MIKROPHONIE OVERVIEW

For the most recent version of this
document please visit
http://thonk.co.uk/documents/mikrophonie

For all technical support please visit
http://bit.ly/Vll0me on Muffwiggler.

This document must be read in conjunction
with the Music Thing Modular user manual
and documentation http://bit.ly/Y4gOJz

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http://www.thonk.co.uk/faq/

DIY INSTRUCTIONS

This document gives detailed instructions that assume you have purchased a
complete kit from www.thonk.co.uk. It also assumes no previous knowledge
of electronics. To learn to solder try http://youtu.be/I_NU2ruzyc4 and the
Adafruit guide to excellent soldering – http://bit.ly/1l77tF4

Watch and understand that whole YouTube video! If you're not achieving the
results shown in the video then you need to buy new tools or seek advice.
**You will not end up with a working module otherwise.**

TOOLS REQUIRED

Soldering iron, snipe nose pliers, wire strippers, small flat head screwdriver
and diagonal cutters AKA snips AKA side-cutters. A Digital Multimeter is
always helpful for checking for bad solder joints and continuity. Thonk sell a
range of inexpensive tools here - http://bit.ly/1jxqF3n

SOLDER JOINTS

Your solder joints should look like those shown as 'OK' below, they should have that neat conical shape on BOTH sides of the PCB. If they don't look the same on both sides then stop! Work out why from the soldering guides linked and don't continue until you are getting those results.

This isn't about perfectionism, you are very likely to end up with a destroyed, damaged or defective unit if you're not hitting that standard.
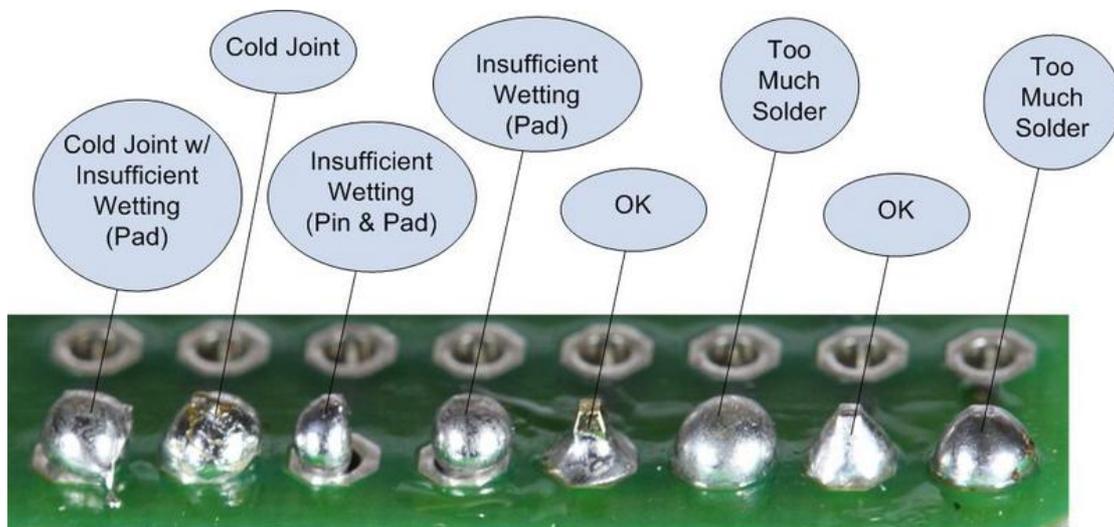
This photo is from the **Adafruit guide to excellent soldering** - http://bit.ly/1jxqF3n and is reproduced under an Attribution-Sharealike creative commons license - http://creativecommons.org/licenses/by-sa/3.0/
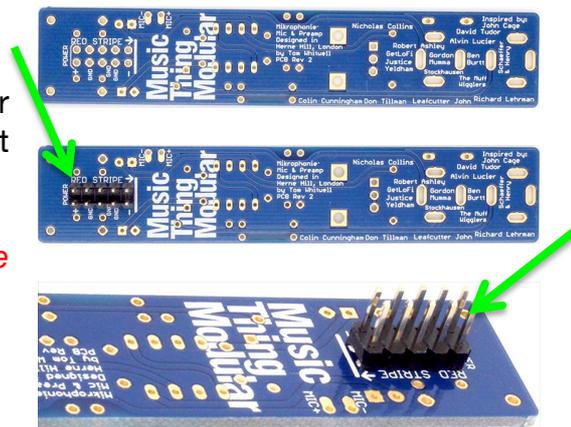
MIKROPHONIE BUILD INSTRUCTIONS

1.

Start by emptying the **whole bag** into a bowl or container. This makes it much easier to pick parts as you need them and you're a lot less likely to lose anything.

2.

