Sound Hardware DIY Workshop – Day 2

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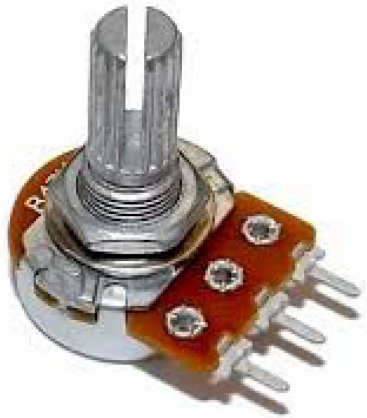
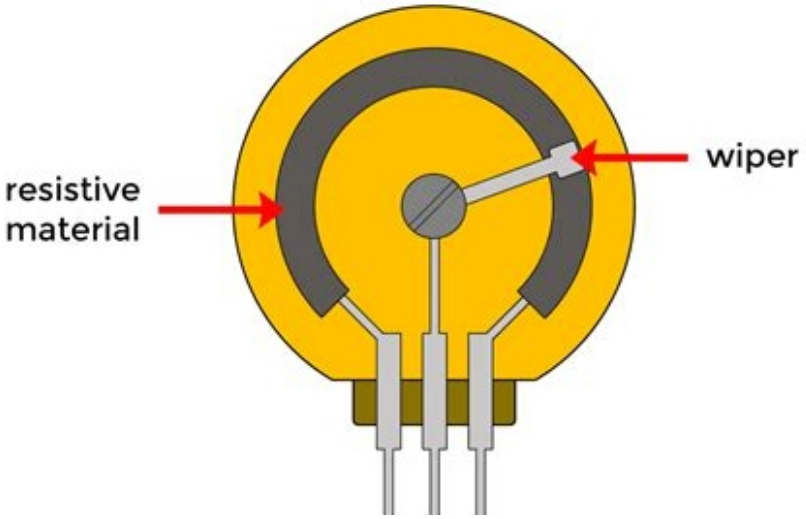
Previous day recap

- What is an electronic sound synthesizer?
- What are electronic components? Which components do you know?
- What is a circuit made of? What's the difference between a circuit and a schematic?
- How many wires to we need to pass an electric signal between two isolated devices?

Augmenting the 40106 oscillator

- Let’s replace the fixed/light-dependent resistor with a variable resistor, AKA potentiometer
- What happens when your potentiometer is fully to one side? Fully to the other? Is there any way to fix the end that sounds weird/shuts off?
- Try adding a 10K load out to ground. Implement the buffer



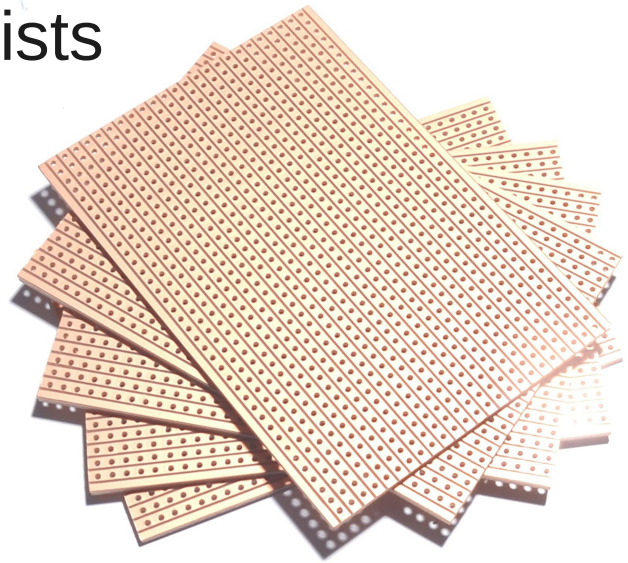


Building the 40106 oscillator

- Today, we start building the workshop’s result device
- The first step is to build one single oscillator and test it
- Many workshops bring their own factory PCBs for participants to build
- It’s easier, but it doesn’t teach how to build anything you want
- Hence...

Veroboards

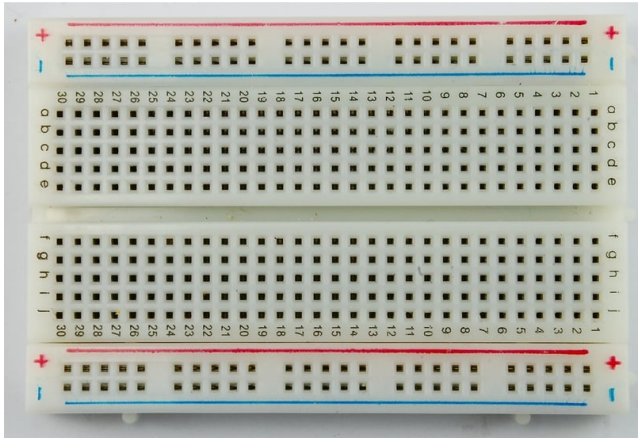
- One of the many prototyping board kinds
- Probably the easiest to handle
- Fastest to work with too
- Possible downside: builds are not as compact as could be
- A SDIYer’s friend; don’t listen to PCB purists
- Very reliable when made right!



