Delay Pedal
Build and manual document. V1.1

This could be the result of your build; a delay effect pedal!
When it is finished, you can use the pedal on your pedal board.

With this pedal you have a nice delay effect for your sound of the electric-guitar!

It is a: **Do It Yourself building kit**, with all components inside the package!

1.1.1 The things you need to provide is:

1) soldering tool, with a pointy small tip, with solder (leadfree),
2) solder skills,
3) a standard common power source (or 9V Battery) for electrical guitar sound effects pedals.
4) Some screwdrivers,
5) Wire cutters etc..

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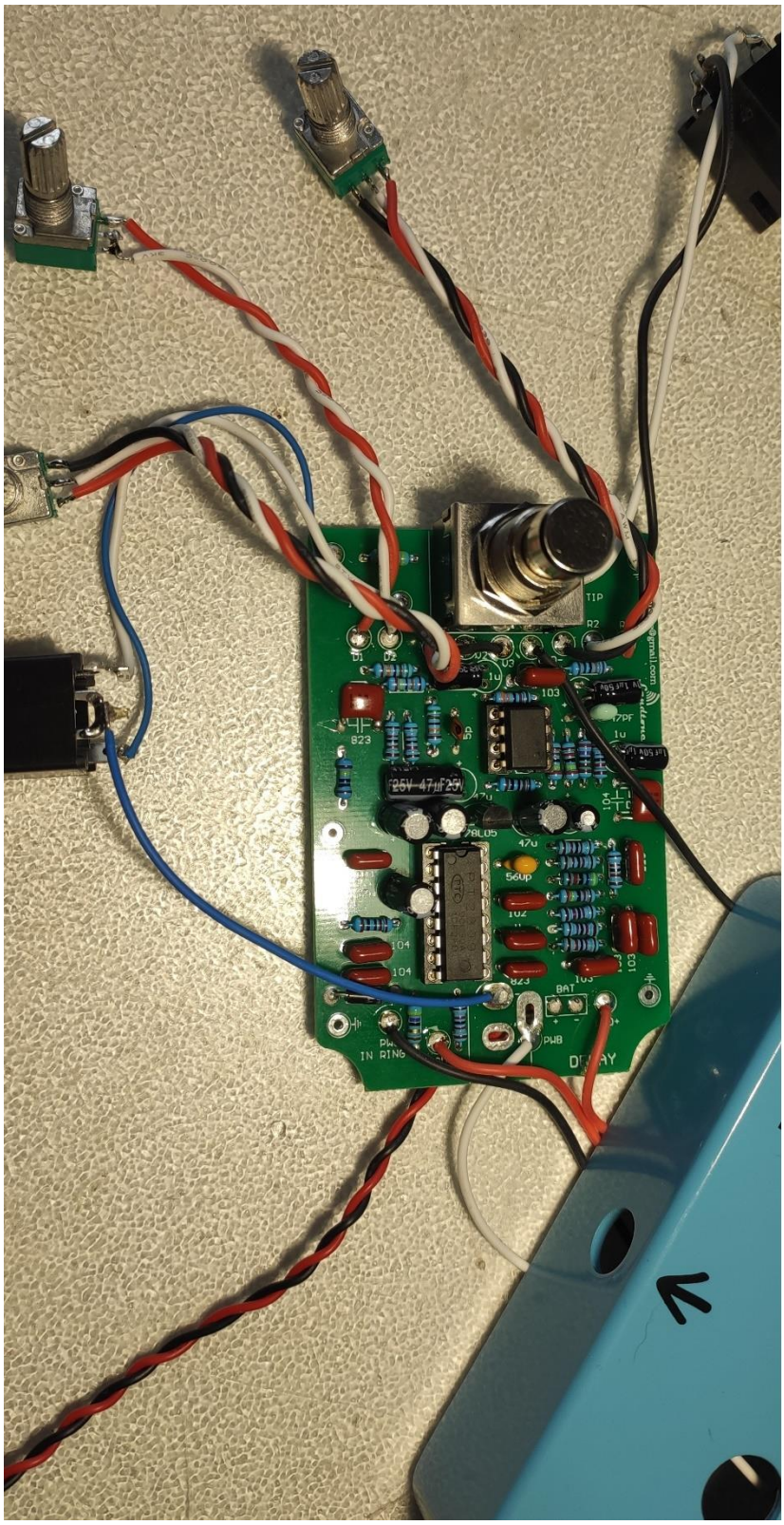
Finished:



1.2 Product description

This product is an electric-guitar sound effect. It should be placed in between the signal chain of the guitar to the amplifier device, best spot is at the end of the chain before going into the amplifier. Or in the Send-Return jacks, if provided.

It is a product that should be assembled first, before it can be used! It is therefore, a do it yourself product. (later on **diy**)

The effect itself can be described as a repeating (echo) effect, best described as an effect, as if you were in a mountain area, (echo) playing your guitar..

This board is bare and comes with a predrilled (1590B) housing!
This kit fits in a 1590B or 1590BB housing.

1.3 Build guidance.

1.3.1 Item list:

1x PCB board (fits in a 1590B or 1590BB housing)
1x 3PDT Foot-switch
1x InputJack (6,3mm)
1x OutputJack (6,3mm)
1x DC PowerJack
3x white knobs (for potmeters)
20x red, white and black wires

IC: 1x TL072
IC: 1x PT2399
powersupply transitor: 78L05 (5Vdc out)

Potmeters
1x Potmeter B20K
1x Potmeter B50K
1x Potmeter B100K

Capacitors
1x 5pF
1x 47pF
1x 560pF
1x 0,001uF
1x 0,027uF
3x 0,082uF
4x 0,01uF
4x 0,1uF
4x elco 1uF
5x elco 47uF

