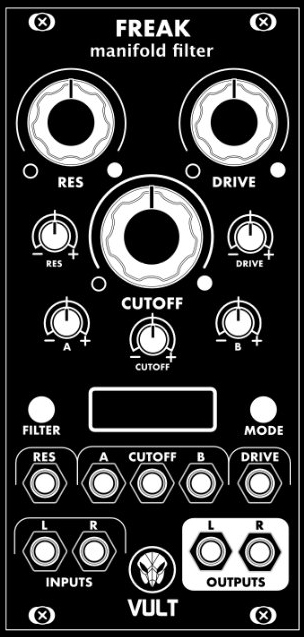
Vult Freak DIY Kit



Assembly Guide

VULT

Thank you very much for supporting the Vult project!

I developed the Freak filter as a module for myself. I'm very glad that more people have adopted it and have made it an essential tool in their sonic arsenal.

Assembling this module is not complicated. But even if you are an experienced builder, we recommend you to read and follow this guide.

The build is divided into four sections.

1. Assembling the main board.
2. Assembling the control board (part 1).
3. Assembling the control board (part 2).
4. Final mounting of the module.

The control board is split into two sections because this will simplify the cleaning of the board without damaging the sensitive components like the OLED screen which can break with liquids.

IMPORTANT: in this guide you will find many sections highlighted this way. Make sure you follow the indications.

I hope you enjoy the module, and if you like it, share the Vult love with friends and enemies.

Leonardo Laguna Ruiz

Disclaimer:

By purchasing a DIY kit you are aware that you are responsible of the outcome of your build. Before starting, verify that none of the parts has been damaged during the transport.

If your build fails, we can provide a limited service to help you repair it. The cost will depend on the extent of the damage.

We want you to succeed. For that reason we tried to make this guide as detailed as possible.

Assembling the main board

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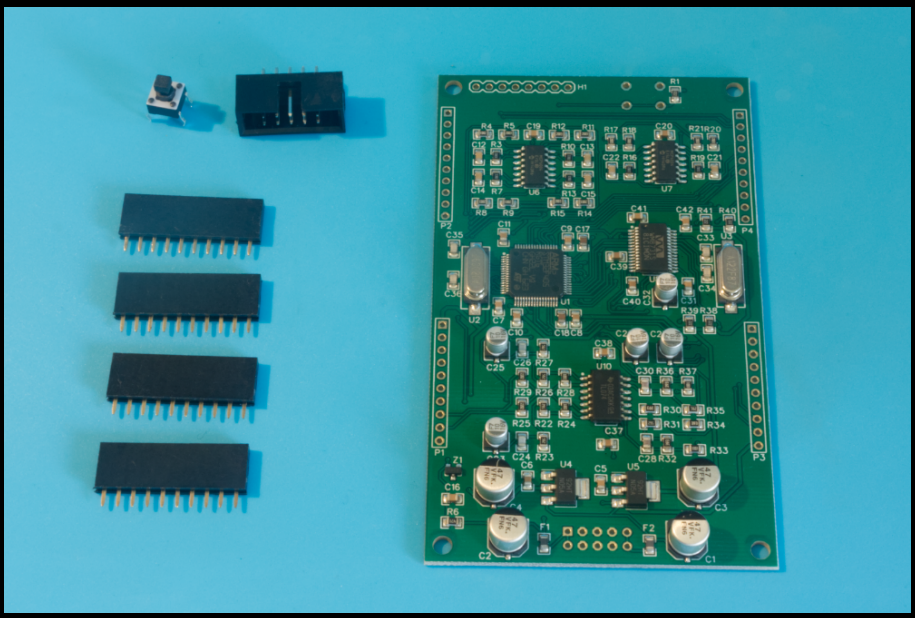
In this section we are going to build the main board. You will need the following parts:

