

ASSEMBLING THE SYSTEM SOUND

Assembly manual version 2.2. Board version 2.0. Updated on 240307.

Some general suggestions and advice:

I know it's not as fun, but it is better to read the instructions thoroughly before actually doing anything. Fixing (and finding) errors is much more difficult than just building something correctly!

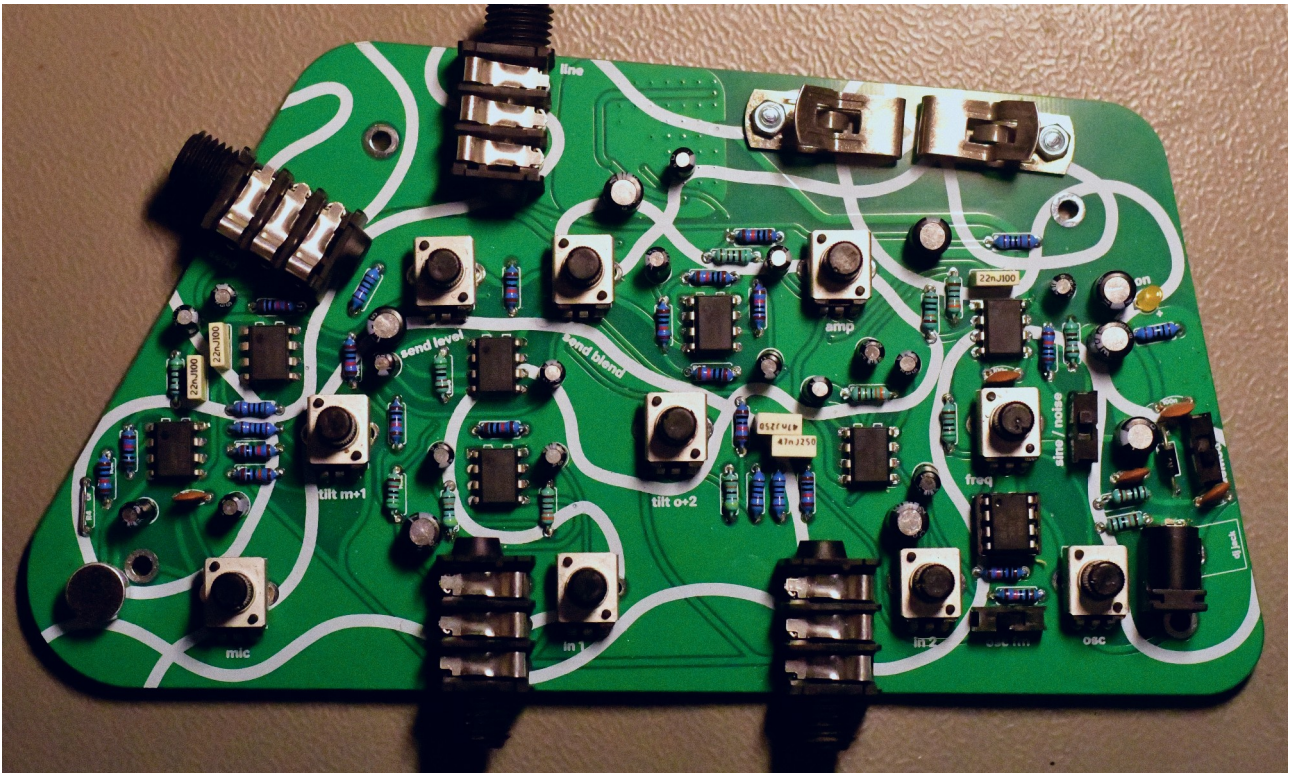
The tick boxes are tickable on both paper and pdf. You can practice by ticking these instruction tick-boxes to mark that you've read them all :-)

In general, it is a good idea to place several components (e.g. all the electrolytic capacitors) before soldering, as it can help you notice many mistakes before they are permanent. It's also faster.

