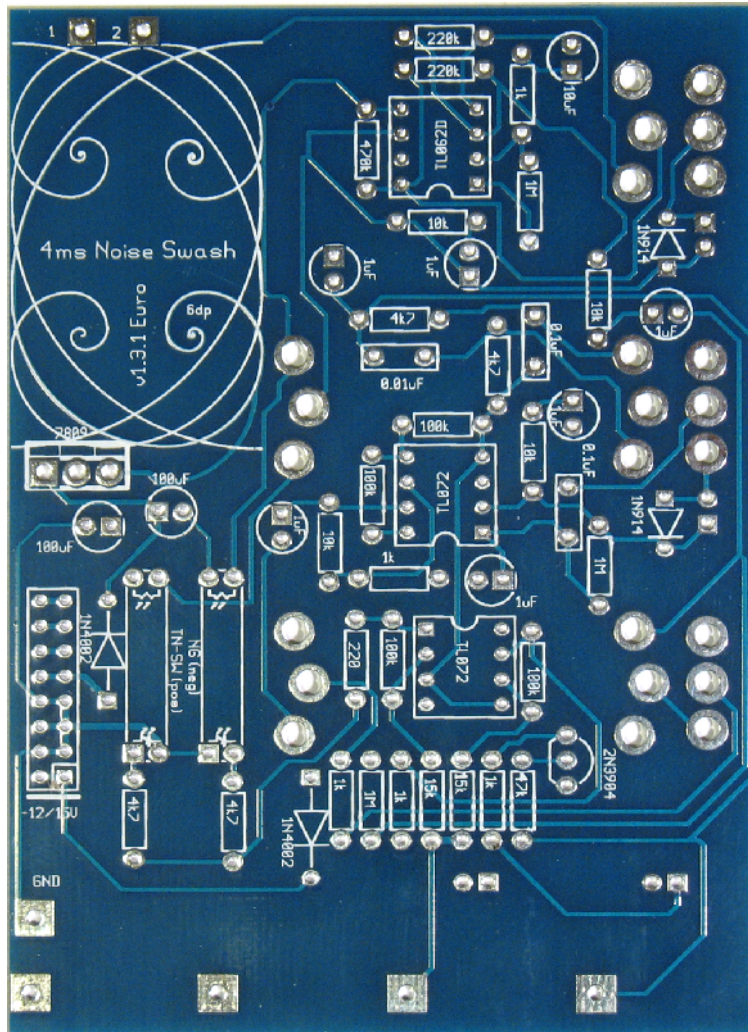


Kit Builder's Guide for PCB v1.3.1



Eurorack format Noise Swash Module

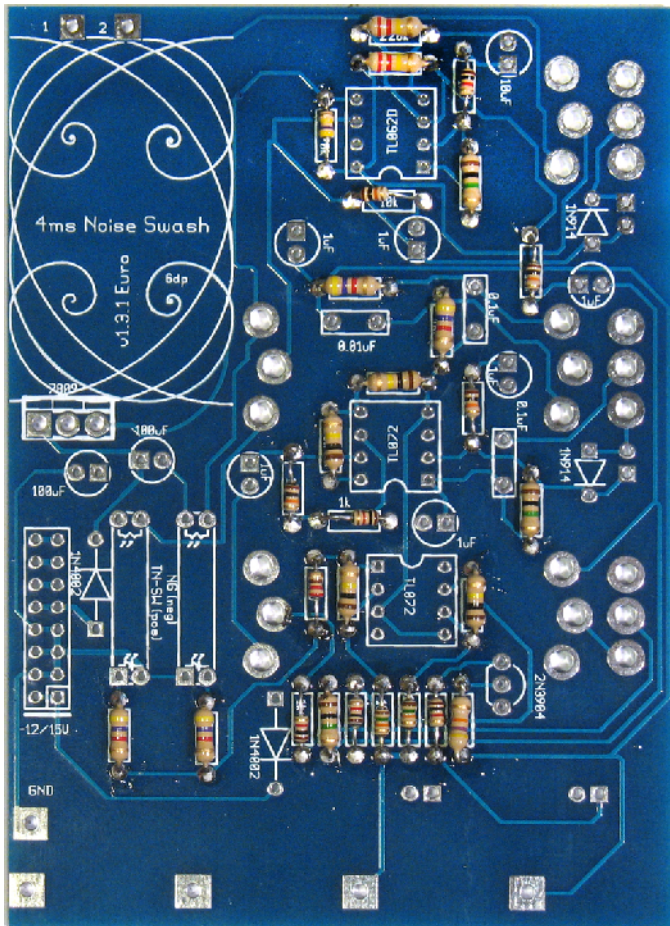
This guide is for building the 4ms Swash module in Eurorack format. The kit includes all the parts you need.