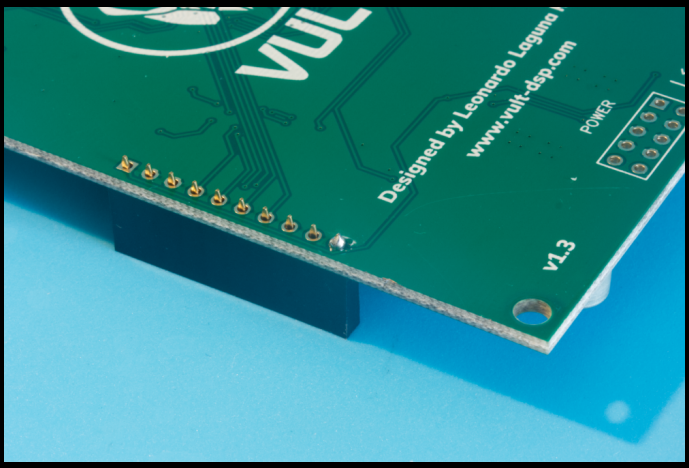
- The Core board (with all SDM parts)
- 1 power connector (2x5 pins)
- 4 female headers (1x10 terminals)
- 1 push button (no cap)

You can see the elements in the following picture:



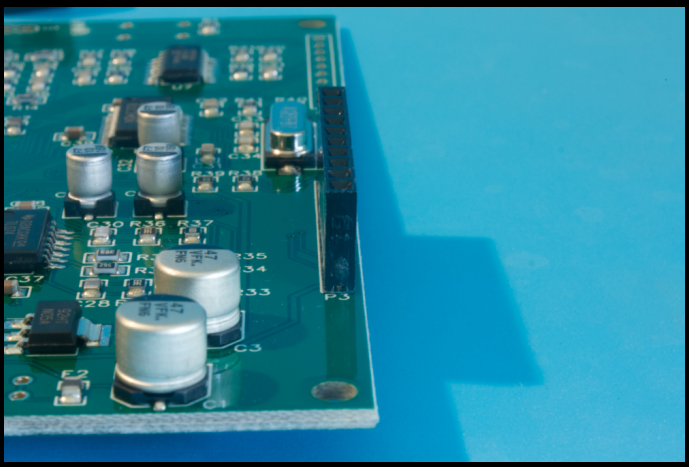
Start by soldering the 10 pin female headers.

Insert the header from the component-side of the board and hold it. Solder only one terminal.



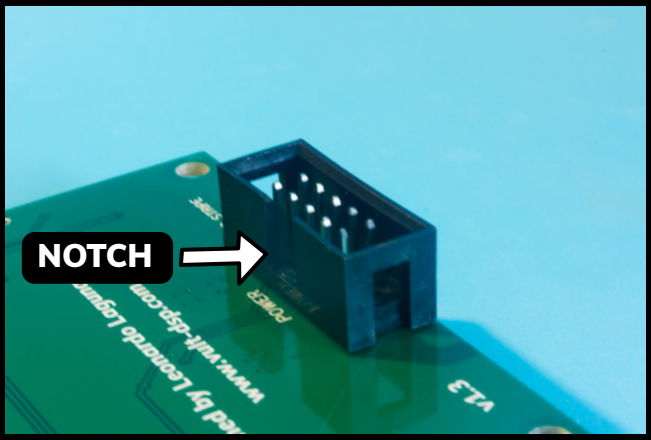
Verify that the header is correctly placed before soldering the rest. The header should stand at 90 degrees.

Repeat the same process for all four headers.

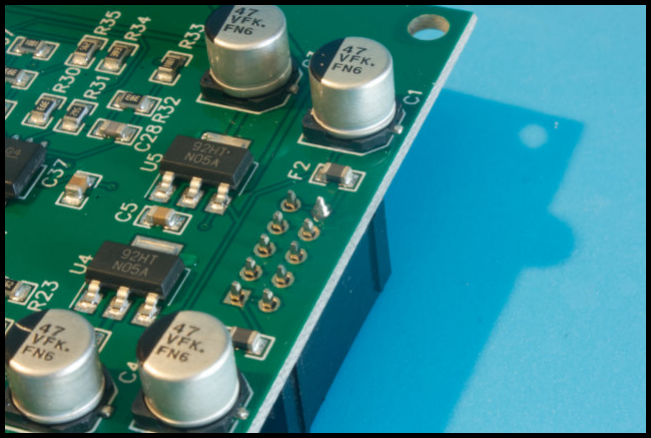


Now you are going to solder the power connector. This connector has a notch. The notch should be below the word POWER written in the board.