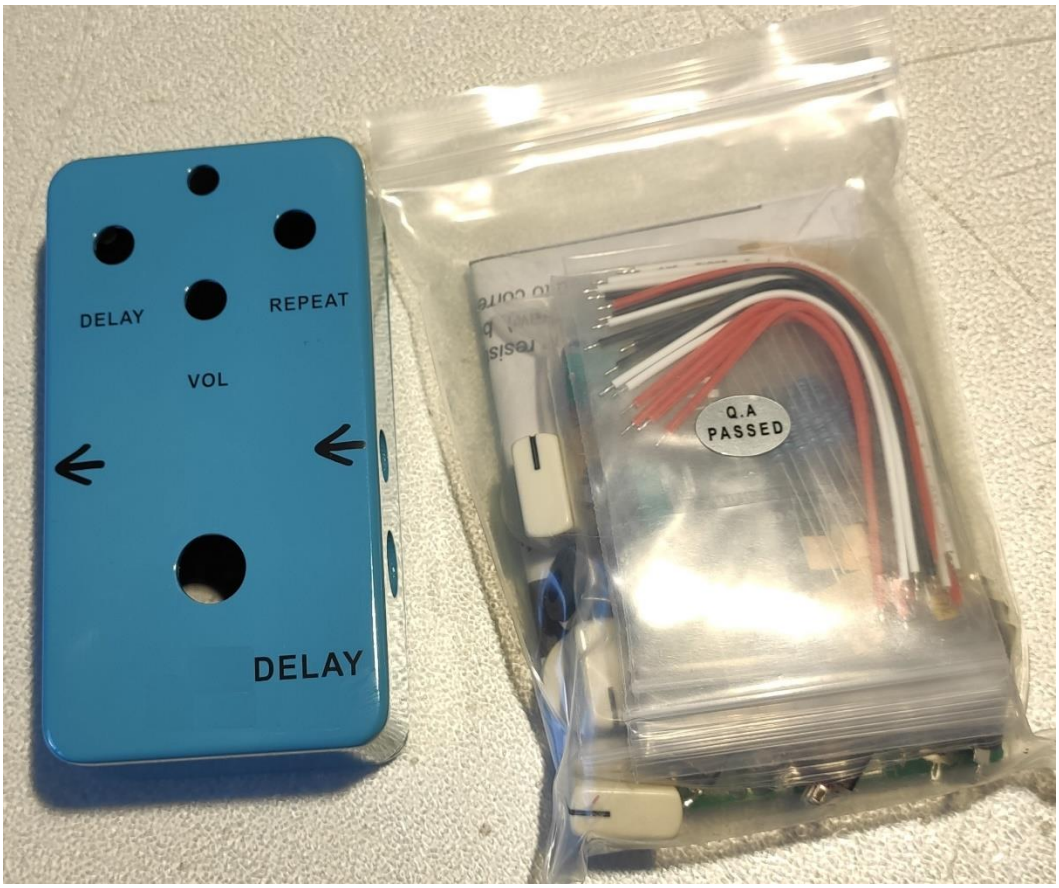
Resistors
2x 47 Ohm
2x 1k resistor
1x 2k7 resistor
1x 33k resistor
10x 12k resistor
3x 24k resistor
1x 47k resistor
1x 100k resistor
1x 240k resistor
2x 510k resistor
1x 1m resistor

1x LED red 3mm
1x Led holder

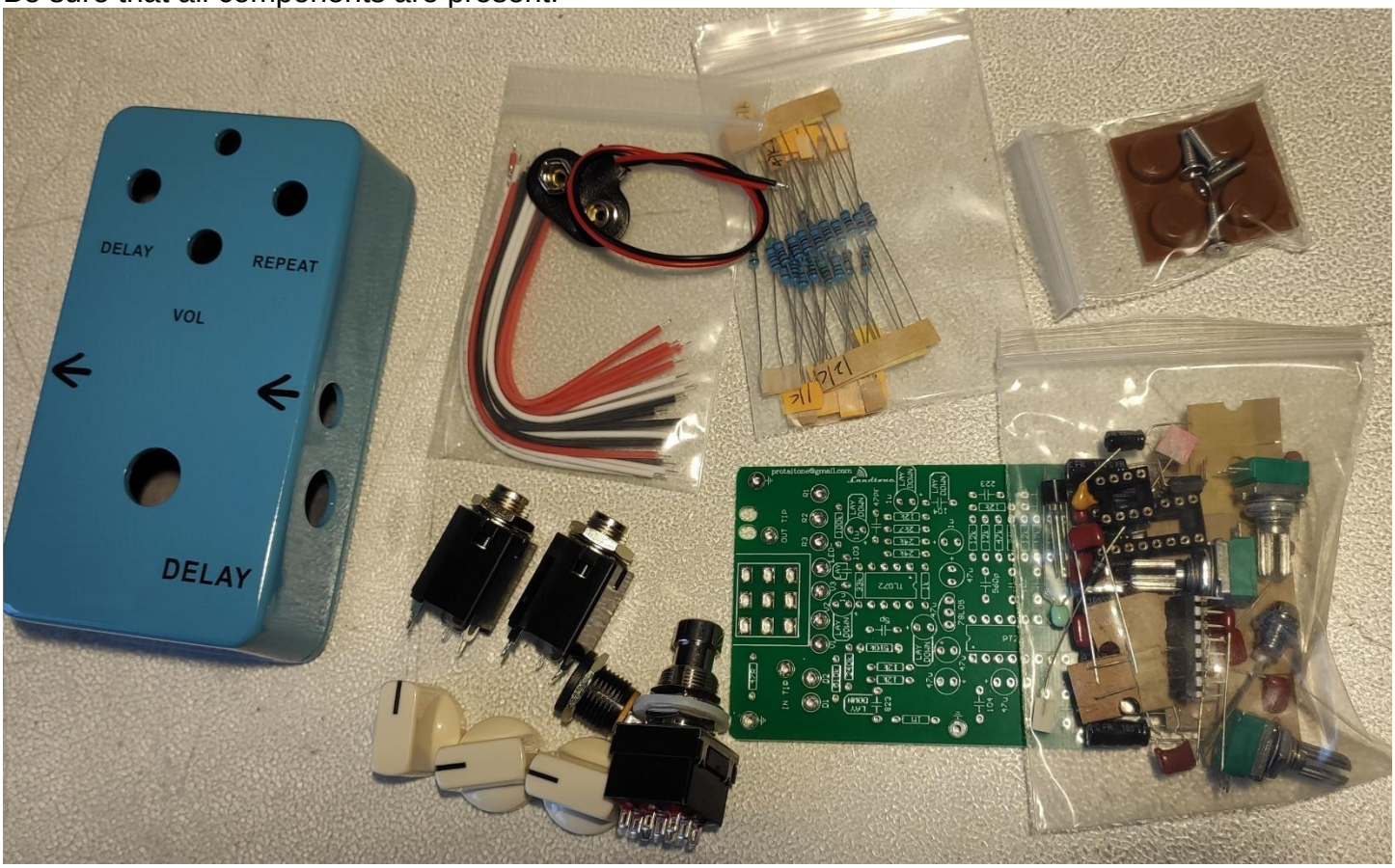
Several wires

1.4 Unpacking the package.

Please unpack the plastic bags gently and sort them on a plate or table.