Download hi-res PDF version at <http://4mspedals.com/euroswash.php>

Tools/supplies Needed:

- Soldering iron and solder
- Flush snips
- Needlenose pliers
- Wrenches for tightening panel nuts
- Small flat-head screwdriver for knobs
- Masking tape or electrical tape

Get comfortable, get all your tools together, take a deep breath... and enjoy!

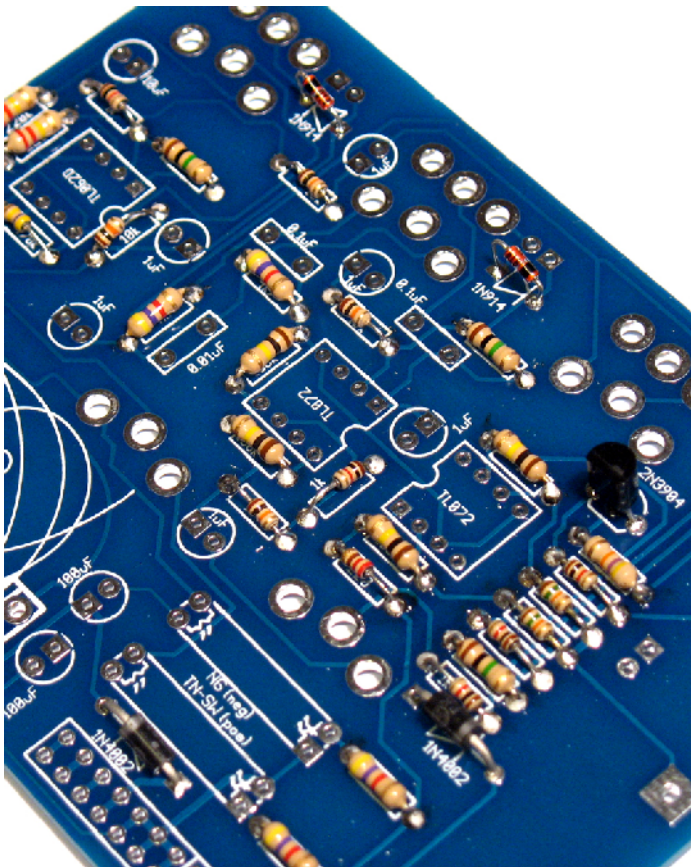


Step 1: Resistors

Insert and solder the resistors. After soldering, snip the leads nearly flush to the PCB (you'll be snipping the leads flush on all the components after soldering). Save some of the lead snippings for later steps.

