Introduction

I have always wanted a designated writing machine, but a lot of the products are out of my price point. I thought about buying a typewriter, but that would need me to restore it. Also, I wanted something to transfer documents to my computer.

I stumbled upon the AlphaSmart 3000. It was the perfect little machine and had everything I wanted for a small price of $40 on eBay.



Everyone was right. THIS KEYBOARD SUCKS! Over time, I found the r/AlphaSmart Reddit and learned about a custom keyboard mod you can do. It's replacing Alphasmart's PCB and making the machine into a mechanical keyboard. Some people on Reddit have documented their processes to do it yourself. Example here.

There is also a helpful section on Reddit here. Here is the website of the creator.

The Building Process

Note: You can buy whatever switches you want. They have to be a 5-pin. The links are the ones that I have used.

110 5-pin brown switches
Soldering iron Kit
Flux

Solder
Custom keys (examples below)

These are the connectors you have to purchase for the mod.
5x custom qwerty pcb (Note: can't buy 1x sadly)

1x Molex 15167-0311 16-contact FFC or equivalent (Mouser: 538-15167-0311)

1x Molex 15167-0245 10-contact FFC or equivalent (Mouser: 538-15167-0245) May be out of stock, some have used:
https://www.amazon.com/dp/B0BG7H7BKF?ref=ppx_yo2ov_dt_b_product_details&th=1

1x FCI SLW16R-1C7LF 16-pin FFC connector or equivalent (Mouser: 649-SLW16R-1C7LF)

1x FCI HLW10R-2C7LF 10-pin FFC connector or equivalent (Mouser: 649-HLW10R-2C7LF)

Thank u/DreaminginDarkness. They have answered my questions and given some alternative links for some of these connectors if they go out of stock.

Note: These are if the ones above are out of stock. Amazon will ship faster.

10 PIN FFC TYPE A
https://www.amazon.com/dp/B0BG7F7V6V?smid=A1NR50YASSZD11&ref_=chk_typ_imgToDp&th=1

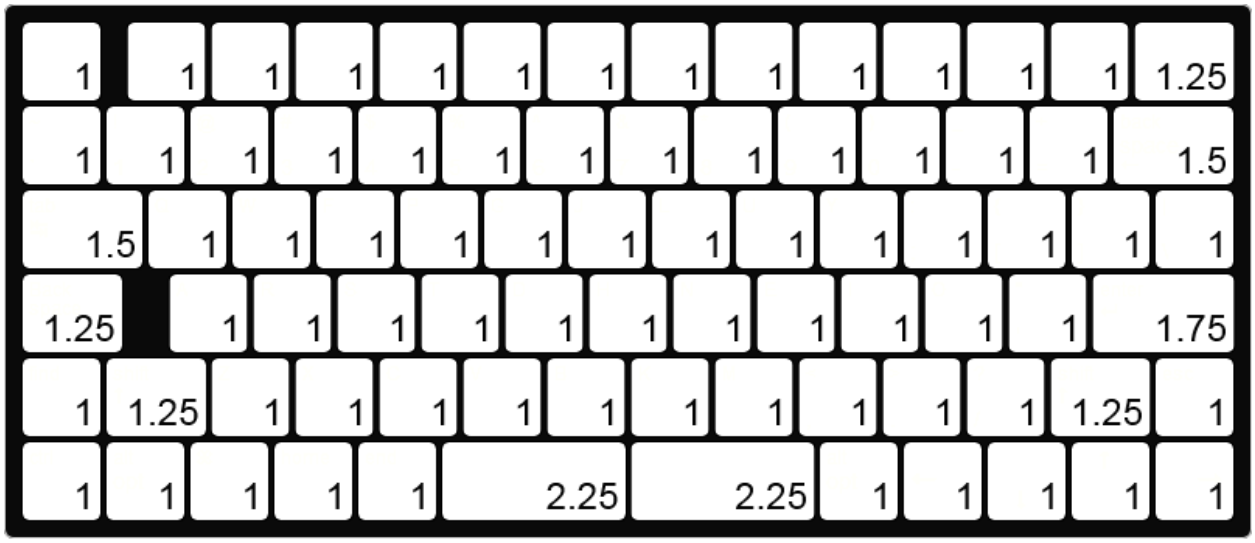
Another Redditor named u/BankshotMcG sent these too.

https://www.aliexpress.us/item/2255800393025321.html
https://www.aliexpress.us/item/2255800889224469.html
https://www.aliexpress.us/item/3256802337274300.html

I documented my experience to help anyone with this mod. There are Reddit posts and this site that helped when researching.

