

Lizard Kisses
Overdrive pedal kit by Pedal Markt

April 24, 2025

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1 Introduction

Lizard Kisses is a color and texture device. With different clipping and brightness options it can act as a boost, an overdrive or a distortion. It stacks well with other pedals, responds to your playing and is a classy beast all around!

Lizard Kisses enclosure was designed by the wonderful [Agata Fiz.](#)



Figure 1: Lizard Kisses: outside and inside

The pedal was originally conceived for the workshops at [Pedal Markt](#). The intention was to make it as easy to build and customize as possible. The [BOM](#) lists the stock values for components, and separate sections further in the document describe how you could try out alternative parts to get different sounds.

The circuit is based around a discrete operational amplifier. Discrete meaning it's built out of single transistors, as opposed to an integrated circuit aka a chip. You can find [the schematic](#) and [the circuit breakdown](#) further in the document.

2 BOM – Bill of Materials

BOM is a document that lists the parts you'd need to build a project. Each row corresponds to a component with a certain value, for example a 'ceramic capacitor with value 1nF.' There could be one or more actual physical part per each row, their designators are listed in the *Reference* column.



Components in the BOM are listed in order of assembly. Go through the table top to bottom.

If you haven't built a kit before, check out the [Step-by-step instructions](#) first.



In the BOM *text in italic font* gives tips about how to mount or solder parts.



If you'd like to experiment with some of the parts, for example the Brightness Caps and the Clipping Diodes, please socket them.

Table 1: BOM

Ref	Value	Qty	Description
Outboard			
–	Enclosure	1	<i>Mount both pots, both toggle switches, DC jack, Footswitch and LED Lampshade into the enclosure before soldering</i>
–	Lampshade	1	Small transparent plastic part for the LED, <i>mount in enclosure before putting the boards in</i>
–	Rubber Ring	1	<i>Use it to keep LED Lampshade in place</i>
–	DC Jack	1	Black plastic part with a nut, <i>mount in enclosure before soldering</i>
–	DC Cable	1	Red and black cables in a JST connector, <i>cut to $\approx 12\text{cm}$ and solder to DC Jack once it's mounted in enclosure</i>
–	Audio Jack	2	<i>Only mount these in the enclosure together with the main board once they are wired up</i>
Main board, floor side			
GND	Wire	2	$\approx 10\text{cm}$, black, <i>strip and tin the ends</i>
IN	Wire	1	$\approx 10\text{cm}$, any color, <i>strip and tin the ends</i>
OUT	Wire	1	$\approx 10\text{cm}$, any other color, <i>strip and tin the ends</i>
R7	4.7k	1	Resistor
R13	20k	1	Resistor
R1	1k	1	Resistor for the LED, <i>larger value will make the LED dimmer, values up to 6.8k are reasonable</i>
R12	1k	1	Resistor
R6, R10	2.2k	2	Resistor
R2, R5, R8	1M	3	Resistor
R3, R4, R9, R11, R14, R15, R16	10k	7	Resistor
D2	1N4148	1	Diode, orientation matters
switch up	1N4148	3	See Clipping Diodes section
Q1	TP0606	1	P-channel MOSFET

Continued on next page

Table 1: BOM (Continued)

