



MP566-II Assembly guide

**Safety warning**

The kits are main powered and use potentially lethal voltages. Under no circumstance should someone undertake the realisation of a kit unless he has full knowledge about safely handling main powered devices.

Please read the “DIY guide” before beginning.

Print or open the following documents:

- MP566-II Schematics
- MP566-II Components layout
- MP566-II Parts list

Follow this guide from item number 1 till the end, in this order. The assembly order is based on components height, from low to high profile, in order to ease the soldering process : The component you are soldering is always taller than the previously assembled ones and it is pressing nicely against the work area foam.

Soldering

All the PCB holes are metallized. It means the connection between the top and bottom pads is already done. The parts must be soldered only from below (unless differently stated).

Use only small diameter solder, 0.5 or 0.7 mm, 1 mm maximum. Use the minimum possible amount of solder. Bad joints are almost always caused by too much solder.

Cut the component leads and pins totally flush with the PCB after soldering. A too long tail could create an electric connection with the side plate.

Here are two excellent introduction to soldering videos:

<http://www.eevblog.com/2011/06/19/eevblog-180-soldering-tutorial-part-1-tools/>

<http://www.eevblog.com/2011/07/02/eevblog-183-soldering-tutorial-part-2/>

In case of error: component soldered in the wrong place

Do not try to save the component! This will very likely damage the PCB which cost 100 times more than most components.

Except for transformers which are also expensive, cut the components pins with cutting pliers in order to be able to remove the pins one by one.

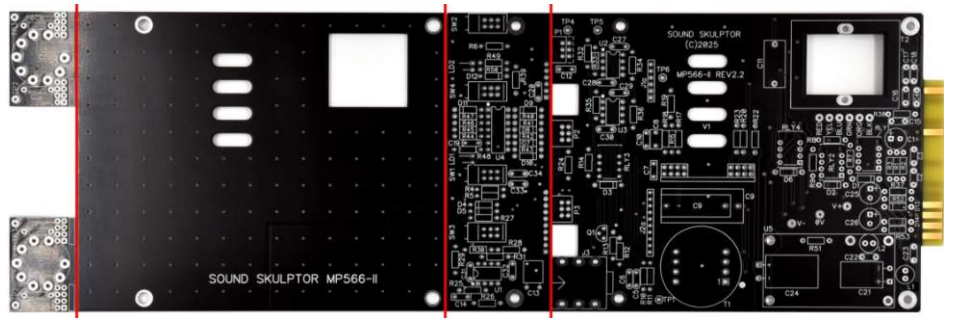
Then empty the holes with a de-soldering pump (this one works great : Jonard Industries DP-100).



MP566-II Assembly guide – Main PCB

1. PCB split

Break the PCB into 5 parts along the red lines. The existing grooves allow the PCB to be broken by hand without difficulty. Use extra thin sandpaper to polish all the rough sides



2. SKTPS2 (U5) Pin Sockets



Solder the 5 pin sockets for U5. Solder one at a time. Insert one socket, turn over the PCB and press against a solid surface then solder. The correct positioning of the sockets is very important for easy insertion of U5.



3. Resistors



The best method to select and install the resistors is the following:

1. pick a row of resistors in the resistors bag,
 2. Measure one of the resistors with your DMM,
 3. Look up the parts-list PDF for the closest value,
 4. Check the color code and quantity for confirmation,
 5. Use the search function on the Layout PDF page with the resistor value: All the corresponding resistors are highlighted,
 6. Insert and solder.
- (You can use the same method later, for the capacitors)

Add all the resistors of the main PCB (black identifier in the parts list).

Control the resistors value with a digital multimeter. Bend the leads at 0.4" with a lead forming tool.

Warning : It is very important to check the resistors value with a DMM because the color code can sometimes be ambiguous. For example 1 k Ω (brown-black-black-brown-brown) can be confused with 110 Ω (brown-brown-black-black-brown).

Warning : It is a good idea to protect the back connector golden fingers with some adhesive tape because if your iron slips and touches one, it will be immediately and irremediably polluted with tin.

