

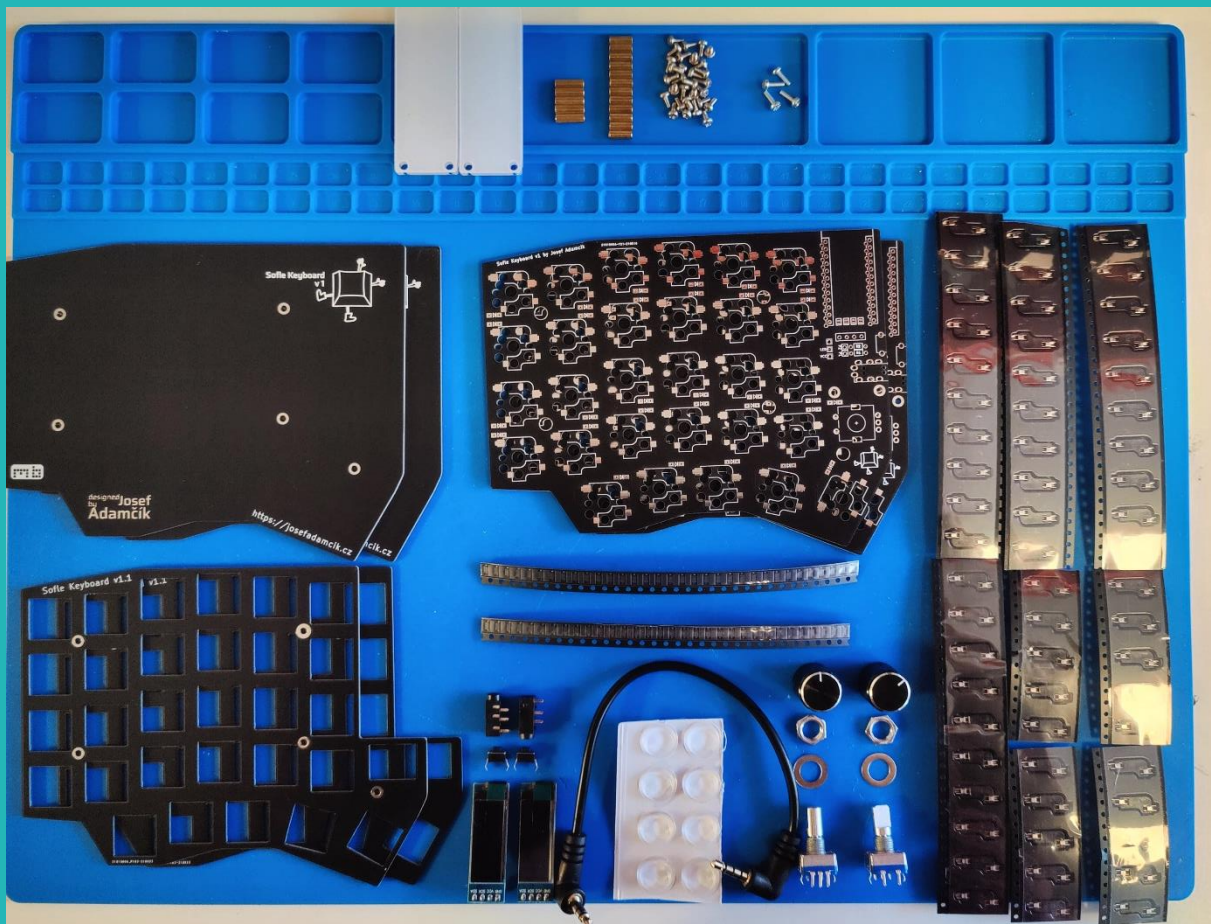
Sofle Build Guide

Hey, if you're reading this, you've hopefully just received a shiny new Sofle kit from Mechboards! The Sofle is a 58 key column-staggered split keyboard, based off the Lily 58, with the added bonus of a rotary encoder. It's a fairly simple build and a great place to start on a journey into the world of homemade split keyboards.

