I

1. Look at output on oscilloscope. Note operation with both Penlite cell and RM502R Mallory mercury cell.

2. Measure RMS EMF with both lowest and highest value of resistive load into which oscillator will be expected to feed.

3. Employ two oscillators for this test. Put output of one oscillator into X axis input of scope – the output of the other into Y axis scope input. By means of observing the Lissajous pattern determine the length of time necessary for a change in frequency of one cycle to occur. Have both oscillators laying flat on their backs for this test.

4. Shut one oscillator off. Wait at least a minute. Turn oscillator on again. Note time taken for amplitude to reach steady state. Note time interval necessary for oscillator to assume same frequency as before shutoff. (5)

II

5. Repeat test 4 with one oscillator on its back the other in the following positions.
   (a) Flat on its face
   (B) In a upright position
   (C) Upside down position.
   (D) Laying on its left side
   (E) Laying on its right side.

6. Repeat test 5 with oscillator near a magnetic field similar to what might be created by a ships compass.

7. Repeat test 3 with one unit in the temperature chamber. Employ a penlight cell for this test ~~Note temperature~~ and have oscillator controlled from outside chamber by means of its remote control accessory. Lower temperature in chamber to minimum value °c oscillator is expected to work at. Note
   (a) If it will start after being shut off.
   (B) Difference in amplitude from

III

what it was at room temperature

(c) Length of time required to reach maximum amplitude and length of time required to assume stabilized output frequency.

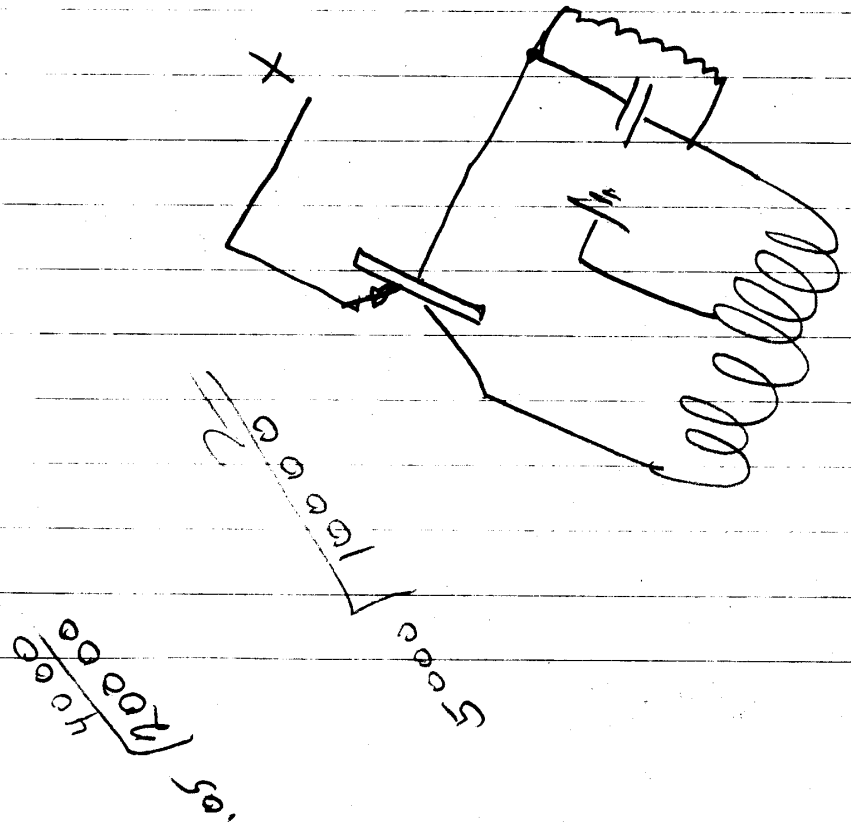
8. With oscillator on raise temperature of chamber to maximum value °C oscillator will be expected to work at. Note

