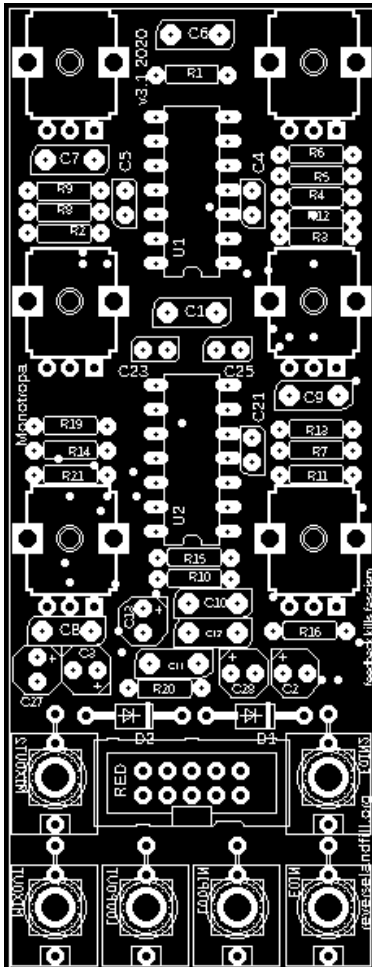


## Monotropa v3.2 Buildguide 2023



### Resistors:

Start with soldering these resistors. The value of the resistors are written on the tape. If you are unsure, use a Multimeter to check the value.

r1, r8, r10, r15	1.8k
r7	2k2
r3, r4, r5, r6, r12, r13, r16	10k
r19, r20, r21	1k

Next up are the resistors that determine the frequency bands. If you want to modify these frequencies, see below for more information.

r2	130k
r9	110k
r11	82k
r14	68k

### Diodes:

Place the black 1n4001 diodes at d1 and d2. These parts have an orientation. The white line has to match on the part and the PCB.

### IC sockets:

Solder the 2x 14pin IC sockets to u1 and u2. Take care to orientate them properly. The notch on one end should match the silkscreen. First solder just 2 opposite pins and check if the socket is aligned

flat to the pcb. If not, slightly press down on the socket and reheat the pins.  
Now solder all remaining pins. Leave the IC's out for now.

### Capacitors:

c4, c5, c21, c23	100nF	4	2.5mm
c12	1nf	1	5mm film
c10	2.2nf	1	5mm film
c9	10nf	1	5mm film
c6	22nF	1	5mm film
c11	33nf	1	5mm film
c8	82nf / 100nF	1	5mm film
c7	470nf	1	5mm film
c1	1uf	1	5mm film

The film capacitors (the blocky ones) determine the frequency bands.  
The value is written on top. Start with the smaller sized caps.

The electrolytic capacitors have an orientation. The longer leg is PLUS.  
There is also a small + sign on the pcb. Make sure you place them correctly!  
The value is printed on the side of the parts.

c2, c3	10uF
c13, c27, c28	1uf

### Power header:

Insert the 10pin shrouded power header in place. This part also has an orientation; the open side.  
Make sure the part matches the silkscreen marking on the pcb.  
Then solder one pin and check if the header is aligned correctly. If not, slightly press the header and reheat the pin. It should click into place. Now solder all remaining pins.

### IC's:

Take the TL084 (or TL074 / TL064) IC's out of the foam.  
Bend the legs to 90 degrees using a flat surface.  
Then insert it while taking care that the notch matches the IC socket (and silkscreen on the pcb)  
Press both the IC's firmly into the sockets.

Take a break! Drink some tea or go outside :)

### Potmeters and jacks:

Flip the pcb and insert the potmeters into the pcb. Also insert the jack sockets. DON'T solder yet!  
Now place the panel. Use one or two nuts to hold the panel in place.  
Now solder one pin of each pot and jack. Remove the panel and check if the pots are aligned.  
The jacks will be slightly raised from the pcb. Don't worry about them, as long as the pins are sticking through, they are fine. If you are unsure, slightly press down on the jack and reheat. It should click flat to the pcb. If all is correct, continue to solder all pins.

### Panel:

Mount the panel to the pcb and secure all the nuts. Carefully tighten them using the correct tools.

### Knobs:

Turn all pots fully CCW and place the knobs. Take care that all lines point to the same angle.  
Then push them firmly to the pcb, while holding the back of the pcb.

**Time to test!**

**As a last check, look over the pcb and check the soldering, check for shorts and polarity of the IC's, Diodes and Electrolytic Capacitors.**

**Use a multimeter to check for continuity on the power header. There shouldn't be a connection between the -12v, GND and +12v pins !**

Insert the power cable and connect it to your modular system.

Turn on the power. Check if nothing blows! If all is well, proceed:

Patch one of the two outputs to a mixer. (the two jacks on the right)

Set both the Feedback knob and Gain knob to fully CW. (the lower two knobs)

The four frequency knobs will now self resonate, when turned CW. Try each band.

You should hear low, mid, mid/high, and high tones. It works!

Set the Gain to CW and the Feedback to 12 'o' clock.

Patch a drum sound to one of the two inputs. (left two jacks). Patch the output to a mixer.

Try out different settings. You should hear distortions and resonating sounds.

Refer to the sound manual for other patch ideas and a guide to all functions.

**Troubleshooting:**

Check the orientation of both IC's, the polarised capacitors, the power header.

Did you insert the IC's? Check the soldering. reflow pins if needed.

**Modification:**

You can alter the frequency bands. Use parts that are near these values:

The capacitor and resistor pairs are linked to the four potmeters.

POT1 = c1, c6 and r2

POT2 = c7, c9 and r9

POT3 = c8, c10 and r11

POT4 = c11, c12 and r14

63Hz

160Hz

410Hz

1KHz

2.5KHz

7.7KHz

16KHz

1270nF, 22nF, 130k

503nF, 10nF, 110k

200nF, 4.7nF, 91k

80nF, 2.2nF, 82k

33nF, 1nF, 68k

12.2nF, 470pF, 62k

4.7nF, 220pF, 51k

**Credits:**

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Part of the EQ was inspired by the Musicthingmodular Graphic EQ / Boss GE7 circuit.

The rest of the design is by:

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