4. Diodes

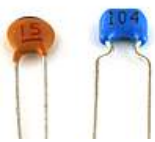
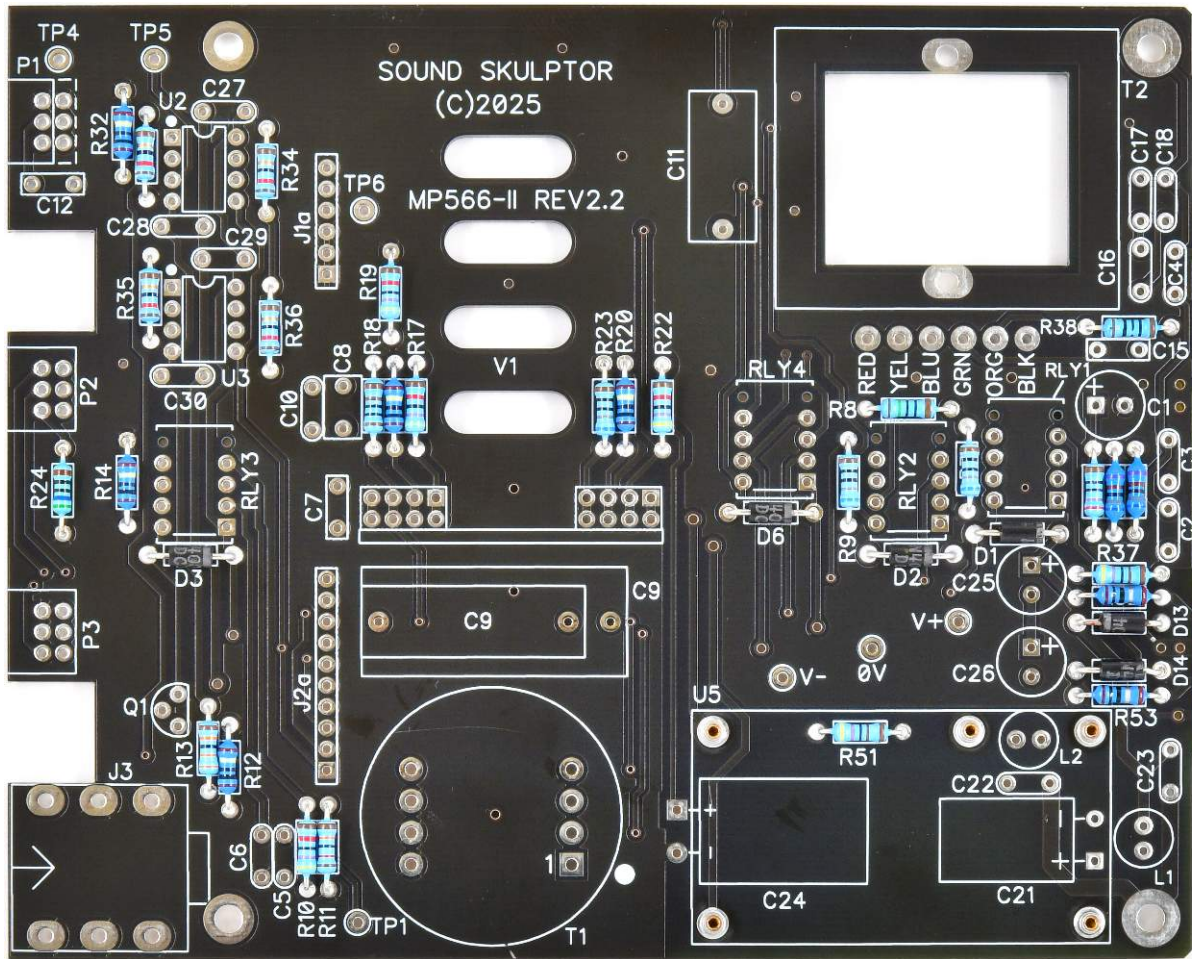


Add D1, D2, D3, D6, D13, D14.

