

OTHER PROJECT OMEGA NOTES

OMEGA CIFPU Unit

It appears we were a bit remiss in not publishing full drilling details of the diecast box! These are now given here, with a few additions that will save work later. All of the connections given originally are used plus additions as follows.

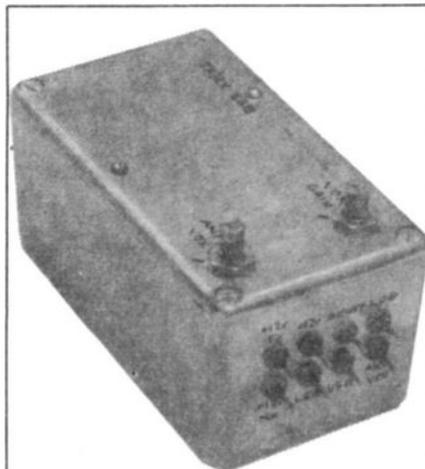
- a) An additional RF output connector is added in parallel with the VFO input – this provides VFO output for the FM and AM units. If preferred, this connector can be mounted on the VCO box near the existing output.
- b) An additional phono socket is provided. Unfortunately we forgot to provide any access to the audio circuits for the FM and AM modes and this makes amends. A screened lead should be connected between this new socket, and the top end of the AF gain control potentiometer.
- c) There are three feedthroughs marked +12V. In the original prototypes, each of the +12V connections on the CIFPU PCB had its own feedthrough, then all three were linked round the outside of the box. This was mainly to provide access to each of these points should this be required later, but this does not look necessary now. It also provides better isolation between the supply rails. We suggest you use these two extra connectors if you can, but it is not vitally important should you already have the box drilled.
- d) There is a spare feedthrough for possible future use.

Tx/Rx Switching

Since the mods were made to increase the RF drive, it appears we have some leakage of carrier through Q10. In practice, when running CW break-in operation, this has no effect due to the rapid switch between the point at which the oscillator comes in, and point L going low, which take about one millisecond or so. There will be no output from the PA until the bias is applied after this delay, nor will there be any effect on actual sidetone operation. It does mean that some of the tests described do not function properly on the CIFPU and QRP PA units, and allowance should be made for this. We will try to devise a mod to overcome this that does not involve removing the CIFPU PCB from its box.

CW Tx Crystal Oscillator

The original text gives incorrect instructions for setting up this



TX/RX SSB adaptor unit

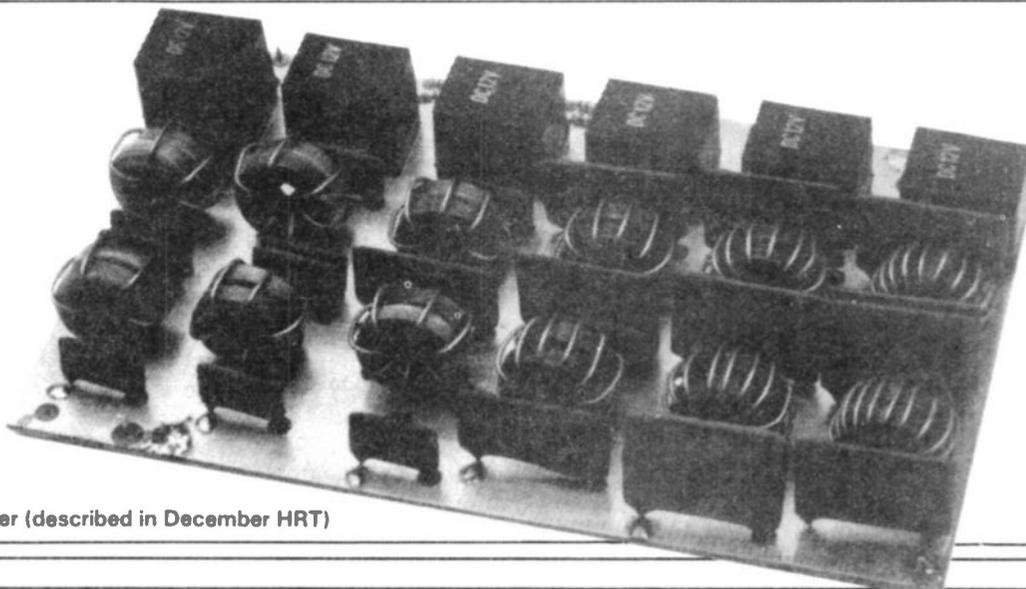
oscillator on the CIFPU unit. The CIO oscillator should be set to USB for CW use (10.7015MHz), and the Tx oscillator to 10.7008MHz – this gives an 800Hz beat note. It is important that the Tx oscillator is not on the other side of the filter as you won't then get any replies (easily got right by adjusting VC2 from minimum capacity until the beat note peaks in the Active filter in one of the CW positions). Tuning for an 800Hz beat note on receive will then ensure you are netted correctly.

It is possible to have a 'spot' (or 'net') control on OMEGA by inserting a switch in the QRP PA bias line, so that when the switch is active, the transceiver can be put into Tx mode without radiating a carrier. The sidetone can then be used to accurately net. Provision for this will be made on the case.

Sensitivity

At the time of writing, many OMEGA receivers are now running and many people have commented that 40 metres has at last turned into an amateur band (i.e. you can actually hear signals without the crud). However, there appears to be a lack of sensitivity on many at the upper end of the HF spectrum. This varies around 0.2 - 0.4uV minimum usable signal which is rather less than optimum. This is more than likely due to a combination of component tolerances in the CIFPU, and losses in the various filters and switches.

To overcome this without impairing the dynamic range of the CIFPU unit on the lower bands, a simple high performance wideband preamplifier will be published shortly. This will be



Lowpass filter (described in December HRT)