

Mouse Switch

The primary mouse switches used for this mod are the D2LS-21(blue/61g actuation) and D2LS-11(white/122g actuation). They can be purchased in various places (Digikey, Amazon, Aliexpress). People have experimented with other mouse switches as well.

Mouse-click buttons have very low travel distance and give a satisfying click. Their press will also be consistent over use compared to rubber domes. Use whatever switch you prefer based on actuation force, noting that within each model there can be variance (61 ± 20 g, and 122 ± 41 g).

Mouse-click ABXY

Phob 1.2+ boards provide an easy way of soldering mouse-click switches for the face buttons.

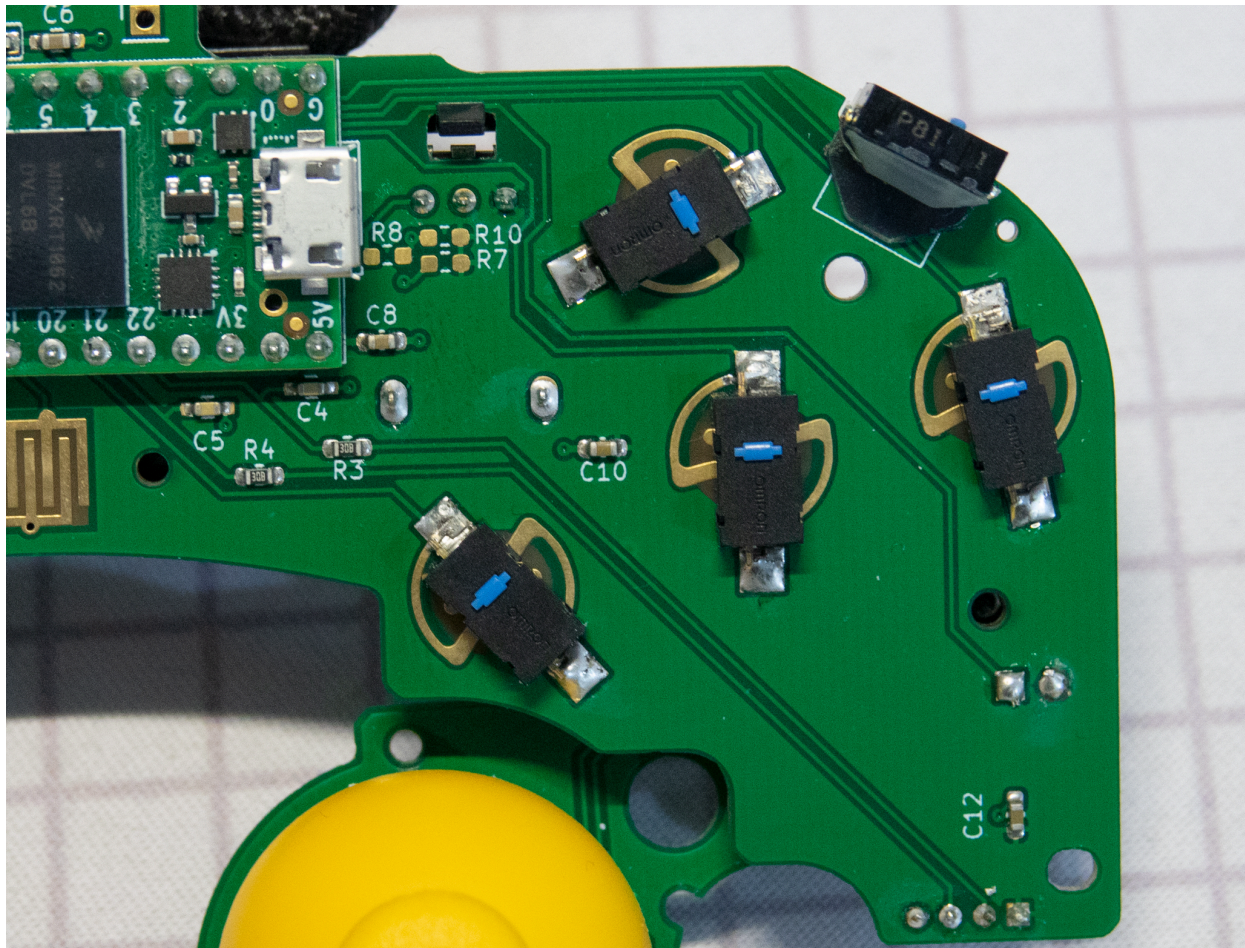
Step 1 - Remove mouse switch pegs

Using flush cutters, cut off the pegs on the back of the mouse switch. This will allow the switch to lay flatter on the Phobgcc board. A small amount of sanding is needed to remove the remaining plastic off the pegs. The bottoms of the switches should be smooth to the touch.



