

Fig. 4 : COIL DATA

Fig. 4. Coil data for the G4AVT LF-Band Vertical Ae.

tuner whereby the whole resonance area can be shifted higher in frequency—10,000 to 500 pF can be experimented with and mica capacitors used.

Choice of site has interesting possibilities. Not always is the highest point the best. Soft moist ground seems more important and this can sometimes be found in a hollow on the side of a hill rather than at its top. Riverside and lakeside hillocks, cliff tops overlooking the sea and rising ground from marsh or bog are among the better locations.

MAGAZINE CLUB CONTEST—MCC

This popular event, the 28th in the series, no less, is an inter-Club CW Contest, played off on Top Band, the dates this year being November 3-4, 1700-2100z each evening. Non-Club operators, meaning single-station entrants on just for the fun of it, are invited to take part because under the Rules—given in full on p.497 of the October issue of SHORT WAVE MAGAZINE—they can give Clubs they work a point and also score for their county, towards a possible multiplier. The going is fast-and-furious, and generally MCC exhibits a high standard of CW operating. There are no prizes—but if in the opinion of the judges a sufficient number of single-operator stations turn in logs covering just Clubs worked, with the usual details, we would be glad to show a separate table for them. Logs sent in under this category should make it clear that the entry is non-Club, with QSO's timed to the minute, and of course giving call and QTH. Address to: "MCC Single Entry," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.

DISCUSSING THE KW-2000E

IMPROVED ALL-BAND CW/SSB TRANSCEIVER

THIS article discusses the latest of the *K.W. Electronics, Ltd.* line of transceivers, the KW-2000E. Basically, they are all very much of a family, starting from the original KW-2000 running 90 watts to a 6146, developed to the 2000A which ran 180 watts p.e.p. to a pair of 6146's, and then on the 2000B which was similar in many respects to the 2000A but had undergone an external face-lift and minor improvements, notably to the dial-and-drive, and the front panel layout, not to mention boxing-in the rear of the AC PSU.

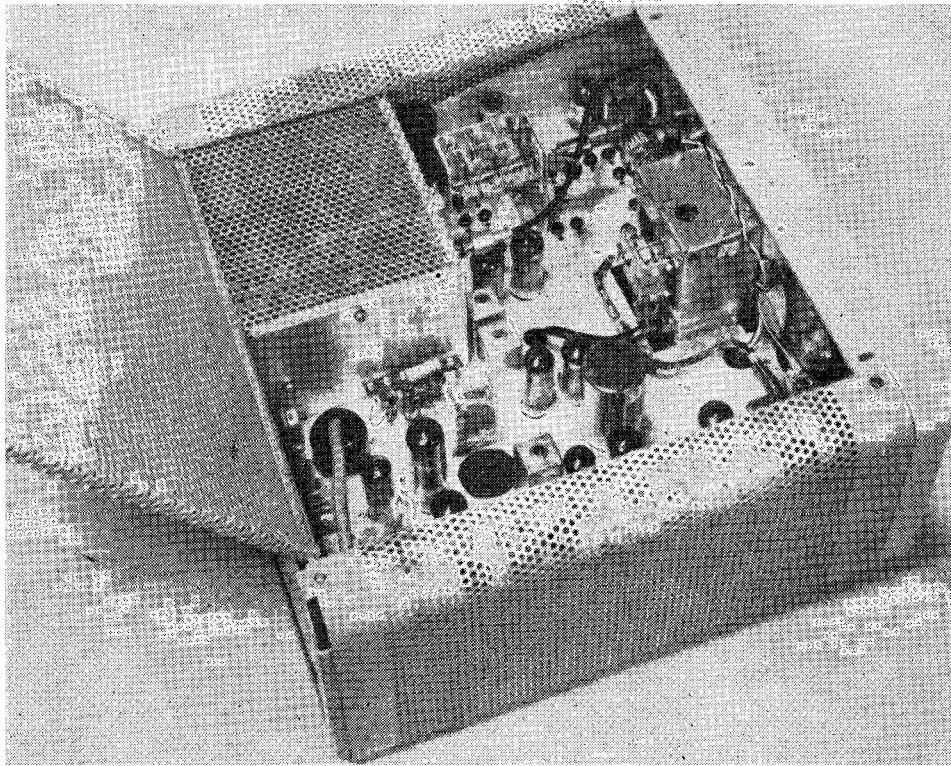
Now we come to the KW-2000E, which is superficially very much like the 2000B, but has several electrical changes which make minor alterations. For example, there is now a separate position of the "Function" switch for CW transmission; the band switch has a lever on the knob for easier operation; the VFO dial is altered to take account of the increase in the VFO swing from 200 kHz per segment of the bandswitch to 500 kHz; the bandswitch has fewer segments and now gives full coverage of all bands 1-8-30 MHz; and a very important one is that provision is now made, by switching to 14 MHz and the send-receive-Vox switch, to a new WWV position, enabling one to tune in the 15 MHz WWV signal and so to check one's wavemeter against a standard frequency signal.