Breadboards VS Veroboards

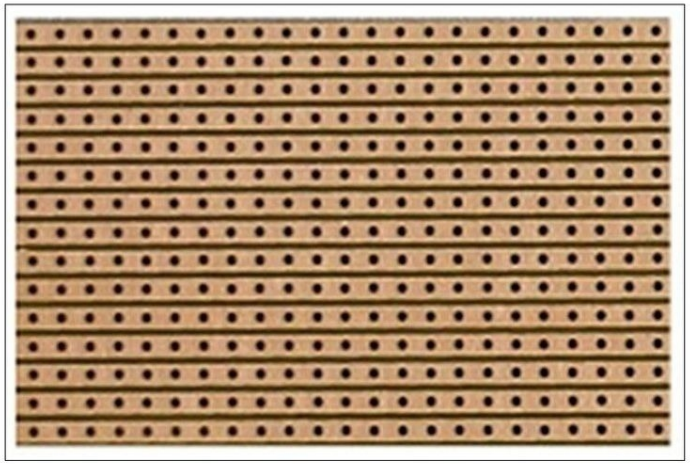
Breadboard:

- No soldering required
- Reusable between projects
- Temporary build
- Only for testing ideas



Veroboard:

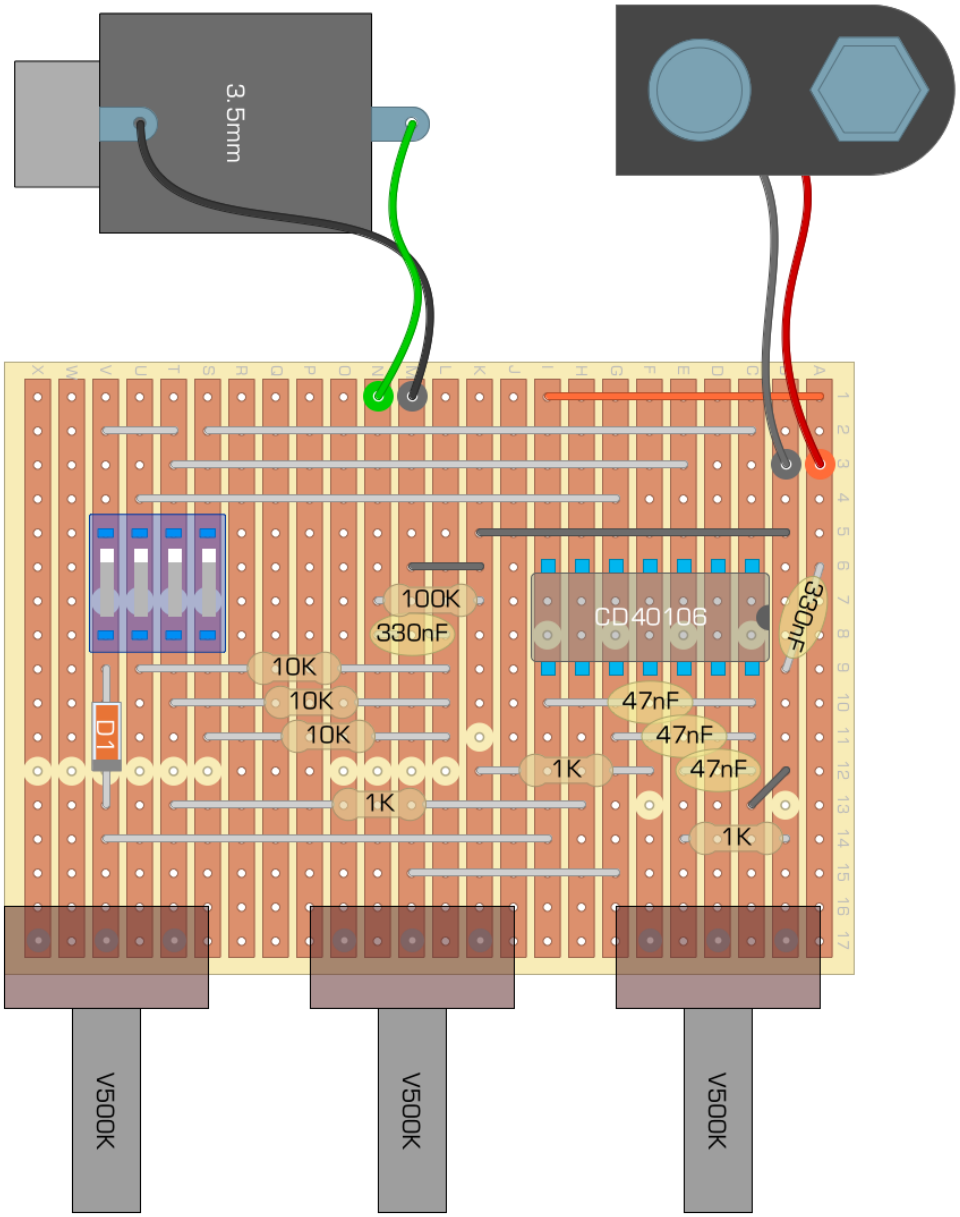
- Soldering required
- Tailored to one project
- Permanent build
- For making finished devices