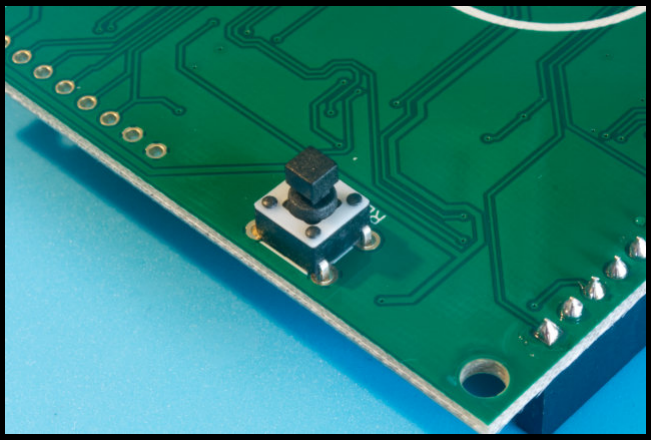
IMPORTANT: Make sure you place it in the correct direction.



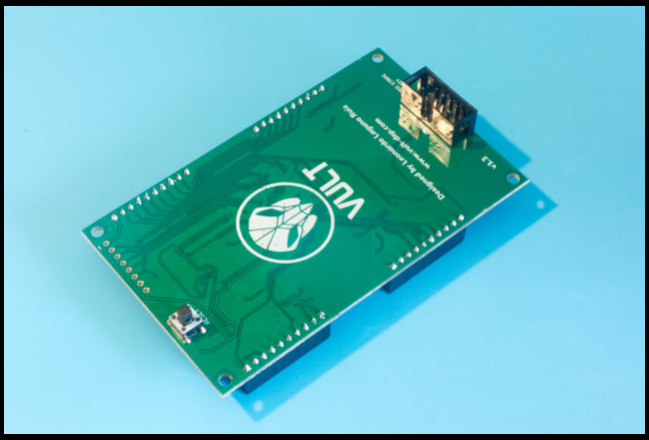
Use the same procedure as for the headers: solder one pin, verify that the connector is correctly placed and then solder the remaining pins.

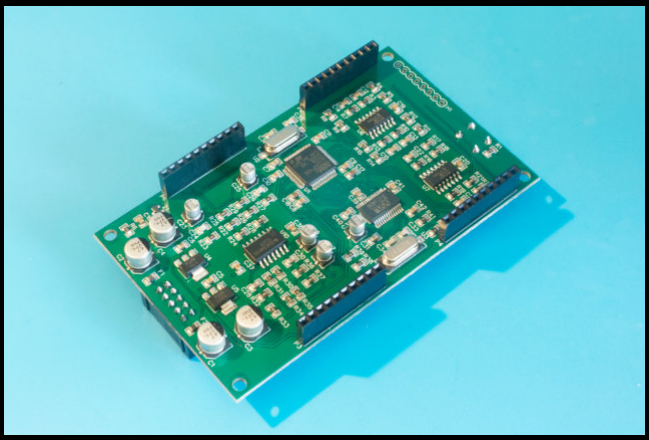


To finish this section, solder the RESET button.



Your board should look like the pictures below.





Assembling the control board

Part 1

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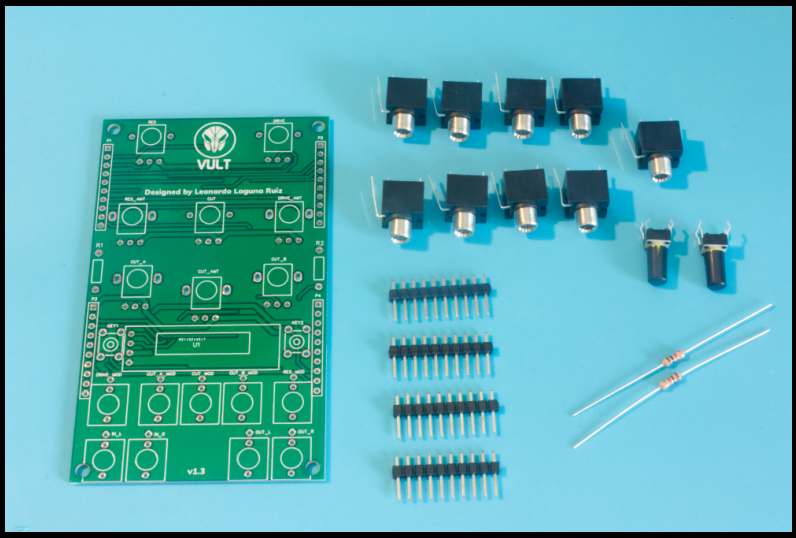
We are going to assemble the control board in two parts.

