Down To Earth

'Easi Build' 80m Transceiver

Part 3, by Bruce Edwards, G3WCE *

IN THE FIRST part an overall description was given. In Part 2, the VFO was covered. Now we look at the receiver.

THE RECEIVER

REFERRING TO **Fig 4** and the detail in **Fig 5**, the bandpass filter comprises T1, T2, C10, C11 and C12. The transformers are from Toko, which make circuits such as this easily reproducible.

Next comes the mixer. The NE612 is a useful device, containing an oscillator as well as a mixer. I decided not to make use of the oscillator in this case. The NE612 operates from an 8V supply provided by IC2, a 78L08.

As mentioned previously, the output contains many signals, audio and RF. RF ones are unwanted and are removed by RFC2 and C17. The higher audio frequencies are progressively attenuated by R9 and C18, which form a low pass filter. This gives 3dB attenuation at 1.3kHz and 6dB per octave thereafter.

TR4 is the audio pre-amplifier. A BC109 was chosen rather than a BC108, because it gives more gain, which is required here. The audio output stage is an LM380N. As shown in **Fig 6**, it is mounted upside down, or 'dead bug' style. Unlike the previous stages, it is supplied with 13 volts on transmit as well as receive, as it is needed to amplify the sidetone signal to loudspeaker level. ♦

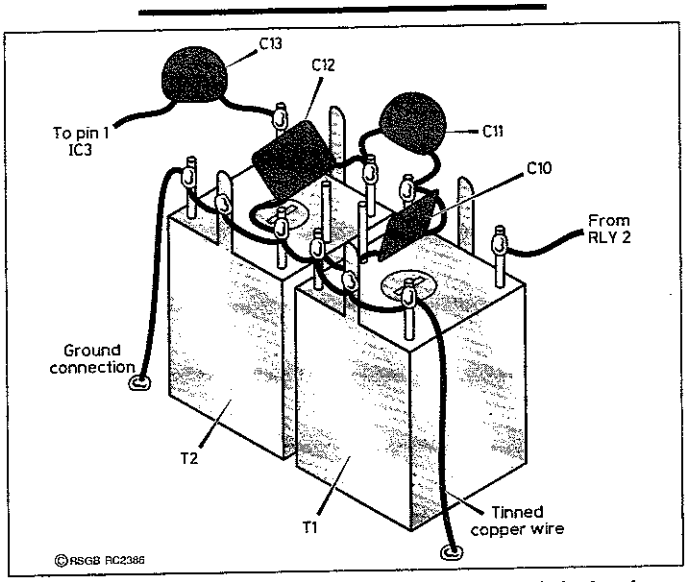

Fig 5: T1 and T2 are mounted upside down on the earth plane and wired as shown.

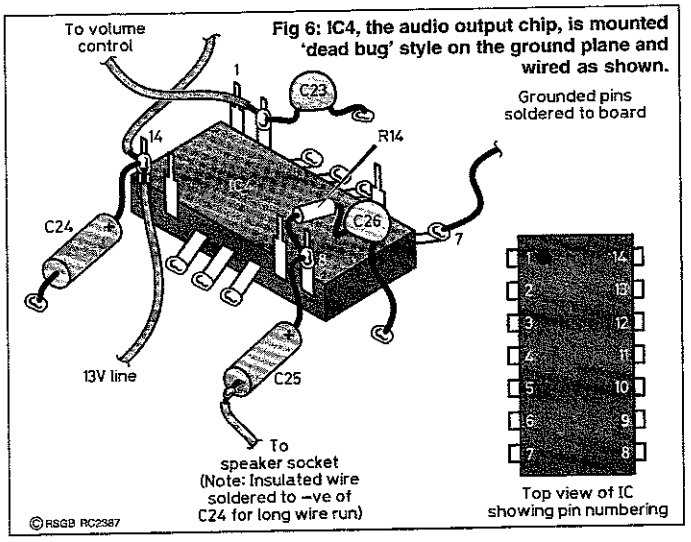

Fig 6: IC4, the audio output chip, is mounted 'dead bug' style on the ground plane and wired as shown.

COMPONENTS

Resistors (all 0.6W metal film unless specified otherwise)

R9	5k6
R10	120k
R11	33k
R12	3k3
R13	1k
R14	1R2
RV1	22k log. pot.

Capacitors

C10, 12	47pF ceramic plate
C11	4.7pF ceramic plate
C13	100pF ceramic plate
C14	10nF ceramic disc
C15	22pF polystyrene
C16	1µF 16V electrolytic
C17	10nF ceramic disc
C18	22nF ceramic disc
C19	10µF 16V electrolytic
C20, 21	10nF ceramic disc
C22	1µF 16V electrolytic
C23	1nF ceramic disc
C24	47µF 16V electrolytic
C25	100µF 16V electrolytic
C26	100nF ceramic disc

Inductors

RFC2	1mH
T1, 2	Toko KANK3333R

Semiconductors

TR4	BC109
IC2	78L08
IC3	NE612
IC4	LM380N

To be continued...

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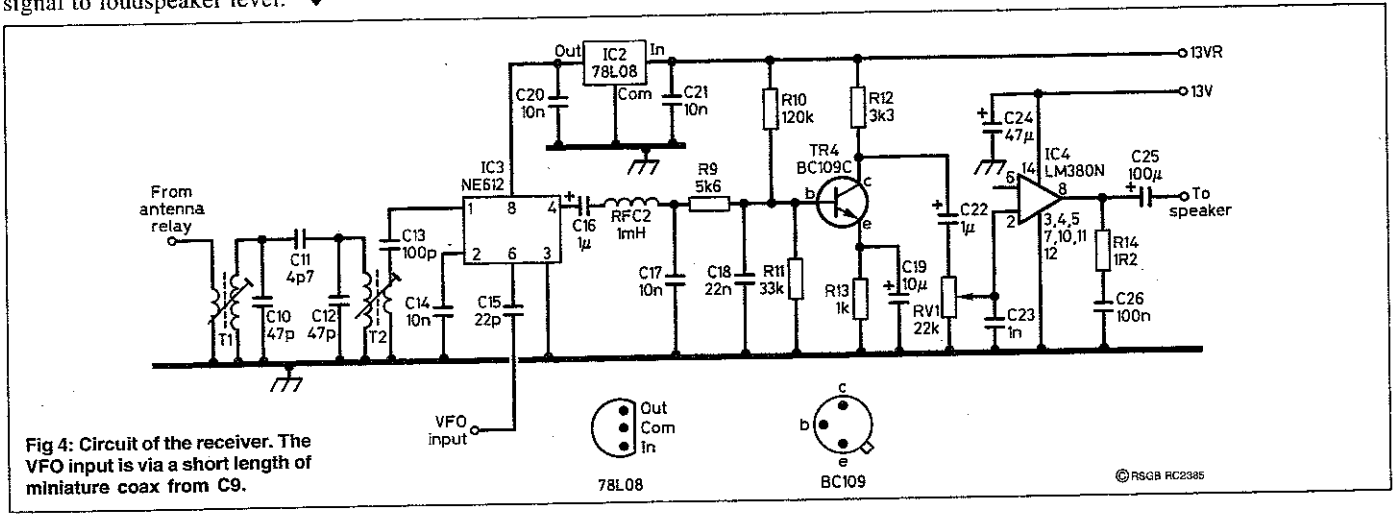

Fig 4: Circuit of the receiver. The VFO input is via a short length of miniature coax from C9.