Section 3 - Making the switch

The keyboard switch determines the typing experience - it controls the weight, feel, and sound of the typing for each key. Make sure to know the choices available.

What about the red, black, brown, and blue?

If coming from pre-built mechanical keyboards, you may recognize the typical choices available for Cherry MX switches - red lightweight linear, black heavyweight linear, brown tactile, and blue clicky.

However, what if I told you that you have been tricked into seeing only four of 800+ switch variants in the world?

In the realm of custom keyboards, you are no longer constrained to just a few choices; choose freely based on preference, and mod them to your needs.
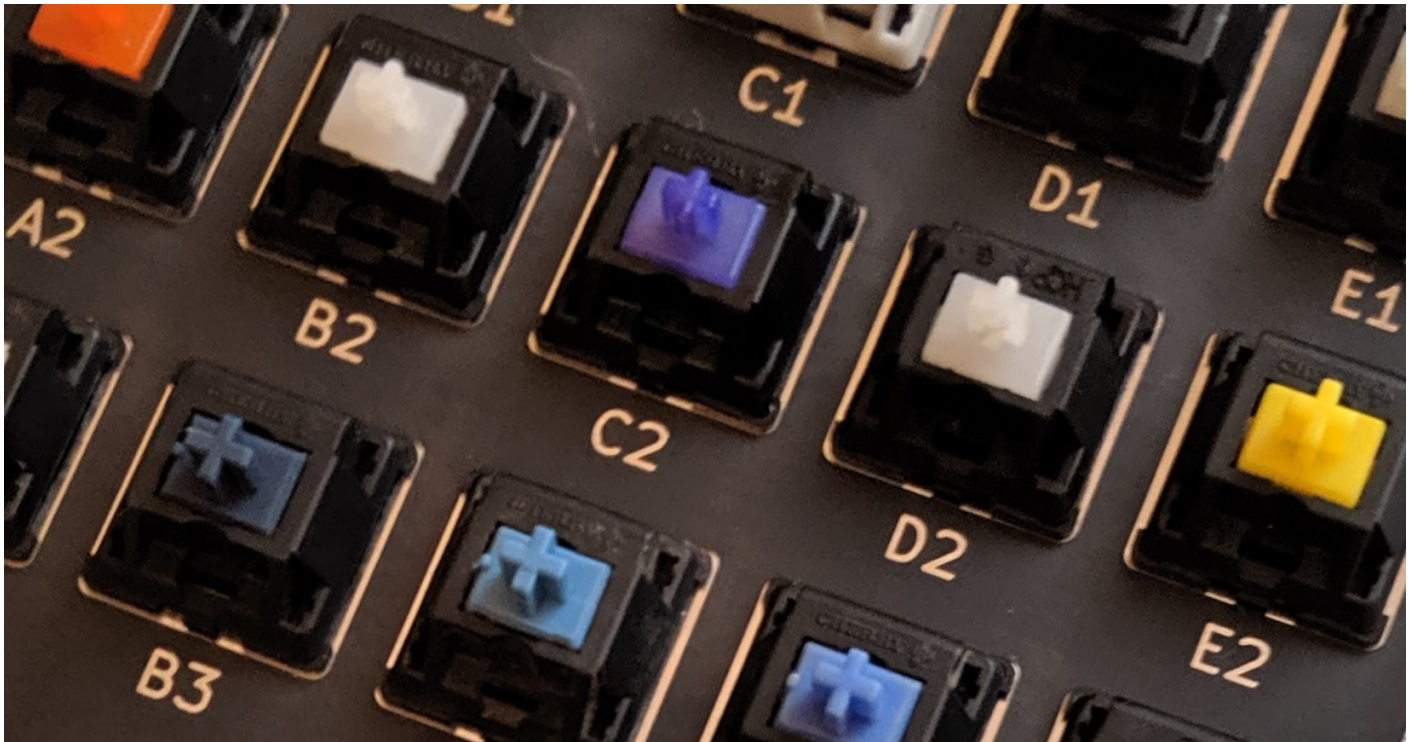
What's this linear and tactile thing anyways?

If coming without mechanical keyboard experience, you may be bewildered by the descriptions of switches.