Be sure that all components are present:



Check the item list carefully.

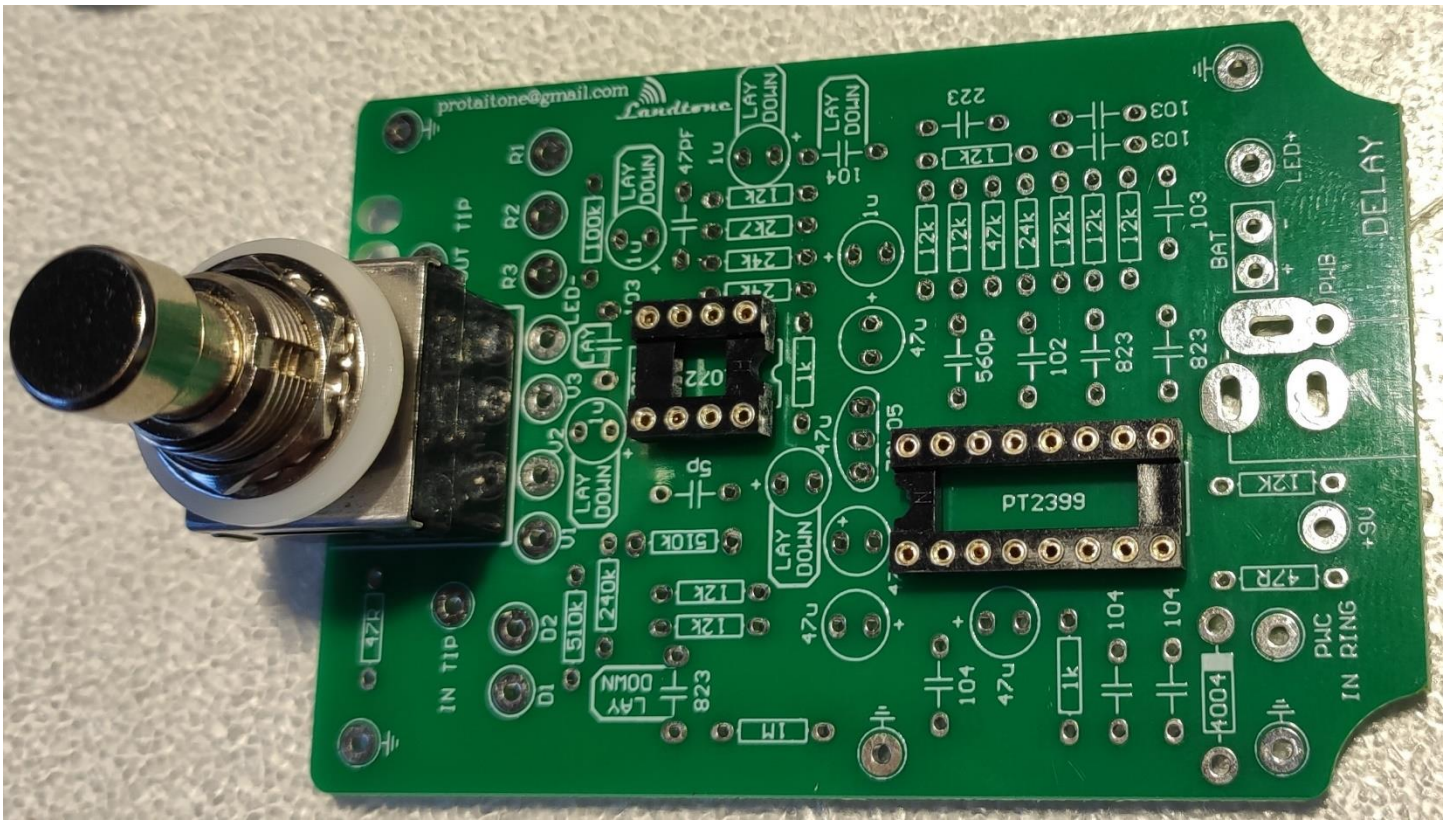
1.5 Step by Step, of the building process:

Here are some pictures from the step by step process:

1.5.1 The Build:

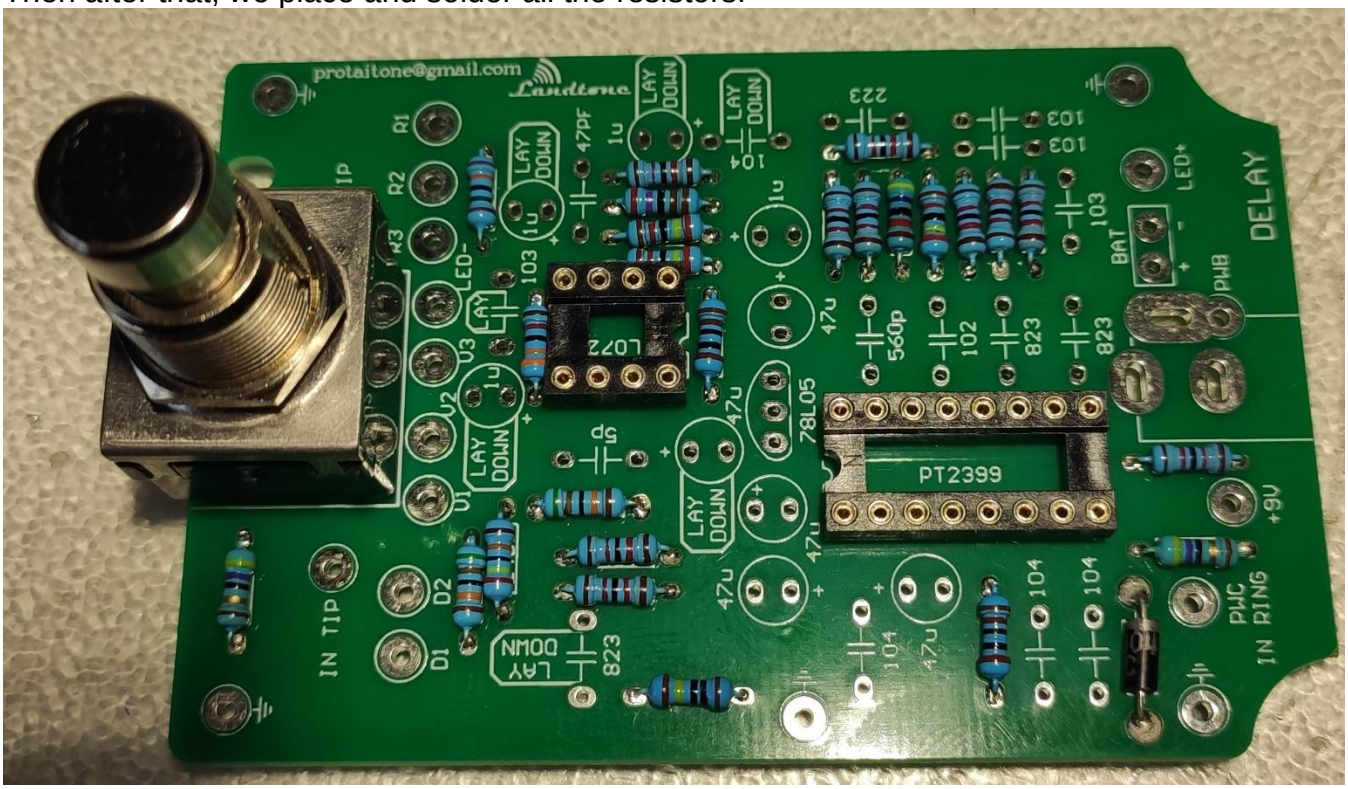
Note:
This Delay kit has **no** very small SMD components. So it will be easy to build!

We start with the placement of the foodswitch..



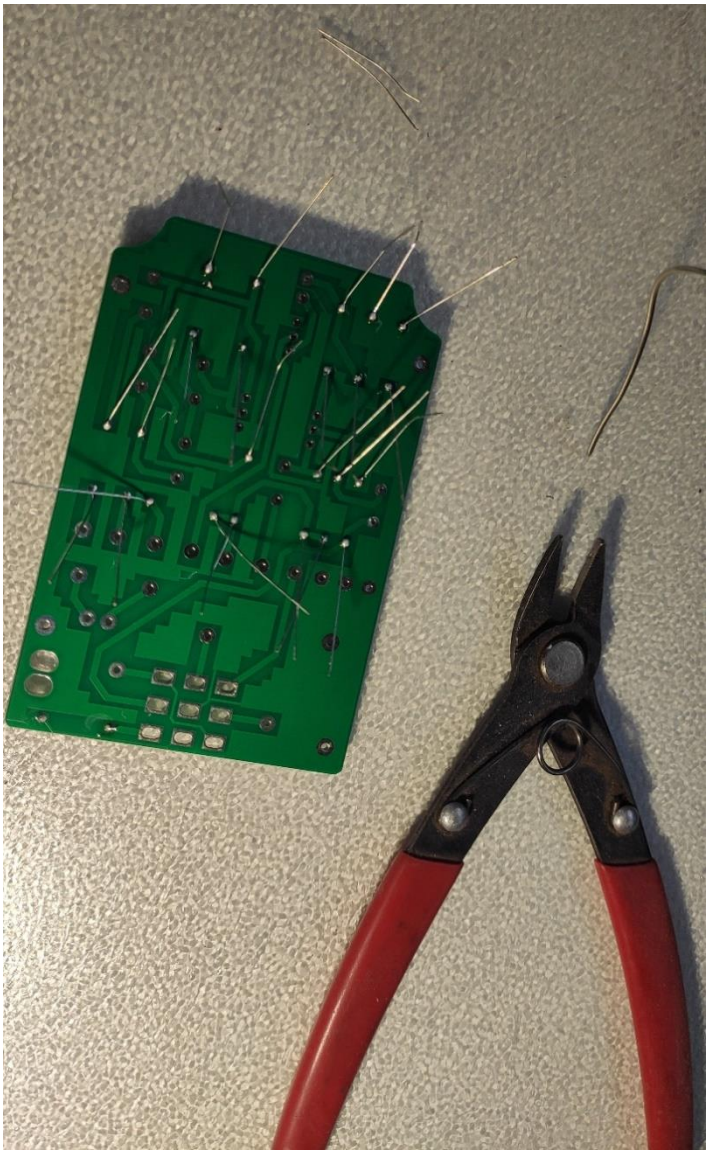
1.5.2 Resistors

Then after that, we place and solder all the resistors.



Here's a help on the color codes:

Kleur	Mantisse/waarde	Vermenigvuldingsfactor	Tolerantie	Temperatuurcoëfficient	Ezelsbruggetje
zilver		10^{-2}	10%		
goud		10^{-1}	5%		
zwart	0	10^{0}		250 ppm/K	Zij
bruin	1	10^{1}	1%	100 ppm/K	BRengt
rood	2	10^{2}	2%	50 ppm/K	ROzen
oranje	3	10^{3}		15 ppm/K	Op
geel	4	10^{4}		25 ppm/K	GErrits
groen	5	10^{5}	0,5%	20 ppm/K	GRaf
blauw	6	10^{6}	0,25%	10 ppm/K	Bij
violet	7	10^{7}	0,1%	5 ppm/K	Vles
grijs	8	10^{8}	0,05%	1 ppm/K	GRIJS
wit	9	10^{9}			Weer



There are color code labels on the resistors, indicating the value, which correspond with the board.

