# AlphaSmart 3000
## Mechanical Keyboard Mod Kit Assembly Instructions

## Parts Included

| | | |
|---|---|---|
| A PCB | A 16-pin flex cable | 4x Stabilizer housings |
| A 10-pin connector | A SPST DIP switch | 2x 2U stabilizer bars |
| A 10-pin flex cable | 4x Stabilizer sliders | |
| A 16-pin connector | | |

## What You'll Need

| | |
|---|---|
| An AlphaSmart 3000 | A soldering iron |
| 81x Switches, MX-, Alps-, or Choc | Solder, preferably narrow gauge |
| A small Phillips-head screwdriver | |

Keycaps of these sizes: 72x 1U; 4x 1.25U; 2x 1.5U; 1x 1.75U; 2x 2.25U
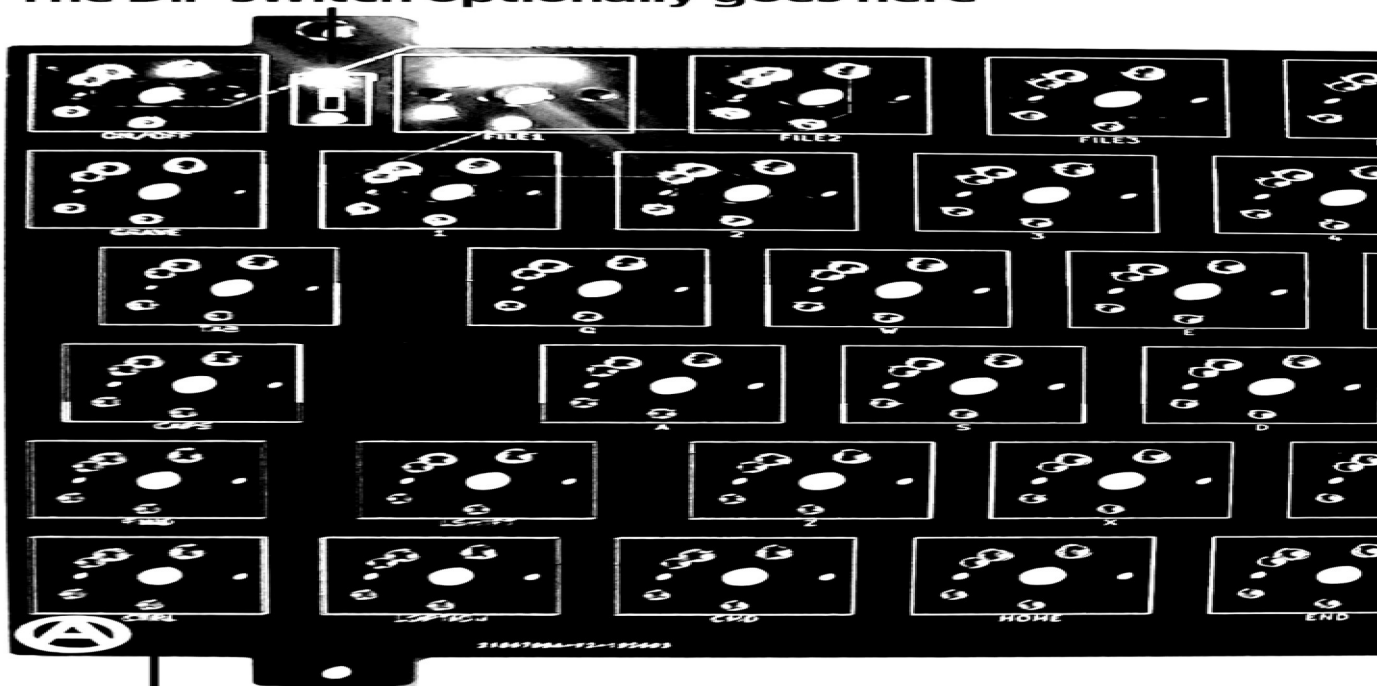


*Fig. 1*

## Soldering the Lock Switch

If you want to have a lock switch that lets you lock the On/Off key so it doesn't get pressed accidentally, solder the DIP switch in the rectangle between the spaces labelled On/Off and File 1 in the top left corner of the front of the PCB, the side with silkscreen printing.

If you don't want to have a lock switch, find the jumper pads in the top right corner of the unmarked back of the PCB and bridge them with a small blob of solder.