Warning : Make sure to respect the direction of the diodes which is marked by a ring on the component and a double line on the PCB marking.



MP566-II Assembly guide – Main PCB



5. Ceramic capacitors

Add C10.
Add C4, C6.
Add C2, C3, C5, C16, C17, C18.
Add C22, C23, C27, C28, C29, C30.



6. IC Socket

Insert and solder the two 8 pins socket in.
Warning : Make sure to respect the socket direction, marked by a notch.



7. Relays

Add RLY1, RLY2, RLY3, RLY4. The relays have two unsoldered pins. These pins are not connected internally.
Warning: Make sure to respect the direction of the relays which is marked by a white line on the component and on the PCB marking.



8. Small film capacitors

Add the film capacitors C15, C7, C12, C8.

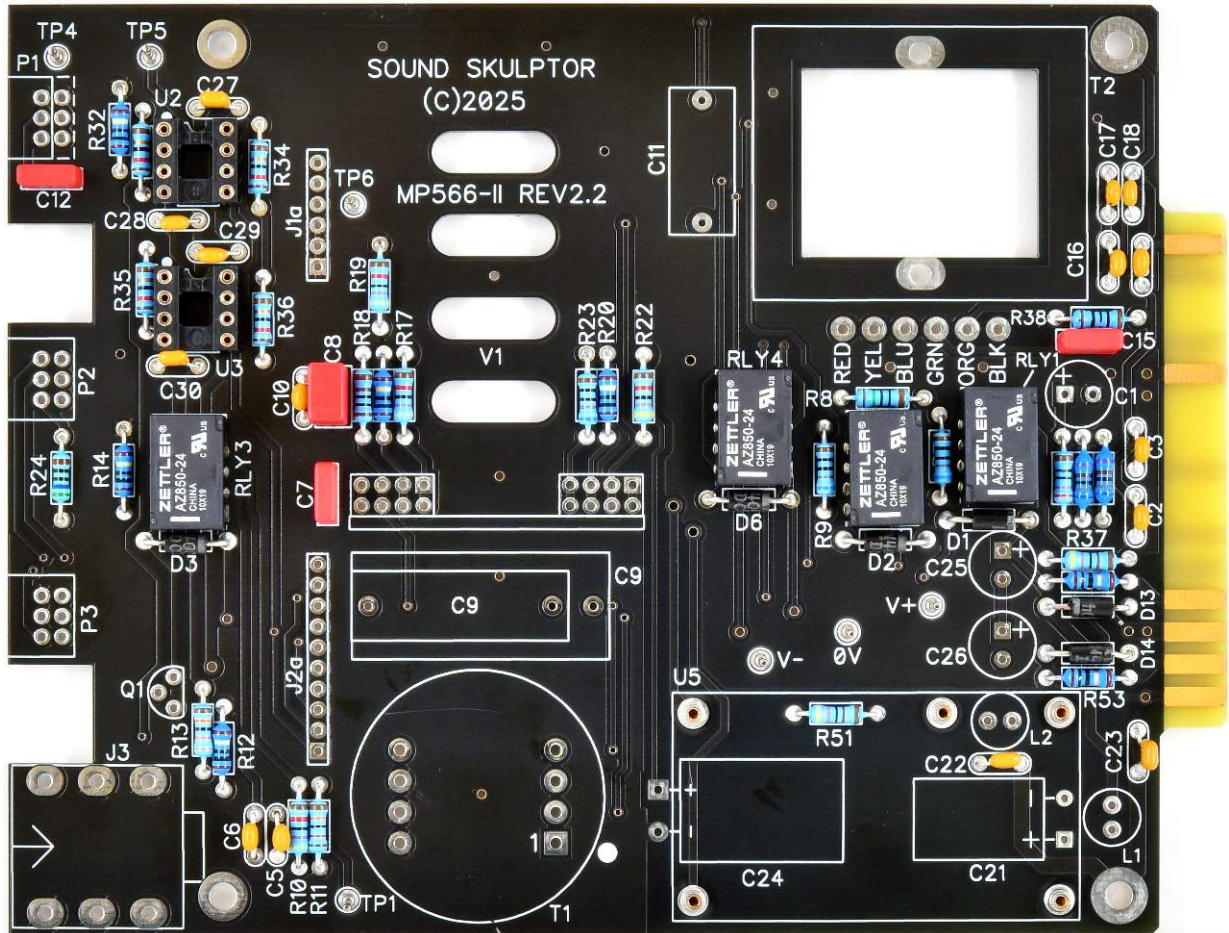


MP566-II Assembly guide – Main PCB



9. Test pins

Solder the eight 11 mm test pins TP1, TP3, TP5, TP6, V+, V-, OV, B+.



10. Connectors J1 a & J2a

Add J1 a and J2a. Solder one pin, check verticality then solder the other pins.



11. Transistor

Add Q1.

Warning: This device is sensitive to electrostatic electricity and must be handled with your body grounded (this only means no isolating shoes on).



12. Radial inductors

Add L1 and L2.



13. Potentiometers

Add the 3 potentiometers P1, P2, P3.

P1 can be single (3 pins) or double (6 pins) depending on the supplier. When single, insert in the leftmost row.

