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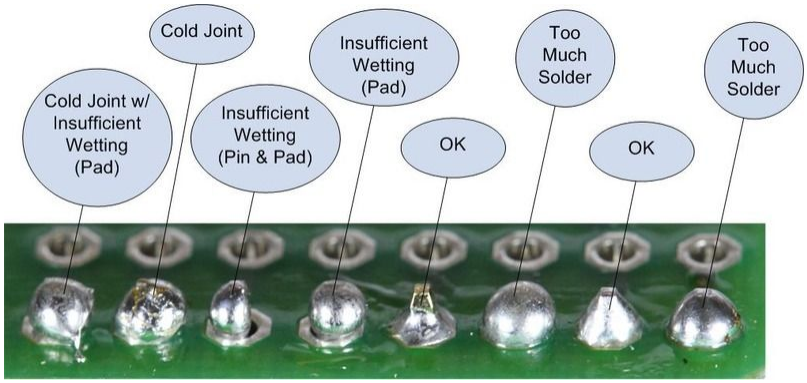
Your solder joints should look like those shown as ‘OK’ below, they should have that neat conical shape on BOTH sides of the PCB. If they don’t look the same on both sides then stop! Work out why from the soldering guides linked and don’t continue until you are getting those results. This isn’t about perfectionism, you are very likely to end up with a destroyed, damaged or defective unit if you’re not hitting that standard.



This photo is from the Adafruit guide to excellent soldering - http://bit.ly/1l77tF4 and is reproduced under an Attribution-Sharealike creative commons license - http://creativecommons.org/licenses/by-sa/3.0/

Start off by soldering the resistors and diodes

2	220k	**R1, R3**
5	1M	**R2, R4, R8, R12, R14**
1	150k	**R10**
2	100R	**R5, R6**
1	300k	**R7**
1	10R	**R9**
1	33k	**R11**
1	220R	**R13**
1	4.7k	**R15**

You might have a spare 1M resistor in your kit - this is unused.

4	1N4148	**D3, D4, D5, D6** **(SEE IMAGE FOR CORRECT POLARITY!)**

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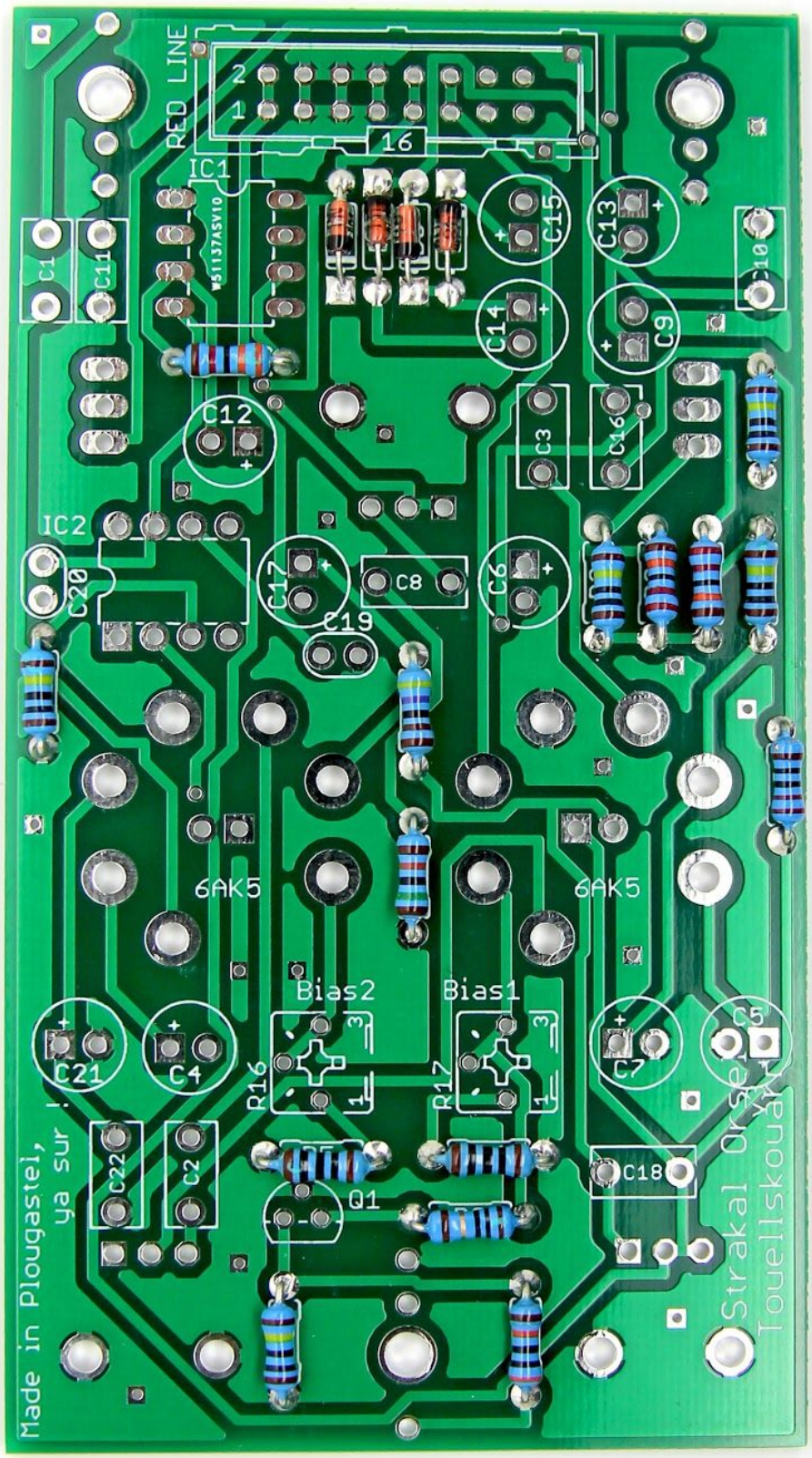