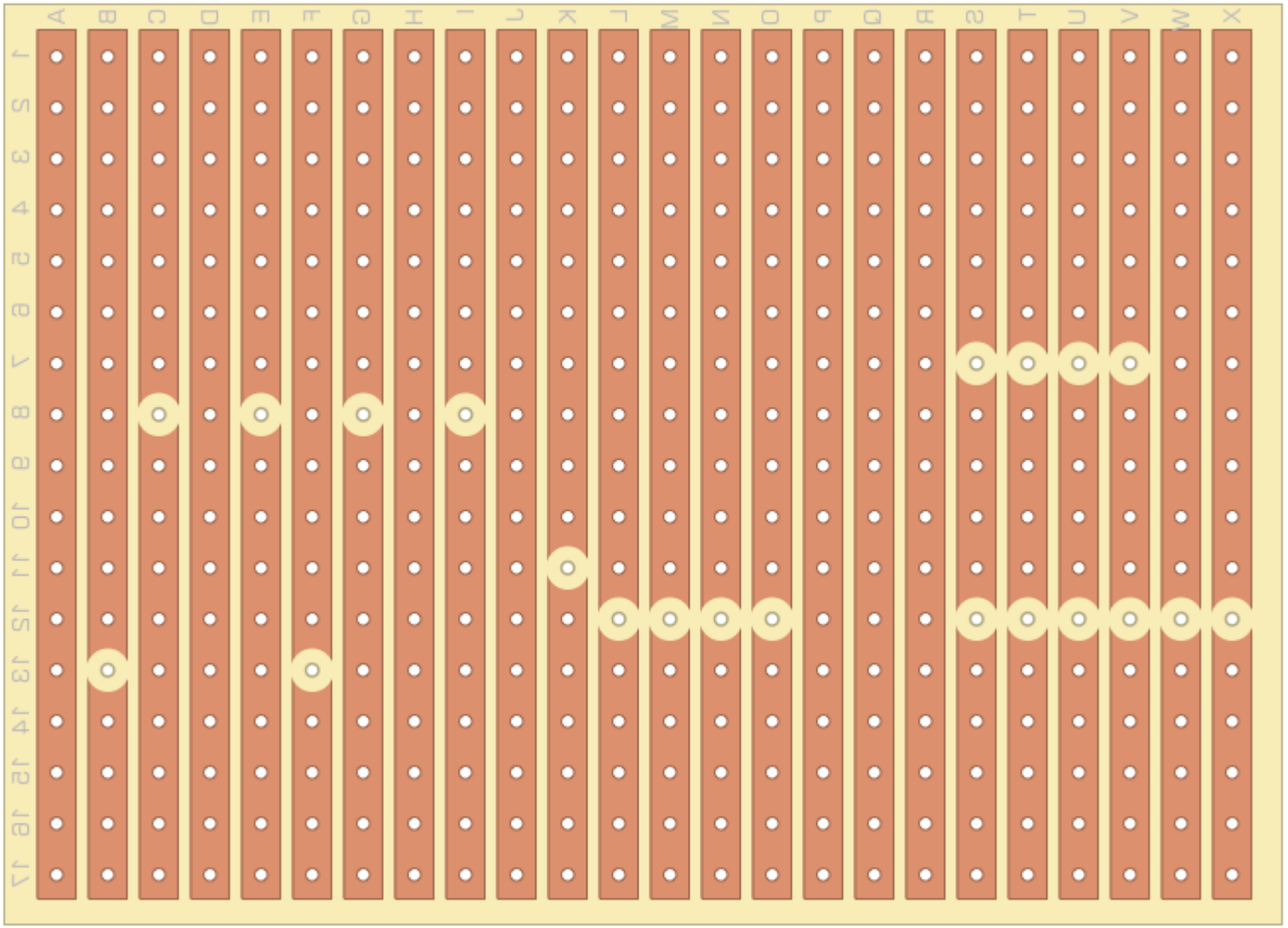
Veroboarding layouts

- The internet is full of veroboard layouts made for you to use
- Many include layouts that reproduce famous devices, like the TR-808 drums, Big Muff guitar distortion pedal, etc.
- When you know the veroboard techniques, you can easily process the layout into a physical device of your own!
- When there’s no ready-made layout, you figure out your own from a schematic
- For this workshop, the layout is provided in a step-by-step form. Usually, only the final form is provided, if anything!