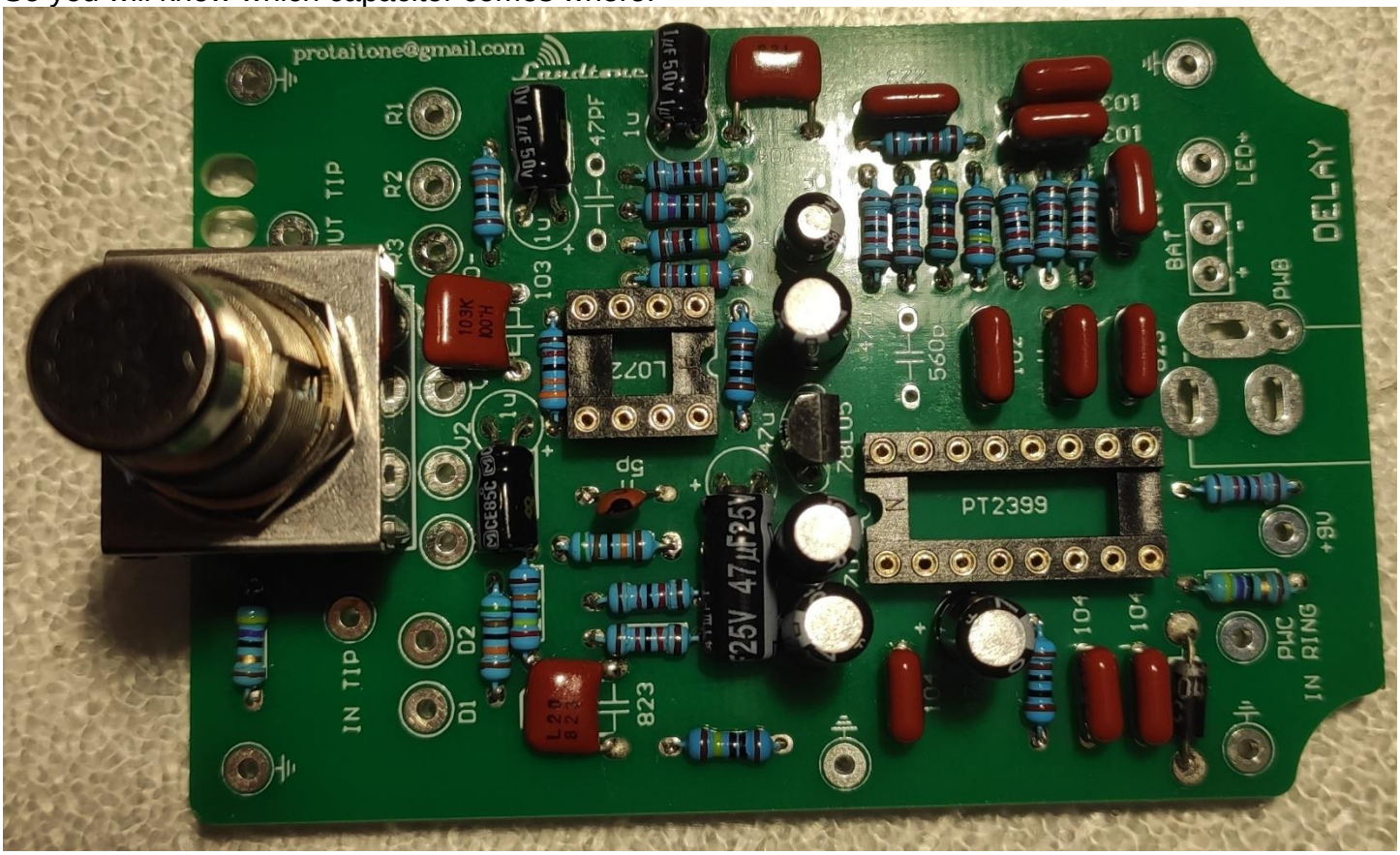
Bent the wires a little aside, so you can put in all resistors first, and then solder them. Otherwise they will fall out of the board.

Cut the wires, after soldering!

Picture as an example.

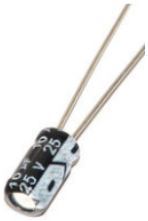
1.5.3 Capacitors.

Next:
the capacitors can be soldered, ceramic capacitors do not have polarity!
On the PCB you find the printed values for the capacitors, for instance: 474 is printed on the PCB
So you will know which capacitor comes where.

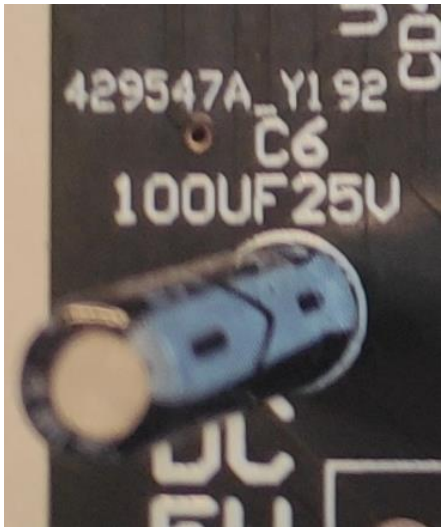


1.5.4 Be careful about the electrolytic capacitors.

The Aluminum electrolytic capacitors **do have polarity**, the positive have the longer lead than the negative. Aluminum electrolytic capacitor, a band with white color is pointing the negative lead.



