Music Thing Modular Magnetophon OVERVIEW

For the most recent version of this document please visit –
https://thonk.co.uk/documents/magnetophon/

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

For all technical support please create a new issue here -
https://github.com/TomWhitwell/Magnetophon/issues

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 https://www.youtube.com/watch?v=IpkkfK937mU 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 unit 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.
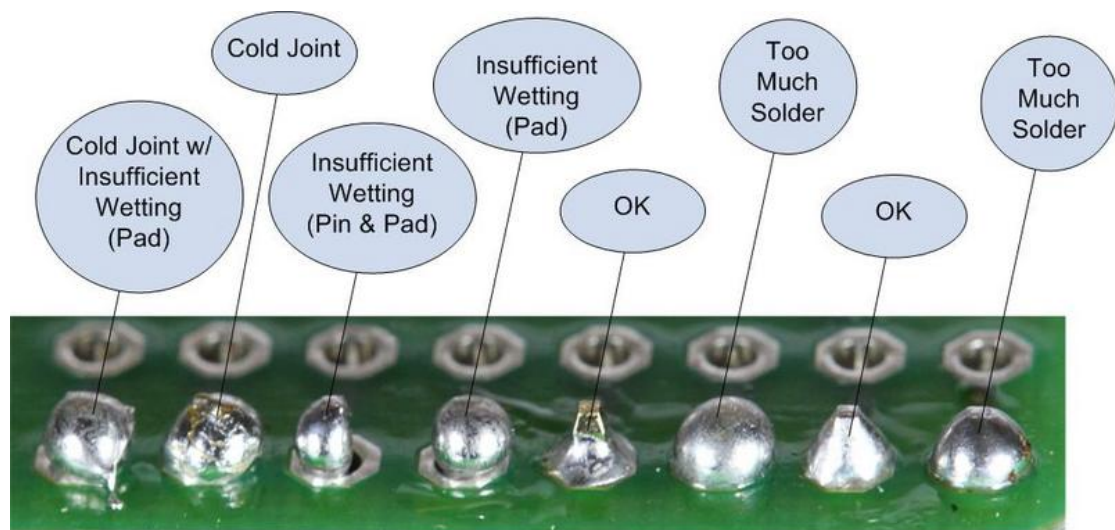
This photo is from the **Adafruit guide to excellent soldering** - http://bit.ly/1l77tF4 and is reproduced under an Attribution-Sharealike creative commons license - http://creativecommons.org/licenses/by-sa/3.0/

MAGNETOPHON BUILD INSTRUCTIONS

1.

First we advise taking the contents of the bag and emptying into a large bowl. This way you keep the parts safe until you're ready for them.
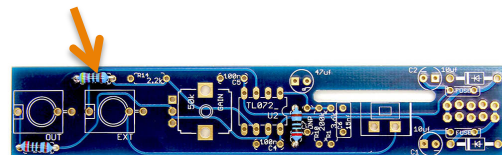
2.

Start by soldering the two **200R** resistors into positions **R8** and **R16**.
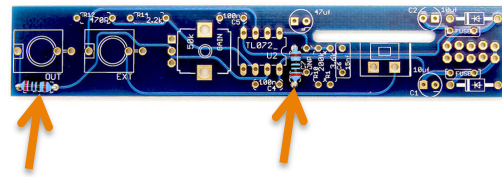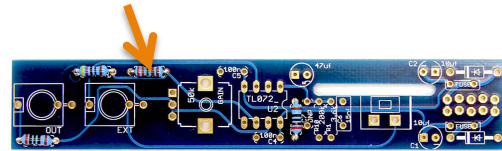
3.

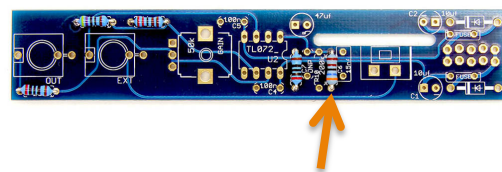Next solder the single **470R** resistor into position **R12**.

4.

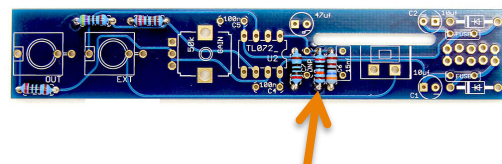Next solder the single **2.2K** resistor into position **R14**.

5.

Next solder the single **3.6K** resistor into position **R1**.

6.

