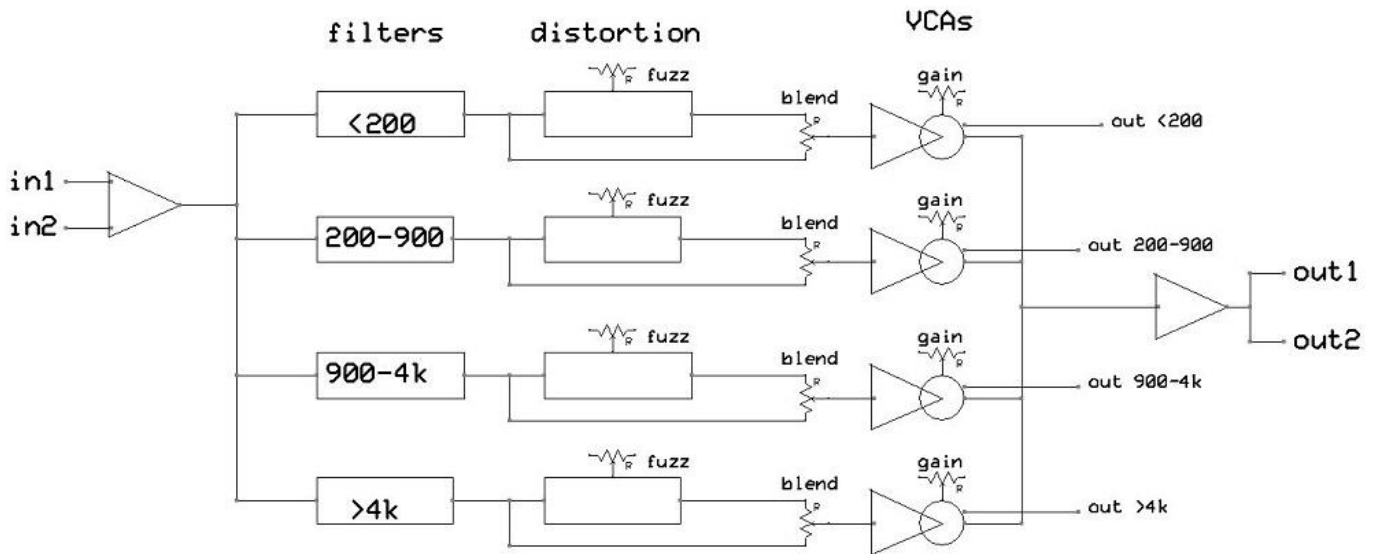


nonlinearcircuits

multiband distortion processor BOM & build guide



This module is made up of smaller circuits based on the following; Buchla 194 fixed bandpass filter, four Shin-ei SY2 Fuzz circuits, 4 Korg 3200 vactrol VCAs, an input buffer and an output summing sub-circuit. As the block diagram shows, the input signal(s) are split into frequency bands. Each band is then sent to the fuzz/distortion circuit and outputs to a VCA via a blend pot which mixes the distorted signal with the original clean signal. Each of the four vactrol based VCAs can be individually controlled by CV and the signal for each channel is available on the panel. The final stage sums the 4 signals and sends this to the two panel jacks.

Interesting results can be obtained by controlling the VCAs with different CVs, many new sounds and harmonics can be heard as the different frequency bands are brought in & out of the mix. It is also interesting to feed one of the channel outputs back into the spare input jack.

There are no problems with the PCB, although some components are marked with a *, this indicates the component can be varied to adjust the gain at that point in the circuit. For the component values indicated, the module works well, so I suggest building it as is and experimenting later if you feel the need. It is very simple to remove and replace 0805 components if you want to do this. Some suggestions are included on the schematic.

Tayda is a good source for the 0805 resistors, but I suspect their 0805 capacitors are very low spec. It is worth buying the capacitors from a trusted supplier and check the specs for tight tolerances (say +/-5%), they will still only be a few cents each. In Australia, I got mine from Element 14 (aka Farnell in the UK).

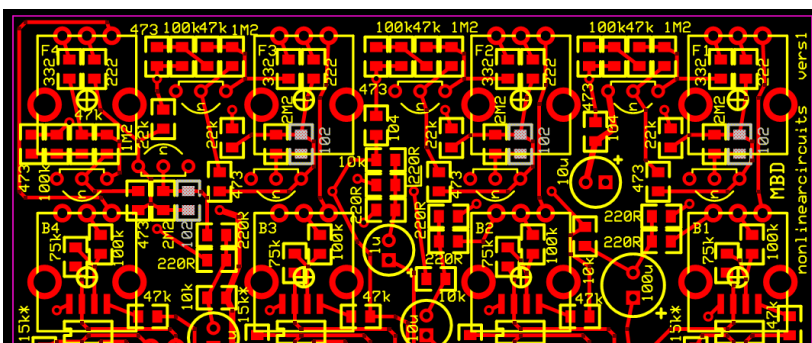
The blank side panels on the PCB can be easily snapped off, it is worth then rubbing the edges of the PCB against a brick or pavement to grind off any sharp edges/splinters.