Key caps

I learned that there are different sizes for each key for the PCB. Here is the Diagram if you do the QUERTY layout with the link provided. The main idea is to check what you buy matches the layout.



Key sizes:

72x 1U
4x 1.25U
2x 1.5U
1x 1.75U
2x 2.25U

Keycaps are not included with the kit!

Image from [the site listed above](#).

There are keycap sets you can buy on Amazon. I noticed that people still end up buying more keys. Keep this in mind.



Image from [u/rough_draft_hero]



Another completed build from [u/BankshotMcG](). The post has useful images for soldering.



[Found this]() while searching for the creator.

I bought custom keycaps from Etsy and will link the shops. This might be more expensive than getting a set on Amazon, but I wanted everything to be as intended. See the image below.



Note: You do not need to put stabilizers. It is an optional addition to your board.

XDA 1u Keycaps (50 keycap pack) - purchased pink and white keycaps.
XDA Profile Keycaps Blank Color Backspace Tab CapsLock Enter Pbt Key Cap Custom Keyboard

Do you need stabilizers?

A: No. You are fine without stabilizers. However, there is a way to add stabilizers.



Example of stabilizers on custom board.

Learning To Solder

My goal in writing this is to show someone who does not have soldering and tech knowledge can still do this mod. Of course, if you are willing to pay the price for it. I watched YouTube videos on proper soldering methods. I'll leave the videos I referred to here.
Video #1 - Mechanical Keyboard Soldering Tutorial
Video #2 - Soldering Crash Course: Basic Techniques, Tips, and Advice!

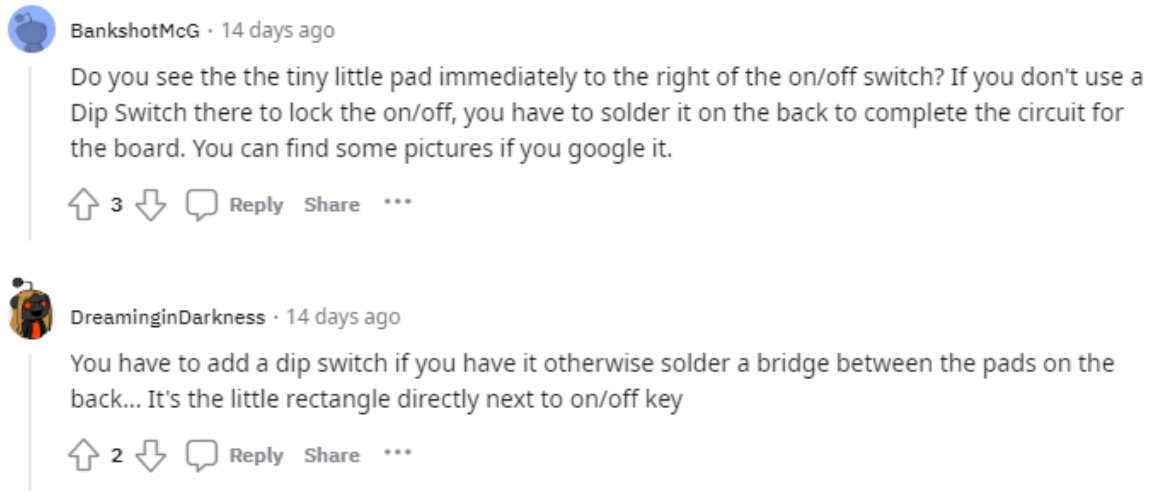
Note: Tinning is very important! And Flux is your best friend. I did not learn to tin and just purchased Tip Tinner.