	Q5	2N3906	1	PNP transistor
	Q2, Q3, Q4, Q6	2N3904	4	NPN transistor
	C5, C8	47p	2	Ceramic capacitor
	C3	47n	1	Film capacitor
	C9	100n	1	Film capacitor
	C6 (bright)	330n	1	See Brightness capacitors section
	C7 (dark)	470n	1	See Brightness capacitors section
	–	Power Socket	1	2-pin JST on the bottom-left of the board, <i>orientation matters</i>
	switch down	Red LED	2	See Clipping Diodes section
	C4, C10, C11	1u	3	Film capacitor
	C1	100u	1	Electrolytic capacitor, <i>orientation matters</i>
	C2	47u	1	Electrolytic capacitor, <i>orientation matters</i>
Main board, player side				
	–	Ribbon cable	1	Pads for that cable are in the bottom-center of the main board, <i>solder one end to main board, another to switch board, make sure pin names on the two boards match, IN on one board is connected to IN on the other board etc</i>
	VOL, GAIN	A100k	2	Potentiometers, <i>mount in enclosure before soldering</i>
	BRIGHT	On-On	1	2-position switch, <i>mount in enclosure before soldering</i>
	CLIP	On-Off-On	1	3-position switch, <i>mount in enclosure before soldering</i>
	–	LED	1	<i>Insert in PCB first. Solder last, once the main board is in the enclosure. Orientation matters</i>
Switch board, player side				
	–	Footswitch	1	Switch, <i>mount in enclosure before putting the boards in</i>

2.1 Note on values

Different kits and schematics designate values differently. For example, these usually mean the same value:

$$2.2\text{ k}\Omega = 2.2k = 2k2 = 2.2 \times 10^3\text{ Ohm} = 2200\text{ Ohm}$$

$$4.7\text{ }\mu\text{F} = 4.7u = 4u7 = 4.7 \times 10^{-6}\text{ Farad} = 0.0000047\text{ Farad}$$

Table 2: Component values

Value	Multiplier	Unit
Resistance		
100 Ω , 100R, 100	1	Ohm
1 k Ω , 1k	10^3	Ohm
1 M Ω , 1M	10^6	Ohm
Capacitance		
1 pF, 1p	10^{-12}	Farad
1 nF, 1n	10^{-9}	Farad
1 μ F, 1u	10^{-6}	Farad

3 Clipping Diodes

4 Brightness Capacitors

5 Step-by-step instructions

5.1 Mount parts on enclosure

- Mount the pots, the toggle switches, the lampshade, the DC jack and the footswitch on the enclosure as shown below;
- Cut to $\approx 12cm$ and pre-tin the ends of DC cables;
- Solder the DC cable to the DC jack.



