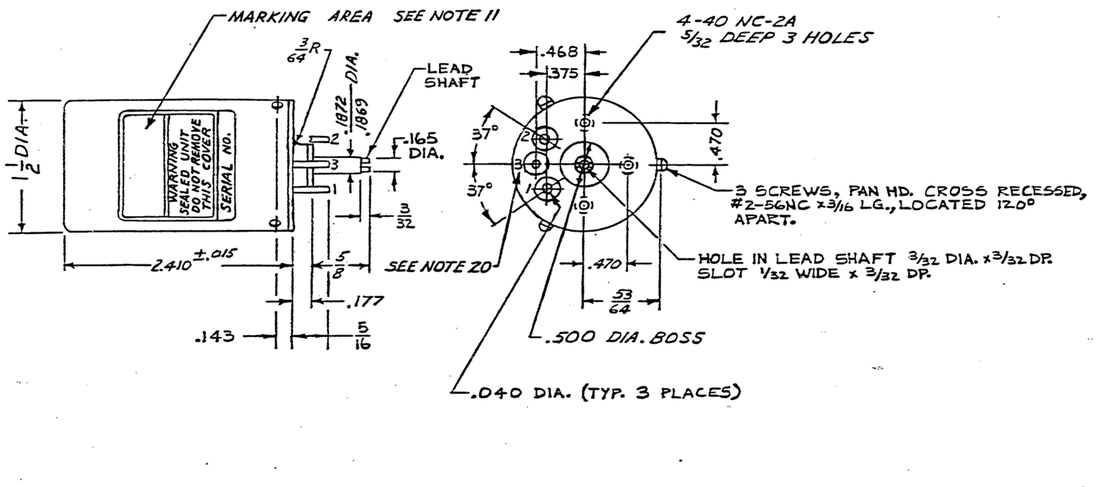
NOTE: DATA MARKED WITH AN ASTERISK (*) IS PECULIAR TO A PRIOR MANUFACTURER. IT DOES NOT TAKE PRECEDENCE OVER ANY OTHER DATA ON THIS DRAWING, AND IS NOT CONTRACTUALLY BINDING ON EITHER THE CONTRACTOR OR THE GOVERNMENT.

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
E	REVISE SCHEMATIC AS PER ECP N2BCCZZØ21 NOR ØIØ	30NOV82	DRSEL-ED-CC-C M.M.
F	REVISE NOTE 2 AS PER ECP N3BCCZZØ12 NOR ØIØ DRAWING ENLARGED FROM SIZE "C" TO "D"	16JUN83	DRSEL-ED-CC-C M.M.



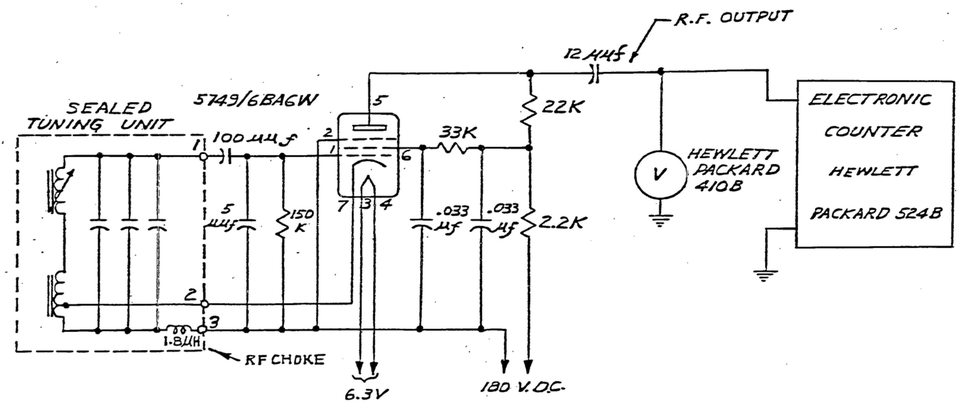


FIGURE I
SCHEMATIC OF TUNING UNIT
AND RECOMMENDED TEST CIRCUIT

NOTES:

1. BEAT FREQUENCY OSCILLATOR SHALL MEET THE QUALIFICATION AND INSPECTION REQUIREMENTS AS SPECIFIED IN NOTES.
2. DESCRIPTION: THE UNIT IS A TUNED CIRCUIT CONSISTING OF TWO INDUCTORS, 1 FIXED & 1 VARIABLE, 1 SEALED CAPACITOR WHICH PROVIDES THE MAJOR TUNING CAPACITANCE. IN PARALLEL WITH THE SEALED CAPACITORS ARE VARIOUS TEMPERATURE COMPENSATING CAPACITORS THAT MINIMIZE TEMPERATURE FREQUENCY DRIFT. THESE INDUCTANCE AND CAPACITANCE VALUES ARE UNKNOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SELECT, DEVELOP, AND DETERMINE THE PROPER CAPACITORS SO THAT, IN CONJUNCTION WITH THE INDUCTORS, THE CORRECT OPERATIONAL CHARACTERISTICS ARE OBTAINED. THE UNIT IS SEALED TO ATMOSPHERIC CHANGES. INDUCTORS TO BE CLASS O, GRADE 2 PER SPEC. MIL-C-15305. CAPACITORS ARE PER SPECS. MIL-C-5 & MIL-C-20 AS APPLICABLE. QUALIFICATION APPROVAL NOT REQUIRED.
3. CIRCUIT: TO OBTAIN THE CORRECT OPERATIONAL CHARACTERISTICS, THE CIRCUIT OF FIGURE 1 SHALL BE USED. IT SHALL BE RUGGEDLY BUILT WITH CAREFUL ATTENTION TO SHORT LEADS AND MINIMUM STRAY CAPACITY, ESPECIALLY IN THE GRID CIRCUIT.
4. TUNING: THE CENTER FREQUENCY IS 455KC. ROTATION OF THE LEAD SHAFT BY 126 DEGREES EITHER CW OR CCW FROM CENTER WILL PRODUCE FREQUENCY SHIFTOF FROM 2.4 TO 3.0 KC FROM 455 KC. THE FREQUENCY WILL INCREASE WITH CLOCKWISE ROTATION WHEN FACING LEADSHAFT. THE FREQUENCY SHIFT IS BALANCED BETWEEN OPPOSITE 126° ROTATIONAL EXTREMES WITH 500 CYCLES.
5. FREQUENCY-TEMPERATURE:
   A. FREQUENCY VARIATION FROM 32°F TO 86°F SHALL BE ±120 CPS OR LESS. FREQUENCY VARIATIONS FROM 86°F TO 140°F SHALL BE ±80 CPS OF LESS. FREQUENCY VARIATION FROM 86°F TO 176°F SHALL BE ±105 CPS OR LESS. THE UNIT WILL PERFORM SATISFACTORILY AT TEMPERATURES TO -40°F WITH GREATER FREQUENCY SHIFT.
   B. MEASUREMENTS SHALL BE MADE AT 10°F INCREMENTS FROM 32°F TO 176°F. STABILIZE FOR ½ HOUR AT EACH TEMPERATURE.
6. FREQUENCY-VOLTAGE: FREQUENCY VARIATION WITH A B+ SUPPLY CHANGE OF ±10% FROM NOMINAL (180 VDC) WILL BE ±15 CPS OR LESS. FREQUENCY VARIATION WITH A FILAMENT SUPPLY CHANGE OF ±10% FROM NOMINAL (6.3 VAC) SHALL BE ±10 CPS OR LESS.
7. R.F. VOLTAGE OUTPUT:
   A. WHEN MEASURED AT THE OUTPUT OF 12 MMF CAPACITOR OF FIGURE 1 WITH A RMS CALIBRATED VACUUM TUBE VOLTMETER, THE R.F. OUTPUT SHALL NOT BE LESS THAN 15 VOLTS.
   B. MEASUREMENTS SHALL BE MADE AT -40°F, 149°F AND 77°F.
