



2.3.17 Assembly of the LED Displays

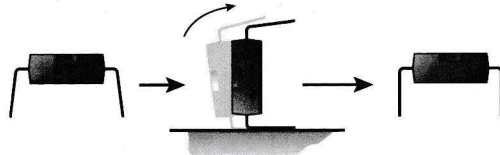
Remove the 4 LED Displays from the black foam and insert them into the PCB. Ensure the correct orientation: the dot in the display (the decimal point) should be at the bottom right. Also check that all pins are inserted properly and are visible from the other side before soldering. Solder the pins, but be careful not to overheat the display as this might reduce the brilliance of its LEDs. Don't cut the legs!

2.3.18 Assembly of the 220µF Capacitor

There is one large electrolytic capacitors of 220µF in the kit (C14). It is used in the on-board power supply circuitry. You may mount it at either side of the board. As this capacitor is rather high, it may get in the way when building the Enigma-E into a case. So it might be a good idea to mount it at the back side of the PCB. The important thing is to ensure that the longest leg (the + lead) goes into the hole with the square pad. Solder it and cut the legs.

2.3.19 Fitting the Micro Controller

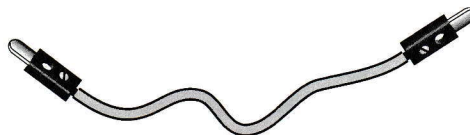
Take the PIC16F873 from the black foam and place it in the IC socket (IC14) mounted earlier. If it doesn't fit, you may need to bend the two rows of pins a little bit closer together. Like with the other ICs, this is best done on the surface of the table (mind your fingers). Please be careful not to bend one or more legs when inserting the IC. Note that the notch should face 'upwards' just like it is printed on the PCB.



2.4 Creating the patch cables

Now that the PCB has been completed, we need to create the patch cables for the Steckerbrett. As there are 26 letters in the alphabet, a maximum of 13 cables can be used. Enough cables and plugs are provided in the building kit, to create all 13 cables. However, it has been mathematically proven, that the maximum number of permutations is obtained when using 11 patch cables.

Use the 3.5 m single wire and cut 13 equal pieces of 20 cm each (approx. 8 inch). The remainder of this wire will be used later. Strip each wire at both ends for about 4 mm. Next, mount two plugs (Steckers) to each of the cable ends. Please note that you need a small screwdriver for this.



2.5 Separating the PCBs

As it will have become clear by now, the Enigma-E PCB consists of two parts: the main PCB and the Steckerbrett PCB. It's up to you to decide how you want to use your kit: either as one contiguous PCB or as two separate boards. Which ever way you use it, you'll always have to establish the connections between the two boards as described in paragraph 2.6 and 2.7.

On a genuine Enigma machine the Steckerbrett is fitted to the front of the machine, so you might want to separate the Steckerbrett of your Enigma-E from the main PCB. The PCB has already been prepared for this and if you look closely, you'll see a **V-cut** line on both sides of the PCB. Place the PCB at the edge of a table and align the V-cut line with the table edge. Now hold the main PCB with one hand and break-off the Steckerbrett PCB with the other.

Refer to to the drawing on the next page.