The Swash has 27 resistors:

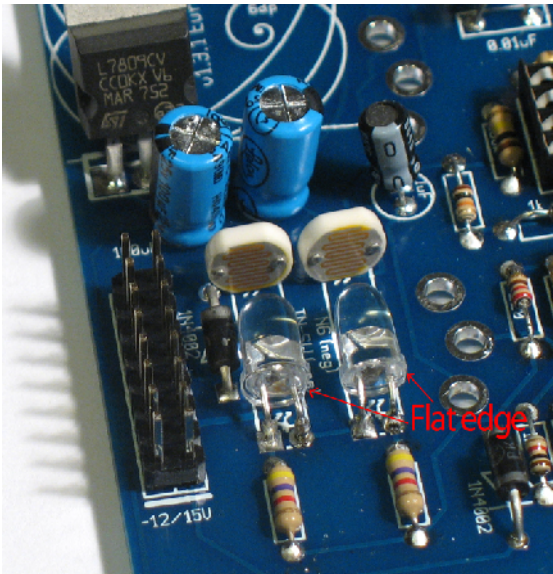
- 1M x 3 (brown black green)
- 470k x 1 (yellow violet yellow)
- 220k x 2 (red red yellow)
- 100k x 4 (brown black yellow)
- 10k x 4 (brown black orange)
- 4k7 x 4 (yellow violet red)
- 1k x 5 (brown black red)
- 220 x 1 (red red brown)
- 47k x 1 (yellow purple orange)
- 15k x 2 (brown green orange)



Step 2: Diodes and transistor

Insert and solder the four diodes and one transistor. The diodes have an orientation such that the end marked with a black or white band points in the same direction as the arrow on the PCB. The transistor also is orientated such that its curved and straight edges match the outline on the PCB

- 1N4002 diode (black) x 2
- 1N914 diode (red/glass) x 2
- 2N3904 transistor x 1



Step 5: LED/CdS cells

Insert the two large (5mm) LEDs into the PCB. The short lead of the LED is the negative and it goes in the round hole. Also, if you look down the barrel of the LED, one edge is flattened, which indicates the negative side.

Insert the photo cells into their spots on the PCB.

Bend over the LEDs and the photocells 90 degrees so that they point at each other (see photo).

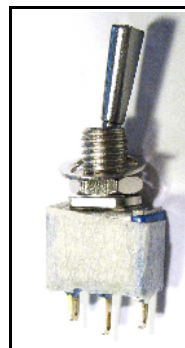
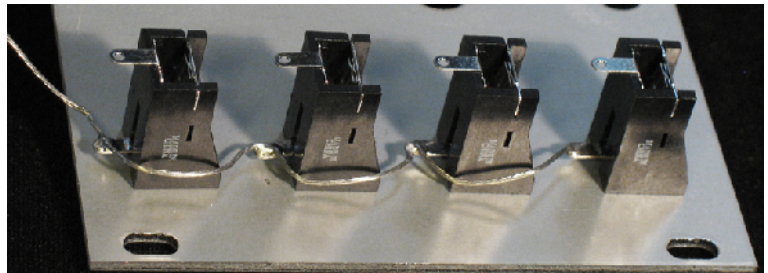
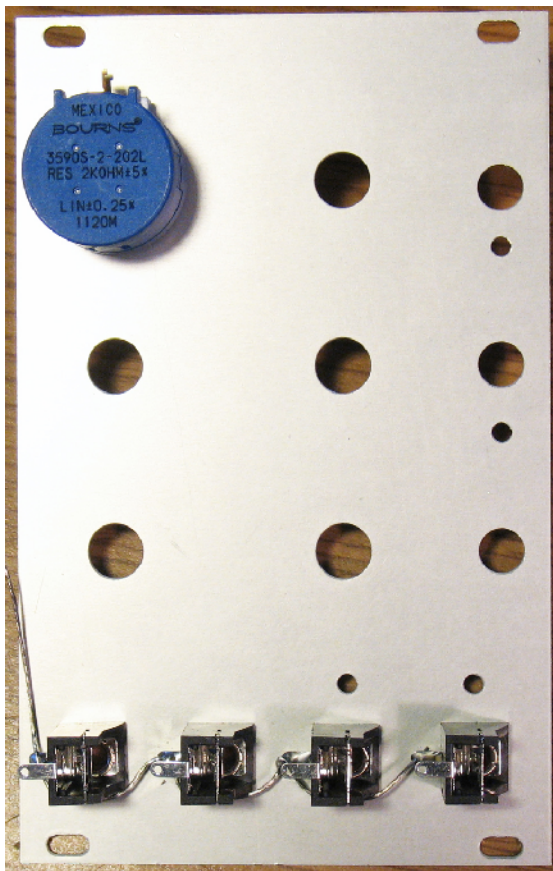
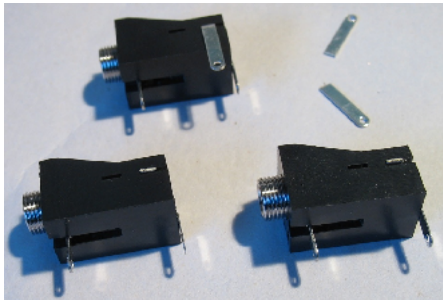
Solder all four components.

