JEDEC TYPE DESIGNATION REGISTRATION FOR PULSED MAGNETRONS

Manufacturer's Designation: 7950
JEDEC Designation: 7950
Manufacturer: Western Electric Co.

GENERAL CHARACTERISTICS

The 7950 is a pulsed magnetron oscillator tube which operates at a tunable frequency of 8500 to 9600 megacycles. The peak power output is approximately 265 kilowatts and the tube is air cooled. The tube uses an integral magnet.

GENERAL ELECTRICAL DATA

Pre-heat Heater Voltage	20 ± 0.3 volts
Pre-heat Heater Current at 20 volts	4.0 ± 0.2 amp.
Minimum Pre-heat Time	180 sec.
Heater Cold Resistance	0.5 ohm approximate
Anode-Cathode Capacitance	14 μμf approximate

Tuner Readings:

Tuner readings for the following frequencies are marked on the body of the tube.

Frequency	Code Letter Designation
8500 ± 10 Mc.	F1
9000 ± 10 Mc.	F2
9275 ± 10 Mc.	F3
9600 ± 10 Mc.	F4

ABSOLUTE MAXIMUM RATINGS

Heater Voltage	22 volts
Heater Current	4.5 amp.
Heater Surge Current	16 amp.
Peak Anode Voltage	40 kv.
Peak Anode Current	30 amp.
Average Power Input	800 watts
Duty Cycle	.0015
Pulse Duration	3.0 μsec.
Rate of Rise of Anode Voltage (above 80% point)	290 kv/μs
Output Circuit Pressurization	45 PSIA
Max. Altitude without Pressurization	
Output Circuit	Sea Level
Input Terminals	Sea Level
Anode Temperature	150°C
Cathode Stem Temperature	250°C
VSWR (Magnetron Load)	1.5:1

from JEDEC release #3533, Dec. 18, 1961

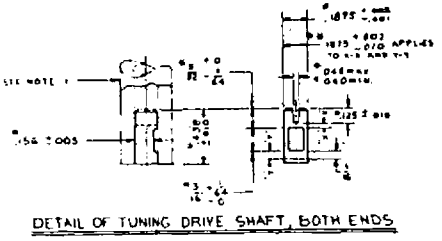
TYPICAL OPERATING RATINGS

Frequency	8500 to 9600 Mc
Peak Anode Voltage at 8500 Mc	33.0 ± 1.0 kv
Pulling Figure (VSWR 1.5/1)	16 Mc

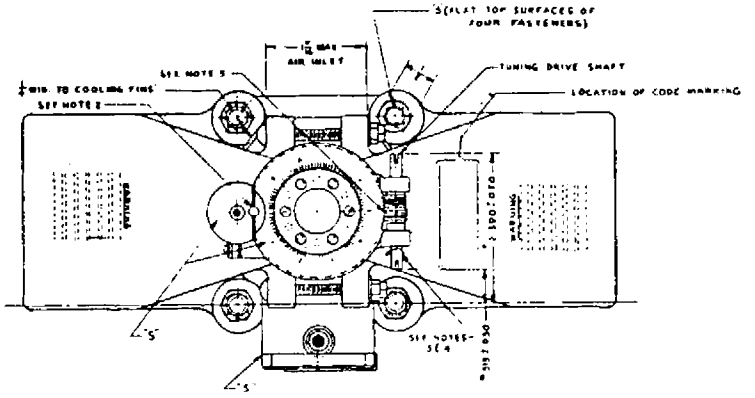
Current Pulse Duration	Duty Factor	Peak Anode Current	Stability	Peak Power Output	Voltage Pulse Rate-of Rise	RF Band Width at 1/4 po pts.	Heater Current
µsec		Amperes	% Missing Pulses	Kilo-watts (1.05 VSWR Max.)	kv per µsec (above 80 % point)	(1.5VSWR at worst phase of load) Mc	Amps ±5.0%
0.24 ± 0.02	.000125	24.0	1% Max.	265	270	6	3.6
2.5 ± 0.1	.00125	16.0	1% Max.	195	200	0.7	2.0

