# RE-909: Parts Orientation & tips

Here is a brief explanation of the location and alignment of the components.

Let's start with the **op amps** (5218L or NJM4558)
The imprint **ALWAYS** points to the left and without exception! When soldering, always make sure that you do **NOT solder all pins at once**, but only two or three pins so that the component **does not overheat** and be destroyed as a result.

With the transistors **SA733** (1115) and **SC945** (2603) the orientation is given by the imprint, so please always pay attention to the installation direction! The imprint for the transistors is easy to distinguish: The SC945 transistors are soldered in where the symbol for the transistor only shows the body. The imprint for the SA733 transistors **shows a line within** the symbol.
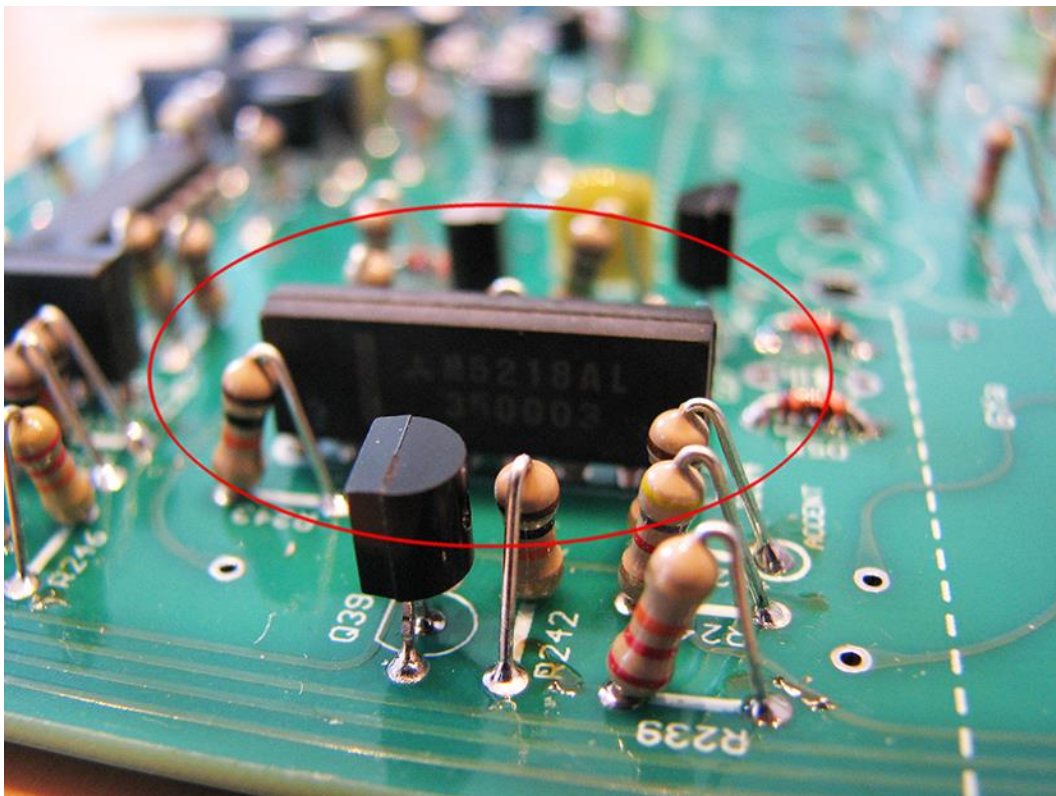
The **DACs** (resistor networks) are **always placed** with the components to the **LEFT**.
Here, too, make sure that these components don't get too hot when soldering.
Regardless of whether you use pin socket strips for soldering or sockets and small metal pins, build in this component **as flat as** possible!
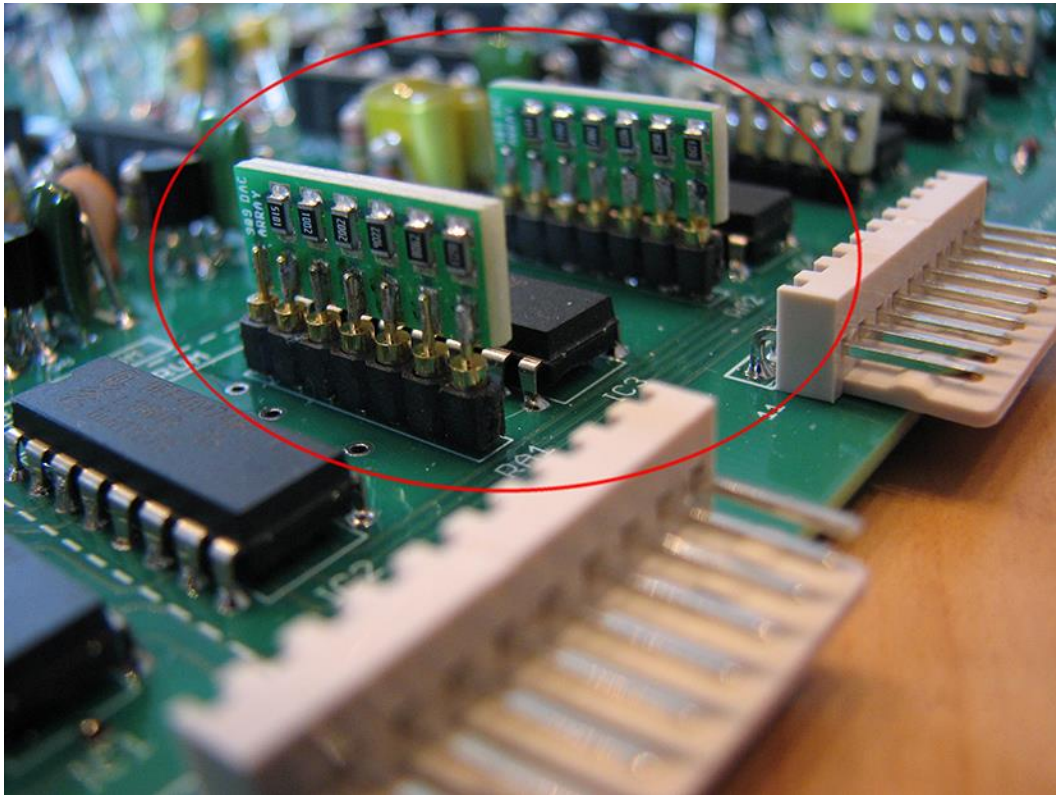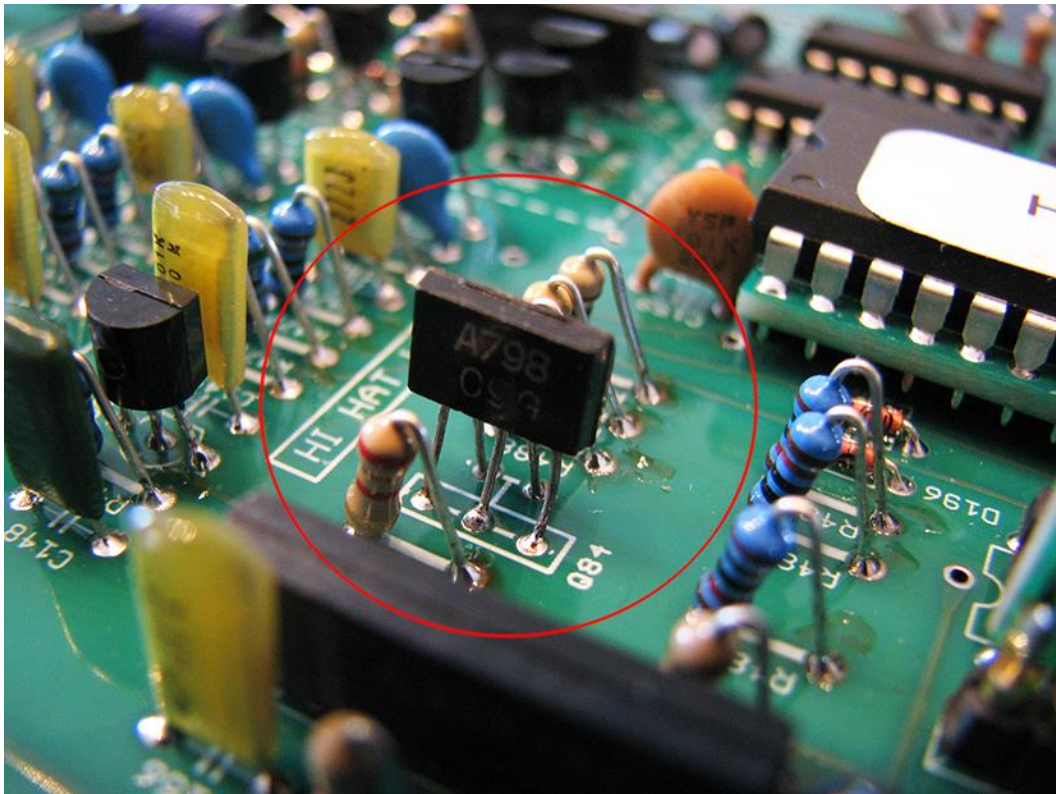

