

Scrubotron Assembly Guide

Before you start, make sure you have the following available:

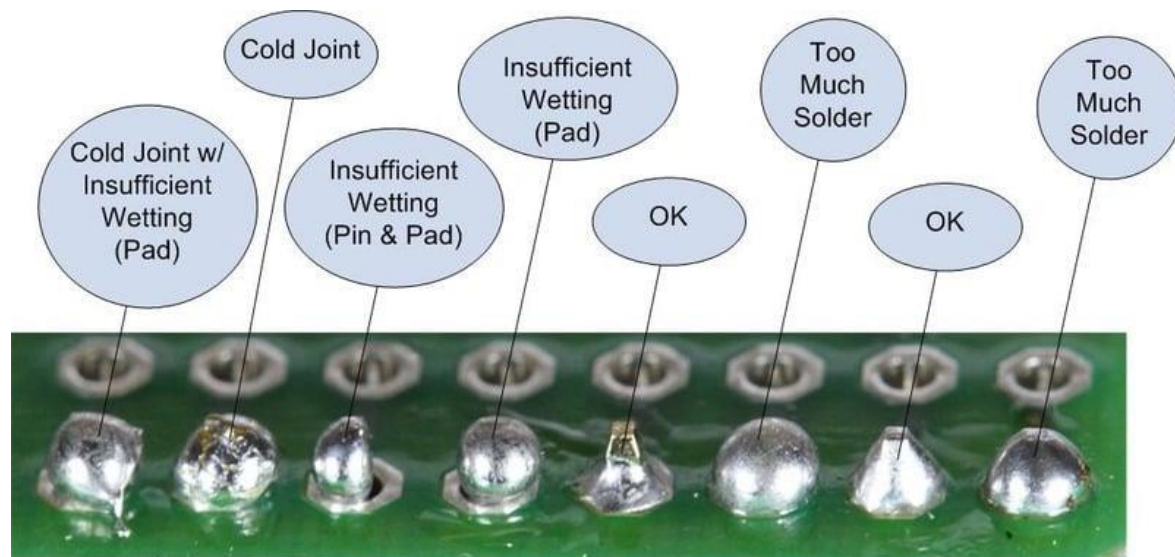
- Soldering iron
- Solder
- Diagonal/side cutters



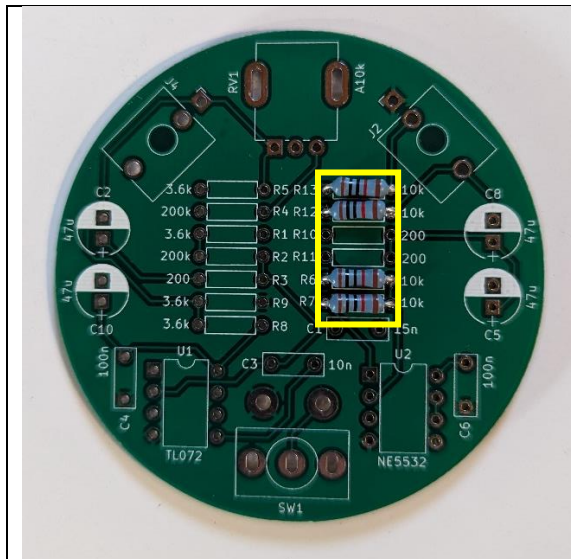
You will likely need to share and take turns with the person sitting next to you. Let me know if you're missing anything and I'll help you out.

Solder Joints

Your solder joints should look like those shown as 'OK' below, they should have that neat conical shape all around the pin. If it doesn't, you're likely not holding the tip of the soldering iron hard enough against the pin or for enough time. Try to hold the soldering iron against one side of the pin and push the solder against the other side of the pin. The pin itself should become hot enough to melt the solder. When you cut the resistor legs off after soldering, hold the board upside down as you do so to prevent the leg from flying off and creating moop. If you have a large blob of solder on the tip of your iron, you can wipe it off the on wet sponge.