## Soldering the Connectors

Place the connectors in pads on the back of the PCB so that their mouths are facing away from the center, making sure all the pins get through. Be careful when soldering them that you don't bridge the pins. Carefully but firmly insert the 10-pin cable in the corresponding connector so that its pins face away from the PCB. Raise the latch on the 16-pin connecter, out, then upward,
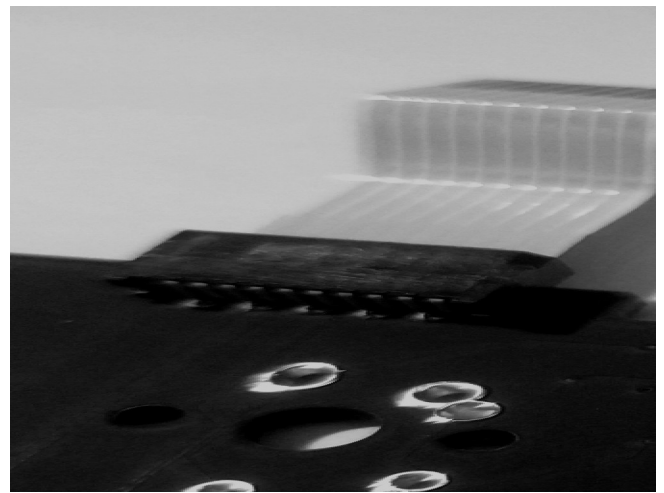

Fig. 2

and insert the 16-pin cable so its pins face towards the PCB. Close the latch and make sure the cables aren't liable to fall out. At this point, if you wish to test the board, skip ahead to Installing the Keyboard. You can test the key sockets by bridging the pads with a piece of wire or metal tweezers.

## Soldering the Switches

Place the switches in the holes on the front of the PCB, checking each one to make sure the pins went through without bending. The pins of MX- and Alps-style switches should be oriented towards the top, and those of Choc switches towards the bottom. If you are using MX- or Alps-style switches, it's recommended that you

use a ruler or other straightedge to make sure the switches are straight, as there is no plate to align them.

## Assembling and Inserting the Stabilizers

Insert two of the stabilizer sliders into the bottoms of two of the stabilizer housings, then insert the ends of one of the stabilizer bars through the front of the housings and into the lower holes of the sliders. Place the bar snugly in the clip on the front of the housing. Then insert the assembled stabilizer into the holes on either side of one of the spacebar switches on the front of the PCB so that the bar is towards the bottom and the split pegs are in the smaller holes towards the top. Repeat all this for the other stabilizer.
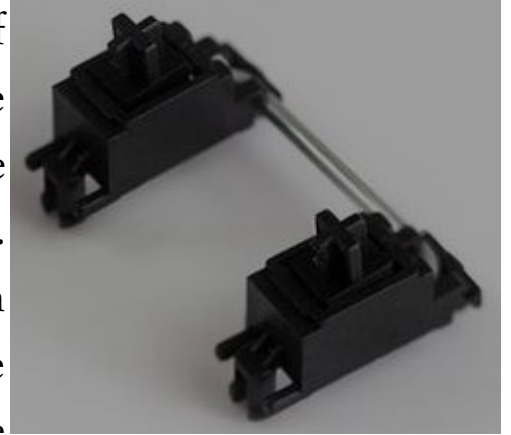

*Fig. 3*

## Installing the Keyboard

Remove any batteries in the AlphaSmart. Undo the 8 screws on the back of the AlphaSmart and carefully put them aside. Lift the front of the case and unplug the display cable from the main board. Undo the 6 screws holding the original keyboard to the case and put those aside as well. With tweezers or your nails, open the latches on the connectors on the main board that the keyboard connects to and remove the flex cables, then lift the keyboard out of the case. Carefully insert the cables of the mechanical keyboard into the connectors on the main board and close the latches. Place the mechanical keyboard so it fits over the two alignment pegs of the case. Screw the screws back in, gently and evenly so as not to place undue stress on the PCB. Because of the leads and switch pins sticking out of the underside of the PCB, it will not be perfectly flush against the case. Plug the display cable back in (the ribbon cable should run to the right) and screw the case back together. Place

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the keycaps on the switches. Insert 3 AA batteries, make sure the lock switch is in the ON position if you installed one, and press the On/Off key. If all went well, you should have a functioning mechanical AlphaSmart 3000!

## Useful Resources

*Soldering is Easy*, an excellent primer on soldering:

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https://mightyohm.com/blog/2011/04/soldering-is-easy-
comic-book/
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**How To Assemble Cherry PCB Mount Stabilizers:**

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https://youtu.be/u-HYNmtP1Hc
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**Official AlphaSmart 3000 Manuals and Software:**

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https://web.archive.org/web/20150909175208/https://
support.renlearn.com/techkb/techkb/10497122e.asp
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