Contents of the Kit:

First things first, let's check you've got everything that should have been included in the kit. If there's anything missing, send us a message [here](#) so we can get you back to the build ASAP! (Spares are included in the contents)

- 2 x Acrylic OLED Covers
- 5 x 10mm Standoffs
- 12 x 8mm Standoffs
- 30 x 4mm Screws
- 4 x 6mm Screws
- 2 x FR4 Back Plate
- 2 x FR4 Switch Plate
- 2 x Sofle PCB
- 60 x Kailh Hotswap Sockets
- 60 x SMD Diodes
- 2 x TRRS Jacks
- 2 x Reset Switches
- 2 x OLED Screens
- 1 x TRRS Cable
- 8 x Rubber Feet
- 2 x Rotary Encoder



Other Parts Required:

There are a couple of parts that are required for the build that aren't included in the kit, hopefully you've already got these:

- 60 x Switches of your choice.
- 2 x Pro-micro or equivalent controllers



Tools Required:

Here is a list of the tools you need to build the keyboard (Note that the tape and flux is optional and that people who are more experienced with soldering may not need it):

- Soldering Iron
- Solder
- Tweezers
- Phillips Head Screwdriver (M2)
- Flux + Brush (Optional)
- Tape (Optional)

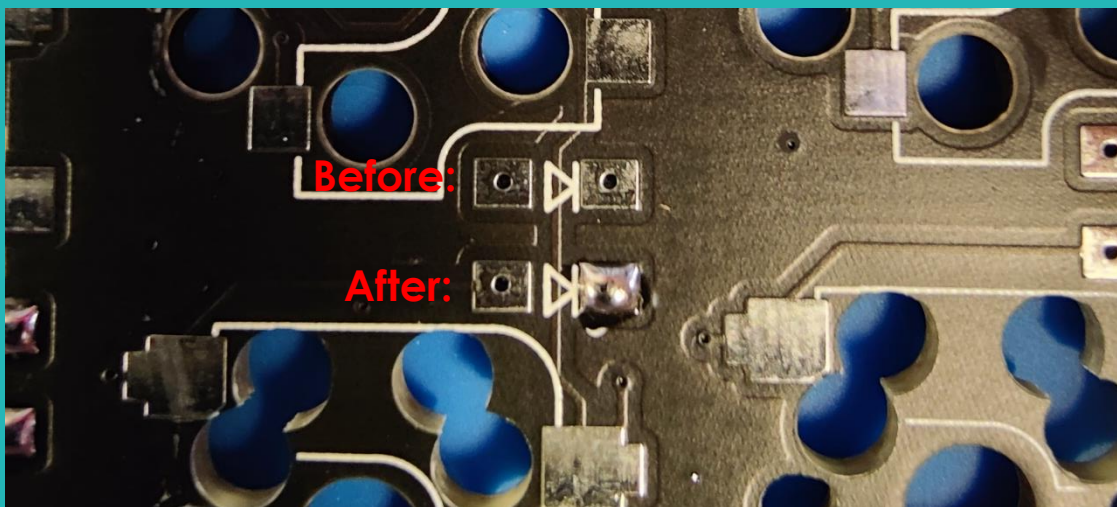


Making the Sofle:

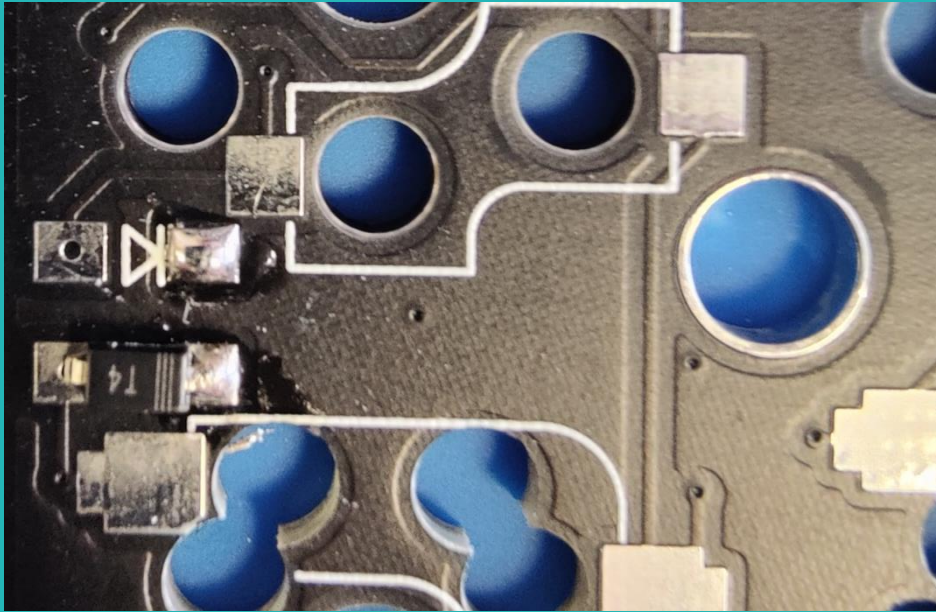
1. This step is optional, if you think you might have trouble keeping track of which side is which, you can attach a piece of tape to each side of the PCB so you know which is left and right. This can also help prevent accidentally soldering components to the wrong side of the board.



