

DATE 12-27-61SHEET 1 OF 6

TMC SPECIFICATION NO. S 633

A. R. F.

COMPILED

CHECKED

TITLE:

SBS-1 TEST PROCEDURE CONVERTER DECK

APPROVED

OBSOLETE, USE S705

I TEST EQUIPMENT REQUIRED (OR EQUIVALENT)

- A. 1-AC VTVM, Balentine 861.
- B. 1-RF VTVM, H.P. 410B.
- C. 1-RF Generator, Model 82.
- D. 1-Audio generator, H.P. 200CD.
- E. 1-50 ohm 1 watt resistor.
- F. 1-Counter, H.P. 524C.

II PRELIMINARY

- A. Inspect the unit for mechanical imperfections such as loose screws, terminal boards, etc.
- B. Inspect for obvious wiring errors.
- C. Check for B+ shorts with an ohmmeter.
- D. Turn Power Switch to STAND-BY position, then plug unit into AC outlet. The filament of the power supply tubes, V-7001 and V-7002, should be on. STAND-BY lights should go on immediately.
- E. Turn power switch from STAND-BY to ON. 60 seconds + 20 sec after applying AC to the unit the fan and B+ should be on. POWER ON light should go on immediately and STAND-BY light should go off.

III 250KC OSCILLATOR

- A. Turn AFC switch to the OFF position. This in effect engages the 250KC oscillator.
- B. Place the channel A AM CW SSB switch to the SSB position, the channel B to the AM position.
- C. Place a voltmeter on Pin 2 of V6203, and adjust R-6249 for a reading of -1 volt.
- D. Connect a counter to the output side of T-6204 (center conductor of coaxial cable is also on this point), and adjust C-6231 for 250,000 + 1 cycles.
- E. Check back to Pin 2 of V6203 as in C, and re-adjust R-6249 if necessary. The final setting should be of C-6231 for the proper frequency reading on the counter. Record on spec. sheet.
- F. Measure the voltage at the output of T-6204; it should be 1 volt. Record in Specification sheet of the test procedure.
- G. With the VTVM still connected as in F, rotate the channel A AM CW SSB from SSB to AM. The output should drop to 0 volts. Leave in the AM position.
- H. Rotate the channel B AM CW SSB switch to the CW, then the SSB position. In both cases the VTVM should read 1 volt.

DATE 12-27-61SHEET 2 OF 6

TMC SPECIFICATION NO. S 633

A.R.F.
COMPILED

CHECKED

TITLE: SBS-1 TEST PROCEDURE CONVERTER DECKA.R.F.
APPROVEDIV 705 KC OSCILLATOR

The 705KC oscillator, the triode section of V6202, is optional, that is to say, another crystal can be specified, such as 2MC, but in most cases 705KC will be used. In either case, the difference frequency of this oscillator and the external incoming IF frequency has to be 250KC.

- A. Turn AFC switch to the OFF position.. This in effect activates the 705KC oscillator.
- B. Place a voltmeter on Pin 2 of V6202, and adjust R-6215 for a reading of -1 volt.
- C. Connect a counter to the output side of T-6203 (center conductor of coaxial cable is also on this point), and adjust C-6214 for 705,000 ±1 cycles or the other specified frequency previously explained ±1 cycle.
- D. Check back to Pin 2 of V6202 as in B, and re-adjust R-6215 if necessary. The final setting should be of C-6214 for the proper frequency.
- E. Measure the voltage at the output of T-6203; it should be 1 volt. Record in the specification sheet of the test procedure, the voltage output and frequency of oscillator.

V AGC COMPARATOR

- A. Place the AGC selector switch to the CH A & B position.
- B. Set channel A & B AGC response switches to the FAST position.
- C. Place the VTVM on Pin 2 then Pin 7 of V6206, a reading of 0 volts should exist in both cases.
- D. Rotate both pots R6234 and R6237 to the full clockwise position and place the VTVM on the slider arm of R-6324. Rotation of R-6234 should vary the DC voltage from a positive to negative voltage from CW to CCW position. Repeat the same operation with R-6237.
- E. Adjust R6234 to 0 DC volts with the VTVM on the slider arm of this pot and lock.
- F. Place VTVM on the R-6237 slider arm, adjust to 0 DC volts and lock.

VI AGC MANUAL CONTROL

- A. Turn the AGC selector switch to the MANUAL position.
- B. Place the VTVM ON the post at the junction of CR-463 and CR6203 and rotate the AGC MANUAL control to the full clockwise position. The VTVM should read approximately 0 volts.

DATE 12-27-61

SHEET 3 OF 6

TMC SPECIFICATION NO. S 633

A.R.F.
COMPILED

CHECKED

TITLE: SBS-1 TEST PROCEDURE CONVERTER DECK

A.R.F.
APPROVED

- C. Rotation of the AGC control to the full CCW position will bring the voltage to -20 volts. Place the reading obtained on the specification sheet.

VII CONVERTER AND 250KC AMPLIFIER

- A. Place 250KC at approximately 10MV to J6800, the low Σ input, and the AC VTVM on Pin 9 or V-6200. Rotate R-6800 to full CW position, AFC switch to on and AGC control to maximum.
- B. Place a temporary clip lead tube jumper from Pin 1 of ~~V6201~~ to ground. This is to prevent interaction of the secondary to the primary of T-6200.
- C. Tune the top slug on T-6200 for maximum indication.
- D. Remove jumper line connected in B and adjust bottom adjusted slug for minimum indication on meter. Remove AC VTVM.
- E. Place AC VTVM on Pin 2 of J6000 (across 47 ohms resistor). Adjust slug on T6201 for maximum indication on VTVM. Meter should read approximately 7 millivolts. Record in specification sheet.
- F. Place VTVM ON J6801 HI Σ input. With 1MV on J6800, there should be 2 to 3 millivolts on J6801. Rotation of R-6800 in the CCW direction should reduce both HI Σ and LO Σ inputs to zero volts. Rotate R-6800 back to full clockwise position. Record voltage in spec. sheet.
- G. Converter and 250KC response.

