

DATE 12-15-60

SH. 1 OF 5

COMPILED BY

TMC SPECIFICATION NO. S-524

TITLE: TEST PROCEDURE, SBT-1KJ

JOB

APPROVED

RK

A. INTRODUCTION

The SBT-1KJ is a general purpose radio transmitter system providing SSB, ISB, DSB, AM and CW operation throughout a frequency range of 2 to 32 MC. The rated power output of this unit is 1KW PEP and 1KW CW.

B. MAIN COMPONENTS

The SBT-1KJ consists of seven separate units integrated to form the transmitter system. These components are:

1. rack assembly RAK-10.
2. auxiliary power panel APP-4.
3. hi-voltage power supply P.S.-5.
4. low voltage power supply P.S.-4.
5. linear RF amplifier RFD-1.
6. mode selector SBE-3.
7. variable frequency oscillator VOX-3.

C. TEST PROCEDURE

The test procedure for the SBT-1KJ system is outlined on the following pages. Before the system can be tested correctly, all components except the RAK-10 rack assembly must be tested and passed by the test department as per the specific test requirements for each unit.

Sheet 5 of this test procedure is a check sheet and tuning chart on size 2. (S-524, sheet 5).

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I. EQUIPMENT REQUIRED-

1. 52 Ω dummy load, 1KW dissipation.
2. AC power cable.
3. Test equipment rack TMC model PTE.
4. RF output cable, RFD to load, CA-512-4-15F.
5. MWC24(7)S3, cable insulated shielded, 5 ft.
6. CA-409 cable assembly, jumper 6 in.
7. Test cable assembly #106.
8. VTVM, HP 410B.
9. Voltmeter, Simpson 260 or equivalent.

II. PROCEDURE-

1. Install AC input power cable from AC INPUT terminals of APP-4 to AC line.
2. Connect Fanning strips of test cable assembly to E501 and E502 on rear of APP-4 chassis.
3. Connect shielded lead from output of TTG mounted in test equipment rack PTE to CHANNEL 1 and CHANNEL 2 input terminals on test cable assembly.
4. Connect dummy load MONITOR OUTPUT to SIGNAL INPUT jack of PTE analyzer.
5. Conect cable CA-512-4-15F from RF OUTPUT jack of RFD-1 (J202) to dummy load input.
6. Connect jumper from terminal 5 on test cable terminal board T601 to terminal 8. This completes external interlock circuit.
7. Connect a jumper from terminal 21, T602 to terminal 22. This completes the KEY LINE circuit to the SBE.
8. Set MAIN POWER switch on APP-4 to ON position. The red MAIN POWER indicator lamp should light and rack fans should start running.
9. Set MAIN POWER switch on PS-4 to ON position. The green MAIN POWER indicator lamp should light and RFD-1 blower and PS-5 fan should start running. NOTE: PS-4 TRANSMITTER VOLTAGES switch should be in STANDBY position; FINAL VOLTAGES switch in OFF position and OVERLOAD breakers in ON position. Adjust line voltage to 115 volts.
10. Turn on POWER switch on SBE. The red lamp on power supply and OVEN lamp should light.

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PROCEDURE CONT'D.