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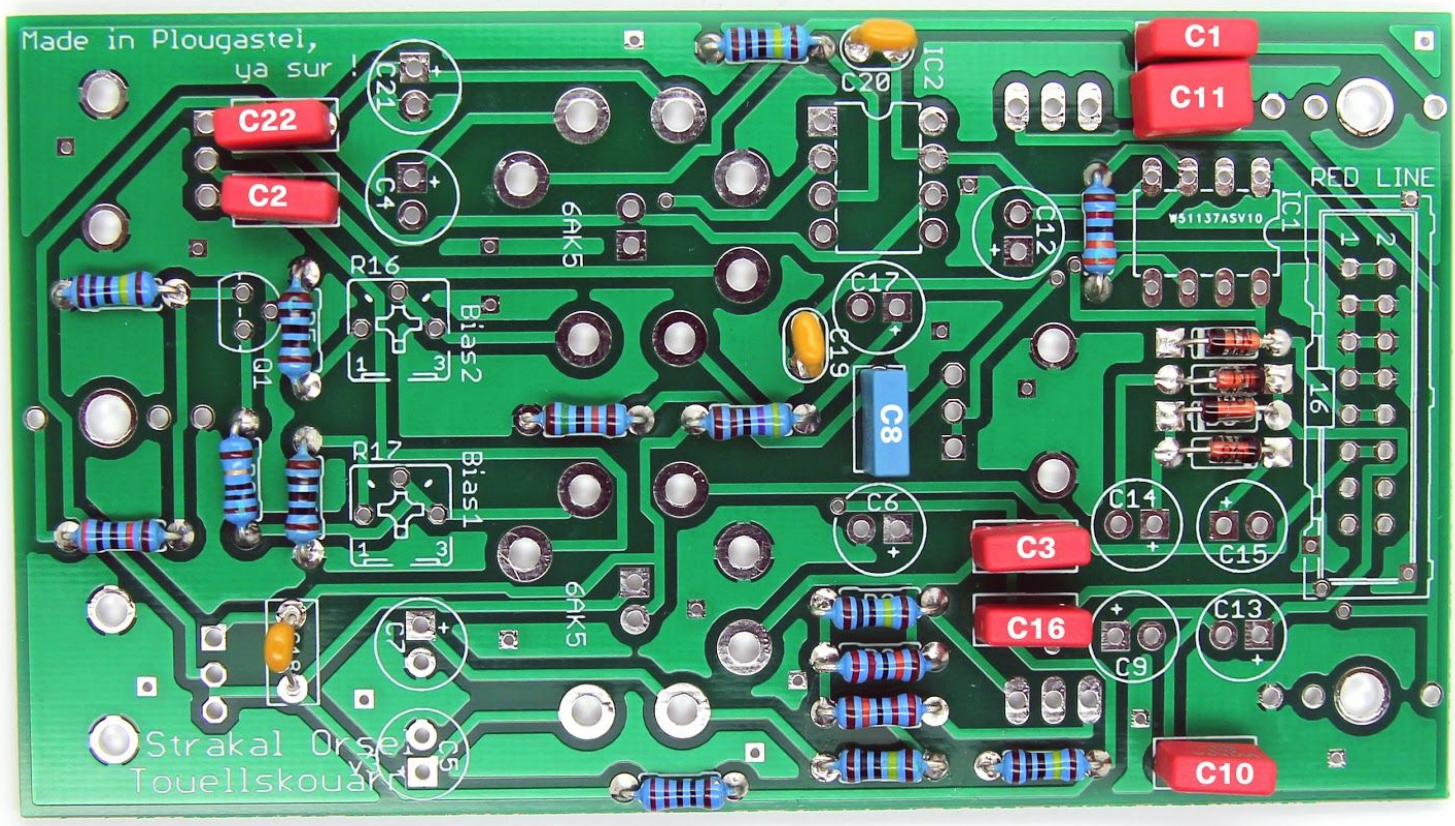
Next solder the Ceramic Capacitors and Film Capacitors.

