

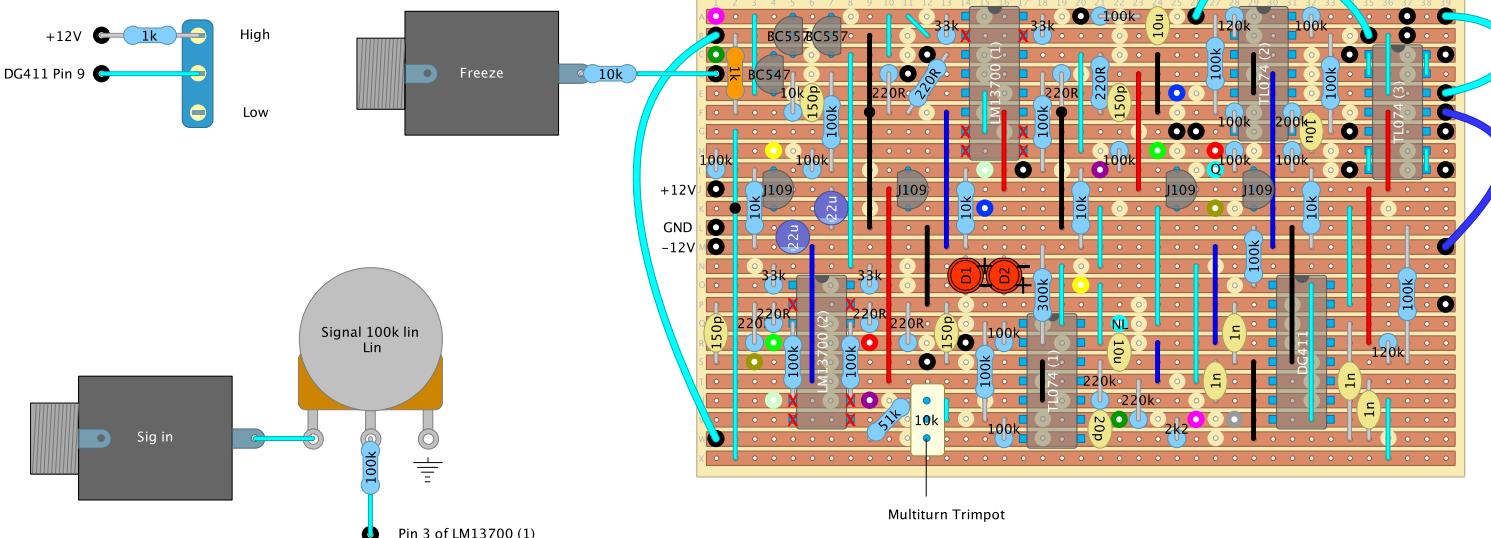
Feague

Quad LFO/VCO & VCF

Schematic: nonlinear circuits (<https://www.nonlinearcircuits.com/modules/p/feague>)

Stripboard Layout: Markus Möbius

14.01.2022



Notes

Tempco

The two transistors (BC557) need to be matched and thermally connected with the 1k tempco. You can also use a regular 1k resistor, if you don't need precise 1V/Oct tracking. Also don't take the transistor matching that seriously in that case.

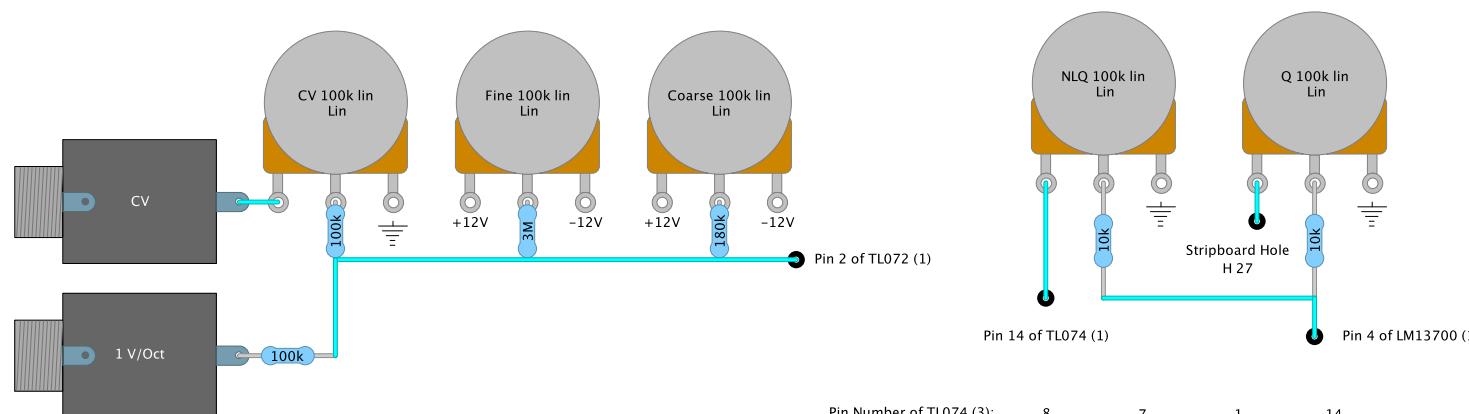
The potentiometers are viewed from the back.