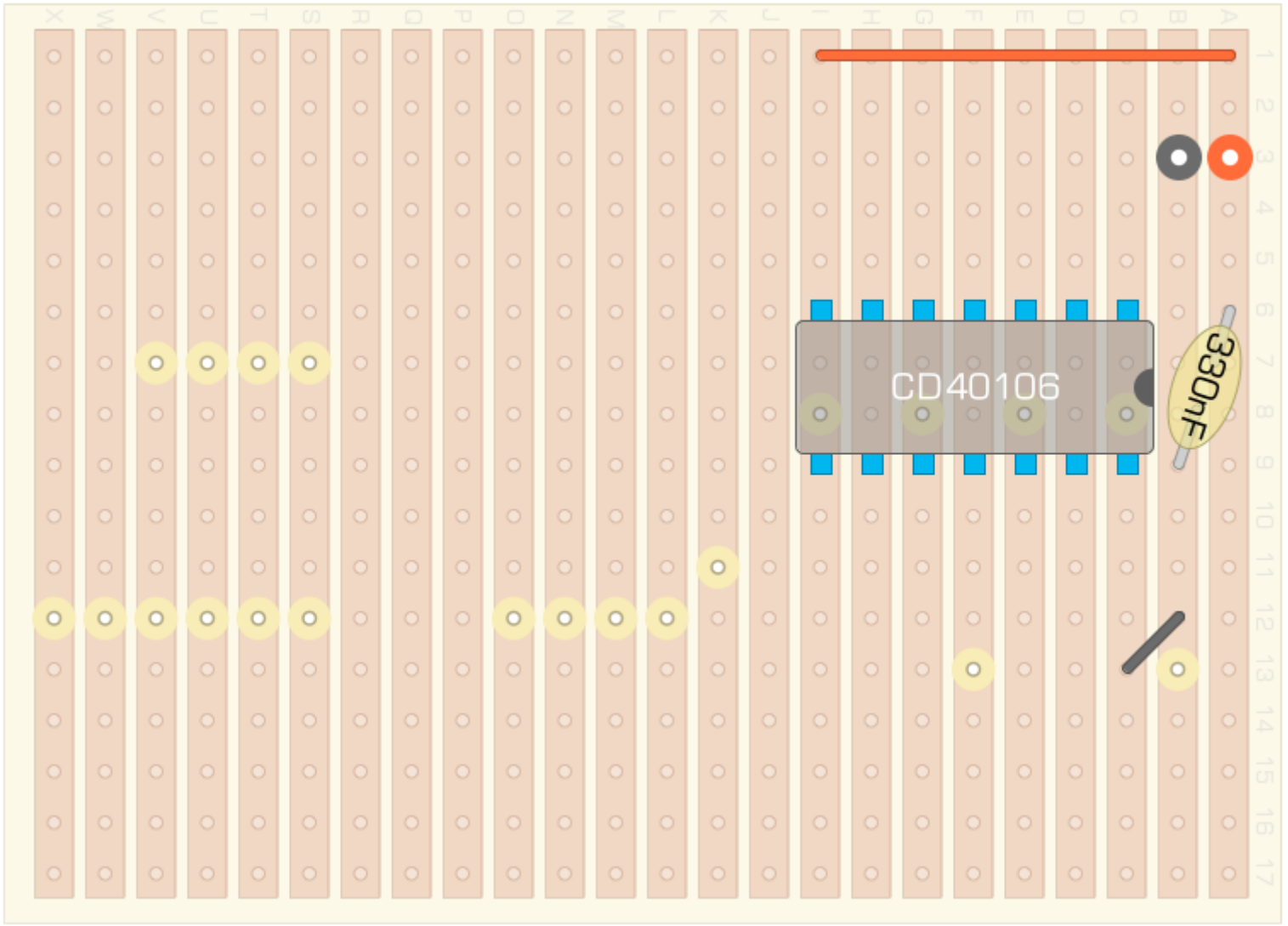
Layout – final form