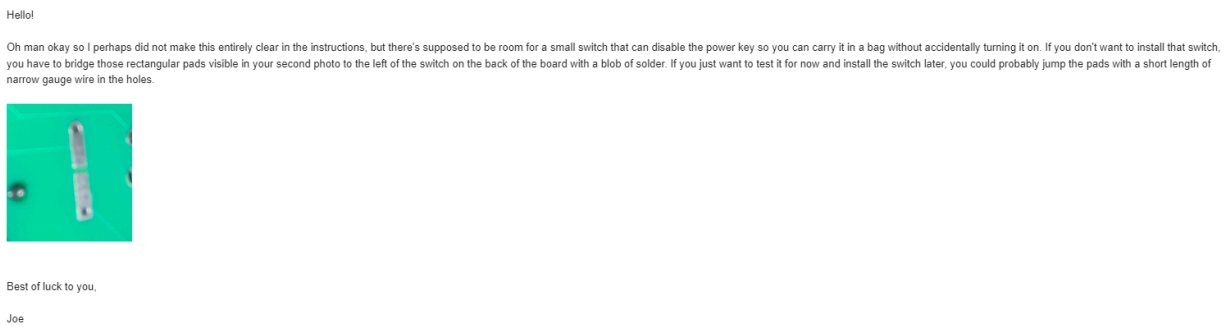
Issues I faced

After finally completing the board and testing it. It did not work. There are many reasons it was not working. I got worried I fried the PCB.

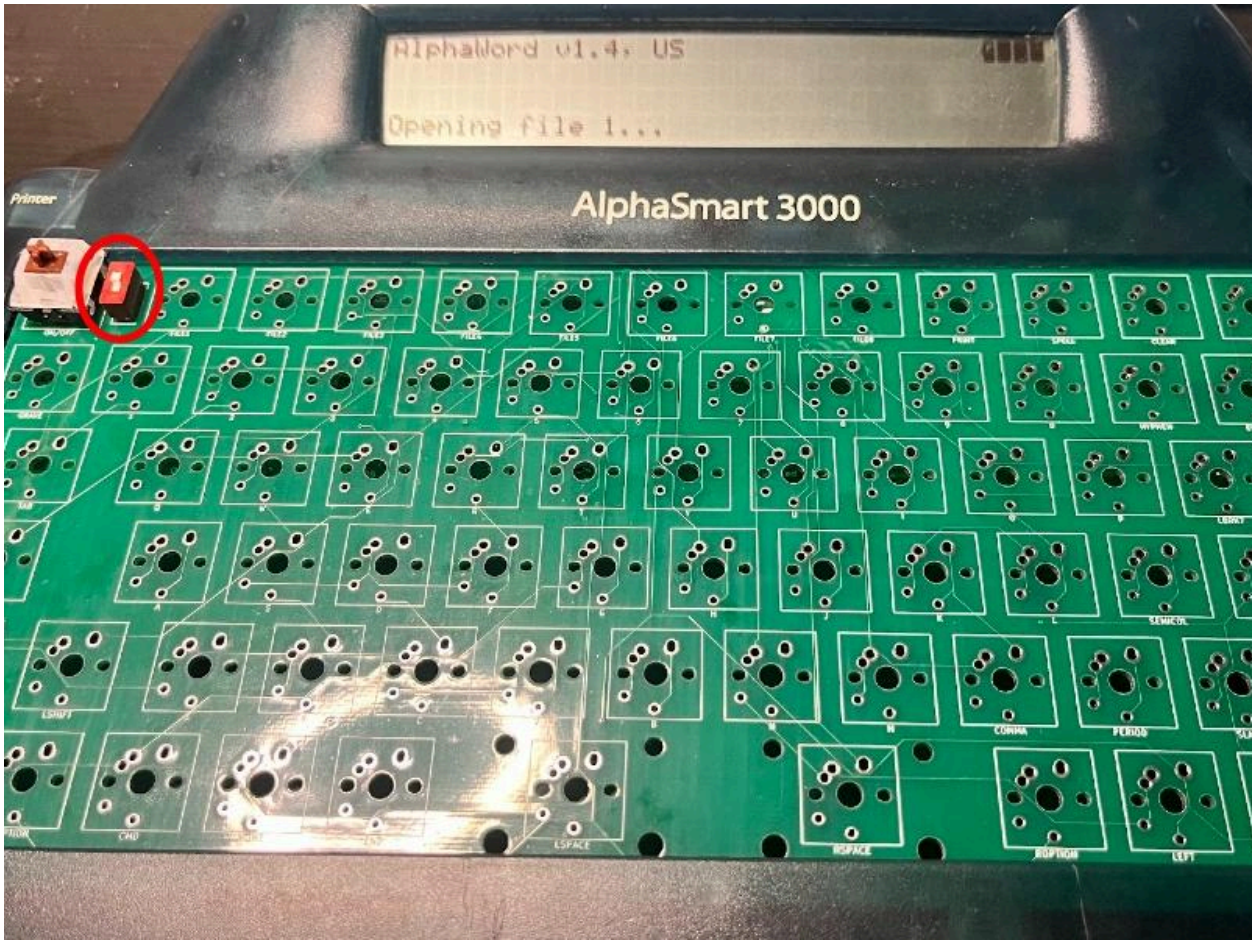
Note: You need to ground yourself to remove any static buildup rather than allowing it to cause damage to any parts. I recommend you get an anti-static wrist strap. I've worked on my computer and had one already.