The components that are directly on the IC's pins are soldered on the bottom side of the board. Also the 100nF decoupling caps on all the power pins of the ICs.

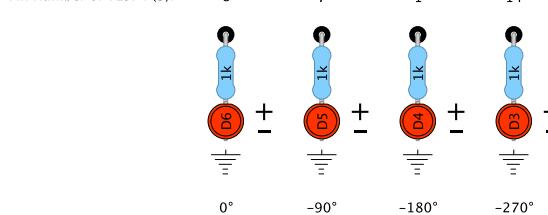
- V+
- V-
- GND
- Signal
- Shared connection

X Unused IC-pins (cut off the pins of the IC-socket before soldering)

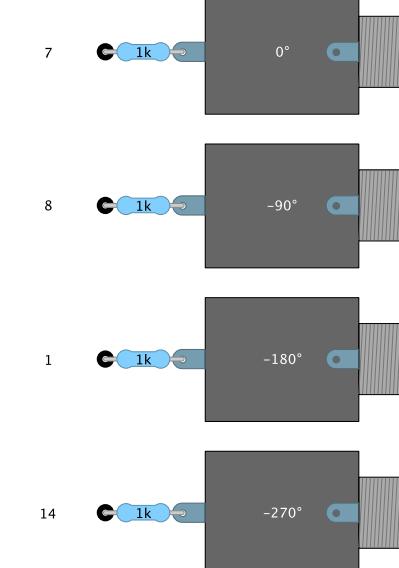
● Wire connection



Pin Number of TL074 (3):



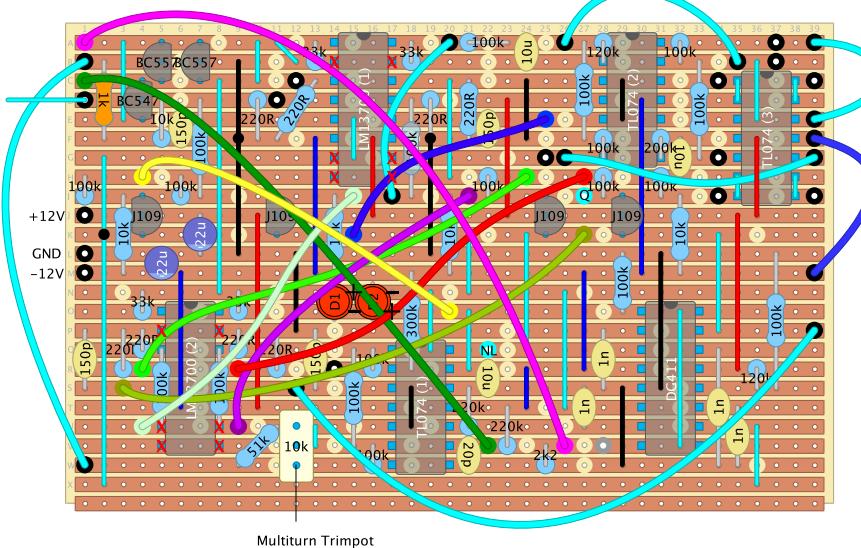
To TL074 (2) Pin:



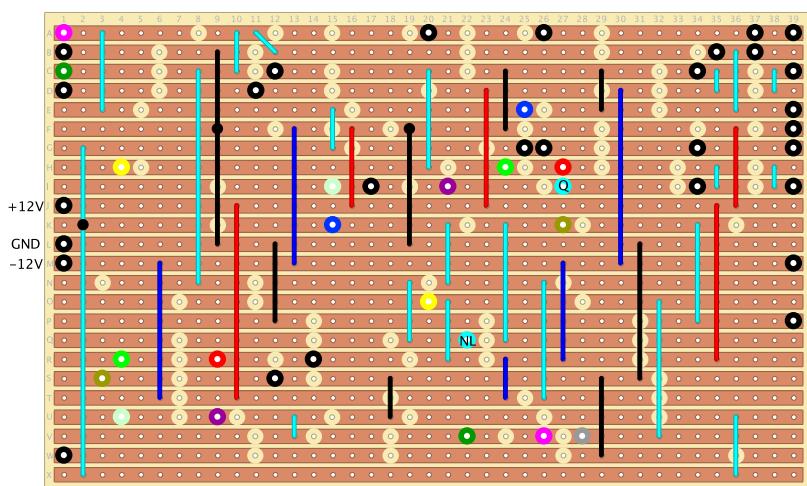
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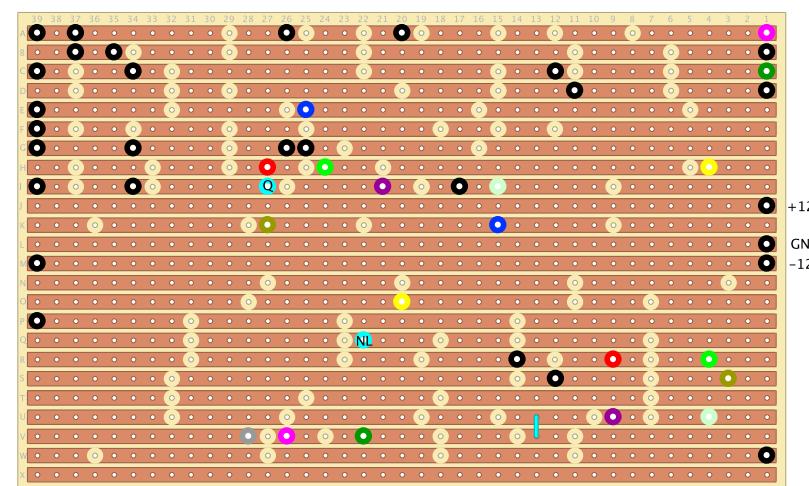
Wiring (sorry for the mess haha)



Jumpers and line breakers only viewed from the top



Line breakers only viewed from the bottom



Nic Feague – Build Guide for the Stripboard layout

Markus Möbius, 14.01.2022

My way of building a stripboard project

1. Print out the layout.
2. Mark all the line breakers on the top side of the board with a permanent marker. They serve as a great reference point for the component placements.
3. Cut all the line breakers using a drill bit.
4. Take the mirrored version of the layout and check, if all line breakers are in place and if they really break the connection with your multimeter.
5. Put in all the jumper wires and cross them out of your printed layout. Now solder them in.
6. Solder in the IC sockets.
7. Put in all resistors and solder them in.
8. Solder in the capacitors, transistors, etc.
9. Now compare your build to the printout. Cross each component out step by step.
10. Solder in all the on-board jumper wires.

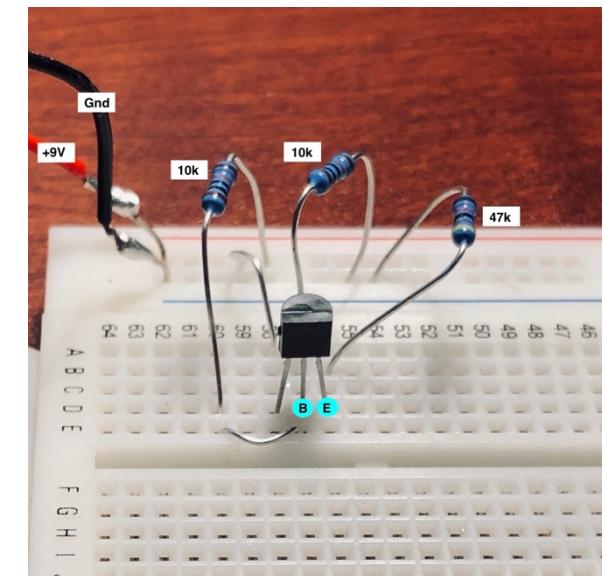
11. Check all the lines for shorts with your multimeter to identify solder whiskers.
12. Install all potmeters, jacks and switches to the panel.
13. Solder all the wires and eg. Resistors to the parts on the panel.
14. Connect the wires to the stripboard. Check these points again for shorts.
15. Apply power without the ICs and check for the correct voltages on their power pins.
16. Put in the ICs.
17. Calibrate the module.
- 18. Be proud of yourself and enjoy your piece of craftsmanship!**

Transistor matching and installation of the tempco

I use a simple circuit to match my transistors. All you need is a battery, a breadboard and three resistors.

