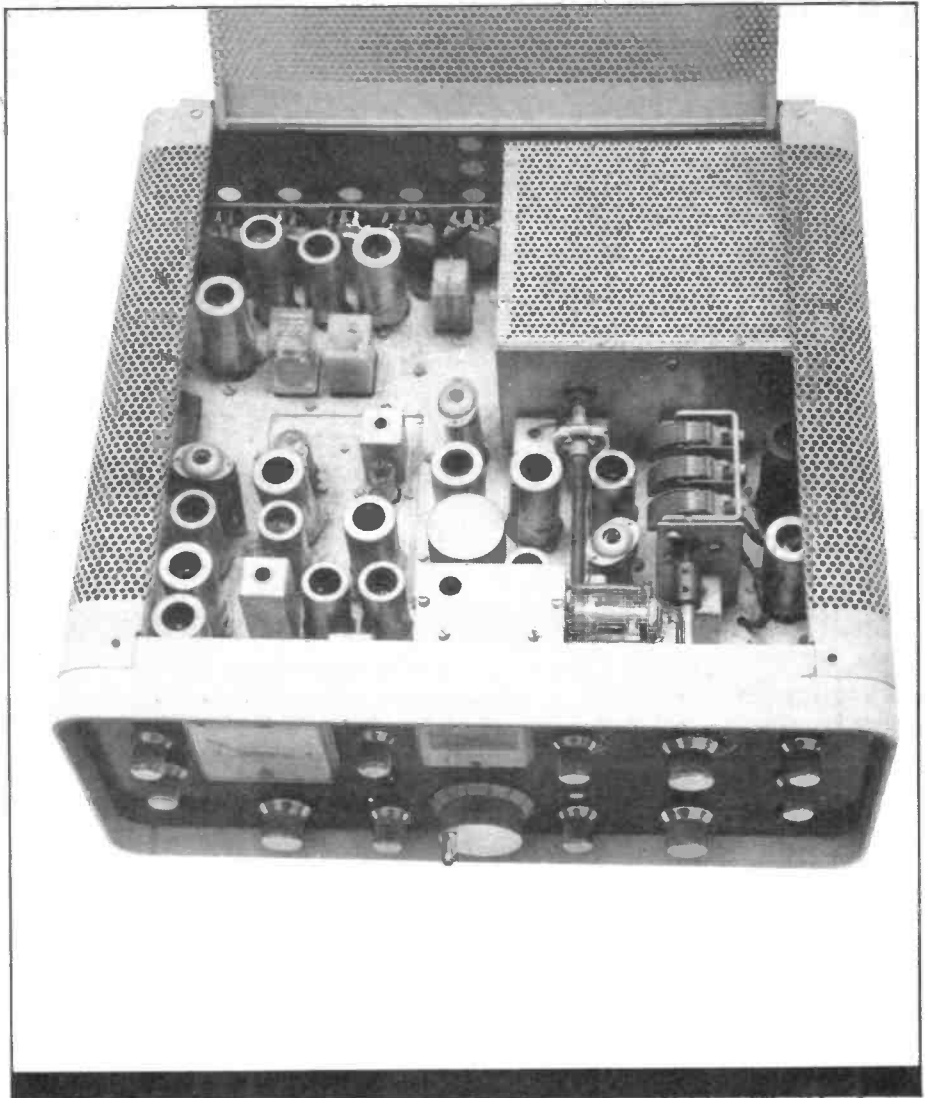


IF stages V12 and V13 and the RF stage V6. The RF gain control also acts via the AGC line, a fixed negative voltage being applied to the AGC line from the RF gain control RV75 via the other half of V14. The S meter is operated from the AGC line via V18 (12AT7). This, incidentally, is arranged to give a true logarithmic characteristic, which means that the 'S' calibrations and dB markings are accurate unlike many modern so-called 'S meters' which simply measure the AGC voltage on a linear scale. The meter is switched by a relay to read PA cathode current on transmit.

For CW operation an audio oscillator V15A ( $\frac{1}{2}$  12AX7) is keyed, its output being coupled at low level to the modulation gain control RV9. The audio tone is also fed to the receiver AF gain control RV95 to produce side tone. The tone oscillator is also used for tuning up; when the function switch is put into the TUNE position the rig is switched to transmit, the tone oscillator is switched on and the PA is put into Class C and its screen voltage is reduced.

The VOX circuit employs two valves, VIB ( $\frac{1}{2}$  12AX7) and V21 (12AT7). VIB is fed with audio from the anode of the VIA (which point, incidentally, is also connected to the top end of the mod gain control, and hence receives the signal from the tone oscillator V15A). VIB further amplifies the audio before applying it to the VOX gain control RV111 which feeds a further amplifier V21A. The output of V12A is rectified and used to turn on V12B whose anode lead contains the VOX relay RL4. The signal from the anode of the receiver output stage V17B is rectified in the opposite sense and used to provide anti-trip, the level being controlled by RV112. One pair of contacts of RL4 operate the main send/receive relays RL1 and RL2, and the other set of contacts are brought out to pins on the accessory socket to control external equipment such as linears.

The one valve which has not so far been mentioned, V22 (EF91) is a 100 kHz crystal calibrator, activated by a push button on the front panel. A small knob allows the cursor on the VFO tuning dial



to be moved by about  $\pm 10$  kHz to correct calibration errors.

The power supply unit provides two HF voltages, 245 volts which is used by most of the stages and 750 volts for the PA anode (the screen is fed from the 245 volt rail). In addition, two negative bias supplies are provided, one variable between 50 and 65 volts, which provides the operating bias for the PA, and the other fixed at 65 volts, which is used to switch off whichever stages are not being used in either transmit or receive modes, and also to provide the RF gain control voltage. In addition, the power supply produces -12 volts DC for the relays, 12.6 volts AC for most of the heaters, and a separate 6.3 volt supply for the heaters of the V10 and V11.

### Variations on the basic theme.

The KW2000 was quickly followed by the KW2000A, which used two 6146s in the PA thus increasing the

100 watts, and also possessed an ALC system, which derives its control voltage from the spurious audio which appears at the PA grid when that stage is driven into grid current. The ALC voltage is applied to the grid of the transmit IF amplifier V3, controlling its gain. The next model to appear was the KW2000B whose main improvement was a better slow motion drive for the VFO. The last, and least successful, member of this family was the KW2000E, which increased the VFO tuning range to 500kHz, but at the expense of stability. The C and D suffixes were used for models produced for professional use, eg ship to shore communication.

*\*The next article in this series will deal with common faults, and tell the reader how to return a newly acquired KW2000 to full working order, which should be done before any modifications are attempted.*