6	100nF	**C1, C2, C3, C10, C16, C22**
1	10nF	**C8**
2	10nF	**C19, C20**
1	1nF	**C11**
1	51pF	**C18**

The 10nF box capacitor supplied will either be yellow/cream or blue



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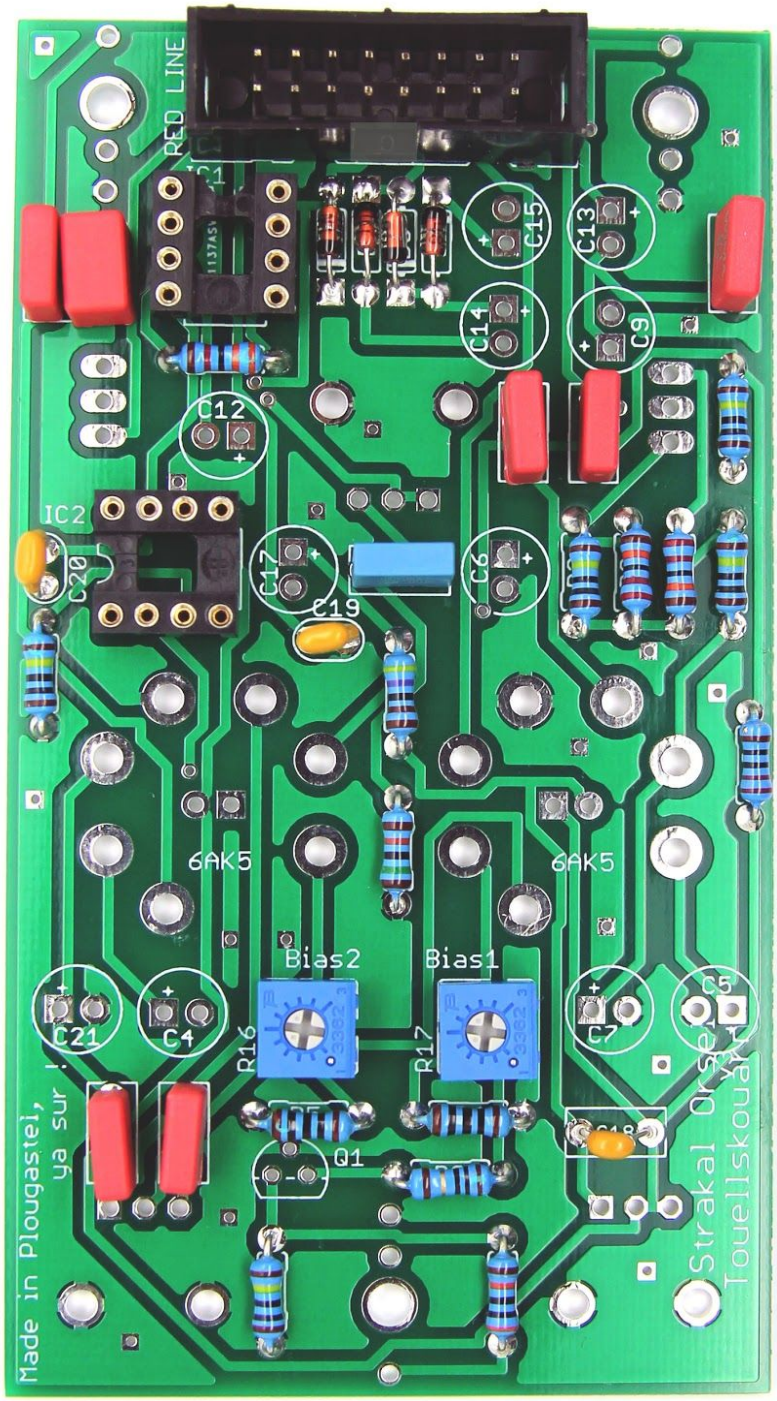
Now solder the two trimmers, two IC sockets, and the power header, make sure that the indent on the power header matches the pcb silkscreen, facing <u>away</u> from the edge of the PCB.