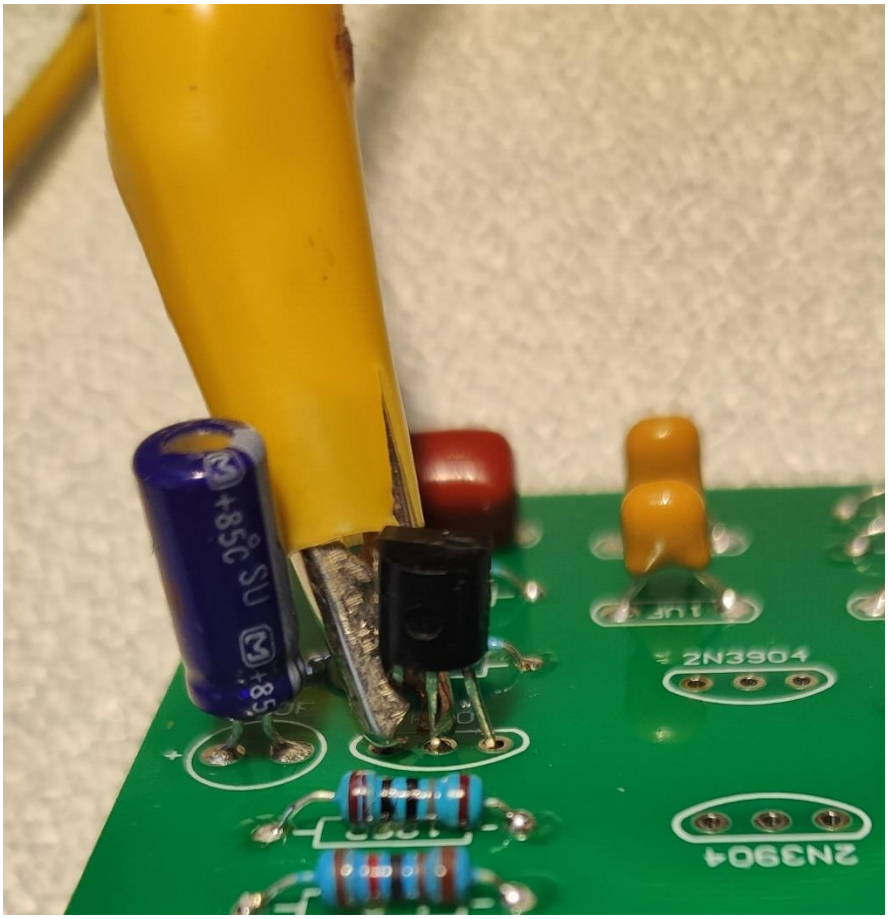
These images are for example purposes



only !

1.5.5 Transistors.

Next:
Solder the transistor on the board.



(picture for instruction only)

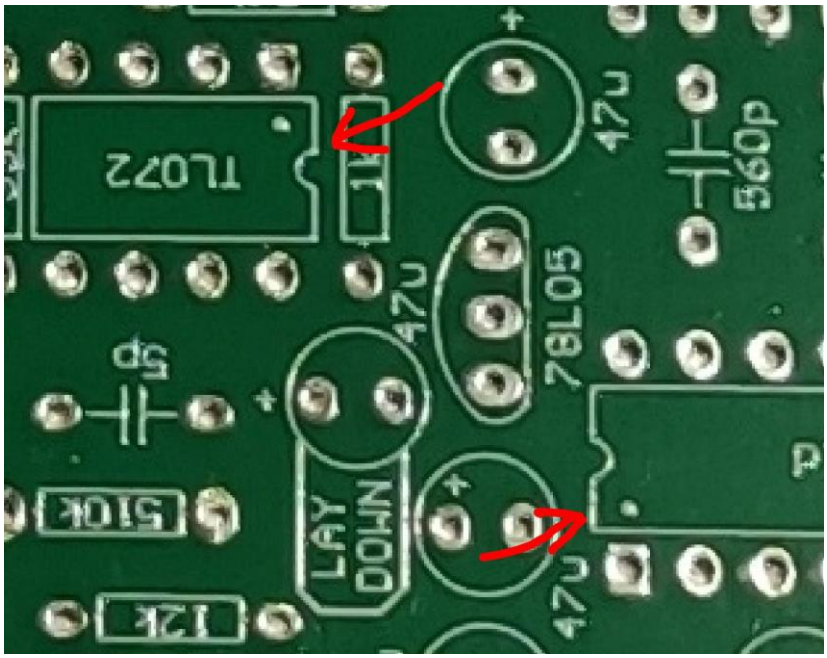
Use a small clamp, like on the image. This is to prevent heat damage to the transistors, at the moment of soldering. This a little tricky to do, so be care full.

1.5.6 A note about the IC's

Please be careful about the used IC's.
One is for amplification (TL072) and the other is for memory and repeat.

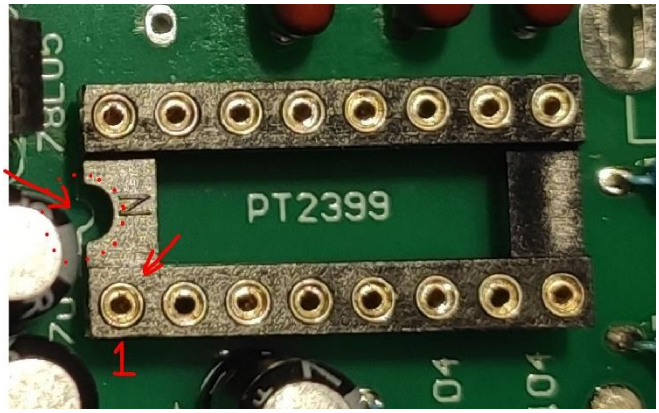
There is always only one way to insert them into the IC-sockets!

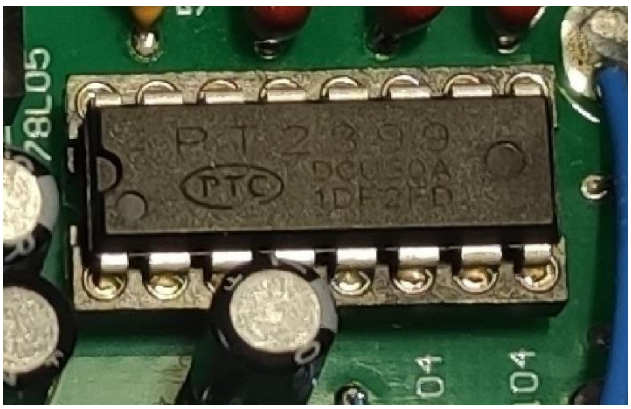
On the PCB is a white indication how the IC-socket should be placed.



As you will see there is a white notch at the position where the IC's should come.