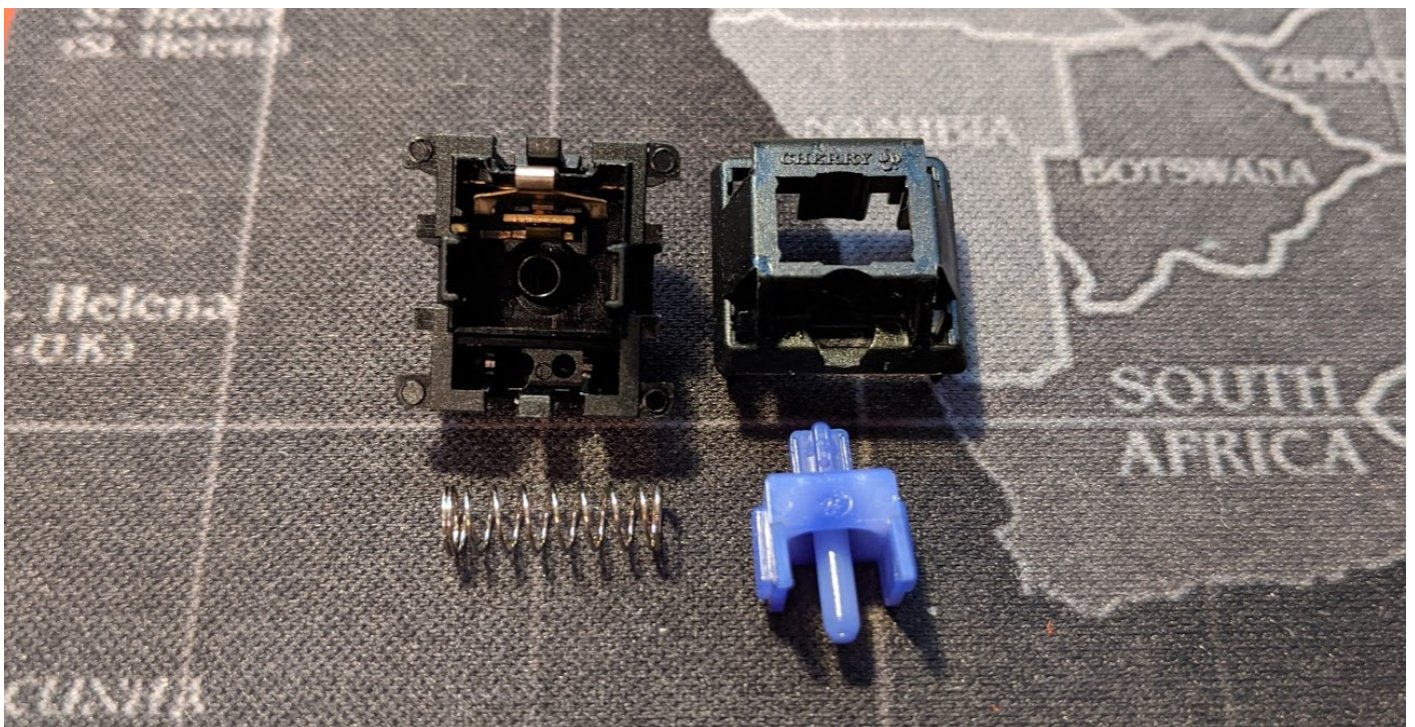To explain it very simply, these are the three realms of keyboard switches to pick from:

- **Tactile** - Similar to your laptop keyboards, cheap office keyboards, and the like. A distinct "bump" notifies of keypress as you press before the key hits the bottom.
- **Linear** - The key travels smoothly down until it hits the bottom, with no bump or tangible event along the way. This is the preference for a massive majority of custom keyboard users (and for good reason).
- **Clicky** - Click, click, click. If loud is your preference, this is the one to choose. The switch makes extra sound beyond the bare minimum to notify of keypress audibly.

If you have absolutely no preference, I highly recommend giving linears a try. With enthusiast-grade smoothness and the correct weighting, they usually become the effortless, comfortable choice.