Step 2 - Solder Mouse Switches

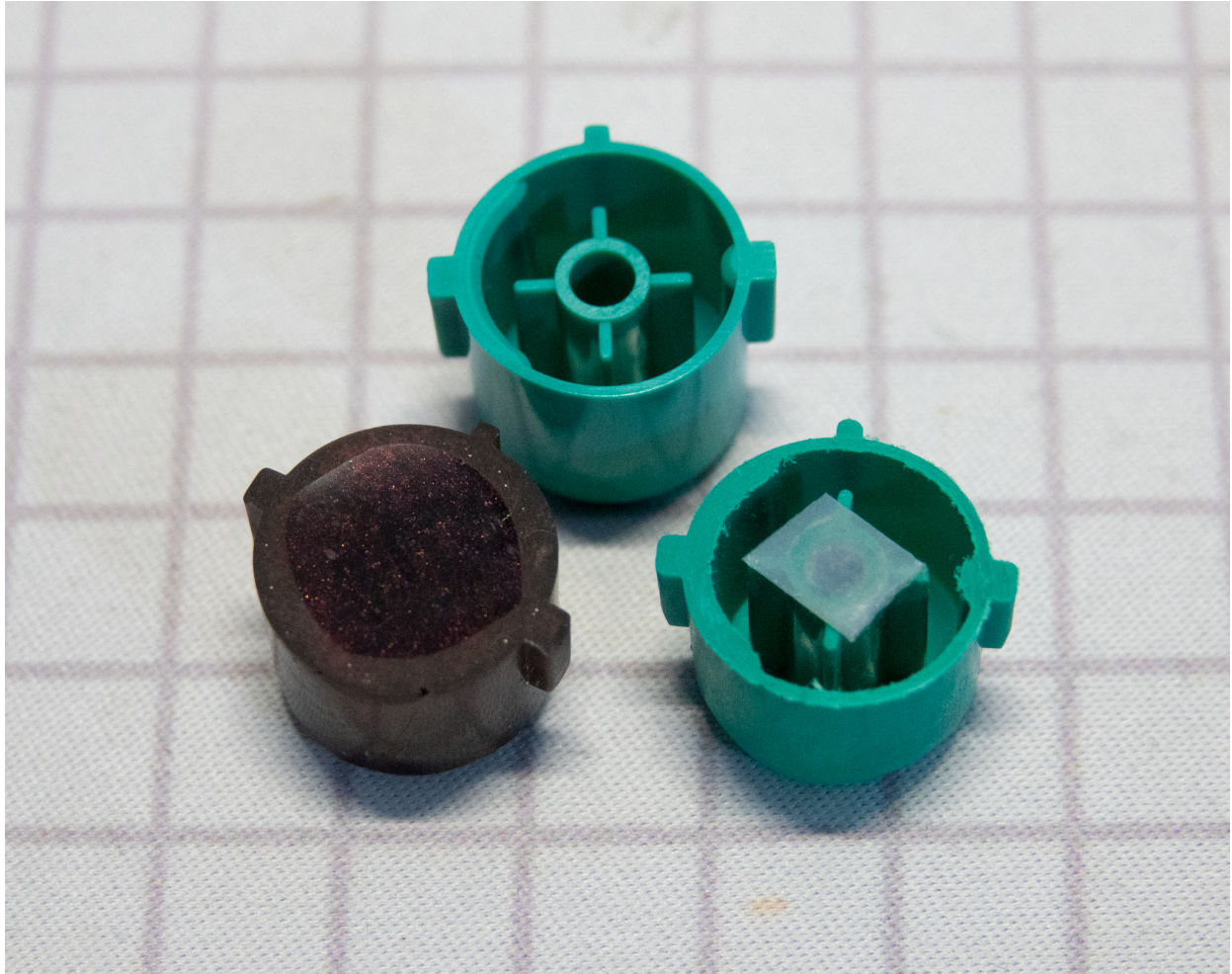
Solder the switches to the board. Make sure to center the switches correctly, as it will help ensure an even press. The solder pads are placed in a way to center the switch. By soldering only one side first you can adjust the position more easily.



Step 3 - Sand buttons/PTFE Tape

OEM buttons need to be sanded down so that all the bottom plastic is flush with each other. Afterwards, they need to have some PTFE tape or other solution applied to the bottom that will create a hard surface to press the mouse switch directly. Alternative solutions are ceramic mouse-skates, 3d printed plugs, and glass beads instead of the PTFE tape. The rubber ABXY button pad is not needed in the controller.

You should sand and check if the button actuates every once in a while, and reduce the overall button height to your preference. Custom resin buttons with flat bottoms might need to be sanded a little bit but they don't need any tape. Make sure you sand uniformly, or you might have an uneven button press.



(Top: OEM button, Left: Resin button sanded, Right: OEM button sanded with PTFE Tape)

PTFE tape source:

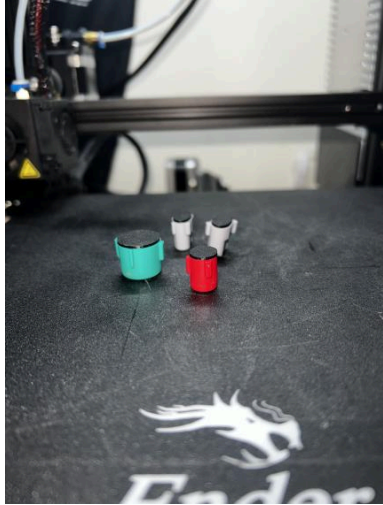
<https://www.mcmaster.com/76475A51/>

Might also be in the firecustoms shop, but currently not in stock.

