OVERVIEW

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For the most recent version of this document please visit – https://www.thonk.co.uk/shop/mtm-turing-volts-kit/

Refer also to the Music Thing documentation here - https://github.com/TomWhitwell/Volts

For all technical support please create a Github account and log an issue here - https://github.com/TomWhitwell/TuringMachine/issues

Chat about the build here – https://www.muffwiggler.com/forum/viewtopic.php?t=159116

All Thonk kits are sold under our standard Terms and Conditions - 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.**

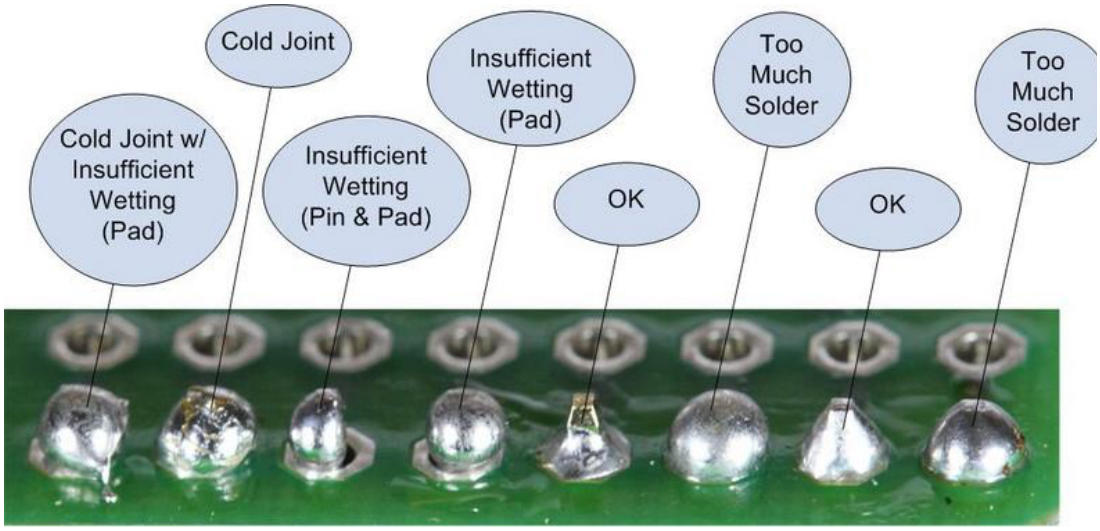
TOOLS REQUIRED

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 just OCD talking, you are very likely to end up with a destroyed, damaged or defective unit if you're not hitting that standard.

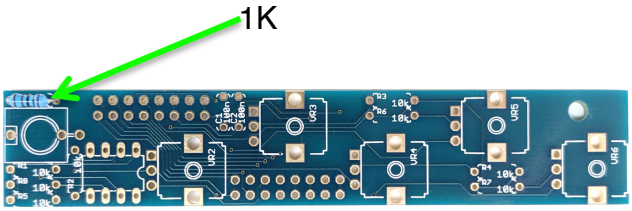


This photo is from the Adafruit guide to excellent soldering and is reproduced under an Attribution-Sharealike creative commons license - http://creativecommons.org/licenses/by-sa/3.0/

VOLTS EXPANDER BUILD INSTRUCTIONS

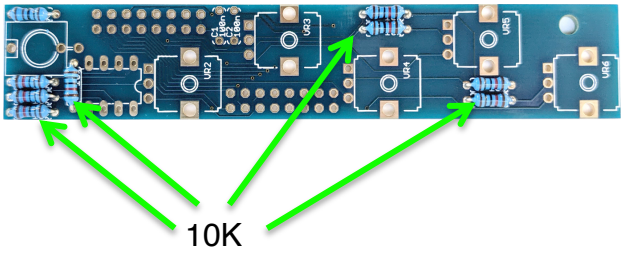
1.

