Tremolo Pedal
Build and manual document. V1.1

This could be the result of your build a tremolo guitar effect pedal!
When it is finished, you can use the pedal on your pedal board, to have a nice tremolo effect to your sound of the electrical-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:

soldering tool with solder, (leadfree)
solder skills,
a standard common power source (9V) for electrical guitar sound effects pedals.
Some screwdrivers,
Wire cutters etc..

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1.2 Product description

This product is an electrical guitar sound effect. It should be placed in between the signal chain of the guitar to the amplifier device.
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 an vibrating or trembling effect, best described as a fast varying volume effect. As if you turning the volume knob from min to max..

This board is bare and comes with no housing.
This kit fits in a 1590B or 1590BB housing.

1.3 Build guidance.

1.3.1 Item list:

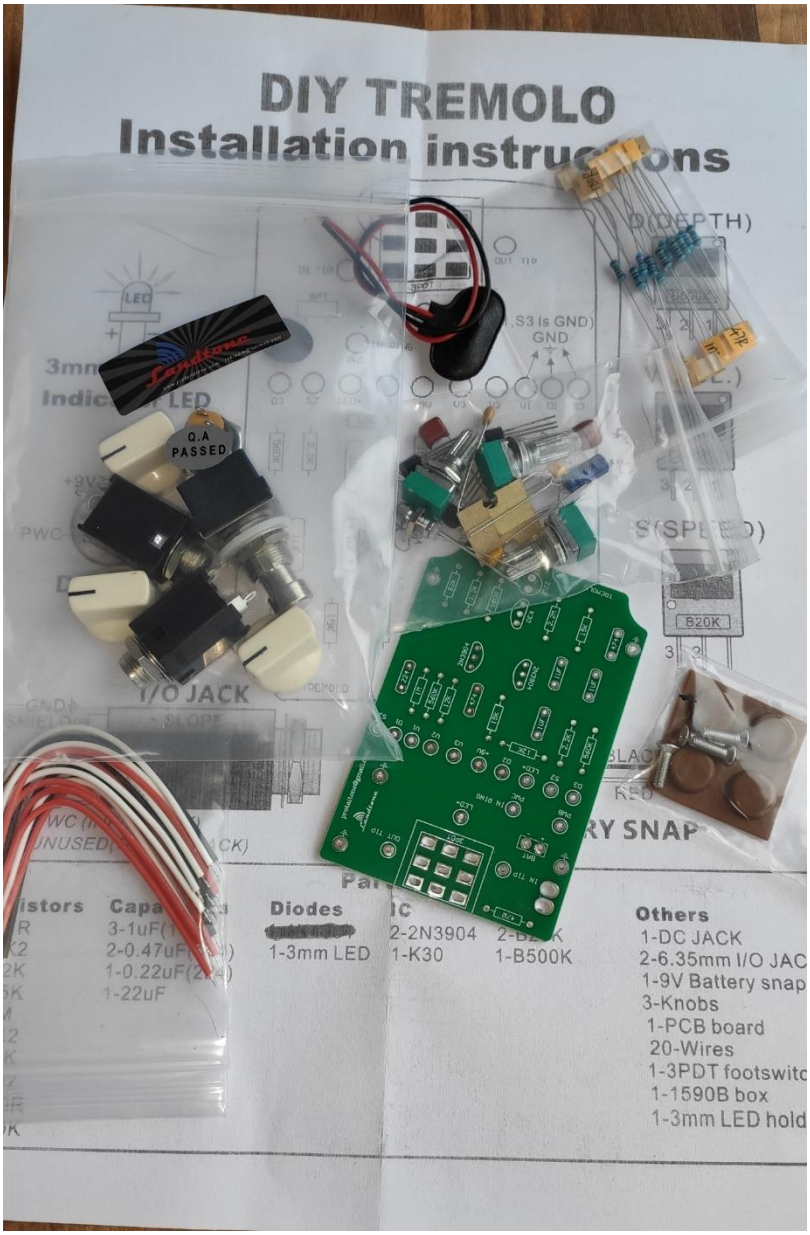
1x PCB board (fits in a 1590B or 1590BB housing)
1x 3PDT Foot-switch
1x InputJack (6,3mm)
1x OutputJack (6,3mm)
1x DC PowerJack
3x white knobs (for potmeters)
20x red, white and black wires
2x transistor 2N3904
1x transistor K30
2x Potmeter B20K
1x Potmeter B500K
3x capacitor (tantaal) 1uF
2x capacitor 0,47uF
1x capacitor 0,22uF
1x el. Capacitor 22uF