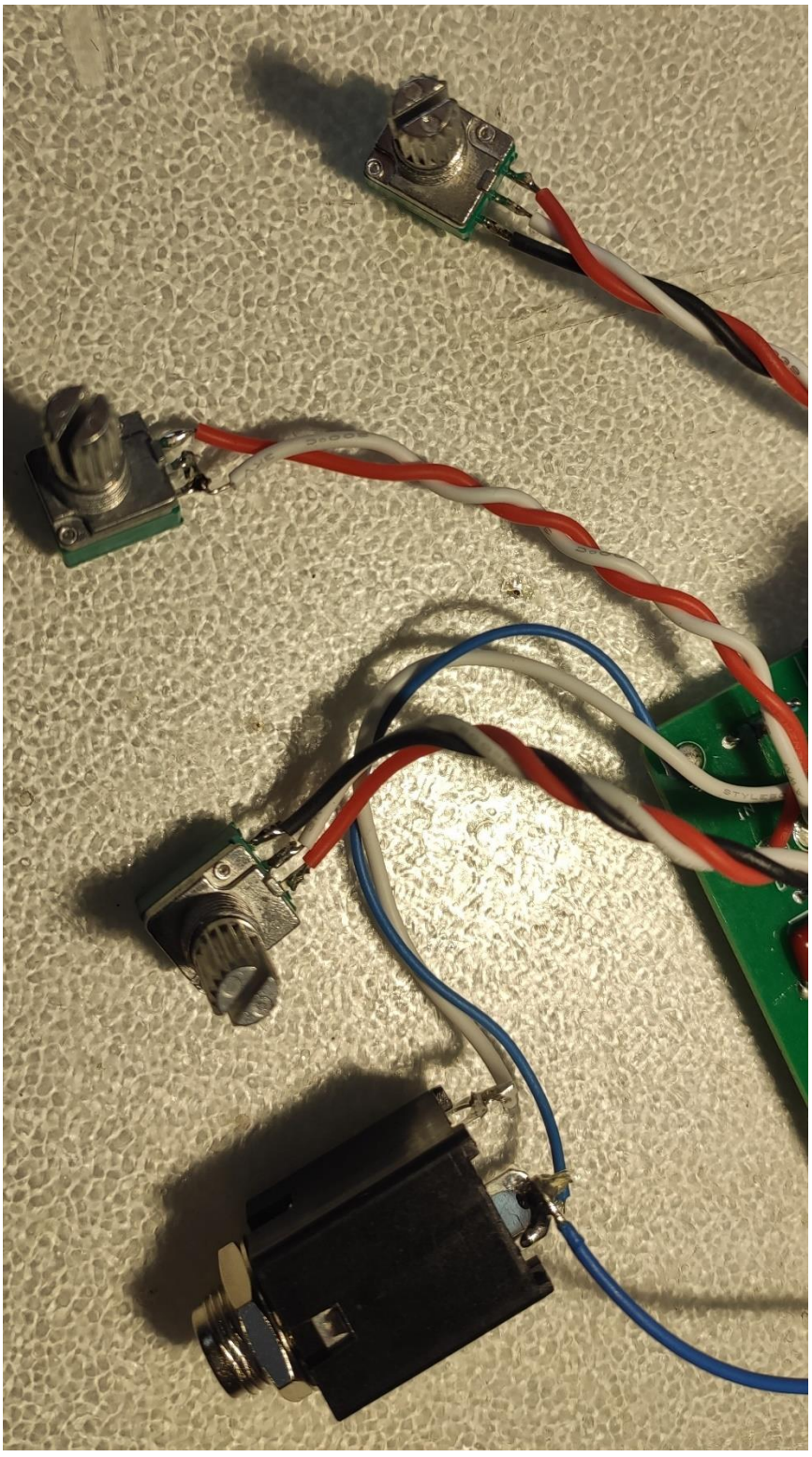
If you hold the PCB in a way left under is always pin number 1.
This corresponds to the dot or notch on the IC.





1.5.7 Solder the wires.

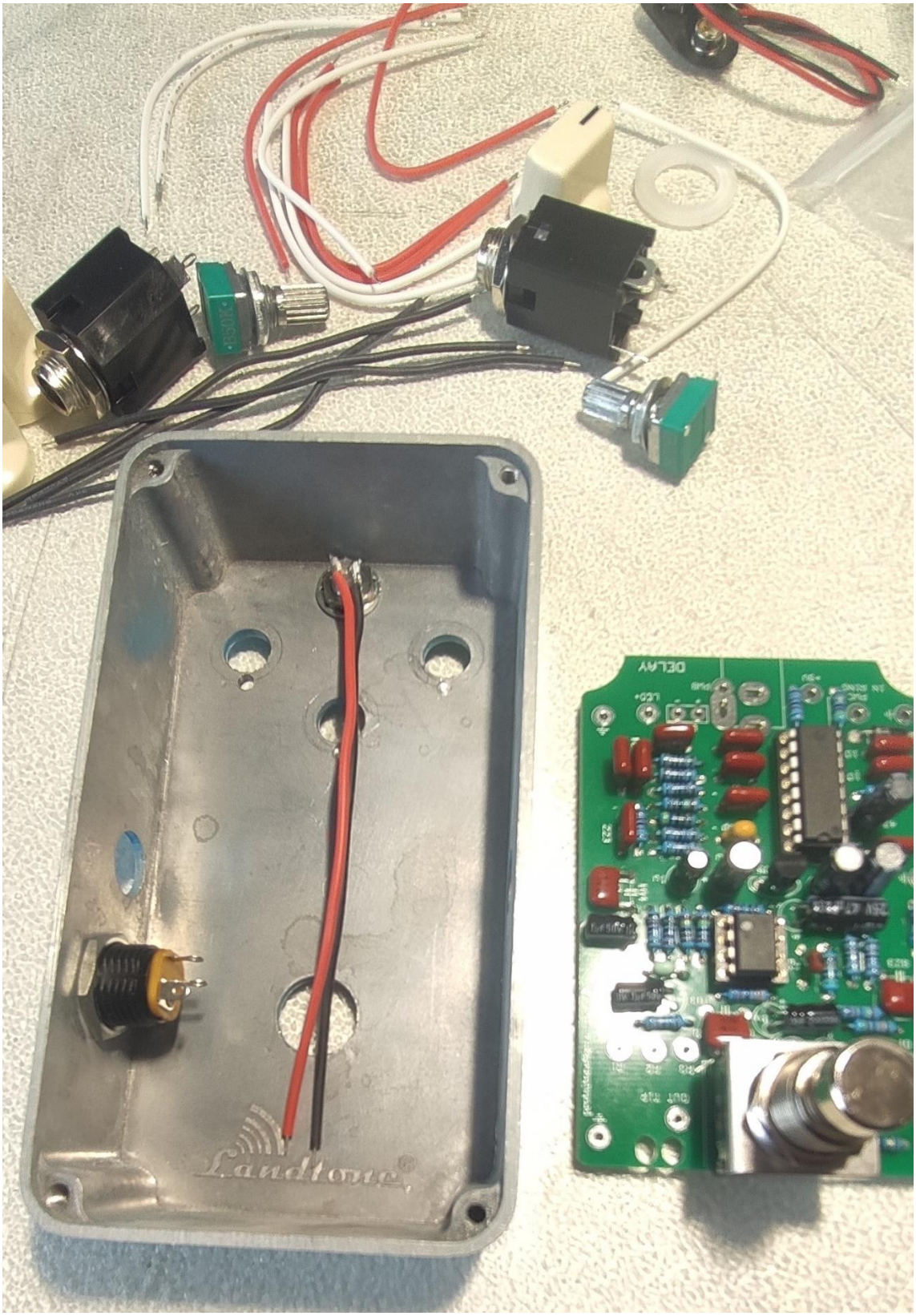
Solder all wires to the PCB. Do not cut the wires in length. They should be ok, in length.