The same applies to the **BA662 Clown**: The **components on the chip** must point to the **LEFT**!
**Original Roland BA662A** chip: the notch must point **UP** or, from this perspective, to the left!
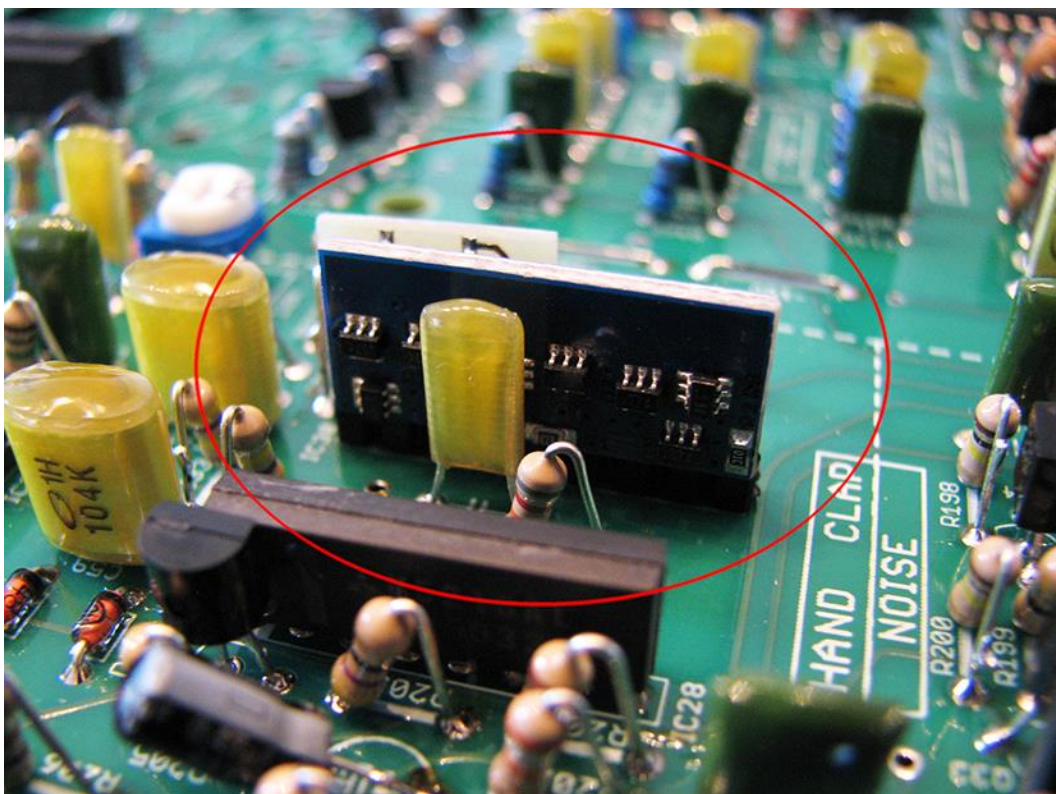
The **SIP-5** dual transistors **SA798**: even if they are symmetrical, they should be installed as shown in the photo: With the imprint to the LEFT!
**This applies to all four SA798!**

If you cannot get any **SA798** transistors, then it is also possible to make a **"clone"** from two **BC559B** transistors. The BC559B is available **almost everywhere** for just a few cents.

