THE VMARS EQUIPMENT DIRECTORY – PART 2

I am pleased to be able to offer you a mix of amateur and military equipment this month. Let's have some more please!

Richard Hankins, G7RVI

Heathkit "HW" Series (by Roger Spear, G4BXM)

Type: SSB Transceiver

Frequency range: HW12A: 3.8 - 4MHz; HW22A: 7.2 - 7.3MHz; HW32A: 14.2 – 14.35MHz (a bit of 20!).

Operating modes: USB, LSB

Tx output: 200 W PEP into 50Ω unbalanced fixed.

Sideband generation: Crystal lattice band pass filter.(2.3 MHz).

Mic input: Hi-Z.

Rx sensitivity: 1µV for 15db(S+N)/N ratio.

Stability: 200 Hz per hour

Audio output:.1 watt into 8Ω

Power requirements: +800V @ 250 mA, +250V @ 100mA, -130V @ 5mA, +12V @ 3.75A.

Tube compliment: 14 tube heterodyne circuit using:

3x 6EA8	mic amp, vox amp, IF amp, RF amp, Rx mix.		
1x 12AT7	Xtal osc/prod det		
5x 6AU6	VFO, vox, IF amps, Tx mix		
1x 6EB8	Audio amp and output.		
1x 6BE6	VFO isolator	2x 6GE5	RF output
1x 12BY7	Driver		

Notes: An interesting series of mono band "economy" SSB Transceiver Kits from Heathkit. Not as sturdy as the DX100/40 etc. or even the SB204 series of SSB separates, they must really be regarded as "toys", not exactly suitable for serious operating although they might have been OK for mobile as they were intended. I have not seen many examples survive through the years, although my HW32A (illustrated) is in mint condition, having been stored away in a box since it was built but un-tested in 67/8.

The KW VESPA Sideband Transmitter (by Roger Spear, G4BXM)

Freq Range: All amateur bands (Not WARC), 10 - 160 metres.

Modes: SSB, AM, CW.

Power Out: (Mk.1) SSB: 90W PEP, CW: 75W, AM: 45W. (Mk.2) SSB: 220W PEP, CW: 150W, AM: 60W

Power requirements: (Mk.1) 12V @ 2.5A, 700V @ 120mA, 203V @ 150mA, -90V @ 20mA. –50V @ 20mA.

(Mk.2) 12V @ 2.8A, 800V @ 250mA, 230V @ 150mA, -90V @ 10mA, -75V @ 10mA.

Mic Input: High Impedance, 3-pin socket for pressel switch.

Valve compliment: (Mk.1) 6146 PA, (Mk.2) 6HF5 PA;

6CH6	driver
12AT7	2nd mixer
12AT7	1st Tx mixer
12AT7	Xtal osc
EF183	Tx IFamp
2xOA79	Balanced Mod
ECF82	VFO
12AX7	Mic Amp
12AT7	Cathode Follower

Circuitry: The Vespa is a double mixing type in which the SSB signal at 455kHz is first mixed with a 2.5-2.7Mc/s signal from the VFO and then with the output of a crystal controlled oscillator to produce the correct carrier frequency. Only 200 kc/s of each band are covered and some sections of the 15m and 10m bands are missing.

Filter: 455kHz Kokusai Mechanical (almost certain to be defunct now)

Carrier supression: 50dB

Sideband suppression: 45dB

Variants: Mk.1 and Mk.2 as detailed above.

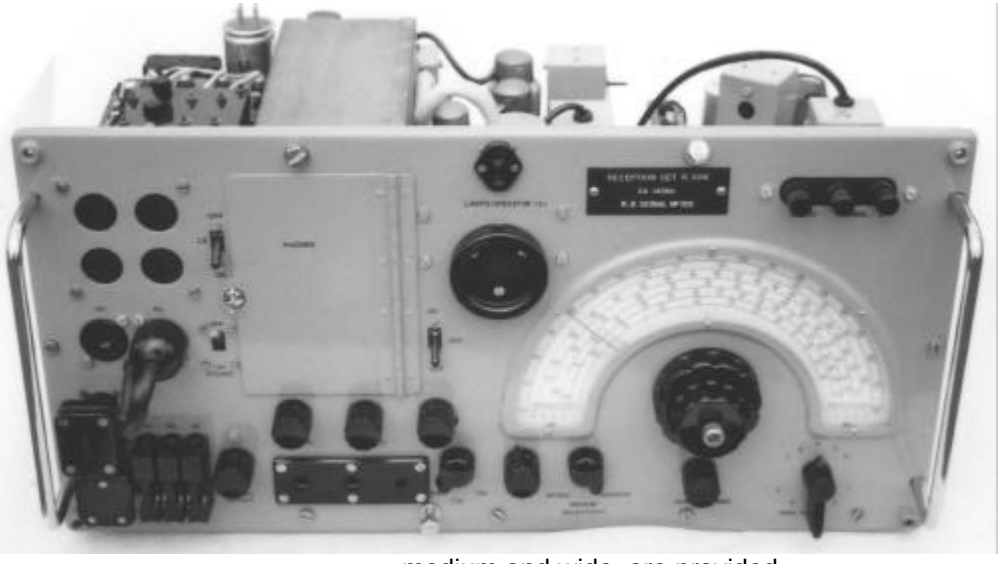
Controls: VFO Driver Tune, Wavechange, OFF-USB-LSB-TUNE, Mic Gain, Send-Recv-Net, PA load, PA tune, Mic Soc. Key Jack.