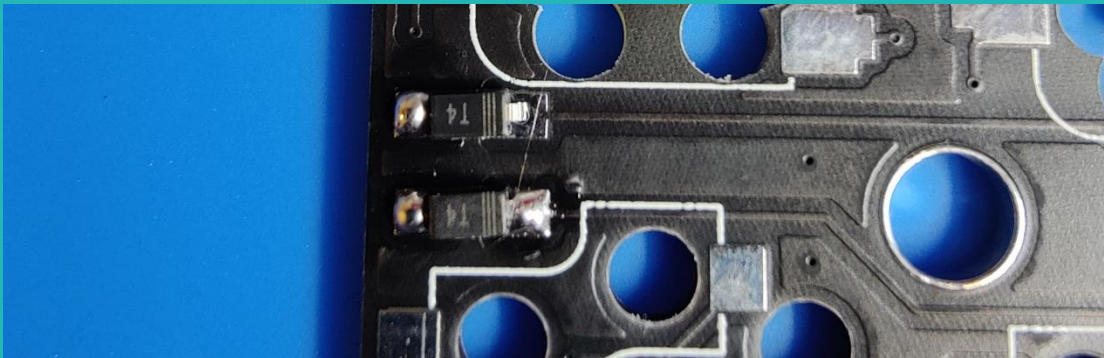
2. The first component we're going to be adding to the PCB is the SMD diodes, these small diodes are going to be placed on the back of the PCB. Since the top is marked by the tape, we're going to flip the PCB and start to solder half of the small pads as shown below:



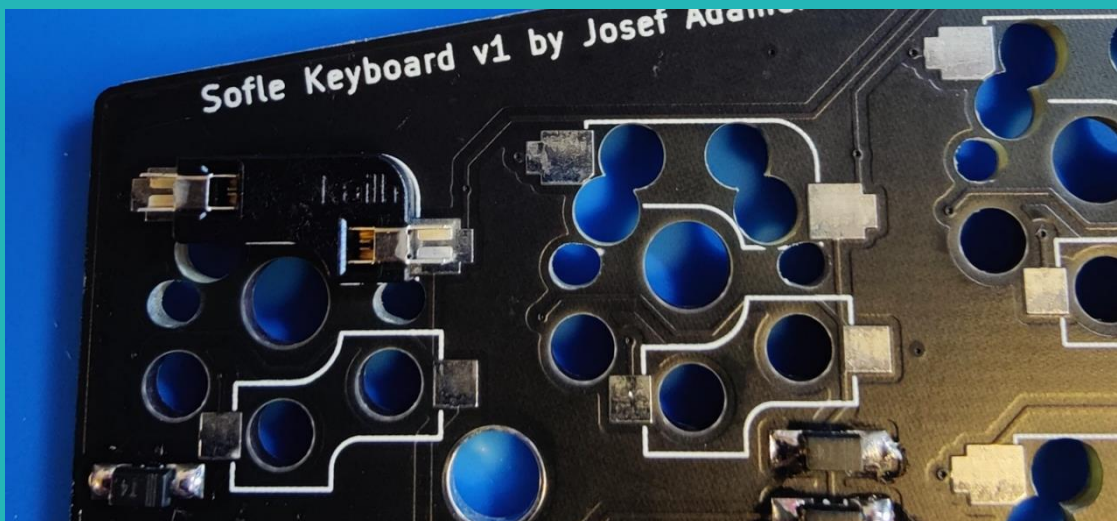
3. Once all these pads are soldered you can add the diodes by heating the already placed solder with one hand, whilst carefully placing the leg of the diode in the solder and then leaving it to harden in place. When placing the diodes, make sure they're facing the right direction; the line on the diode should be the same side as the line on the PCB, as pictured on the next page:



4. Now all that's left to do is solder the other side of the diodes to the pad:



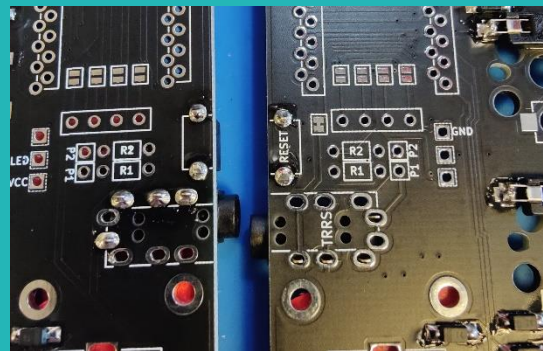
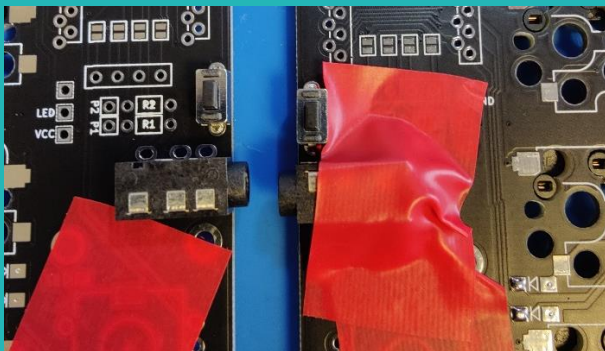
5. Next up are the Kailh hotswap sockets! I tend to find it easiest to place all the sockets in their outlined spaces and then to go around and solder them in place one side at a time. In this guide I'm building an MX Sofle, so the sockets are going in the larger outlined space. If you're building the choc equivalent, make sure to place them in the smaller outlined space. They should fit in like this:



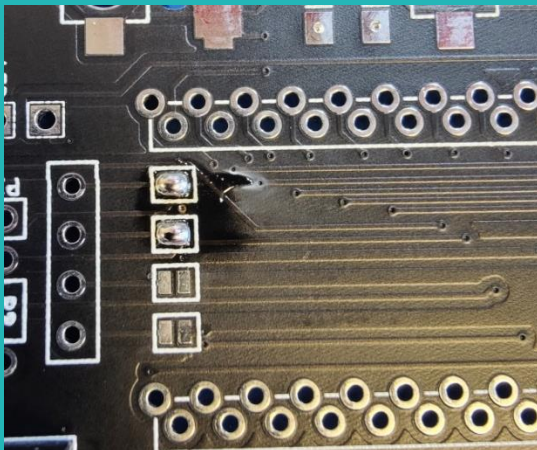
And once fully soldered:



6. Next up it's time to flip both halves over and pop the reset switches and TRRS jacks on. Sometimes these like to just snap into place, making it easier to solder, if not, some of that tape from earlier can come in handy!