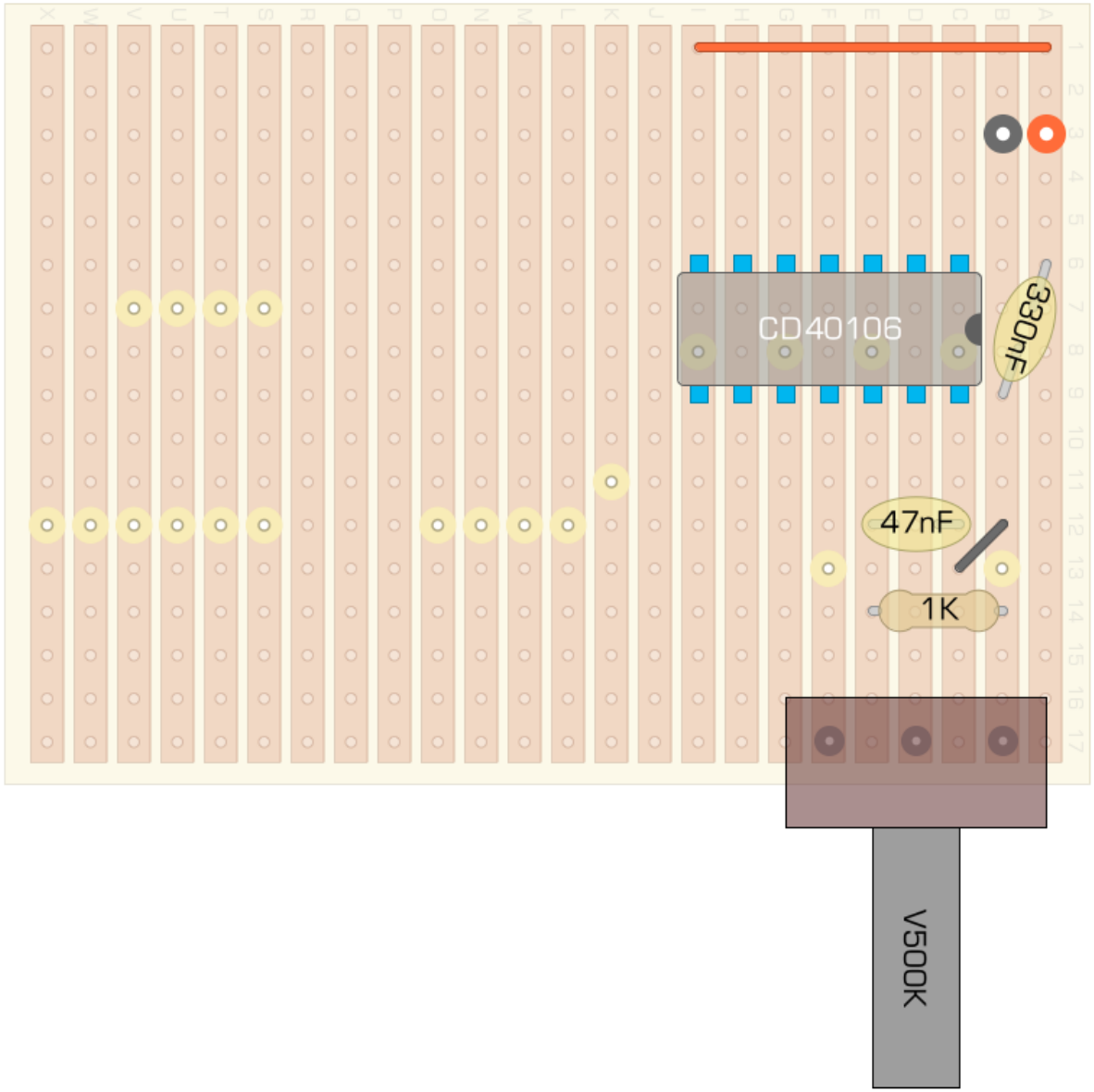
Layout – drills (copper side!!!)