Start by locating the single 1K resistor from the kit bag and solder into the position marked on the board.



2.

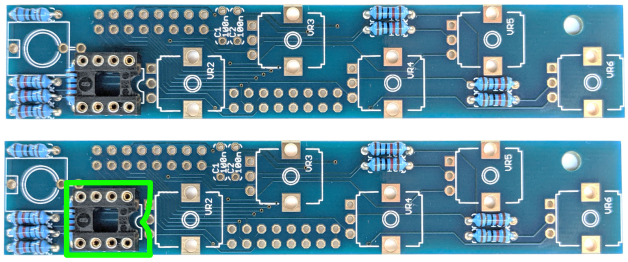
Next find the 10K resistors and solder into the remaining 8 positions on the PCB.



3.

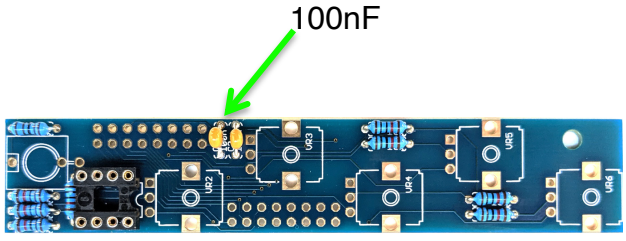
Next find the single IC socket and place it with the notch on the socket lining up with the diagram on the PCB.

Make sure these sockets are soldered flush and perpendicular to the PCB surface.



4.

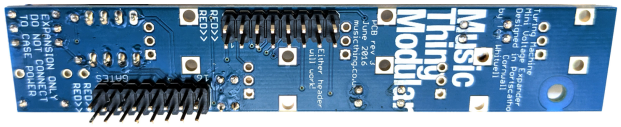
Find the two yellow 100nF capacitors on tape and solder into position.



5.

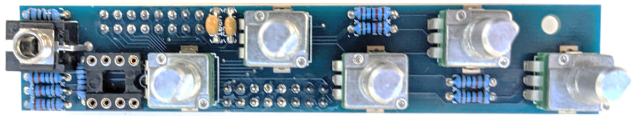
Next attach the two 16 pin headers onto the PCB. These headers are placed on the opposite side of the board to all other components.

Make sure these headers are soldered flush and perpendicular to the PCB surface.



6.

For the next step place but DON'T SOLDER YET, the jack and 5 x B50K pots as shown. Thonk kits may include either D-Shaft or T18 shaft pots.



7.

Now carefully place the front panel and screw the nuts and washers onto the pots and jacks to secure all parts in place.

Once everything is held securely you can then solder the parts to the PCB. There should be 28 points to solder in total.

8.

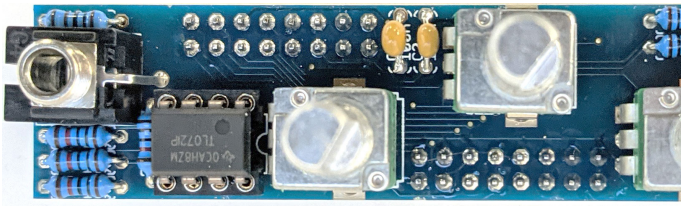
After soldering is complete, remove the panel and take the TL072 IC chip from the grey ESD bag.

In order to fit the chip into the IC sockets you may need to b end the pins inward slightly.

Do this with a pair of pliers, or If you're careful you can bend each row
manually on the top of a table.

The pins ideally should be perpendicular to the body of the IC.

Place the chip as shown.



NOTE! Orientation is vital for all ICs.

Make sure the black circle on the top face of the IC is facing the end with the notch in the IC socket.

9.

Replace panel attaching all washers and nuts and place the knobs onto the pots.

10.

The module is now complete.

Affix the 16-pin ribbon cable to either of the headers following the orientation of the red stripe as pictured. The other end of the cable will attach to the ‘Gates’ header on your Turing machine.