



Spring reverb effect

04-11-2023

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Version 1.0

I. Version history

Version	Changes
1.0	First version

II. Table of contents

I. Version history	1
II. Table of contents	2
1. Product description	2
2. Schematics	3
3. PCB layout	3
4. Bill of materials	3
5. Housing dimensions	14
6. Mounting 3D models	14
7. Development costs	14
9. Pictures	19
10. Used sources	19

1. Product description

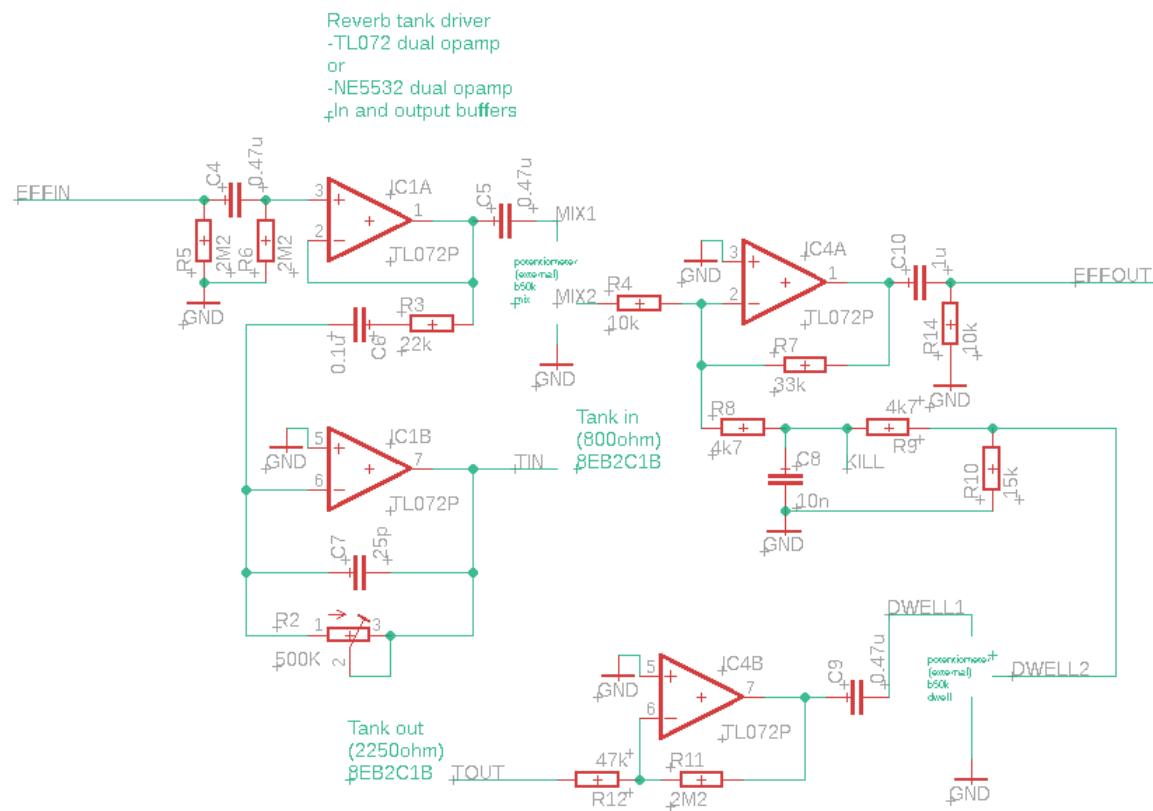
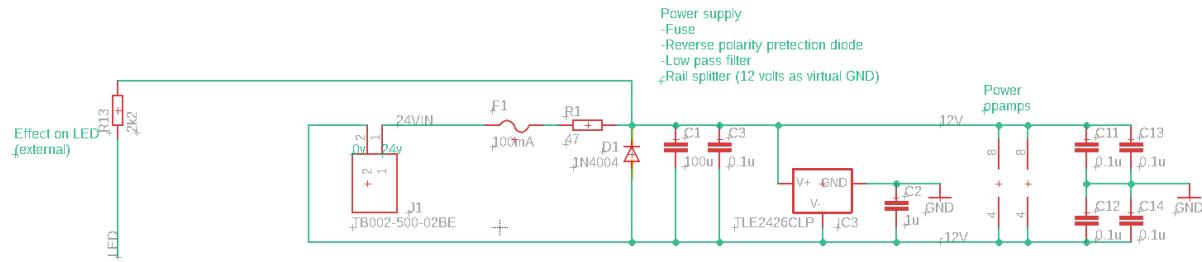
The spring reverb effect is an effect used to create a reverb. It is based on a opamp driver circuit and a 8EB2C1B spring reverb tank.

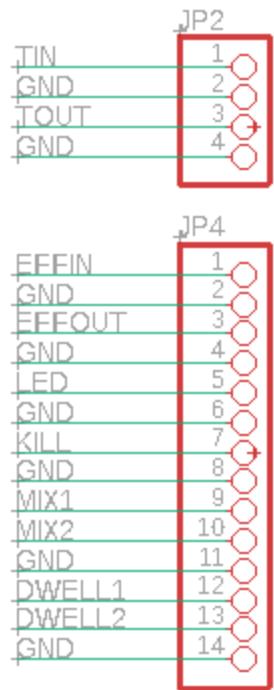
The effect is powered by its own 230VAC power supply. The effect circuit itself works on 24VDC. It is fused via a PTC 100mA fuse and protected against reverse polarity via a diode. The power stage contains a low pass filter to filter out noise. A TLE2426 is used to create 12 volts used as a virtual ground for the opamps.