Figure 2: Inside and outside of the enclosure with parts mounted

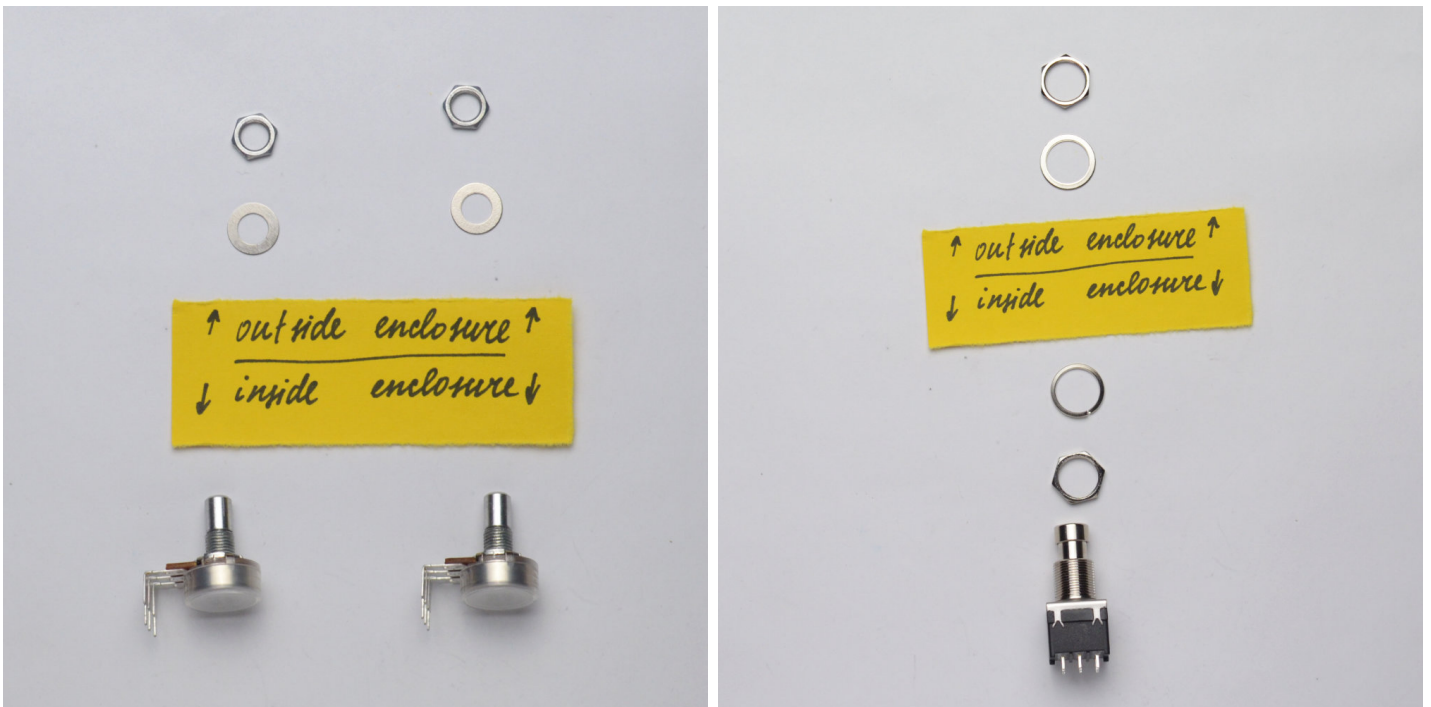


Figure 3: How to mount potentiometers and the footswitch

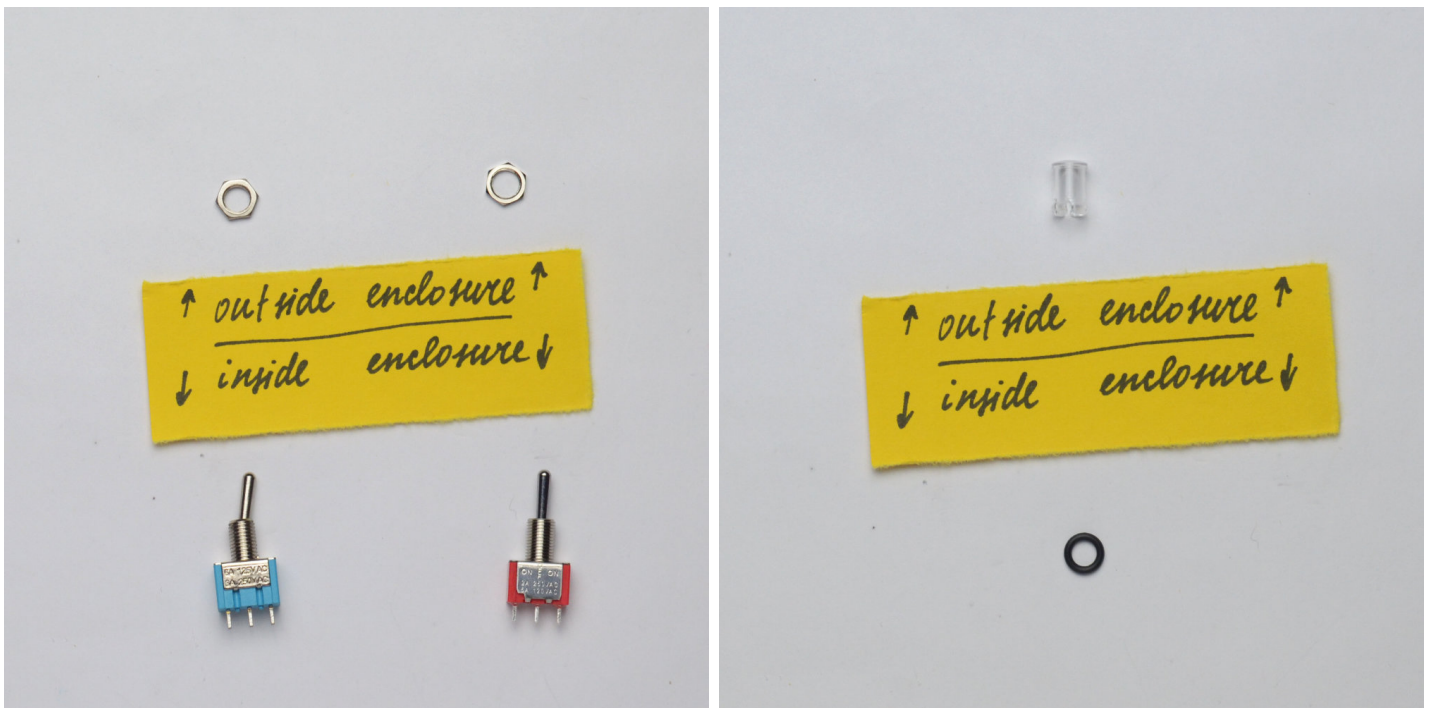


Figure 4: How to mount toggle switches and the lampshade

5.2 Populate Main Board