2	5k Trimmers	**R16, R17**



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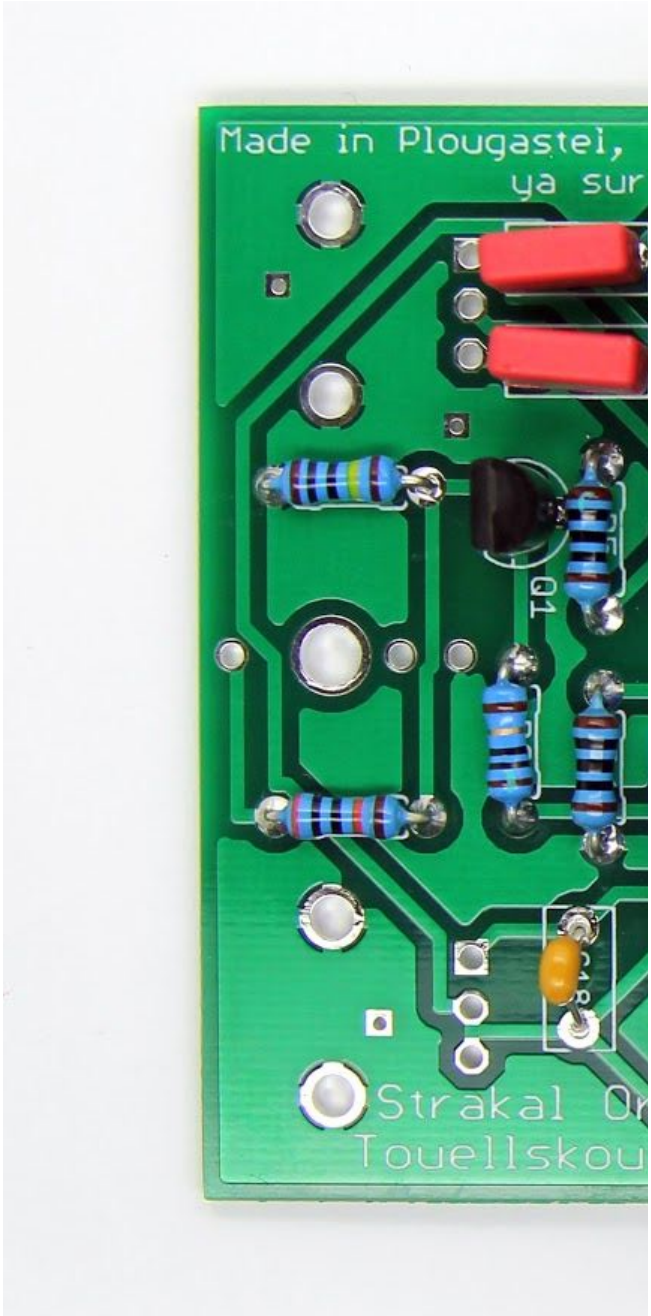
Now solder the single transistor - make sure to match the curve of the body with the silkscreen on the PCB.

