

JEDEC TYPE DESIGNATION REGISTRATION FOR PULSED MAGNETRONS

May 2, 1960

Manufacturer's Designation: 4012
JEDEC Designation: 7535
Manufacturer: Western Electric Co.

GENERAL CHARACTERISTICS

The 7535 is a pulsed magnetron oscillator tube which operates at a tunable frequency of 8500 to 9600 megacycles. The peak power output is approximately 550 kilowatts and the tube is air cooled. The tube uses an integral magnet.

GENERAL ELECTRICAL DATA

Pre-heat Heater Voltage 20 ± 5% 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
Anode-Cathode Capacitance 14 ± 1.5 μf

Tuner Readings:

Tuner readings for the following frequencies on oscillation #1 conditions are marked on the body of the tube.

<u>Frequency</u>	<u>Code Letter Designation</u>
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.	42 KV
Peak Anode Current.	45 amp.
Average Power Input	950 watts
Duty Cycle.0015
Pulse Duration.	3.0 μsec.
Rate of Rise of Anode Voltage (above 85% point)	325 KV/μs
Output Circuit Pressurization	45 PSI (Absolute)
Max. Altitude without Pressurization	
Open Circuit	Sea Level
Input Terminals.	Sea Level
Anode Temperature	
(See outline Drawing - page 3)	125°C
Cathode Stem Temperature	
(See outline Drawing - page 3)	300°C
VSWR (Magnetron Load)	1.5:1

TYPICAL OPERATING RATINGS

Frequency. 8500 to 9600 Mc
 Peak Anode Voltage at 8500 Mc. 33.5 ± 1.0 KV
 Pulling Figure (VSWR 1.5/1). 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)
μsec		Amperes	% Missing Pulses	Kilo-watts (1.05 VSWR Max.)	KV per μsec (above 85 % point)	1.5 VSWR min. at worst phase of load	Amps ± 5%
0.24	.00031	42.5	2% Max.	550	300	6	2.7
2.5 ± 0.1	.00125	16.0	1% Max.	180	230	0.5	2.2

GENERAL MECHANICAL CHARACTERISTICS

Mounting Position. any
 Mounting Support See Outline Drawing - page 3
 Weight 16 pounds
 Coupling - Load to Tube. RG 51/U Wave guide flange

NOTES

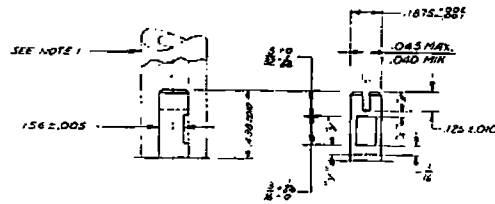
D.D. x 1 INCH LONG SHALL PASS OVER ENDS OF FACE OF WORM BRACKET.

10. APPEARING THROUGH THE HOLE IN THE COMPLETE REVOLUTIONS OF THE GEAR FROM THE GEAR IS TO BE READ DIRECTLY OPPOSITE WAVE COVER IN HUNDRETHS OF A REVOLUTION. 11. THE UPPER FREQUENCY LIMIT OCCURS BY THE DIAL SETTING TO OBTAIN THE CORRECT OPERATION OF THE TUBE FOR AT LEAST 20 MINUTES INPUT PER D.C. TUBE.

12. WHEN DRIVE SHAFT IS DRIVEN IN DIRECTION IN TOP VIEW.

13. TUNING RANGE FOR A DIAL THE MECHANICAL SPEED 165 REVOLUTIONS OF THE DRIVE SHAFT.

14. OPERATE SMOOTHLY OVER THE ENTIRE WAVELENGTH RANGE OF 6 IN. D.C. MAX. APPLIED EQUIPMENT USE A PEAK STATIC TORQUE NO. 100 LBS. PER INCH OF THE TUBE DRIVE SHAFT.



DETAIL OF TUNING DRIVE SHAFT

THE 1.875 ± .002 DIMENSION DOES NOT NECESSARILY APPLY TO THE PART OF THE TUNING DRIVE SHAFT BETWEEN THE SLOT AND THE KEYWAY DESIGNATED 'Y-Y' AND TO THE .116" WIDE STRIP ADJACENT TO THE KEYWAY TOWARDS THE MIDDLE OF THE SHAFT DESIGNATED 'X-X'. THESE PARTS OF THE SHAFT MAY BE SLIGHTLY LESS THAN THE 1.875 ± .002 DIA TO OBTAIN BETTER DEBURRING, BUT MAY NOT BE LARGER THAN THE 1.875 ± .002 DIAMETER.