1x 47Ohm resistor
1x 180Ohm resistor
1x 1k2 resistor
1x 2k2 resistor
2x 12k resistor
2x 15k resistor
1x 82k resistor
2x 560k resistor
1x 2m2 resistor
1x 1m resistor

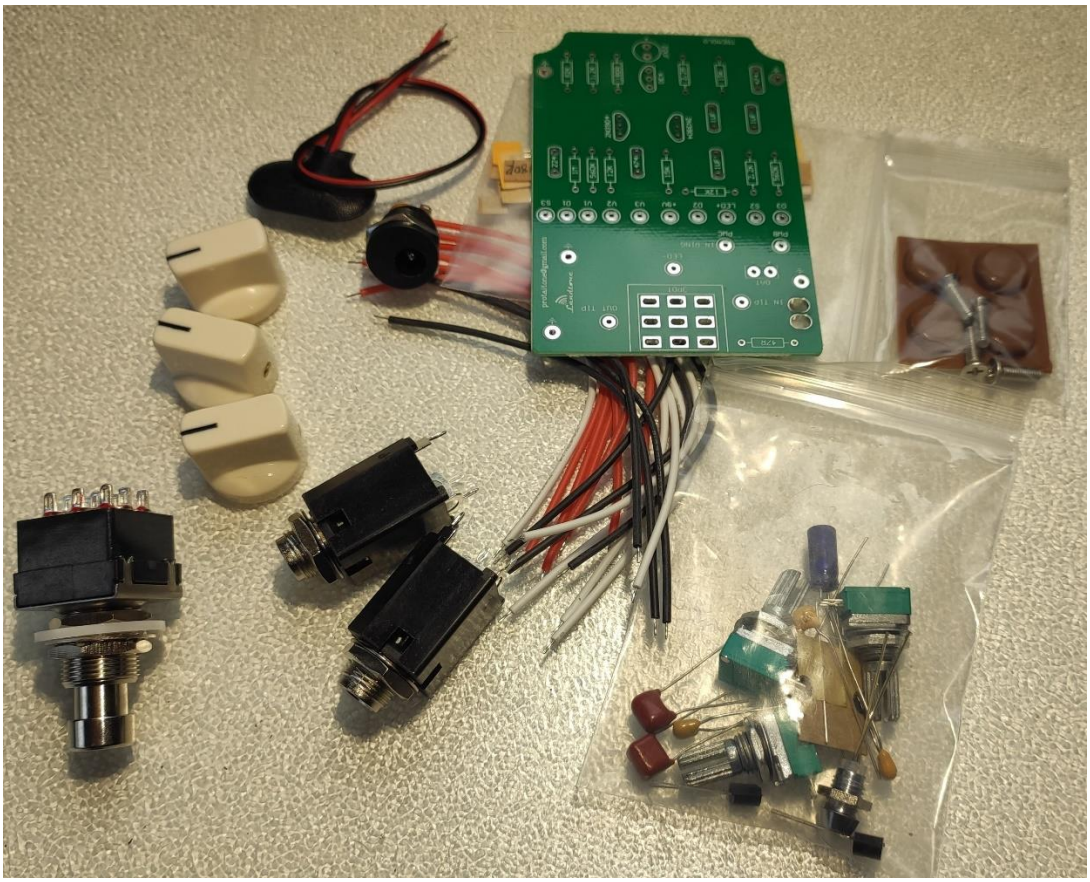
1x LED red 3mm
1x Led holder

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 tremolo kit has **no** very small SMD components. So it will be easy to build!

