

The following is a manual retype of an original hallicrafters document that was too dark to reproduce. No grammar corrections or acronym updates were made. It is just as it was. Entries in red have been added for clarification. The cover sheet and revision page were combined for my convenience. The original cover sheet reflects ISSUE X1. The remainder of the document reflects ISSUE X3.

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MATERIAL OR METHODS SPECIFICATION

SPECIFICATION NO O93-800870 .RELEASE DATE 1/5/59 .
MODEL NO. HT-37 .RELEASE MEMO W-15653 .

REVISION HISTORY

ISSUE	DISCRIPTION OF REVISION	MEMO 3 & DATE
X1	Experimental only	W-15653 1/5/59
X2	Revised supercedes issue X1 CR-F-2829 J.D.U.	W-16582 6/11/59
X3	Revised Supercedes issue X2 CR-F-6720 J.D.U.	W-16937 8-21-59

PREPARED BY RJO .
APPROVED BY JDW .

TITLE **PERFORMANCE SPECIFICATIONS FOR HT-37 SSB TRANSMITTER**

SPEC.NO. **093-800870** .

1. AC POWER REQUIREMENTS

117V. 60CPS, 370 Watts

2. R.F. OUTPUT IMPEDANCE & METERING

51.5 Ohms, non reactive to 30MC (Bird Wattmeter or equal) and peak reading voltmeter calibrated in RMS V. (HP 410B or equal)

3. FINAL AMPLIFIER BIAS

Bias shall be set for $-49v \pm 1$ volt
(controls set for MOX and DSB)

4. NEUTRALIZATION & STABILITY CHECK

A. Neutralization shall be adjusted so that final plate current dip & maximum power output coincide on 10m & 15m bands.

B. Transmitter shall not show self oscillation tendencies at any driver & final tune setting on any band with output load removed.

5. CARRIER BALANCE

A. Carrier balance adjustment shall be capable of at least 50db below maximum output level on either Sideband on any band.

B. Shall maintain at least 30db with line voltage varied from 105vac to 125vac (balanced at 117vac. Allow ample time for stabilization between checks. Balance re-adjustable to 50db at all line voltages within the range.

6. R.F. POWER OUTPUT (SSB OPERATION)

A. Input – (two tone) 1000cps & 2000cps. Each signal at 4mv rms.

B. Output – peak envelope power for at least -25db 3rd & 5th order distortion products

1. 3.8mc 80w minimum (64vrms)

2. 7.3mc 75w minimum (62vrms)

3. 14.2mc 75w minimum (62vrms)

4. 21.2mc 70w minimum (60vrms)

5. 29.2mc 66w minimum (58vrms)

C. Unwanted sideband shall be -30 or more (500 to 2500cps)

7. CARRIER FREQUENCY

The 9 mc carrier frequency at the output of the sideband generator shall be set to frequency within 100cps

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8. R.F. POWER OUTPUT (DB OPERATION)

- A. Input – 1000 cps @ 4mv rms.
- B. Output – pep/51.5 ohm load. 90-100% modulation
- C. Required output –
 - 1. 3.8 mc – 80 w minimum (64 v rms)
 - 2. 7.3 mc – 75 w minimum (62 v rms)
 - 3. 14.2 mc - 75 w minimum (62 v rms)
 - 4. 21.2 mc – 70 w minimum (60 v rms)
 - 5. 29.2 mc – 66 w minimum (58 v rms)

9. R.F. POWER OUTPUT (CW OPERATION)

- A. Keying envelope shall be smooth with no sharp peaks, leading edge or trailing edge transients.
- B. Minimum cw output shall be less than ½ w on any band.

There has been some confusion with this statement. The test is for zero drive oscillations in the driver or finals.

- C. Required output –
 - 1. 3.5 – 4 mc – 60 w minimum (55 v rms)
 - 2. 7.0 – 7.3 mc – 70 w minimum (60 v rms)
 - 3. 14.0 – 14.35 mc - 70 w minimum (60 v rms)
 - 4. 21.0 – 21.45 mc - 70 w minimum (60 v rms)
 - 5. 26.9 – 29.7 mc – 60 w minimum (55 v rms)

10. OVERALL AUDIO FREQUENCY RESPONSE (SSB)

- A. Audio input – as required. AUDIO LEVEL set at 9.
- B. 0 db (reference) 1000 cps; 90-100% modulation; 50vrms rf output. (48.54 watts)
- C. 3db at 500 cps ± 100 cps. 3db at 3000 cps ± 200 cps.
+2db max. between 500 & 2500 cps.

11. OVERALL AUDIO FREQUENCY RESPONSE (DSB)

- A. Audio input – as require. AUDIO LEVEL set at 9.
- B. 0db (reference) 1000 cps; 90-100% modulation; 50v rms rf output. (48.54 watts)
- C. No more than 3db at 450 cps; No more than 3db at 2500 cps.
NOTE: This measurement to be made with H.P. 330 distortion analyzer or equal.