- Go through the **Main Board, floor side** section of the [BOM table](#) from top to bottom;
- One component at a time:
 - Insert the part into the PCB;
 - Flip the PCB and solder the part to the pads;
 - Cut the excess component leads;

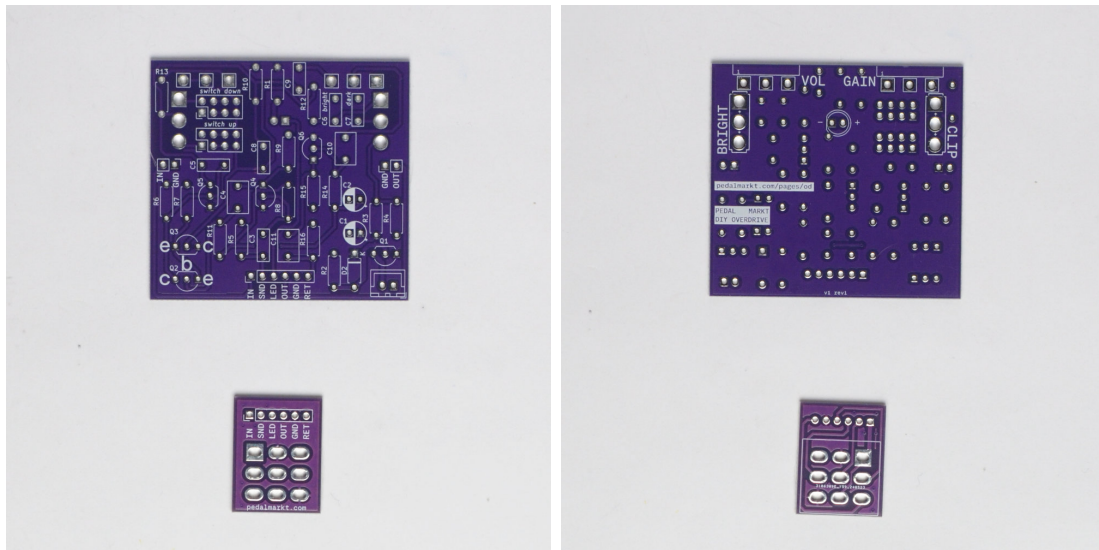


Figure 5: Main and switch boards, floor side on the left, player side on the right