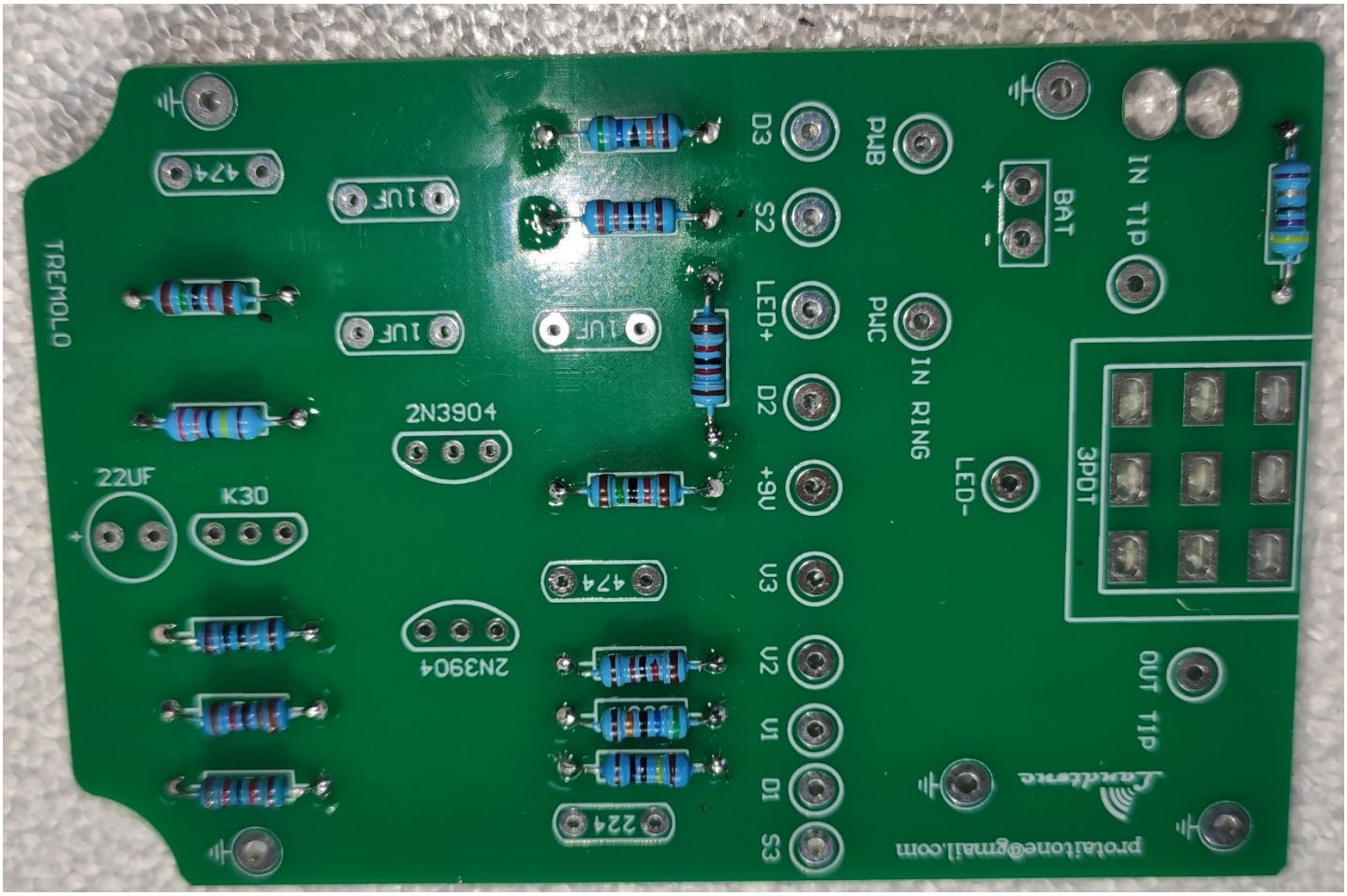
We start with the placement of the resistors..
Here's a help:

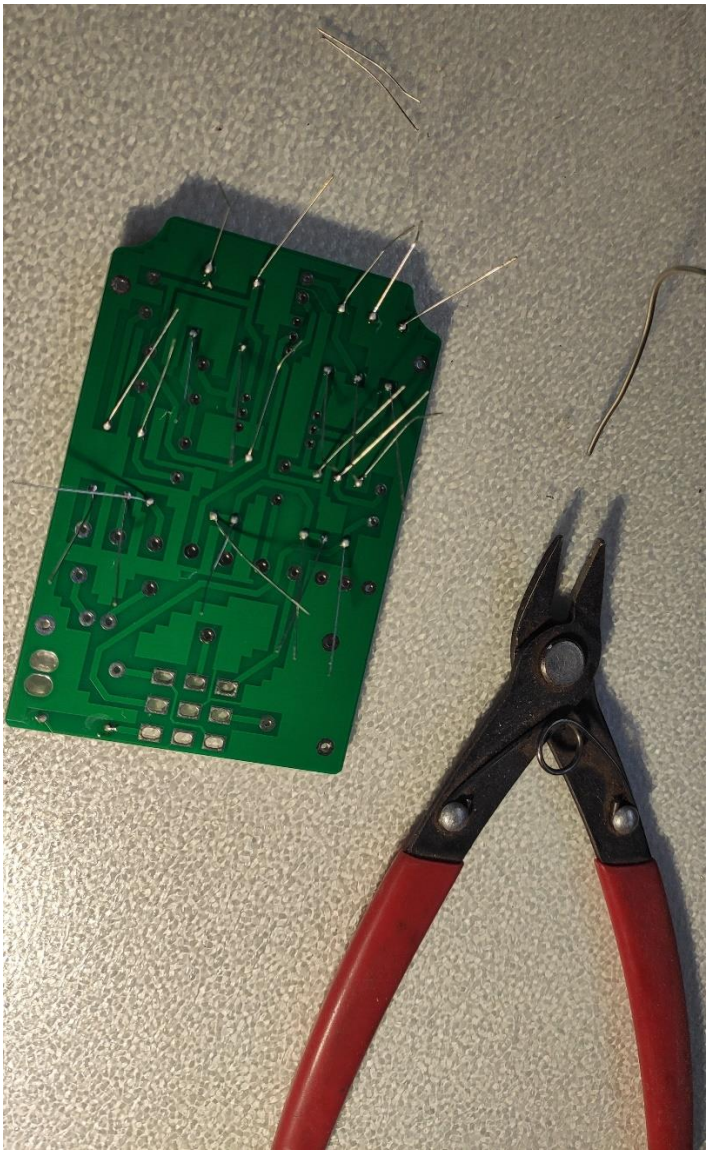
Kleur	Mantisse/waarde	Vermenigvuldingsfactor	Tolerantie	Temperatuurcoëfficient	Ezelsbruggetje
zilver		10^{-2}	10%		
goud		10^{-1}	5%		
zwart	0	10^{0}		250 ppm/K	Zij
bruin	1	10^{1}	1%	100 ppm/K	BRengt
rood	2	10^{2}	2%	50 ppm/K	ROzen
oranje	3	10^{3}		15 ppm/K	Op
geel	4	10^{4}		25 ppm/K	GErrits
groen	5	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

But there are labels on the resistors, indicating the value, which correspond with the board.