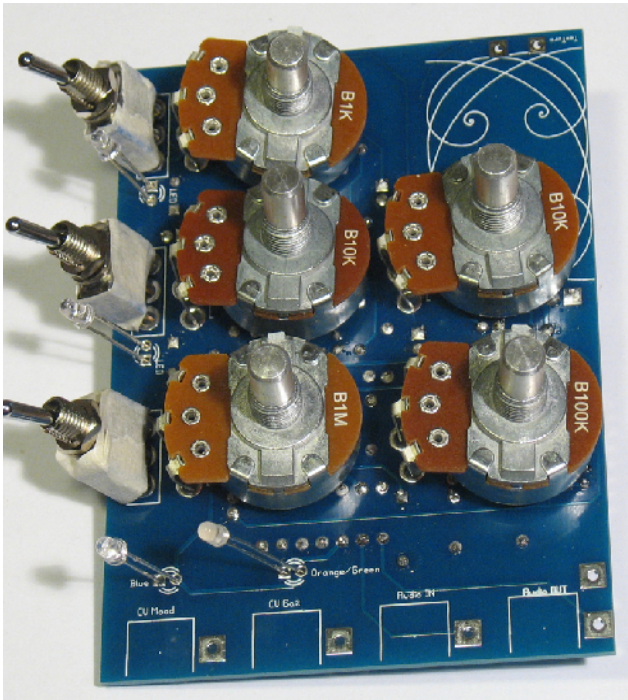
Step 6: Prepare for mounting

A. Break off the side tabs on the 4 jacks.

B. Mount the 4 jacks and the 10-turn pot to the panel with the orientations as shown. Tighten the nuts down finger tight. You may need to nudge them slightly in a later step.

C. Strip the entire 4" piece of wire. Starting at the Mood jack, use it to connect the ground tabs of the 4 jacks. Leave a 1" or longer tail off the OUT jack (see close-up photo).





Step 7: Mounting

A. Prepare the switches

Remove the top nut and one washers from the flip switches. Cover the metal portion of the switch body with masking tape (or any insulator). This keeps the pots from shorting out to the switches. Insert the switches into the PCB (do not solder yet). *See photo previous page.*

B. Prepare the pots

Remove the nut and both washers from the pots. Then break off the tab on the top of the pot as shown in the photo. Insert the pots into the PCB (do not solder yet) *See photo previous page.*

C. LEDs

Insert the LEDs with the long lead going into the square hole. (do not solder yet)

