DATE|
SHEET_____ OF_____

Q. P.
COMPILED   CHECKED

APPROVED

TMC SPECIFICATION NO. S   649   B

TITLE:
     INSTRUCTIONS FOR TMC MODEL SBC-1 and SBC-1A

COMPLETE TEST INSTRUCTIONS

FOR THE TMC MODEL

SBC-1 AND SBC-1A

NOTE: These instructions applicable to SBCI-1A. Substitut
       SBSI-1 for SBS-1 where appearing. Substitute band-width
       6.0 for 7.5 where appearing.

A. INSTRUMENT LAYOUT
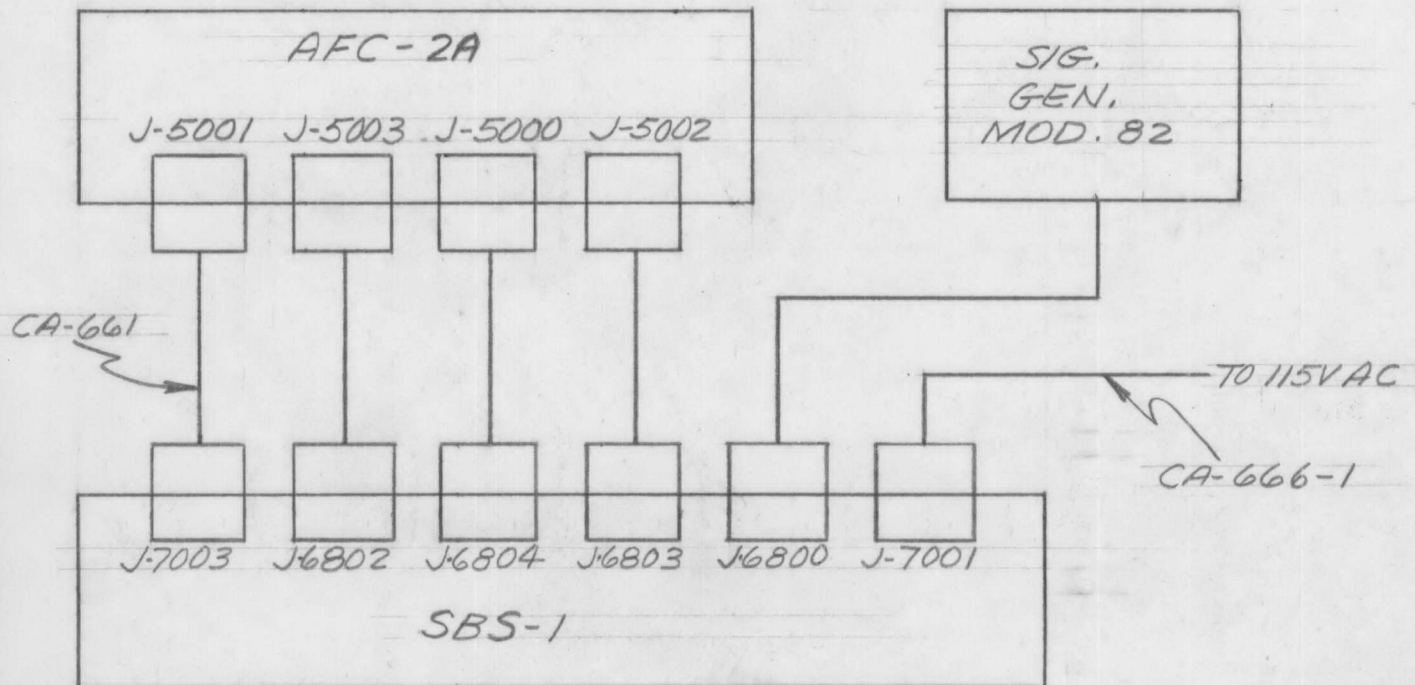
TEST EQUIPMENT REQUIRED

1. Signal Generator Model 82 or equiv.
2. Ballantine 314 or equiv.
3. Hewlett Packard VTVM Model 410B or equiv.
4. Counter Hewlett Packard Model 523C or equiv.