The Alphsmart Reddit explained the “Dip Switch " and its purpose on the PCB. It is an optional addition to your board that can prevent it from turning on inside your bag. You decide that that matters to you. If not, bridge the connections.



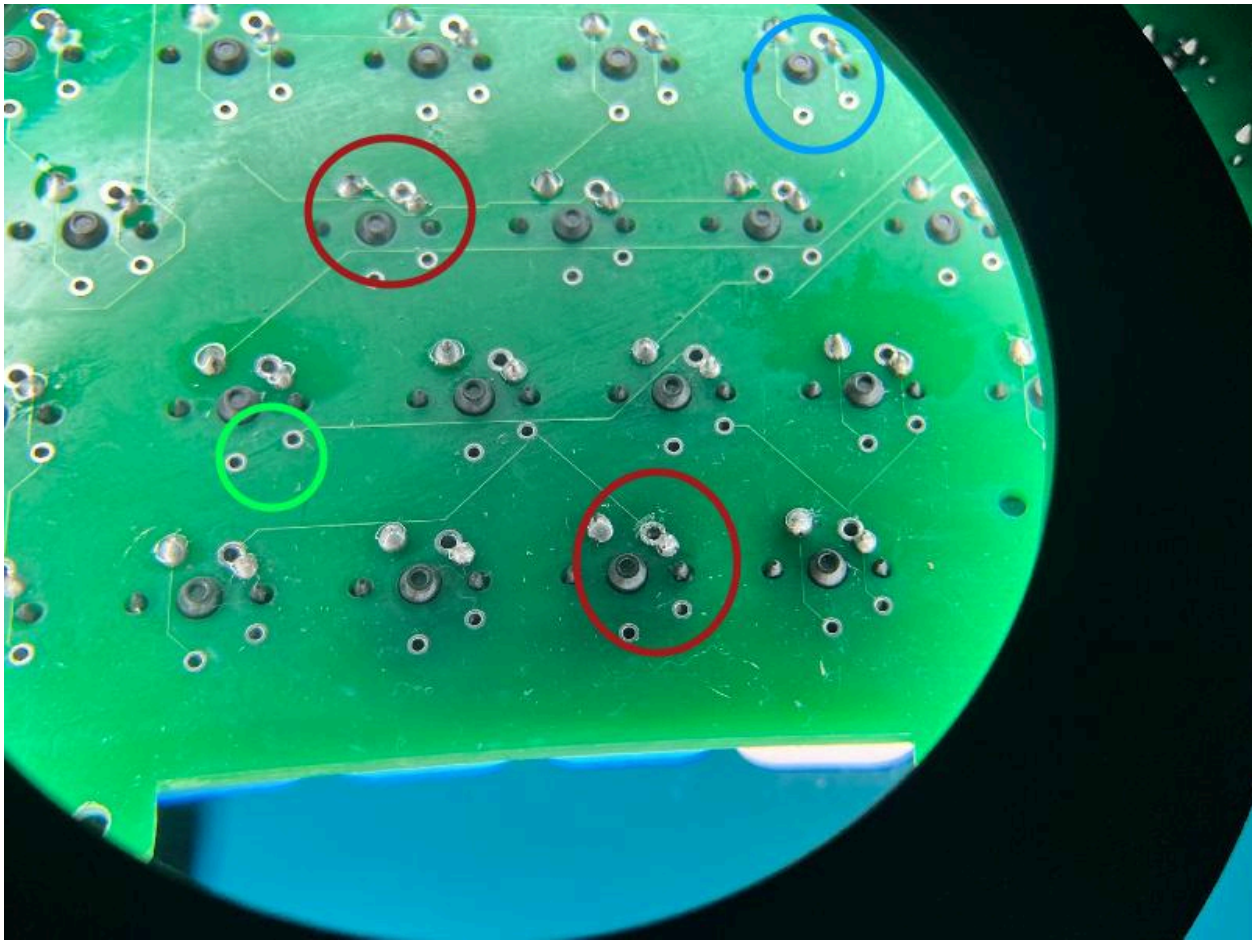


Note: This was not the fault of the creator or anything! This was just me not knowing how things work so, I wanted to post it just in case. In the email, they explain what a bridge is.



Note: The Dip Switch is the red piece next to the power switch.

After testing the keyboard, multiple entries will happen. I rechecked everything I soldered and noticed some entries had too much solder and small amounts in other sections. I fixed this with a solder wick and flux.



You will notice some solder over the other sockets (red circle). Also, I did have a solder bridge (blue circles). I used solder wick and flux. If you are removing switches, make sure to go in and out with the iron. You don't want to remove the socket (green circle)

