

Based on Electric Druid design
<https://electricdruid.net/multimode-filters-part-2-pole-mixing-filters/>
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mods by Rich Holmes / Analog Output

Sheet: /
File: pmf.kicad_sch

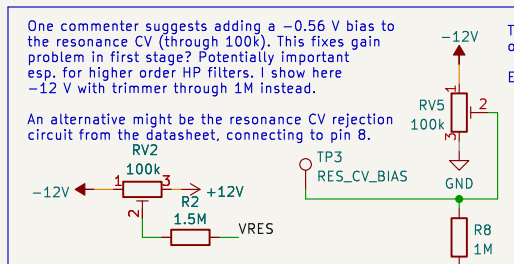
Title: Pole mixing filter

Size: USLetter Date: 2022-03-29

Rev:

KiCad E.D.A. kicad-cli 7.0.0-rc1-unknown-00d77f624a~164~ubuntu22.04.1

Id: 1/4



This bias trimmer has very little effect on CVres feedthrough.

Exclude from board for now.

Per datasheet formula, REE is 1.2 k (ED had 1.1 k).

On breadboard, frequency CV feedthrough is insignificant with $\sim 1.2\text{ k}$, but $\sim 3\%$ with $\sim 1.0\text{ k}$.

Fixed 1.2 k may be good enough. Or use trimmer.

In original, this 51 k resistor was mistakenly omitted.

Resonance compensation mixer

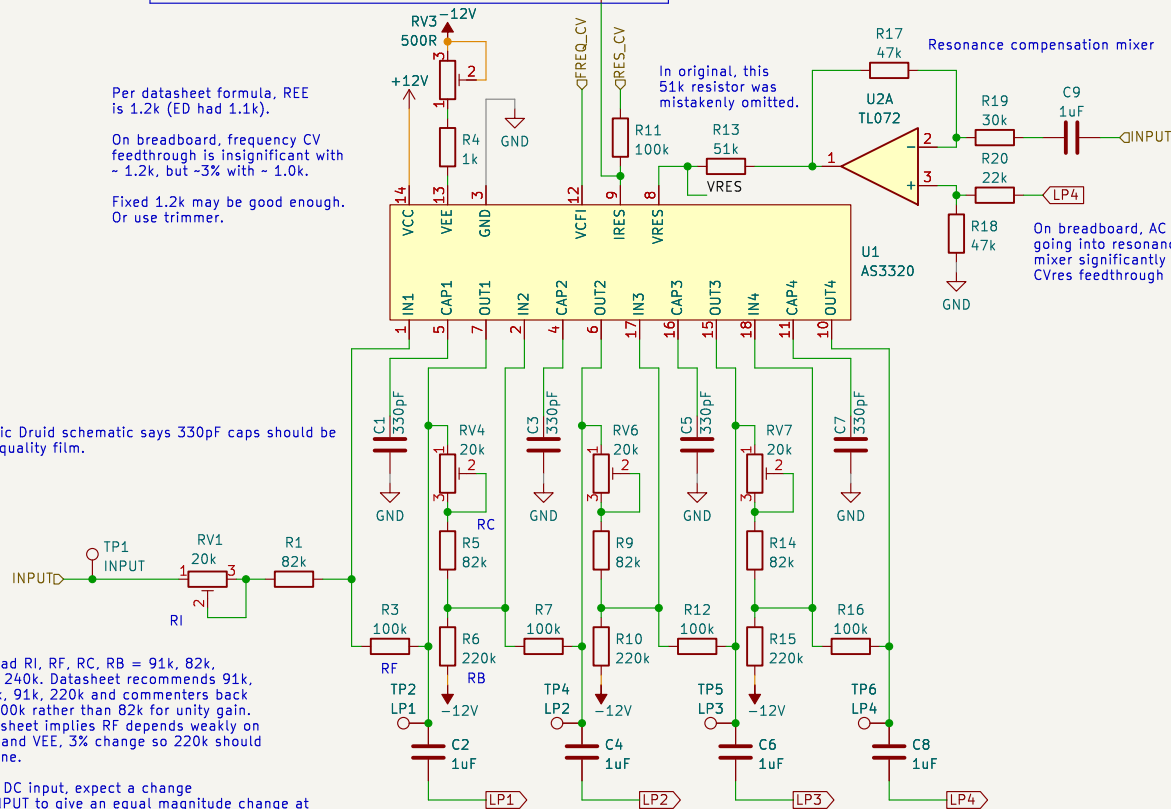
On breadboard, AC coupling INPUT going into resonance compensation mixer significantly improved CVres feedthrough

Electric Druid schematic says 330 pF caps should be good quality film.

