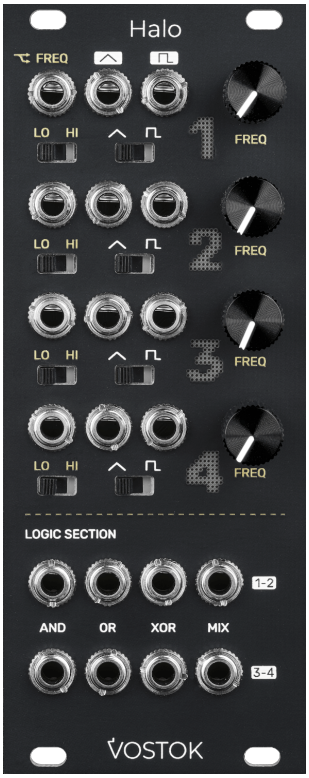
## OVERVIEW

For the most recent version of this document please visit https://www.thonk.co.uk/shop/vostok-halo/

This document has hi-res images. ZOOM IN for a closer look

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## 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://youtu.be/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 module otherwise.**

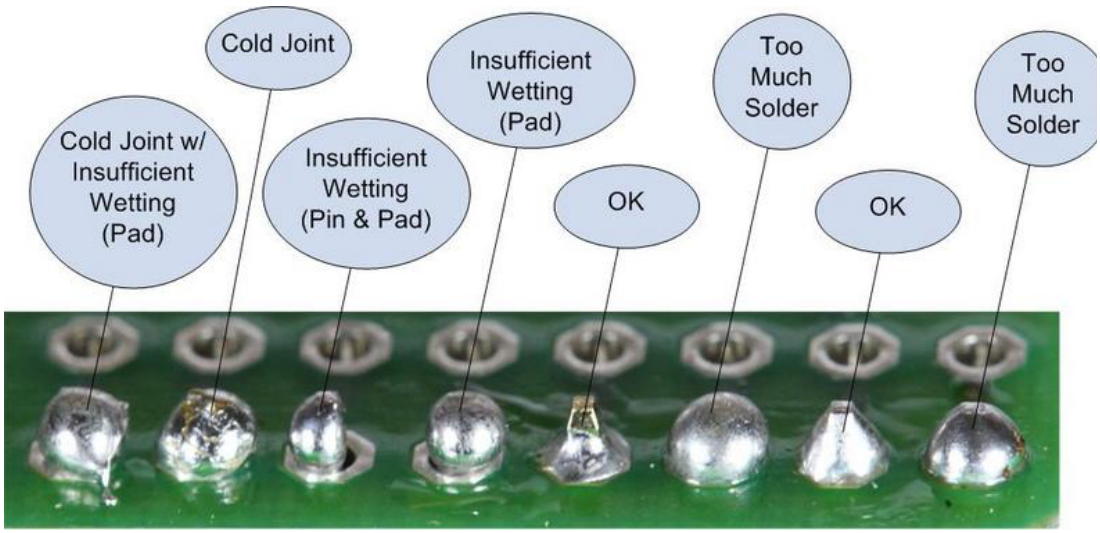
## TOOLS REQUIRED

Soldering iron, masking tape, 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** - http://bit.ly/1jxqF3n and is reproduced under an Attribution-Sharealike creative commons license - http://creativecommons.org/licenses/by-sa/3.0/

# HALO BUILD INSTRUCTIONS

1.

**PLEASE NOTE**

Follow these instructions carefully and take good care and attention while building your kit. The tightness of PCB layout and a larger than normal ground plane means you'll need to be **accurate with your solder iron placement and extra careful how you feed in your solder**. We recommend using solder that you're familiar with and that will flow easily. If you create any solder bridges, they could potentially be very hard to remove.

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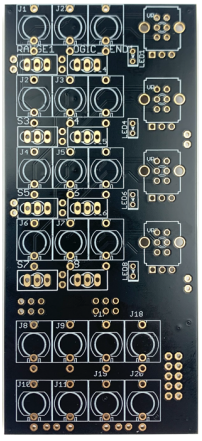
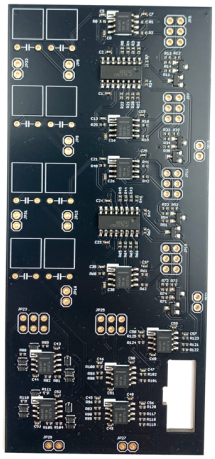
2.

