

2.3.1 Assembly of the Diodes

The first components to be soldered on the PCB are the small signal diodes 1N4148. There are 27 of these diodes in the kit. 26 of them go onto the Steckerbrett part of the PCB. The remaining one, D29, is located just above the PIC micro controller. Carefully bend the legs of the diode so that it fits the holes in the PCB nicely. The black band on the diode is the Cathode, which should go into the square pad (i.e. pointing to the right). Insert the 26 diodes on the Steckerbrett. Take the piece of foam (or the soft dry sponge) and put this on the diodes. Gently press the sponge and turn the PCB upside down. You may now solder the legs, without the diodes falling off the PCB. Once this is done, place the remaining diode D29 and solder it.

Now take the two 1N4004 diodes (black with a white band). D1 and D28 are both located at the top left. Once these are soldered, all diodes are done. Don't forget to cut the legs.

2.3.2 Assembly of the Resistors

Only two different resistor values are used: 2k2 and 100k. First mount the 7 resistors of 100k (brown-black-yellow). R3 is in the top right, close to the PIC microcontroller. R6, R8, R11 and R14 are in the centre of the board, just above the keyboard. R10 and R13 are at the top left of the board, just above the ENIGMA logo. Insert the resistors, then solder and cut the legs.

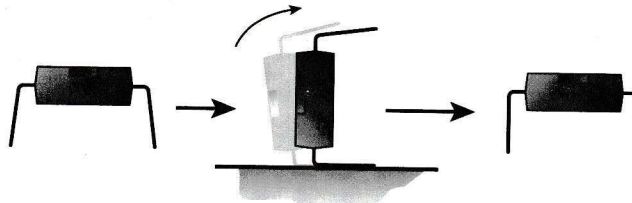
All other resistors are 2k2 (red-red-red). These resistors are scattered all over the PCB, so check their references carefully to ensure that you make no mistakes. Insert and solder them, then cut the legs.

This completes the assembly of the resistors.

2.3.3 Assembly of the ICs

Remove all ICs from the tube. Four of these ICs are marked HEF4021 and the remaining eight are marked HEF4094. Please bend all legs of these ICs inwards a little bit. The best way to do this is to hold the IC against the surface of the table and press it gently until the legs are at a 90 degree angle. Once you've done this, you'll notice that the ICs fit the PCB much easier. You don't need to cut the legs after soldering.

Please be careful when bending the legs as they easily penetrate your fingers!



Note:

Please be careful not to swap the HEF4021 and HEF4094. Once they are soldered in place, they cannot be removed easily.

The four HEF4021s are all located on the Steckerbrett. They are marked on the PCB as IC10, IC11, IC12 and IC13. Please check the notch on the IC: it should point to the bottom of the PCB. You may cross-check this, by ensuring that pin 1 (next to the notch) is in the square pad. Insert the ICs and solder them.

Four of the eight HEF4094s are also located on the Steckerbrett. These are IC5, IC6, IC7 and IC8. Again, the notch should point downwards. Two HEF4094s are located to the right of the displays (IC1 and IC2). Please note that in this case, the notches should point upwards. IC3 is located to the right of the lamp panel (notch up) and the last one, IC4, goes to the left of the keyboard (notch down).