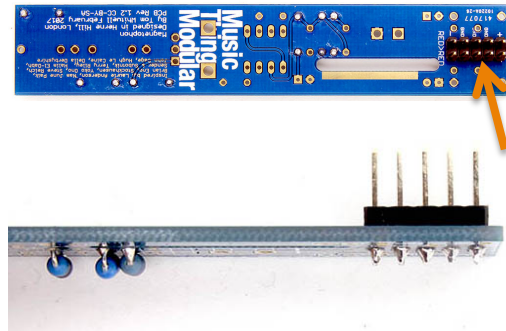Next solder the single **200K** resistor into position **R10**.

7.

NOW FLIP THE PCB OVER

Solder the ten pin power header onto the **OTHER SIDE** from the resistors.
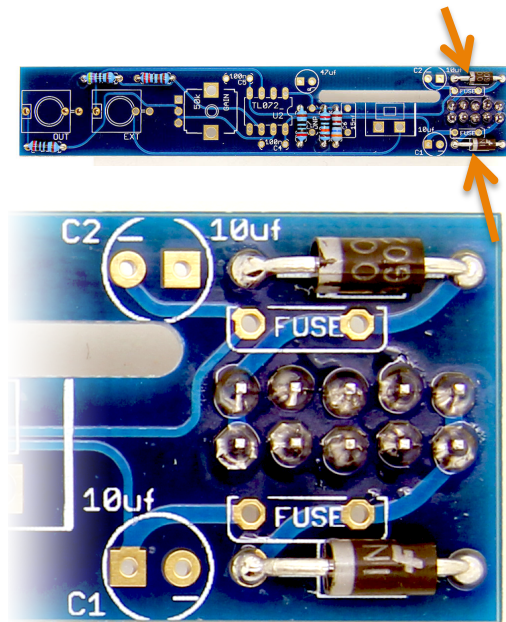
BE CAREFUL TO GET THIS ON THE RIGHT SIDE OF THE PCB!

8.
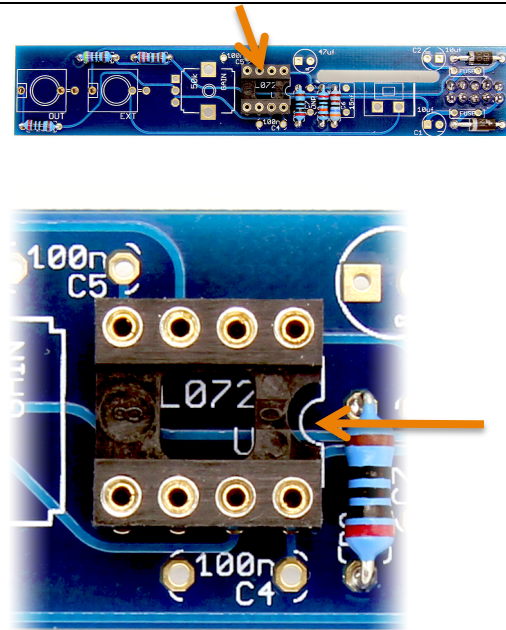
NOW FLIP THE PCB BACK OVER **AGAIN**

Solder the two diodes into the positions show, with the silver lines pointing towards the centre of the board.
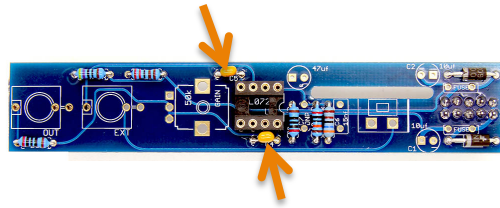
NOTE! Orientation of these parts is vital.

9.

Solder the IC socket into place. Take care to have the notch in one end match the notch on the PCB silkscreen.
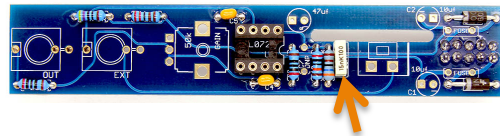
10.

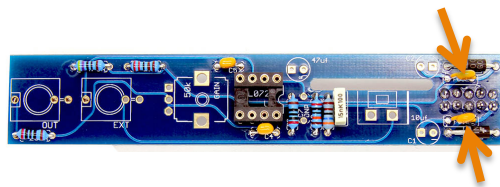Solder the two **100n** ceramic capacitors into positions **C4** and **C5**.

11.