There are two PCBs in this build, but they may arrive joined together or separate as shown. If they are joined, then gently separate them by twisting the outer connecting strips with a pair of pliers.

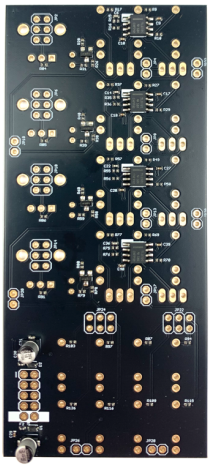
FRONT

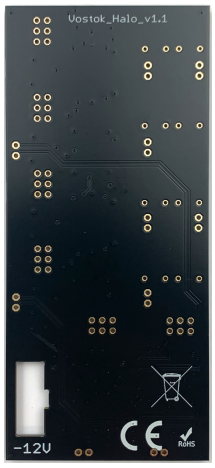




Control PCB | Main PCB

REAR

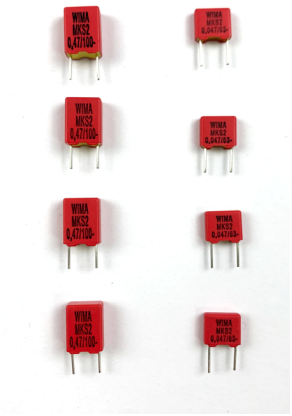




3.

We'll start on the Main PCB (labelled above).

Locate the four 47nF capacitors and four 470nF capacitors from their individually labelled bags.

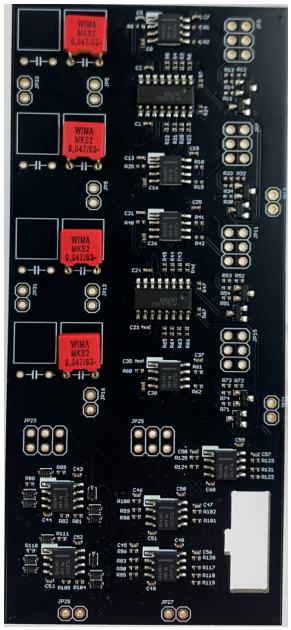
Pay attention to the size of the capacitors and values marked on them:

47nF = Smaller "0.047"
470nF = Bigger "0.47"

4.

On the front of the PCB (same side as the pre soldered components) first place the smaller 47nF capacitors into the positions shown on the inside squares of the PCB.

**NOTE:** Before soldering, bend each capacitor so that they sit flat against the PCB as shown below.

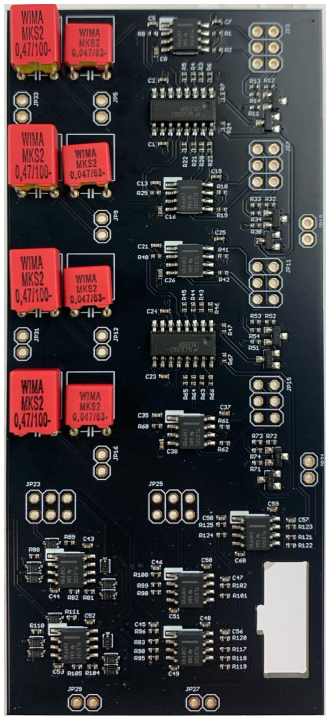


When you are satisfied that the positioning matches the image shown, and you have checked the components are in the correct places proceed to solder all four capacitors.

If the legs of the capacitors are short then be sure to press against a flat surface or use tape to ensure the capacitors stay flush whilst soldering.

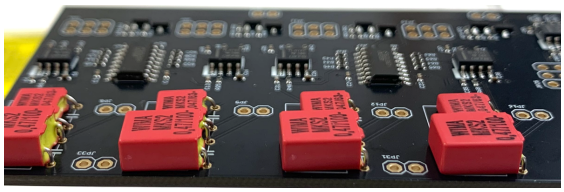
5.

Next place the four larger 470nF capacitors into the remaining four positions shown on the outside edge of the PCB.



**NOTE:** Before soldering, bend each capacitor so that they sit flat against the PCB as shown below.

When you are satisfied that the positioning matches the image shown, and you have checked the components are in the correct places proceed to solder the remaining four capacitors.