I put everything together, but the problem persisted. I have a second AlphaSmart for testing purposes. It worked perfectly fine. My hypothesis is it's in better condition and updated firmware. I will have to conduct more testing. For now, though, I have a working Alphasmart 3000 with a keyboard.

Mountain_Aside8203 · 12 days ago

Love yours! Im almost done with mine but noticing issues. When i type the letter “T” it activates the caps button and sometimes randomly open file 3 when im typing.

1 Reply Share ···

DreaminginDarkness OP · 12 days ago

Check the 16 pin and 10 pin connectors... You might see two pins connected with solder

2 Reply Share ···

DreaminginDarkness OP · 12 days ago

You can probably easily remove it with your iron if it has a bridge

2 Reply Share ···

Mountain_Aside8203 · 11 days ago

Just fixed a lot and it works! But then when I screw everything in it starts to mess up. I dont know why though.

1 Reply Share ···

DreaminginDarkness OP · 5 days ago

Maybe the screws are bridging circuits... You could try using only two screws to secure it...it should stay in place

1 Reply Share ···

DreaminginDarkness OP · 12 days ago

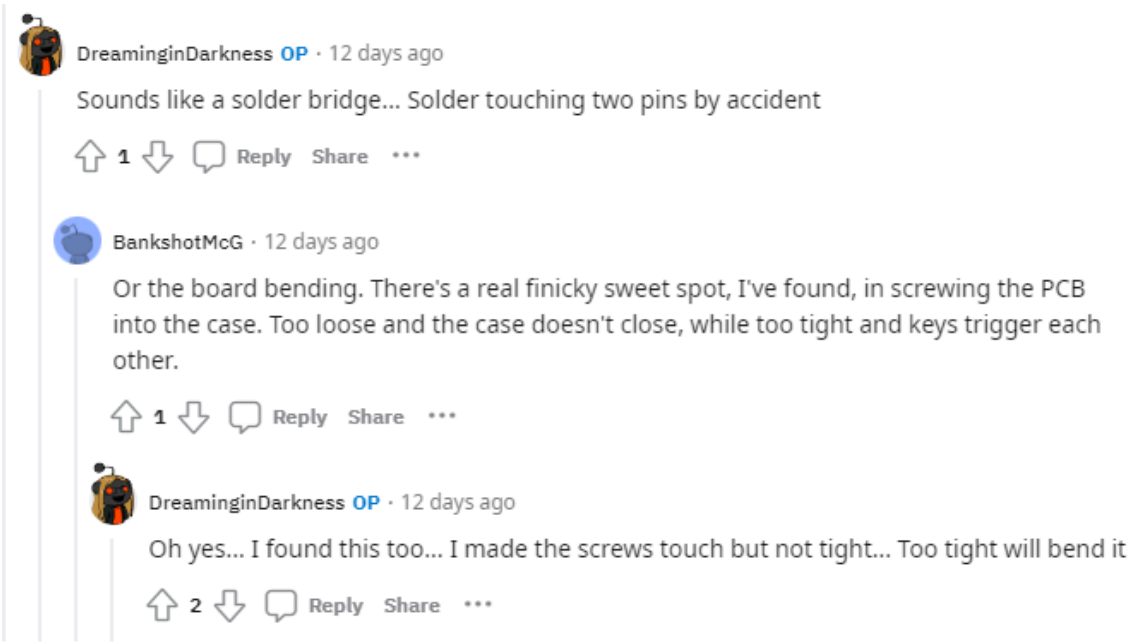
Sounds like a solder bridge... Solder touching two pins by accident