IMPORTANT: Making it this way will simplify cleaning the board without damaging sensitive components.

Locate the following components:

- The control PCB
- 9 jacks
- 2 push buttons (with cap)
- 2 axial resistors
- 4 male pin strips (1x10)

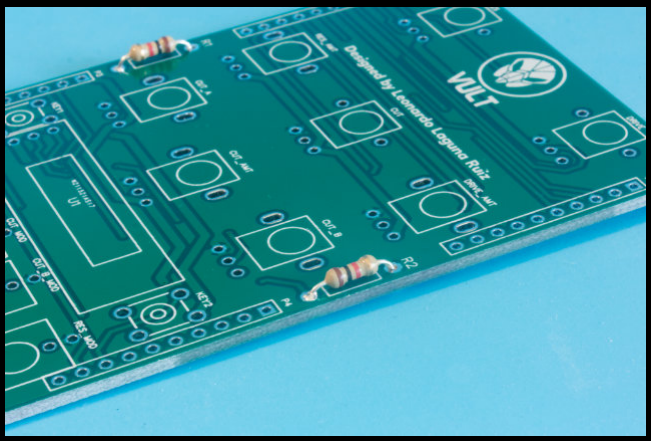
You can see the components in the following picture.



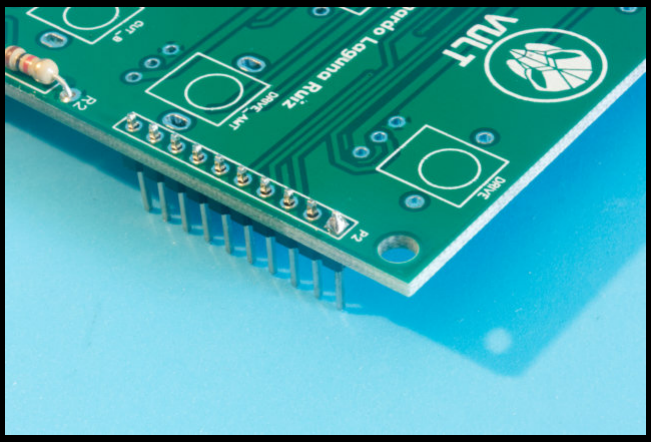
All components have to be mounted on the up-side (logo side) of the board.

As a preparation, remove all the nuts from the jacks if they are placed.

Start by soldering the two resistors. The orientation does not affect.



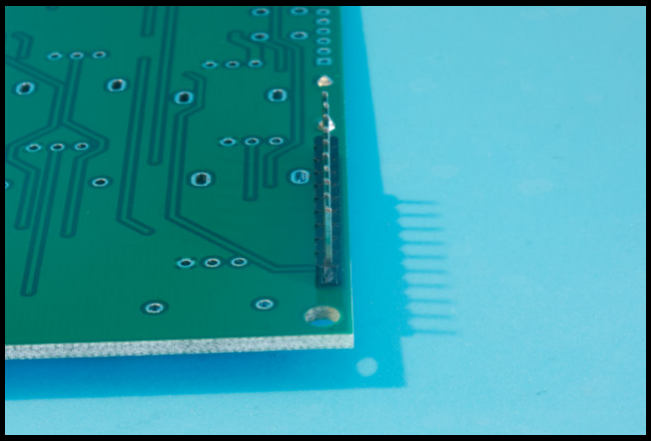
Continue with the pin strips using the following procedure. Insert the pins from the bottom (as displayed in the pictures). Then solder only one terminal.



IMPORTANT: verify that the pins are correctly placed and that the angle is 90 degrees otherwise it will not be possible to connect the main board.

