

JEDEC TYPE DESIGNATION REGISTRATION FOR PULSED MAGNETRONS

Manufacturer's Designation: 7589
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Manufacturer: Western Electric Co.

GENERAL CHARACTERISTICS

The 7589 is a pulsed magnetron oscillator tube which operates at a tunable frequency of 8500 to 9600 megacycles. The peak power output is approximately 425 kilowatts and the tube is air cooled. The tube uses an integral magnet and incorporates a high-speed mechanical tuning mechanism.

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

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	40 amp.
Average Power Input	500 watts
Duty Cycle	.0005
Pulse Duration	3.0 μ sec.
Rate of Rise of Anode Voltage (above 80% point).	325 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)	1.3:1

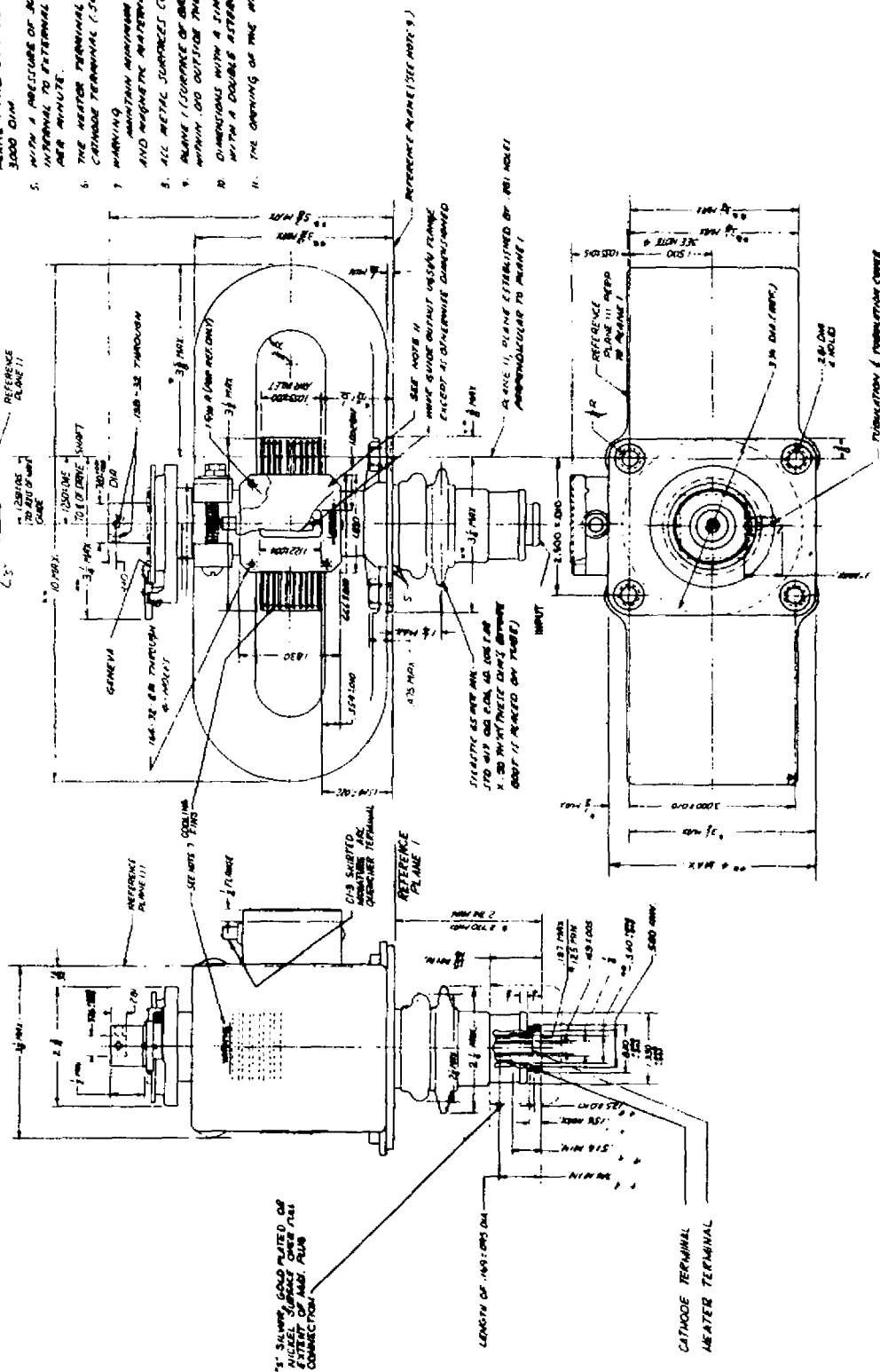
TYPICAL OPERATING RATINGS

Frequency 8500 to 9600 Mc
 Peak Anode Voltage at 8500 Mc 33.5 $\pm$ 1.0 kv
 Pulling Figure (VSWR 1.2:1) 13 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
μ sec		Amperes	% Missing Pulses (1.2 VSWR)	Kilo- watts (1.05 VSWR Max.)	kv per μ sec (above 80 % point)	Mc (1.2 VSWR at worst phase of load)	Amps $\pm$ 5.0%
0.24 $\pm$.02	.00031	32.2	2% Max.	425	290	6	2.9

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 equiva-
 lent aluminum waveguide and flanges).
 Cooling data 10 cfm min. required through cooling
 fins to limit the rise in body
 temperature to a maximum of 100°C