Feel the rainbow

800 switch choices is a lot to choose from, and it's simply overwhelming to pick as a first-time keyboard builder. To make the job very easy, I've organized a simple switch choice flowchart here. Simply follow along to end up at a proven choice.
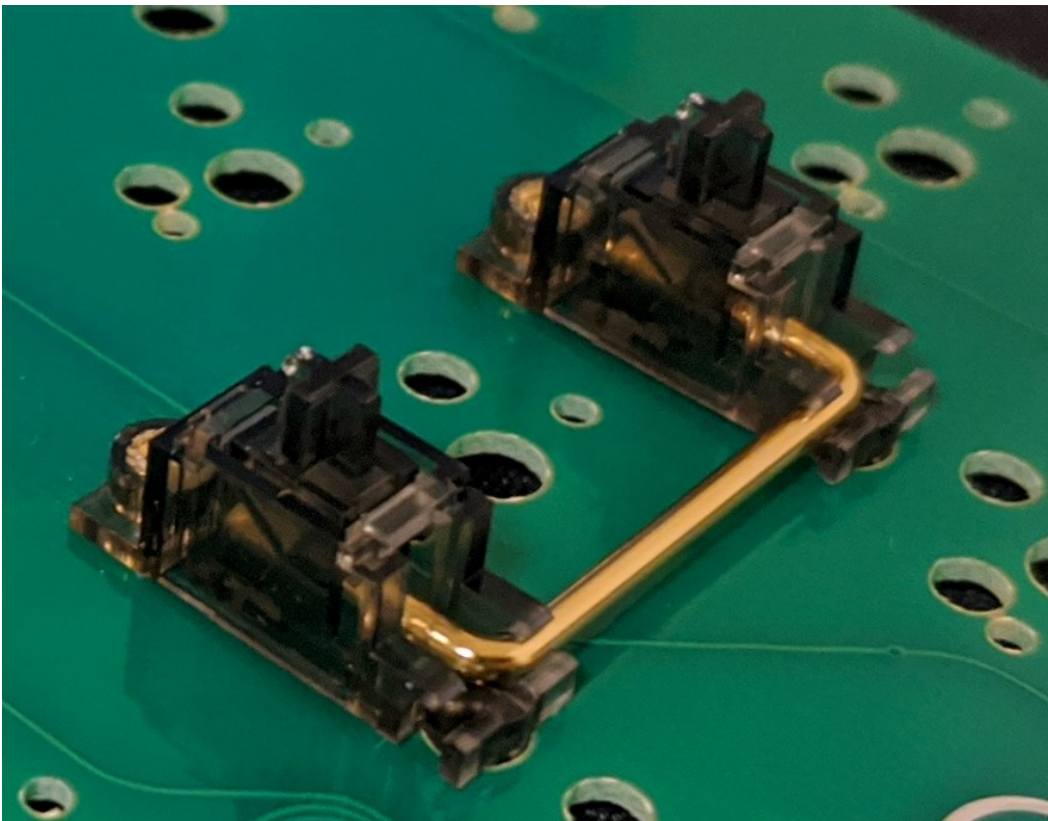
Beyond the colors

You may have heard rumors of customizing the switches even beyond the many variants. This indeed happens in the realm of custom keyboards, with each modification multiplying the possible switch combinations even further.

- Spring swap - Open up the switch, take the default spring out, drop a new one in. This allows for fine-tuning the weight of the switch to your preferences. Not too heavy, not too light, just the perfect goldilocks-weighting to match your fingers.
- Lube - Switches have moving parts, and lube makes movement smoother. Not only that - lube can drastically affect the switch's sound, cancelling out any sort of ringing and pinging while reducing the pitch to a deeper tone. A must-have on any higher end build.
- Switch films - The typical MX-style switch housing is comprised of two parts - a top and a bottom. There is a small gap between them when assembled; a switch film shims this gap to decrease the rattle and wobble of the key even further.
- Frankenswitches - Become a mad scientist, and mix parts from differing switches. This can yield brand new combinations that were unknown before.