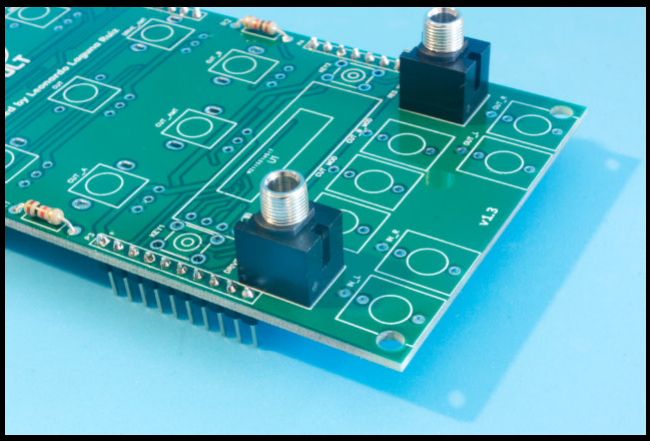
Once you have verified that the pins are correctly placed continue soldering the remaining terminals.

Repeat the procedure until all pin strips are done.



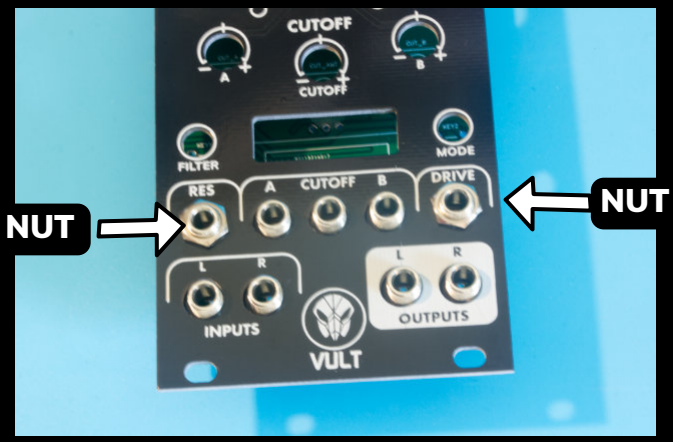
Place one of the two jacks displayed on the picture below. Hold it with your finger and solder it. Then place the second jack displayed on the picture and solder it.

IMPORTANT: make sure the jacks are correctly placed otherwise the panel will not fit correctly.

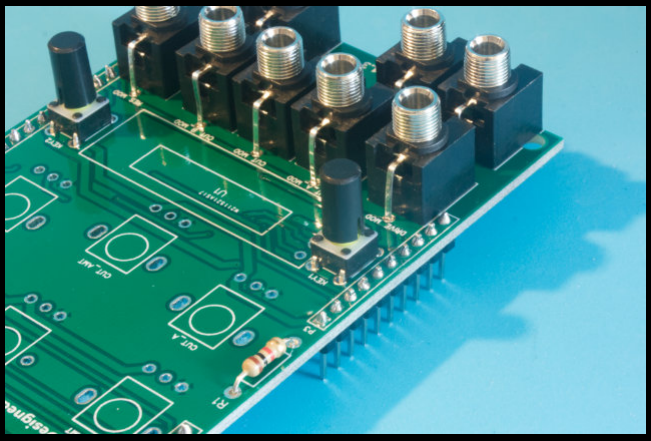


Place (but do not solder yet) the remaining jacks. Once you have all jacks in position. Take the front panel and place it.

Gently tight two nuts on the jacks that are soldered. With all the jacks in place, turn the board around and solder all of them.

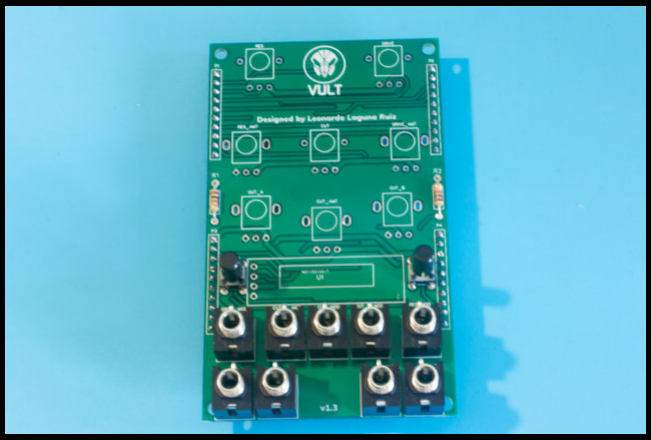


Place the two push buttons with caps. Make sure they are sitting correctly on the board and solder them.