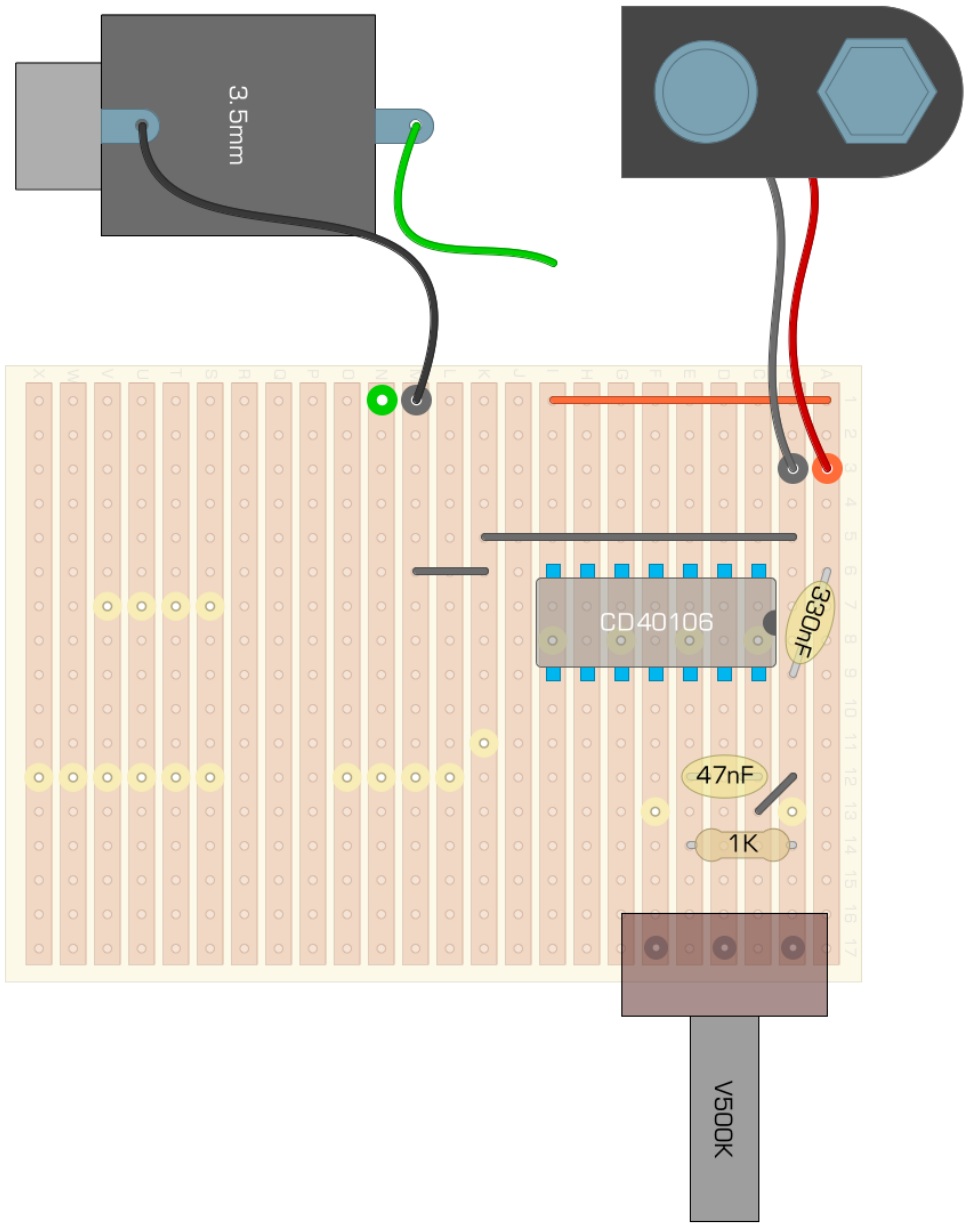
Layout – step 1



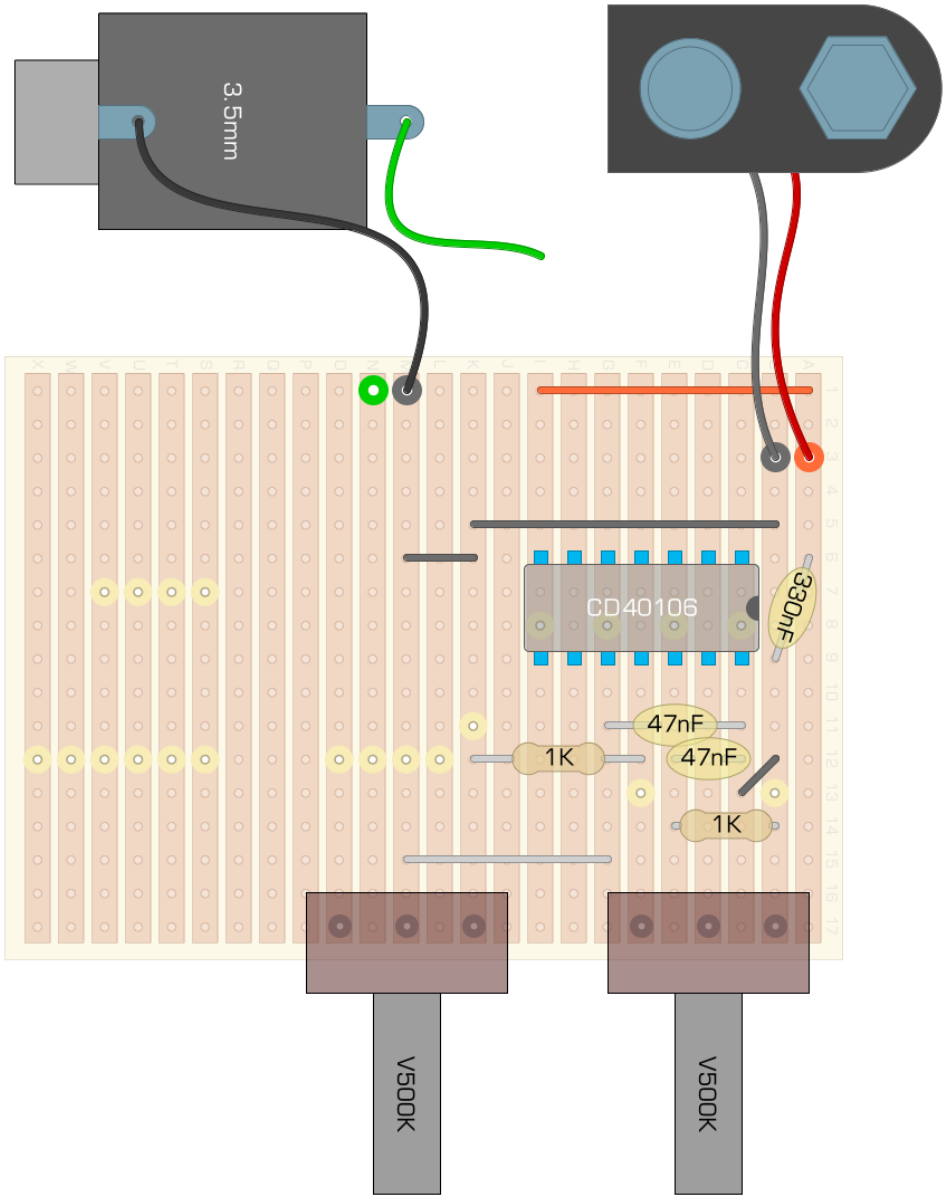