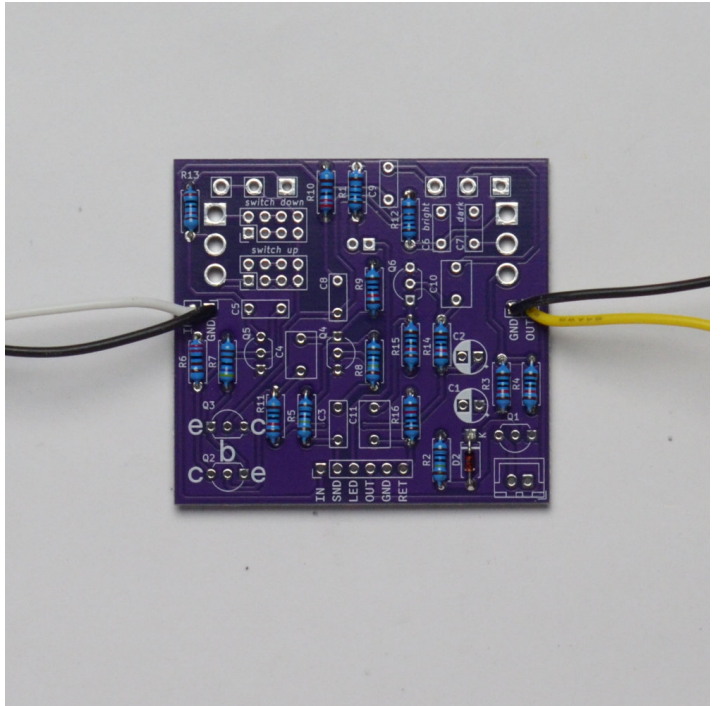
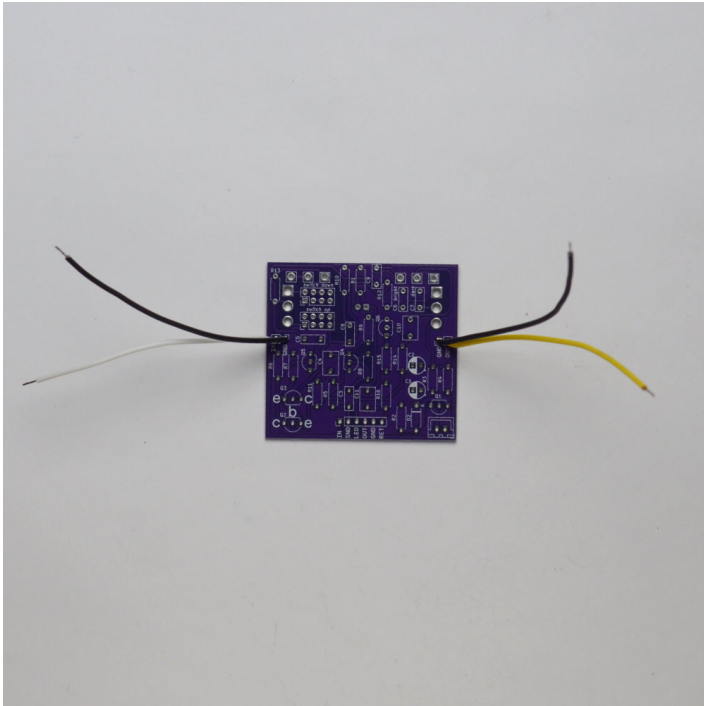