1	BF256	**Q1**



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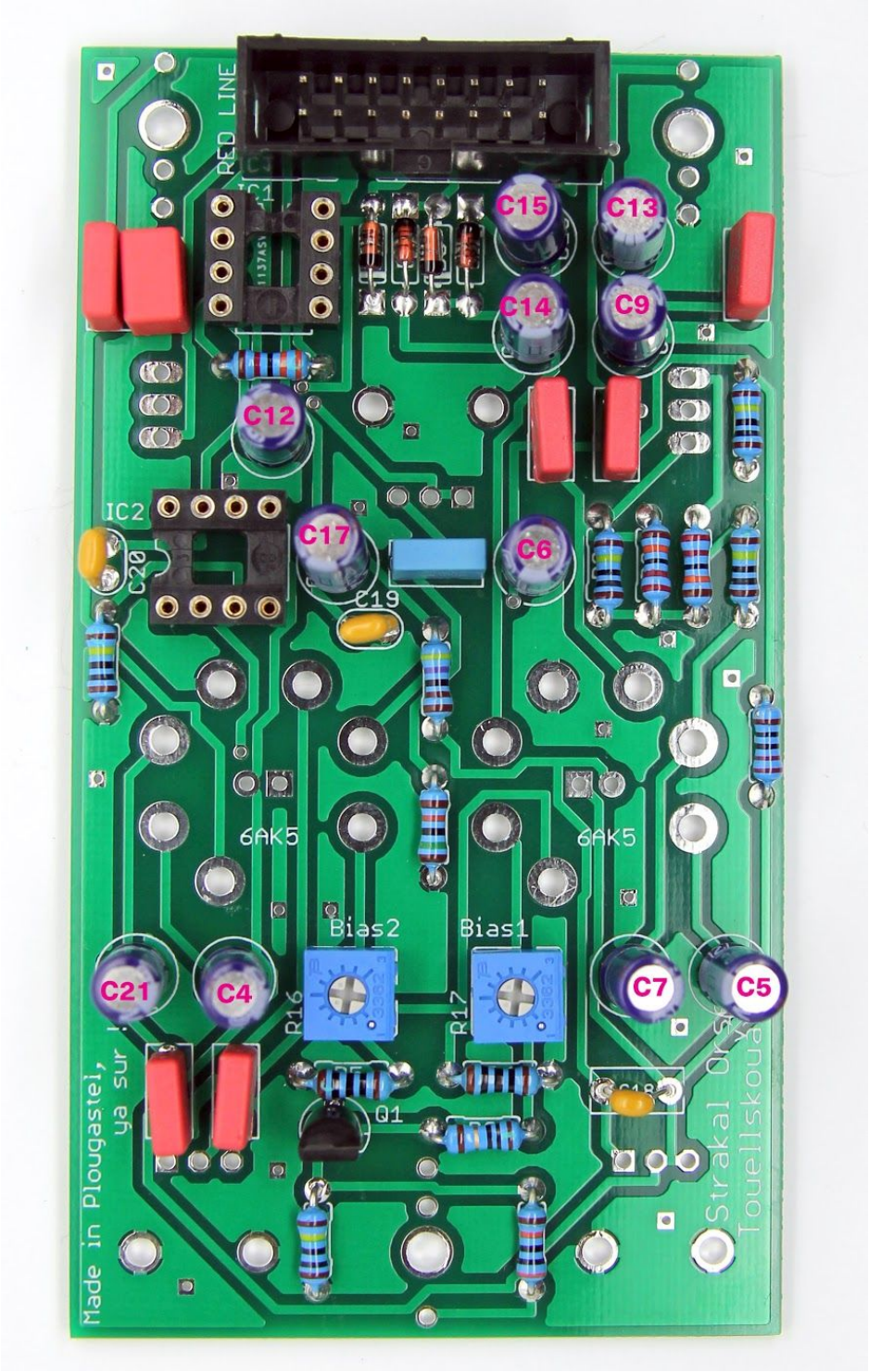
Now solder the Electrolytic caps, the longer positive leads are marked by + signs on the PCB