1.6 Resistors.

Place them all like this:



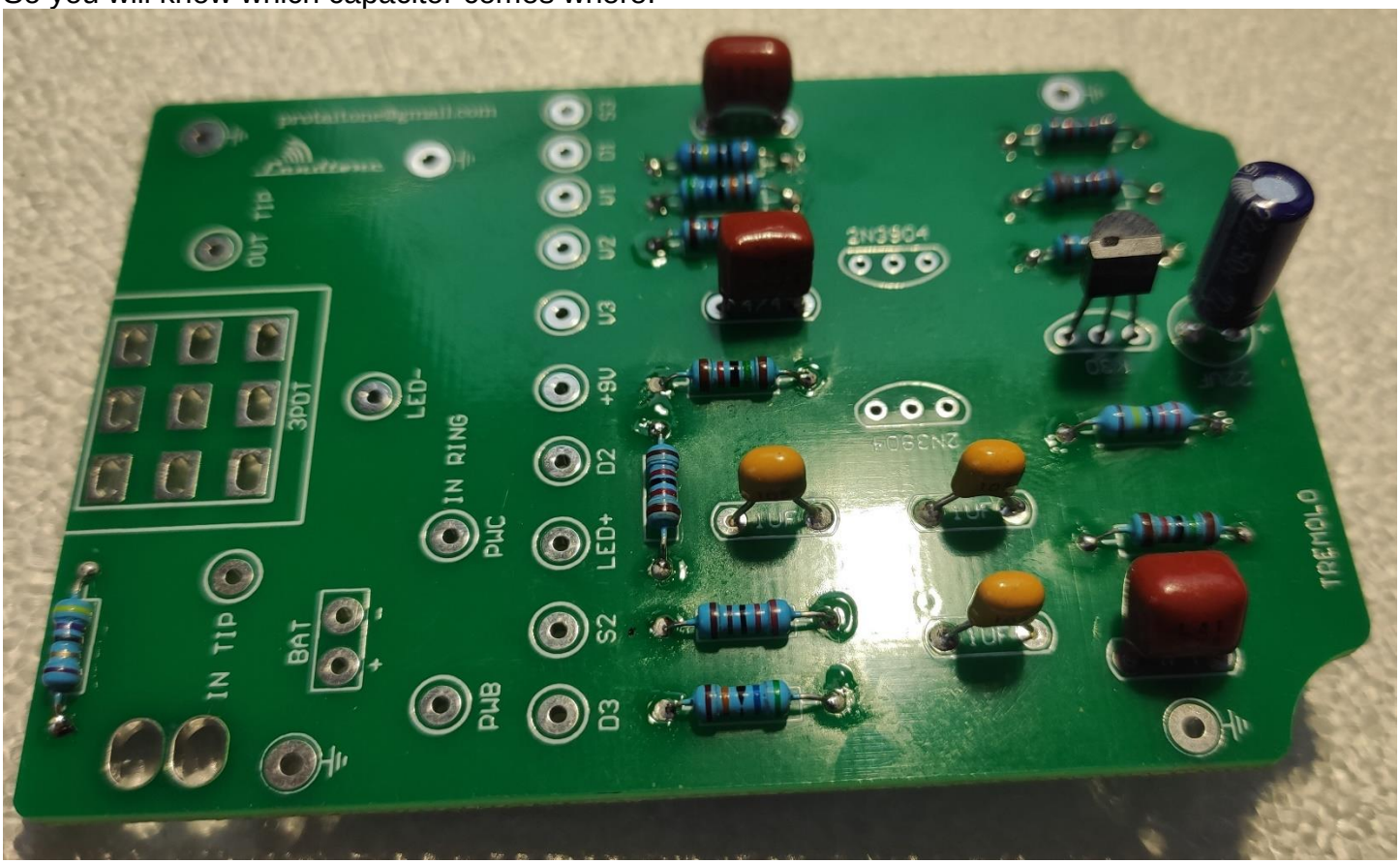


Bent the wires a little aside, so you can put in all resistors first, and then solder them.

Cut the wires, after soldering.

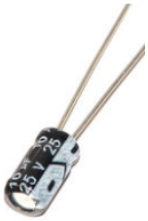
1.7 Capacitors.

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.

