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Despite the above, we will be making copies of essential technical information (circuit diagram, parts list, layout) freely available to all via our website from late 2004 onwards. This will be done to try and encourage and enable the maintenance of our remaining stock of vintage electronic equipment.

Guidance on using this electronic document

Acrobat Reader version

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This document is of fairly simple format in that it can be made to print out using an A4 format printer (this is the common paper size available in UK and Europe, which measures 29.7cm by 21.0cm). By "simple" I mean that there are no large diagrams on fold out sheets, which will require multiple A4 pages to print out at full size.

Original document sizes do vary a lot – from the small manuals, which approximate to A5 size (21.0 x 14.8 cm) up to the now obsolete foolscap size (21.6 x 33.0 cm). US documents tend to use their "letter" size paper (21.6 x 27.9 cm). All these sizes can be printed on A4 paper by simply getting Acrobat to shrink or enlarge the pages as necessary. This is done as follows:

1. Select "File – Print" or click on the printer icon. This will bring up the print dialog box.
2. Select the correct printer if necessary.
3. Select the pages you want to print – even if you want to print all of the document, you will probably not want to print this notice and help page, so start the printing at page 3.
4. In the "Page Handling" area, next to "Page Scaling", select "Fit to paper". The press "OK"

Printing the document on an US Letter format printer

Since A4 and US Letter sizes are similar, it is expected that this document should print satisfactorily on the latter format paper. This has not been tested however, and is not guaranteed. Follow the steps as for A4 printing, and make doubly sure that "Fit to paper" is selected (step 4).

Any other problems?

Please get in touch with me at archivist@vmarsmanuals.co.uk.

Richard Hankins, VMARS Archivist, Summer 2004

RECEPTION SET, EDDYSTONE, 730/4 (Z4/ZA 51252)

TECHNICAL HANDBOOK - UNIT REPAIRS

This EMER must be read in conjunction with Tels E 742 Part 1 and 2 which contains figures and tables to which reference is made. Tels E 744 deals with repairs.

PREPARING THE SET FOR OPERATION

Power requirements

1. The receiver can be operated from the following a.c. or d.c. supplies.

A.C.: 110-250V input, at 40-60c/s, giving 80W.
D.C.: 6-6.3V, 5A. 250V, 120mA. (Minimum h.t. voltage 180V). (Decreased sensitivity can be expected at this figure).

A.C. mains operation

2. Check the supply voltage and adjust the tapping on the mains transformer to the correct value as indicated on the transformer plate. Check that the shorting socket SKTA is in position on plug PLE (external h.t. and l.t.) at the rear of the set. Check that the following pins of the socket are connected in pairs, 1-4, 2-5, 7-10 and 8-11, (pins are numbered internally). Connect the mains input socket to plug PLD (mains input). Check that the correct fuses, 750mA Magnickel type, are inserted in the fuseholders (located between the two valves above the mains input).

Battery operation

3. Remove the shorting socket SKTA from plug PLE (external h.t. and l.t.). Fit the battery connecting socket SKTB. As the mains ON/OFF switch on the receiver only functions on mains operation, separate switches must be provided externally for each d.c. supply. The negative sides of each supply need not be commoned. Connections are made to the battery socket as follows:-

Pin 7	L.T.+
Pin 8	L.T.-
Pin 12	H.T.+
Pin 9	H.T.-

and the following pins are connected in pairs, 5-8 and 4-7, (pins are numbered internally).

Aerial input connections

4. Connect an aerial of impedance 70-80Ω to either of the sockets provided. These sockets are connected in parallel. PLA or PLB shown in Tels E 742 Part 1 Fig 3.

Output connections

5. For headphone operation, plug a Receivers, headgear, DLR into the phone jack on the front panel.

6. For loudspeaker operation connect a loudspeaker of speech coil impedance 2.5Ω to the terminals at the rear of the set. For line operation connect a 600Ω line to the terminals at the rear of the set.