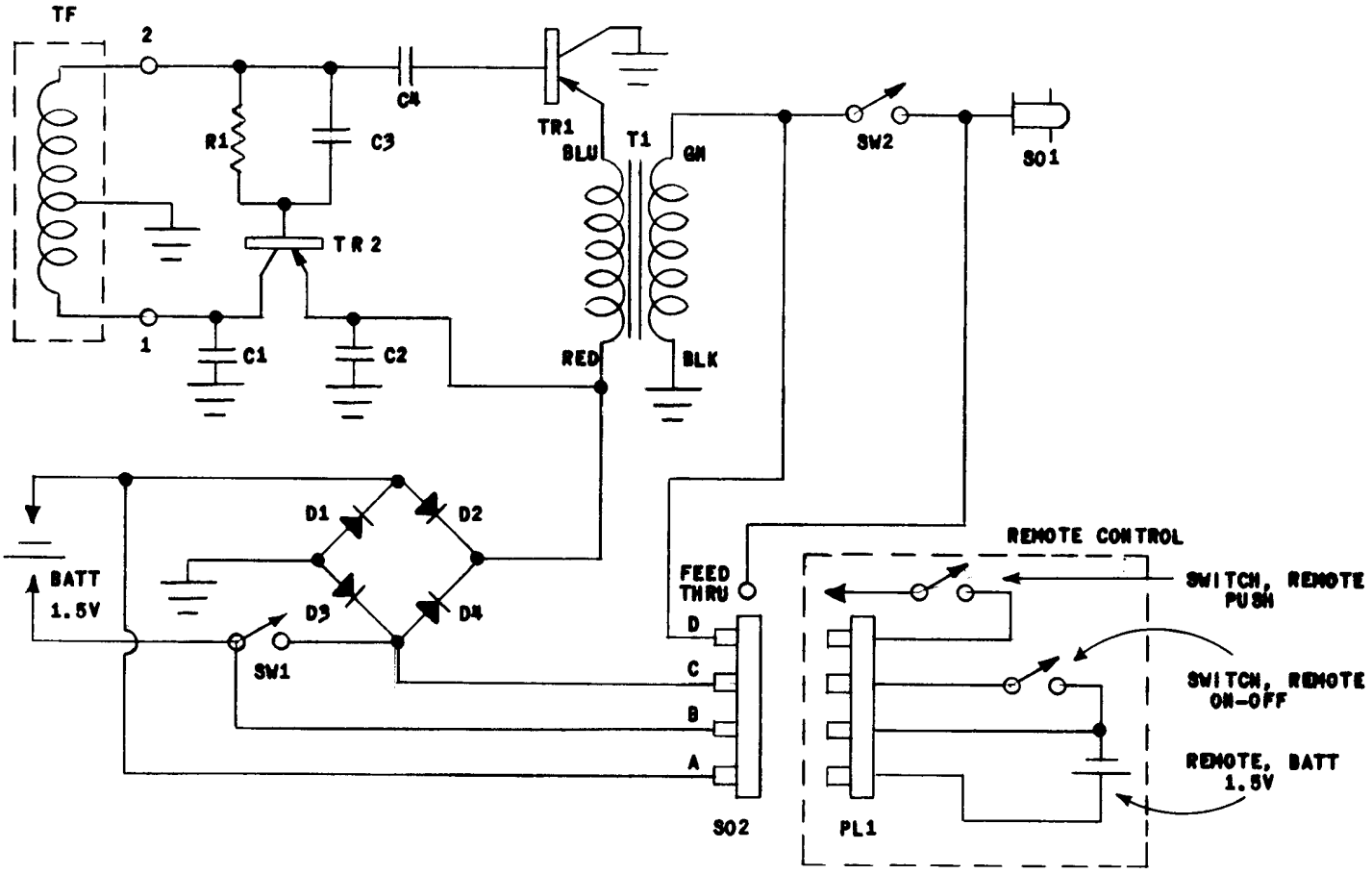
(a) During warm up period if any sudden change in frequency takes place.

(b) Take test 7 notes at this temperature.

9. Employ a Mallory mercury cell (RM502R) for this test. With oscillator in temperature chamber determine minimum temperature oscillator will start.

10. After determining oscillator frequency give oscillator a drop test and measure frequency again. Note if any change had occured.





PARTS LIST

Batt. - Battery, Mallory Mercury Cell RM502R or Penlite drycell.
C_1 - Capacitor, .02μfd , Mucon, 25WVDC.
C_2 - Capacitor, 4μfd, 4volt Mallory type TAW-4A4.
C_3 - Capacitor, .005μfd, Mucon, 25V WVDC.
C_4 - Capacitor, .002μfd, Mucon, 500WVDC .
D_1, D_2, D_3, D_4 - Diode, Sylvania 1N56 or Raytheon CK742.
R_1 - Resistor, 62K, 1/10 watt.
SO_1 - Connector, COAX IPC 46025.
SO_2 - Connector, Continental Connector type 4-20S.
PL_1 - Connector, Continental Connector type 4-20P.
SW_1 - Switch, toggle, Hetherington type T-3103.
SW_2 - Switch, push-button, Grayhill Series 30-1.
TF - Tuning fork resonator, Philamon Laboratories J-1000-K-N4085.
TR_1, TR_2 - Transistor, CK721.
T_1 - Transformer, UTC, DOT 1, 20K to 800Ω.

FIG. 1

FIXED FREQUENCY REFERENCE OSCILLATOR.