ED had R_I , R_F , R_C , $R_B = 91\text{ k}$, 82 k , 91 k , 240 k . Datasheet recommends 91 k , 100 k , 91 k , 220 k and commenters back up 100 k rather than 82 k for unity gain. Datasheet implies R_F depends weakly on VCC and VEE, 3% change so 220 k should be fine.

With DC input, expect a change at INPUT to give an equal magnitude change at test points LP1, LP2, LP3, LP4. (There will be an offset.) Any inequality will not be canceled out in HP filters, leading to incorrect low frequency behavior.

On breadboard, different ($\sim 10\%$) gains are seen on different stages. Use trimmers for R_I and R_C .



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Sheet: /Filter core/

File: core.kicad_sch

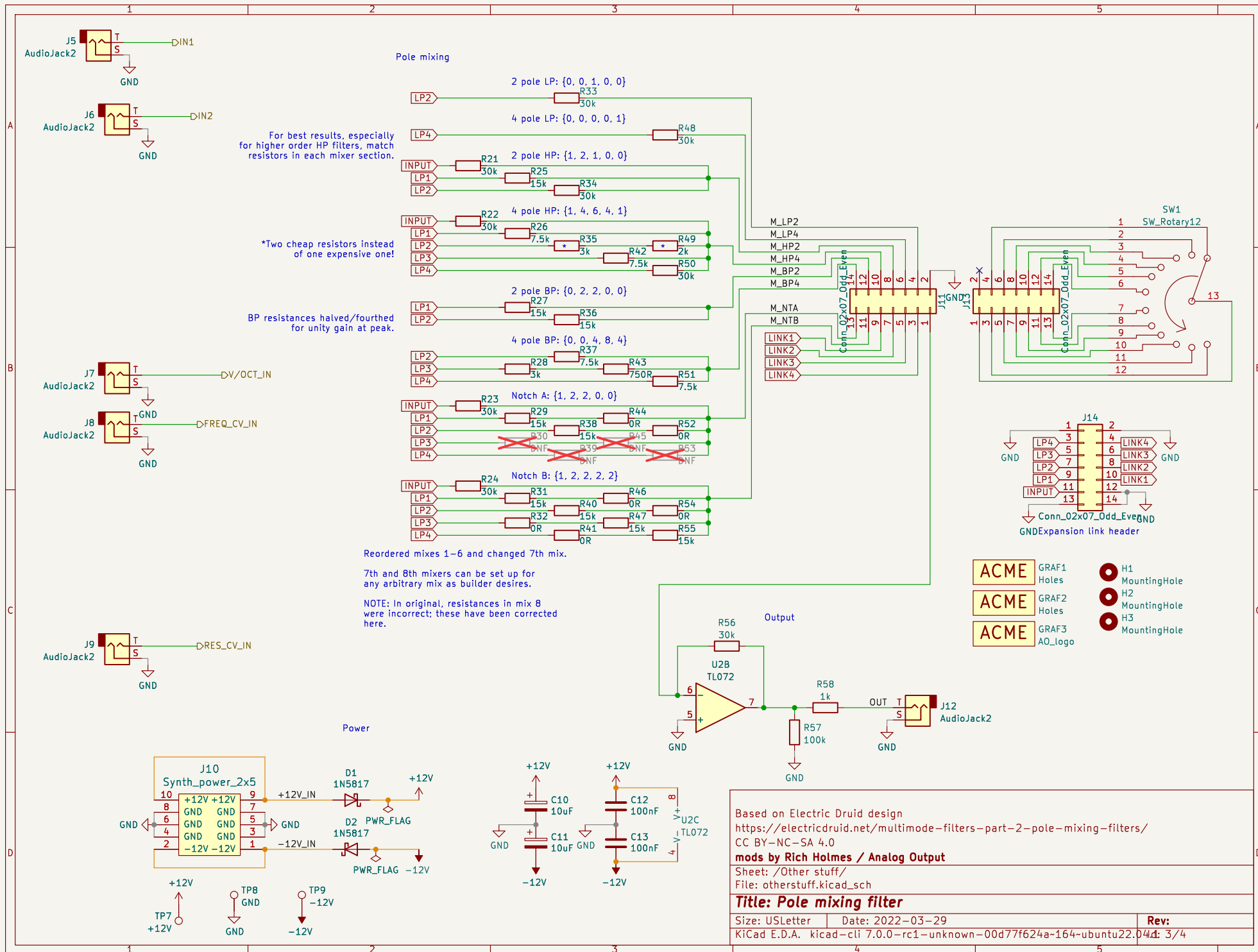
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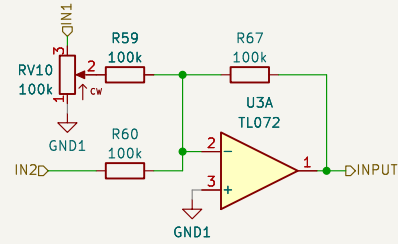
KiCad E.D.A. kicad-cli 7.0.0-rc1-unknown-00d77f624a-164-ubuntu22.04