To do this, connect the **EMITTERS of both transistors** and then somehow fumble the pins into the circuit board. **It's not pretty, but it works!**
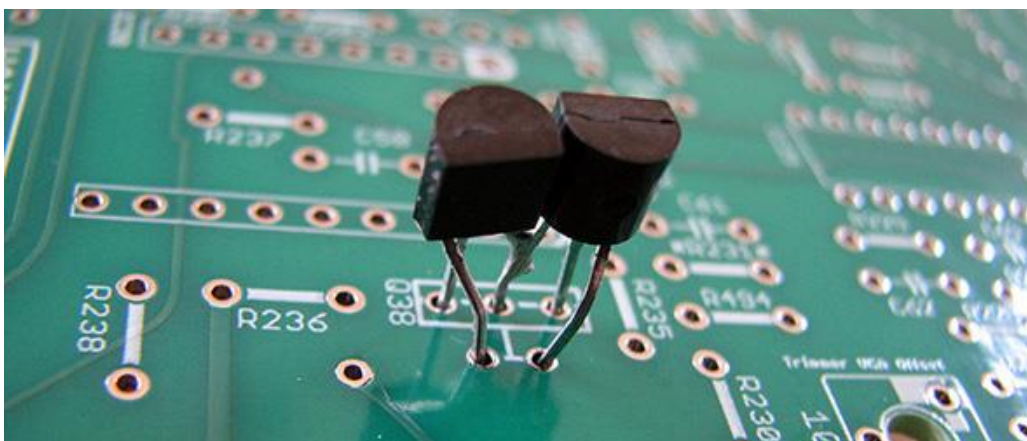
The **SC2878** transistors in the **AMP section** are the **ONLY ones** that are soldered in with **printing to the RIGHT**.