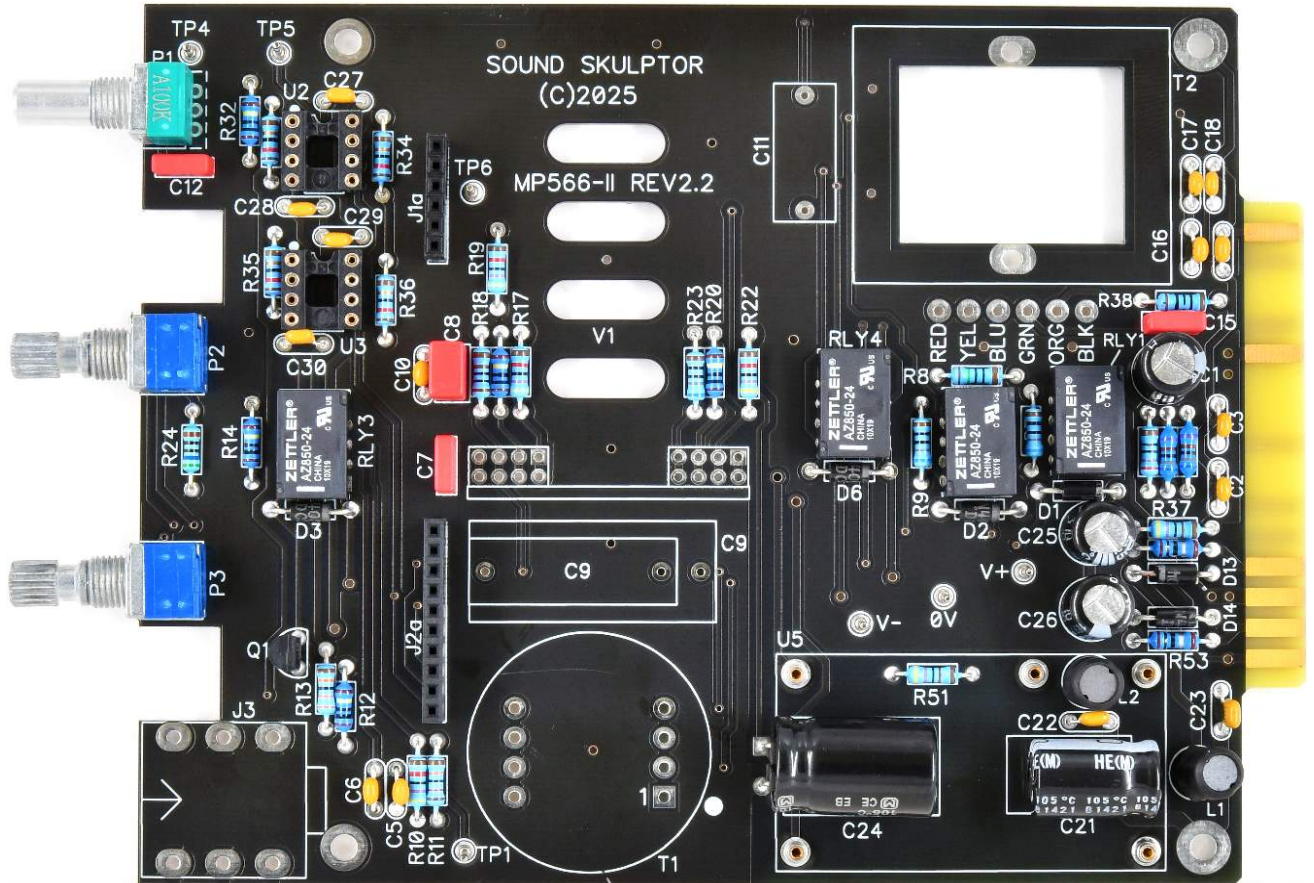


MP566-II Assembly guide – Main PCB



14. Electrolytic capacitors

Add the electrolytic capacitors C21 and C24 (placed horizontally), C25, C26, C1. **Warning** : The +lead must go into the +hole. Do not reverse (they may explode!)



15. Film capacitors C11

Add C11.



16. Jack connector

Add J3. The position of the socket is important for a good front-plate matching. It must sit flat on the PCB. Press firmly the socket on the PCB and solder one of the pins. Check position then solder the other pins.

Warning : the hole must face outside the PCB ;-)



17. Module SKTP52

Insert five 20mm pins into the five sockets of U5. Place the module on the pins and solder the pins to the module from the top.





MP566-II Assembly guide – Main PCB



18. Transformer T1

Check the position of pin 1 and insert T1 accordingly. Solder.



19. Film capacitor C9

Add C9.

20. Tube support PCB

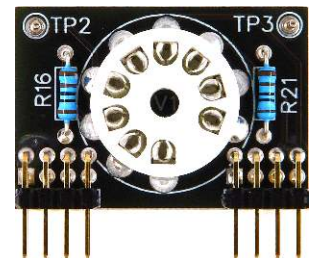
Solder the two 2 x 4 pins 90° pin headers. Solder one pin first, make sure the header sits flat on the PCB, then solder the other pins.

Add resistors R16 and R21.

Add the two test pins.

Solder the tube socket and cut the pins flush.

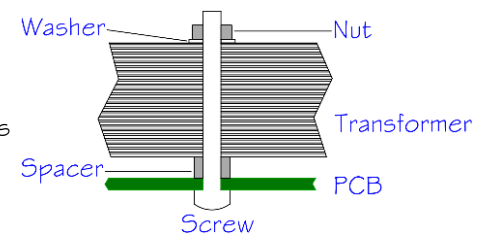
Insert the tube PCB into the main PCB. Solder one pin, check the verticality then solder the other pins.



21. Transformer T1

The transformer is mounted using two 25mm M2.5 screws inserted from the back of the board. Two 3mm metal spacers are fitted on each screw to raise the transformer. One washer is used before the nut to protect the lams.

Shorten the leads to the necessary length, around 5 cm. Strip on 5mm, insert into the corresponding color pad hole and solder. It is the wire color that matters, not the exact order.



22. Integrated circuits

Insert the two integrated circuits U2 and U3 into their sockets.

Warning : The IC's have a direction identified by a notch or a dot.

