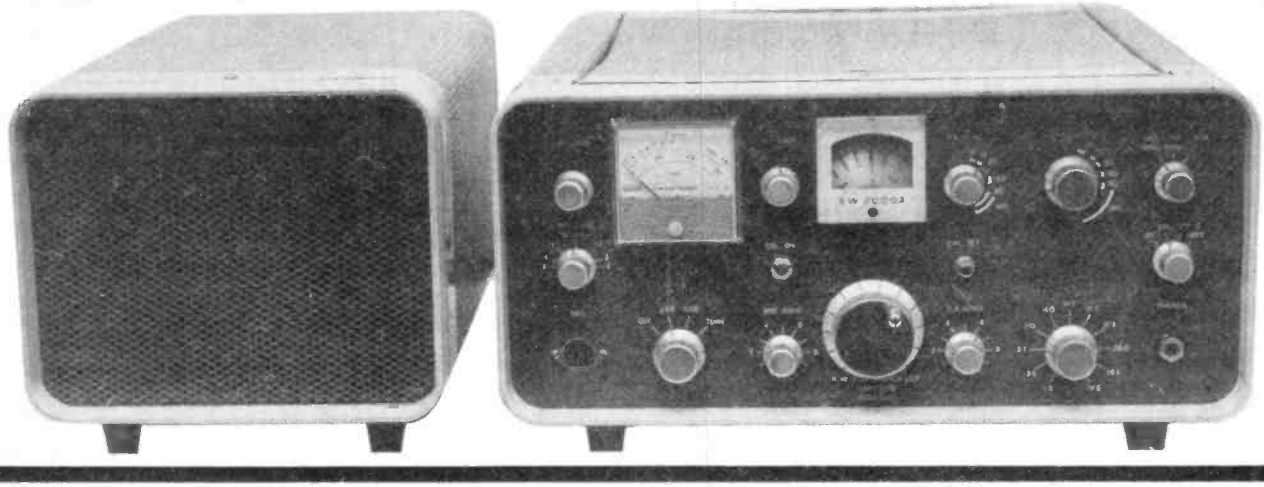
Upgrading the KW2000 series of HF transceivers



Part 4

Modifications

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If you have followed the procedure given in previous articles your *KW2000* should now be working reasonably well. You may well now feel that it is worth while making some improvements to the rig, and adding some features that it does not possess in its standard form. A possible list of 'things that would be nice to do' might be as follows:

1. Stop the VFO drifting with changing mains voltage, due to the heater voltage of the VFO changing.
2. Improve the receive sensitivity on the 21 and 28MHz bands, which is not as good as more modern designs.
3. Improve the selectivity on CW, since the passband, which is designed for SSB, is uncomfortably wide for CW, particularly under contest or crowded band conditions.
4. Improve the note on CW transmit. The *KW2000* has a very distinctive sound on CW that is less than perfect to the CW purist.
5. There are no facilities for any of the WARC bands, and on 21 and 28MHz the whole of the band is not covered.
6. Cross-modulation performance is poor, particularly on 7MHz.
7. It would be useful to be able to vary the transmit power on SSB and CW properly, i.e. by some other means than using the MIC GAIN control.

The methods by which the writers have improved the above features are described below. However, there are many alternative ways of tackling all of them, and the way in which any individual tackles them will, of course, depend on his personal preference, and the contents of his junk box!

VFO drift

Whilst most sections of the *KW2000* are comparatively insensitive to supply voltage variations, the VFO V11 and HF crystal oscillator V10 tend to change in frequency as their heater voltage, and hence cathode temperature, is varied. Because of this their heaters are not connected to the main 12V heater system of the transceiver, but are brought out to a separate pin, pin 12, on the multiway connector, and the mobile PSU was designed to provide a stabilised 6.3V supply for this so that the frequency did not vary with engine speed. However, the manufacturers did not consider such a refinement necessary for base station operation and, as can be seen from **Fig. 101**, the supply to pin 12 is simply derived from the main 13V heater supply via a dropping resistor R9. This means that variations in mains voltage can cause variations in frequency, which can be annoying especially if using the rig with a narrow CW filter as described later.

It is comparatively easy to modify the power supply to provide the necessary stabilised 6.3V supply for V10 and V11, and one way of doing this is shown in **Fig. 102.** This has the additional advantage of providing an unstabilised +18V supply which can be used to derive stabilised supply voltages for various bits of additional circuitry, such as the preamplifier associated with the CW filter described later. It can be seen from **Fig. 101** that the LT supply is derived from a 13V 5A winding on