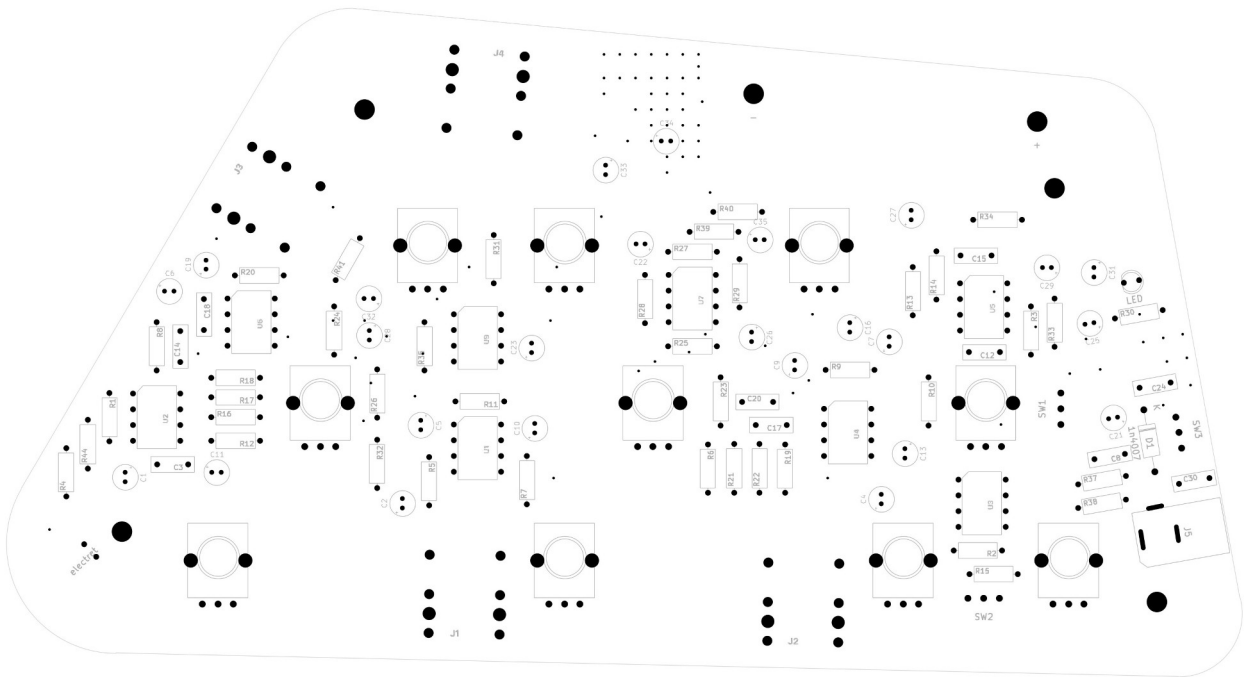
Take it easy, take breaks, check twice.

If you are unsure about something, don't hesitate to ask me. I try to answer quickly! Just write to info@noise.technology, or send me a text on Signal, my handle is: maxwainwright.87. (I'm slow with Instagram DMs, don't write there!)

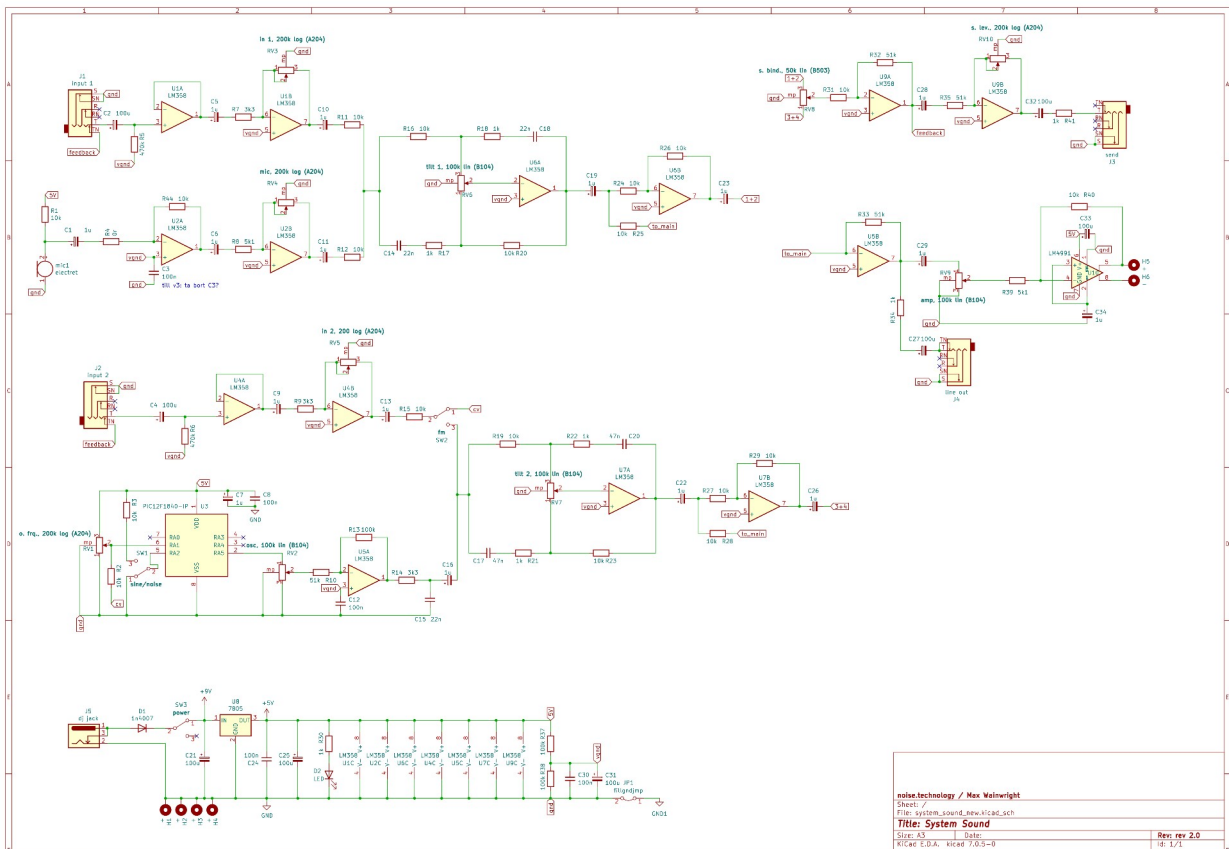
I count and re-count the parts, but if something is missing, write me and I'll send you the missing part asap. All of them are cheap, even though I don't use off-brand china fakes. So even if you lost something, write and we'll sort it out.