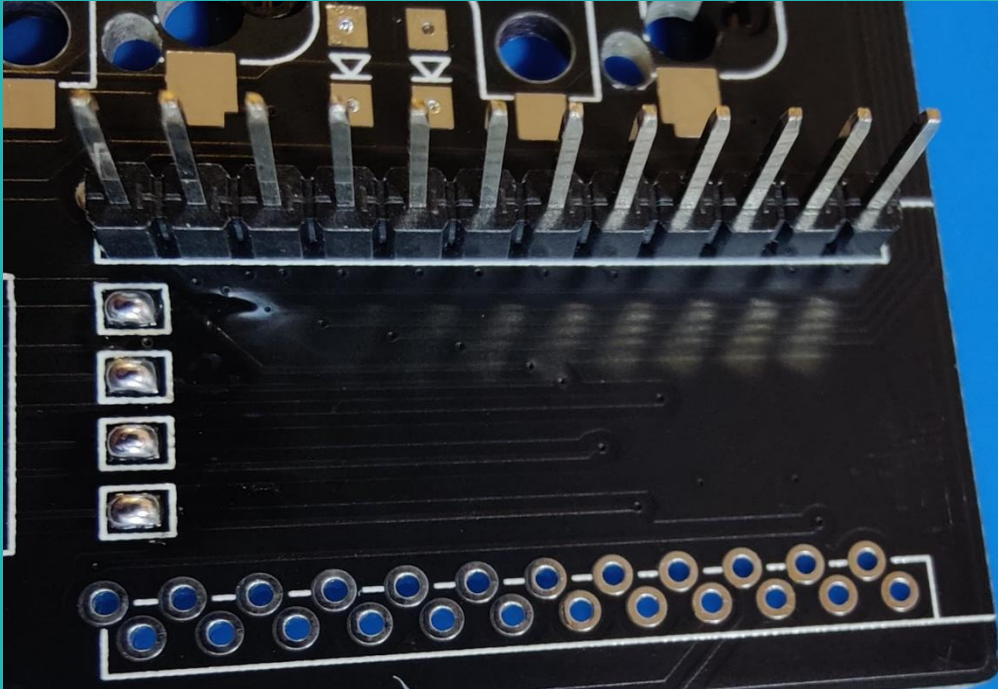
7. Once the jacks and switches are on, we can bridge the OLED jumpers **on the top of the PCB (taped side)**. It is essential that this is done on the correct side as once the controllers and OLEDS are on it is extremely difficult to fix. If you don't have much soldering experience, it's at this point I'd recommend applying a small amount of flux on and between the pads to help the solder flow.



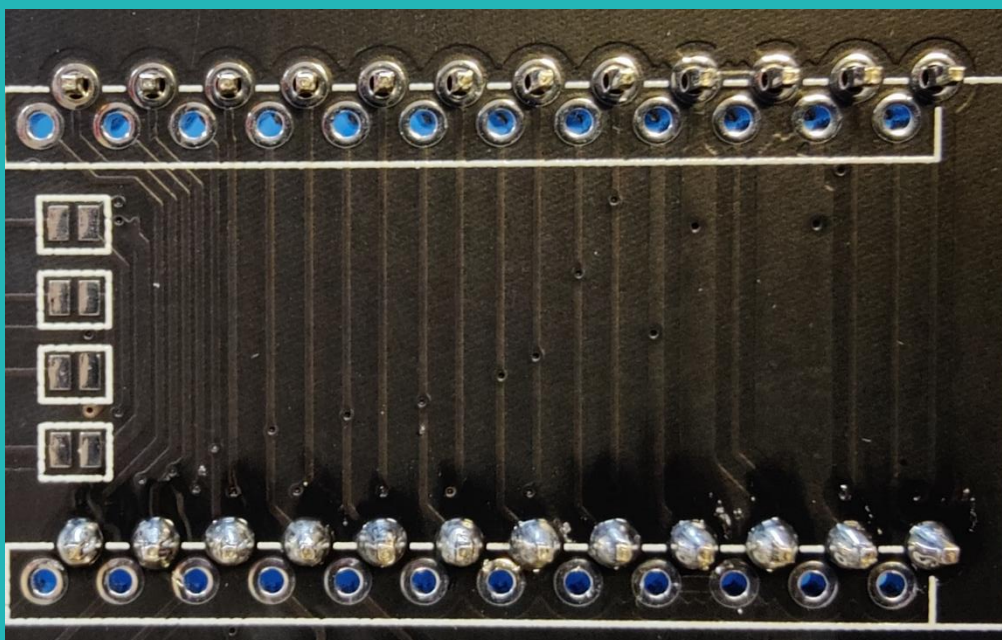
TOP SIDE SHOWN

Please be extra careful with the amount of pressure you apply in this step; pads can be sensitive and if they're removed the fix isn't the easiest!

8. When all 4 of the jumpers are connected on each side, we can pop the header pins for the controllers in. Make sure that the short pins are facing down into the PCB through the holes that are outlined by the white rectangle.

