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DATE
SH. 2 OF
COMPILED BY J. LACROIX

TMC SPECIFICATION NO. S10190

TITLE: TEST PROCEDURE FOR TCXO (NF 10002) JOB

APPROVED (SME-5)

ORIGINAL

EQUIPMENT REQUIRED

a) D.C. power supply (+12 V.D.C.)

b) scope (tektronix 317 or better with high Z probe)

c) frequency counter (0.1 HZ readout)

d) frequency standard (1 Mhz)

e) temperature chamber (-5°C to +60°C range)

f) test jig (varicap grading) as per Fig. 1

PROCEDURE (Note: F_o = oscillator design frequency = 1.750000 Mhz)

1. Connect power to TCXO (cover off).

2. Connect scope, D.C. V.T.V.M., and counter to TCXO (using high Z probe) as per Fig. II.

3. Set R11 fully CW and turn back $\frac{1}{4}$ turn to first mark on pot.

4. Adjust R13 for 3.9 V.D.C. at TP-1.

5. Adjust C9 for 1.750000 Mhz (F_o).

6. Check output to be near a sine wave.

7. Check output amplitude to be at least 1V RMS.

8. Heat TCXO to +50°C and record F_o on test sheet. Let this figure be F_o (50).

9. Cool TCXO to ambient temp. (25°C) (see note 1).

10. a) If F_o (50) (see step 8) was higher than 1.750000 Mhz, at ambient temperature, decrease F_o (by adjusting R11) by an amount equal to F_o (50) minus F_o. Then reset oscillator frequency to 1.750000 Mhz by adjusting R13.

    b) If F_o (50) (see step 8) was lower than 1.750000 Mhz, at ambient temperature, increase F_o (by adjusting R11) by an amount equal to twice 1.750000 Mhz minus F_o (50). Then reset oscillator frequency to 1.750000 Mhz by adjusting R13.

11. Repeat step 8 to 10 until F_o is in spec. (see note 2).

12. Cool TCXO to 15°C and record F_o.

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13. Cool TCXO to 0°C and record F_o.

14. Heat TCXO to 25°C (ambient temp) (see note 1).

15. a) If F_o was too high at 0°C raise voltage at TP1 with R13 (0.1 volt per HZ) and reset to 1.750000 with C9.

    b) If F_o was too low at 0°C drop voltage at TP1 with R13 (0.1 volt per HZ) and reset to 1.750000 with C9.

16. When resetting to 1.750000 with C9 if exact F_o cannot be reached, increase value of R15 to reduce compensation on cold end. EXAMPLE: 330 K will change F_o by 3 HZ; 68 K will change F_o by 6 HZ.

17. When Freq/Temp. slope is nearly flat check 0°, 5°, 15°, 25°, 35° and 50°C. If in spec over these points, place cover on unit.

18. Final Freq/Temp. test over full range to be made after cover is attached with seal-caps on adjust openings.

NOTE 1: All adjustments must be made at ambient temperature (25°C).

NOTE 2: SPECIFICATION

± 2.5 HZ between 25° and 50°C
± 5.0 HZ between 0° and 25°C