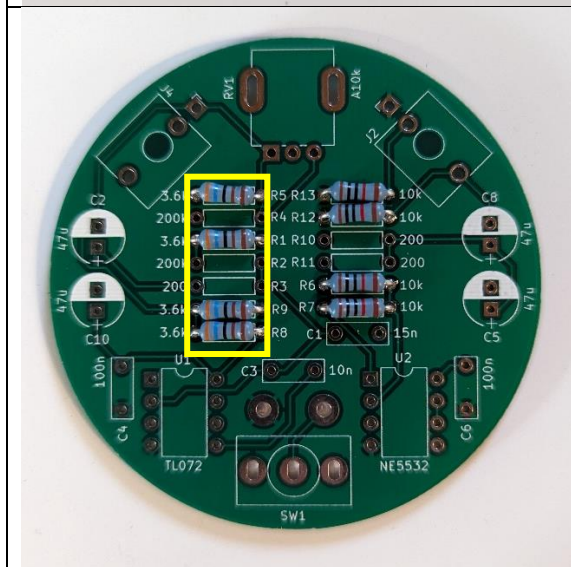
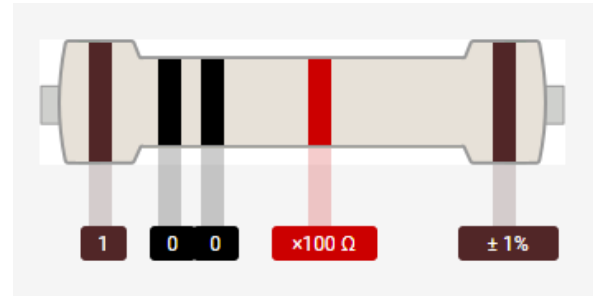
This image is from the Adafruit Guide to Excellent Soldering: <https://learn.adafruit.com/adafruit-guide-excellent-soldering>



Start by soldering the 10k resistors into positions R13, R12, R6, and R7.

The color bands should be:

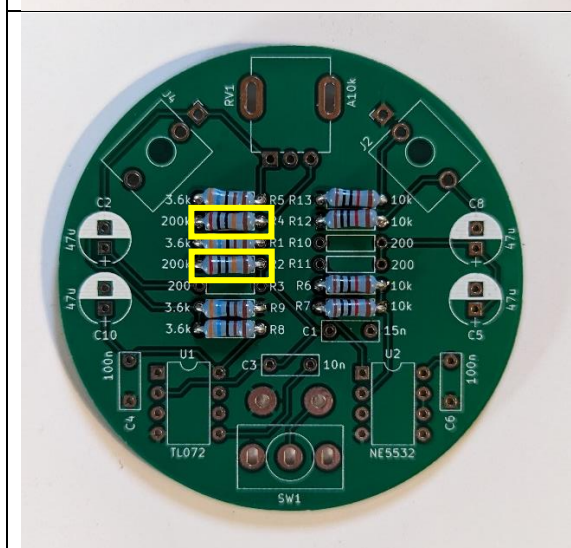
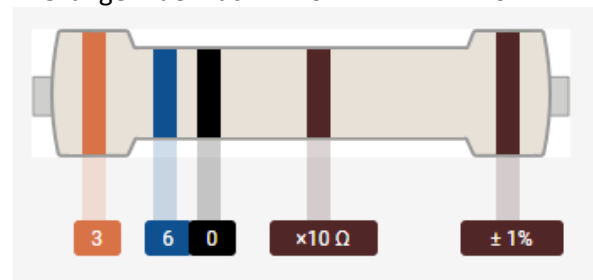
Brown Black Black Red Brown



Then solder the 3.6k resistors into positions R5, R1, R9, and R8.

The color bands should be:

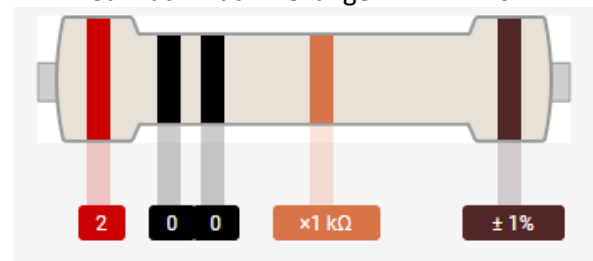
Orange Blue Black Brown Brown

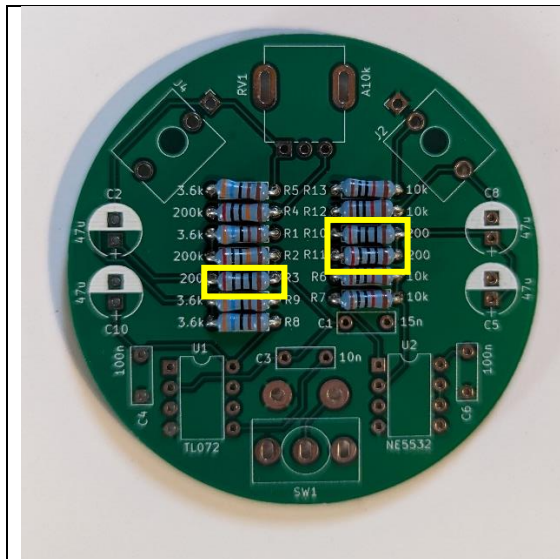


Then solder the 200k resistors into positions R4 and R2.

The color bands should be:

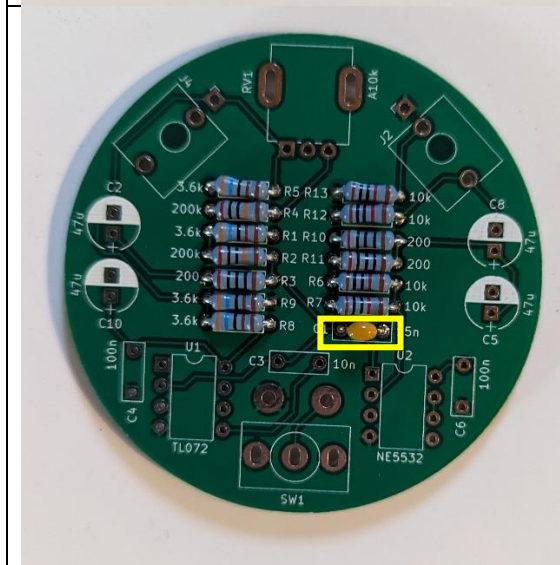
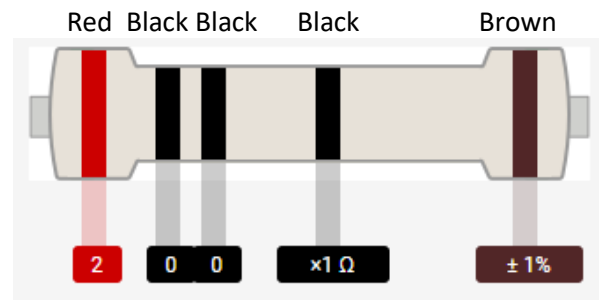
Red Black Black Orange Brown



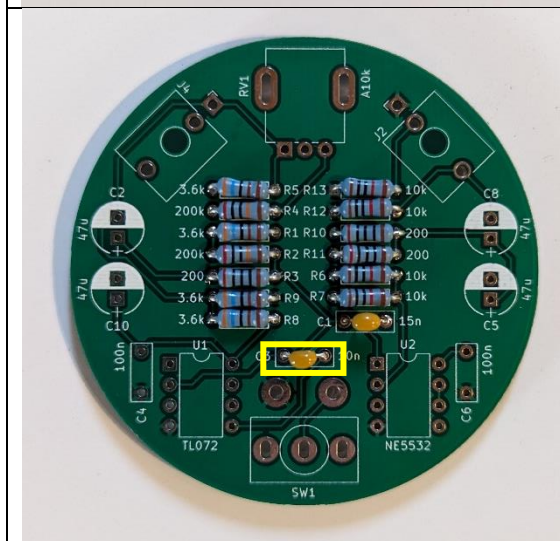


Then solder the 200 ohm resistors in positions R10, R11, and R3.