 for a dissipation of 270 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 $\pm$ 15°C
 with 0 anode voltage applied to the
 magnetron and with a filament current
 of 3.6 amperes.



1. THE NUMBER ON THE GUNNER INDICATING THROUGH THE HOLE IN THE GUNNER COVER INDICATES DEGRESSIONS FROM ZERO TO SIX.
2. THE FREQUENCY INCREASES WHEN THE SHIRT IS GUNNER IN DIRECTION INDICATED BY ARROW NUMBER IN TOP ROW.
3. THE TUNING MECHANISM SHALL OPERATE SMOOTHLY OVER THE ENTIRE MECHANICAL RANGE WHEN SUBJECT TO TORQUE OF 12 NEWTON-CENTIMETERS AS APPLIED AT THE TUNING COARSE SHIRT.
4. THE AXIS OF THE MASTER TUNING SCALE BE WITHIN A RADIUS OF .001 OF CONCORDANCE WITH THE AXIS NUMBER IS INDICATED TO PLANE 1 AND CENTERED WITH RESPECT TO THE 4.500 DIM. AND THE 3000 DIM.
5. WITH A PRESSURE OF 20 PSIA APPLIED AT THE WARE GUIDE ORIFICE, THE INTERNAL TO EXTERNAL LEAK RATE SHALL NOT EXCEED 0.1 CUBIC INCHES PER MINUTE.
6. THE MASTER TERMINAL (1.69 DIM.) SHALL BE CONCENTRIC WITH THE CATHODE TERMINAL (5.00 DIM.) WITHIN .010.
7. MARKING
MAINTAIN MINIMUM CLEARANCE OF 8 INCHES BETWEEN THIS MARKING AND MAGNETIC MATERIALS. (MAGNETS, STEEL TOOLS, METALS, ETC.)
8. ALL METAL SURFACES COVERED BY GRAY PAINT, EXCEPT THOSE MARKED 3 PLANE 1 (CORROSION OF SUBSTRATE OUTSIDE THE 3.00 DIM.) SHALL BE FLAT WITHIN .010 OUTSIDE THE 3.00 DIA.
9. DIMENSIONS WITH A SINGLE ATTEMPT (%), EXCEPT DESIGN TEST DIMENSION, WITH A DOUBLE ATTEMPT (%), EXCEPT QUALIFICATION DIMENSION.
10. THE ORIGIN OF THE WARE GUIDE SHALL BE INDICATED BY A SHIRT COVER.