Figure 6: Wires soldered on the left, resistors on the right

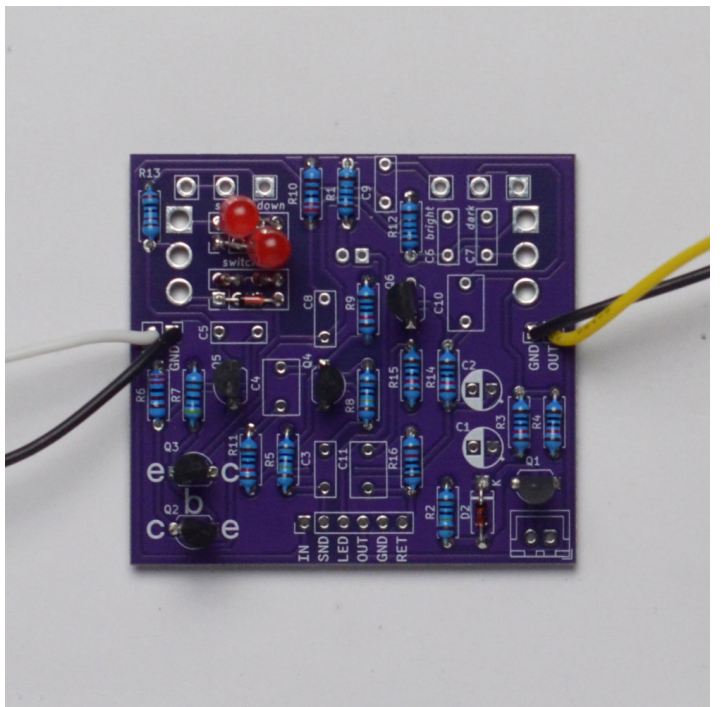
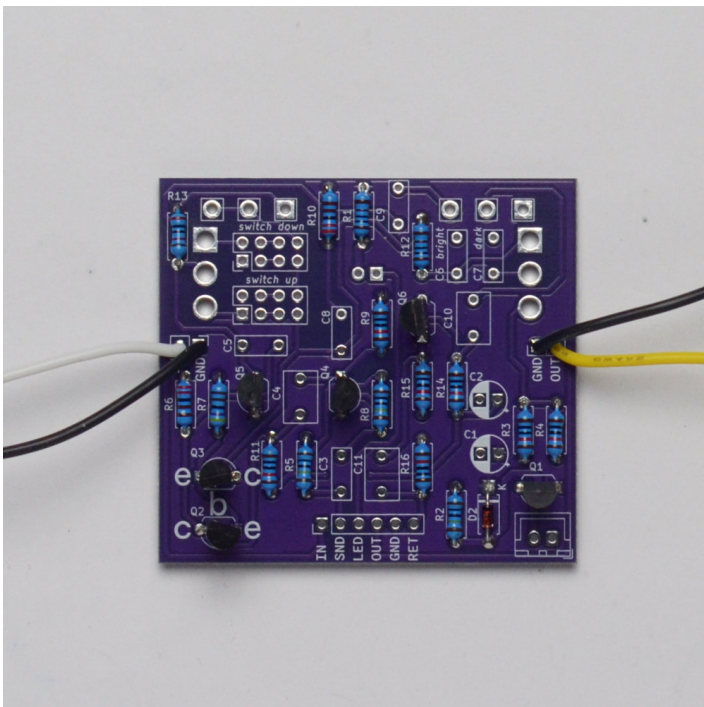