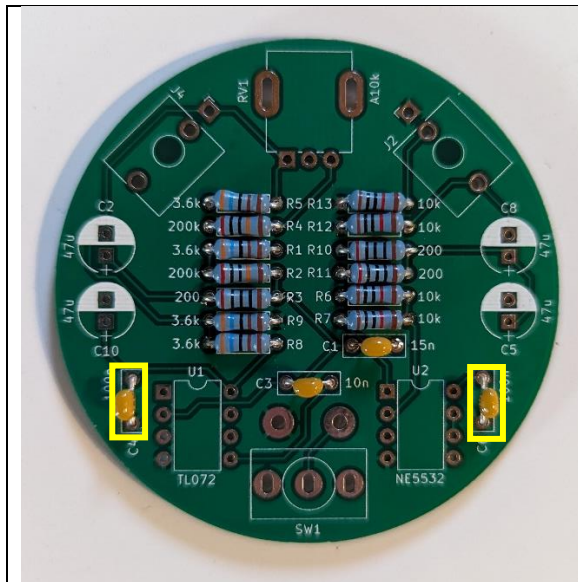
The color bands should be:



Then solder the 15n capacitor into position C1. It should have a code of 153 printed on the side. If it says something like K5K, read the other side.

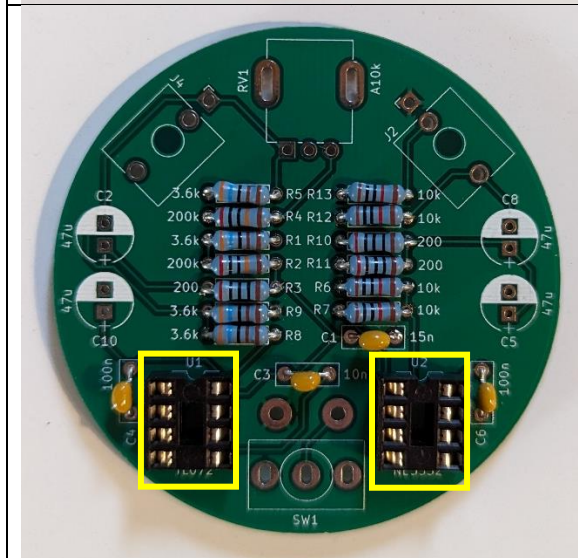


Then solder the 10n capacitor into position C3. It should have a code of 103 printed on the side.



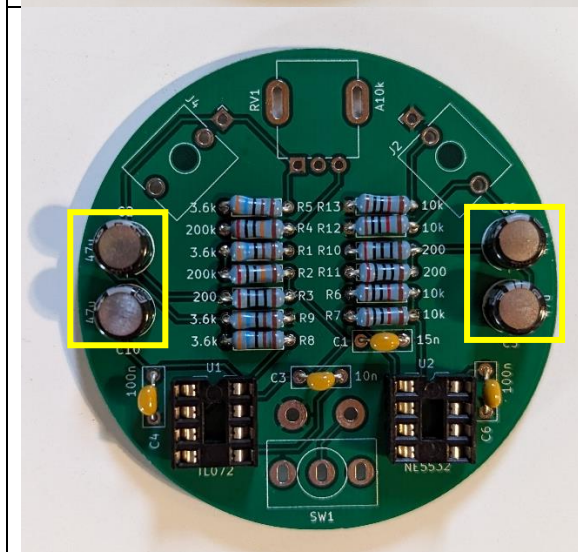
Then solder the 100n capacitors into positions C4 and C6.

It should have a code of 104 printed on the side. If you can't pull the capacitors out of the tape, just cut the legs off at the edge of the tape.



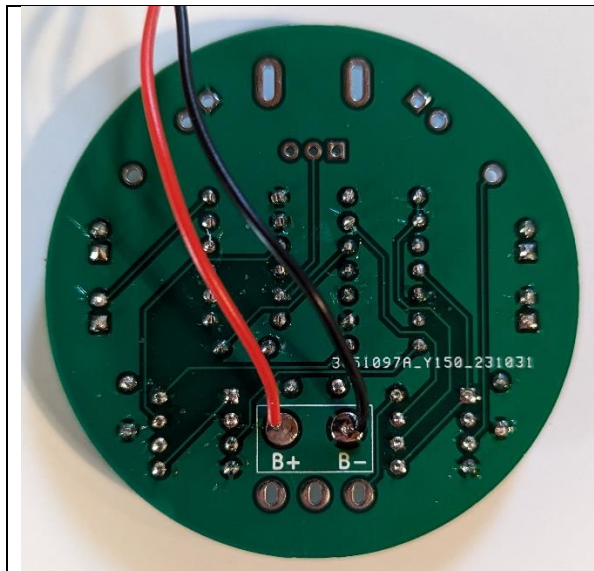
Then solder the IC sockets into positions U1 and U2. Take care to have the notch in one end match the notch on the PCB silkscreen.