<https://www.etsy.com/shop/firecustom>

3d Printed solution and stls by norogative:

<https://discord.com/channels/931041165007028234/999777690083147826/1028712285801300082>



Glass beads:

<https://www.etsy.com/listing/746978896/>



Instead of a flat surface, a curved surface might more easily actuate the small pads on the mouse switches.



Step 4 - Stabilize buttons (Optional but highly recommended)

This stabilization mod is very helpful for the mouse click buttons in particular, reducing wobble and slightly helping the user to press the button flat on the switch. It uses the same PTFE tape previously mentioned.

Follow the instructions on the firescustoms stabilized buttons guide:

<https://firescc.com/mod-guides#/fires-stabilized-buttons>

You may need to experiment with the amount of tape needed for the best experience with your button. I needed less than pictured.



Mouse-click L/R

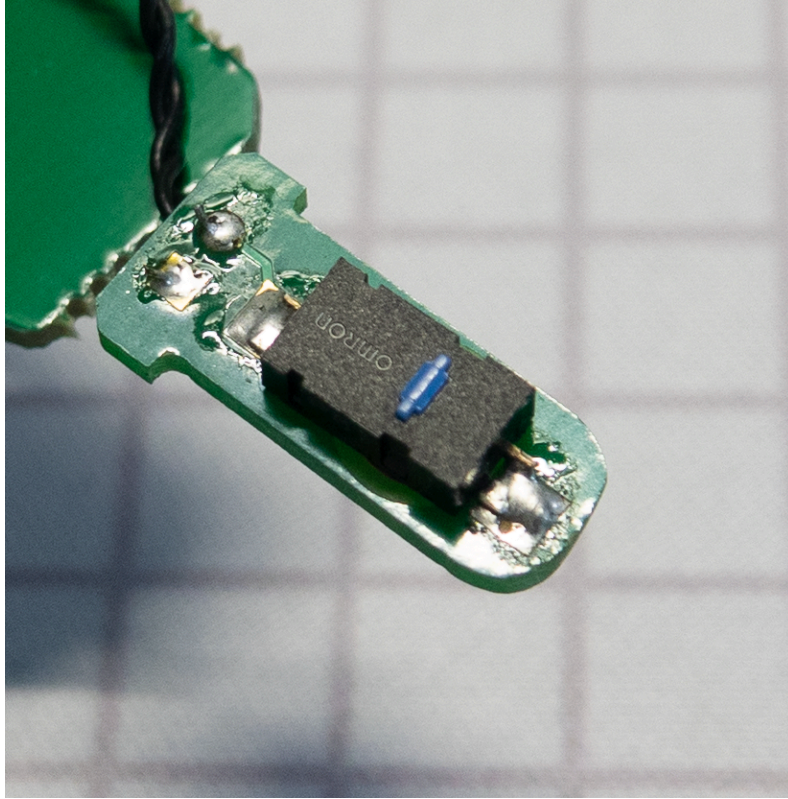
Phob 1.2.2+ versions come with custom L/R paddles that make it easy to solder on a mouse click switch with some modifications to the trigger mechanisms. Phob 2.0+ versions you would need to order the L/R paddles separately according to the guide.

Step 1 - Remove mouse switch pegs

See step 1 of the Mouse-click ABXY buttons.

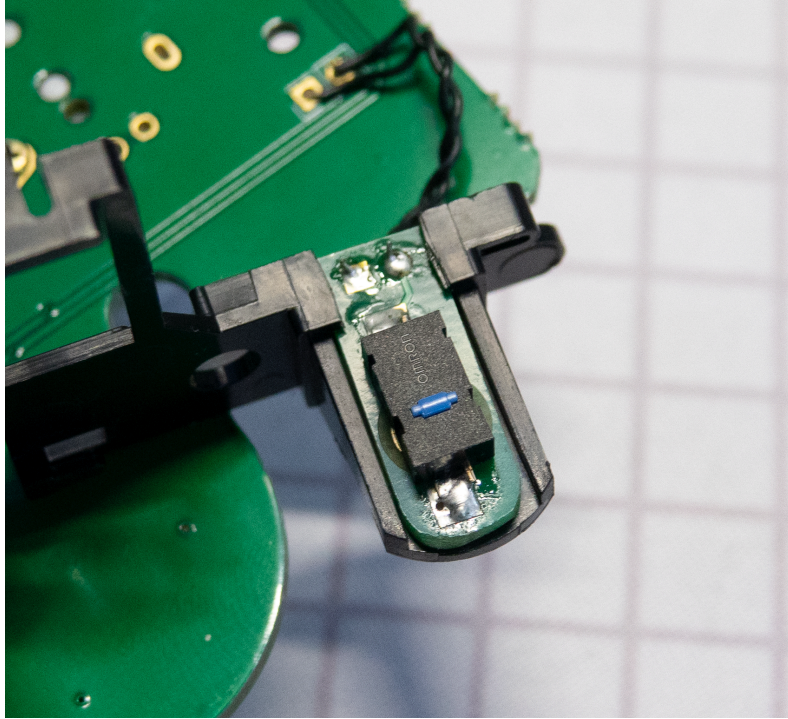
Step 2 - Solder Switch onto L/R Paddle

Solder the mouse switch directly onto the paddle trying to keep it as centered as possible. Also the paddle will need to be soldered to the PhobGCC as normal.