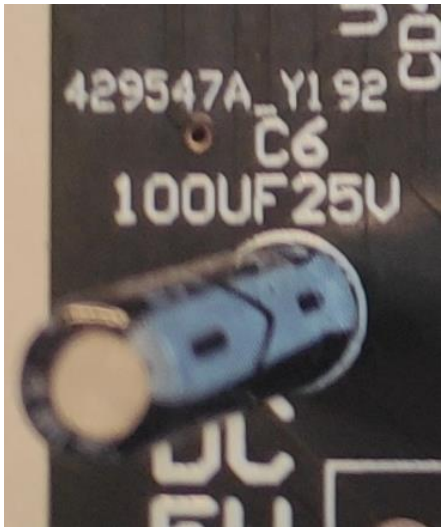


Next:

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.



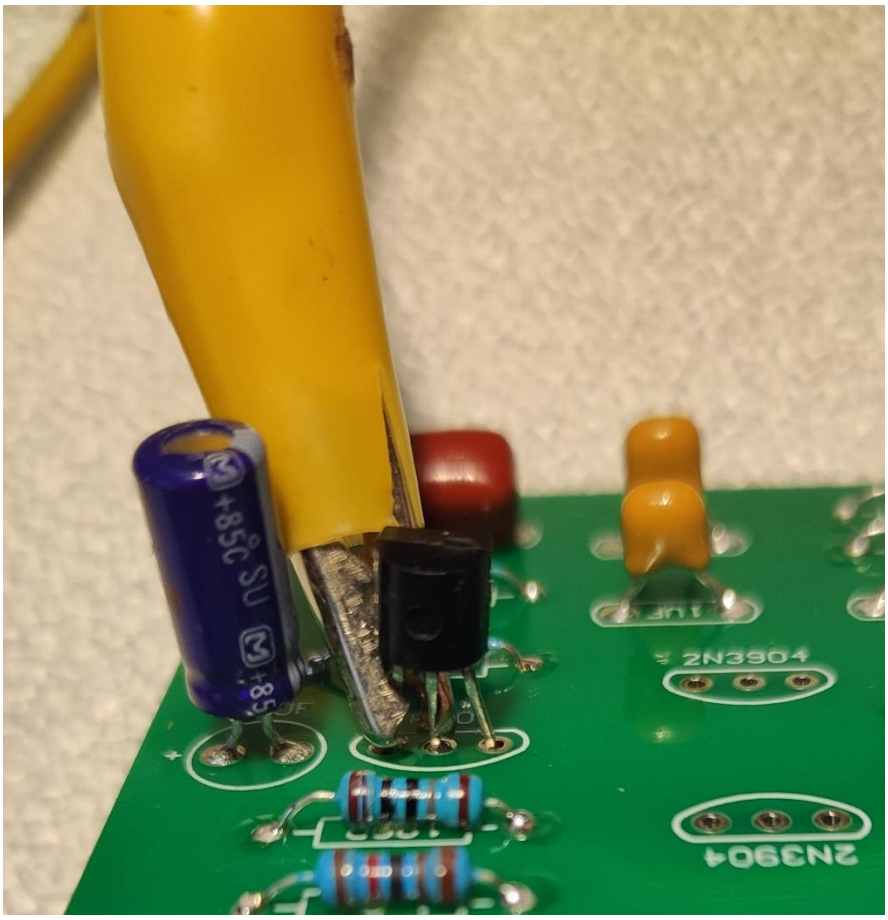
These images are for example purposes



only

1.8 Transisors.

Next:
Solder all transistors on the board.