If you have the original 2878 (low profile), then these are placed so that the notch of the transistor is aligned with the line in the print!
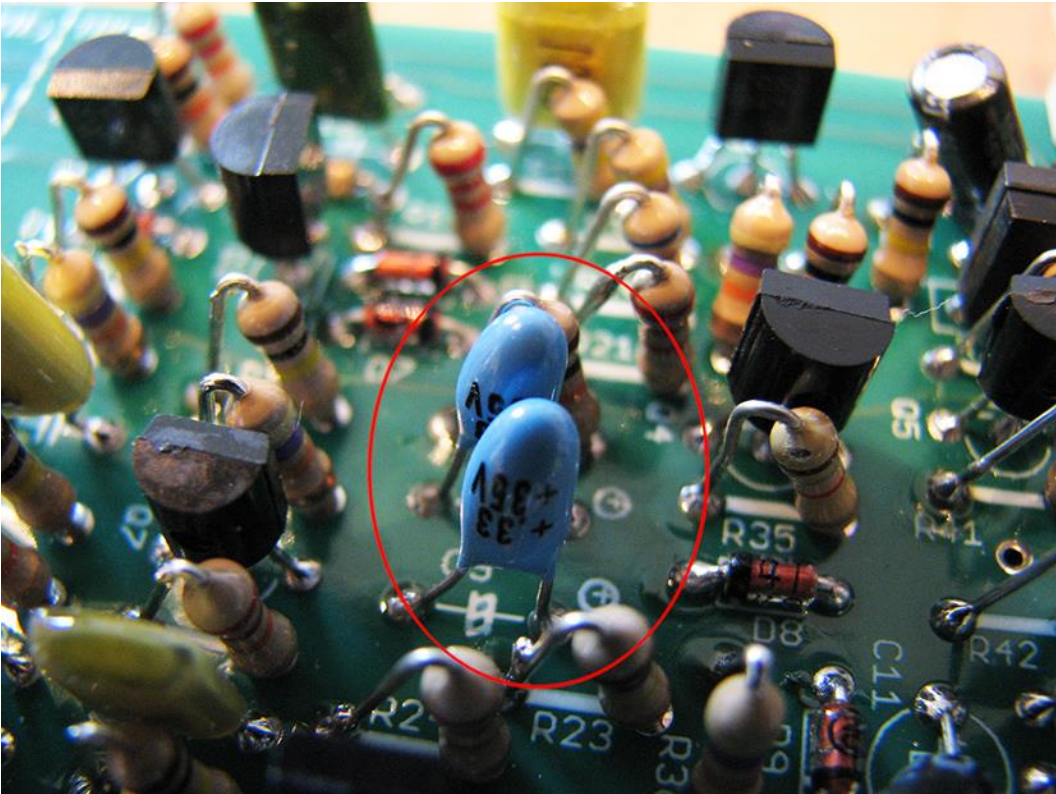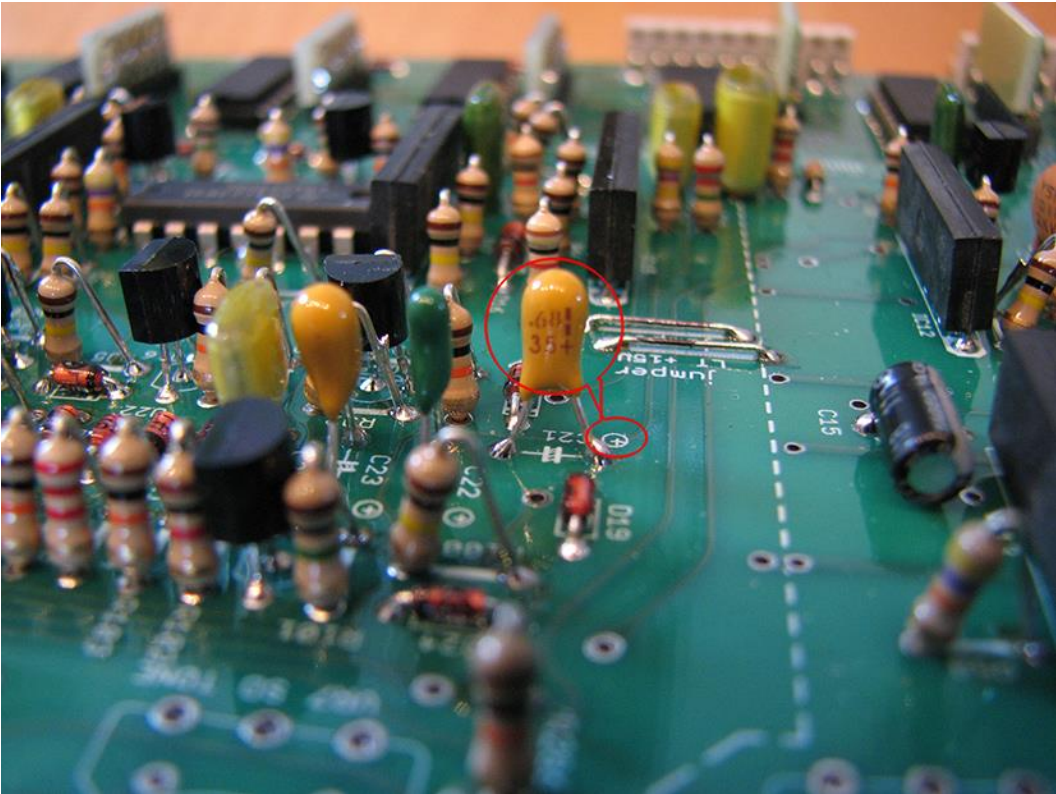Today the **SC2878** is only available as a **TO92** housing, as you can see in the picture below.
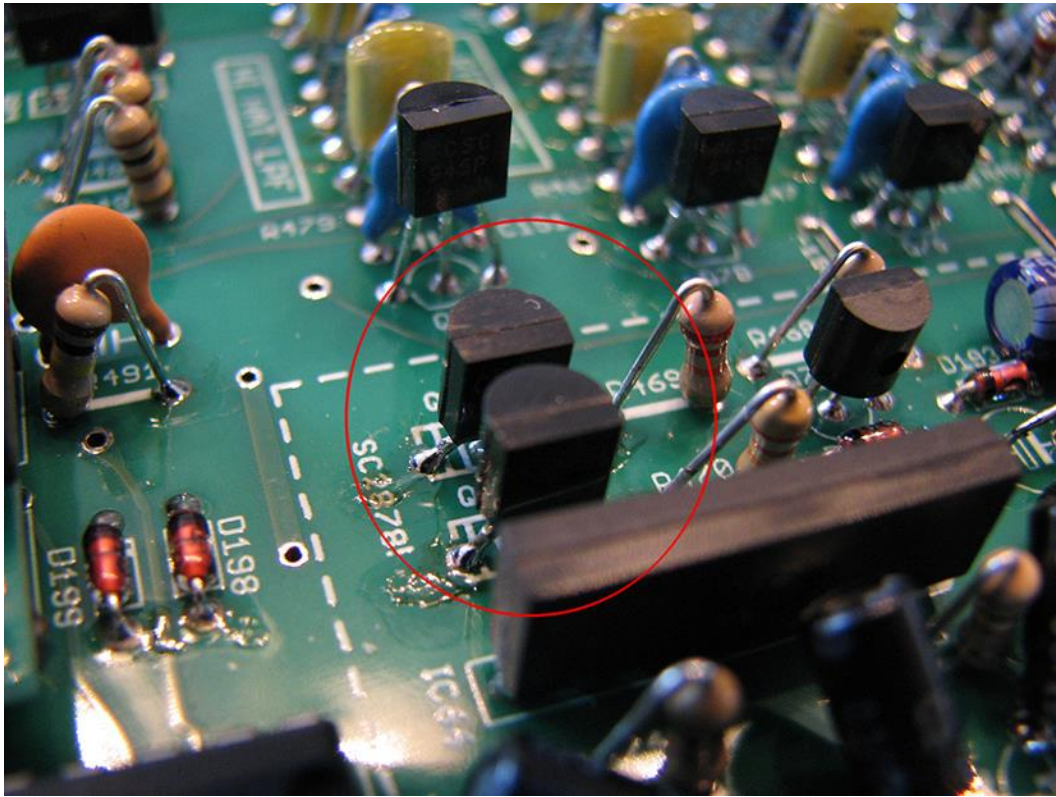