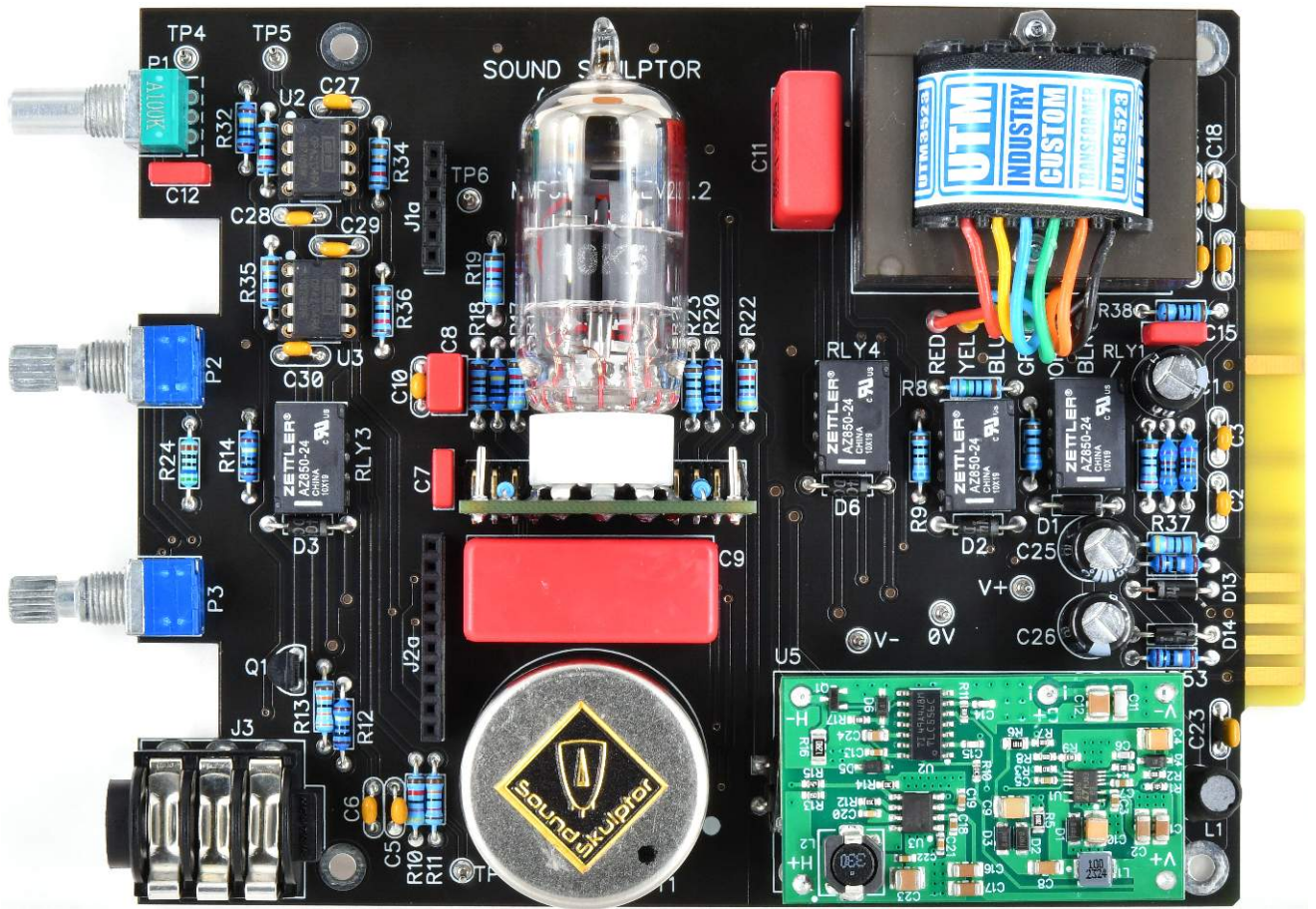


23. Tube

Carefully insert the tube into the noval socket.