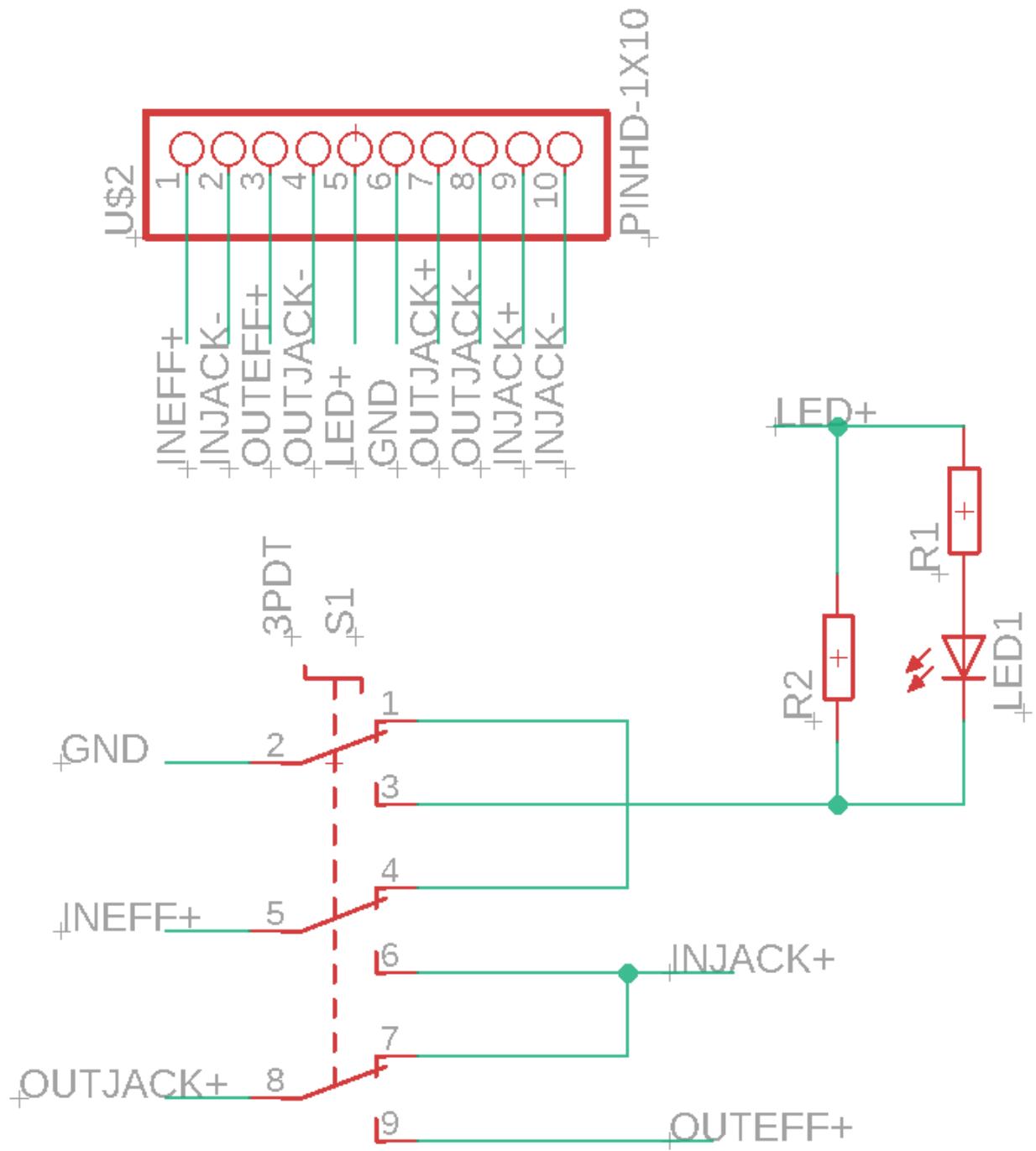
Both the input and output contain a opamp based signal buffer. Both the in and output from the tank have their own opamp driver. This gives the circuit a total of 4 opamps.

The effect is housed in an aluminum pedal housing. Power can be supplied via a Schuko plug (230VAC). For the audio in- and output 6.35mm mono audio jacks are used. A stomp switch is used to create a true bypass.