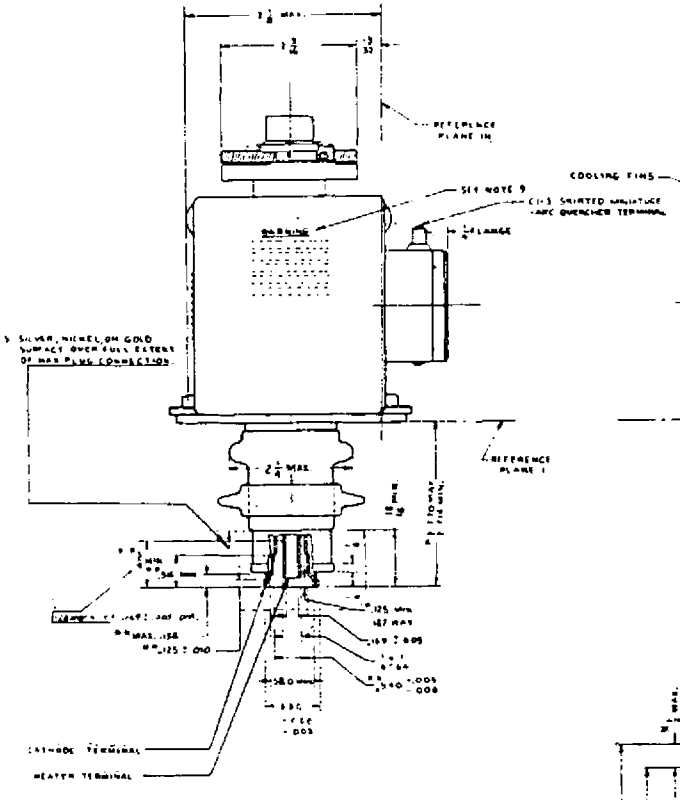
GENERAL MECHANICAL CHARACTERISTICS

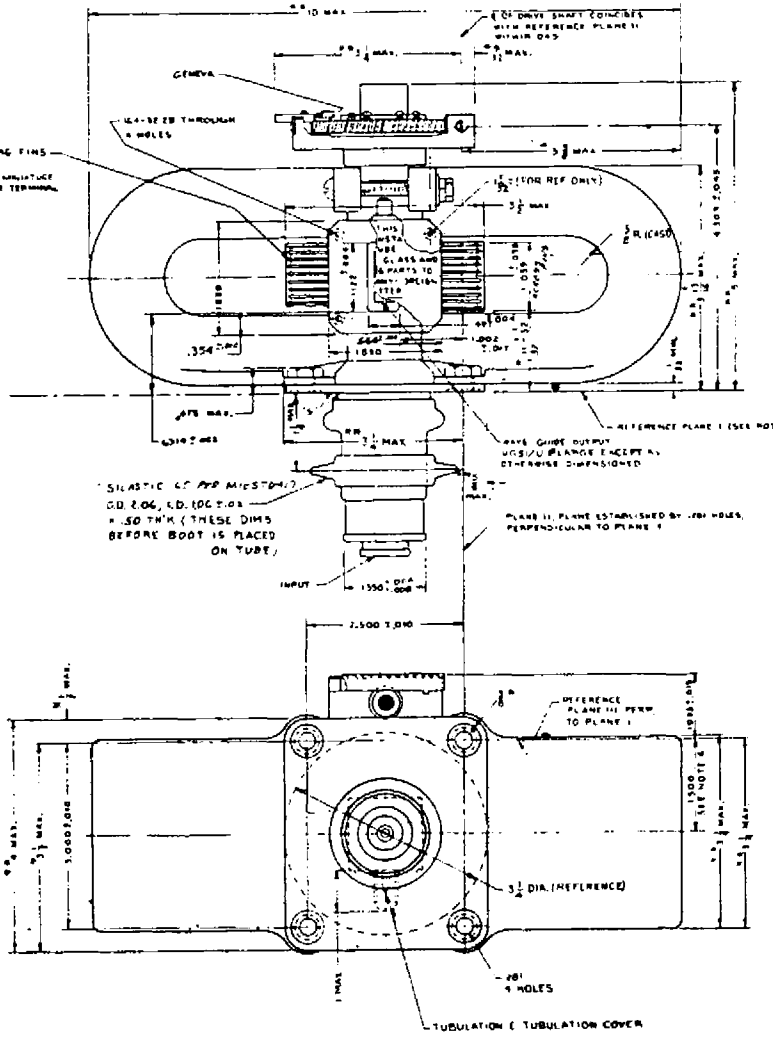
Mounting Position	any
Mounting Support	See four hole mounting plate on Outline Drawing - page 3
Weight	16 pounds approximate
Coupling - Load to Tube	RG 51/U waveguide with UG 51/U cover flange or modified (clearance holes instead of #8-32 tapped holes) UG 52A/U choke flange (or the equivalent aluminum waveguide and flanges).
Cooling data	20 cfm min. required through cooling fins to limit the rise in body temperature to a maximum of 100°C for a dissipation of 550 watts.
Recommended input temperature	The input temperature, measured on the cathode terminal immediately adjacent to the input glass to metal seal, should be 160°C ± 15°C with 0 anode voltage applied to the magnetron and with a filament current of 3.6 amperes.



