
.1uf
10uf
5k
mids
470k
250k
Q
100k
WAH
.22uf
2.2m
100k
buffer
volume
500mH
100k
gain
.01uf
1k
bass
100k
4.7uf
10k
b.y.o.c.
WAH

Mods



1. The rotary switch shown for the inductor mod is a 3 pole 3 position. Position one would be inductor 1. Postion 2 would be inductor 2. Position 3 would be both in series.
2. The inductor highlighted in red would show how you would add a fasel inductor.
3. The Range Mod is shown with a 1 Pole 4 position rotary switch, but more positions could be added or reduced.
4. The DPDT toggle switch is for bypassing the output buffer.
5. 16mm potentiometers do fit along the sides of the wah enclosure, but carefully make

sure everything will fit before you drill.

Do not include the two ZERO OHM resistors to the right side of the circuit board if you are doing the buffer bypass mod. Do not include the ZERO OHM resistor on the left if you are doing the dual inductor mod.