B. PRELIMINARY

1. Inter-connect SBS-1 and AFC-2A as shown in instrument layout.

NOTE: Two hours must be allowed for the oven to cycle properly.

2. Connect signal generator to J-6800 set to 100uv and frequency as specified. (No modulation)   e.g. 455KC

3. Place CHANNEL A switches as follows:
   a. IF BANDWIDTH KC to LSB 7.5.
   b. AGC RESPONSE to FAST.
   c. DETECTION to SSB.

4. Place CHANNEL B switches as follows:
   a. IF BANDWIDTH KC to USB, 7.5.
   b. AGC RESPONSE to FAST.
   c. DETECTION to SSB.

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5. Place AGC SELECTOR switch to CH-A-B.

6. Place AFC switch to ON.

7. Turn the POWER switch "ON".

8. Set OSC/RCC switch to RCC.

9. Set SENSITIVITY control in extreme clockwise position.

10. Connect counter to J-6803 or J5002.

11. Hold the RESET button depressed throughout operation 12, 13, 14, 15 and 16.

12. Slowly turn the signal generator until the FADE alarm goes off and the LEVEL meter pointer is over the green field.

13. Very carefully readjust the signal generator until the pointer of the DRIFT meter is in the center of the scale. The counter should read 250,000 ± 5cps.

14. Enter the frequency in (13) into the test data sheet.

15. Slowly change the frequency of the signal generator from the center frequency indicated in step 13 above, in an upward direction. The indicating hand of the drift indicator should move to the right and at the point where the hand approaches the red section, the counter should read not more then 249.960. Record on test data sheet.

16. Now reverse the tuning of the signal generator. The hand of the meter should move across the scale. At the point where it approaches the red on the left, the counter should be indicating not less then 250.040. Record on test data sheet.

17. During the above operation, the FADE meter and indicating light should NOT indicate a failing loss of signal. Such an indication is cause for rejection. However, an indication is not to be expected with a small additional shift in frequency in excess of the limits shown above, in a normal unit. The adjustment of the threshhold is performed during AFC manufacture and test.

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C. CONVERTER INJECTION OSCILLATOR

1. Connect counter to J-6802 or J5003.

2. Hold the RESET button in depressed position and set the KCS TUNING dial to "0".

3. Record the frequency in the test data sheet. The center frequency must be as specified by the customer $\pm$ 250cps. (e.g. 705,000 $\pm$ 250cps.)

D. DRIFT CIRCUITRY

1. Place OSC/RCC switch to OSC.

2. Hold the RESET button in depressed position and slowly turn the KCS TUNING dial until:

   a. The FADE alarm goes off.
   b. The LEVEL meter pointer is over the green field.
   c. The DRIFT meter pointer is in the center.

3. Record the frequency at J-6802 frequency must be as specified $\pm$ 300 cps. (e.g. 705,000 $\pm$ 300 cps.)

4. Release the RESET button and slowly turn the generator toward a higher frequency until the counter will read frequency as in step 3 above, $\pm$ 1000 to 1600 cps. (e.g. 705,056 + 1000 = 706,056). Record on test data sheet.

5. The DRIFT ALARM must light and meter pointer must approch the red field. The LEVEL meter pointer should not be in the red field.

6. Record the frequency in the report sheet and repeat step 2.

7. Release the RESET button and slowly turn the generator toward a lower frequency until the counter will read frequency as in step 3 above, minus 1000 to 1600 cps. (e.g. 705,056-1000 = 704,056cps). Record on test data sheet.

8. The drift alarm must light and meter pointer must approch the red field. The LEVEL meter pointer should not be in the red field.

9. Record the frequency in the report sheet.

10. Repeat step 2.

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TITLE: INSTRUCTIONS FOR THE TMC MODEL SBC-1 and SBC-1A

E. CARRIER AVC

1. Increase the signal generator output to 1MV input. The LEVEL meter pointer must still remain on the green field. Record on test data sheet.