DETAIL OF TUNING DRIVE SHAFT, BOTH ENDS







NOTES:

1. A SLEEVE .175 I.D. × 1 INCH LONG SHALL PASS OVER ENDS OF DRIVE SHAFT AS FAR AS FACE OF WORM BRACKET, BOTH ENDS.

2. THE NUMBER ON THE GENEVA APPEARING THROUGH THE HOLE IN THE GENEVA COVER INDICATES REVOLUTIONS FROM ZERO TO SIX.

3. THE FREQUENCY INCREASES WHEN DRIVE SHAFT IS DRIVEN IN DIRECTION INDICATED BY ARROW SHOWN IN TOP VIEW.

4. COMPLETE FREQUENCY RANGE IS COVERED IN NOT MORE THAN 188 TURNS OF DRIVE SHAFT.

5. THE TUNING MECHANISM SHALL OPERATE SMOOTHLY OVER THE ENTIRE MECHANICAL RANGE WHEN SUBJECTED TO TORQUE OF 6 INCH-OUNCES MAX. APPLIED AT THE TUNING DRIVE SHAFT.

6. THE AXIS OF THE HEATER TERMINAL SHALL BE WITHIN A RADIUS OF 5/64 OF COINCIDENCE WITH THE AXIS WHICH IS PERPENDICULAR TO PLANE 1 AND CENTERED WITH RESPECT TO THE 2.500 DIM. AND THE 3.000 DIM.

7. WITH A PRESSURE OF 30 PSIA APPLIED AT THE WAVE GUIDE OUTPUT, THE INTERNAL TO EXTERNAL LEAK RATE SHALL NOT EXCEED .01 CUBIC INCHES PER MINUTE.

8. THE HEATER TERMINAL (.169 DIA) SHALL BE CONCENTRIC WITH THE CATHODE TERMINAL (.540 DIA) WITHIN .010.

9. WARNING
MAINTAIN MINIMUM CLEARANCE OF 2 INCHES BETWEEN THIS MAGNET AND MAGNETIC MATERIALS. (MAGNETS, STEEL TOOLS, PLATES, ETC.)

10. ALL METAL SURFACES COVERED BY GRAY EXCEPT THOSE MARKED S.

11. PLANE 1 (SURFACE OF BASEPLATE OUTSIDE THE 3¼ DIAM) SHALL BE FLAT WITHIN .010 OUTSIDE THE 3¼ DIAMETER.

12. DIMENSIONS WITH A SINGLE ASTERISK (*) DENOTE DESIGN TEST. DIMENSIONS WITH A DOUBLE ASTERISK (**) DENOTE QUALIFICATION APPROVAL.

13. THE OPENING OF THE WAVE GUIDE SHALL BE ENCLOSED BY A DUST COVER.

7950 MAGNETRON