D. Put the panel on:

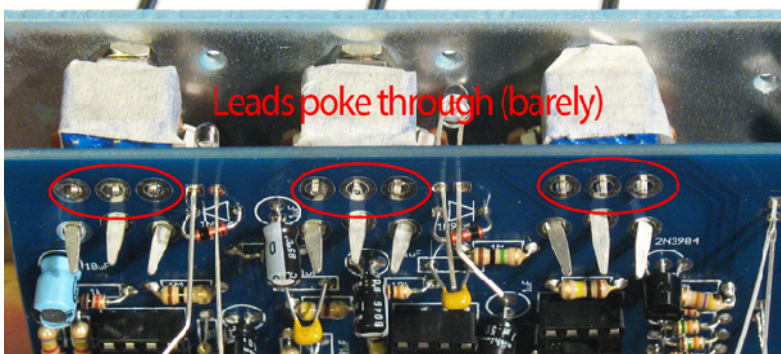
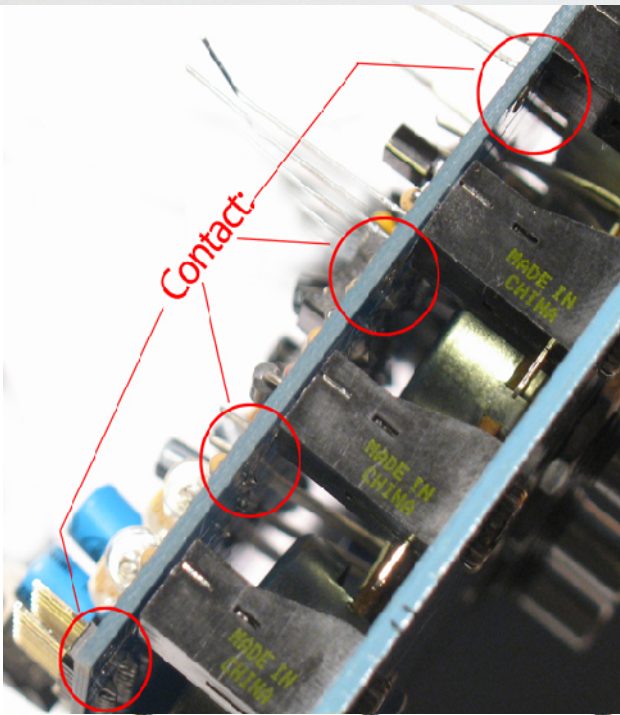
Keeping the PCB held in one hand, lower the panel (with the jacks attached) onto the pots/switches so the holes line up with the pots and switches. Wiggle things around as you shimmy it down so that the threads of the controls push through the panel.

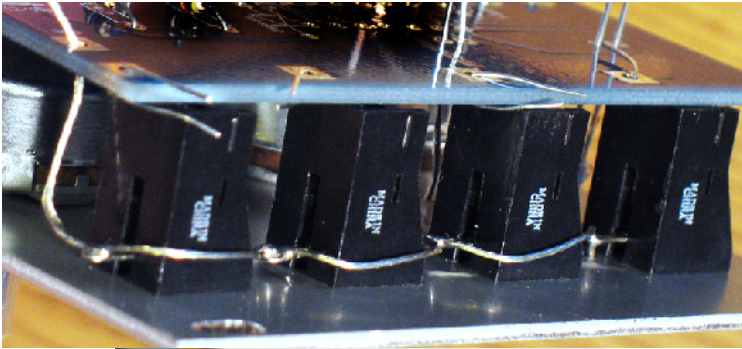
C. Put the nuts on:

When all the controls are lined up, put a washer and nut over each pot and switch and tighten them down finger-tight (the washer under the switch nut is optional). Verify that the LEDs are still in place and check to make sure all the controls are roughly vertical. Now tighten the 8 nuts down with a wrench, making sure the pot or switch doesn't rotate while you tighten.

D. Check for contact:

Flip the board over so you can see the gap between the PCB and the bottom of the pots. Verify that the PCB is in full contact with the bottom of each jack, and the tips of the switches just barely stick out through the PCB. The PCB may be slightly skewed (not parallel) to the panel, this is OK.