The ICs **ALWAYS** point with the notch **UP or LEFT, without exception! See printed circuit board!**
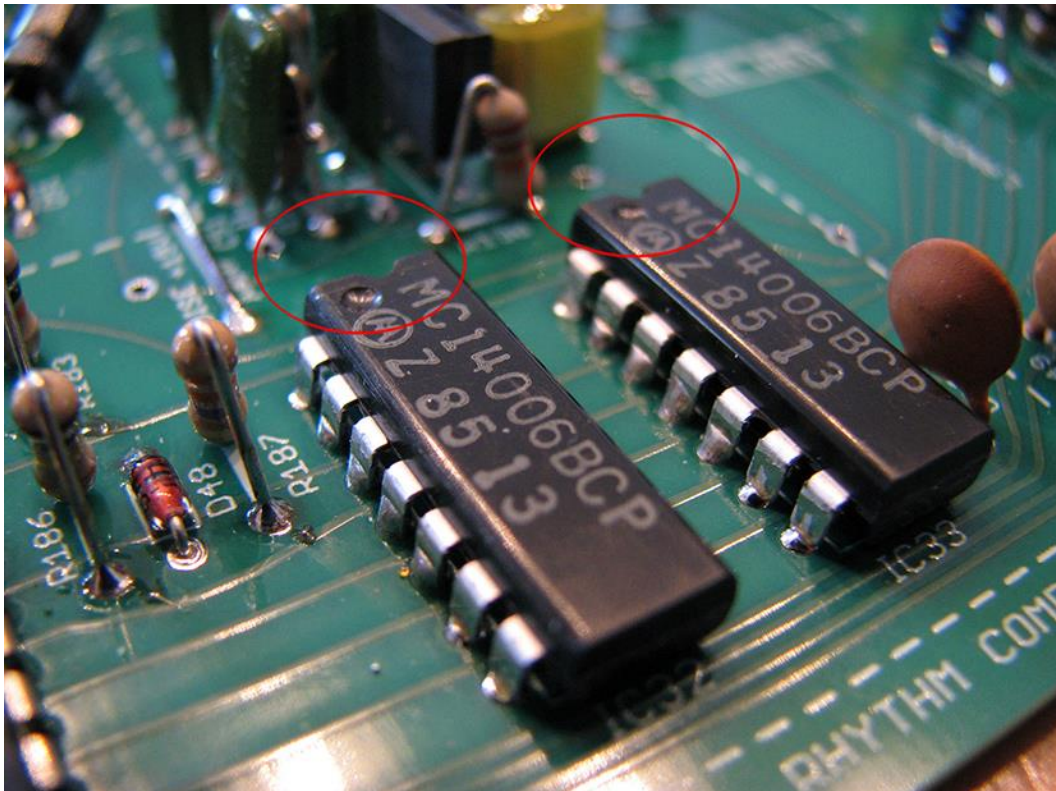
The **Tantalum capacitors** always have a **PLUS sign** printed on one side of the housing.
This means that the **PLUS sign** on the component **must match the PLUS sign on the circuit board**.

