| DATE 10/8/57 SH. 1 OF 4 COMPILED BY R.W.B. | TMC SPECIFICATION NO. S-349 | |
|---|---|---|
| APPROVED ARB | TITLE: PRELIMINARY TEST OF SBE-1 OSCILLATOR ASSEMBLY | JOB |

1. Inspect unit for obvious physical or mechanical imperfections.
2. Connect power source of 6.3 VAC, 150 V regulated and 250 V.
3. Connect 110 VAC to oven heater terminals #4 and #6. Periodically check Neon indicator to insure proper cycling of oven thermostat. (Indicator connected to terminals #2 and "6)
4. Insert a 2 Mc. and a 4 Mc. xtal in sockets #1 and 2 respectively. These sockets are located in the top of the oven assembly.
5. Connect 2 ft. cable of RG-174/U and H.F. Modulator load to J108.
6. Connect 2 ft. cable of RG-174/U to j106. This cable to be terminated with a 1000 Ω resistance.
7. Apply required voltages.
8. Check output of M.F. Oscillator across 1000 Ω load.

   Position #1 0 V.

   Position #2 thru 11 - Voltages dependent on xtal frequency

   2.0 Mc. xtal = Approximately 2.5 VRF

   4.0 Mc. xtal = Approximately 1.2 VRF
9. Change xtal from socket #2 to socket #3 thru #10 and rotate switch to corresponding positions. Output should be the same in all positions as in position #2.
10. Insert signal of 2.0 Mcs. @ 1.0 VRF at J105 with M.F. xtal switch in position #1. Output across 1 K load should be 1.5 VRF (± .25 V)
11. Repeat procedure with 4.0 Mc. signal. Output voltage 1 VRF (± .25 V)
12. Check that xtals for H.F. oscillator are in their proper sockets.

    Socket #1 = 14 Mc, #2 = 12 Mc, #3 = 10 Mc, #4 = 8 Mc,

    #5 = 17 Mc, #6 = 13 Mc, #7 = 11 Mc, #8 = 18 Mc.

13. Connect RF VTVM to H.F. Modulator input. Voltages for various frequenci s are listed below.

14. Begin alignment procedure with H.F. xtal switch in position #2. This connects the 8 Mc. xtal to the oscillator and coil #1 should now be tuned.

15. Repeat step #14 for each succeeding switch position and coil.

16. Output voltages for the various frequencies are as follows:

| | |
|---|---|
| 8.0 Mcs. | 4.2 V |
| 10.0 | 4.7 |
| 12.0 | 4.9 |
| 14.0 | 4.6 |
| 16.0 | 4.5 |
| 18.0 | 4.2 |

| | |
|---|---|
| 20.0 Mcs. | 4.5 V |
| 22.0 | 4.5 |
| 24.0 | 4.4 |
| 26.0 | 3.9 |
| 28.0 | 3.5 |
| 30.0 | 3.2 |

| | |
|---|---|
| 32.0 Mcs. | 2.4 V |
| 34.0 | 3.1 |
| | |
| | |
| | |
| | |

These voltages are subject to some variation due to variations in xtal activity.

17. At this time the oven should be warmed up sufficiently to begin cycling. By the use of an accurate 100 KC secondary frequency standard, which has been calibrated against WWV, the trimmer capacitors in parall l with the H.F. xtals should be tuned to zero beat. This operation is to be performed only on the H.F. xtals and only when the oven is at the proper temperature.

DATE 10/8/57
SH. 3 OF 4
COMPILED BY R.W.B.

# TMC SPECIFICATION NO. S-349

TITLE: PRELIMINARY TEST OF SBE-1 OSCILLATOR ASSEMBLY | JOB

APPROVED AMB

| TUBE | 12AU7 OSC. | 12AU7 AMP. | 6U8 PENT. SECT. | 6CL6 AMP. |
|---|---|---|---|---|
| SUPPLY VOLTAGE | 150 V | 250 V | 250 V | 250 V |
| PLATE VOLTAGE | 87 V | 160 V | 225 V | 210 V |
| SCREEN VOLTAGE | - | - | 115 V | 150 V |
| GRID VOLTAGE | -17 V | 0 V | -13 V | -11 V |
| CATHODE VOLTAGE | .2 V | 6.2 V | .15 V | 6 V |
| FILAMENT VOLTAGE | 6.3 VAC | 6.3 VAC | 6.3 VAC | 6.3 VAC |
| PLATE CURRENT | 2.86 MA | 4.08 MA | 3.68 MA | 14.8 MA |
| SCREEN CURRENT | - | - | 1.58 MA | 3.5 MA |
| PLATE DISS. | .249 W | .654 W | .827 W | 3.1 W |
| SCREEN DISS. | - | - | .184 W | .525 W |
| R.F. GRID VOLTAGE | 12.0 VRF | 2.1 VRF | 6.8 VRF | 9.0 VRF |
| R.F. PLATE VOLTAGE | 0 VRF | 2.4 VRF | 8.5 VRF | 15.0 VRF |

NOTE: All data for H.F. Oscillator (6U8 and 6CL6) recorded in 8 Mc. position with coil #4 tuned. Data for M.F. Oscillator (12AU7) taken at 2 Mcs. Both Oscillators should be properly terminated during recording.

| DATE 10/8/57 SH. 4 OF 4 COMPILED BY R.W.B. | TMC SPECIFICATION NO. S-349 | |
|---|---|---|
| APPROVED | TITLE: PRELIMINARY TEST OF SBE-1 OSCILLATOR ASSEMBLY | JOB |

SAMPLE

TEST REPORT SHEET

I. M.F. OSCILLATOR OUTPUT VOLTAGE

A. 2.0 Mcs. _____

B. 3.0 Mcs. _____

C. 4.0 Mcs. _____

II. V.M.O. AMPLIFIER OUTPUT VOLTAGE (Es = 1.0 V)

A. 2.0 Mcs. _____

B. 3.0 Mcs. _____

C. 4.0 Mcs. _____

III. H.F. OSCILLATOR ALIGNMENT _____

IV. H.F. OSCILLATOR OUTPUT VOLTAGE

A. 8.0 Mcs. _____

B. 10.0 Mcs. _____

C. 12.0 Mcs. _____

D. 14.0 Mcs. _____

E. 16.0 Mcs. _____

F. 18.0 Mcs. _____

G. 20.0 Mcs. _____

H. 22.0 Mcs. _____

I. 24.0 Mcs. _____

J. 26.0 Mcs. _____

K. 28.0 Mcs. _____

L. 30.0 Mcs. _____

M. 32.0 Mcs. _____

N. 34.0 Mcs. _____

V. XTAL LOCATION _____

VI. H.F. XTAL CALIBRATION _____

VII. OVEN CYCLING _____ _____