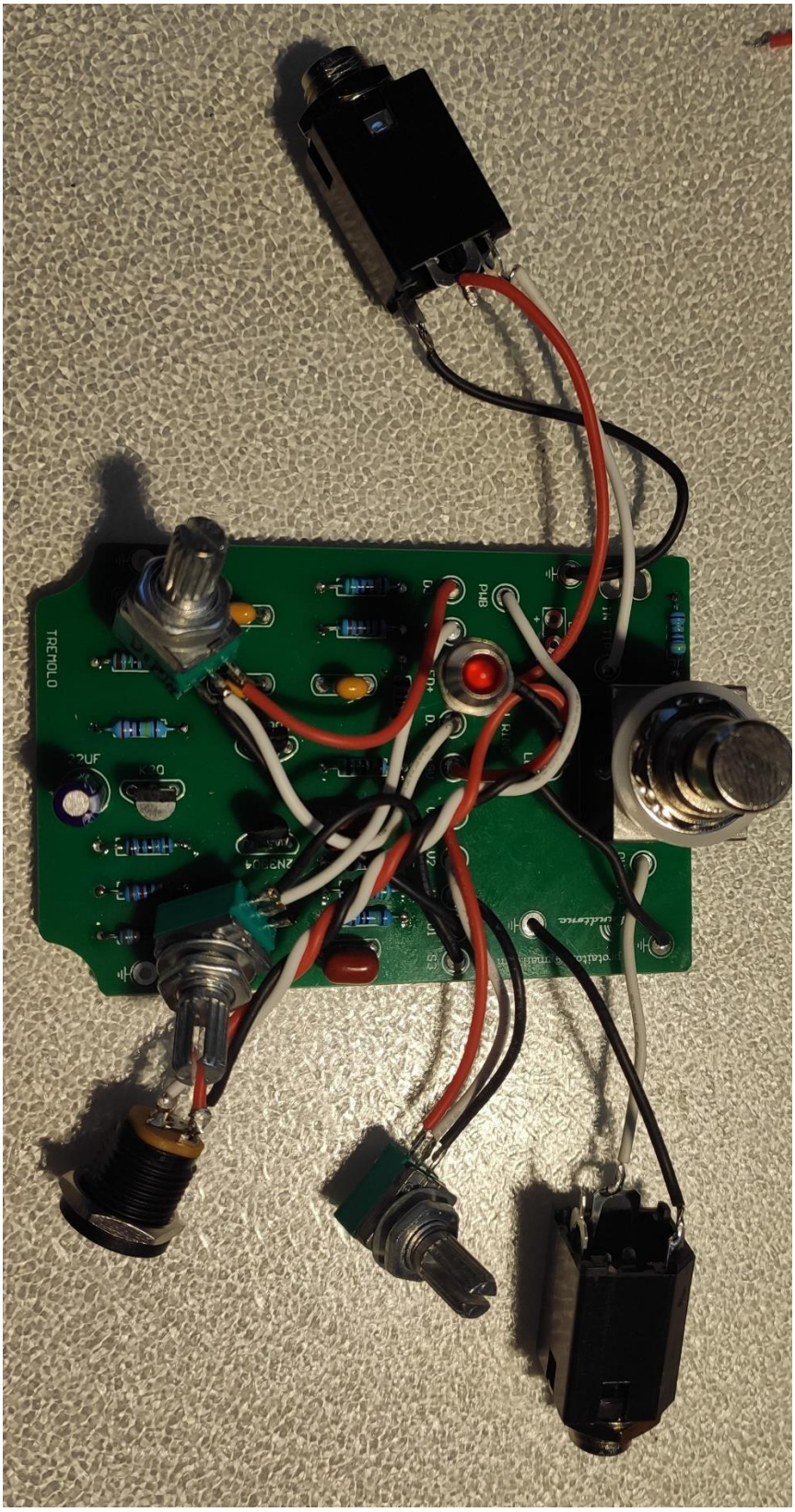
Use a small clamp, like on the image. This is to prevent heat damage to the transistors, at the moment of soldering. This a little tricky to do, so be care full.

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

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

Soldering all the potmeters to the wires.
Potmeters are indicated with D (depth), S (speed) and V (volume).
On the PCB are corresponding letters like:
S2 and S3 for the speed potmeter,
D1, D2 and D3 for the depth potmeter,
V1, V2, and V3 for the volume potmeter.

1.9 Here is the finished board.



1.10Building the housing-case.

This is up to you.

1.11 The Tremolo 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.

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

Turn up the depth potmeter to max, in order to hear the effect at most intense level.

The speed knob varies the fluctuation.

Turn the Volume knob, as a starting point, to middle position.

1.12 Booster pedal.

By the way: if you turn the depth knob to zero, the pedal will become a nice booster pedal!