- 11.) Turn on POWER switch on VOX. The red MAIN POWER lamp and INNER OVEN and OUTER OVEN lamps should light.
- 12.) After a warm-up time of approximately 5 minutes, set the TRANSMITTER VOLTAGES switch to ON position. The red indicator lamp should light. Set TRANSMITTER VOLTAGES switch to STANDBY position.
- 13.) Set XMTR switch on SBE to ON position. The TRANSMITTER VOLTAGES red indicator lamp on PS-4 should light.
- 14.) Turn VOX METER switch to HFO position.
- 15.) Set VOX HFO switch to ON position.
- 16.) Set VOX MASTER OSCILLATOR FREQUENCY to REQ KCS. (See Chart)
- 17.) With SBE MF XTAL SW in the VMO position, adjust the SBE for two tone test at an RF output frequency as req. using the TTG supplied with the PTE test equipment rack.
- 18.) Set SBE OUTPUT control to zero.
- 19.) Set FINAL VOLTAGES switch on PS-4 to ON position. Red indicator should light.
- 20.) Using the tuning chart, adjust the RFD-1 for 1KW PEP at 6MCS. Note: 1KW is 109 VRMS across a 52 ohm load. (See Chart)
- 21.) Adjust RFD-1 to obtain 40db third order distortion at 1KW PEP.
- 22.) Adjust RFD -1 to obtain 1KW, CW. 1KW is 225 VRMS @ 52 ohms. (See Chart)
- 23.) Place voltmeter across terminals 3 and 4 of T601 on test cable. Meter should read 115 volts A.C. This is transmitter antenna relay voltage, and may vary $\pm 10\%$.
- 24.) With voltmeter connected as in (23) above, set XMTR switch on SBE to OFF position.
 - a) Voltmeter should read zero volts.
 - b) FINAL VOLTAGE and TRANSMITTER VOLTAGE indicators on P.S.-4 should go out.
- 25.) Place a jumper across terminals 1 and 2 on T601. TRANSMITTER VOLTAGES and FINAL VOLTAGES indicator should light. Remove jumper.
- 26.) Place a jumper across terminals 9 and 10 on T601. TRANSMITTER VOLTAGES and FINAL VOLTAGES indicators should light. Remove jumper.

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PROCEDURE CONT'D.

- 27.) Turn all switches OFF. Remove AC input cable and test cable assembly.
- 28.) This completes operational testing of system SBT-1KJ.
- 29.) Check cables, hardware and slides for ease of movement. Units should tilt without obstruction.
- 30.) This completes testing of system SBT-1KJ.

TEST CHART SBT-1KJ

DATE SBT-1KJ ser. no. RFD ser. no. P.S.-4 ser. no.
 TEST BY RAK-10 ser. no. VOX-3 ser. no. P.S.-5 ser. no.
 SWR-1K ser. no. SBE-3 ser. no. APP-4 ser. no.

1KW PEP, SSB

1KW, CW

FREQ MC	VOX SETTING	SBE BAND	DRIVER BAND	1st AMPL. TUNE	PA GRID TUNE	PA TUNING	PA LOADING	PA LOADING SWITCH	MA, PA PLATE CURRENT	MA, PA SCREEN CURRENT	3rd ORDER DISTORTION -DB	MA, PA PLATE CURRENT	MA, PA SCREEN CURRENT	FORWARD POWER WATTS	REFLECTED POWER WATTS	ACTUAL POWER WATTS	REMARKS
2		2-4	2-4														
5		4-8	4-8														
10		8-16	8-16														
20		16-32	16-22														
30		16-32	22-32														

NOTE: 1. 1KW, PEP, IS 225 VRMS ACROSS 52 Ω LOAD.

2. 1KW, CW, IS 225 VRMS ACROSS 52 Ω LOAD

3. 3rd ORDER DISTORTION REQUIRED AT 30MCS is 35DB.

ITEMS	ACCEPT	REJECT
1. A.C. POWER TO APP-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. A.C. POWER TO PS-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. A.C. POWER TO SBE-2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. A.C. POWER TO VOX-3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. INTERLOCK CIRCUITS	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. KEY LINE CIRCUIT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. CHANNEL 1 CIRCUIT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. CHANNEL 2 CIRCUIT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. REMOTE XMTR PLATE CIRCUIT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. PUSH TO TALK CIRCUIT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. RECEIVER MUTING	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. 115V ANTENNA RELAY	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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SYM	DESCRIPTION	DATE	CH. NO.	DRAFTS	CHECKER	ENG. APP.

UNLESS THERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES ON FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°
 SCALE: MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS AND SHARP EDGES

REQ. PER UNIT	MODEL	SECTION	ASS'Y. NO.	DATE
1	SBT-1KJ			1-9-61

REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK				
STOCK SIZE				
S-524, Sheet 5				
MATERIAL				
TEST PROCEDURE CHART, SBT1KJ				
				JFM
				FINAL APPROVAL
				5-524
				SHEET 5 of 5