

DATE 1-24-61
SH. 1 OF 5
COMPILED BY

TMC SPECIFICATION NO. S -532

TITLE: TEST PROCEDURE, SBT-1KB and M

JOB E-1101-E

APPROVED

RK

NOTE: THIS SPEC IS APPLICABLE TO THE SBT-1KB & SBT-1KM, THE ONLY DIFFERENCE BEING THE SBT-1KB USES THE SBE-2 AND THE SBT-1KM USES THE SBE-3.

A. INTRODUCTION

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

1. rack assembly RAK-9B.
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-2 (SBT1KB) or SBE-3 (SBT-1KM).
7. variable frequency oscillator VOX-3.
8. antenna tuning system ATS-2.

C. TEST PROCEDURE

The test procedure for the SBT-1KB system is outlined on the following pages. Before the system can be tested correctly, all components except the RAK-9B rack assembly must be tested and passed by the test department as per the specific test requirements for each unit.

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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, RG-8/U.
5. MWC24(7)S3, cable insulated shielded, 5 ft.
6. CA-409 cable assembly, jumper 6 in.
7. H.P. VTVM, Model 410B, or equivalent.
8. Test cable assembly #106.
9. Test Chart, SBT-1KB (S532 page 5 (2 size Dw'g.)).
10. Voltmeter, Simpson 260 or equivalent.

II. PROCEDURE

1. Install AC input power cable from J601 of RAK-9 to AC line.
2. Connect Fanning strips of test calbe 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. Connect cable from J609 jack of AX-198 to RF input of TU-2 and from RF output of TU-2 to dummy load.
6. Connect jumper from terminal 5 on test cable terminal board T601 to termenal 8. This completes external interlock circuit.
7. Connect a jumper from terminal 21, T602 to terminal 22. This completes the KEY LINE to the SBE.
8. Set MAIN POWER switch on APP-4 to ON position. The red MAIN POWER indicator lamp should light.
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, rack fan should start running.
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. (see chart, p. 5)
17. With SBE, MF XTAL, SW, in the VMO position, adjust the SBE for two tone test at req. output frequency 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 required frequency(225 VRMS across 52 ohms). The ATS-2 should be adjusted for minimum standing wave ratios at test frequencies.
21. Adjust RFD-1 to obtain 40db third order distortion at 1KW PEP.
22. Adjust RFD-1 to obtain 1KW CW. (225 VRMS @ 52 ohms.)
23. Place voltmeter across terminals 3 and 4 of T601 to 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 and EXCITER 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, FINAL VOLTAGES and EXCITER ON indicators should light. Remove jumper.

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PROCEDURE CONT'D.

27. Place an ohmmeter across terminals 24 and 25 on T602. The ohmmeter should read $10\Omega \pm 10\%$ between 24 and 25 and ∞ between 23 and 24.
28. Place a jumper across terminals 9 and 10 to key the unit. An ohmmeter connected between 23 and 24 should read $10\Omega \pm 20\%$ between 24 and 25 should read ∞ .
29. Turn all switches OFF. Remove AC input cable and test cable assembly.
30. This completes operational testing of system SBT-1KB.
31. Check cables, hardware and slides for ease of movement. Units should tilt without obstruction.
32. This completes testing of system SBT-1KB.