Solder the single **15nf** polybox capacitor into position **C6.**
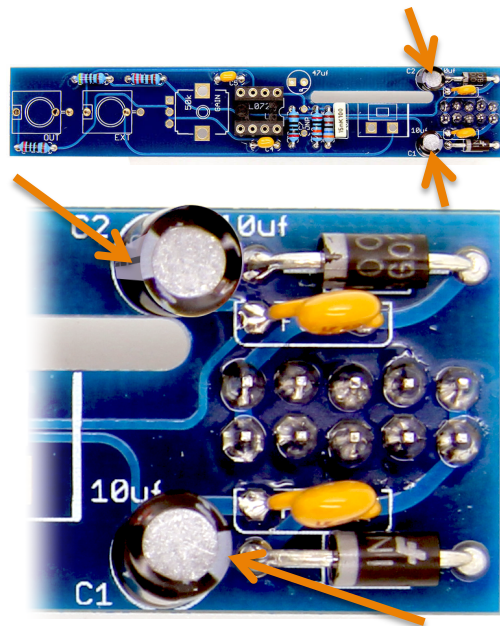

12.

Solder the two tall orange **fuses** into the positions marked **FUSE** next to the diodes.

13.

Solder the two **10uF** electrolytic capacitors into positions **C1** and **C2** as shown.

NOTE! Orientation of these parts is vital. The grey stripes on the sides of the cylindrical bodies should match the circular pad marked '-' on the silkscreen.
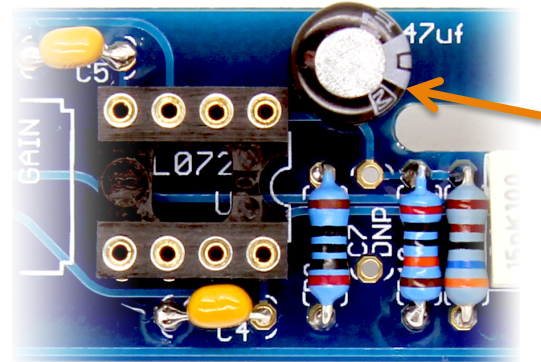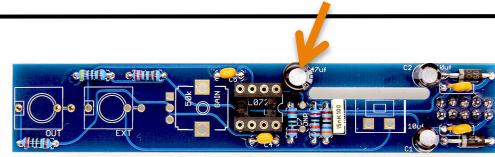
14.

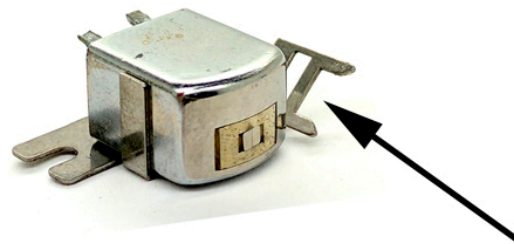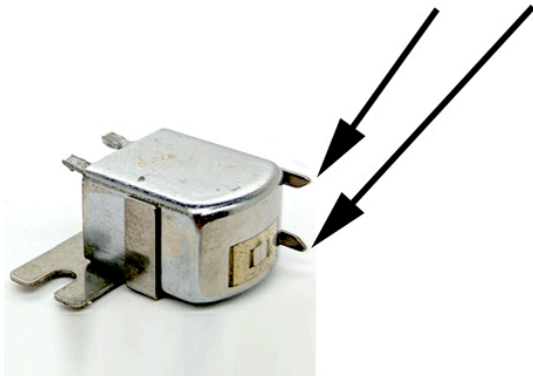Solder the single **47uF** electrolytic capacitor into position as shown.

NOTE! Orientation of this part is vital. The grey stripe on the side of the cylindrical body should point **TOWARDS** the slot cut in the board.
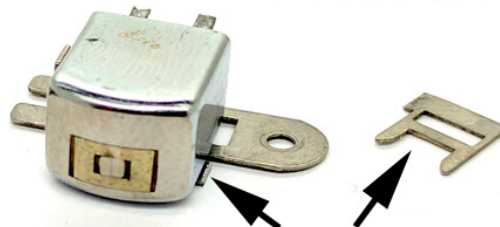
15.

Next you need to modify the tapehead as shown below.

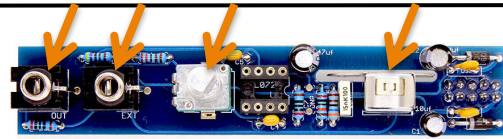## THESE PINS NEED REMOVING FIRST

BEND OUT WITH PLIERS

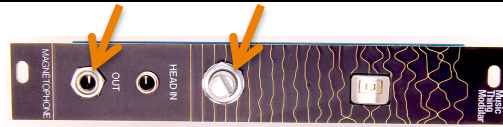## THIS SECTION EASILY SNAPS OFF AT BASE

16.

