

Then assemble the components located between RLY4 and RLY1, starting at the top edge of the board and working downwards as far as TR3/4 and the 1n capacitors. All earth connections are made to the top of the PCB foil, keeping leads as short as possible. Transistors should sit with their undersides about 4-5mm above the PCB surface — note that the emitter of TR1 is soldered to the top foil.

The orientation of resistors mounted vertically must be observed with the body in the position shown to avoid signal radiation from the leads. Also watch out for correct polarity of the diodes and tantalum capacitors.

The remainder of the components can now be inserted, working round the board, orientating them in the positions shown. Pin 1 of the SBL1 is at the end of the package which has the letter "M" of the "MCL..." legend stamped on top.

When winding the five ferrite block transformers, one turn is taken as a wire passed through one hole and back out the other — therefore one winding will have its wires at one end of the core, and the other winding at the opposite end. The tapped windings are probably easier made by using two lengths of wire twisted together, with the join as the tap. The space within the cores for the windings is fairly tight so take care when winding, keeping the winding neat and tight. The eight turn winding requires two lengths of wire approximately 15cm long, the four turn winding length around 15cm and the two turn length 9cm.

The 5 turn ferrite bead chokes use 10cm of wire for winding.

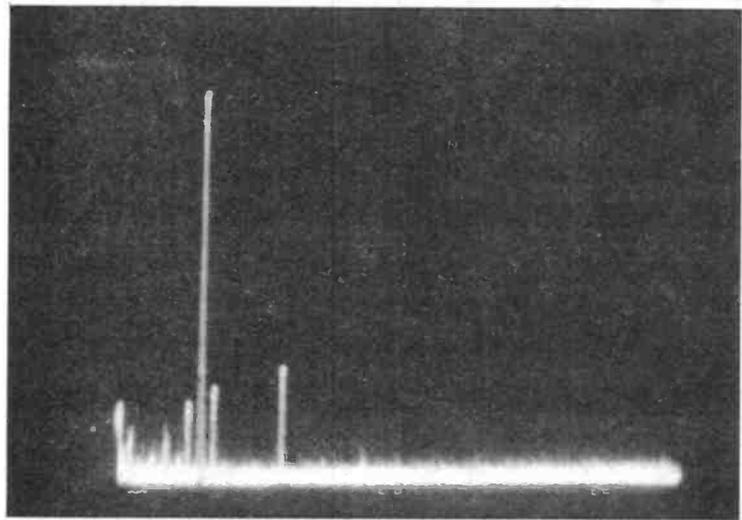
Both TR5 and TR6 have one lead earthed to the top foil, and in the case of TR5, the same lead is also soldered on the underside of the board. TR7/8/9 should each be mounted so that the underside of the case is no more than 3mm above the PCB, to help stability. Each requires a heatsink, and some slight bending of the heatsink vanes may be required to avoid the screen and block toroids, depending on the types of heatsink used.

L1/L2 should be made next, following the detailed drawings. The cores are held in place about 3mm above the PCB using epoxy resin adhesive, with a separation between the cores of 5mm. The 10 turn windings need 18cm of 30 swg wire each, and the 2 turn, 5cm.

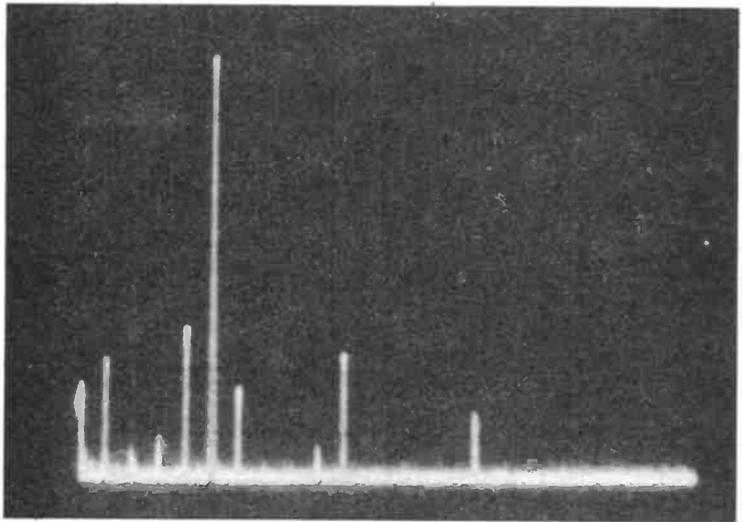
The last item to be fitted is a tinplate, or double sided PCB, screen, 15mm high, to isolate the input and output signals from each other. Don't forget to solder the coax link between the points marked A and A, on the underside, using miniature coaxial cable, the braid earthed at both ends.

### Oscillator/Low pass filter board

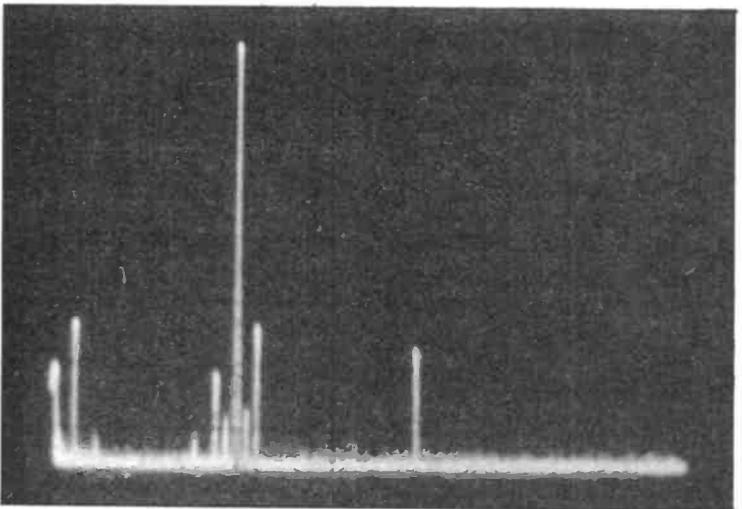
This PCB is fairly simple to assemble. After inserting the connection pins, carry on



14.2MHz: worst spurious — 48dB wrt fundamental.



21.2MHz: worst spurious — 44dB wrt fundamental



28.2MHz: worst spurious — 44dB wrt fundamental

Spectrum analyser photos showing spurious outputs on each band at nominal rated output power. Vertical deflection 10dB/div; horizontal deflection 10MHz/div.