15. TERMINAL SHALL BE WITHIN A RADIUS OF 10 IN. NOTE 7 APPLIES.

16. WAVE GUIDE OUTPUT AND CATHODE TERMINAL AS LATERAL DEVIATIONS.

17. ASSEMBLY EXTENDING BELOW REFERENCE PLANE IS 1/8" RADIUS OF THE SPECIFIED AXIS OF THE INPUT.

18. THE EXTREMITIES OF THE CYLINDRICAL SECTION.

19. THE EXTREMITIES OF THE CYLINDRICAL SECTION.

20. BEAR BEYOND THIS DIMENSION.

21. ALL BE CONCENTRIC WITH THE CATHODE TERMINAL.

22. RANGE OF 2 INCHES BETWEEN THIS MAGNET AND ALI. (MAGNETS, STEEL TOOLS, PLATES, ETC.)

23. WAVE GUIDE SHALL BE ENCLOSED BY A DUST COVER.

24. COATED BY GRAY FINISH EXCEPT THOSE MARKED MECHANISM (K).

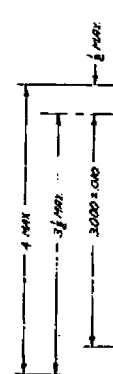
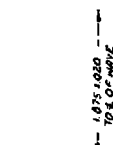
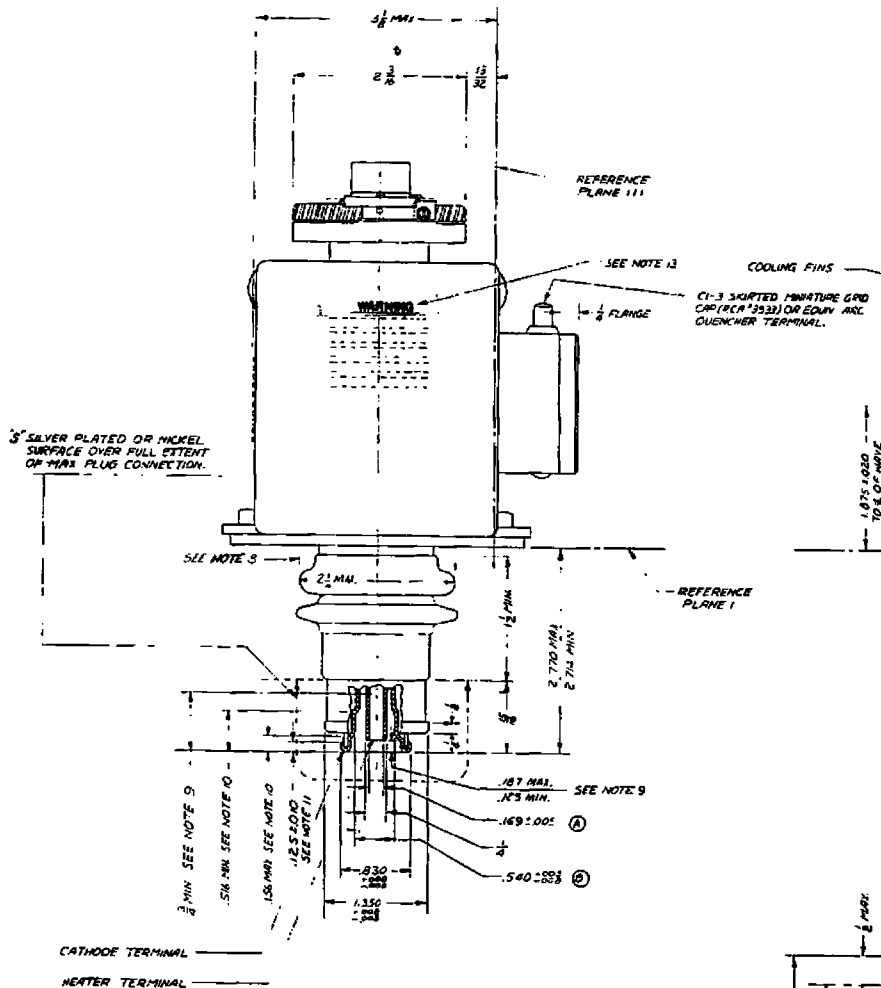
25. R SHALL NOT EXTEND BEYOND PLANE DEFINED.

26. ON A PLANE SURFACE COINCIDENT WITH REFERENCE PLANE WAVE SHALL NOT ENTER AND AREA OF THE SURFACE SHALL BE WITHIN .010 OF THE PLANE.

27. C1-3 SKIRTED MINIATURE GRID CAP (PCA 2933) OR EQUV. ARC QUENCHER TERMINAL.

28. BRASS MACHINE SCREENS ARE OPTIONAL.

29. IS APPLIED AT THE WAVEGUIDE OUTPUT THE 2" CHOKE AND THE ARC SUPPRESSOR SHALL BE PER MINUTE.



#2115
2832A

BELL TELEPHONE LABORATORIES

INCORPORATED

555 UNION BOULEVARD
ALLENTOWN, PENNSYLVANIA
HEMLOCK 3-7581

December 23, 1960

MR. G. F. HOHN
E.I.A. Standards Laboratory
32 Green Street
Newark 2, New Jersey

Dear Mr. Hohn:

On June 6, 1960 registration data on the 7535 tube was circulated on release #2832.

We now wish to modify the original data as follows:

Under "Absolute Max. Ratings"

	<u>Was</u>	<u>Proposed</u>	
"Average Power Input"-----	950	600	watts
"Duty Cycle"-----	.0015	.001	

Table under "Typical Operating Ratings", Page 2

The entire last line in the table starting with current pulse duration of 2.5 ± 0.1 usec and ending with 2.2 amps should be deleted from the data.

We are making the request in behalf of the sponsor; Western Electric Co., Laureldale, Pennsylvania.

Yours truly,

J. G. WHYTOCK

HL-2833-EHC-EMF

Copy to:
Messrs. M. L. Embree - LD
H. M. Olson

Copy to: EIA Engineering Office, New York City