6	22uF	**C9, C12, C13, C14, C15, C17**
2	4.7uF	**C6, C7**
3	100uF	**C4, C5, C21**



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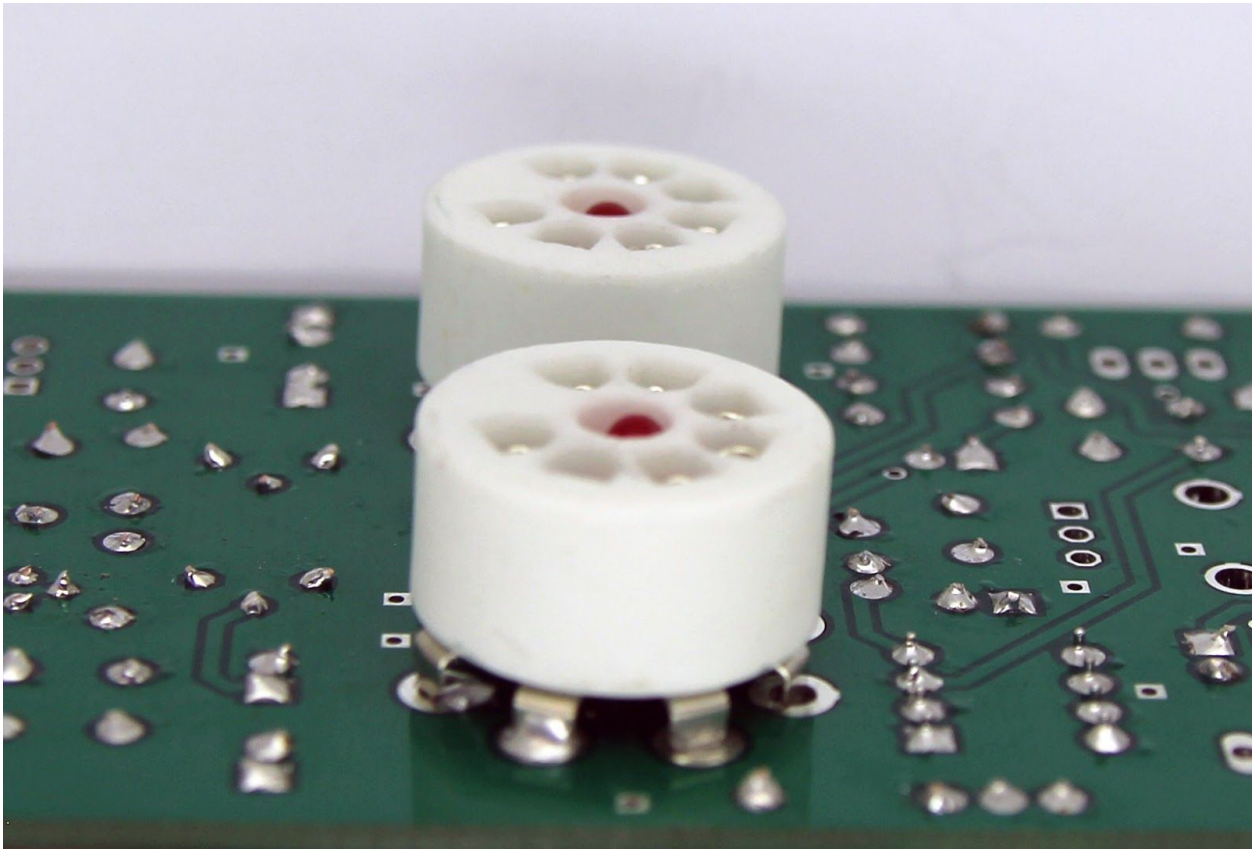
Now it's time to solder the two LEDs and white tube holders. These are soldered on the Frontpanel side of the pcb - opposite to all previous components so far.

First place but don't solder the LEDS IMPORTANT: The longer lead of the LED must go to the square pad on the pcb. Then place the tube holders - the LED bulbs should sit around the same level as the top of the holders. This can be achieved by using masking tape or something similar to hold them in place while soldering. Now you can solder these components in.

Note: The LED's supplied with kits have clear lenses but will glow red.