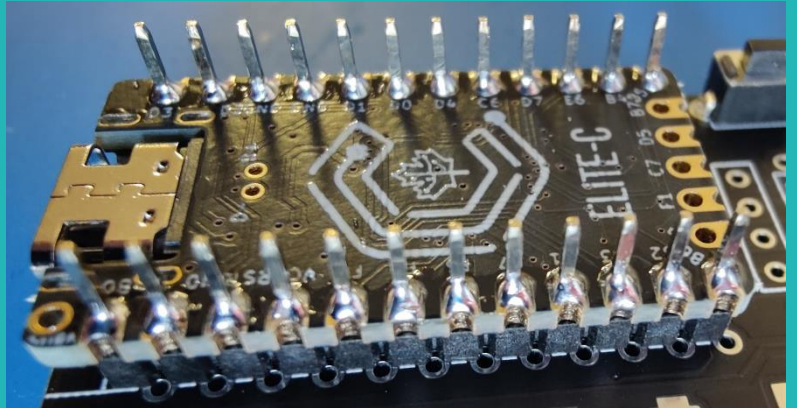


The pins should hold themselves in, however, if they're slipping out you can always just tape them into place! When they're attached you can solder them on the other side:

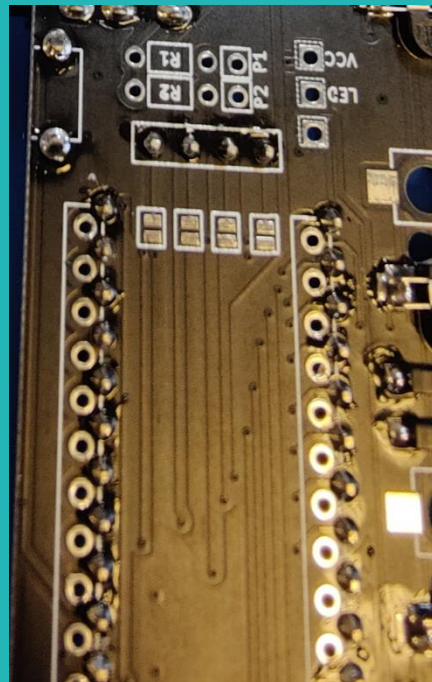
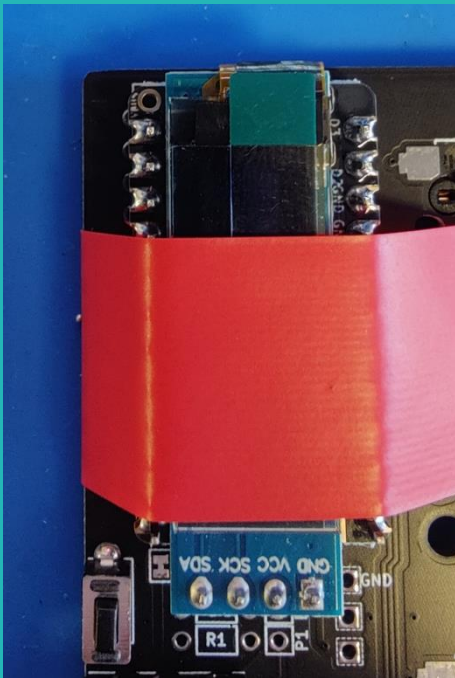


It's important to avoid bridging any two pads together at this point. This can be fixed relatively easily by heating the solder that creates the bridge.

9. Now we can solder the controllers on the top side, for this build **the components on the controller should be face down**. Soldering them the wrong way around will mean the build wont work and it's a hard job to fix, so take extra caution!

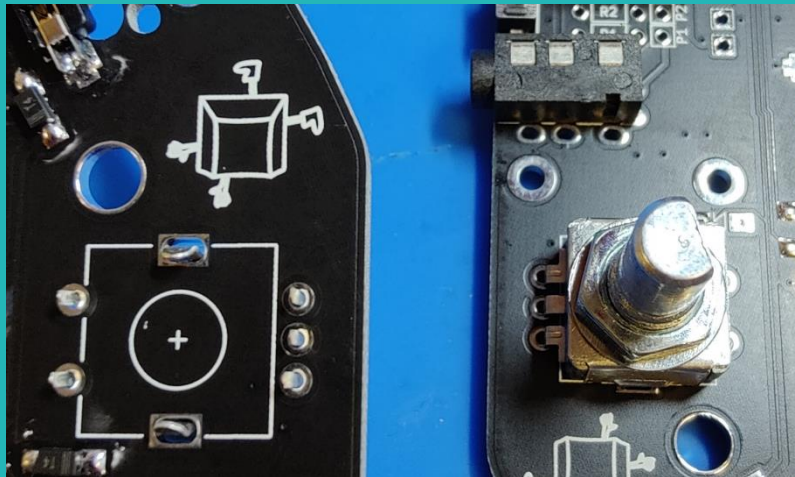


10. After both controllers are soldered in, we can place the OLEDs on top, the pins tend to be a bit looser here so tape will be a big help. I'd advise soldering just one pin and then adjusting while reheating that pin if you'd like perfectly placed OLEDs!