like this.

Then assemble the LED and the power inlet power supply:

Take care when soldering the LED with the wires to the PCB



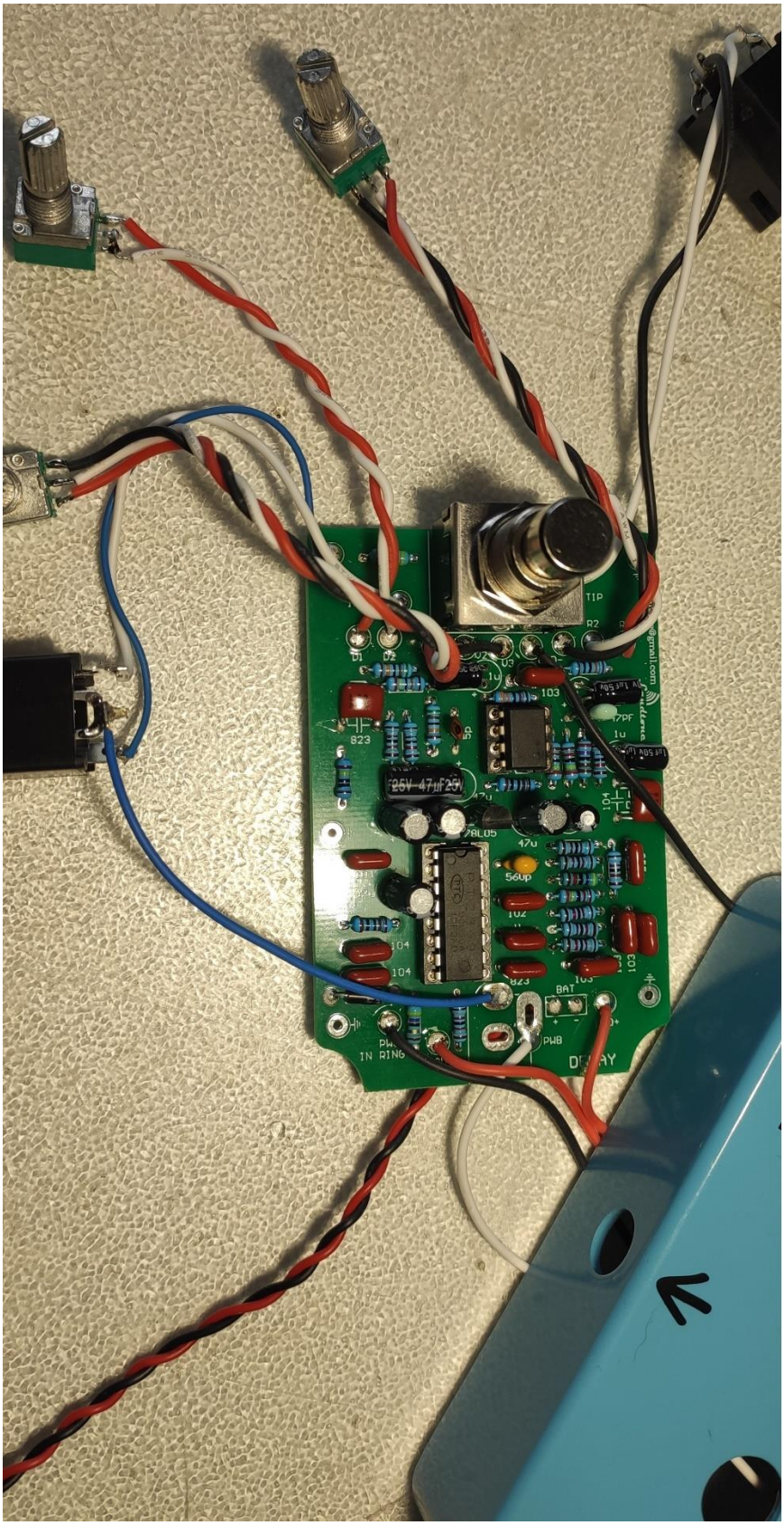
Cut the overlength of the LED legs, after soldering the wires.

Soldering all the wires to the potmeters

Potmeters are indicated with D delay, V volume and R for Repeat

Indications are on the PCB board. Which makes it easy to wire the wires from pcb to the potmeters.

1.6 Here is the finished board.



1.7 Assemble the housing-case.

1.8 The Delay operating instructions:

Input voltage: DC 9V (Recommended is a standard Guitar pedal power supply 9Vdc)

Or use the battery plug with a 9V battery.

The LED should come on, at the moment the footswitch is pressed and a guitar cable jackplug is inserted in the ”input”-jack.

Use the input for your guitar cable, the output should be connected to a guitar amplifier.
Also with standard Jack-jack cable, for 6.1mm plugs.

The DELAY effect is only present if the footswitch is engaged. (LED = on)

Turn up the Volume potmeter up to middle position, in order to hear the effect at a certain level.

The delay knob will determine the amount of echo,

Turn the Repeat knob, will determine the times of repeating the same sound over and over again.

1.8.1 Reverb like.

By the way: if you turn the repeat knob to maximum, it will almost act like a reverb effect