needed. First of all visually check the components against the parts list. The values of the resistors and capacitors can be checked, the resistors can be measured and the markings checked on the capacitors. Do not forget that the marking 470 on some capacitors does not mean 470pF, but 47pF. It is important that you pay special attention to this initial measurement of components and visual inspection, including printed circuits. After first construction guide was published [3] I agreed, out of curiosity, to complete several almost finished kits. Although these receivers seemed to be assembled, they did not work. In all the cases I found that this was caused either by mistakes, negligence or bad soldering of components. After minor repairs all of the receivers worked perfectly.

After visual inspection of the printed circuit board (PCB) fit the four pillars in the corners, they will simplify the insertion of components (Fig 7). Start by fitting the 9 SMD capacitors and one SMD resistor using a small quantity of 1mm diameter SnPbCu solder. Next insert and solder the remaining resistors, capacitors, semiconductors and the connectors for the loudspeaker and power supply starting with small components and continue with larger ones. Sockets are used for the integrated circuits IC3 and IC4. Before soldering the two quartz crystals, X1 and X2, fit a 0.5mm paper pad and removed it after soldering. Similarly the 5 TOKO coils with metal covers should be fitted into PCB with small space of about 0.5 mm., this prevents the case shorting to other tracks on the PCB. The tank circuit of the discriminator, L6, also has a metal cover and should be fitted approximately 0.5mm above the PCB. If L6 does not contain a capacitor, fit C19. Finally fit the switch SW1 and JP3 and connectors LINESB and LINEREP. If you use your own printed circuit board and it does not have plated through holes, do not forget to solder the top and bottom of components leads and fit fed through wires where required. Fit the pre wound coils L1 to L5 for the input band-pass filter, these are high quality coils made by Japanese manufacturer TOKO.

If you manufacture the coils yourself, you must wind 2.75 turns of 0.215mm enamelled copper wire on 5mm formers. Solder the wire ends to the metal pins on the bottom of the former and cover the coil with a droplet of beeswax. Turns on all the coils must go in the same direction (e.g. clockwise). Insert the coils to the PCB and check orientation before soldering. Put a metal cover over the former approximately 0.5 mm above the printed circuit board. Finally fit ferrite cores made of N01 (150MHz) into the formers.

The following components will be fitted during set-up using rf measuring equipment: capacitors C11, C12, ceramic filters F1 and F2, integrated circuits IC1 (microprocessor AT89C2051 with the program RX137DIP4X) and IC4 (PLL SAA1057). If you do not have rf measuring equipment, insert all the components in accordance with the component layout.

Fit the components onto the front panel (Fig 10) including the support plate for the LCD display and its fixings to the receivers main PCB. First fit the buttons TL1 and TL2 to the panel from the front and the 100k trimming resistor, for setting of display contrast, to the panel from the back. If you use a back lit LCD display, you must also fit the 120Ω limiting resistor. The panel will be fastened to the receivers PCB by soldering at the bottom corners, at places without a protecting layer of solder mask. This is strengthened by installation of two the potentiometers P1 and P2, and the angular connector. After checking that the panel is perpendicular to the receivers PCB you can solder all terminals of potentiometers and angular connector. Insert the 16 pin connector into the top part of the panel from the front and solder it from the back. Finally insert the LCD display form the front and solder its