Figure 7: Transistors soldered on the left, diodes on the right

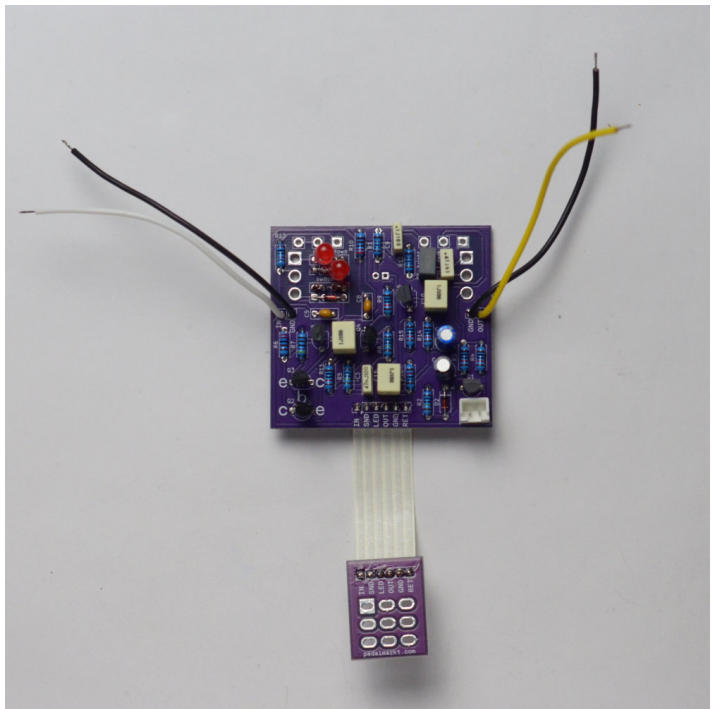
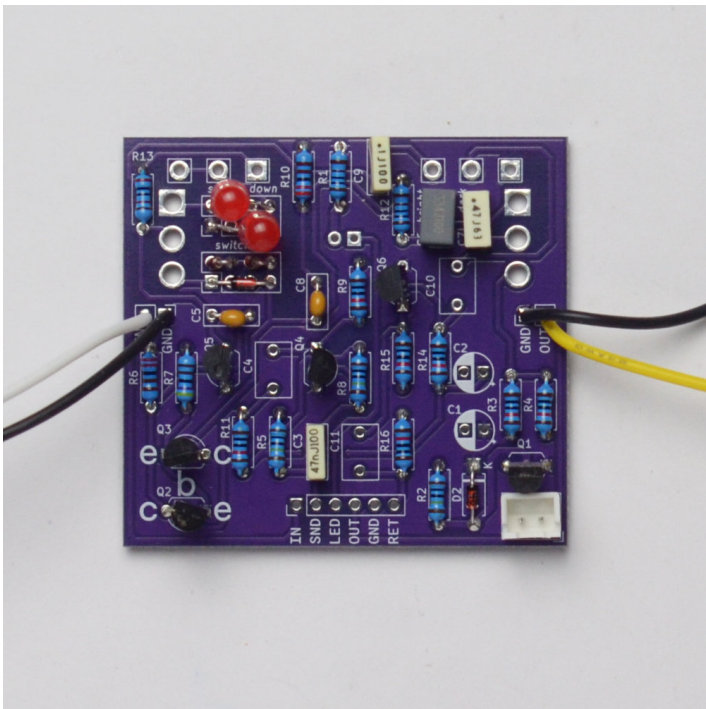


Figure 8: Caps soldered on the left, switch board and ribbon on the right

5.3 Solder Jacks and LED

- Solder audio jacks to the wires coming from the Main Board. Black (GND) wire should be connected to the lug that is connected to the round part on the inside of the jack socket. The colored wire (IN or OUT) should be connected to the other lug.
- Place the LED into the pads **on the player side** of the board. The short leg of the LED should go into the "-" (minus) pad. Do not solder the LED just yet.