1 Reply Share ···

BankshotMcG · 12 days ago

Or the board bending. There's a real finicky sweet spot, I've found, in screwing the PCB into the case. Too loose and the case doesn't close, while too tight and keys trigger each other.

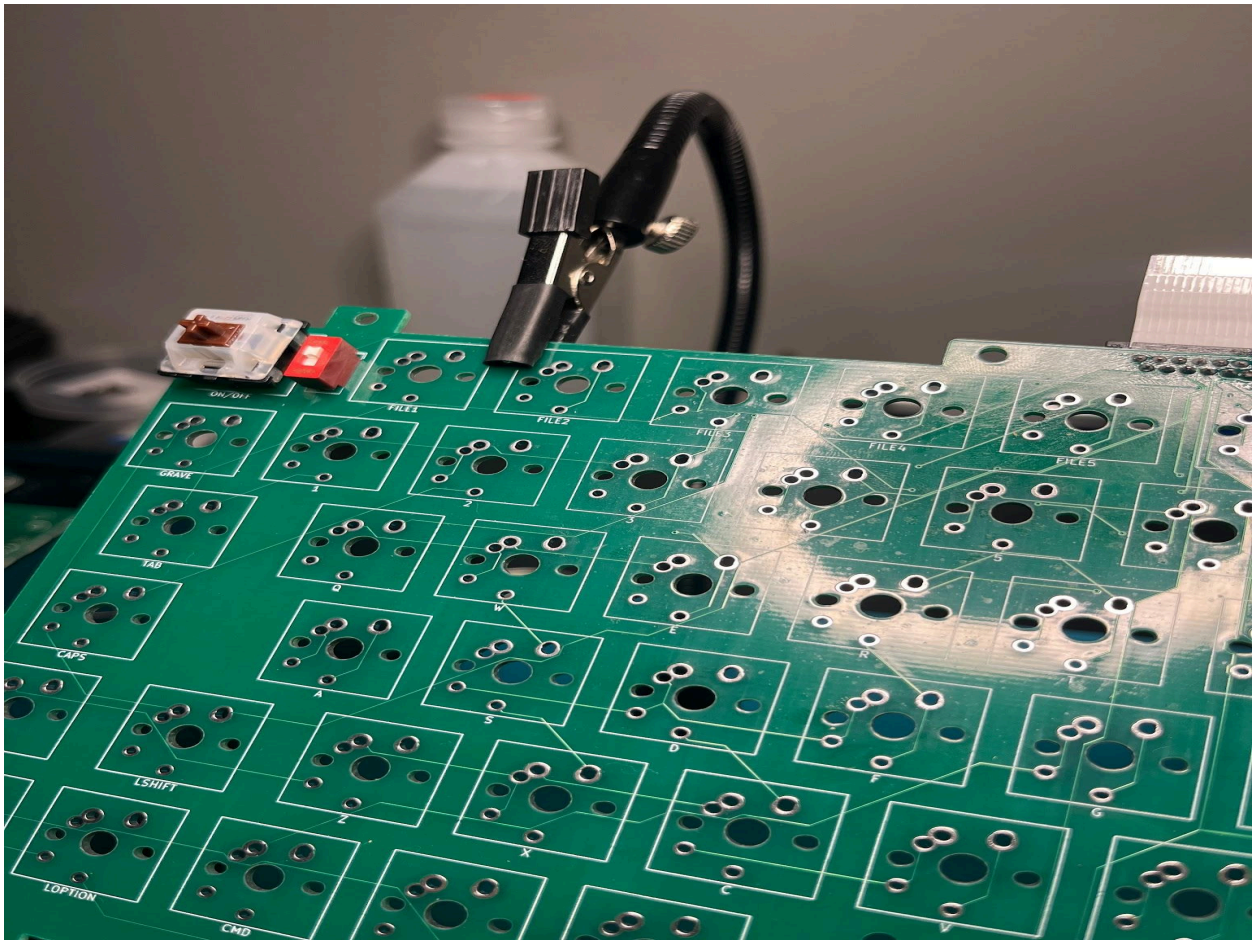
1 Reply Share ···



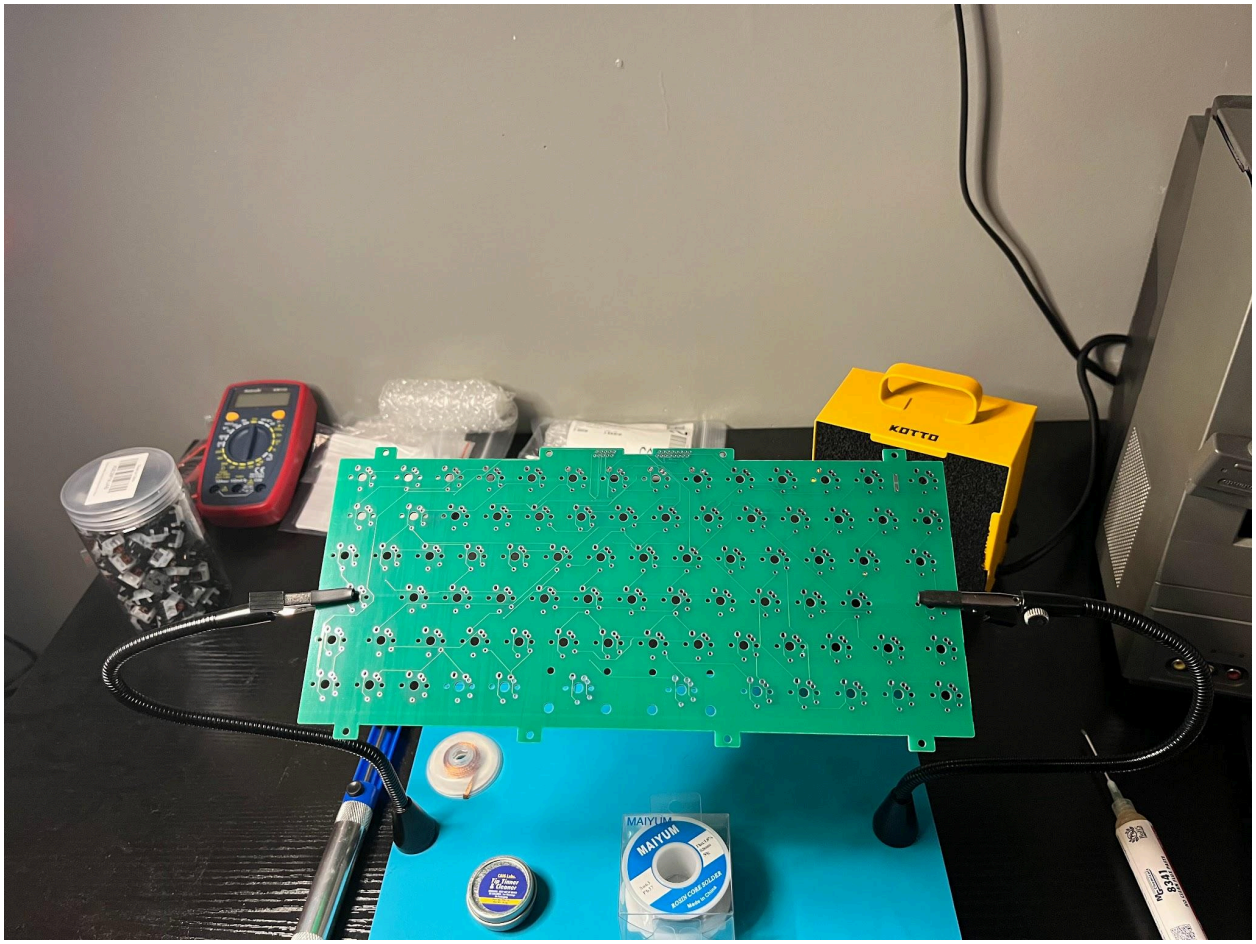
Note: I have not tested this, but good to know. Maybe this will help you.