F. AFC-2A DRIFT

1. Decrease signal generator output to 100uv.

2. Lock AFC-2A on signal generator's frequency as in step 2 of (E).

3. Connect counter to J-5002.

4. Note the frequency and record it.

5. Disconnect the signal generator.

6. Note the frequency and record it.

7. Subtract item 7 from 5 or 5 from 7 and record the difference. The difference may not exceed 5cps.

G. IF STRIPS AND AUDIO OUTPUT

1. Connect a 50 ohm load to J6805.

2. Connect a 50 ohm load to J-6806.

3. Connect a 600 ohm 1W load between terminals 7 and 9 of E-6800.

4. Connect a 600 ohm 1W load between terminals 17 and 19 of E-6800.

5. Connect a Ballantine VTVM across terminals 2 and 4 of E-6800.

6. Connect a Ballantine VTVM to J-6806.

7. Place the AFC switch to OFF.

8. Increase the signal generator output to 1MV.

9. Lower the signal generator frequency by 1KC below carrier frequency.

10. Adjust CHANNEL A LEVEL control for 0db on the front panel meter.

11. The voltage across terminals 2 and 4 of E-6800 must be 21 to 24V. Record the voltage.

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12. The voltage at J-6805 must be .8 to 1.3V. Record the voltage.

13. Connect VTVM across terminals 12 and 14 of E-6800.

14. Connect VTVM to J-6805.

15. Raise the signal generator frequency by 1KC above carrier frequency.

16. Adjust CHANNEL B LEVEL control for 0db on the front panel meter.

17. The voltage across terminals 12 and 14 of E-6800 must be 21 to 24V. Record the voltage.

18. The voltage at J-6805 must be .8 to 1.3V. Record the voltage.

H. THERMOSTAT NOISE:

1. The SBC-1A system should be on heat run for at least one week.

2. With system set up for normal operation, disconnect all signal inputs.

3. Turn CH-A and CH-B line level controls fully CW.

4. Connect ear phones into monitor jack.

5. Listen for thermostat noise for about five minutes.

6. No erratic noises should be heard as the thermostats cut on and off.

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THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N. Y.
SBCI-1A, SBC-1/SBC-1A TEST DATA SHEET

DERIAL NO. _____
MFG. NO. _____

B. Preliminary
   (14) carrier set at freq.
   (250,000 ± 5cps.) _____ CPS

   Carrier Bandwidth
   (4) carrier frequency
   upper limit freq.
   not less than (250,040) _____ CPS
   (7) Lower limit freq.
   not more than (249,960) _____ CPS

C. Converter Injection
   Oscillator V-5012
   Center frequency
   (as specifiec ± 250cps) + _____ CPS

D. Drift Circuitry
   (3) (as specified ± 300cps) _____ CPS
   (4) upper limit (as specified
   +1,000cps) _____ CPS
   (7) Lower limit (as specified
   -1,000cps) _____ CPS

E. Carrier AVC _____ OK

F. AFC-2 Drift
   (4) Locked freq. _____ CPS
   (6) Unlocked freq. _____ CPS
   (7) Drift freq. _____ CPS
   (5cps. Max.)

G. IF Strips and Audio Output
   (11) CH "A" (21 to 24V) _____ V
   (12) CH "A" (.8 to 1.3V) _____ V
   (17) CH "B" (21 to 24V) _____ V
   (18) CH "B" (.8 to 1.3V) _____ V

H. Thermostat Noise _____ OK

DATE _____
TESTER _____

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DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.
1/2/63	A	-----	10604	Revised Sheets 1,2,3,4,5,6 and TITLE Sheet per EMN.	
7/1/64	B	2-6	11694	Revised shts. 2-6 per EMN	

| | THE TECHNICAL MATERIEL CORP. | S-649 |
| REVISION SHEET | MAMARONECK   NEW YORK | LIST NO. |

DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.