Tip: Solder one pin first, then re-melt the solder with one hand while pressing the IC socket into the PCB with your other hand to get it flat against the board. Then solder the remaining pins.

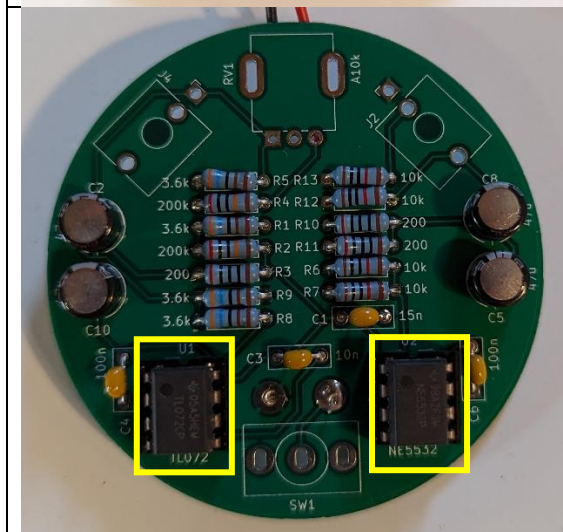


Then solder the 47u electrolytic capacitors into positions C2, C10, C8, and C5.

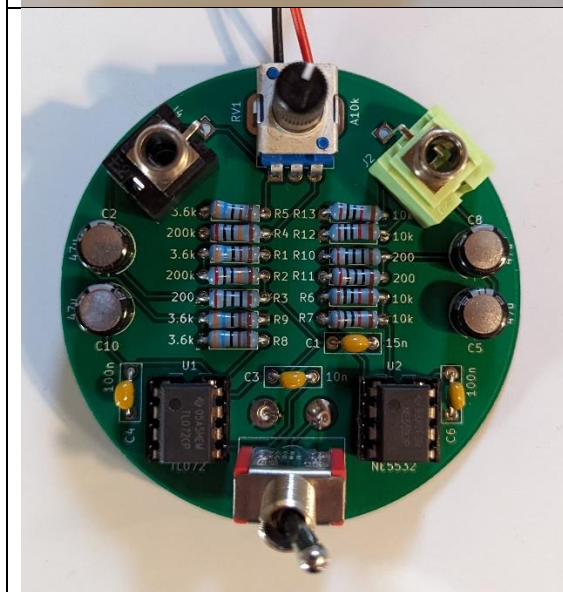
NOTE: These are **polarized**! Make sure the white strip aligns with the white mark on the PCB. That's the negative side of the capacitor, the other side is the positive side which has a + mark on the board.



Then flip the board over and solder the battery wires in. Make sure the red wire goes to B+ and the black wire goes to B-.



Then insert the TL072 and NE5532 ICs into their respective sockets. Read the text on them to figure out which is which. The dot on the IC corresponds with the notch end of the socket. You may need to bend their legs inward a bit beforehand in order to get them to slide in.



Then place the through-hole components into their spots like so, but **DO NOT SOLDER THEM IN YET!**

If you solder them now, you will likely not be able to fit the front panel on.

The black audio jack is a mono jack and needs to be in the J4 spot. The green audio jack is a stereo jack and needs to be in the J2 spot.



Then place the front panel onto the through-hole components and tighten the nuts on the audio jacks and toggle switch.

Once everything is secure, make sure the through-hole components are still flush against the green PCB and solder them in now.

Final Assembly

Make sure the power switch is in the off position. Plug your 9V battery into the connector, fit the circuit assembly into the jar, and screw the lid on.

Your 9V battery should be wrapped in electrical tape. This isn't just for decommodification, the metal surface of the battery can short out pins on the PCB above it otherwise.

Finally, plug your tape head wand into the Tape Head jack and earbuds/headphones into the Headphones jack and try it out! Let me know if you don't hear anything, I can take a look at your board to see if there are any issues.