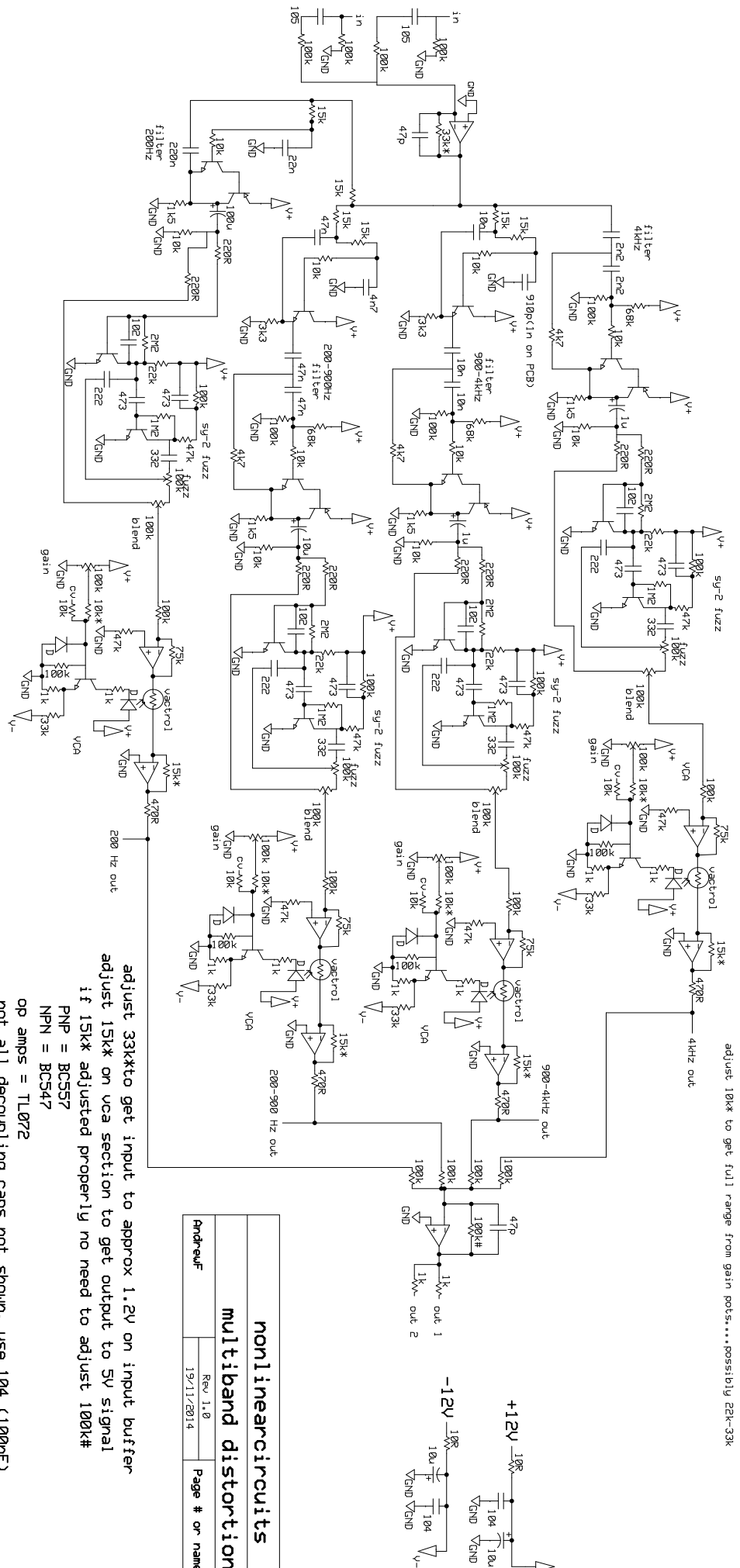
If you bought the cheap 1st run panels, you will be aware the 3rd row of holes for the pots is approx. 2mm offset. These need to be drilled out (maybe 8mm bit?) and then run the drill bit along the lower edge to gain a few extra microns. Future runs of panels will not have this issue and will have ENIG gold lettering.

I'd suggest getting spares, especially of the 0805 components, they are easy to drop and disappear.....there is also the possibility I miscalculated too. Please get in touch if you spot any errors in the BOM – thank you!

COMPONENT (QUANTITY)	NOTES
TL072 (5)	SOIC
BC547 (18)	marked 'n' or unmarked
BC557 (4)	marked 'p'
single vactrols (4)	I used Silonex NSL32
100k pots (12)	like this one from Tayda
jacks (12)	Kobiconn style
power connector (1)	Eurorack 10 pin
1N4148 (4)	thru hole diode
100 μ F (1)	electro cap
10 μ F (4)	electro cap
1 μ F (2)	electro cap
1 μ F/105 (2)	0805
100nF/104 (7)	0805
10nF (3)	0805
1nF (5)	0805 (or 22nF for four of them, see MODS below)
220nF/224 (1)	0805
22nF/223 (1)	0805
2.2nF/222 (6)	0805
47nF/473 (11)	0805
4.7nF/472 (1)	0805
3.3nF/332 (4)	0805
47pF (2)	0805
220R (8)	0805
470R (4)	0805
1k (10)	0805
1k5 (4)	0805
3k3 (2)	0805
4k7(3)	0805
10k (18)	0805
15k (10)	0805
22k (4)	0805
33k (5)	0805
47k (8)	0805
68k (3)	0805
75k (4)	0805
100k (24)	0805
1M2 (4)	0805
2M2 (4)	0805
10R (2)	thru-hole

Mod – some experimenting with the distortion circuit showed it is good to change the four 1nF caps (marked '102') to 22nF (223), indicated in the pic below

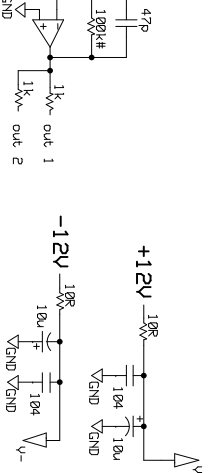




adjust 10k to get full range from gain pots...possibly 2k-33k

adjust 33k to get input to approx 1.2v on input buffer
 adjust 15k on vca section to get output to 5v signal
 if 15k adjusted properly no need to adjust 100k#

- PNP = BC557
- NPN = BC547
- op amps = TL072
- not all decoupling caps not shown, use 104 (100nF)



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