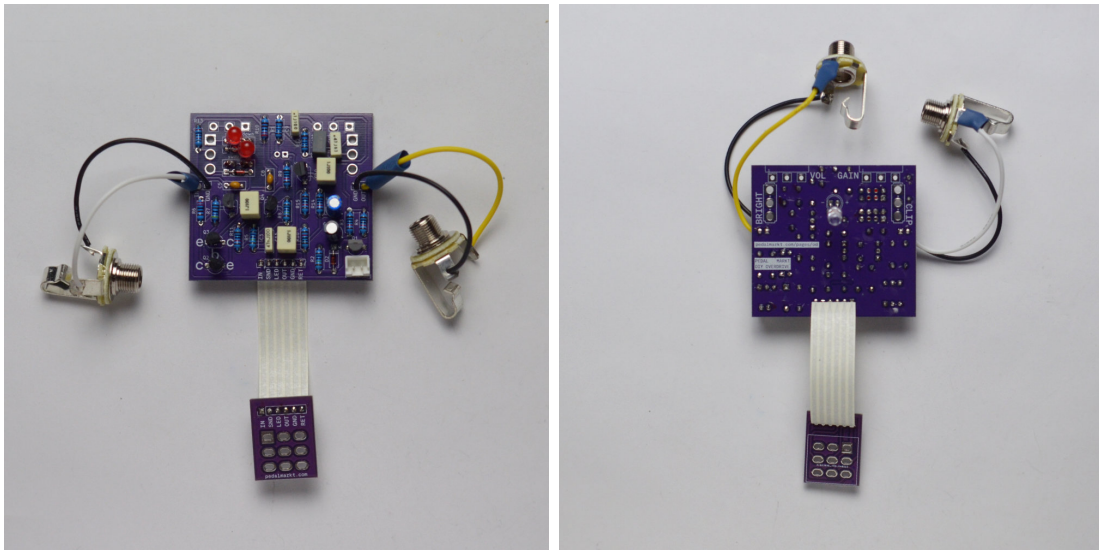


Figure 9: Audio jacks soldered on the left, LED placed but not soldered on the right

5.4 Mount boards into enclosure

- Place the main board into the enclosure, floor side of the board facing you;
 - Make sure all the legs of the potentiometers and toggle switches get inserted into their dedicated pads;
 - Make sure the LED gets inserted into the lampshade. You might have to press on the lampshade from the other side of the enclosure so that it doesn't lift from the enclosure;
 - Solder the pots, the toggle switches and the LED to the main board;
- Place the switch board onto the footswitch and solder them together.

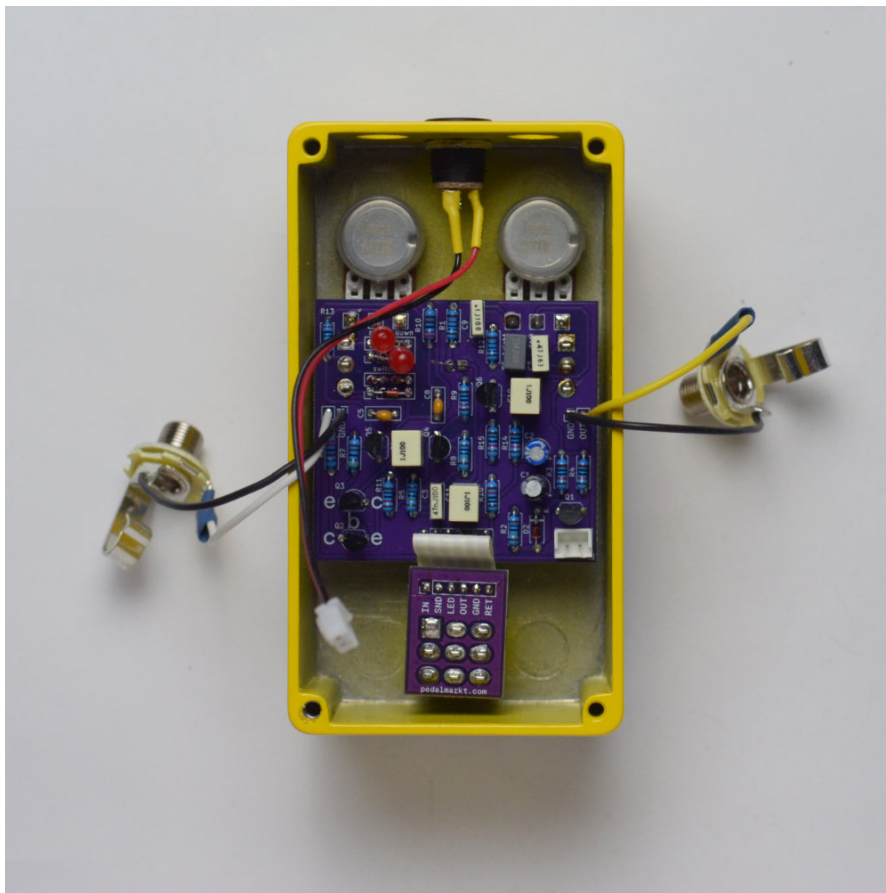


Figure 10: Inside of the enclosure with boards mounted

5.5 Complete the pedal

- Mount the audio jacks onto the enclosure;
- Connect the DC cable to the socket on the bottom right of the board;
- Plug in and test the pedal!



Figure 11: Built pedal

6 Schematic

7 Circuit breakdown