First solder the ten pin eurorack power header into place. You did watch that video about soldering right? ;o)
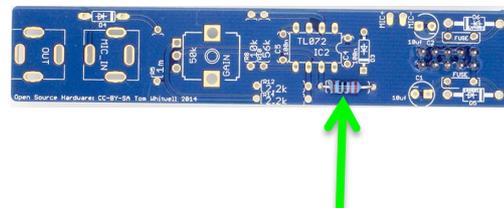
NOTE! *Do not solder on the wrong side of the PCB!*
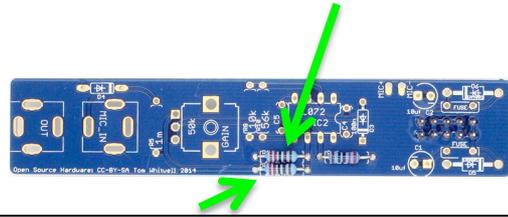
3.

Now solder the single 220R resistor into position R16

NOTE! *You should have nice shiny solder cones on BOTH sides of the board. If you have not then re-evaluate your soldering technique and equipment and revisit the YouTube video linked on page 1 and the 'good joints' image on page 2.*
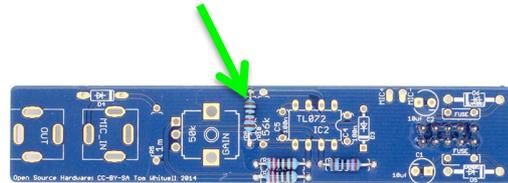
4.

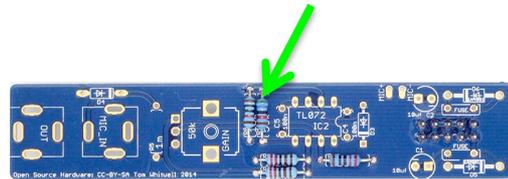Now solder the two 2.2K resistors into positions R12 & R14

5.

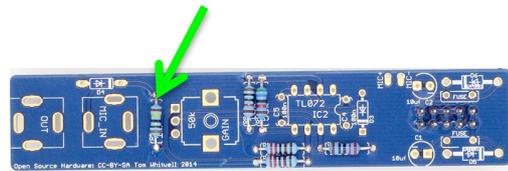Now solder the single 10K resistor into position R8

6.

Now solder the single 56K resistor into position R10

7.
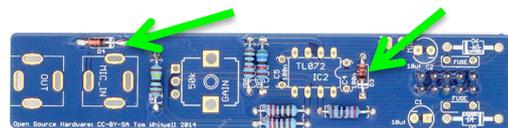
Now solder the single 1M resistor into position R5

8.

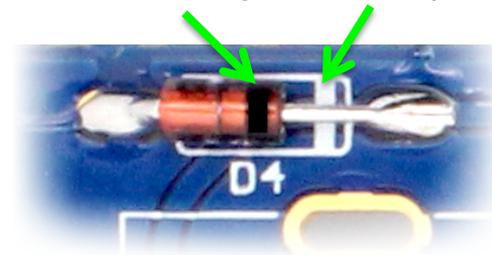Now solder the two orange 1N4148 diodes into positions D3 + D4.

*NOTE! Orientation is **vital**. The **Black** ring on the diode should match the **white** stripe on the silkscreen.*

NOTE! Diodes can be damaged with a long exposure to the heat of the iron.

Solder neatly and quickly, you should achieve the nice shiny solder cones mentioned previously on both sides of the board without needing to apply heat for longer than 3 seconds per joint.
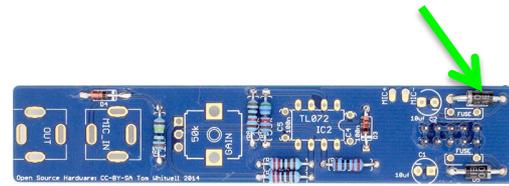
Black Ring   White Stripe

9.

Now solder the two black and silver 1N4001 diodes into positions D5 + D6.
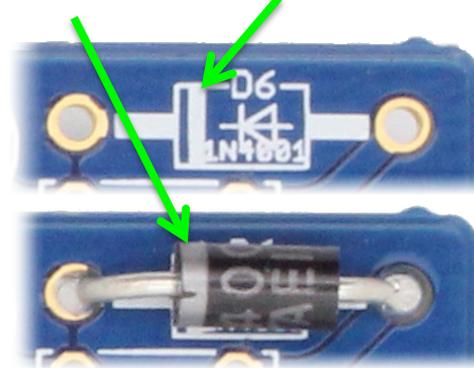
*NOTE! Orientation is **vital**. The **silver** ring on the diode should match the **white** stripe on the silkscreen.*