12. VOX SENSITIVITY

- A. Audio input – 1000 cps
- B. With minimum delay the relay shall close with less than 4mv rms applied to audio input.

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13. ANTI-TRIP SENSITIVITY

- A. Audio input – 1000 cps. From 3.2 ohm vc source. (that is a 3.2 ohm speaker 1 yard from mic)
- B. No more than 200mv rms across 3.2 ohms shall be required to disable voice control operation.

14. CALIBRATE LEVEL

- A. On any band the maximum calibrate level output voltage shall be less than 125v rms and more than 10v rms with rf load removed.
- B. On any band the minimum calibrate output level shall be at least 100db below max level with rf load removed.

15. DIAL CALIBRATION – (MEASURED AT TRANSMITTER OUTPUT)

- A. 80m & 20m – 3.5 – 4.0, 14.0 and 14.350 mc dial calibration errors shall not exceed 1 pointer width on the FREQUENCY dial. Calibration errors at all 100 kc points within the amateur bands shall not exceed 1 pointer width on the FREQUENCY dial.
- B. 40m, 15m & 10meters – 7.0, 7.3, 21.0, 21.45, *27.23, *28.0 and *29.7mc dial calibration errors shall not exceed 1 pointer width on the FREQUENCY dial.

*NOTE: These checks required only when 10meter crystals covering band edges are supplied with transmitter.

16. VFO FREQUENCY KNOB SLIPPAGE

- A. The VFO assembly shall operate smoothly over the entire tuning range with no slippage. Knob slippage at either extreme of dial travel should be 3inch oz. to 5 inch oz. Center scale drive torque to be between 2 &4 inch oz.

17. FREQUENCY STABILITY

- A. (Warmup) Unit operated for full CW output on 80m (3.5 – 4.0 mc) for 5 minute warm-up period. Frequency drift during next 10 minutes of operation should be less than 300cps.
- B. (line voltage) After being stabilized at 117vac line the output frequency shall not change more than 50 cps on any band when the line voltage is changed to 125vac or 105vac. Allow at least 1 minute for test results.

18. OUTPUT LEVEL METER

- A. Meter shall read zero with transmitter in “OFF” or “standby” condition.
- B. meter calibrated in RF volts rms (\pm 10%) with transmitter terminated in a 51.5 ohm load. (Measured at 60v on high range and 20v on low range test on 3900 kc with CW signal).

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19. CONTROL OUTLET CONNECTIONS

A. Pin #1	Chassis ground
Pins #2 to #3	STANDBY open circuit MOX continuity
Pins #3 to #4	STANDBY continuity MOX open circuit
Pins #5 to #9	STANDBY open circuit MOX continuity
Pin #6	STANDBUY open circuit MOX chassis ground
Pin #7	STANDBY chassis ground MOX open circuit
Pin#8 to Chassis	Keys Transmitter in cw operation only.
Pin #9 to #10	STANDBY continuity MOX open circuit
Pin #11	Open circuit (audio input for vox disable)

20. MECHANICAL PLAY IN CONTROL SHAFTS

- A. The maximum play measured in a direction perpendicular to the panel at the edge of the knob shall not exceed 1/32 in.
- B. Maximum play measured parallel to the panel shall not exceed 1/32 in.

21. SPURIOUS OUTPUT

- A. The transmitter shall be tuned up and checked for rated CW power output on 21.3 mc. Switch to DSB and remove the 9 mc oscillator tube (12AT7). The spurious voltage across the 50 ohm load with the 9 mc oscillator tube in the sideband generator removed, shall be less than 0.1vrms but not less than 0.05vrms. The driver and final amplifier tuning shall be peaked for the spurious output.
- B. On the 15m band, the 19.5mc to 20mc spurious output, found by tuning the driver and final to these frequencies, shall be less than 5vrms across the 50 ohm terminated transmitter output. The FUNCTION control shall be set for single sideband operation for this test.
- C. The transmitter shall be tuned up and checked for rated CW power output and spurious levels on the 10m segment supplied. The spurious levels are to be checked as follows:
 - (1) Spurious generated by heterodyne oscillator and VFO shall be less than 5vrms across the 50ohm load when the driver and final tuning are adjusted for maximum output on the spurious frequency. The FUNCTION control shall be set for single sideband operation to remove the fundamental carrier during the measurement.
 - (2) Spurious generated by the 2nd harmonic of 9mc and the 2nd harmonic of the intermediate signal applied to the last mixer stage shall not be greater than -50db below maximum power output when the RF LEVEL control is adjusted for maximum CW output. (Just at point of saturated output) Test shall be made at 28mc in the 1st segment of 10m or at 29mc in the 2nd segment. The check need only be made in one segment. Spurious level shall be measured with VFO tube removed.

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22. CONTROLS AND OUTLETS

All controls and outlets shall be tested for proper operational functions.