2. Schematics

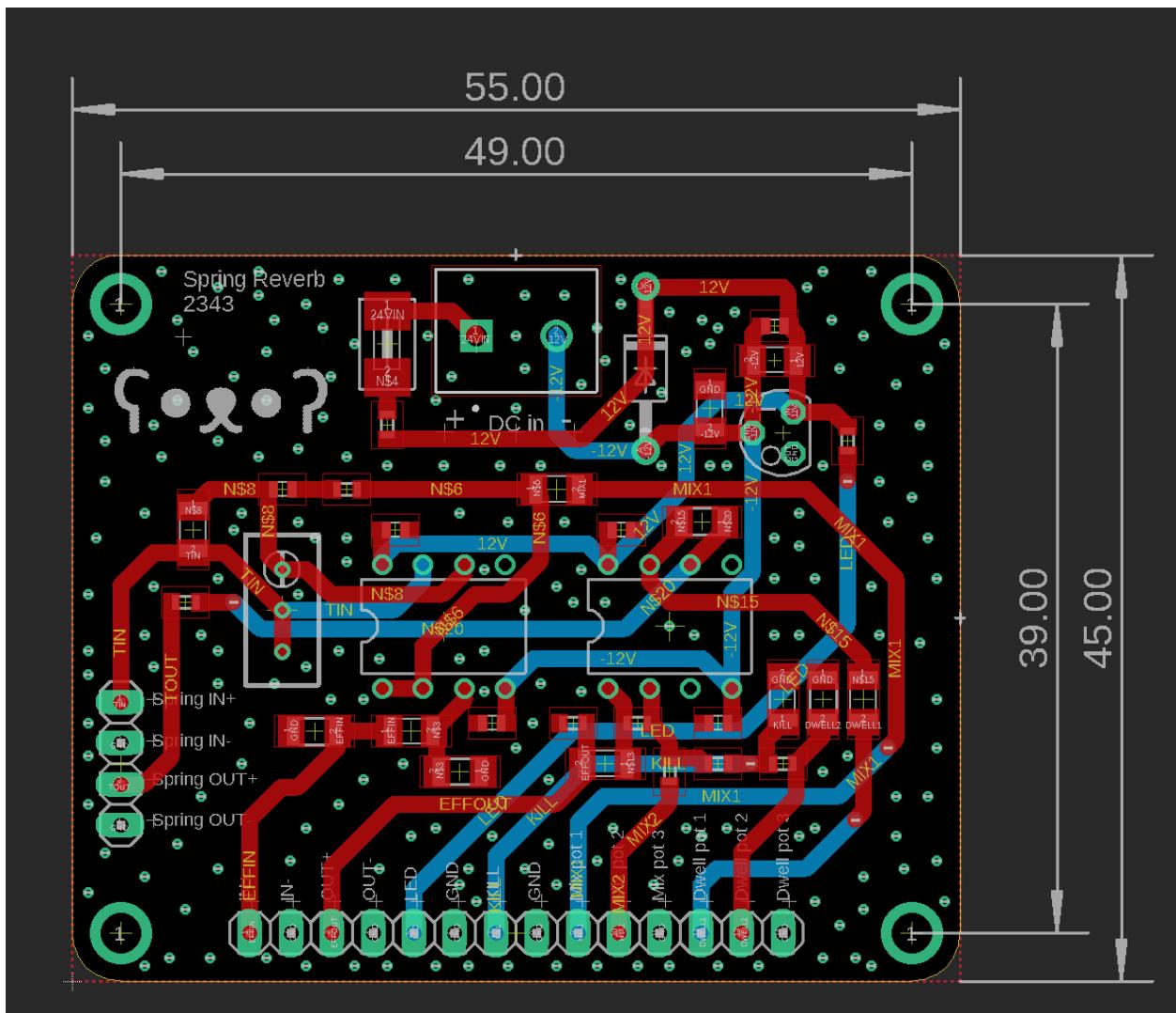




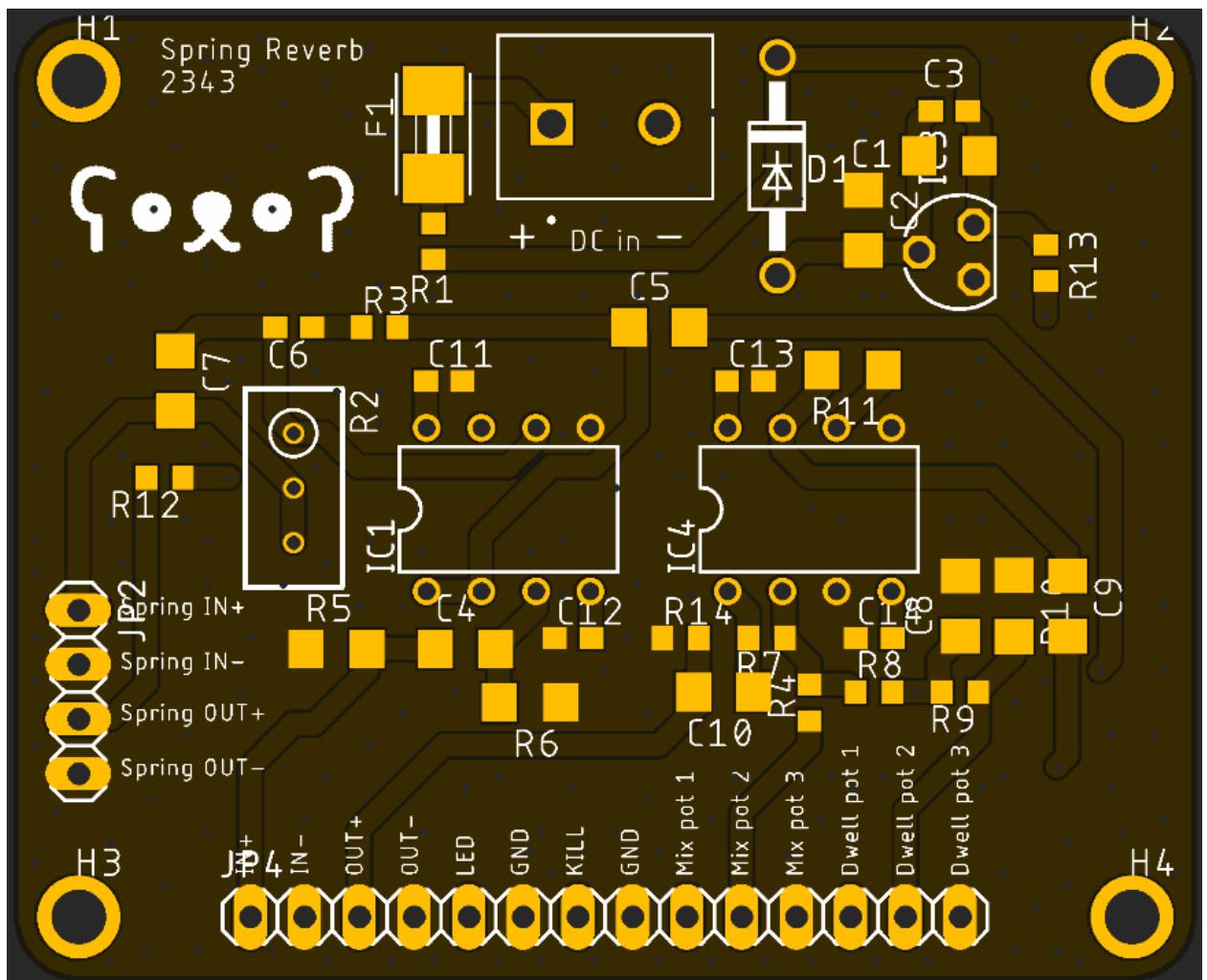


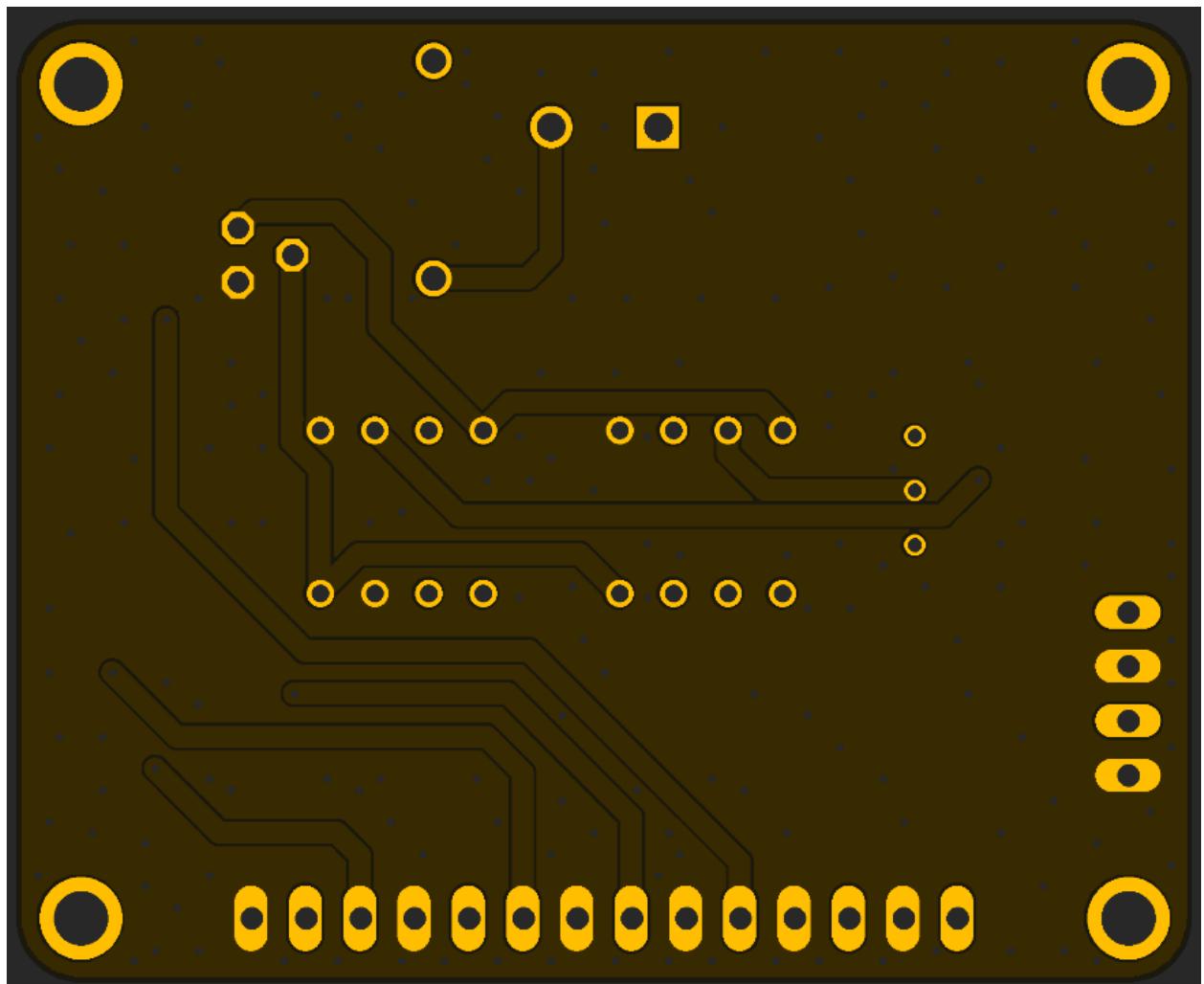
3. PCB layout

The PCB design is as shown in the picture below. The dimensions of the PCB are also shown in the drawing.