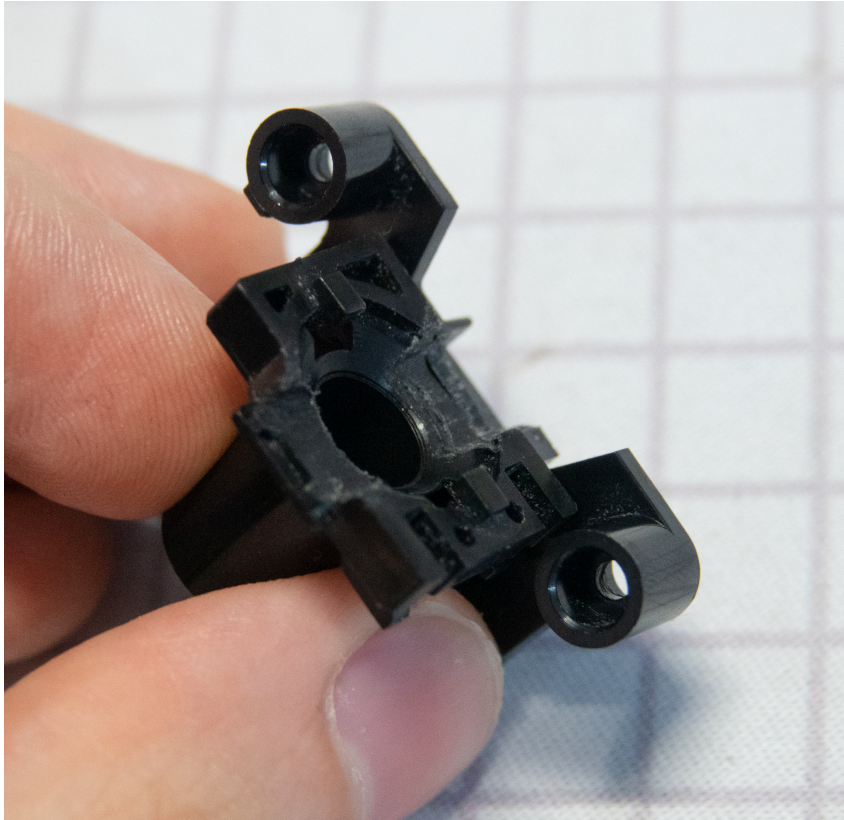
Step 3 - modify rumble bracket/3d print new rumble bracket

You will need to cut off some plastic so the mouse switch can slide into position, or print a modified rumble bracket. I add double-sided tape to get the back of the paddle to sit still on the rumble bracket.



Step 4 - Modify/3d print new trigger guard/guide

The Mouse-click trigger switch won't clear under the trigger guard and guide without modification. Using a flat file, file down the middle base of the guard and guide so the mouse switch can slide in without pushing against any part of the mechanism. You can also cut part of the trigger guard out instead of filing.

