

EB 35/II

SERVICE

EB 37.

EDDYSTONE RADIO LIMITED

TEST & INSPECTION SCHEDULE

RECEIVER MODEL EB35 MK. 11/EB37

TS 1129

EDDYSTONE RADIO LIMITED

TEST & INSPECTION SCHEDULE

RECEIVER MODEL EB35/EB37

SECTION 1

Mechanical Inspection

- | | |
|-------|--|
| 1 01 | Check all plated metalwork for scratches, burrs, poor plating etc. |
| 1. 02 | Check all painted metalwork for scratches etc. |
| 1. 03 | Check finger plate and scale for imperfections in printing. |
| 1. 04 | Check label for positive adhesion. |
| 1. 05 | Check <u>all</u> mechanical fixings for security. |
| 1. 06 | Check all control knobs are secure and correctly orientated with panel legend. |
| 1. 07 | Check dial light switch for free operation. |
| 1. 08 | Check tuning gang for correct rotation and ensure that flexible coupler is securely tightened. |
| 1. 09 | Check complete cord drive system for FM Unit. Ensure that drive pulley is secure. (Applies to EB35 only). |
| 1. 10 | Check tuning drive for smooth operation and correct setting of pointer. |
| 1. 11 | Check pointer steady is fitted. |
| 1. 12 | Check screw threads protrude beyond nuts, hank bushes or similar threaded parts by a minimum of 2 clear threads. Maximum length of protrusion shall be controlled by the avoidance of fouling other components, cable forms etc. |
| 1. 13 | No damage shall have occurred to the head of the screw or nut. |
| 1. 14 | Check that there are no burrs or other sharp edges on any fixings that have to be operated by hand. |

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TRANSISTORISED RECEIVER MODEL

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SECTION 2

Electrical Inspection

2. 01 Check all soldered connections. (No long free ends where arcing can occur).
2. 02 Check for accidental heat damage etc. to all wires and looms.
2. 03 Check all looms for correct coding.
2. 04 Check power supply lead for correct polarity of connection.
2. 05 Check all transistors and diodes for correct connection.
2. 06 Check all electrolytic capacitors for correct polarity of connection.
2. 07 Check that the proximity of all possible "Fretting Points" (such as screws, sharp-edged holes or slots, etc.) to the cable loom cannot cause shorting by pressure.

Earthing

2. 08 Where any connection is clearly intended to go to the chassis or other metal part, check that all surfaces in contact are clean and free from paint, that the contact pressure is not dependent on the resilience of an insulating part, and that varnish is not used as a locking medium.
2. 09 Where there is any metalwork in close association with obviously R.F. circuits, check that it is either positively earthed or insulated.
Random connections through paint cannot be tolerated.
2. 10 Check that arrangements have been made that all parts of chassis and frames are connected together electrically. This applies particularly to any part with which the operator can come into contact.
2. 11 The Inspector must stamp the appropriate section of the Test Verification Card on completion of this section.

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SECTION 3

Test Programme

3. 01

Connect to 9V supply, switch on and check supply voltages on IF and RF Boards and on EB35 only, the F.M. Unit.

<u>IF Board</u>	Tag 28	-9V
	Tag 20	-6.4/6.6V.
<u>RF Board</u>	Tag 5	-9V
	Tag 13	-6.4/6.6V.
FM Unit	Junction C108/R71.	-6.4/6.6V

3. 02

Check Audio Performance.

- (a) Connect output meter to telephone socket (10 Ω).
- (b) Connect audio generator at AF INPUT socket.
- (c) Set controls as follows:-
VOLUME : : Maximum
TONE : : Fully clockwise.
- (d) Tune generator to 1 kc/s and adjust attenuator for an output reading of 50mW. Check that audio sensitivity is better than 5mV.
- (e) Increase input to overload point and check this is of the order 1 watt. Record Test Sheet.
- (f) Reduce input for 50mW output (VOLUME maintained at maximum) and check that audio response at -6dB is at least 100 Hz to 16kHz.
- (g) Check that distortion at 1kHz with output set to 800mW does not exceed 10%.
- (h) Check that TONE control will cut 10dB at 10kHz.