1. Set the RF generator to 455KC at J6800 to 1MV, and AFC switch to OFF.
2. Connect VTVM and counter as in VII E, detection switch channel A to SSB, and CH B to AM.
3. Vary the frequency of the generator 15KC above and below 455KC. Record the 3db drop off points. Subtracting the two frequencies will give the overall bandpass of 24KC or greater.

VIII IF AMPLIFIER OUTPUT

- A. The bandpass of the crystal filters may vary with different customer orders. In this procedure, the 3.5 and 7.5KC filters are more widely used and are illustrated in this procedure for this reason.
- B. Place the VTVM at J-102 of the USB filter strip (FX-172).
- C. Rotate channel A and channel B IF Bandwidth controls to the 7.5KC LSB position.

A.R.F.

COMPILED

CHECKED

TITLE:

SBS-1 TEST PROCEDURE CONVERTER DECK

A.R.F.
APPROVED

- D. Place the AGC selector switch in the CH A & B position.
- E. Vary the generator approximately 1KC below 455KC; a peak should occur on the VTVM at about 1 volt. If this situation does not exist, rotate the output pot near FX-172 for 1 volt. Remove the VTVM.
- F. Set channel A and B IF Bandwidth controls to the 3.5KC LSB position, and place VTVM at J-102 near FX-168.
- G. Repeat VIII E, and set pot near FX-168 for 1 volt. Remove VTVM.
- H. Set channel A and B IF Bandwidth control to 7.5KC USB position, and place VTVM at J-102 near FX-173.
- I. Vary the generator approximately 1 KC above 455KC; a peak should occur on the VTVM at about 1 volt. If this situation does not exist, rotate the output pot near FX-173 for 1 volt. Remove the VTVM.
- J. Set channel A and B IF Bandwidth controls to the 3.5KC USB position, and place the VTVM at J-102 near FX-169.
- K. Repeat VIII I, and set pot near FX169 for 1 volt. Remove VTVM.

IX CHANNEL A AND B AMPLIFIERS

- A. Place channel A IF bandwidth selector to the 7.5KC USB position, channel B IF Bandwidth selector to 7.5KC USB position.
- B. Connect 50 ohm load on J-6806, channel A output.
- C. Place VTVM and vary generator as in VIII H and I.
- D. Place VTVM across 50 ohm load and tune T-6205 for maximum indication on the VTVM. Reading should be approximately 1 volt, and placed on spec. sheet.
- E. Place 50 ohm load and VTVM on J-6805. Tune T-6206 for maximum indication on VTVM. Reading should be approximately 1 volt, and placed on spec. sheet.

X PHONE MONITOR

- A. Place phones into phone monitor jack.
- B. A 1KC tone should be heard on the phones. Varying the generator should change the frequency of the tone. Leave at approximately 1KC.
- C. Set channel A IF Bandwidth control to 7.5KC LSB and rotate CH A & B MONITOR control to the full CW position. The 1KC tone should be heard on the phones.
- D. With a VTVM, measure voltage on J6202 monitor jack. A reading of approximately .8 volts. should be obtained. Record reading on spec. sheet. Rotating control to full CCW position should yield no signal. Leave in full CCW position.
- E. Set Channel A IF Bandwidth control to 7.5KC USB position and the Channel B IF Bandwidth control to 7.5KC LSB. Measure voltage on J6202 monitor jack.

DATE 12-27-61

SHEET 5 OF 6

TMC SPECIFICATION NO. S 633

A.R.F.
COMPILED

CHECKED

TITLE: SBS-1 TEST PROCEDURE CONVERTER DECK

A.R.F.
APPROVED

A reading of approximately 1 volt should be obtained. Record on spec. sheet. Rotating control so the full CW position should yield no signal. Remove VTVM. Setting the Channel B IF Bandwidth control to 7.5 USB should give a 1KC tone in full CW and full CCW position of the Phone Monitor pot.

Obtain specification number S632, test procedure for Audio and Detector Deck, to complete testing of SBS-1.

DATE 12-27-61
SHEET 6 OF 6

TMC SPECIFICATION NO. S 633

A.R.F.
COMPILED

CHECKED

TITLE: SBS-1 TEST PROCEDURE CONVERTER DECK

A.R.F.
APPROVED

SPECIFICATION SHEET

1. 250KC Oscillator _____ volts.
250KC Oscillator frequency _____ cycles.
2. _____ KC Oscillator _____ volts.
_____ KC Oscillator frequency _____ cycles.
3. AGC Comparator balance pots _____.
AGC Voltage _____ volts.
AGC Control _____.
4. 250KC Converter and amplifier _____ volts.
L $\frac{1}{2}$ input and input pot _____.
HI $\frac{1}{2}$ input _____ volts.
Response: 3db points _____ kc and _____ kc.
Bandpass _____ kc.
5. Channel A amplifier _____ volts.
Channel B amplifier _____ volts.
6. Phones monitor output channel A output _____ volts.
Phones monitor output channel B output _____ volts.

