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SX-117

CODE IDENTIFICATION NO. 26916

MATERIAL OR METHODS SPECIFICATION

SPECIFICATION NO. - 093-801634 RELEASE DATE 5 June 1962

MODEL NO. SX-117 RELEASE MEMO DW-27365

TITLE PERFORMANCE SPECIFICATIONS

PREPARED BY [signature]

APPROVED BY [signature]

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REVISION SHEET

TITLE SX-117 PERFORMANCE SPECIFICATIONS SPEC. NO. 093-801634

Issue	Description of Revision	Memo No. & Date
A	RELEASED FOR PRODUCTION	DW 27365 5 June 62
B	REVISED PER CR-H13,411	C-1558 7 SEPT. 62
C	REVISED PER CR-H13,751	C-1783 16 OCT 62
D	REVISED PER CR-H14965	C-2168/20 MAR 63 19 MAR 63
E	REVISED PER CR-H15384 O.L.	C-2325 7 May 63 6 MAY 63

THE FOLLOWING TEST CONDITIONS APPLY UNLESS OTHERWISE SPECIFIED:

I. General

A. Power requirements 117 volts, 60 cycles, 70 watts.

B. Measurements made with HP 606A generator using unterminated 50 ohm coax.

C. Antenna input impedance 50 ohsm (nominal).

D. Output impedance 3.2 and 500 ohms.

E. RF and IF signals modulated 30% @ 400 cycles.

F. IF frequencies are 6.500 mc to 6.000 mc (variable), 1650 kc and 50.75 kc.

G. First crystal oscillator (amateur or auxiliary) operates 6.000 mc above high frequency end of band. Second oscillator (VFO) operates from 4.850 mc to 4.350 mc (1650 kc below first IF).

Third oscillator (Crystal) operates at 1600 kc (LSB) or 1700 kc (USB).

Fourth oscillator (BFO) operates at 50 kc.

H. Receiver to be supplied <u>without</u> WWV crystal (16.000 mc), segments 1, 3, and 4 of 10 meters (34.500, 35.500 and 36.000 mc), 6EA8 general coverage oscillator tube

I. WWV and segments 1, 3, and 4 10 meter oscillator coils are to be adjusted to give normal operation when appropriate crystal is inserted.

J. Calibrator circuitry shall give normal operation when calibrator assembly is inserted.

II. Controls to be set as follows:

A. RF and AF gain controls full on.

B. Selectivity at 2.5 kc.

C. Bandswitch on 80M.

D. Function switch in AM position.

* E. Notch off

F. Noise limiter off.

G. Crystal selector switch in normal position.

III. I.F. Bandwidth limits at 50.75 kc.

	6 db		60 db
Position #1	.65 kc max.	-	3.5 kc max.
Position #2	2.5 kc ± 20%	-	11.0 kc max.
Position #3	5.0 kc ± 20%	-	19.0 kc max.

IV. R.F. Sensitivity limits to be as follows: (Preselector peaked)

A. 1 microvolt input on any band shall cause the receiver to deliver 500 milliwatts audio output (300 milliwatts on 80 meters).

* Notch control max. CCW position for this check.

B. 1 microvolt input on any band shall give at least 10 db signal/noise ratio. (50 milliwatt level).

C. Signal/noise ratio to be checked approximately 25 kc in from upper and lower calibration limits on dial on each 500 kc segment (preselector peaked).

D. Gain variation across any 500 kc segment shall not exceed 3 db (preselector peaked). 6 db on 40 M.

E. .5 microvolt unmodulated input with function switch in USB or LSB position shall increase receiver output .5 watt (minimum) above internal receiver noise as receiver is tuned through signal (check at one spot on any band).

F. Gain variation shall not be greater than 3db when switching from USB to LSB. Use imicrovolt unmodulated signal, 80M band.

VI. Audio Performance

A. Hum level shall be less than 2 microwatts with audio gain control at minimum.

B. Distortion shall not exceed 10% at 750 milliwatts output with 10,000 microvolts input at antenna terminals, 4 mc, noise limiter off, selectivity at 5 kc and function in AM position.

VII. I.F. Rejection

After the I.F. trap has been nulled at 6.5 mc (receiver tuned to 7.00 mc) the following checks are to be made:

REC. TUNING	GENERATOR FREQUENCY	REJECTION BELOW 1 uv
7.0 mc	6.5 mc	50 db
7.5 mc	6.0 mc	

VIII. SPURIOUS RESPONSES.

A. All frequencies other than the fundamental shall be down at least 55 db on all amateur bands (except I.F. Rejection at 7 mc).

B. There shall not be any indication of spurious oscillation in 1st crystal oscillator as bandswitch is rotated from band to band (no frequency jump).

IX. TWEETS

All "tweets" or "birdies" within the amateur bands shall be less than .5 microvolt equivalent CW signal.

X. CW/AM RATIO.

A. Receiver tuned to 3.5 mc, USB, 2.5 kc, 1 microvolt input, preselector peaked, tuning adjusted for maximum beat note. (CW signal) (50 milliwatt level).

B. Switch function to AM and apply 100%, 400 cycles modulation to generator and retune for maximum audio output. The difference in audio output over that measured in Step A shall not exceed 4 db.

XI. BFO Performance

A. Frequency range not less than ± 1500 cycles.

B. CW signal must maintain zero beat when switched from USB to LSB without resetting pitch control more than 1/16" from indicator line.

XII. Notch Performance

A. The notch knob and slug shall be set at "off" at the maximum clockwise stop.

B. Tuning range--50 to 54 kc (minimum).

C. The notch depth control shall be adjusted for maximum notch depth.

XIII. AVC Figure of Merit

A. Receiver tuned to 14,3, USB, 2.5 kc, preselector peaked.

B. Set generator for 5 microvolts unmodulated and tune for maximum audio output (50 mw).

C. Increasing signal input level 80 db shall not increase audio output more than 10 db.

XIV. Meter Calibration

A. Adjust factory gain control for S9 reading with 50 microvolts input (unmodulated) at 14.3 mc, 2.5 kc