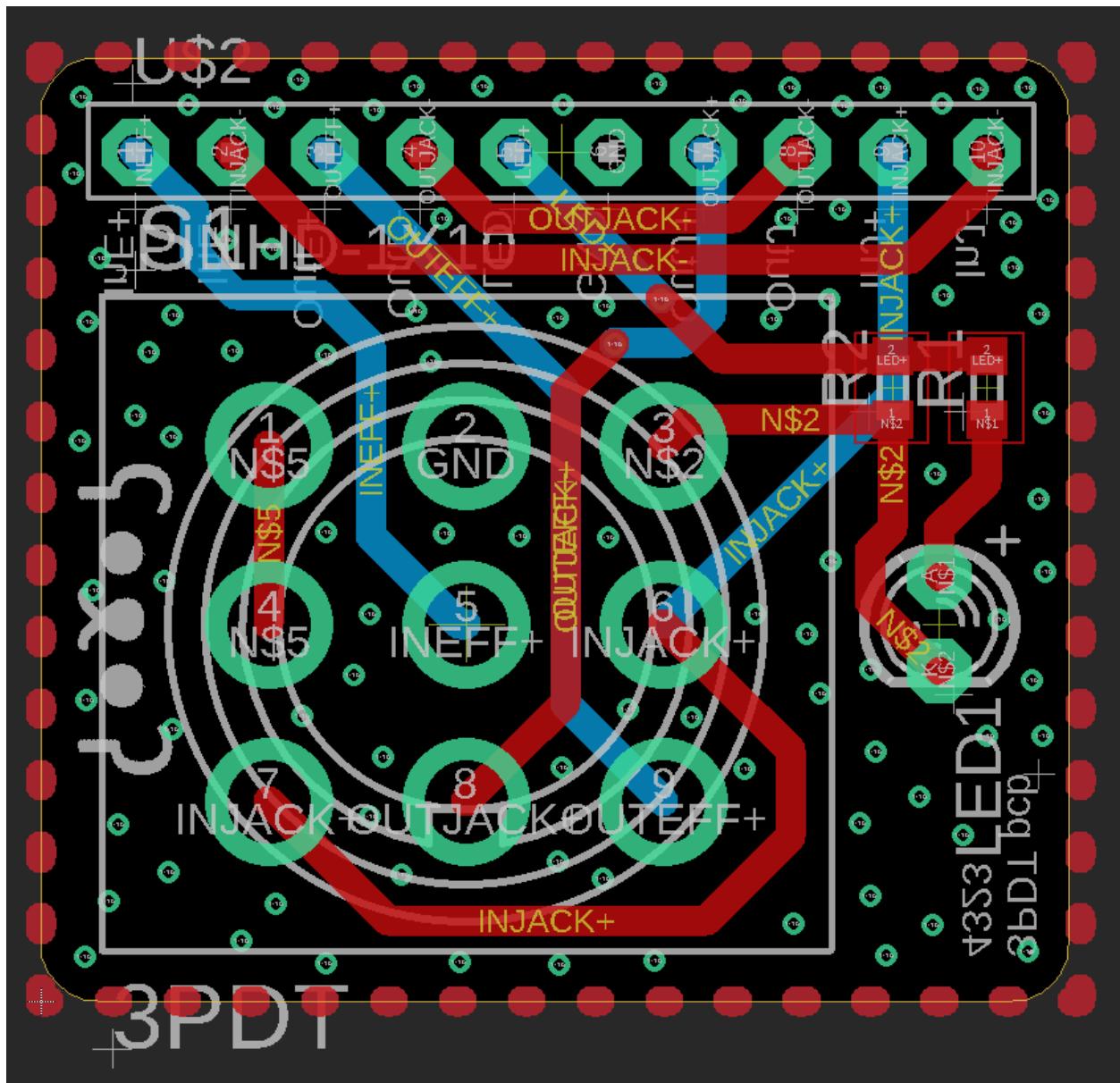
Note: Component number not visible on real PCB