There's just one last component to solder now, the main feature of the Sofle, the rotary encoder!

11. The rotary encoders in our kits sometimes come with a washer and a nut, these aren't needed when we're using them for keyboards, so you can discard them, or screw them on if you really like! The pins on them can be a little flimsy, so take care when bending/inserting them into the little holes on the PCB!

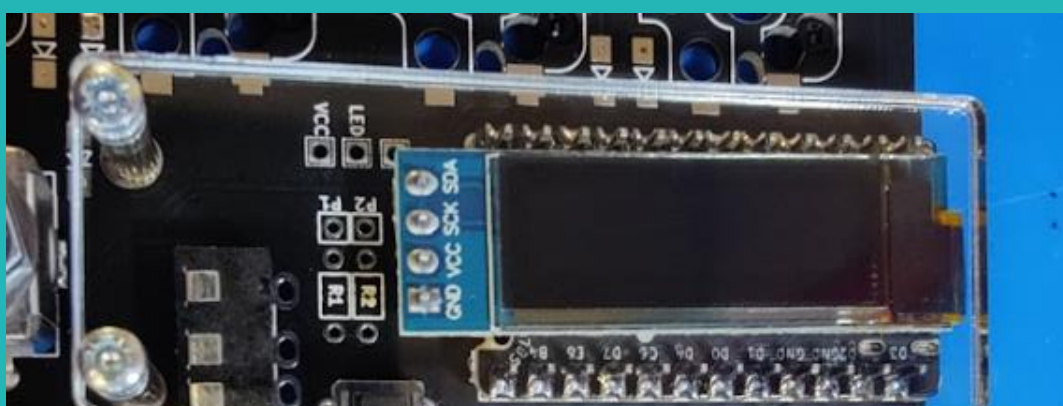


Once they're inserted and flush, you can solder all the pins and turn off the soldering iron! All that's left is to pop in the switches and screw it all together.

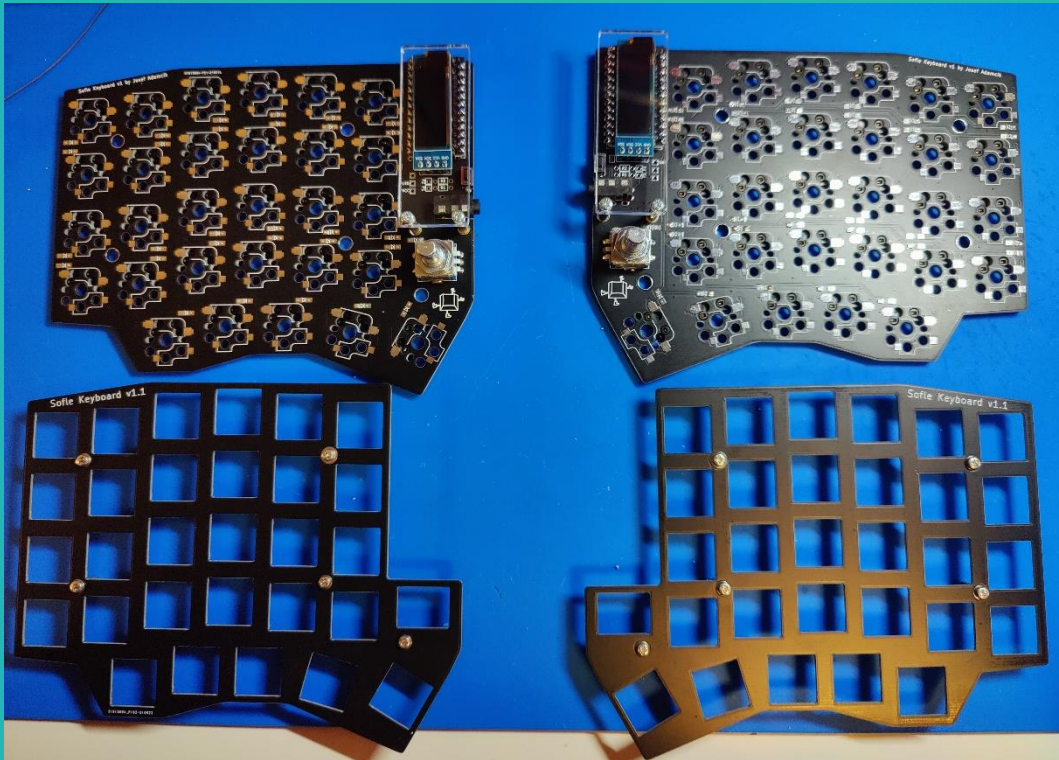
12. First up are the standoffs for the OLED screen cover, these will be the longer standoffs screwing in with shorter screws from the bottom like this:



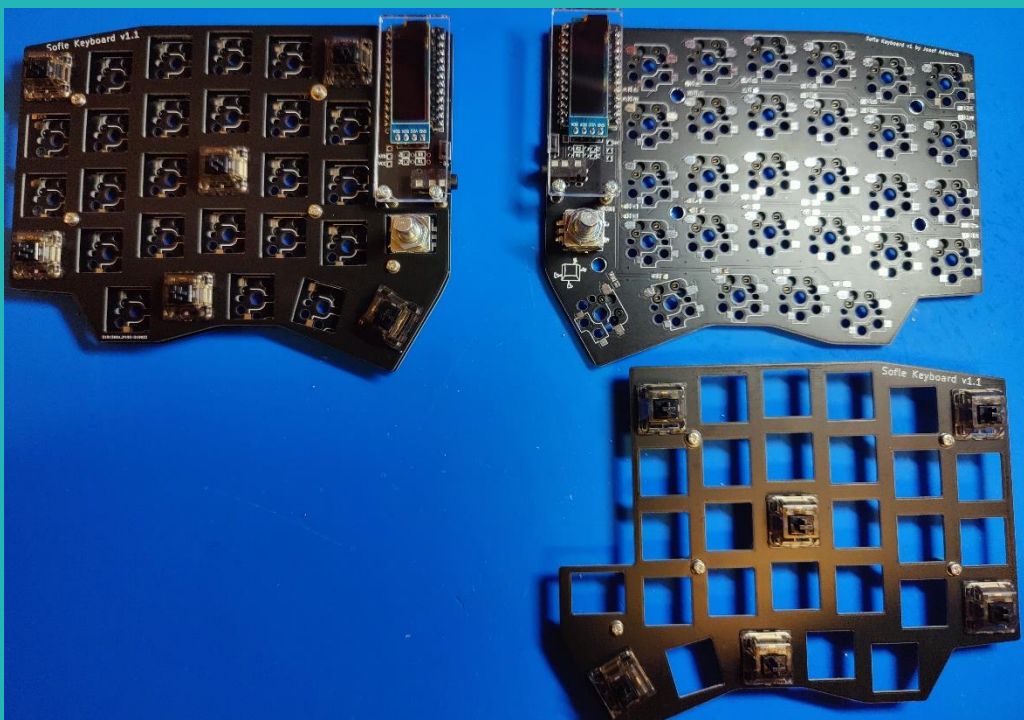
Then we can peel off the protective covering on the acrylic screens, place them on top of the standoffs, and screw them in with the longer screws. Be cautious not to screw too tightly as they can be fragile and may snap!



Now grab your switch plates, put in the smaller screws and standoffs facing down, one for each side that should end up looking like this:



Then pop a few switches into the plate, place it over the PCB, taking care to check the switch pins line up with hotswap sockets, and push them into place. Once you're happy the rest of the switches can be pushed in one at a time, the process should roughly go like this:





Finally, screw on the back, stick on your bump on feet and you're all good to go!



And it's as easy as that! You can now upload your chosen firmware to the keyboard ([here's a guide for that](#)) and get clacking!

If you've ran into any problems along the way, or spotted anything you think might improve this guide, let us know [here](#) and we'll be eternally grateful!