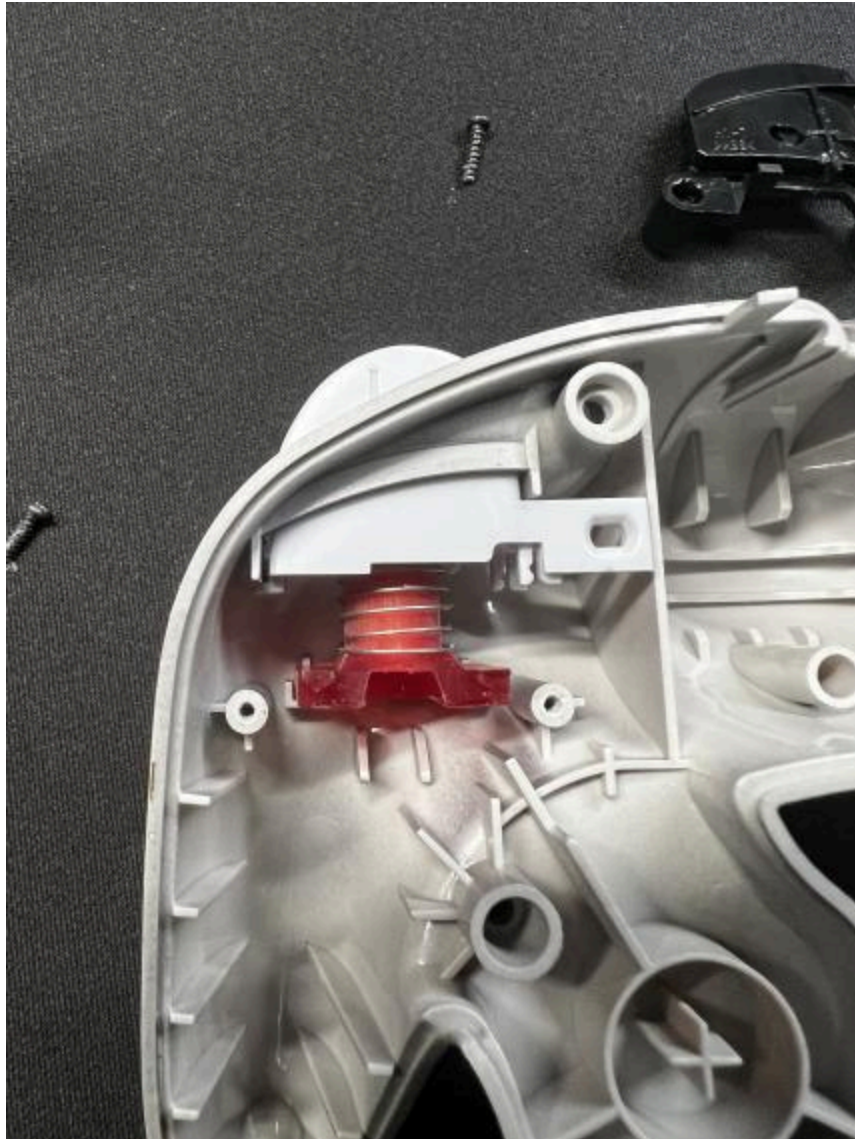


A 3d printed custom trigger guide and/or guard that has space for the switch to fit under will work too. You can find stl files created by Ryan below:

<https://github.com/adorablessoft/gcc-mouseclickbracket>

Resin Printed trigger guide

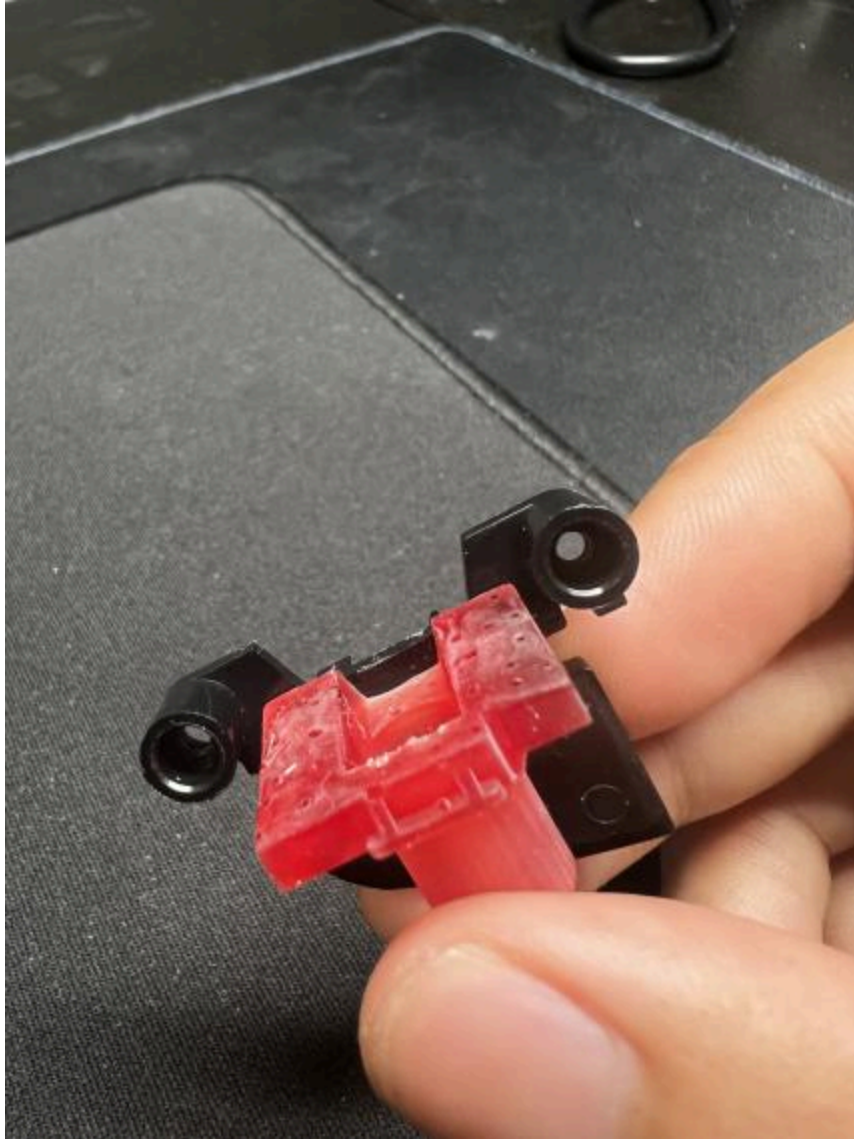




Oem Trigger guard (without modification) and resin trigger guide

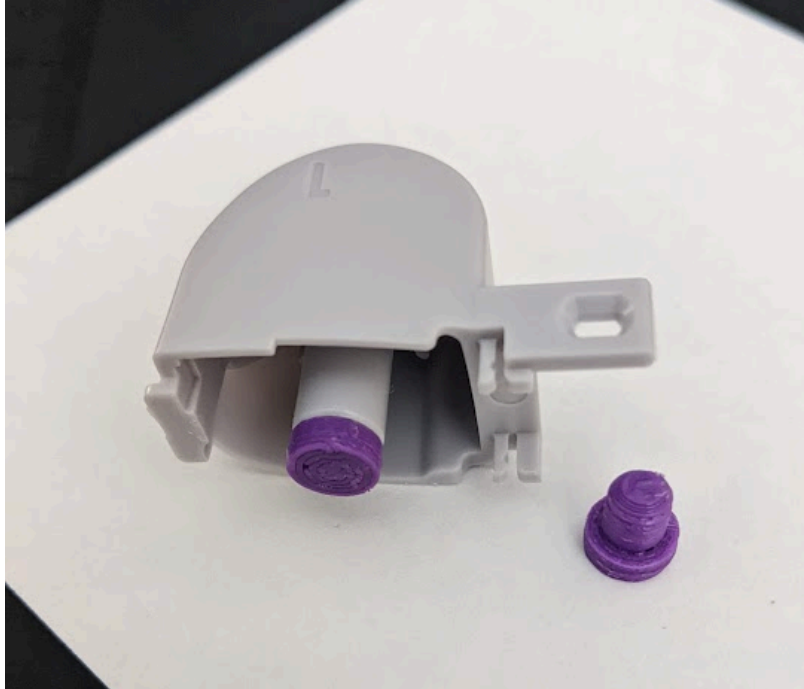


Oem trigger guard (cut in order to fit) and resin trigger guide



Step 5 - 3d print trigger plug

A 3d printed plug is needed for the the L/R triggers actuate the mouse switch, the taller the plug the higher the trigger will actuate the click.



Step 6 - Stabilize Triggers (Optional but recommended)

This is an optional step, but highly recommended for this mod. The triggers may move around in the shell and can cause uneven presses to the mouse-click switch, this is more prevalent if you do not have a spring. You can use PTFE Tape to stabilize the trigger.

Follow the instructions on the firesccustoms trigger guide in the 'Bearing' section:

<https://firescc.com/mod-guides#/fires-triggers-stage-1>

You may need to experiment with the amount of tape needed for the best experience with your button. Too much tape and the trigger will be stuck and feel mushy.

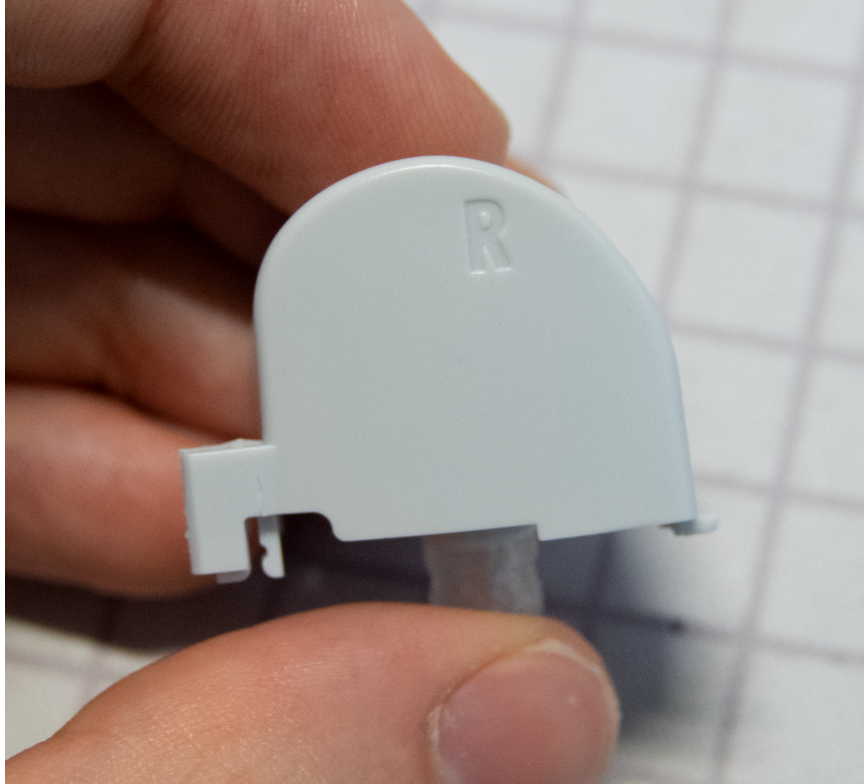


Step 7 - (Optional Steps) Including Spring and Clipping trigger slider wing

If you would like to keep the analog portion of the trigger, insert the spring under the trigger as normal.