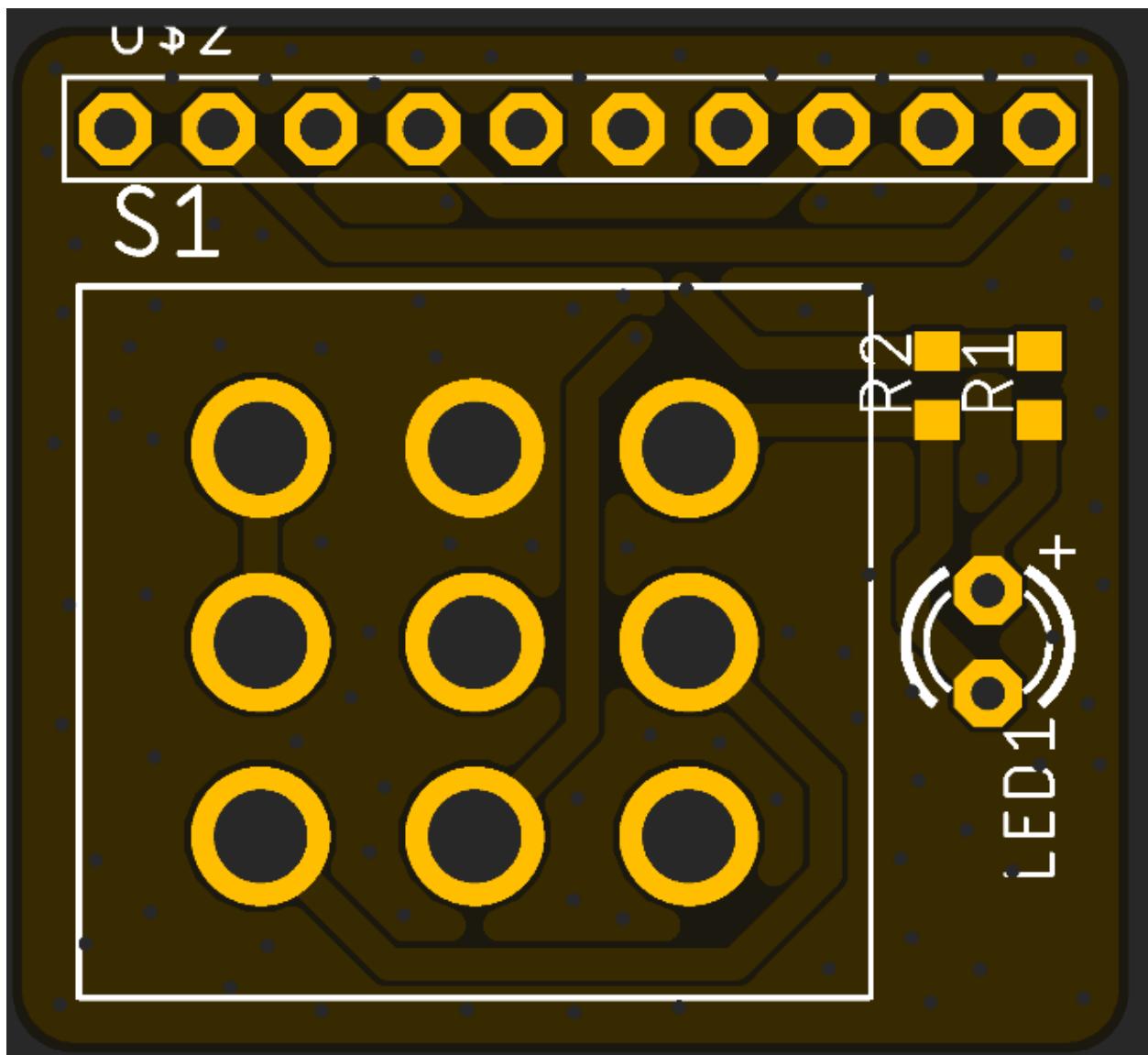


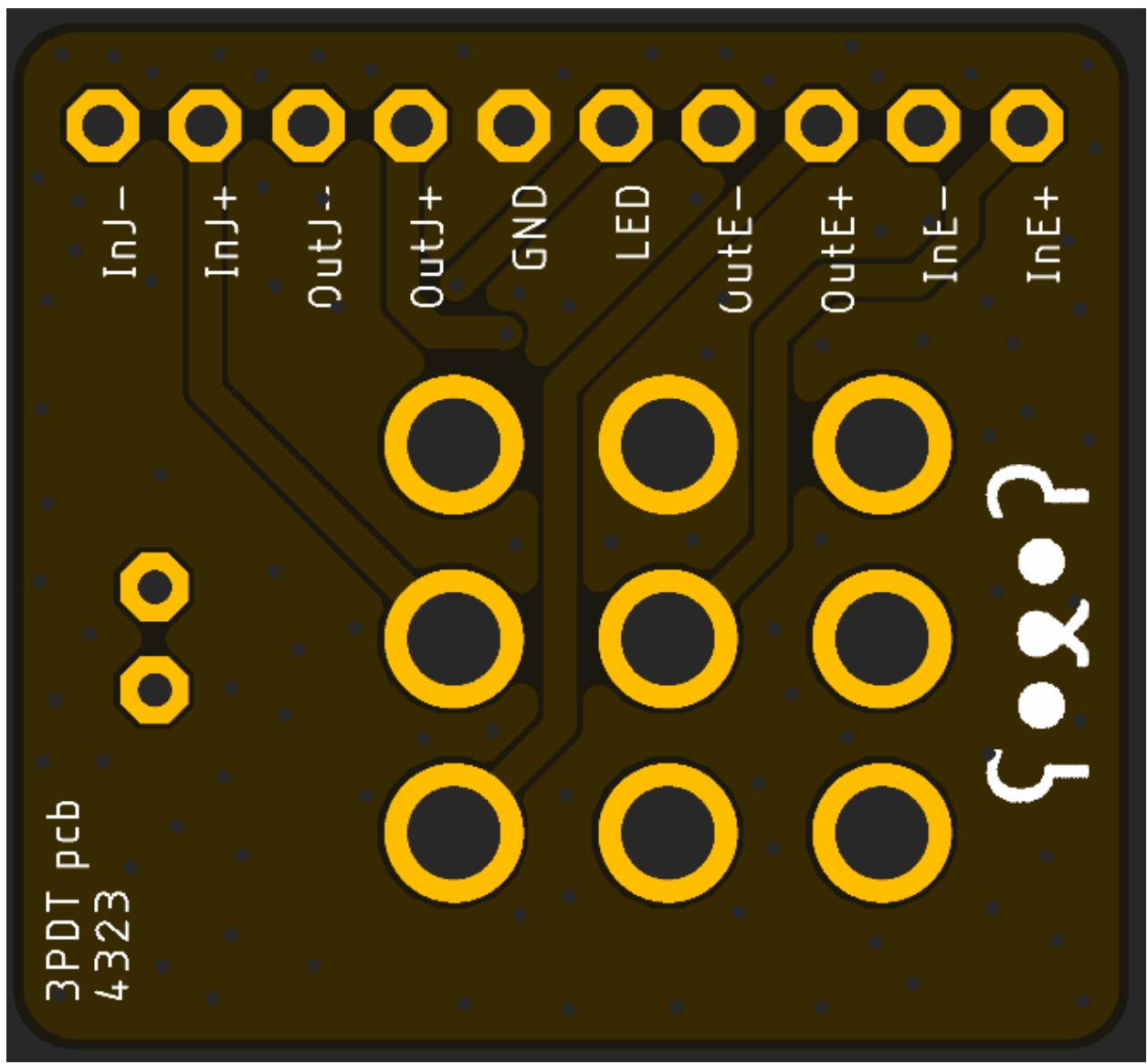


The 3PDT switch also has its own PCB. This is done for easy wiring.

