JETEC TYPE DESIGNATION REGISTRATION FOR PULSED MAGNETRONS

May 2, 1960

Manufacturer's Designation: 4012
JETEC 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 μμf

Tuner Readings:

Tuner readings for the following frequencies on oscillation #1 conditions 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.	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

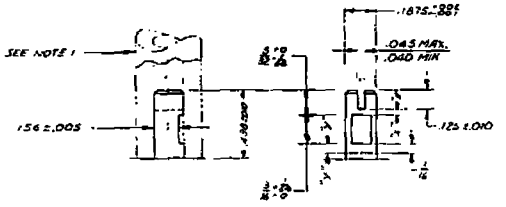
TYPICAL OPERATING RATINGS

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

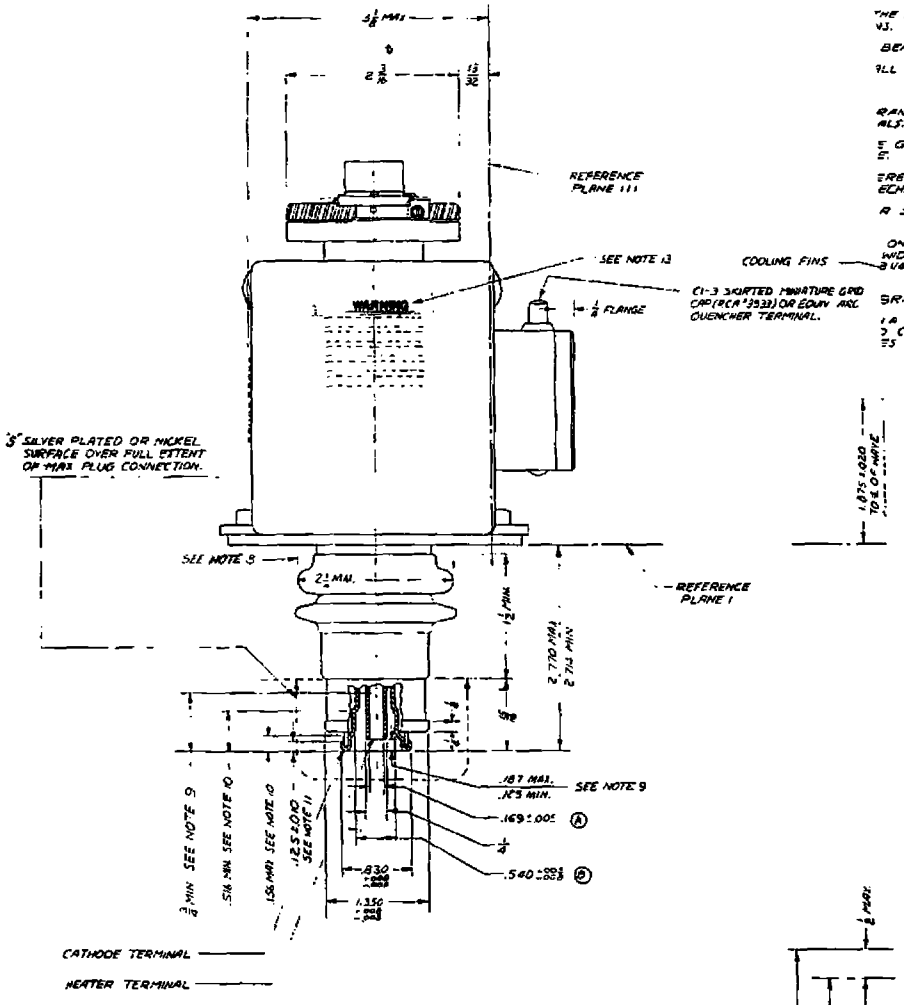
GENERAL MECHANICAL CHARACTERISTICS

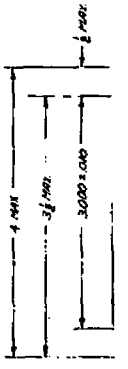
Mounting Position. . . . . any
Mounting Support . . . . . See Outline Drawing - page 3
Weight . . . . . 16 pounds
Coupling - Load to Tube. . . . . RG 51/U Wave guide flange



DETAIL OF TUNING DRIVE SHAFT

THE .1875 +.005 -.001 DIMENSIONS DOES NOT NECESSARILY APPLY TO THE PART OF THE TUNING DRIVE SHAFT BETWEEN THE SLOT AND THE KEYWAY DESIGNATED "Y-Y" AND TO THE 1/16" WIDE STRIP ADJACENT TO THE KEYWAY TOWARDS THE MIDDLE OF THE SHAFT DESIGNATED "Y-Y". THESE PARTS OF THE SHAFT MAY BE SLIGHTLY LESS THAN THE .1875 +.005 -.001 DIA TO OBTAIN BETTER DEBURRING, BUT MAY NOT BE LARGER THAN THE .1875 +.005 -.001 DIAMETER.





NOTES

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HEN DRIVE SHAFT IS DRIVEN IN DIRECTION IN IN TOP VIEW

ED. TUNING RANGE PER A 217101. THE MECHANICAL CEED 165 REVOLUTIONS OF THE DRIVE SHAFT.

LL OPERATE SMOOTHLY OVER THE ENTIRE MECH- ECTED TO TORQUE OF 6 IN OZ. MAX APPLIED QUIPMENT USE A PEAK STATIC TORQUE NO OUNDS SHALL BE AT THE TUBE DRIVE SHAFT.

E TERMINAL SHALL BE WITHIN A RADIUS OF ION NOTE 7 APPLIES.

OF WAVE GUIDE OUTPUT AND CATHODE TERM- WELL AS LATERAL DEVIATIONS

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THE EXTREMITIES OF THE CYLINDRICAL SECTION NS.

BEAR BEYOND THIS DIMENSION.

ALL BE CONCENTRIC WITH THE CATHODE TERM-

RANCE OF 2 INCHES BETWEEN THIS MAGNET ALS. (MAGNETS, STEEL TOOLS, PLATES, ETC.)

E GUIDE SHALL BE ENCLOSED BY A DUST COVER E.

ERED BY GRAY FINISH EXCEPT THOSE MARKED ECHANISM (K).

R SHALL NOT EXTEND BEYOND PLANE DEFINED

ON A PLANE SURFACE, COINCIDENT WITH REFERENCE WIDE SHALL NOT ENTER AND AREAS OF THE 3/4 DIA SHALL BE WITHIN .010 OF THE PLANE

BRASS MACHINE SCREWS ARE OPTIONAL.

IA APPLIED AT THE WAVEGUIDE OUTPUT THE D CHOKE AND THE ARC SUPPRESSOR SHALL ES 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"

	Was	Proposed	
"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

EIA STANDARDS
DEC 28 1960
LABORATORY