Tuning

7. Table 1 gives the tuning procedure.

Operation	Control	Action
1	MAINS switch	Switch ON
2	H.T. switch	Switch ON. (Access to this may be obtained by raising the lid of the cabinet)
3	SELECTIVITY switch	Set to 'Narrow' for c.w. 'Broad' for voice
4	Wavechange switch	Set to desired range
5	R.F. GAIN	Set to suitable position to give audible signal in headphones
6	A.F. GAIN	Set to mid-position
7	TUNING control	Tune in signal
8	A.V.C.	ON or OFF as desired
9	Noise limiter	ON or OFF as desired
10	CRYSTAL PHASING	On or CFF as desired
11	B.F.O. adjust	OFF for voice About 12 o'clock for c.w.
12	A.F. FILTER	ON or OFF as desired

Table 1 - Tuning procedure

MAINTENANCE

Special instructions

8. Adjustment of r.f. and i.f. alignment must not be attempted without the appropriate test gear as laid down in Tels E 744 and on no account will the coverplate be removed from the die-cast coil box. Valves should be checked individually so that the original valve can always be replaced in the holder from which it was removed.

9. When resistors or capacitors which do not form part of the tuned circuits need replacement, care must be taken not to disturb the position of the wiring.

10. The following tasks will be carried out periodically or when the set is taken into service.

Mechanical

11. (a) Check that the external condition of the set is satisfactory.

(b) Remove the set from its case and clean the inside either with an airblower or a soft brush. Care must be exercised when using the latter to ensure that the position of the wiring is not altered or the setting of trimmers disturbed.

(c) Check that all knobs are secure and undamaged.

(d) Check that all switches function satisfactorily.

(e) Check the TUNING control for operation by spinning the knob. This should cause considerable movement of the cursor across the scale and cause the vernier dial to rotate.

(f) Check that when the cursor is on the zero position on the bottom logging scale, the vernier dial also reads zero.

(g) Check that the cursor does not catch at any point of its travel.

(h) Check the dial window for damage and that it is secure in its mounting.

(j) Check that on rotation of the wavechange switch the appropriate green indicating lamp is illuminated.

(k) Check that the cursor inching control in the top right-hand corner of the panel functions satisfactorily. Turning this should cause the cursor to move over a limited range independent of the main TUNING control.

Electrical tasks and unit repairs

12. With conditions as in Table 1:-

(a) Plug in Receivers, headgear, DLR and listen for noise.

(b) If no noise is heard, check that:-

(i) Receivers, headgear is undamaged.
(ii) MAINS supply is switched ON.
(iii) Fuses are intact.
(iv) All valves are alight and secure in their holders.

13. (a) If noise is heard, tune for signals on all bands.

(b) If no signal is received, check that:-

(i) The aerial is connected.
(ii) The r.f. valves are alight and secure in their holders.
(iii) H.T. voltages are present.

14. If a signal is received carry out the checks detailed in para 15 to 20.

15. (a) With the B.F.O. control at zero, check that voice signals are received and that rotation of the control produces a change in pitch of the received c.w. signals.

(b) If the B.F.O. control fails to function, change V12 for a known good valve. If the control still fails to function, check that h.t. voltages are present.

16. (a) Check that by putting the noise limiter switch to ON, a reduction of pulse type noise, such as car ignition, static or key clicks, takes place.

(b) If there is no reduction in noise, check that V9 is alight. If not, change V9 and check the circuit for continuity.

17. Check that rotation of the CRYSTAL PHASING control causes a reduction of interfering signals on either side of the wanted signal.

18. With the B.F.O. control in the 12 o'clock position, check that by putting the A.F. FILTER switch to ON causes a reduction in interfering signals.

19. Check that the SELECTIVITY switch gives a change of selectivity in each position.

20. If the 'S' meter fails to read with the selectivity switch in the 'narrow' position, check that V9 is alight. If not, change V9 and check the meter circuit for continuity.

21. When the crystal calibrator switch in the top left-hand corner of the set is pressed and the B.F.O. control is in the 12 o'clock position, check that beat notes are obtained at every 500kc/s when the tuning control is rotated. The calibration can be made to coincide with the dial markings by rotating the cursor adjust control.

22. (a) Check that the neon stabiliser V14 is functioning. A purple glow indicates that it is functioning at an h.t. voltage exceeding 220V. (When working on batteries of less than 220V h.t. this stabiliser is inoperative).

(b) If the purple glow is absent check that the h.t. voltage is greater than 220V. If so, change V14.

23. (a) Check that the dial lights are alight. Level of illumination can be set by a preset control at the rear, left-hand end of the set.

(b) If the lamps fail to light, check that they are tight in their holders and that there is voltage applied to them. Change the lamps if necessary.

24. All voltage checks are taken using an Avometer model 7, and should be as shown in, Fig 2501a and 2501b.

25. If the foregoing checks fail to bring any of the set functions into operation it should be returned to workshops for repair.

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END