8. TORQUE: TORQUE REQUIRED TO TURN THE TUNING SHAFT SHALL BE 4 INCH OUNCES MINIMUM, 24 INCH OUNCES NOMINAL AND 36 INCH OUNCES MAXIMUM.
9. SHOCK: THE UNIT SHALL WITHSTAND THE SHOCK TEST OF MIL-STD-202, METHOD 213, TEST CONDITION K. AFTER SHOCK TEST, THERE SHALL BE NO MECHANICAL FAILURE, AND UNIT SHALL MEET ELECTRICAL REQUIREMENTS OF NOTES 4 TO 8.
10. VIBRATION: THE UNIT SHALL WITHSTAND THE VIBRATION TEST OF MIL-STD-202, METHOD 201A. THERE SHALL BE NO MECHANICAL FAILURE, AND UNIT SHALL MEET ELECTRICAL REQUIREMENTS OF NOTES 4 TO 8.
11. MARKING: UNIT SHALL BE MARKED WHERE INDICATED WITH THE PRIME MANUFACTURER'S NAME, REGISTERED TRADEMARK OR CODE SYMBOL, TOGETHER WITH HIS PART NUMBER OR OTHER DESIGNATION, IN ACCORDANCE WITH SPEC. MIL-M-13231.
12. FINISHES: ALUMINUM-EXPOSED SURFACES E513 PER SPEC MIL-F-14072
    BRASS--EXPOSED SURFACES M312
    STAINLESS STEEL - -E300
13. BFO UNIT SHALL BE STABILIZED AT THE SPECIFIED TEST TEMPERATURES FOR ½ HOUR BEFORE MEASUREMENTS ARE MADE
14. IMMERSION: (SEAL TEST) PER MIL-STD-202 METHOD 104A TEST CONDITION A. UNIT SHALL MEET REQUIREMENT OF NOTE 7.
15. INSPECTION TESTS: (PRODUCTION)
    A. UNITS SHALL BE 100% INSPECTED TO REQUIREMENTS OF NOTES 4 TO 8, INCLUSIVE.
16. INCOMING INSPECTION TESTS: UNITS SHALL BE INSPECTED TO REQUIREMENTS OF NOTES 4,6,7 (AT 77°F),8,11, 12 AND 14.
17. ~~SOURCE: AS SUPPLIED BY STEWART-WARNER ELECTRONICS, CHICAGO, ILL. PART NO. SM-D505833 OR EQUAL.~~
18. RF CHOKE SHALL MEET THE REQUIREMENTS OF GRADE 3, CLASS O, PER SPEC MIL-C-15305.
19. MAY BE SUPPLIED BY ARTISAN ELECTRONICS CORP., MORRISTOWN, N.J., OR EQUAL, PROVIDING IT MEETS THE REQUIREMENTS OF THIS DRAWING.
20. CHARACTERS SHALL BE IN ACCORDANCE WITH SPEC MIL-M-13231.

FIND NO.	QTY REQD	FSCM NO.	PART NO. OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	NOTE

PARTS LIST

SM-D-505833	SC-DL-248775
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
FRACTIONS DECIMALS ANGLES
± 1/64 ±.005 ±—

MATERIAL:

~~STEWART WARNER ELECTRONICS~~
42428-PC-59

DRAWN M. L. Casingi
CHECKED M. L. Casingi 6/17/83
CERCOM
REVIEWED M. Moy
APPROVED M. Moy
DATE 17 Jun 83

U.S. ARMY COMMUNICATIONS AND ELECTRONICS MATERIEL READINESS COMMAND
FORT MONMOUTH NEW JERSEY 07703

TUNING UNIT

SIZE	FSCM NO.	DWG NO.
D	80063	SM-D-343625

SCALE NONE SHEET 1 of 1

WHEN REFERRING TO THIS DRAWING STATE DRAWING NO., APPLICABLE ISSUE LETTER IF ANY, AND DATE