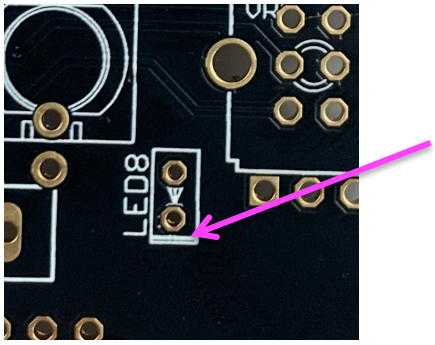


If the legs of the capacitors are short then use a flat surface or some tape to ensure they stay flush whilst soldering.

6.

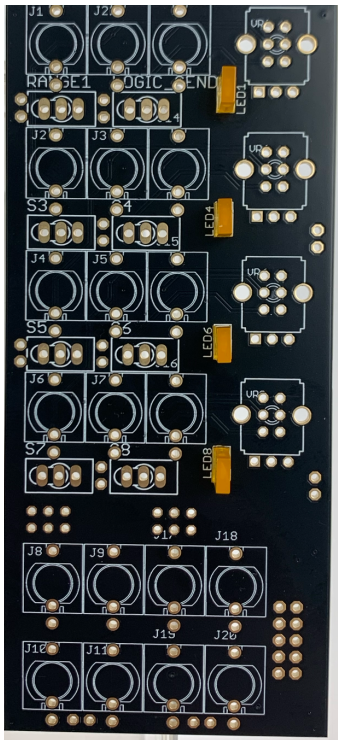
Set aside the Main PCB and now moving onto the Control PCB first locate the four orange LEDs.

Short leg to white line



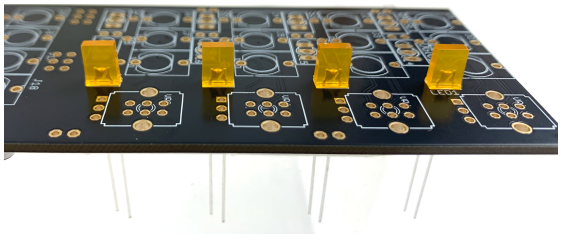

Place the LED's onto the front of the Control PCB as shown. The LEDs sit on the opposite side of the PCB to the SMD pre-soldered parts.

**Note: orientation is vital!** the short leg of the LED must go to the side with the white line on the PCB silkscreen.



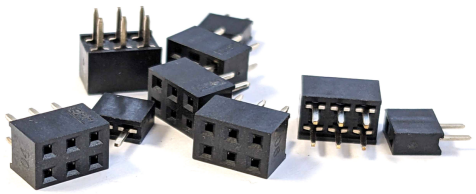
**Note:** Be very careful with your soldering iron placement as there are SMD parts placed close to the LED solder pads.

The LEDs should sit completely flush to the PCB. Solder one leg first and check the LED body is flat against the PCB. If it's not sitting totally flush, then reflow the solder joint while pushing the LED body down against the PCB.



7.

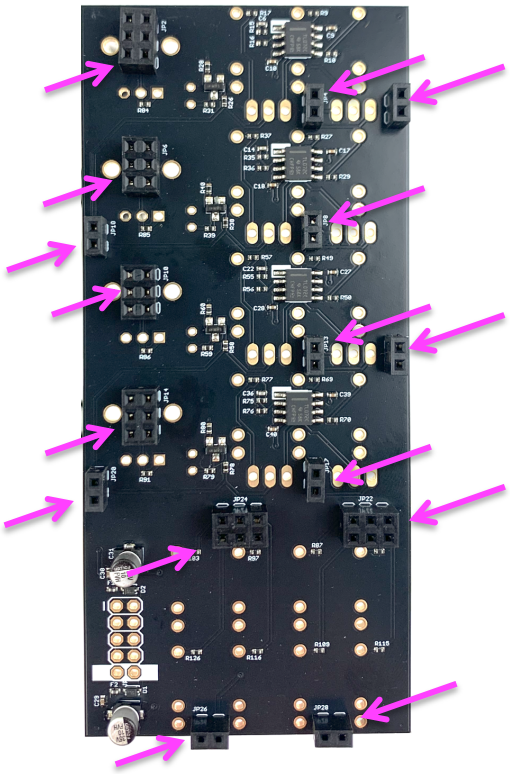
Next locate the ten 1x2 pin sockets and six 2x3 pin sockets from the smaller hardware bag inside your kit. These are placed on the Control PCB on the same side as the SMD pre-soldered components. **Don't solder them yet!**



8.

Place all sockets as shown.