3. 03

Align 465kHz IF Transformers

- (a) Connect generator to Range 5 Mixer coil L11 (see underside view of receiver in Instruction Manual).
- (b) Connect output meter to telephone socket (10 Ω).
- (c) Tune receiver to 350kHz with forward section of tuning gang temporarily shorted.
- (d) Set controls as in 3-02(c).

3 03

Align 465kHz IF Transformers (cont)

- (e) Tune generator to 465kHz with 30% modulation at 400Hz. Increase input level until output meter reads approximately 50mW. Maintain this output by adjusting the attenuator as alignment proceeds.
- (f) Trim IFT1, IFT2 and IFT3 for maximum output, repeating all adjustment several times. IFT1 & 2 have two separate cores each and are set to their outer peak. IFT3 has single core only. Set to upper peak to prevent core fouling printed board.
- (g) Check overall IF sensitivity for 50mW output. Less than 4 μ V should be required. Record actual figure on Test Sheet.
- (h) Check that overall IF bandwidths at 6dB and 40dB down are at least 5kHz and not more than 25 kc/s respectively.

3 04

Align 10.7MHz IF Transformers (Applicable to EB35 only)

- (a) Connect generator to tace 16 and tag 17 (earth) on IF Board.
- (b) Temporarily short-circuit D4.
- (c) Switch to FM Band, set VOLUME at maximum and TONE fully clockwise.
- (d) Connect output meter to telephone socket (10 Ω)
- (e) Tune generator to 10.7MHz with 30% modulation at 400Hz.
Increase input level until output meter reads approximately 50mW.
Maintain this output by adjusting the attenuator as alignment proceeds.
- (f) Trim IFT4, IFT5 and IFT6 for maximum output, repeating all adjustments several times. All transformers have two cores each and are set on the outer peak.
- (g) Remove the temporary short from D4 and adjust the top (secondary) core of IFT6 for minimum output.

3 05

Align Range 1 RF, Mixer and Oscillator circuits

- (a) Connect generator to A1, link AE to E.
- (b) Set for 30% mod (400Hz) and standardise generator calibration against crystal calibrator.
- (c) Align all Range 1 circuits at 8.6MHz (core), 20.0MHz (trimmer).
- (d) Check and record actual sensitivity at mid-band frequency (5 μ V for 15dB s/n at 50mW output).

- 3 05 Align Range 1, RF, Mixer and Oscillator circuits (contd)
- (e) Check calibration accuracy at mid-band is within 1% (\pm 150 kHz).
 - (f) Note in Appendix "A" any special tuning techniques adopted in aligning this range.
- 3 06 Align Range 2 RF, Mixer and Oscillator circuits
- (a) As 3-05
 - (b) As 3-05
 - (c) Align all Range 2 circuits at 3.6 MHz (core), 8.0 MHz (trimmer).
 - (d) As 3-05
 - (e) Check calibration accuracy at mid-band is within 1% (\pm 60 kHz)
 - (f) As 3-05
- 3 07 Align Range 3 RF, Mixer and Oscillator circuits
- (a) As 3-05
 - (b) As 3-05
 - (c) Align all Range 3 circuits at 1.5MHz (core), 3.5MHz (trimmer).
 - (d) As 3-05
 - (e) Check calibration accuracy at mid-band is within 1% (\pm 20 kHz)
 - (f) As 3-05
- 3 08 Align Range 4 RF, Mixer and Oscillator circuits
- (a) As 3-05
 - (b) As 3-05
 - (c) Align all Range 4 circuits at 550KHz (core), 1400KHz (trimmer).
 - (d) Check and record actual sensitivity at mid-band frequency (15 μ V for 15dB s/n at 50mW output).
NB THIS TEST TO BE CARRIED OUT AFTER COMPLETION OF TESTS IN 3-09.
 - (e) Check calibration accuracy at mid-band is within 1% (\pm 10KHz)
 - (f) As 3-05

3 09

Align 465kHz IF Rejector

- (a) Tune receiver to 550kHz on Range 4.
- (b) Tune generator to 465kHz.
- (c) Increase generator output to obtain reading on output meter.
- (d) Adjust L1 for minimum output signal.
- (e) Re-tune generator to 550kHz and re-adjust L5 for maximum output.
- (f) Repeat (b) - (e) as necessary.
- (g) Check that IF rejection is of the order 85dB or greater at 2MHz on Range 3.

