

TRANSISTORISED RECEIVER MODEL EB35SECTION 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 all 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 variable cord drive system for FM Unit. Ensure that drive pulley is secure.
- 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 washes or similar threaded parts by a minimum of 2 clear threads. Maximum length of protrusion shall be controlled by the avoidance of fitting 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.



TRANSISTORISED RECEIVER MODEL EB35

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.
- 2-08. EARTHING
- 2-08-1 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 dependant on the resilience of an insulating part, and that varnish is not used as a locking medium.
- 2-08-2. 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.
- 2-08-3. 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.

TRANSISTORISED RECEIVER MODEL EB35SECTION 3. TEST PROGRAMME.

3-01. Connect to 9V supply, switch on and check supply voltages on IF and RF Boards and FM Unit as follows:-

| | | |
|-----------------|--------------------|------------|
| <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. |
| <u>FM Unit</u> | Junction C108/R71. | -6.4/6.6V. |

3-02. Check Audio Performance.

- (a) Connect output meter to telephone socket (100)
- (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 on Instrument Test Report Card (I.T.R.C.).
- (f) Reduce input for 50mW output (VOLUME maintained at maximum) and check that audio response at -6dB is at least 100 c/s to 16 kc/s.
- (g) Check that distortion at 1 kc/s with output set to 800mW does not exceed 10%.
- (h) Check that TONE control will cut 10dB @ 10 Kc/s.

3-03. Align 465 kc/s 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 (100).
- (c) Tune receiver to 350 kc/s with forward section of tuning gang (C48) temporarily shorted.
- (d) Set controls as in 3-02(c).
- (e) Tune generator to 465 kc/s with 30% modulation at 400 c/s. 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 adjustments 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.

3-03.

Test Procedure (contd.).

- (g) Check overall IF sensitivity for 50mW output. Less than $4\mu\text{V}$ should be required. Record actual figure under SPECIAL TESTS on I.T.R.C.
- (h) Check that overall IF bandwidths at 6dB and 40dB down are at least 5 kc/s and not more than 25 kc/s respectively.

3-04.

Align 10.7 Mc/s IF Transformers.

- (a) Connect generator to tag 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 10.7 Mc/s with 30% modulation at 400 c/s. 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.
- (h) Replace short across D4, set generator input at $65\mu\text{V}$ and adjust RV1 for 50mW output.
- (i) Check overall IF bandwidth at 40dB down is of the order kc/s.
- (j) Remove short across D4 and disconnect output meter.

3-05.

Align Range 1 RF, Mixer and Oscillator circuits.

- (a) Connect generator to A1, link AE to E.
- (b) Set for 30% mod (400 c/s) and standardise generator calibration against crystal calibrator.
- (c) Align all Range 1 circuits at 8.6 Mc/s (core), 20.0 Mc/s (trimmer).
- (d) Check and record actual sensitivity at mid-band frequency ($5\mu\text{V}$ for 15dB s/n at 50mW output).
- (e) Check calibration accuracy at mid-band is within 1% (± 150 kc/s).
- (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 Mc/s (core), 8.0 Mc/s (trimmer).
- (d) As 3-05.
- (e) Check calibration accuracy at mid-band is within 1% (± 60 kc/s).
- (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 1.5 Mc/s (core), 3.5 Mc/s (trimmer).
 - (d) As 3-05.
 - (e) Check calibration accuracy at mid-band is within 1% (± 20 kc/s).
 - (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 550 kc/s (core), 1400 kc/s (trimmer).
 - (d) Check and record actual sensitivity at mid-band frequency (15 μ V for 15dB s/n at 50mW output). NE THIS TEST TO BE CARRIED OUT AFTER COMPLETION OF TESTS IN 3-09.
 - (e) Check calibration accuracy at mid-band is within 1% (± 10 kc/s).
 - (f) As 3-05.
- 3-09. Align 465 kc/s IF Rejector.
- (a) Tune receiver to 550 kc/s on Range 4.
 - (b) Tune generator to 465 kc/s.
 - (c) Increase generator output to obtain reading on output meter.
 - (d) Adjust L1 for minimum output signal.
 - (e) Re-tune generator to 550 kc/s 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 2 Mc/s 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 160 kc/s (core), 330 kc/s (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% (± 2.5 kc/s).
 - (f) As 3-05.