So much for the obvious surface changes. A less obvious one is that the "Pre-selector" control no longer has little white stripes to say where each band lies, but a simple white arc marked "HF" and "LF" at the ends. Another is the provision of a separate socket for a jack-plug on the rear drop of the chassis, so that the key can be plugged in at will, rather than having to wire it to the octal socket. This in fact is an overt sign of a far less obvious change—the KW-110 Q-Multiplier accessory can be plugged into the octal socket with no wiring changes, to give far improved CW reception.

The PSU Side

The KW-2000E and the 2000A series power supplies will not intermarry—the connectors are of similar type but differently polarised to prevent the wrong PSU being used with a KW-2000E transceiver. The reason is simply that several changes have been made to improve the 2000E PSU—like, for example, the stabilising of the VFO heater supply by the use of an integrated-circuit stabiliser, instead of a simple zener diode arrangement, as on the 2000B equipment.

Perhaps the most noticeable change from the later KW-2000B series transceivers is that the socket for an outboard VFO is blanked-off, this accessory being no longer available for the 2000E model. The chassis proper of the transceiver also carries a blanking-plug as the location of the various relays has been changed to take into account the new Vox arrangements, which are now on a printed circuit board mounted at the rear of the chassis for easy access and adjustment.



Upper chassis view of the KW-2000E.

Operation

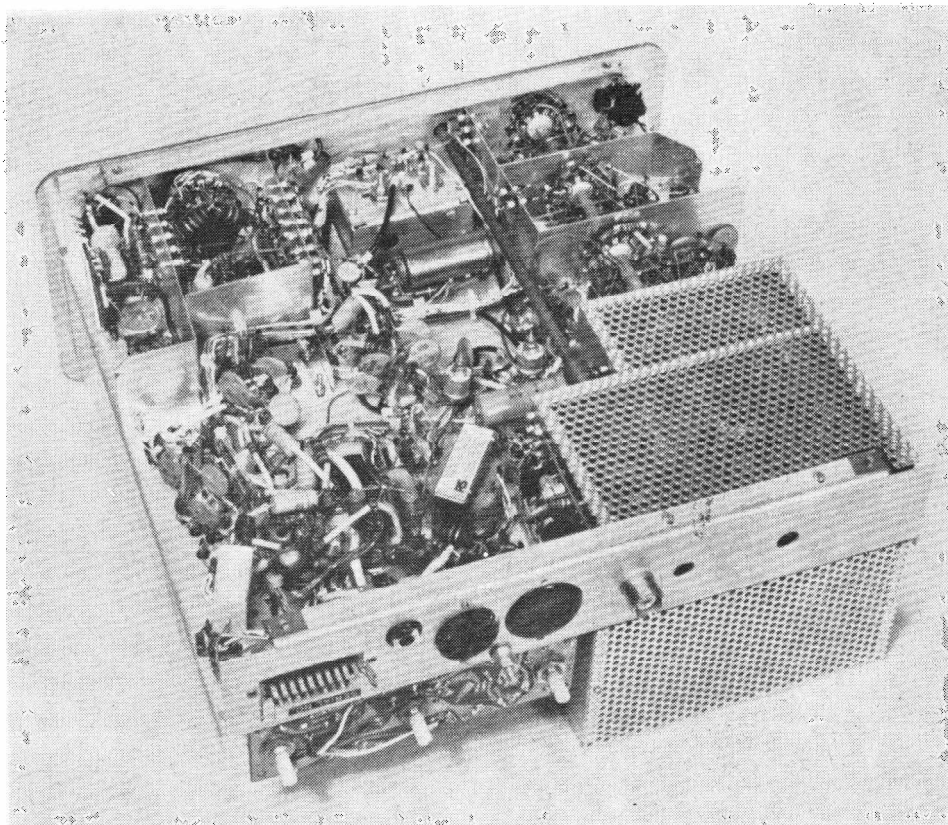
There can hardly be a U.K. amateur on the HF bands who has not at some time or another either owned, operated or worked a KW-2000 rig or one of its variants.