System Sound version 2.0, with all the components in place. Look at this if you are confused about the placement of something!



Some component values are small and hard to read. This image shows the part references (Rx, Cy, Dz etc.) for most parts.



System Sound V2.0 Schematic. Note that this has the DC jack error.

Place the parts in in the order listed below. Check the boxes (☐) as you go!

1x 1n4007 Diode (D1). ----->



Diodes are polarised, which means they have to go in a certain way. The white line on the component corresponds to the white line on the drawing on the PCB.

Next, the resistors. They look like this: ----->
and have different colour bands for different values.
The values are written on the board, and on the strips
in the kit (by hand).



I suggest doing the types there are fewer of first. This helps minimise the potential for errors. If you want to, put in all the resistors and solder them all afterwards.

2x 470k resistors (R5, R6).

Colour code: yellow purple black orange brown

2x 5k1 resistors (R8, R39, R35).

Colour code: green brown black brown brown

3x 3k3 resistors (R7, R9, R14).

Colour code: orange orange black brown brown

3x 100k resistors (R13, R37, R38).

Colour code: brown black black orange brown

4x 51k resistors (R10, R32, R33, R35).

Colour code: green brown black red brown

7x 1k resistors (R17, R18, R21, R22, R30, R34, R41).

Colour code: brown black black brown brown

19x 10k resistors (R1, R2, R3, R11, R12, R15, R16, R19, R20, R23, R24, R25, R26, R27, R28, R29, R31, R40, R44).

Colour code: brown black black red brown

1x 0r resistor (R4). This is zero ohms: use a cut-off resistor leg.

Next, the LED. It is orange and looks like this: ----->

It is polarised, and the long leg is the positive terminal. The drawing on the board has a + to indicate where this should go.



1x LED (D2, no label on the board except "ON" above it)

And then, the jacks. They're all the same and impossible to insert in the wrong way.

4x jack sockets (IN1, IN2, SEND, LINE). ----->



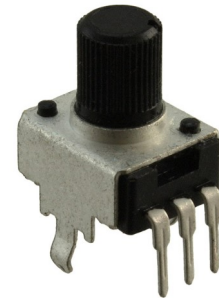
Next are the potentiometers. There are three different values. They all look the same, but have different texts on the bottom. Read the text, put the pots in, and only solder AFTER you've made sure all the pots are in the correct place. Removing them after you have soldered the two fastening legs is very hard

They look like this: ----->

1x linear 50k (B503) pot (send blend).

4x linear 100k (B104) pots (tilt m+1, tilt o+2, amp, osc).

5x logarithmic 200k (A204) pots (in 1, in 2, mic, freq, send level).



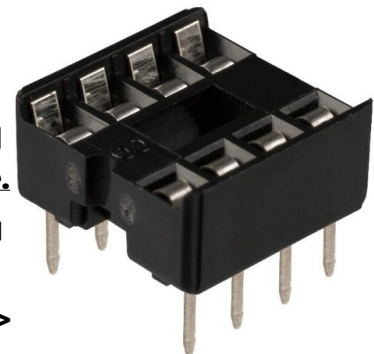
Next up, the sockets.