Note: This PCB has a major design flaw and will be redesigned



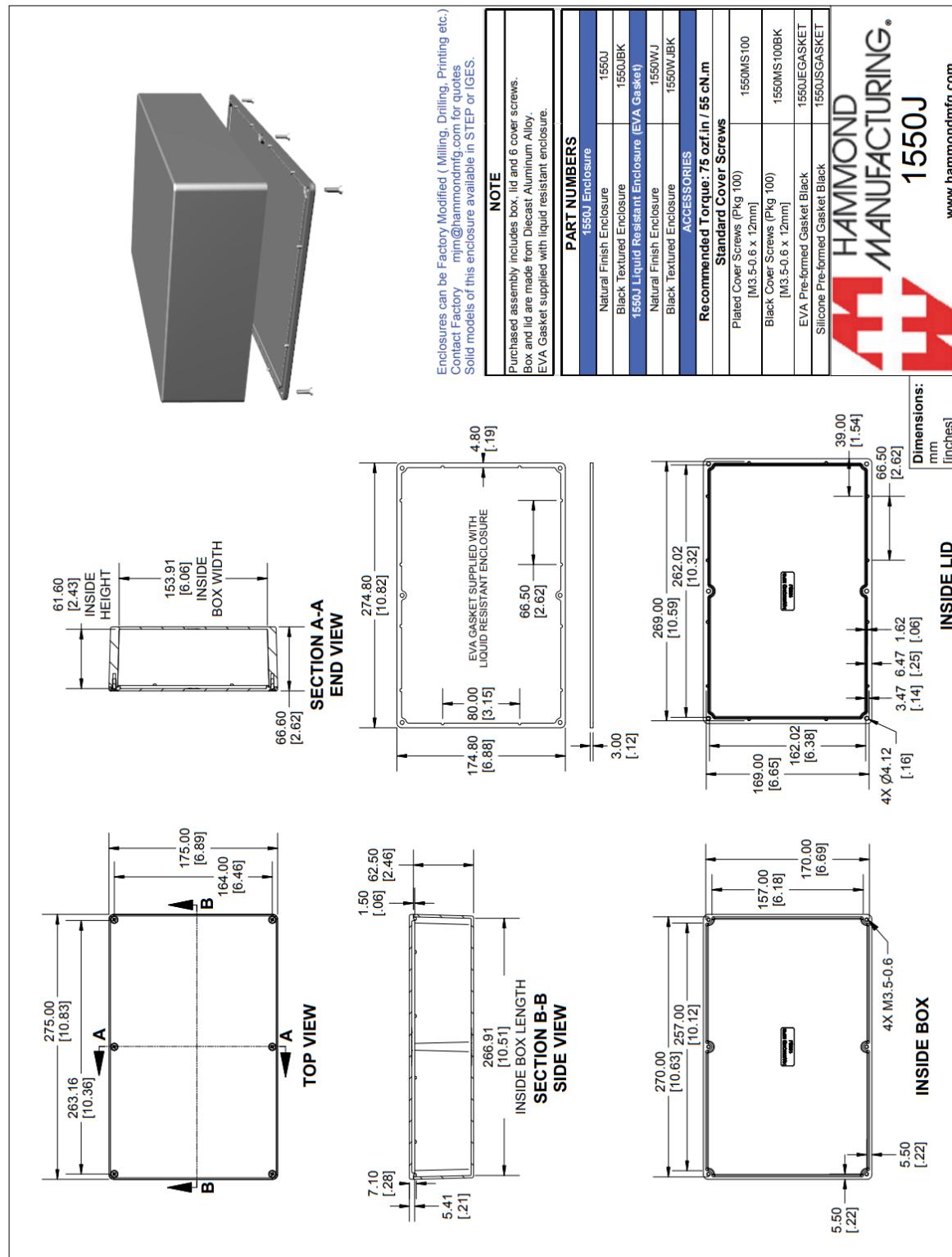




4. Bill of materials

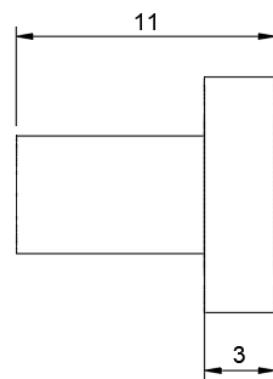
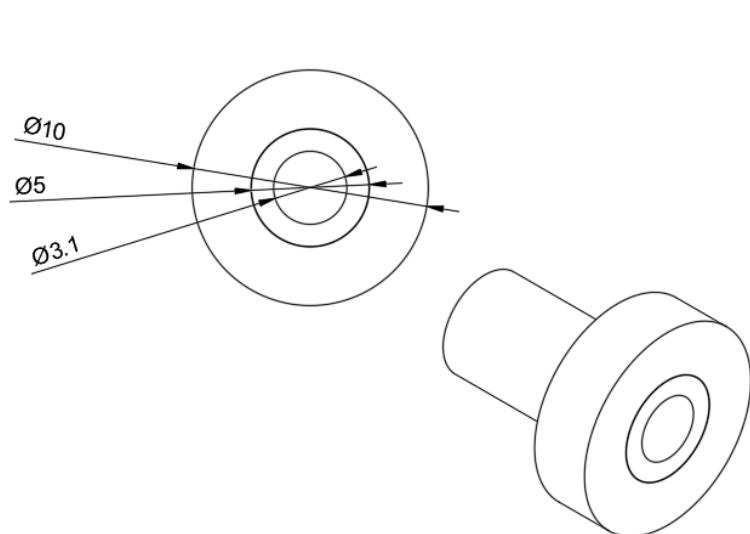
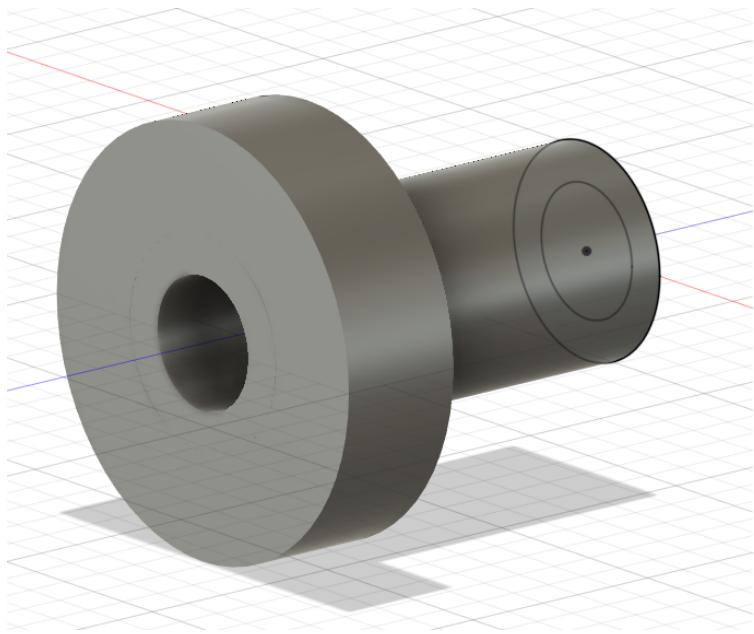
Part number	Device	Footprint	Type / value	Total parts

5. Housing dimensions



6. Mounting 3D models

Mounting spacer for reverb tank. Printed with 3D printer.