Connect two 10k resistors between 9V and ground. The base of the transistor goes to their midpoint. A 47k resistor goes from the transistor's emitter to ground. The collector is connected to +9V. Now you can measure

the Vbe of your transistors. It's important that you don't touch them with your bare hands. The temperature change caused by that will alter the values. Just use a pair of pliers. The battery's voltage doesn't really matter, just do it in one session. I set this little circuit up on breadboard:



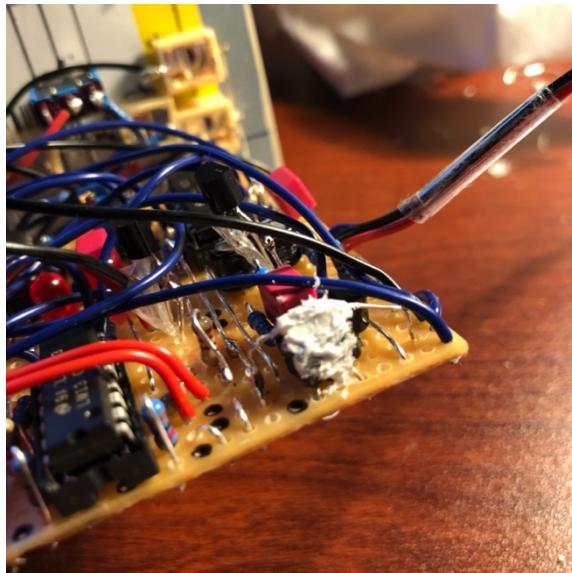
You can also get away by just measuring the voltage drop over the base emitter junction using your multimeter in diode mode. I did that in the past and it worked out. If you want to be fancy, have a look at the

Nlc Feague – Build Guide for the Stripboard layout

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transistor matching circuit by Ian Fritz. If you use transistors from the same batch you'll notice, that they are pretty accurate right away.

Now it's important, that these matched transistors are thermally connected to the 1k tempco. I used some thermal paste for that. Just make sure it's not conductive.



Some words about the module

It's super fun! The 1V/Oct tracking works great over five octaves and it stays there. Even with open windows in wintry Berlin.

The Filter also works great. You can get some interesting resonance by playing around with the Q and NLC potmeters.

The sync function acts more like freeze. It stops the oscillation and you can get some nice fade in/out effects from it.

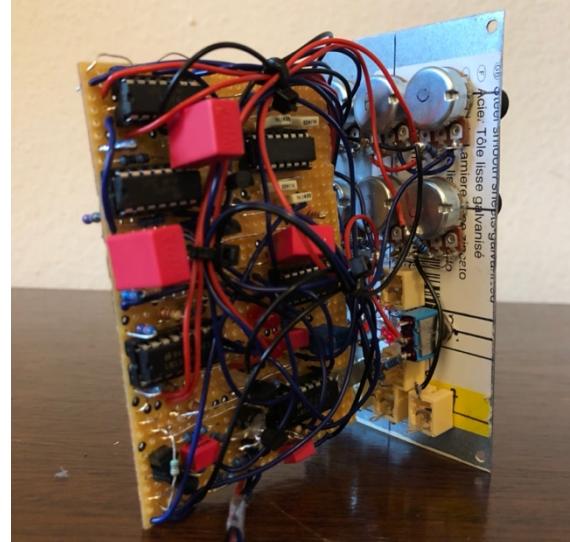
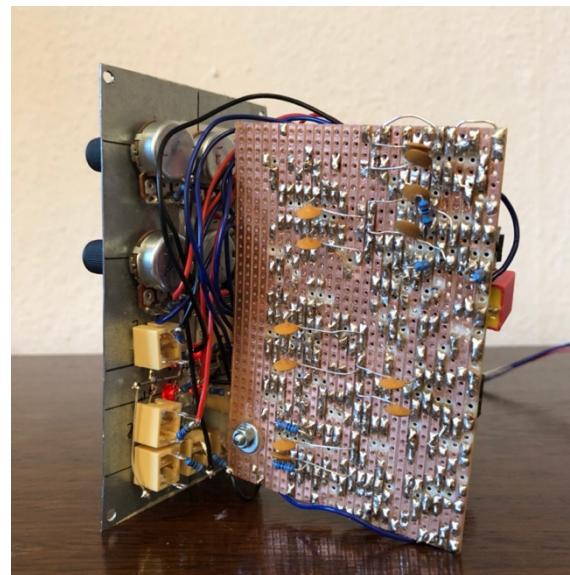
More info