Hand Clap:

The **10K trimmer** in the hand clap is used so that the **middle pin** points **down**!

BTW: When setting up the hand clap circuit, make sure that ***R231*** is **NOT fitted**!
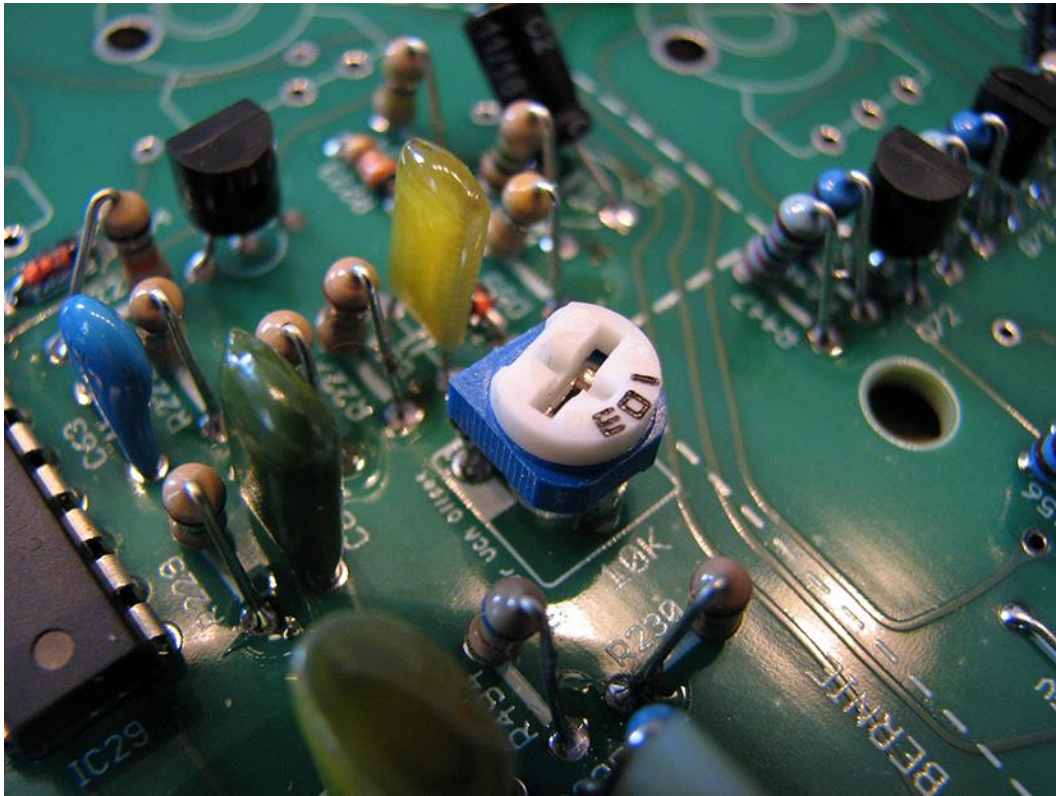
Wiring of all boards

It is best to use **24AWG cables**. The designation **AWG** (American Wire Gauge) is not really common in Europe because the metric system is used there.
A 24AWG cable in the metric system would be a cable with a **cross-section of 0.25 square millimeters.**

I have used a 10-pin, color-coded ribbon cable. These cables are available from Metrofunk Kabelunion, Farnell, Mouser, RS-Online and other electronics dealers.
Example: Farnell 24AWG Cable

With the original TR-909, all the cables are soldered directly to the switchboard (sequencer board) and the connections to the voiceboard are **plugged** in. The only exception is the 6-pin cable **J6** from the master volume to the **audio board**, because this is soldered to the voiceboard board directly and only plugged into the audio board.