For a digital only trigger, the trigger's slider wing can be cut which will make closing the controller easier and reduce some weight of the trigger. I like this personally in my own digital trigger as it pops up with more force.

When you close the controller you will need to hold the trigger up so the trigger plug is not blocking the switch. You will also need to put the trigger sliders in the upmost position if you have not cut the trigger wing.



Alternative Mouse-click L/R Method - Digital Mouse Switch Bracket

While the previous type of mod can be used in conjunction with the analog sliders, the following bracket and modification might be easier to install for a digital switch.

It does not require sanding any section of the trigger guard/guide. Although with this method opening the controller is more difficult as the wire will attach the motherboard to the back shell.

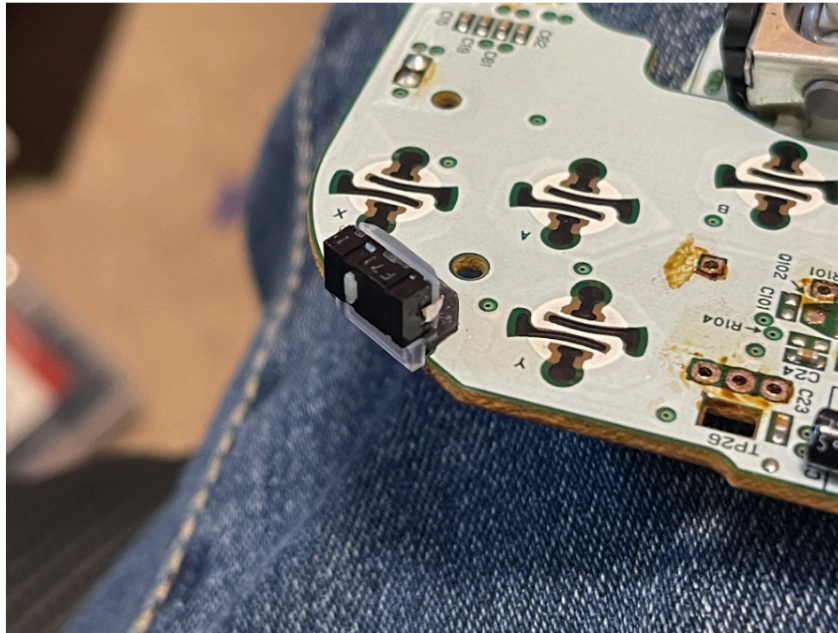
Link to STL for tube guide replacement for mouse button triggers—on the Custom GCC discord
<https://discord.com/channels/291927795548815362/292008607766282240/979167330472980560>

Mouse-click Z

The **BibbEZ** mouse click Z mod is highly recommended due to how durable this method is compared to others. You can find a guide in the phobgcc documentation page for this mod:

[https://github.com/PhobGCC/PhobGCC-doc/blob/main/For Makers/BibbEZ/BibbEZ_Guide.md](https://github.com/PhobGCC/PhobGCC-doc/blob/main/For%20Makers/BibbEZ/BibbEZ_Guide.md)

NOTE: These other mouse click Z methods below aren't recommended anymore since the BibbEZ mod is better.



You need to use a resin printed bracket to mount the switch. Simple has provided files for download and brackets for purchase. You must use the universal bracket version for phob/goomwave compatibility.

Files: <https://github.com/SimpleControllers/gcc-mouseswitch-z>

Purchase (fully assembled and brackets) :

<https://simplecontrollers.bigcartel.com/product/mouse-switch-z-bracket>

The install guide can be found below:

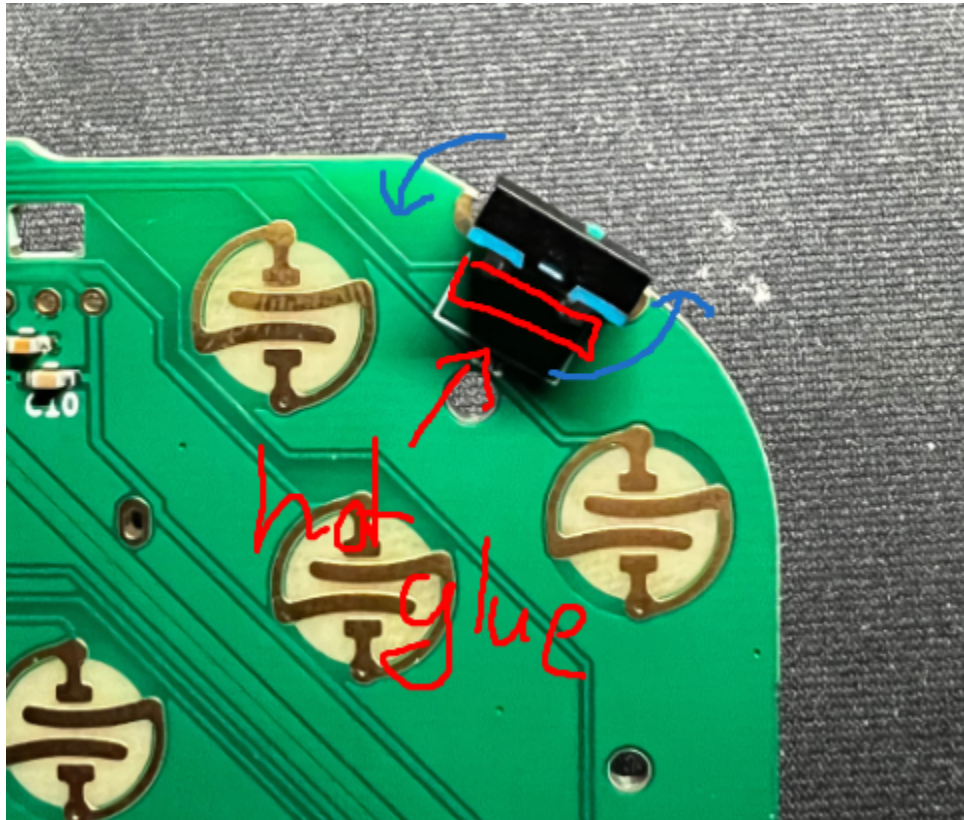
<https://docs.google.com/document/d/1Bw5NULk1fzuFb-ha8u6wQb45LdNfqLJLsTHdUqVoEQA/edit>