3 10

Align Range 5 RF, Mixer and Oscillator circuits

- (a) As 3-05
- (b) As 3-05
- (c) Align all Range 5 circuits at 160kHz (core), 330kHz (trimmer).
- (d) Check and record actual sensitivity at mid-band frequency (15 μ V for 15dB s/n at 50mW output).
- (e) Check calibration accuracy at mid-band is within 1% (\pm 2.5kHz).
- (f) As 3-05

3 11

Check Image Rejection

- (a) Tune generator and receiver to 2MHz on Range 3.
- (b) Set input level to 10 μ V and adjust VOLUME for 50mW output.
- (c) Re-tune generator to 2.930MHz and increase input for reading of 50mW on output meter.
- (d) Note increase in dB and record figure on test sheet (50dB).
- (e) Repeat at 18MHz on Range 1 to ascertain that rejection of the order 15dB obtains. Record figure on Test Report Card.

3 12

Check AGC Performance

- (a) Tune Generator and receiver to 2MHz on Range 3.
- (b) Set input level to 6 μ V and adjust VOLUME for output of 50mW.
- (c) Increase input by 80dB and record increase in output (should not be greater than 12dB).

3 13

Align FM Tuner Unit. (including 10.7MHz IF Rejector Applies to EB35 only).

- (a) Connect generator to FM Aerial socket (or to A2).
- (b) Temporarily short-circuit D4.
- (c) Switch to FM Band.
- (d) Set for 30% mod (400Hz) and standardise generator calibration against crystal calibrator at 100MHz.
- (e) Tune receiver to 100MHz.
- (f) Adjust C106 to tune in generator signal.
- (g) Switch off generator
- (h) Adjust C99, L21 and L22 for maximum noise output.
- (i) Re-check receiver calibration at 100 Mc/s, adjusting C106 as necessary.
- (j) Check calibration accuracy across whole FM Band.
- (k) Re-tune generator to 10.7MHz, increase input for 50mW output and adjust IF Rejector L17 for minimum output.
- (l) Check overall sensitivity at 100MHz. Should be of the order 10 μ V for 15dB s/n at 50mW output with D4 shorted.
- (m) Remove temporary short from D4.

3 14

Check Dial lights operative with switch pressed.

3 15

Check VOLUME and TONE controls for smooth operation, absence of noise etc.

3 16

Subject receiver to vibration and check that no loose connection, shorting component etc. produces crackle or excessive microphony in output from speaker. Pay particular attention to FM Band.

3 17

Check SUPPLY SWITCH for positive operation.

3 18

Check Battery Box 938 or Mains P. U. 924 as appropriate. Refer to Appendices "B" and "C".

3 19

Inspector must stamp the appropriate section of the test verification card on completion of this section.

Acceptance of Electrical/Mechanical Inspection will be indicated by the Application of the Inspector's Stamp adjacent to the S/No. Plate.

APPENDIX "B"

INSPECTION AND TEST OF BATTERY BOX TYPE 938

- (a) Check paint finish for scratches etc.
- (b) Check all battery contacts, springs, straps etc. correctly assembled and secure.
- (c) Check red polarity spots.
- (d) Check "battery" printing on inside of troughs.
- (e) Check wiring of 4-way socket and yellow orientation spot adjacent to contact (1).

(1) NEGATIVE

(2) & (3) LINKED

(4) POSITIVE

- (f) Check knurled nuts for clear thread.
- (g) Check polythene battery tubes provided.
- (h) Fit set of batteries and check with test receiver.
- (i) Remove batteries and fit box into receiver (4-way plug connected to socket).

APPENDIX "C"

INSPECTION AND TEST OF P. U. 924.

- (a) Check paint finish for scratches etc.
- (b) Check internal wiring against sample unit.
- (c) Check all mechanical fixings for security.
- (d) Check legend on outside of case.
- (e) Check zener diode is of correct type.
(OAZ227) or equivalent.
- (f) Check yellow spot in correct position
adjacent to contact (1) of 4-way socket.
- (g) Check mains input tap set in 240V position.
- (h) Check 100mA and 500mA fuses fitted in correct
holders.
- (i) Connect to mains supply and check with test
receiver (output voltage 9V nominal).
- (j) Fit power unit into receiver
(4-way plug connected to socket).