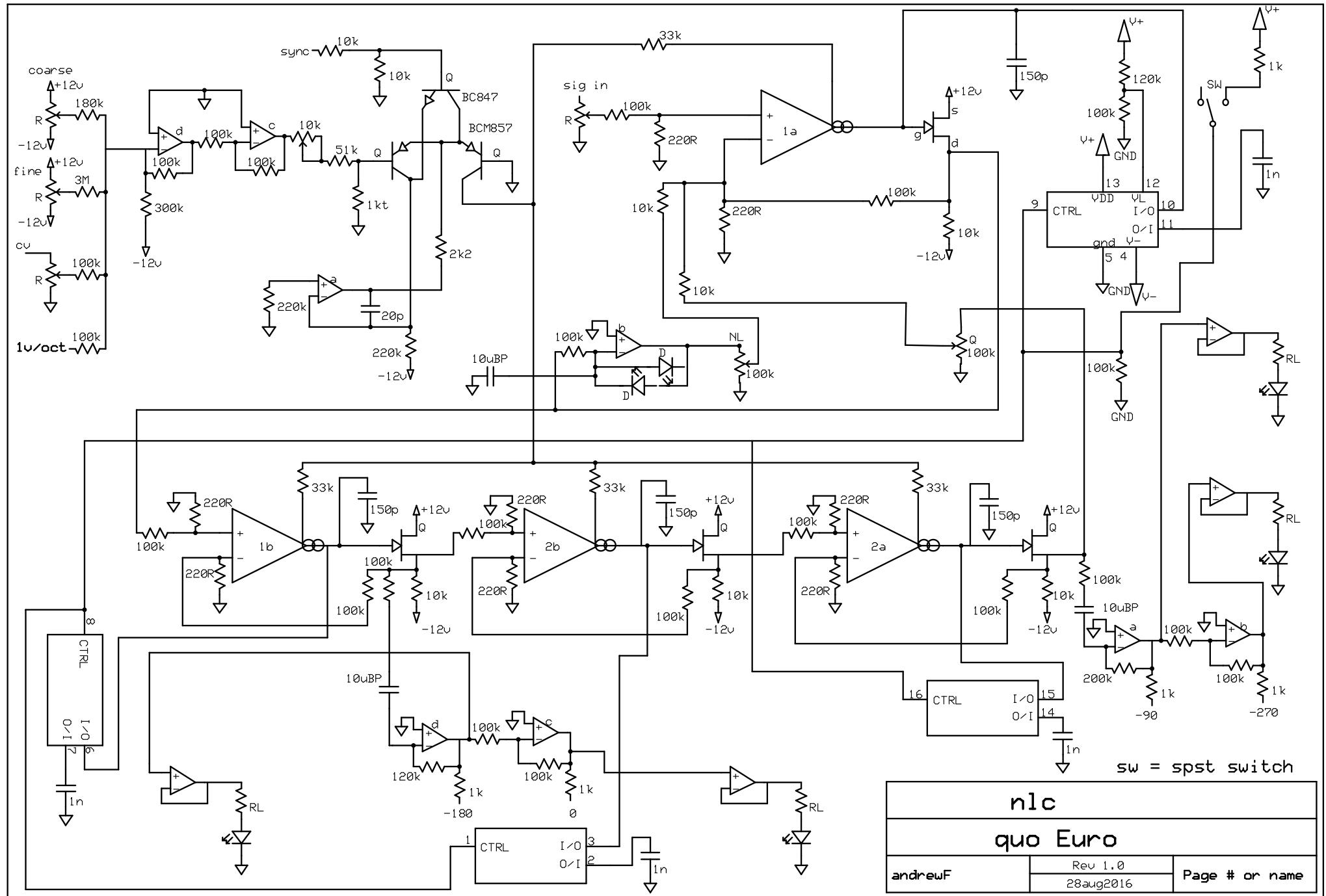
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Some pics





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