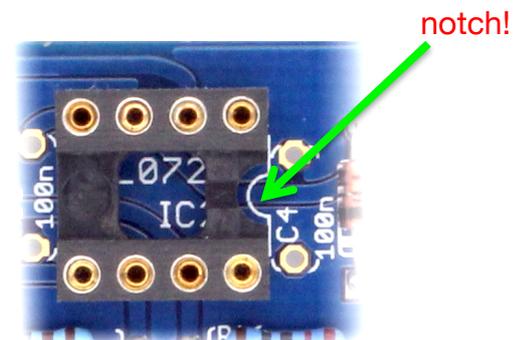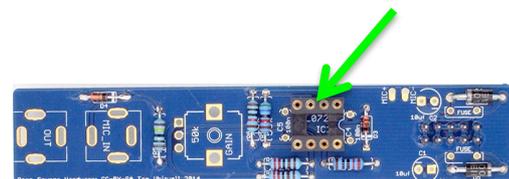*NOTE! Diodes can be damaged with a long exposure to the heat of the iron.*
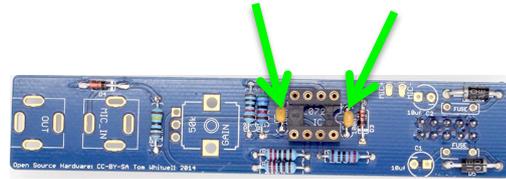
Silver Ring   White Stripe

10.

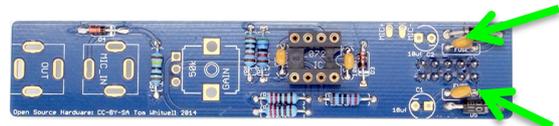Now solder the 8-pin IC socket into place. Ensure the notch in the IC socket matches the notch on the silkscreen.

notch!

11.

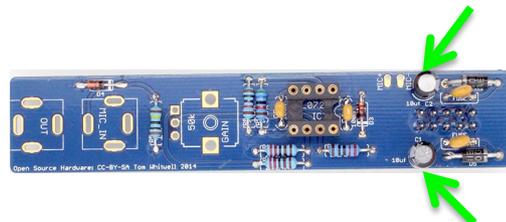Next solder the two small orange 100n capacitors into place.

12.

Next solder the two orange polyfuses into place.

13.

Next solder the two 10uF electrolytic capacitors into place.
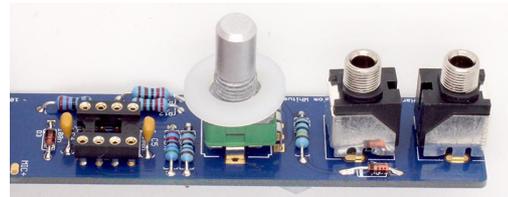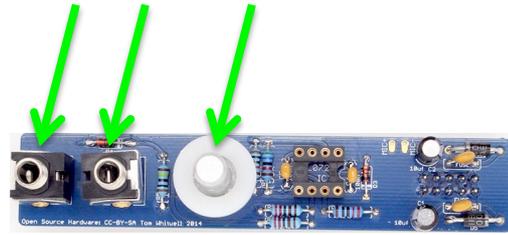
NOTE! Orientation is vital. The grey stripe on the body of the cap should be matched to the circular pad marked with a minus symbol.
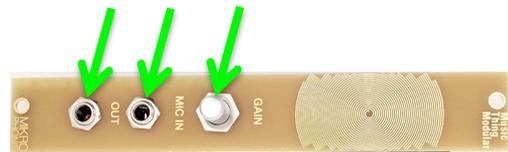
14.

Next position the potentiometer and two jacks into position as shown but **DO NOT SOLDER** yet. Put the plastic washer on the pot shaft.

NOTE! Orientation of all three parts is vital, note that jacks sit back to back.

15.

Discard the pot washer. Hand tighten the nuts in place. Flip over and solder the jacks and pot. **13 solder joints in total**, 4 per jack, 5 for the pot.

16.

To solder the Piezo disc hold in place with a clip or similar. It should be pretty much centred with the spiral pattern on the front of the panel. Consider cutting square edges on the sides of the piezo if there is too much over-hang.

2-4 solder joints are recommended, at least 2 diagonally (see green dots on image).

