

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 $\pm$ 0.3 volts
Pre-heat Heater Current at 20 volts . . . 4.0 $\pm$ 0.2 amp.
Minimum Pre-heat Time 180 sec.
Heater Cold Resistance 0.5 ohm approximate
Anode-Cathode Capacitance 14 μ f approximate

Tuner Readings:

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

<u>Frequency</u>	<u>Code Letter Designation</u>
8500 $\pm$ 10 Mc.	F1
9000 $\pm$ 10 Mc.	F2
9275 $\pm$ 10 Mc.	F3
9600 $\pm$ 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 μ sec.
Rate of Rise of Anode Voltage (above 80% point)... 290 kv/ μ s
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

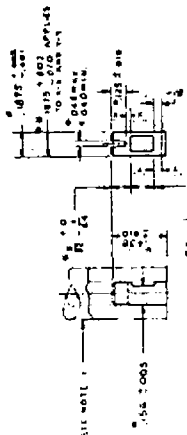
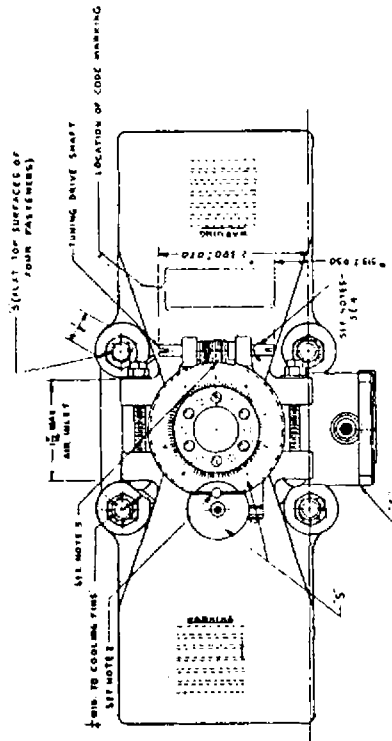
TYPICAL OPERATING RATINGS

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

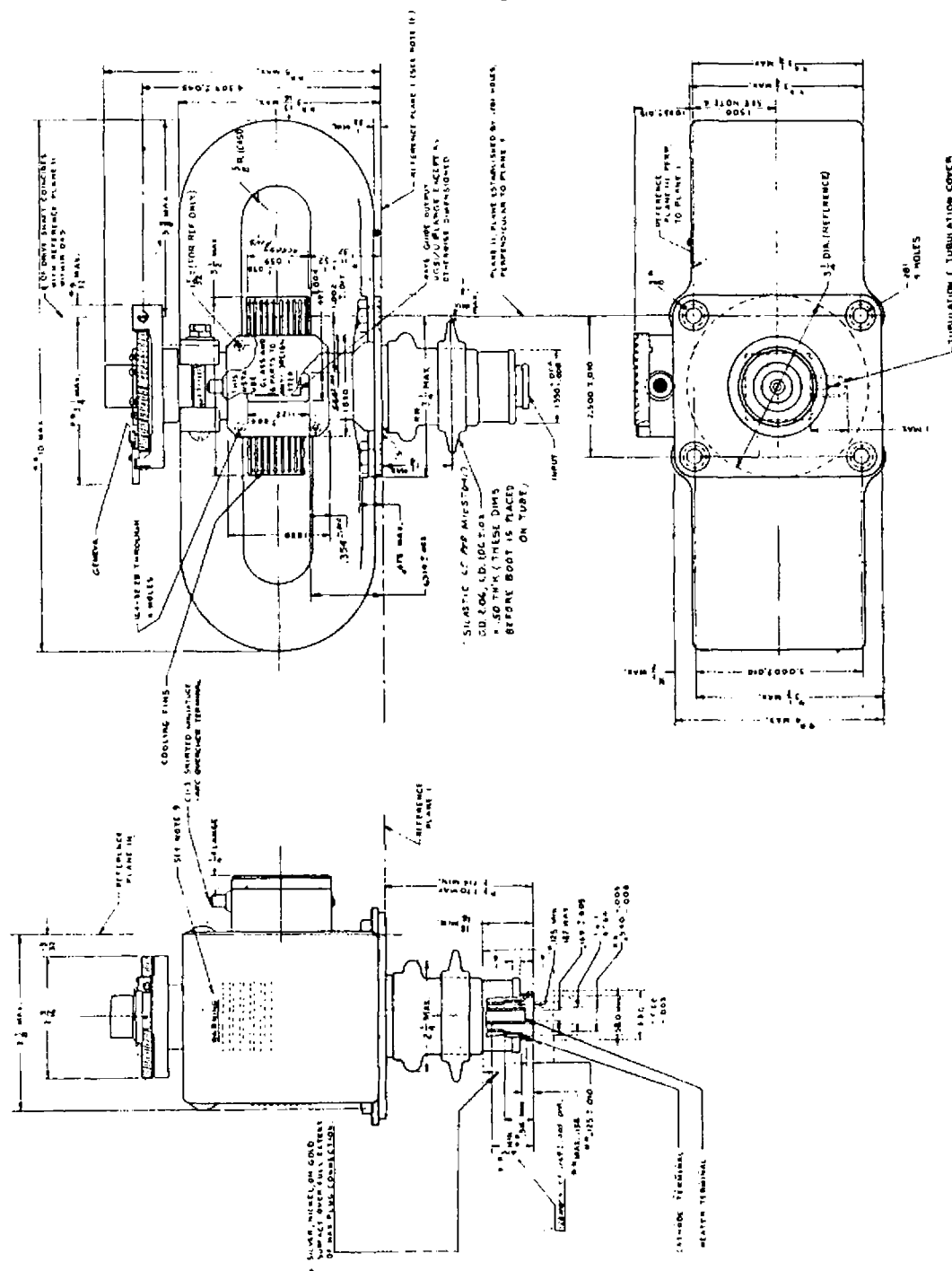
Current Pulse Duration	Duty Factor	Peak Anode Current	Stability	Peak Power Output	Voltage Pulse Rate-of Rise	RF Band Width at 1/4 po pts.	Heater Current
μsec		Amperes	% Missing Pulses	Kilo-watts (1.05 VSWR Max.)	kv per μsec (above 80 % point)	(1.5VSWR at worst phase of load) Mc	Amps $\pm 5.0\%$
0.24 ± 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 $160^{\circ}\text{C} \pm 15^{\circ}\text{C}$ 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 .05 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 1/2 MIN.
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 CONCORDANCE WITH THE AXIS WHICH IS PERPENDICULAR TO PLANE 1 AND CENTERED WITH RESPECT TO THE 2.500 DIA AND THE 3.000 DIA.
7. WITH A PRESSURE OF 30 PSIA APPLIED AT THE WAVE GUIDE OUTPUT, THE INTERNAL TO EXTERNAL LEAK RATE SHALL NOT EXCEED .01 CURIE INCHES PER MINUTE.
8. THE HEATER TERMINAL (.014 DIA) SHALL BE CONCENTRIC WITH THE CATHODE TERMINAL (.014 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 BASE PLATE OUTSIDE THE 3/4 DIA) SHALL BE FLAT WITHIN .010 OUTSIDE THE 3/4 DIA.
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.