The control board should look as in the picture below.

IMPORTANT: now is a good moment to clean all the flux residuals in your board. Use alcohol or flux remover. Make sure you clean the space between the pin strips otherwise you may have undesired noise in your module.



Assembling the control board

Part 2

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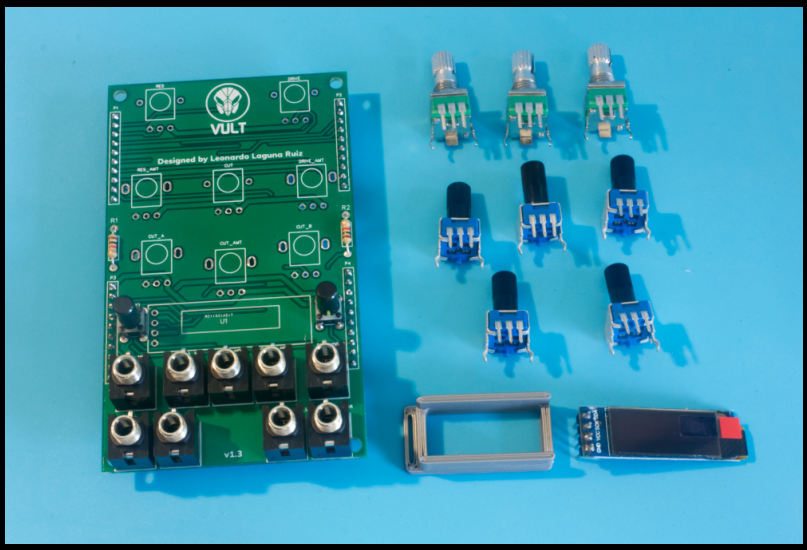
In this section we are going to finish the control board assembly. Locate the following components:

- 5 plastic shaft potentiometers (blue color)
- 3 metal shaft potentiometers (green color)
- 1 OLED screen
- 1 screen holder

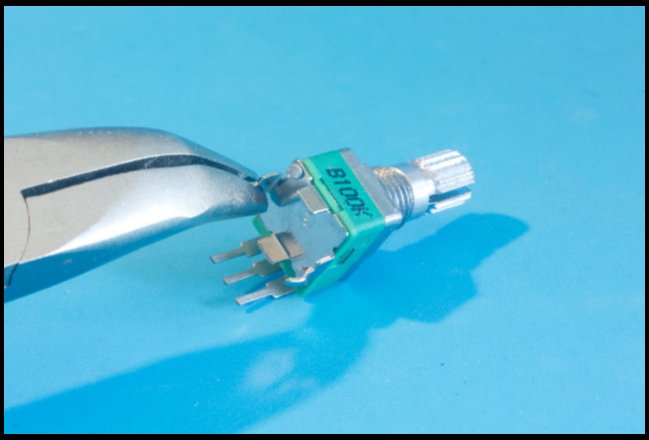
You can see the components in the following picture



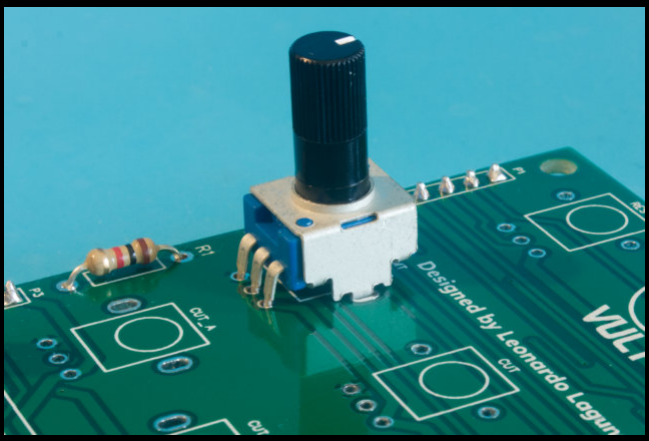
As preparation, remove the nuts from the potentiometers if they are placed.