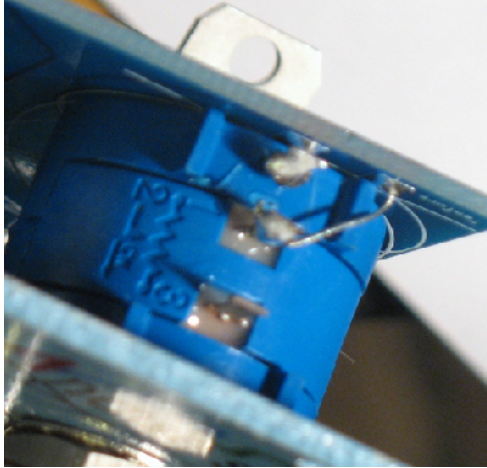




Step 8: Soldering the jacks and controls.

A. Solder the jacks

Attach each jack to the PCB by running a small piece of snipped resistor lead or wire through the hole in the PCB and the hole in the jack tab. You may need to nudge each jack a bit to get the holes to line up. Bend this lead/wire over into a "U" shape so that it doesn't fall out. Solder each one from the top and bottom sides. Snip off the excess wire.



B. Run the jack ground wire

Thread the tail end of the ground wire from step 6 through the pad marked GND. Solder and snip off excess wire.

C. Solder the switches

Solder the switch leads, pushing the PCB down *lightly* so that the leads stick out a tiny bit. Next solder all the pot leads.

D. Solder the LEDs

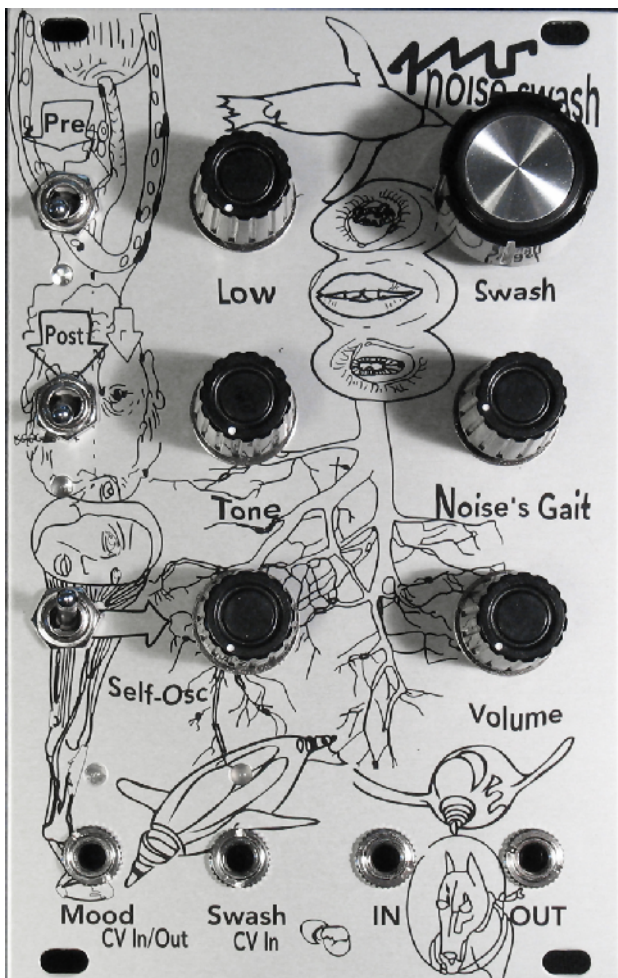
Push each LED head down so it sits in the hole in the panel. Splay the leads slightly so it stays in place while you solder it. Snip the excess lead off when done.