These modifications have their own abundance of information, so I will not go into detail here. Just don't forget that these choices exist, and don't forget to apply them when building a truly custom keyboard.
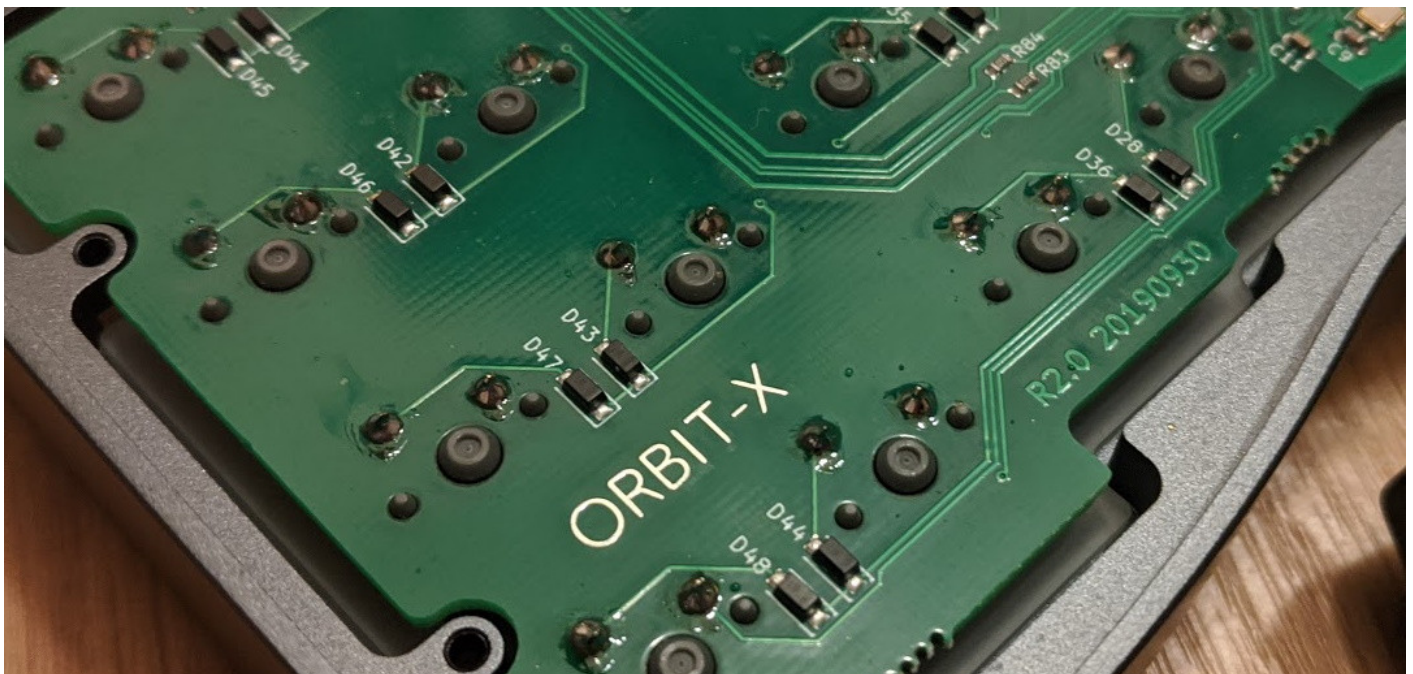

Moving the big keys

You may be curious about the large keys. Spacebars, enters, shifts, and backspaces - they are much larger than the basic alphanumeric keys, and one switch doesn't seem like enough for any of them. This is where stabilizers come in - they are wire contraptions which pull down one end of the key when the other end is pressed, allowing the entire key to move down at once rather than seesawing and flying off the board.

As much as the stabilizer solves problems, it also creates some of its own; the main problem with stabilizers is wire rattle. An untuned stabilizer may sound like a rattlesnake on keypress and ruin the entire board; it is highly recommended to use a thick lube to control the movement of the wire even on the lowest cost builds, and is an absolute necessity for anything higher. For a quick stabilizer tuning tutorial, check here.

One thing to note is that these larger keys are measured in keycap units (denoted U), where 1U is the width of a single-unit alphanumeric cap.

Liquid metal

The switches don't function on their own; they must be joined to an electronic circuit on a PCB (printed circuit board) to send keystrokes to the computer. This is done in either one of two ways:

- Soldering - A technique which uses heat to melt a metal to form a joint. A solder metal is added between the contacts of the switch and the metal pads of a PCB to have them conduct electricity. For this, you will need some soldering tools; see this page for more info.
- Hotswap - Certain PCBs have sockets built-in to make switches plug-and-play. This usually makes assembly a lot safer and easier, and allows for quicker maintenance if something goes wrong. Just don't forget to double check that the board you are buying comes with a hotswap PCB.

And that concludes brief information regarding switches.

Now onto the keycaps.