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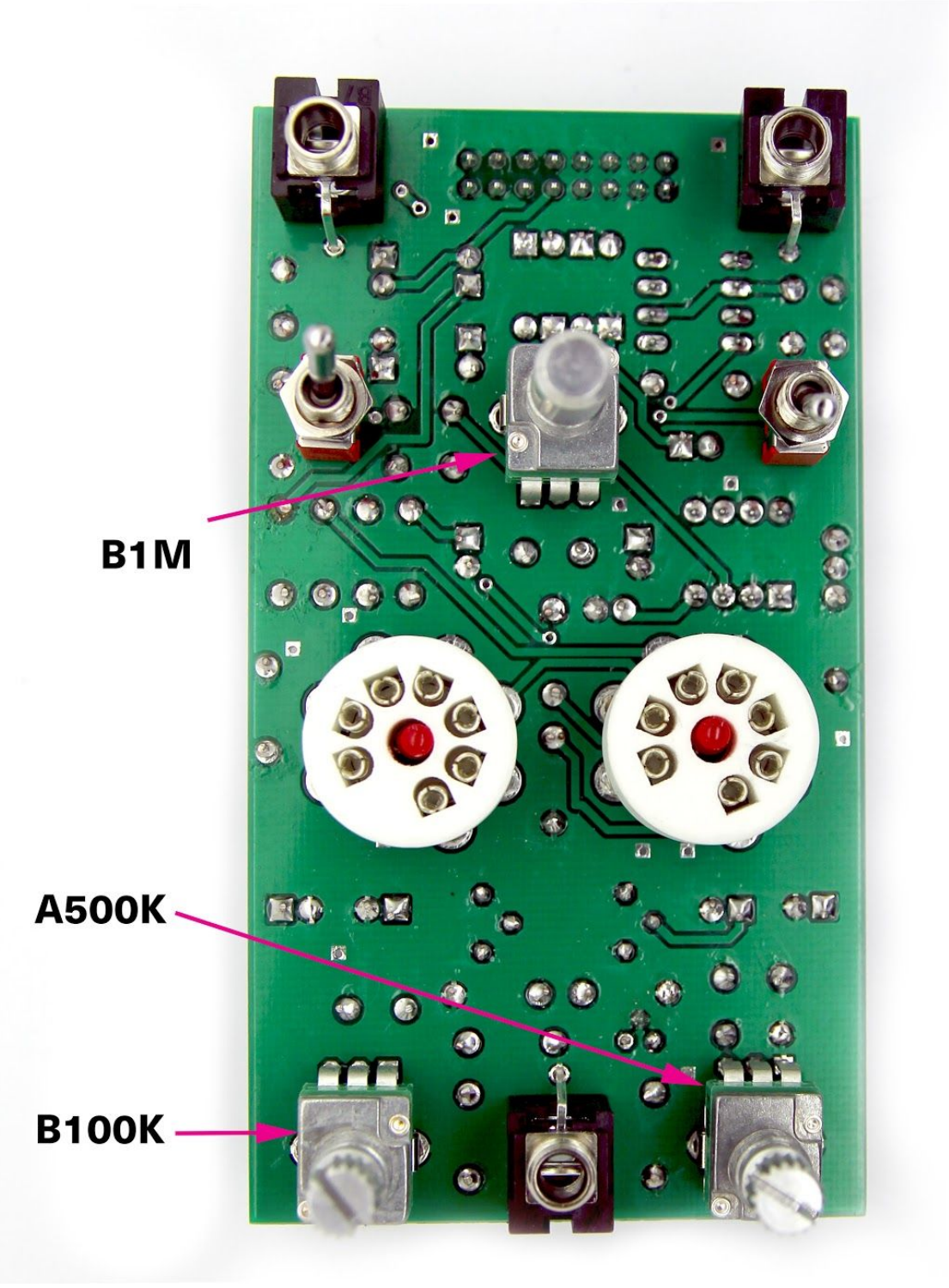
Now place the rest of the Frontpanel hardware but DO NOT SOLDER ANYTHING YET. The switches should have one nut screwed on to sit below the panel. Pay attention to the pot values as shown in the picture below.

1	B1M	**Feedback - Boukl Retroaktiñ**
1	A500K	**Gain - Ampled**
1	B100K	**Volume - Gounid**



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Once you have placed the the Frontpanel and screwed on nuts and washers to hold everything in place you can then solder in the pots, jacks and switches.