Layout – step 2



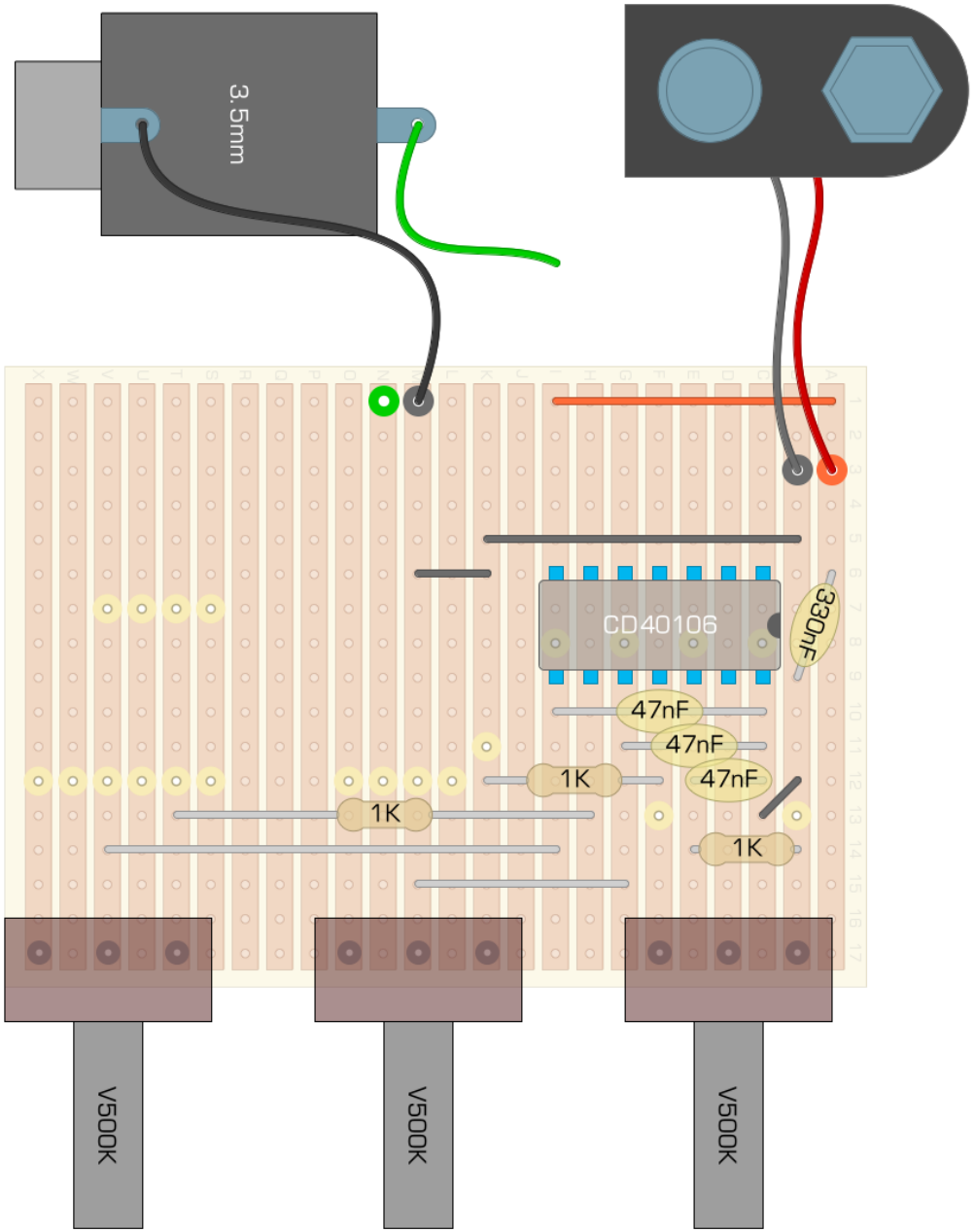
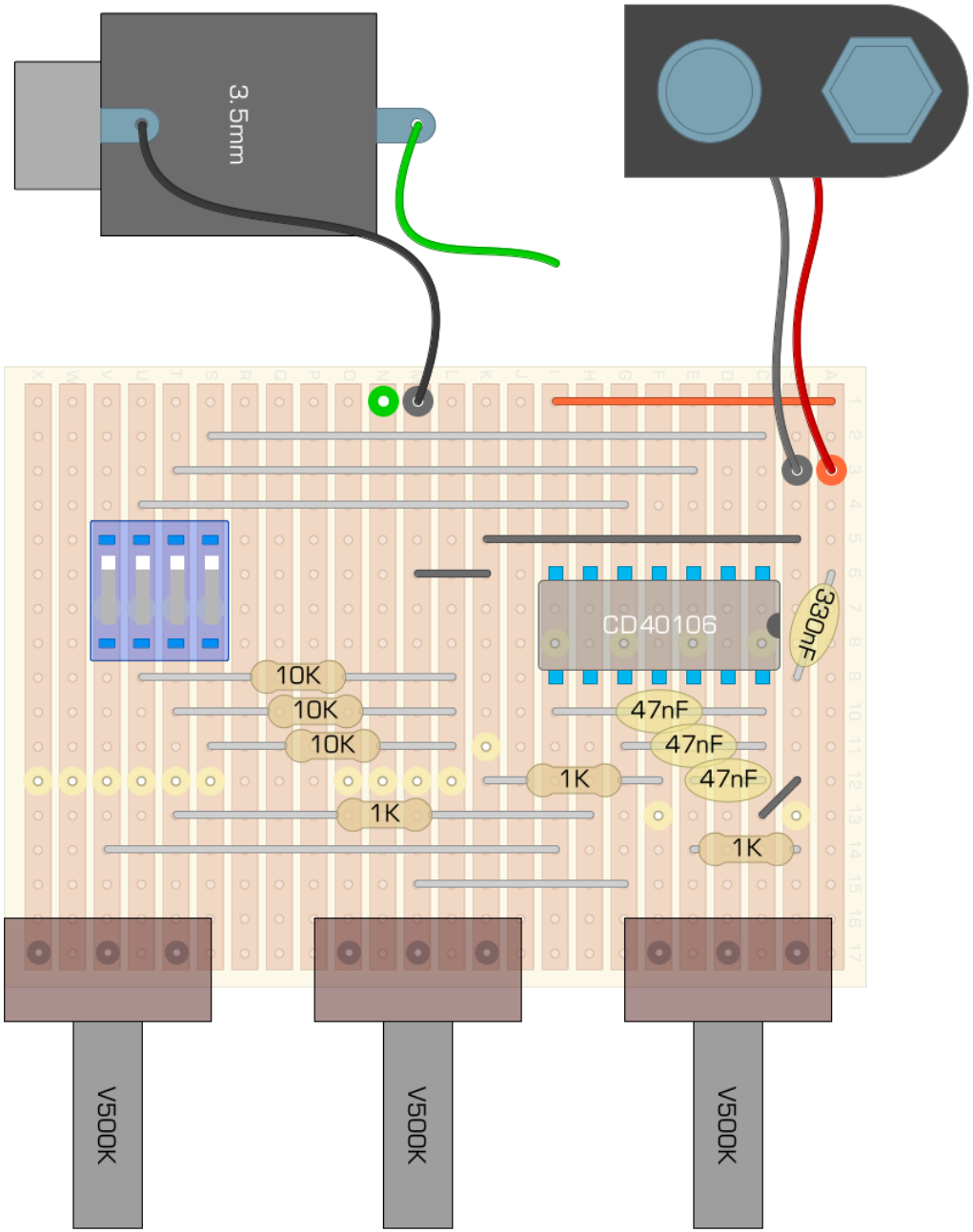
Layout – step 3



Layout – step 4



Layout – step 5



Layout – step 6