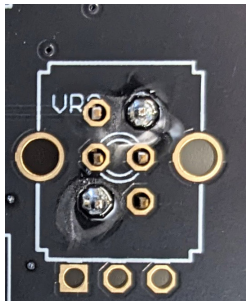
Hold something flat over the sockets and then flip the PCB over to solder.



**Note:** the sockets must sit completely flush to the PCB:

For the 6 pin sockets, start by soldering 2 opposite corner pins as shown in the bottom image, then check if the header is totally flush, reflowing and adjusting if needed as with previous steps.

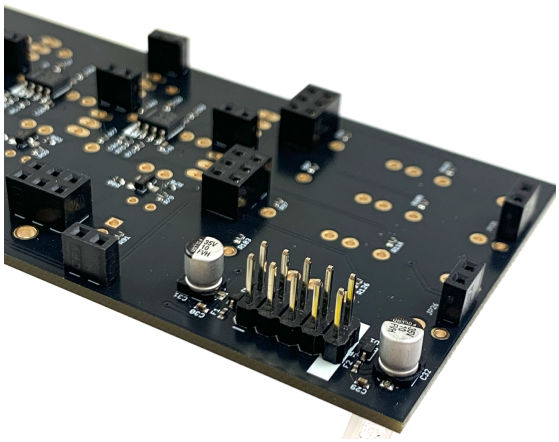
For the 2 pin sockets, solder just one pin first before making sure the part is flush and reflowing and adjusting if required.



When you are satisfied with the positioning solder the remaining points for all sockets.

9.

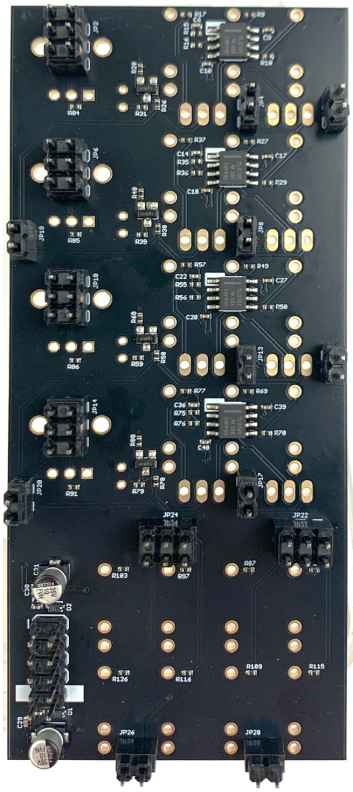
Next locate the 10 pin power header. This is placed on the same side of the PCB as the sockets as shown.



Solder 2 edge pins on opposite corners first, and then check the header is flush before soldering the rest of the pins.

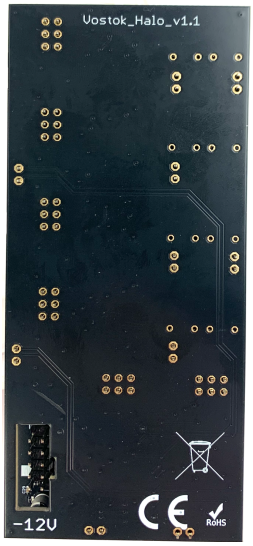
10.

Now locate the small 1x2 and 2x3 pin headers and insert them into all of the sockets as shown.



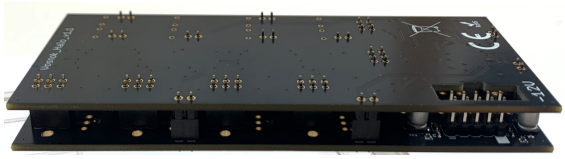
11.

Place the Main PCB onto the pin headers to sandwich the two PCBs together.




You may need to wiggle the PCB's slightly to ease the headers through their holes. Using pliers or a screwdriver can also be helpful to gently nudge the 2 pin headers to line up properly.

Once the headers are all aligned and the boards are flush then go ahead and solder all of the points on the rear of the Main PCB



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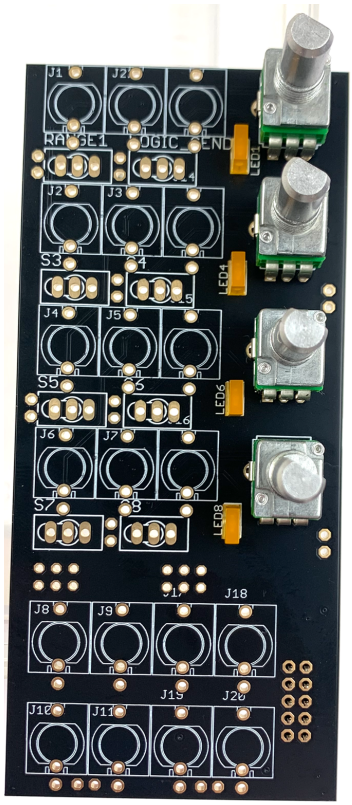
12.