Rev:

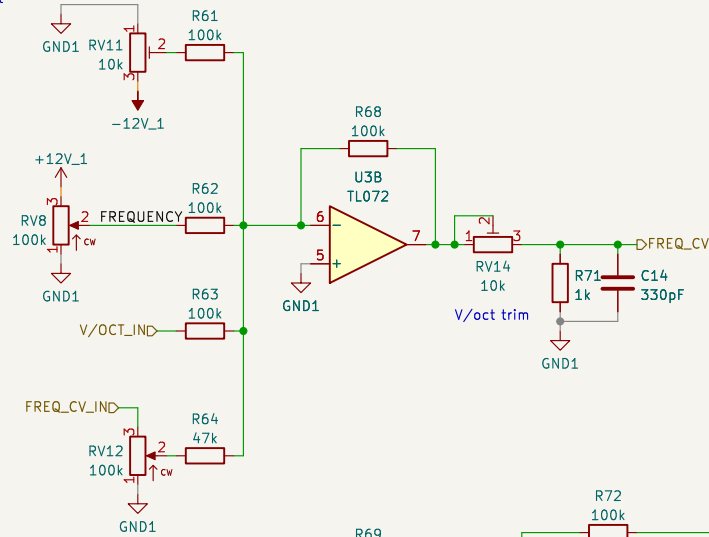
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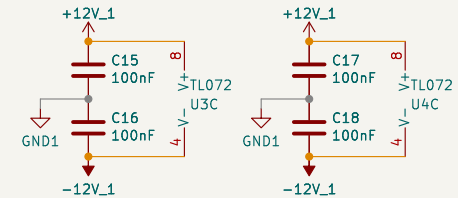
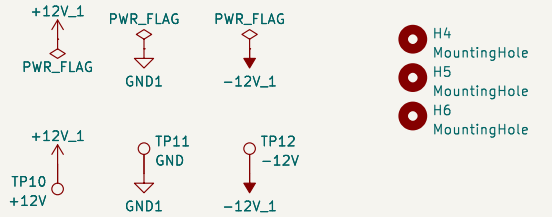
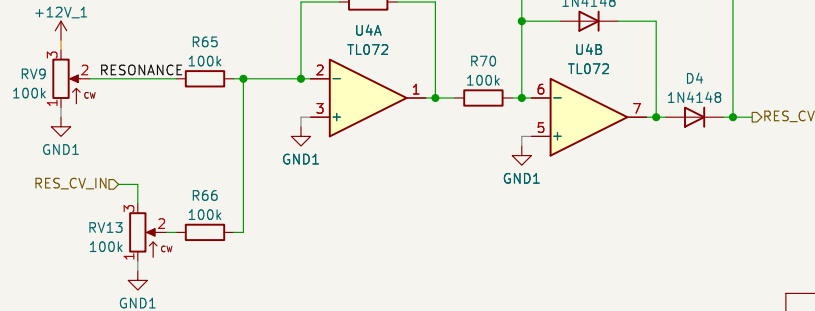
Signal input



Freq CV input



Res CV input



- H4 MountingHole
- H5 MountingHole
- H6 MountingHole

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Sheet: /Pots board/
 File: pots.kicad_sch

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