The sockets have a U-shaped notch. The chips have a notch and/or a dot — I get different kinds in different deliveries. This should point upwards, like the U-shaped notch printed on the board. Otherwise the chips will die.

(the orientation of the socket doesn't actually matter, but it's good practice to have them facing the right way)

The sockets look like this ----->

8x DIL-8 Sockets.



Capacitors come in three types on the system sound. The first type is a small white rectangular box, the polyester film capacitor. They are unpolarised.

They look like this: ----->

The value is written on the top of the capacitor.

3x 22nf capacitors (C14, C15, C18).

2x 47nf capacitors (C17, C20).



Next up are the ceramic capacitors. They are round and brown. All are 100nf. They are unpolarised. There is a code instead of the value, saying 104.

They look like this: ----->

5x 100nf capacitors (C3, C8, C12, C24, C30).



And then, electrolytic capacitors. They are black cylinders. They are polarised, which (again) means that one leg has to go in a certain hole.

The longer leg is the positive leg (more leg = + leg, is how I remember).

The negative leg is shorter, and that side of the capacitor is white.

On the PCB, one side has a white line, and both holes are labelled with + / -.

The value is printed on the side of the capacitor.

They look like this: ----->



Make sure you double check both polarity and that you have the part in the right place before soldering!

8x 100uf capacitors (C2, C4, C21, C25, C27, C31, C32, C33).

A note about the 100uf capacitors: the leg spacing is 0.5mm too narrow on the board. It's my mistake, my apologies.

This means the capacitors stay in place by themselves (good), but also that the legs bend together rather than apart (bad). There's some risk of making short-circuits this way. Make sure to bend the legs apart before soldering!

17x 1uf capacitors (C1, C5, C6, C7, C9, C10, C11, C13, C16, C19, C22, C23, C26, C28, C29, C34, C35).

(The 1ufs fit fine in the board)

After this, do the switches. They can go in either way. The legs are fairly thick, so you'll need some something to bend them, e.g. a flat screwdriver.

Make sure the switches are flush against the pcb: solder one leg, and then check if it's flat. If not, re-heat the solder joint and push the switch until flat.

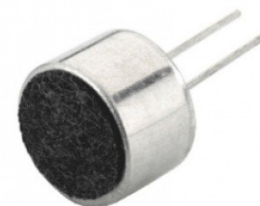
Make sure to cut the legs; this may also require beefier cutters.

3x slide switches (labelled OSC FM, SINE/NOISE and POWER).

They look like this: ----->



Next, the microphone. It has a polarity, but it's a bit difficult to see. But don't worry, the drawing on the board matches matches up with how the mic should be placed. It's won't work if it's backwards.



1x electret microphone (mic1), located in the bottom left of the board.

Next, the power connector.

READ THE FOLLOWING BEFORE PUTTING THE DC CONNECTOR IN!

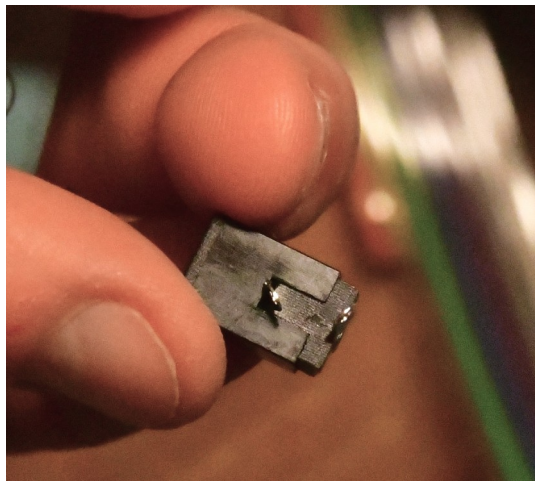
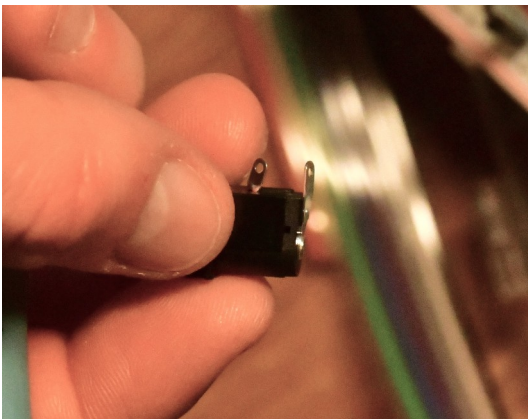
It looks like this:----->