Notes: The Vespa was made by KW Electronics, Dartford in 1966, and was soon superseded in popularity by the KW2000 transceiver series. The KW2000 employed the same transmit circuit as the Vespa and remains the main piece of KW equipment in common use today. The Vespa, in contrast was not a very popular transmitter mainly due to the power supply that came in a cardboard "box". It was the subject of many bad reviews at the time, despite the KW 'blurb' referring to it as a "lightweight safety cover" and suggesting keeping it under the operating bench, although the lead was too short. I prefer this little rig to the later 202/204 models, the cord drive tuning adding a vintage feel and the paddle type T/R switch is amusing in use.

Reception Set R 308 (by Jim Cookson, G4XWD)

The R308 VHF communications receiver has a family resemblance to the R 107, R 206 and R109 receivers and the WS53 transmitter. It shares a similar case to the R 107 and is just as heavy at 112 lbs.

It will operate from AC mains of 100 to 250 volts or from its own built in 12 volt vibrator PSU. A panel mounted octal plug is used to change over supplies.



Frequency coverage is 20Mc/s to 145 Mc/s in 5 bands clearly calibrated in Mc/s, with a beautifully smooth two speed dial drive, and operating modes of FM, CW and AM.

A double conversion superhet design with a 1st IF of 9.72 Mc/s and second of 2.1Mc/s is used. Incidentally there is a monster foreign station on 9.72 these days which can cause IF breakthrough. I realigned mine on to the universal 10.7Mc/s IF, assuming that there must be an international convention to keep that frequency clear.

14 valves, mostly octal, are used but with EF54s in the front end and a VR92 diode first mixer. The aerial input circuit with its trimmer is designed for dipole operation and has screw terminals on the front panel.

Three selectivity positions, 20kc/s, 60kc/s and 140kc/s, all at –6dB and labelled narrow, medium and wide, are provided.

Sensitivity is listed as 2 – 5 microvolts on FM, and 3 microvolts on AM, which, compared to the results mine gives seems ambitious. I would compare its performance to that of the Hallicrafters S27.

It is a very handsome set and pleasant to use, with built in speaker and headphone storage behind a small door in the front panel.

Der Festungsnotsender (by Walter Farrar, G3ESP)

Having worked for three and a half years almost exclusively on signals equipment of the WW2 German Army, I was asked by the Editor if I would write an occasional article. To this end I will concentrate on the less well known items, and this one is not only unusual, but positively weird!

The above title translates as **Fortress Emergency Transmitter.** Built into a standard field telephone case, made of reinforced bakelite, it measured approx. 280 x 210 x 100 mm. The telephone magneto supplied power and was fitted with a somewhat larger crank-handle than a telephone.

The transmitter consisted of a single directly heated triode valve, wired as an RF oscillator. The rough alternating voltage from the magneto was fed to a transformer, to give anode and filament voltages for the valve. No rectifier or smoothing were used: the anode and filament received the rough alternating voltages, which alone would have produced an extremely rough carrier.

Now comes the really clever bit! The butterfly tuning capacitor spindle was connected through gearing to the armature spindle of the magneto. Therefore, as the handle was turned, the capacitor swung rapidly between maximum and minimum, swinging the carrier accordingly. A press-button served as a keyer, and the signal emitted could be heard on any receiver within range, whatever frequency it was tuned to!

Not recommended for use on the VMARS net!

(I regret that I have no photo of this, as it was received too late for inclusion in "Signal Communication Equipment used by Enemy Nations")

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