Other Useful Information

People have said that some PCBs they order are faulty. I recommend Soldering the Molex connectors first, the power button switch and dip switch (or do a solder bridge on the back if you do not purchase it), and one key. You can also do a jumper.



Also, I found that doing the top and making your way down made putting all the switches easier. I made the mistake of doing the middle keys first and then doing the file section and had a hard time soldering. If you have clamps too that will help a lot with soldering, but I occasionally laid it flat and soldered.



The setup I used when doing the mod.

If you are on r/electronic Reddit you will hear mixed things about purchasing a fume extractor for small projects. I will say this, if you see yourself doing more projects that require soldering then you should purchase one (I got this one). If this is a one-time thing then you can find a well-ventilated area and use a fan AWAY FROM YOUR FACE and should be fine. This is the very least you can do. You could also just do it by a window.

Note: make sure that it is away from the project too since you don't want it to cool off your work when you are soldering.

Personal Opinion On This Experience

While I was happy with the purchase, I can see why it might be a potential red flag to some. Here is how I think about it.

r/writerdeck has a *Commercially Available WriterDecks* section on their page. While these are great and have a place, they are relatively expensive. If you are very tech-savvy and know your

way around a board and things of that nature, you might consider looking at r/writerdeck and just building something from the ground up.

How much did you spend?

A: The total will include shipping and taxes. Completed 11/12/2023

Note: I am from NYC, so keep shipping in mind.

XDA Profile Keycaps Blank Color Backspace Tab CapsLock Enter Pbt Key Cap Custom Keyboard

2x 2.25U
1X 1.75U
2X 1.5U
4X 1.25U
Total: $36.32

XDA 1u Keycaps (50 keycap pack) - 2x
Total: $47.42

Mouser parts
Total: 12.57

PCB
Toal: $35.00

Alphasmart 3000 Ebay
Toal: 36.97

Soldering Iron Kit, Flux, Solder, Key switches,
Total: $84.13

Total: $252.41

Popular word processors like the Smart Typewriter, Traveler, and Alpha that are on pre-order are still under budget.

Can you drop the price?

A: Of course! I think where it got very expensive was with the keycaps. You could just buy keycap sets on Amazon and then buy other sizes as you go. It would be much cheaper than what I did. Also, you don't need a tip tinner, you could tin your soldering iron with the solder you

have. The soldering kit comes with it already, but I found that going cheap on your solder leaves issues in the future so, I would rather just buy better solder. You don't have to though. The fan is also an optional purchase.

Let us calculate it by only the bare minimum needed.

Keycap Set Example
Total: 22.85

Note: people say they buy an extra set of switches so, I will use Etsy purchase in this example too.

9 custom key sizes from XDA Profile Keycaps Blank Color Backspace Tab CapsLock Enter Pbt Key Cap Custom Keyboard

2x 2.25U
1X 1.75U
2X 1.5U
4X 1.25U
Total: $36.32

Mouser parts
Total: 12.57

Alphasmart 3000 Ebay
Toal: 36.97

Soldering Iron Kit, Flux, Key switches,
Total: $63.77

PCB
Total: $35.00

Total: 207.48

You can go even cheaper with the keycaps by buying them on AliExpress. There are many options. I've seen people throw whatever they have on their board and that works for them. As long as it functions, you are good.



From u/Lonecoon