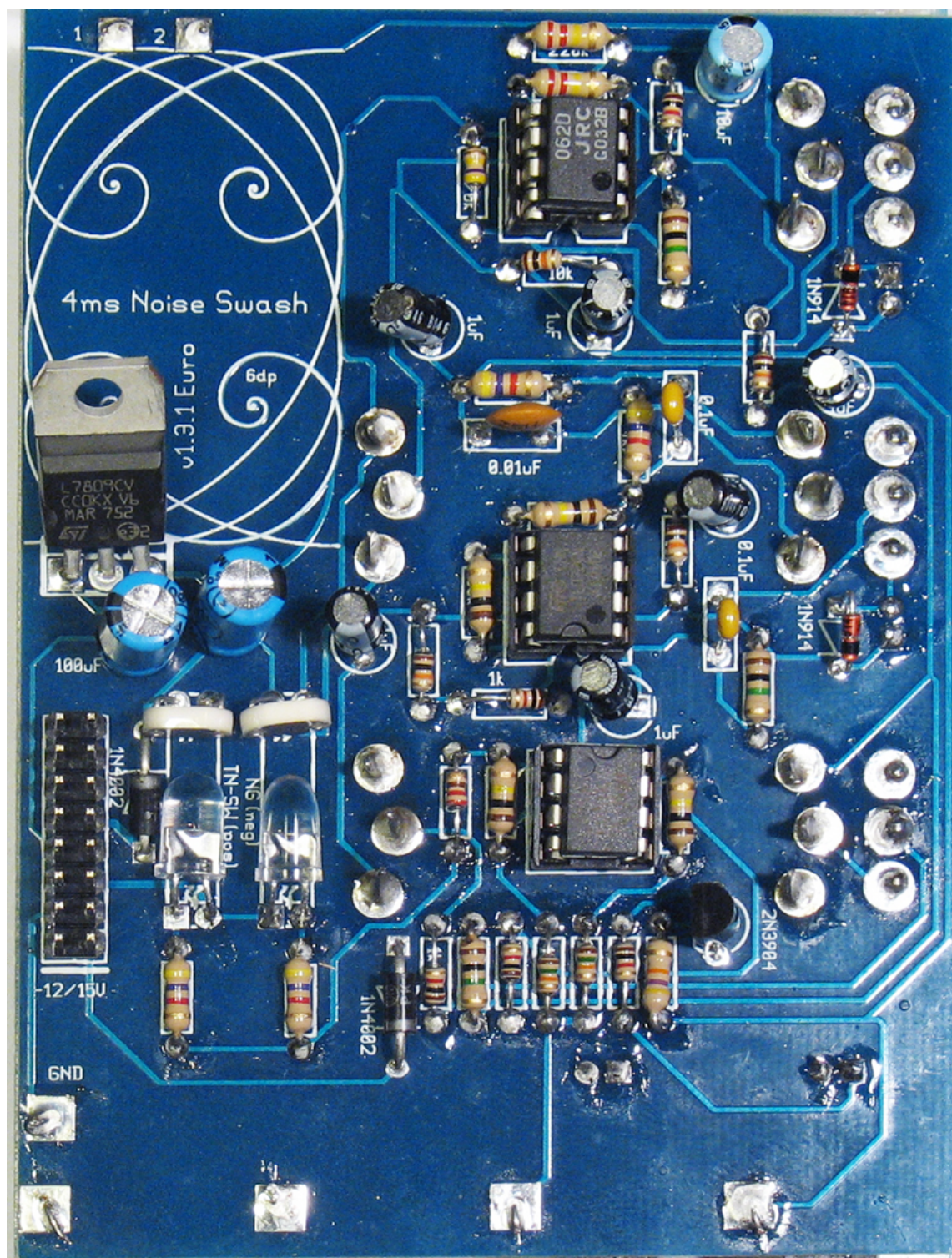
E. Solder the 10-turn pot

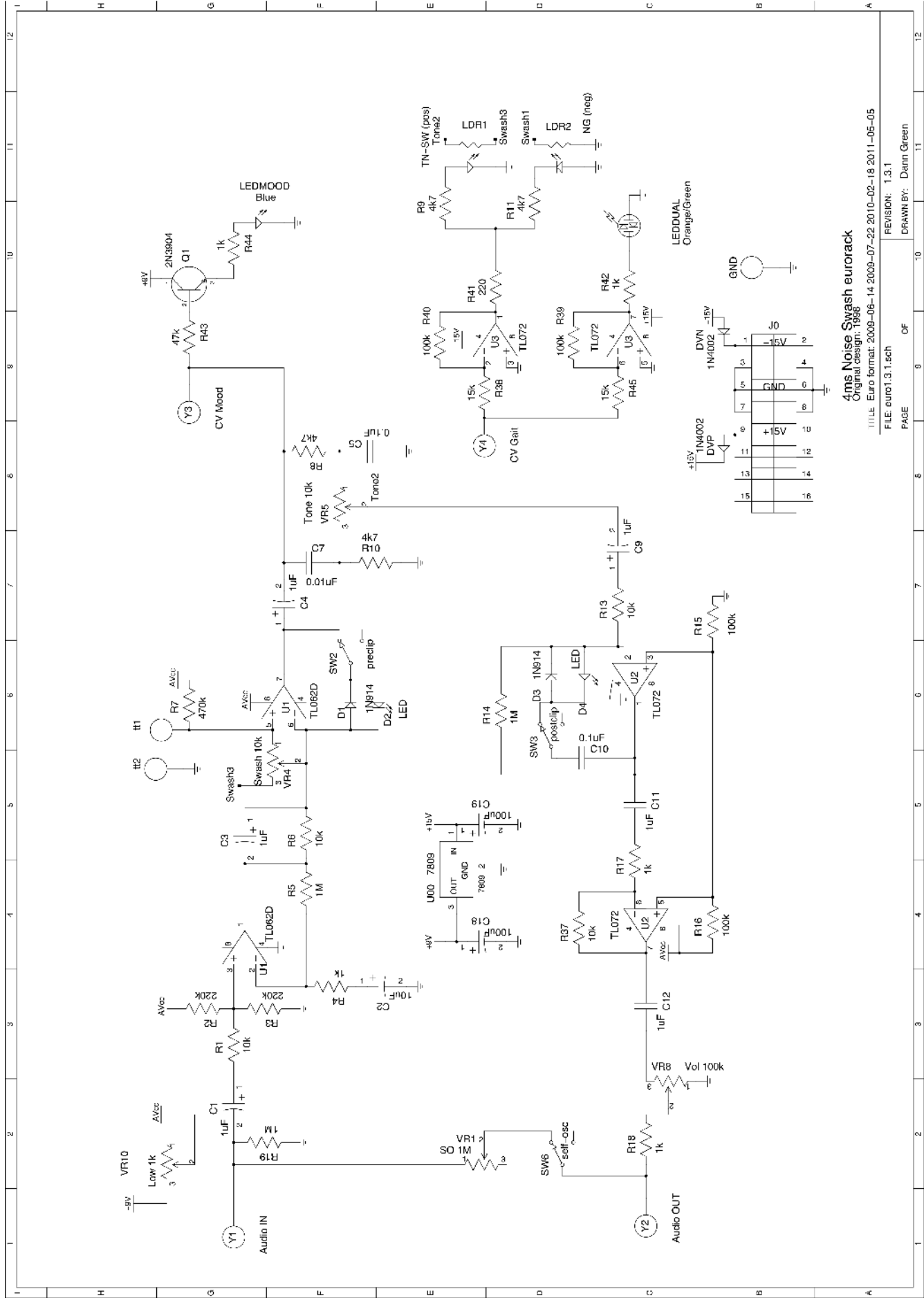
Wire the 10-turn pot by soldering one piece of lead/wire from the hole marked "2" to the tab on the pot directly below. Solder another piece of wire from the hold marked "1" to the middle tab on the pot. (see photo)

F. Install the knobs

Flip the unit over and tighten all the nuts very tightly. Attach the knobs with a small flat-head screwdriver.







4ms Noise Swash eurorack
Original design: 1998

FILE: euro1.3.1.sch

REVISION: 1.3.1

DRAWN BY: Dann Green

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