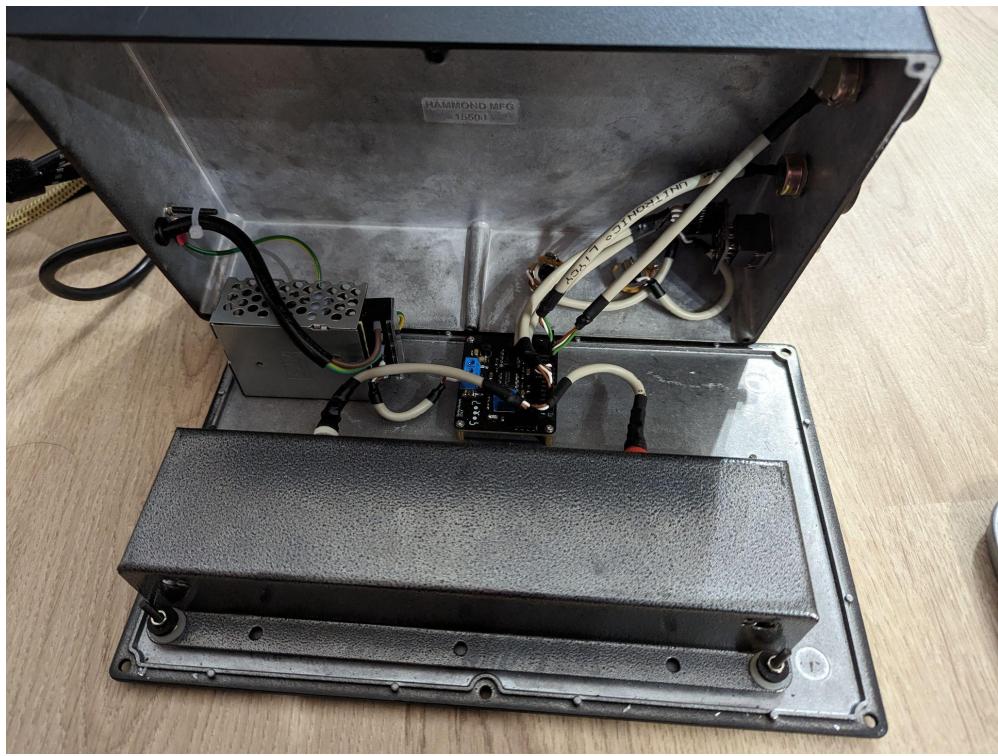
7. Development costs

Only the material costs are included in the development costs.

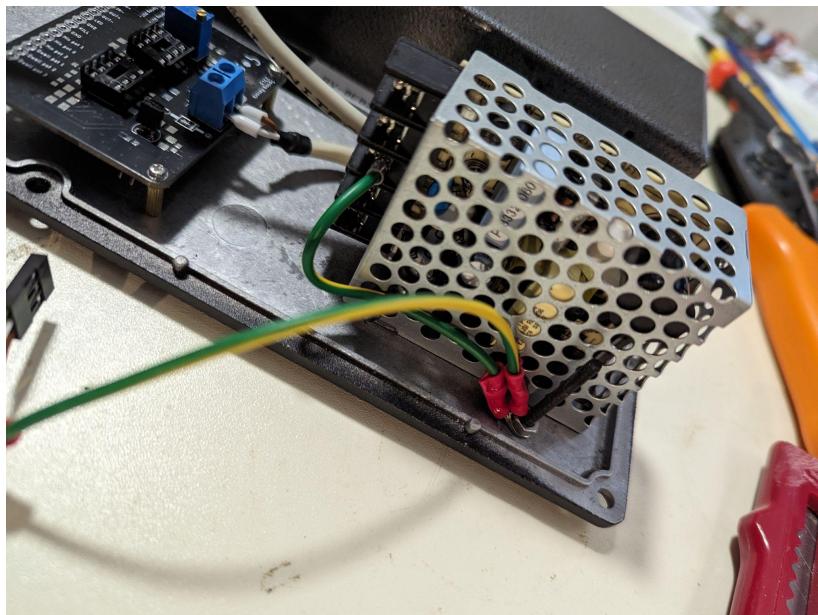
Part number	Device	Type / value	Total parts ordered	Total parts price (€)	Shipping price (€)	Total price incl shipping (€)	Total price per piece (€)	Link (at time of order)	Remark

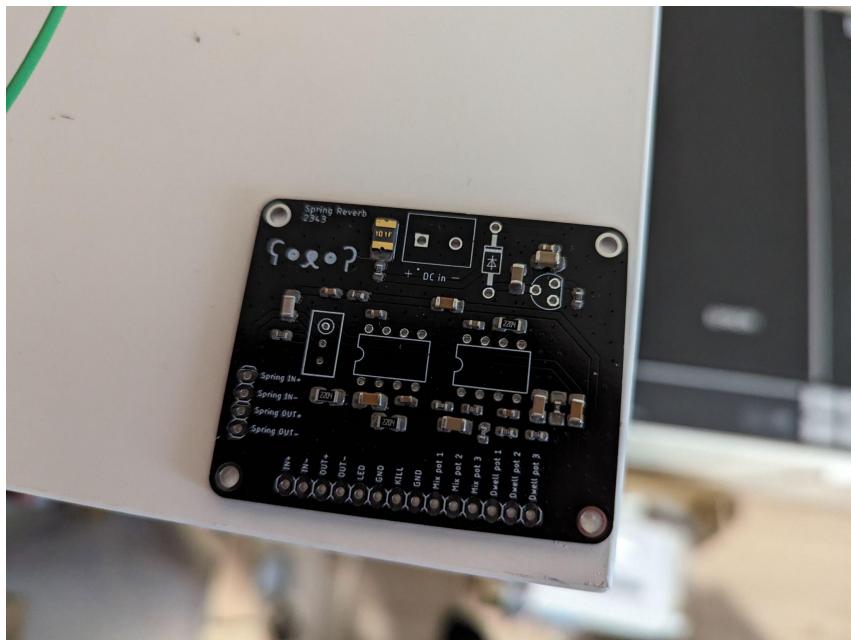
Total development costs including shipping is €xx. Time and parts already in house are not included in this calculation.