The connections **W4** and **W5** are soldered to the voice board directly on one side and the other side has crimp housings to connect to the **MIDI I/O** and **audio board**.
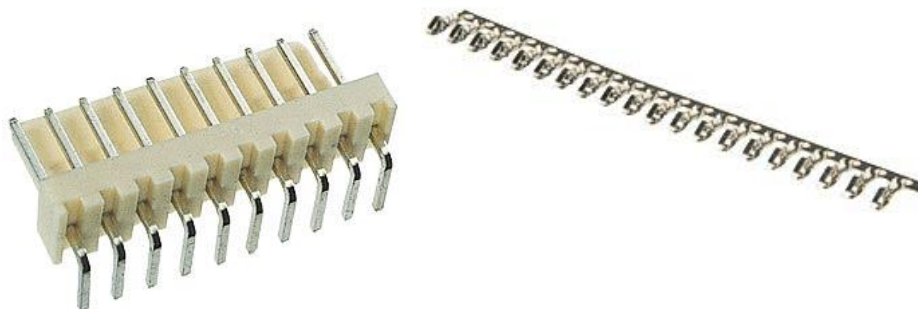This is how it's done on the original TR-909.

I have used the Reichelt connector systems:
Angled connector strips with a 2.54mm pitch, matching crimp housings and crimp contacts.
Of course you need crimping pliers for this, but normal pliers will also work.

There are a variety of other connector systems, but I don't want to go into each cable system here.

Safety PSU

It has been shown that sometimes the **sequencer board** does not start correctly or with certain **SRAM** modules the problem arises that **patterns are not saved correctly**.

Therefore the PSU should be set up as shown in the picture.
Insert the 5.6V Zener diode in a way that the **negative side** is soldered directly to the first diode on the far left.
Simply **secure against shorts** with some shrink tubing.
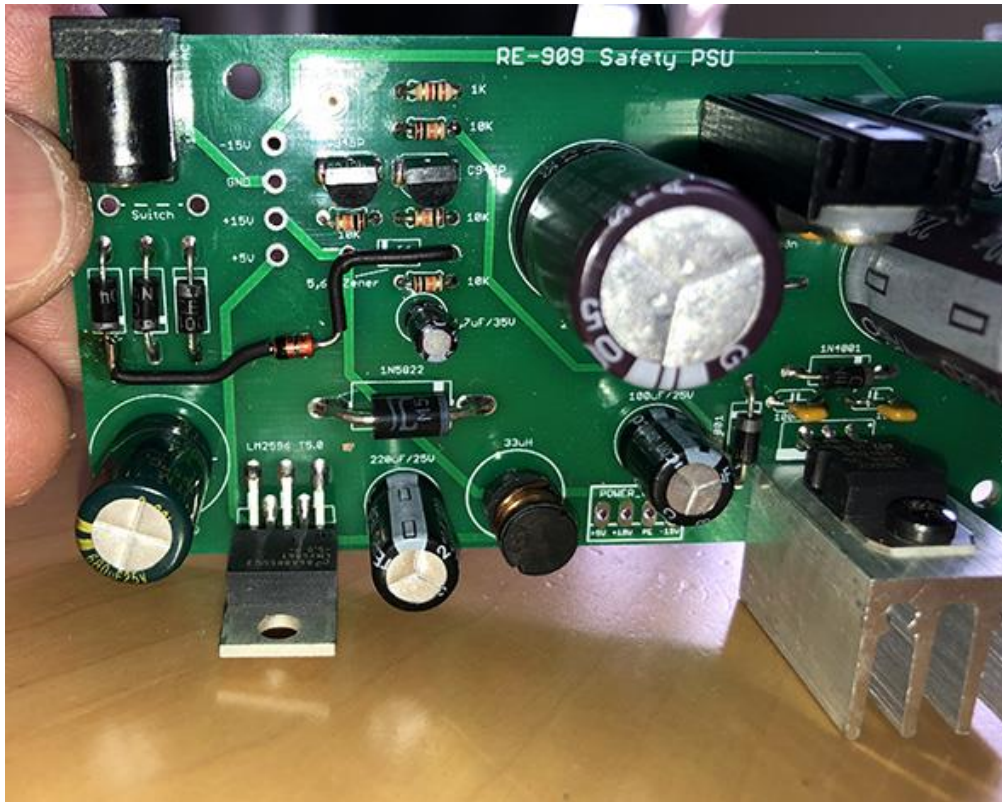
There will probably be a revision of this PCB at some point, but if you own the first version you can do so.