MP566-II Assembly guide – Main PCB



24. Visual check

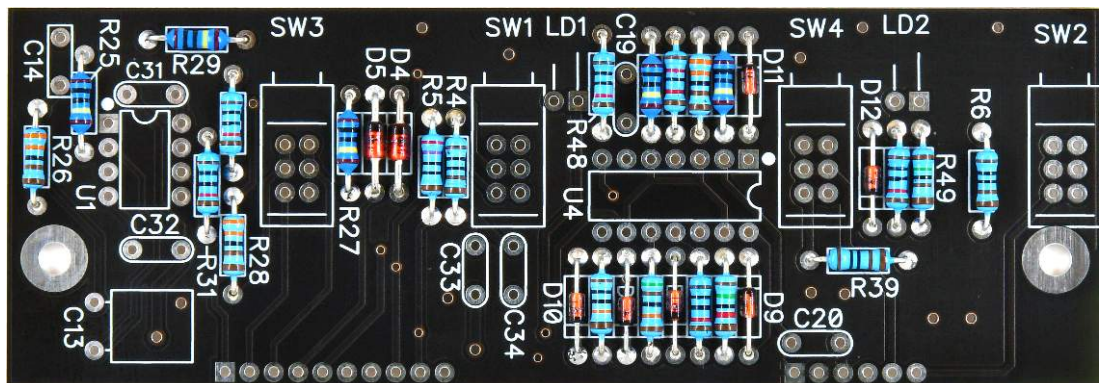
Check that all component leads are cut short. Brush the solder side with a hard tooth brush to remove any remaining solder bits.

Make a full visual check. Any missing component on the board?

When everything looks correct, proceed with the other board assembly.

MP566-II Assembly guide – Switch PCB

25. Resistors



Add all the resistors of the Switch PCB (blue identifier in the parts list).



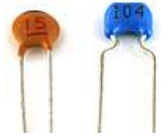
MP566-II Assembly guide – Switch PCB



26. Diodes

Add the two zener diodes D4 & D5. They have a glass body and are larger than other glass-bodied signal diodes.

Add D7, D8, D9, D10, D11, D12.



27. Ceramic capacitors

Add C19, C20, C31, C32, C33, C34.



28. IC Socket

Insert and solder the 8-pin and 14-pin sockets.

Warning : Make sure to respect the socket direction, marked by a notch.



29. Film capacitors

Add the film capacitors C13, C14.

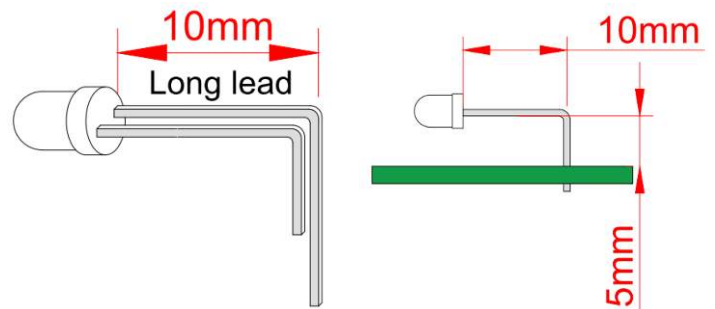
C13 is mounted horizontally.



30. LEDs

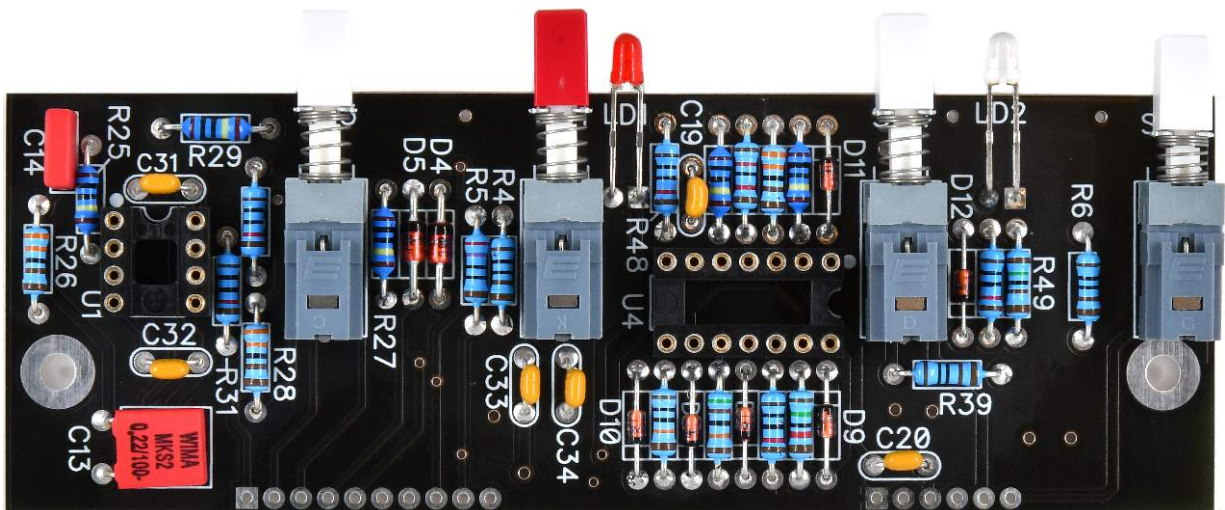
Bend down the leads of LD1 and LD2 at 10mm from the body, with the long lead at the back.