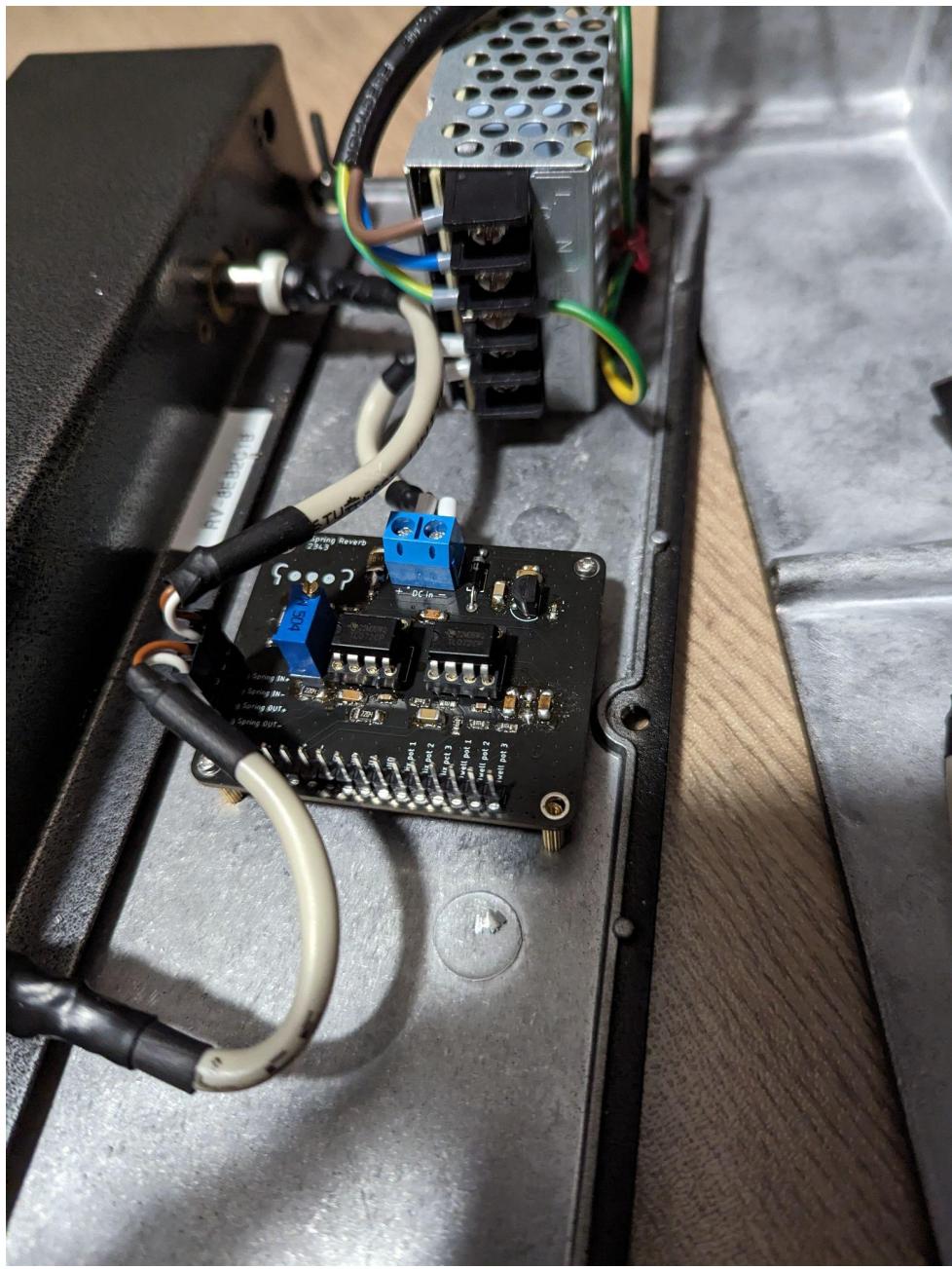
9. Pictures









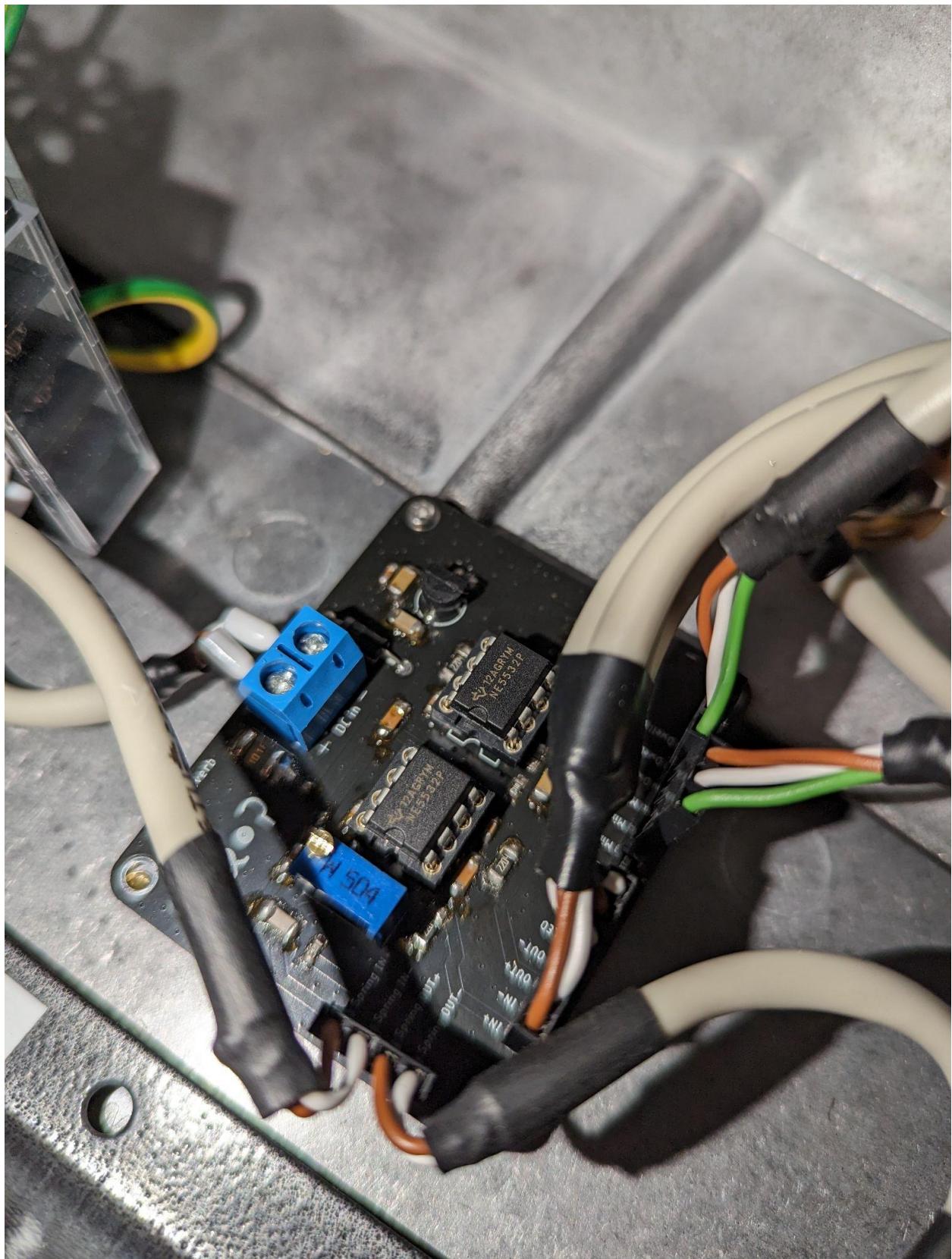














10. Used sources

- [1] Reddit. 2021. *Build my own spring reverb pedal* [online] Available at: <https://www.reddit.com/r/diypedals/comments/mw9ptj/build_my_own_spring_reverb_pedal/> [Accessed November 2023].
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- [5] General Gadgets. 2017. *Stage Center Reverb* [online] Available at: <<https://generalguitargadgets.com/effects-projects/reverb/stage-center-reverb/>> [Accessed November 2023].
- [6] General Gadgets. 2017. *Spring Reverb Stompbox Circuit* [online] Available at: <https://generalguitargadgets.com/pdf/ggg_sc_verb_mod_sc.pdf> [Accessed November 2023].
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