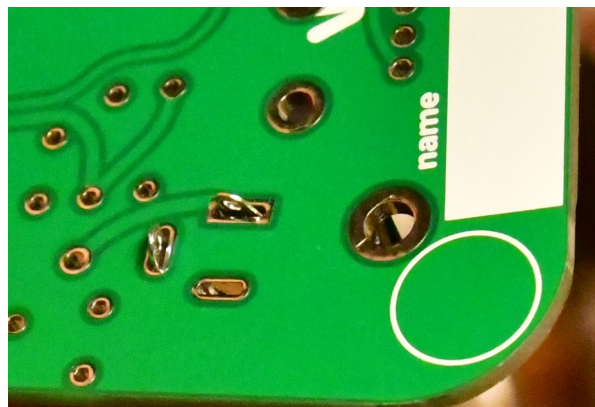
There is an error in the board, so the DC jack needs to be mounted at an angle.

First, bend the legs. It's difficult to show the exact amount of bend, but you can bend them a bit, try it in the PCB, and then adjust accordingly.

Example of bends that work:



Then put it in like this:

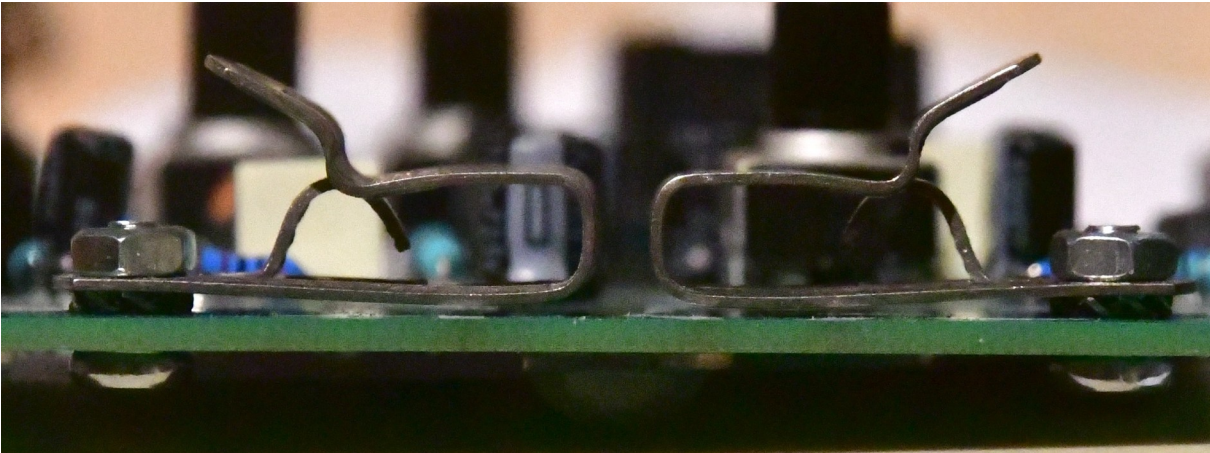


1x DC connector. After this you can turn off your soldering iron.

Then the speaker connectors. They go in the top right corner (look at the photo).

1. First, push the machine screw through the board from below.
2. After that, place the lock washer over the screw, on top of the board
3. Then put the Fahncclip connector onto the screw, on top of the lock washer.
4. Then, thread on the nut until it is as tight as you can with your fingers.

The result should look like this:



Then use a screwdriver (Philips, #1) to screw the bolt in tight. Make sure the connectors don't rotate when you do this, just hold them in place with a finger.

The connectors should not be able to rotate, at all. Do one connector at a time.

- 2x M3 machine screws (bolts).
- 2x lock washers.
- 2x Fahncclip connectors. ----->
- 2x nuts.



After this, put the chips in their sockets. Make sure the notches/dots are facing up and that all the legs go into the sockets. The legs are pre-bent to fit. The chips have different writing on them. Don't mix them up.

Depicted here is the op-amp, LM358: ----->

- 1x Microcontroller (labelled PIC12F1840).
- 7x Op-amps (Labelled LM358).



And finally, the rubber feet. There are circles on the back of the board showing where these should go.

- 7x rubber feet.

Done! Don't forget to give your System Sound a name and write it in the name field on the back of the board .

If you have issues, questions, or just want to share: info@noise.technology