In order to simplify the mounting of the potentiometers, take some pliers and flatten the terminals as show in the pictures below.

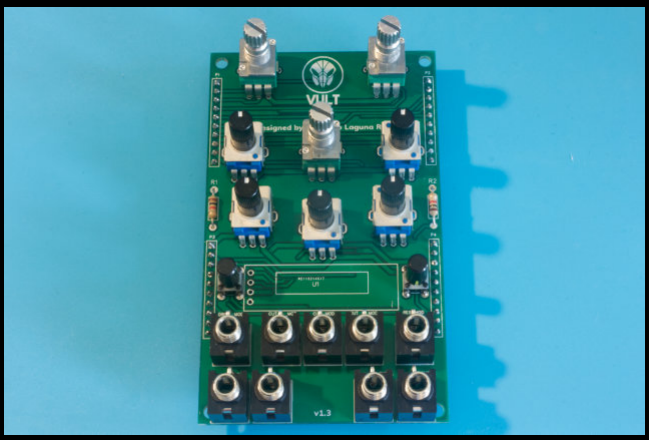
IMPORTANT: this is recommended because applying too much force to the plastic shaft when placing the knob can break it. These shafts break internally and become unstable or stuck.



IMPORTANT: When placing the potentiometers make sure they enter completely through the holes and that they are sitting correctly ovn top of the board.



Place all potentiometers as shown in the picture below.



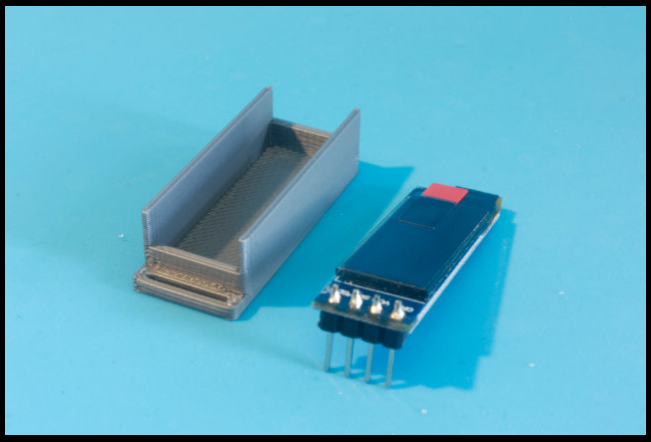
Once all of them are in place, put the front panel. Gently tight at least one nut of the jacks and one in the center potentiometer to keep it in place.

IMPORTANT: verify that all potentiometers rotate correctly with the panel placed. Before soldering them.

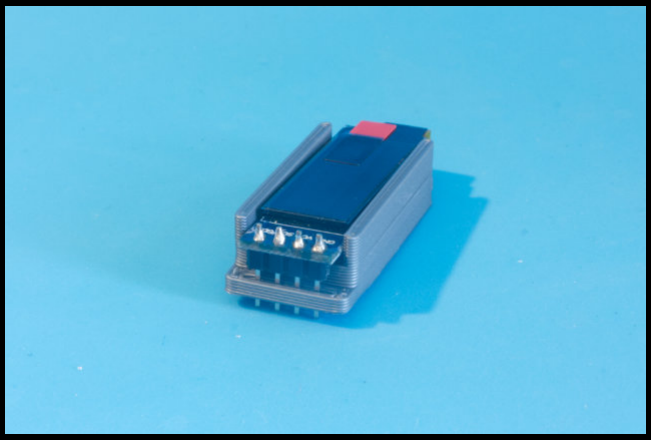
Flip the board and solder all the potentiometers.

IMPORTANT: Before starting the next step, you can clean the flux residuals. Clean only from the back of the board. The cleaning solution may affect the potentiometers.

Now it is time for the screen. Locate the screen and the plastic holder.