If you have fingerprints on the panel (or piezo disc) you might want to clean it with isopropyl alcohol first. If you have a flux pen then carefully applying to the panel surface first will help you solder. Flux isn't vital. If soldered correctly then capillary action will suck the disc to the panel surface and make the desired large and flat surface area connection.
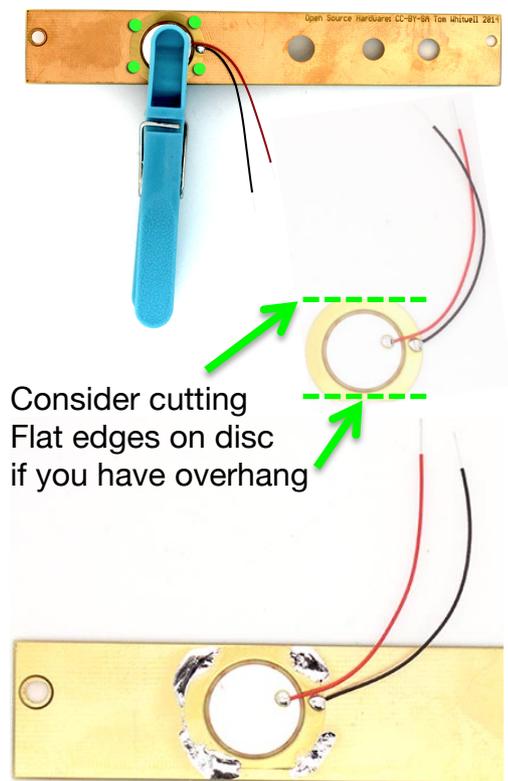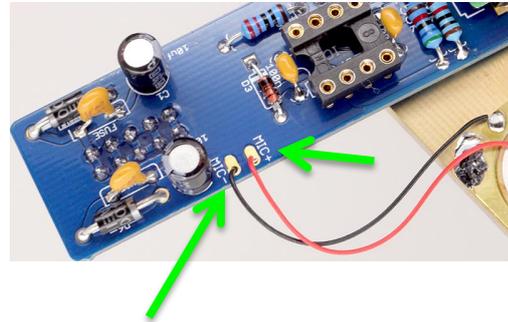
Consider cutting
Flat edges on disc
if you have overhang

17.

Solder the Piezo disc wires to the PCB. Red goes to Mic+ and Black goes to Mic-

NOTE! Shortening the wires is not recommended, as it will make it harder to remove the panel again if there is a problem. The wires can eventually be neatly folded inside next to the IC socket.

18.

Next take the TL072 IC out of the protective ESD packaging and position with the circle on the top face at the same end as the notch in the socket and silkscreen.

NOTE! You will need to bend the pins on the IC inwards slightly so they are at 90 degrees to the body of the chip. They will come slightly splayed out. This can be done safely by clasping the 4 pins in a pair of pliers and very gently bending inwards together. Repeat for the other side.
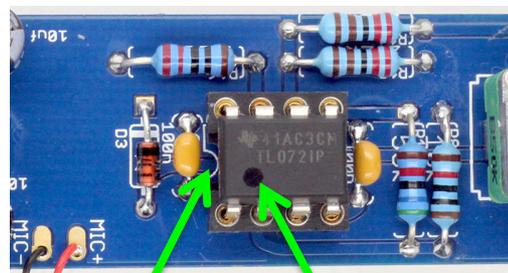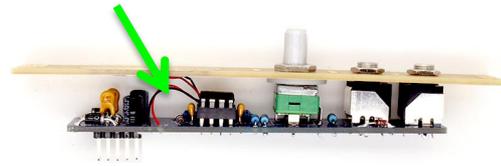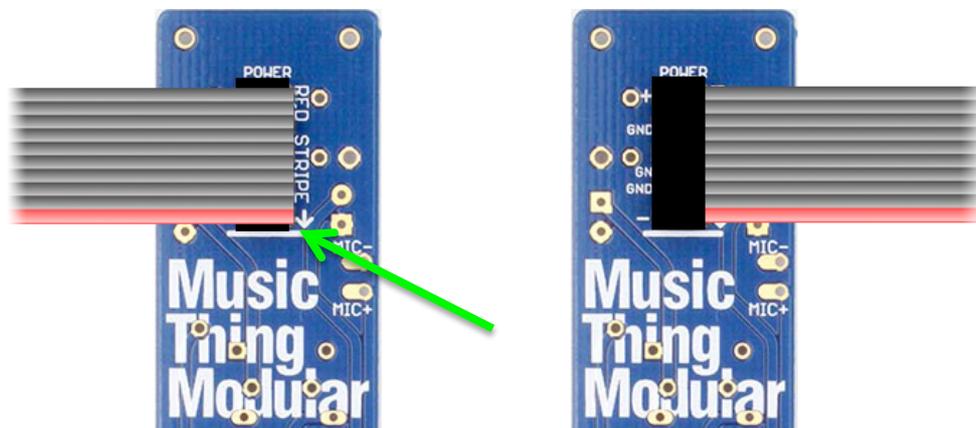
notch   circle
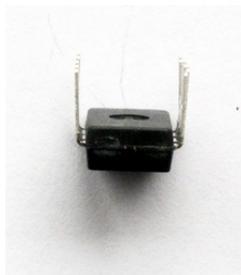
19.

Screw the panel nuts into place. Secure the wiring behind the panel next to the IC socket and put the knob on.

20.

Attach the power cable, with the red stripe as indicated on the PCB

Power up in your Eurorack case and you are ready to go.

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