Now it's time to move onto the remaining components on the Control PCB, so carefully separate the PCBs from each other once more and locate the Alpha metal pots.




Place the four B100k Pots into the positions shown on the Control PCB and click them in securely so they are sitting flush.

DON'T SOLDER YET

Resume soldering at step 15.

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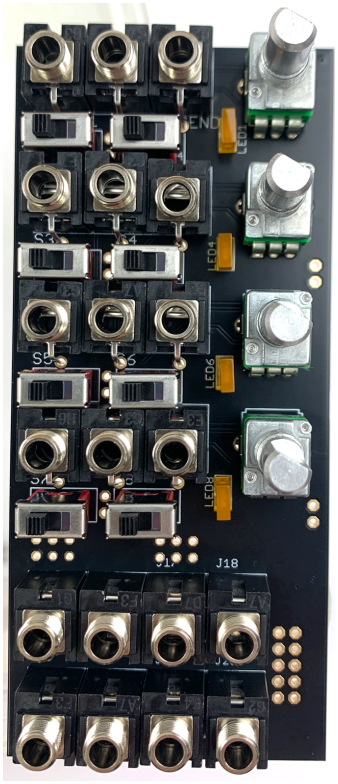
13.

Next remove all the nuts from the Thonkiconn jacks and then place the 20x jacks and 8x switches into the positions shown (orientation doesn't matter for the slide switches.)



DON'T SOLDER YET

Resume soldering at step 15.

14.

With all the pots, jacks and switches in place position the front panel over the components.


Secure it in place by screwing all silver nuts onto the jacks and black nuts onto the pots.

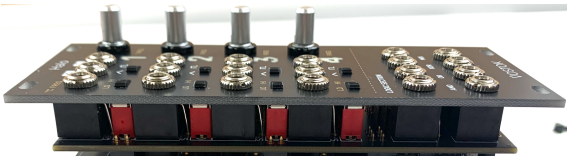
Tighten securely but be sure not to overtighten the jacks to prevent pulling them off the board.

DON'T SOLDER YET

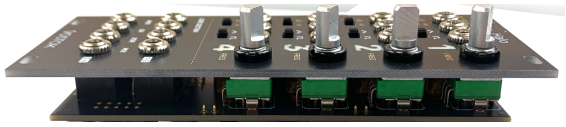
Resume soldering at step 15.

15.

When you are happy with the positioning of the components and the panel is secured level to the PCB proceed to solder the remaining points on the rear of the Control PCB.



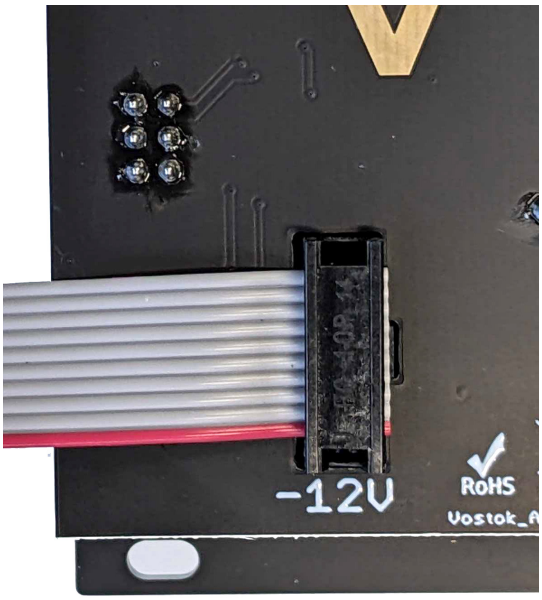
There should be 104 points remaining to solder.



Work slowly and carefully paying extra attention with your iron around the pre soldered SMD components.

16.

Double check all points are soldered before connecting the two PCB's once again. Place the knobs on to the pots and finally attach the power cable to the rear of the module with red stripe facing the '-12V' marking.



17.

The module is now complete.

For the user manual and further info on this and other kits from Vostok follow the link below.

https://www.thonk.co.uk/shop/vostok-halo/