Kailh Mini Side-Mounted (L) switch

These switches can be installed simply and without a 3d printed bracket. Drop in and solder after dabbing a bit of super glue on the bottom and rotating just slightly according to the picture. You can try soldering both sides of the pin for a little more stability. It might be recommended to

use some pliers to flatten the pins more flush against the switch, so it protrudes less from the board. You will likely also need to file the Z button towards the middle in order to help it clear better. It "should " be somewhat easy to press along the Z button, if you feel some tightness/stiffness, it's likely you need to file the Z button more. As with the simple bracket mod, it's recommended to remove the nub and the metal bar as well.

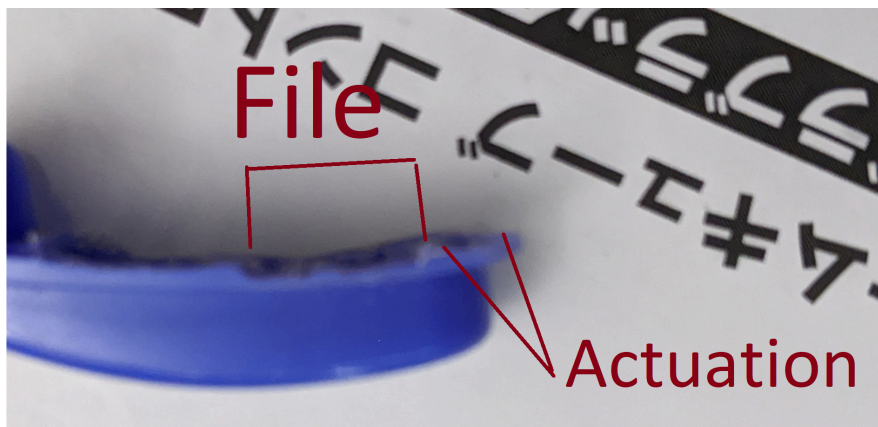
<https://mouseclub.co/collections/microswitches/products/kailh-mini-side-mounted-l-microswitch-1?variant=40098387296405>



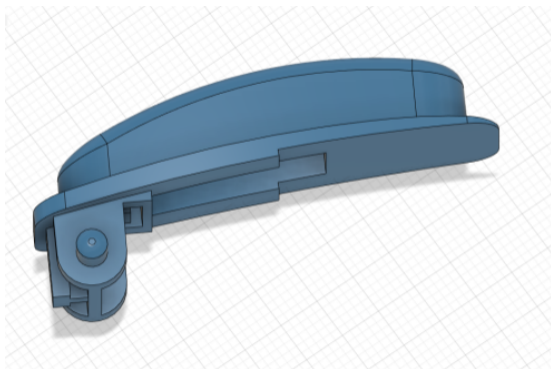
Pin in the front has been squished flatter against the switch, so the fit is better. Both pins should be squished with the pliers so its flat against the switch. This picture is for comparison purposes. Be careful squishing them though, you might accidentally break the switch.



Z button has been filed next to the actuation point which can help clear the mouse switch if needed.



You can also use a 3d printed Z which will clear/actuate well. Files provided by Olympia



<https://discord.com/channels/931041165007028234/999777690083147826/1076606675311677580>

Additionally you May need to cut a section of the front faceplate so the Z button can fit. It is the peg attached to the inside of the Y button recess.



(Inside view of the front faceplate with the Z peg removed)

Kailh Micro Switches (Need to be bent)

<https://www.aliexpress.com/item/3256801683023990.html>

<https://www.aliexpress.com/item/2255800157572244.html>

As an alternative to drop-in ones above, these mouse switches can be used, but their pins need to be bent first. Pictures of them being bent are shown below, courtesy of JorgeAGoias