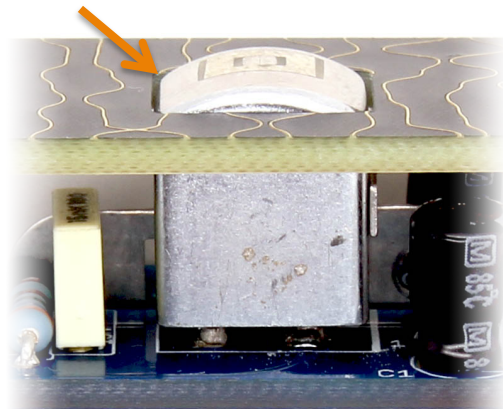Next position the jacks, pot and tapehead in place like so but **DO NOT SOLDER YET**.

17.

Put the panel onto the assembly and hand tighten nuts as shown temporarily. **DO NOT SOLDER YET**.

18.

Ensure that the curved front of the tapehead is protruding out from the surface of the panel like so.

19.

Now solder the jacks, pot, and tapehead into position and then remove the panel again.

20.

Now fit the single **TL072** chip into place.

Make sure the circular depression in one end of the face of the chip is at the same end as notch in the IC socket.

NOTE – Orientation is vital!

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.*
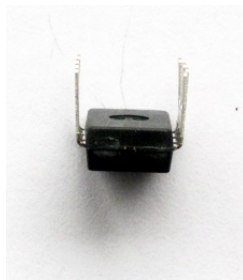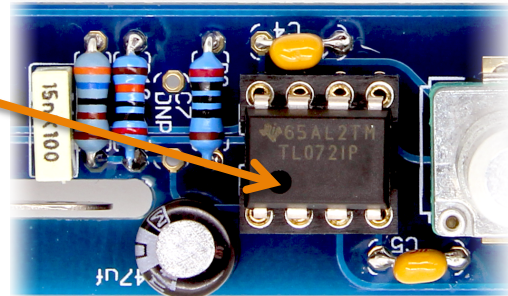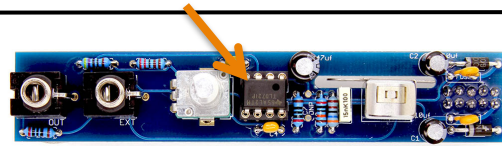
21.

Note that we do not provide the part **C7** with designator **DNP** (do not place).

If your unit is experiencing self-oscillation/feedback problems in the sound output when using the internal tapehead you may want to use an external one on a wand instead.

If you are still experiencing self-oscillation/feedback problems with the sound when using an external tapehead then you can solder a **10n** capacitor into position C7
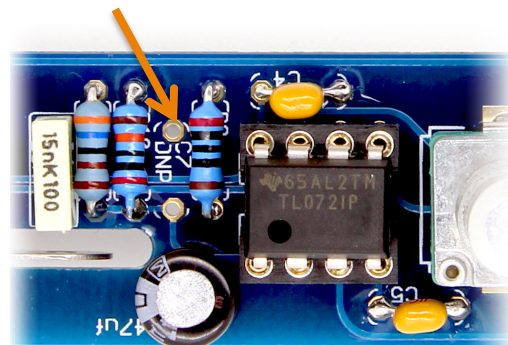
The magnetophon is sensitive to all electromagnetic radiation sources so if you do experience any noise problems then experiment with the placement of the module in your case, avoiding modules with lots of LEDs or positioning far from the power supply can help.

22.

Finally attach the power supply cable like so, with the red line of the cable facing down towards the centre of the module. The silkscreen is marked **RED > RED**. you are now ready to attach the knob and power up the module.
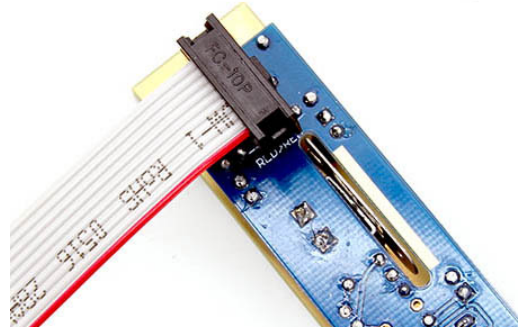
23.

If you wish to solder an external head to a patch cable then solder the 'tip' of the cable to the point marked SIGNAL and the 'sleeve' of the cable to the point marked GROUND.

GROUND   SIGNAL