Perhaps the first thing to mention as regards the KW-2000E is the additional facility of the Q-Multiplier and the CW position on the function switch, which can be used with Vox, making CW operation far more of a pleasure than before. This writer's 2000B has a minimum Vox delay too long for comfortable CW operation on break-in, as it would hold in between letters or words, and only drop out when a very definite pause was made to listen to the channel. The '2000E tested had a much more agreeable setting, the change-over between every word being at a reasonable keying speed, to give all but full break-in CW facilities.

On SSB, the transmitter behaved just as all the '2000-series have led us to expect—good clean audio, at full output a peak power of at least 100 watts on all bands but Ten (about 98 watts there) assuming one retains the standard 6146 valves in the PA—one can get a shade more by going to 6146B's but the gain is not worth the expense in this reviewer's opinion. Stability is very good indeed—several times while the rig was in the

shack SSB nets were called in on with the rig at stone cold. On only one occasion did anyone other than the writer notice any drift during the net period of up to an hour—and in that one case the trouble was at least partly due to the rig being netted on to the wrong station in the net, the guy who was himself drifting!

On the "receive" side, the RF stage seemed to be more free from cross-modulation troubles on Forty, always the band on which to make a practical test of a receiver when compared with the KW-2000B on the same aerial. With the Q-Multiplier connected and switched in to give a peak at a low beat note—the DX'ers way of winking them out of the QRM—the receiver was tuned to the LF end of Forty and a spell of concentrated logging undertaken on a random evening around 2130 clock-time. A QSO with VK3MR was copied complete, followed by a JA and a South American, all around the S3 mark and deliberately chosen as being mighty close to a big EU signal. Switching the Q-Multiplier out resulted in the DX just disappearing from mortal ken under the QRM; switching it back again resulted in them resurfacing and being quite reasonably readable, always provided one had the RF gain control backed off as far as possible to prevent a big EU from



*Layout and construction under-chassis,
KW-2000E.*

putting enough of his whiskers through the filters to make the AGC bite, or to prevent cross-modulation.

Summarising, one can say that this rig is a good one for a CW operator who likes a bit of SSB, as well as the chap who is 99% SSB and only goes on the key when all else fails!

Like most SSB rigs operated on CW, one must at all times be careful not to inject too much "oomph" into the PA, lest that end distorts, to produce the familiar noise that ever distinguishes an over-enthusiastic brother trying to scratch the last ounce out of the rig. This is a matter for self-control—in fact the signal on CW is clean up to a full 150 watts input/100 watts output, which should be enough to raise anything, given the operator is fairly savvy himself and has patience.

