LOOKING AT THE K.W. ATLANTA

NOTES ON AN HF-BAND TRANSCEIVER

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THOUGH home-built gear is usually run at G3OGR, one corner has been retained for commercial equipment. The need for this arose when making sure that there was always *something* in an air-worthy condition. With home-made apparatus, there often seemed to be something new to try—some new circuit, or modification which would for lesser or greater periods cause a receiver, a transmitter, a PSU or whatever to be temporarily out of use.

This inclination to try something new or different could usually be resisted with commercial equipment. Therefore, a station consisting of the latter could be left in working order—and in fact over the years QSO's have probably been made about equally with home-built and commercially manufactured gear.

Around 1960/61 a K.W. Victor kit was purchased, and made up into the "commercially manufactured" standby. (Though the Victor could be purchased ready-made, as this one was not, perhaps the correct definition would be that of classifying it as a commercially designed item.) This transmitter with a CR-100 remained as the "always air-worthy" section of the station side by side with the home-made section where 6BW6's, 807's, 6146's, 254M's, a solitary 813, TZ40's and other valves came and went, screen grid modulated, anode modulated, carrier controlled, and who knows what else, together with home-made receivers with or without Q-multipliers, bandspread, varieties of product detectors, and other endless variations.

As the K.W. Victor gave excellent results with no trouble at all right up to a belated decision that the commercial always air-worthy gear should be SSB, it is not surprising that the decision was to invest in another piece of K.W. equipment.

This, then, is how the K.W. "Atlanta" came to occupy the position of the old Victor, and has so remained ever since—a matter of only a little over two years (which is actually a brief period, compared with the years the Victor was kept).

What the Atlanta Is

As it would be impracticable to discuss every detail, this must of necessity be brief. The "Atlanta" is a 500-watt p.e.p. transceiver (125w. AM or 350w. CW rating) with two 6LQ6's in the PA, with matching speaker and power supply. There is 3·5-29·7 MHz coverage of the amateur bands, a crystal calibrator, automatic linearity control, grid block keying, optional sideband selection, and the other features usually associated with modern transceivers.

Panel controls are for band selection, grid and PA tuning, RF and AF gain, VFO tuning, coarse and fine loading, carrier balance, microphone gain, sideband selection, tune-up and CW, calibrator and VFO calibration adjustment, as well as the usual combined S-meter/PA meter. The back panel drop has provision for an external VFO, PA bias adjustment, aerial and external relay.

Receiving, main circuit functions are met by a 12BZ6 RF amplifier, 12BE6 mixer, 6EW6 and 12BA6 IF stages, 6BN8 audio and AGC amplifier, 12AX7 amplifier and 6GK6 output stage. The crystal calibrator takes a 12BA6 and there is an OA2 voltage regulator. When transmitting, apart from stages which do double service in the usual way, there are mixer, 6GK6 driver, and 2/6LQ6 PA stages, with a 7360 beam-deflection balanced modulator. The VFO is transistor, and the carrier oscillator a 12BA6.

All this is cased in the modern day manner, dimensions being about 10½in. wide, 5½in. high and 13½in. deep, the power supply with speaker being 5½in. wide, and of similar height and depth. Each of the two units weighs about 18 lbs. (*See* picture opposite).

Receiving

On first trying the equipment in the "receive" mode, the lack of spurious responses was most noticeable. Earlier, a well-known transceiver had been in use, having a 5·2 MHz IF, and with this (incidentally, in correct working order and adjustment) 80m. signals could read S8 on the 20m. band. As an example, when tuned to 14·1 MHz, with the IF at 5·2 MHz and the VFO working LF of the signal frequency, the VFO was on 8·9 MHz—thus, a 3·7 MHz signal mixing with the 8·9 MHz from the VFO also produced 5·2 MHz. As a result, 80m. signals could be tuned in across the 20m. band. This effect was particularly bad with multi-band aerial systems. It arises, of course, from the choice of VFO and IF frequencies, combined with insufficient pre-mixer selectivity to eliminate the 2nd channel response.

This irritating effect was entirely absent in the K.W. "Atlanta"—20m. signals did not have to be sought amid noises from 80m., and it was not necessary to use only a 20m. dipole for this band, as had been needed earlier.

It terms of sensitivity, selectivity, ease of tuning generally, and calibration at 100 kHz points (checked by the crystal) no fault at all could be found. Sensitivity and selectivity were as good as claimed by *K.W. Electronics, Ltd.* and there was a general feeling that anything which could be heard on any band was receivable with this equipment.

Transmitting

The Atlanta has a "Tune" position for the CW switch, which allows tuning the PA at reduced power (SG voltage is reduced). This is mentioned first because an earlier transceiver had no such provision, and initial tune-up was with the PA valves able to draw full power—in fact, if adjustments were not getting nearly right within about 10 seconds, the anodes grew visibly red, and it was necessary to switch off for a short time, then continue. This, perhaps, is not too important when using a dipole which will be correctly adjusted to give a suitable load. But when using an aerial of multi-band type, with a tuner, adjustments of PA tuning, loading, and

tuner controls do take a little time.

So the benefit of the lower-power tune position of the switch was felt to be really worth while. With a tuner and multi-band aerial system, it allows for leisurely adjustment of the tuner, to obtain best reading on an SWR meter between transceiver and tuner, apart from saving the PA valves.

When the equipment was tuned up in the manner described in the quite detailed manual, signal reports are of good voice quality. If a scope is brought out, output looks correct on this.

A complete station, for one band, thus need be nothing more than the transceiver with its power supply, a push-to-talk mike, and a dipole plugged directly in. For other bands, the aerial system naturally has to be changed to suit. It might consist of a multi-band trap dipole, or one of the various well-known multi-band end, or centre-fed, arrangements, with its matching or tuning unit. As would be expected, a transceiver like the K.W. "Atlanta" is *not* suitable for direct operation into an end-fed half-wave, or some such untunable Ae. system.

Given a normal aerial, normal conditions, and normal operating ability such a transceiver can give contact with all continents in practically a single sitting—where the user goes from there is purely a matter of inclination and time available.

Conclusions

Since having the "Atlanta" (over two years) some limitation, awkwardness, or other feeling regarding its working and operation, which might inspire a desire to change it for something else, has simply never arisen. There it sits, to do its job as called upon. This was the situation with the old K.W. Victor, which gave unfailing satisfaction for a number of years, and was dispensed with eventually only because there is not space enough to keep everything! It is expected that the K.W. "Atlanta" will go on in the same way. In any case, if anything does go wrong, the factory from which it came is no farther across the world than Kent—and one knows that *K.W. Electronics, Ltd.* give a first-class service on their equipment.

MARCONI ATC RADAR OVERSEAS

Marconi Radar Systems Ltd. have gained a £750,000 contract to provide Subang Airport, Kuala Lumpur, Malaysia, with a highly advanced air traffic control capability well suited to cater for the rising volume of air traffic in that part of the world.

The 50-centimetre radar station, the most powerful ever built for civil use, is to be sited 20 miles from Subang Airport on top of a 6,000ft. mountain to give full coverage of the whole of Malaysian airspace. Equipment includes a massive aerial, over 67ft. wide and 13ft. high, which will produce a beamwidth of only 1·7°, giving excellent definition. The transmitter/receiver unit provides a peak output power of 500 kW, and the display system at Subang will use the latest fully-transistorised 16in. fixed coil display, able to accept either raw radar or to plot extracted synthetic radar information. A fully transistorised dual-channel signal processing system will further improve clarity of the radar picture, and ensure more effective coverage under all conditions.