Insert the LED's in their respective position (LD1: red, LD2: clear) and solder the leads at 5mm from the PCB.



31. Push switches

Add SW1 to SW4.





MP566-II Assembly guide – Switch PCB



32. Connectors J1b & J2b

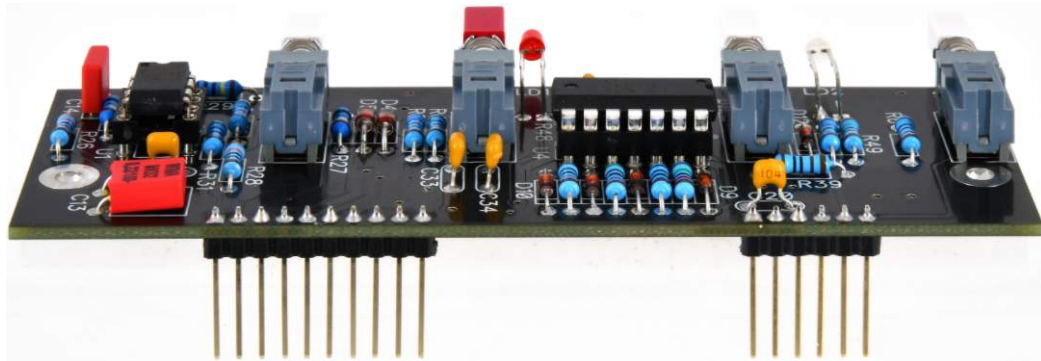
Add the connectors J1b and J2b **AT THE BACK** of the PCB.



33. Integrated circuits

Insert the two integrated circuits U1 and U4 into their sockets.

Warning : The IC's have a direction identified by a notch or a dot.



MP566-II Assembly guide – Final assembly

34. PCB assembly

Secure the main PCB to the chassis plate with two 16mm standoffs at the front and two 25mm standoffs plus 2mm thick washers at the rear.

Insert the headers of the Switch PCB into the matching sockets and secure it with two 9mm standoffs.



35. Front panel

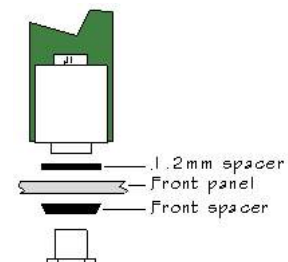
Attach two 3D nuts to the front panel with two M3x6mm countersunk black screws.



36. Front panel assembly

Place the 1.2mm plastic spacer on the jack socket and insert the front panel on the potentiometers, switches and LED's and secure it with the potentiometer nuts. Tighten very gently, being careful not to scratch the panel. Attach the jack nose.

Secure the front panel to the chassis plate with the two hex, flat head screws.





MP566-II Assembly guide – Final assembly

37. Knobs

Attach the 3 knobs.

38. Cover

Attach the cover with 4 M3x6mm countersunk screws.

39. Congratulations

You're done!