General Performance Notes

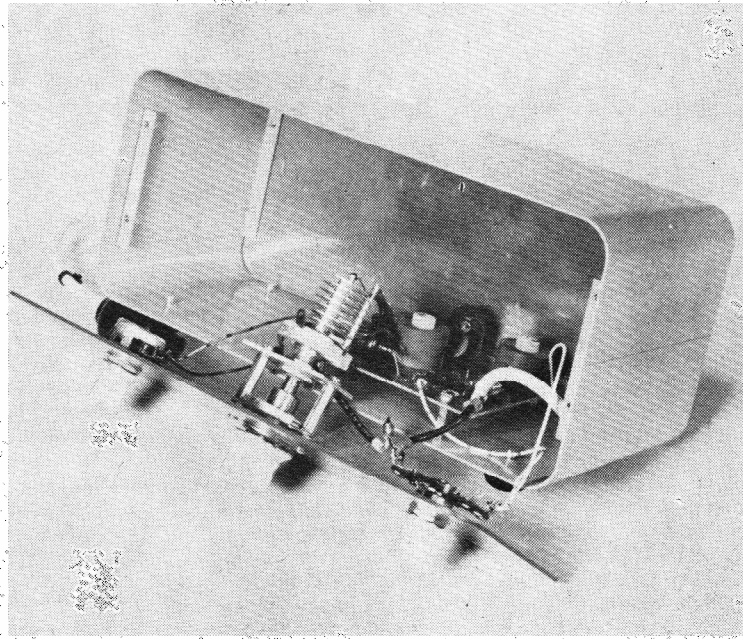
Having discussed the rig in general terms, one must think of it in more detailed ways. First, measurements confirmed that the receiver performance is indeed up on that of the old '2000B as far as cross-modulation is concerned. Warm-up drift is about the same as on the earlier models, but the '2000E tested is definitely less affected by mains-voltage variations than earlier models,

no doubt due to the improved VFO heater-voltage stabilisation. For all practical purposes the rig has settled down within fifteen minutes of switch-on, both on "send" and "receive" conditions.

We have already mentioned the Q-Multiplier as an adjunct to CW operation; it was also found to have some application when an SSB signal was being dragged out of the QRM, albeit under SSB conditions it needs to be used with care lest the wanted signal have too much shaved off it along with the crud! Nonetheless, this writer likes the Q-Multiplier accessory for all-around use with the KW-2000E.

When transmitting with the earlier 2000-series rigs fitted with the ALC board, one got the impression that if one "overdid" the mic. gain control, the intelligibility of the outgoing signal suffered owing to too-sharp ALC action. This did not appear to happen with the '2000E, and deliberate winding-up of the AF gain did not result in complaints from stations being worked of loss of quality in the speech or splatter. However, one would like to see provision for the meter to indicate, in addition to PA current, ALC operation on "transmit," and perhaps also peak indication when tuning-up, as on the Japanese rigs.

Exploded view of the
Q-Multiplier for use with
the KW-2000E.



Conclusions

There can be no doubt that the transceiver gains much of its popularity from the need for XYL-approval of its appearance. This rig amply meets this requirement, and at the same time provides a good SSB or CW signal on any part of any of the bands 1.8 to 30 MHz. The WWV provision enables one to check the accuracy of one's inbuilt 100 kHz calibrator, which should make the rig self-contained as far as GPO

requirements go, and the CW and SSB signals are as good as one could desire on all bands of operation. Receiver sensitivity is such that any signal heard should be resolvable on a clear channel, while the addition of the Q-Multiplier gives CW and SSB reception far above the average transceiver. As to whether your reviewer liked it, let it just be said it was only his XYL who stopped him trading-in his 2000B—on the grounds that when she gets her G8 call she wants a Liner-2 rig on VHF!

E.P.E.



The KW-2000E with PSU and Q-Multiplier