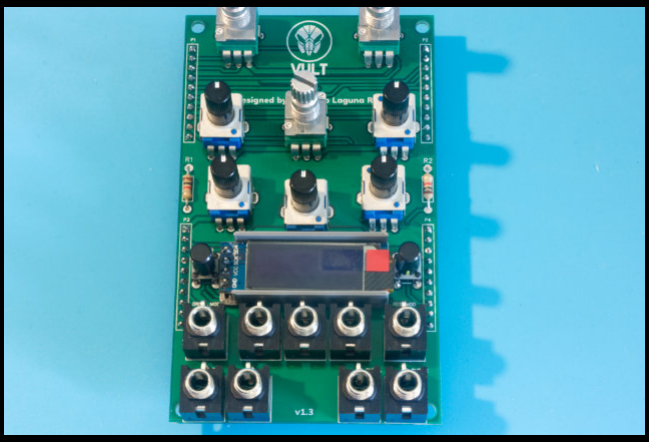


The holder has a small slot where the pins of the screen go. Carefully insert the screen and push it to the bottom until it sits correctly in the holder.



Remove the front panel. Place the screen in its position on the PCB and gently hold it while you flip the board to solder it.

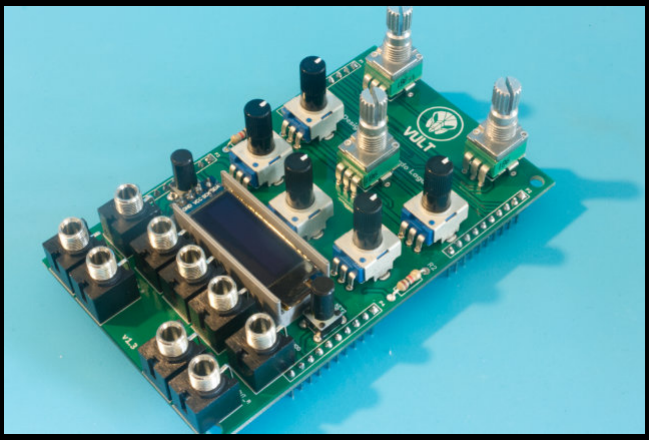
IMPORTANT: the screen is sensitive do not push it too much while holding it.



Once you solder the pins of the screen, carefully clean the flux residuals of that section.

Carefully remove the protective plastic of the screen.

Your control board should look like the picture below.



Final mounting of the module

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The final steps are straightforward.

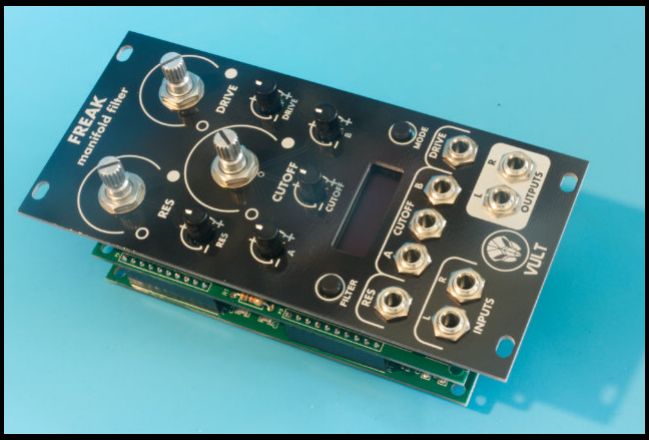
Locate the remaining parts:

- Main board
- Control board
- Front panel
- 9 nuts for the jacks
- 3 nuts and washers for the potentiometers
- 2 small knobs
- 1 big knob

IMPORTANT: Before starting, we recommend you to make a visual inspection of all your solder points. Check that you have no bridges between the pins.

Mount the control board on top of the main board as shown on the picture below. Check the orientation of the boards. If it's connected backwards, you will notice that the boards do not align.

Place the front panel and carefully tighten the nuts for all potentiometers and jacks.



To finish the assembly, manually turn all the metal shaft knobs counterclockwise (to the minimal position). Prepare the knobs by unscrewing the fastener and carefully insert them into the shafts.

Start with the larger knob (central one) so you have more space to use your screwdriver.

Check the picture below to use it as a reference for the angle of the pointers.

Lastly, place and screw the small knobs.

At this point, your module should be ready to use. Take all the necessary precautions when powering your module for the first time.

The firmware of your board can be outdated. Check for the latest release at the main Freak page:

https://www.vult-dsp.com/freak

Make sure to subscribe to our mailing list in order to receive news about firmware updates or new modules.

Enjoy your module and let us know how the build went!