- 3-11. Check Image Rejection.
- (a) Tune generator and receiver to 2 Mc/s on Range 3.
 - (b) Set input level to $10\mu\text{V}$ and adjust VOLUME for 50mW output.
 - (c) Re-tune generator to 2.930 Mc/s and increase input for reading of 50mW on output meter.
 - (d) Note increase in dB and record actual figure on I.T.R.C. (50dB).
 - (e) Repeat at 18 Mc/s on Range 1 to ascertain that rejection of the order 15dB obtains. Record figure on I.T.R.C.
- 3-12. Check AGC Performance.
- (a) Tune generator and receiver to 2 Mc/s on Range 3.
 - (b) Set input level to $6\mu\text{V}$ 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 10.7 Mc/s IF Rejector).
- (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 (400 c/s) and standardise generator calibration against crystal calibrator at 100 Mc/s.
 - (e) Tune receiver to 100 Mc/s.
 - (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 10.7 Mc/s, increase input for 50mW output and adjust IF Rejector L17 for minimum output.
 - (l) Check overall sensitivity at 100 Mc/s. Should be of the order $10\mu\text{V}$ 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"

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

APPENDIX "A"

SPECIAL TUNING TECHNIQUES FOR RANGES 1-5

Range 1.

Range 2.

Range 3.

Range 4.

Range 5.

APPENDIX "B"

INSPECTION AND TEST OF BATTERY BOX TYPE 938

1. Check paint finish for scratches etc.
2. Check all battery contacts, springs, straps etc. correctly assembled and secure.
3. Check red polarity spots.
4. Check "battery" printing on inside of troughs.
5. Check wiring of 4-way socket and yellow orientation spot adjacent to contact (1).
 - (1) NEGATIVE.
 - (2) & (3) LINKED.
 - (4) POSITIVE.
6. Check knurled nuts for clear thread.
7. Check polythene battery tubes provided.
8. Fit set of batteries and check with test receiver.
9. Remove batteries and fit box into receiver (4-way plug connected to socket).

APPENDIX "C"

INSPECTION AND TEST OF P.U. 924.

1. Check paint finish for scratches etc.
2. Check internal wiring against sample unit.
3. Check all mechanical fixings for security.
4. Check legend on outside of case.
5. Check zener diode is of correct type. (0AZ227)
6. Check yellow spot in correct position adjacent to contact (1) of 4-way socket.
7. Check mains input tap set in 240V position.
8. Check 100mA and 500mA fuses fitted in correct holders.
9. Connect to mains supply and check with test receiver (output voltage 9V nominal).
10. Fit power unit into receiver (4-way plug connected to socket).

INSPECTION & TEST SCHEDULE

TRANSISTORISED RECEIVER MODEL EB35.

Copy No. 2

AMENDMENT RECORD

| Amend. No. | Date | Sig. | Details |
|------------|---------|------|---------------|
| 1. | 8.11.66 | JB | 4-02 REVISED. |

AMENDMENT NO. 1 TO INSPECTION & TEST SCHEDULE

SECTION 4.

Amend 4-02 to read as follows:-

4-02. Check that Instruction Manual is complete with any relevant Amendments. These should be tucked between pages 1 and 2.

Amendments in issue at present time are as follows:-

AMENDMENT SHEET NO. 1 - SEPTEMBER 1966.

AMENDMENT SHEET NO. 2 - NOVEMBER 1966.

Advice of future Amendment Sheets will be given by amendment of this Inspection & Test Schedule.

TRANSISTORISED RECEIVER MODEL EB35

SECTION 4. PACKING.

- 4-01. Check all items on Packing Note.
- 4-02. Check that Instruction Manual is complete with any relevant Amendments.
(~~Amendment Sheet No.1. tucked between pages 2/3.~~)

SEE INSTRUCTION MANUAL FOR LIST OF ITEMS TO BE CHECKED