Follow-up to PW 'STOUR' TOP-BAND TRANSCEIVER

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The *PW* Stour Top Band transceiver, featured in the May to November 1981 issues has proved to be a popular project. This short follow-up article has been written to complement the original design details and provides further useful information.

Component Substitutions

The list of components shown in Table 1 represent substitutions made by the author following difficulties experienced in obtaining the original specified components.

If the alternative BB105 Varicap diode is used in the r.i.t. circuit, resistors 10R14/15 should be changed to 1kΩ. The BB105 produces less frequency shift than the original component, even with the modified resistor values, but the 1kHz available has been found to be adequate.

Microphone Gain Control

The original microphone amplifier board (7) contained a 1MΩ potentiometer 7R1 to pre-set the microphone gain. This arrangement works perfectly satisfactorily for s.s.b., however the author wished to use a.m., or more correctly described, inserted carrier. This had been accomplished by replacing the pre-set with a front panel mounted control. Setting-up for a.m. operation then involves reducing the microphone gain, whilst the KEY line is grounded via a suitable shorting link. Adjust the microphone gain until the needle on the p.a. meter is just moving about 1mm on speech peaks.

Table 1

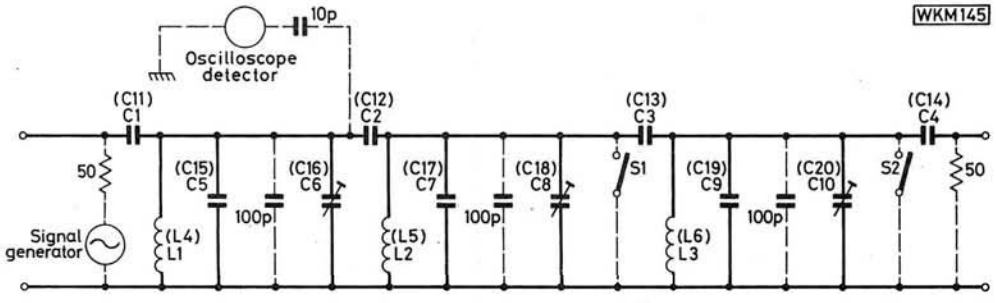
Original Specification	Substitute
HP2800	1N4148
HP3080	BY206
BB121	BB105
2N4427 } 2N3866 }	BFY50, BFY51, 2N3053
2N2222	BC107, BC108, BC109 metal can versions

Filter Alignment

An alternative method of aligning the filter boards was adopted, based on the technique described in the *Solid State Design Handbook* and requires the use of a signal generator and oscilloscope.

The first step is to fit the additional components shown in Fig. 1, switches S1 and S2 consisting of pieces of wire soldered to the p.c.b. and initially closed.

Decide which part of the band you require to peak on; at the lower end for c.w., upper for phone or 1·9MHz for both. The signal generator is first tuned across the range and the oscilloscope detector observed for a peak indication, which should be quite distinct.



Note:- Additional components shown dotted

Fig. 1: Test set-up for alignment of Filter boards F1 and F2. All additional components, with the exception of the three 100pF and single 10pF capacitors, are removed after alignment

Filter Boards

Unfortunately an error crept into the component list specification for the inductive elements of the two band-pass filters F1 and F2.

The original toroid reference (Neosid 28-522-31) should have been 17-101-13. Constructors who purchased these items from Neosid Small Orders can receive f.o.c. replacements, providing the original invoice number and date is quoted. Winding details comprise 40 turns of 22 s.w.g. enamelled copper wire tightly wound and an extra 100pF silvered mica capacitor should be added to each resonant section of the filter network as shown in Fig. 1.

Next set the signal generator to the required operating frequency and adjust trimmer capacitor C6 (16) to bring the section to resonance, peaking at this frequency.

Open switch S1, maintaining the signal generator and oscilloscope in their previous positions and frequency and then adjust C8 (18) to produce a dip on the oscilloscope.

Finally open S2 and adjust C10 (20) for peak output, once again with the positions and frequency of the signal generator and oscilloscope maintained.

Having completed the alignment remove all the additional components used for setting-up, with the exception of the 10pF capacitor that fed the oscilloscope detector. This should be soldered to ground on the p.c.b. ●