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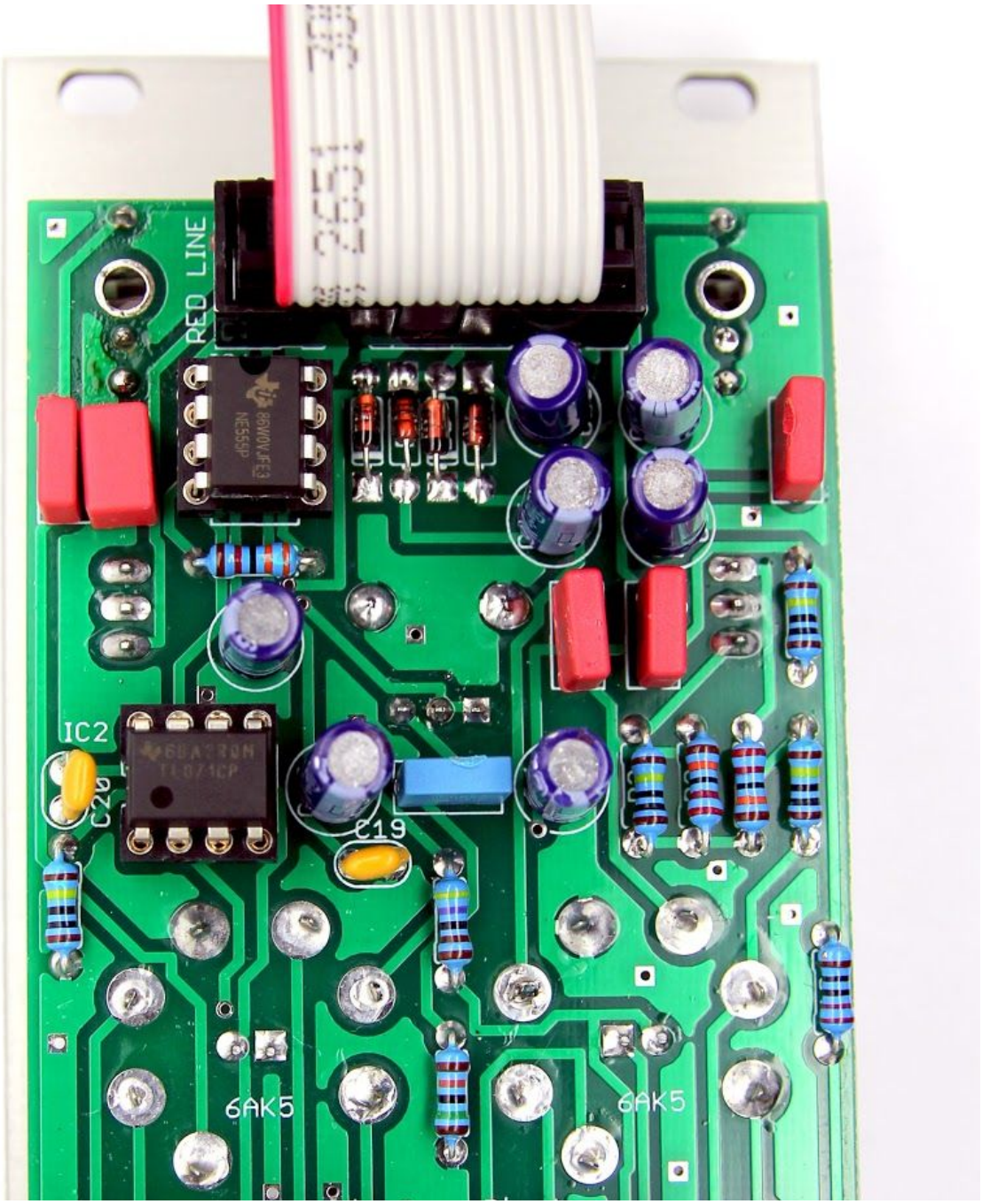
Now, paying attention to orientation, fit the IC's into their sockets as shown.

1	NE555	**IC1**
1	TL071	**IC2**



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Now finally put on the three knobs and place the tubes all the way into their holders.

Important: It is essential to have the module switched off when placing or replacing the tubes! Do not power up this module unless the tubes are installed!!!

The two Bias trimmers are for gain stages in the circuit. Touellskouarn recommend setting them in the middle to start off - they can then be adjusted if desired.