

CW MAGNETRON

METAL AND CERAMIC
2.5 KILOWATTS OF CW POWER
FOR DIELECTRIC HEATING

915 MEGACYCLES
TUNGSTEN FILAMENT
HIGH EFFICIENCY

The GL-6787 is a water and forced-air-cooled CW magnetron designed for use as a power source in dielectric heating. It can produce 2.5 kilowatts of useful power and operates at a fixed frequency be-

tween 890 and 940 megacycles. The magnetic field is supplied externally, and may be an electro-magnet connected in series with the plate current.

TECHNICAL INFORMATION

GENERAL

Electrical

Preheat Filament Voltage*	12 ± 1.2	Volts
Preheat Filament Current at 12 Volts	.56 ± 5	Amperes
Minimum Preheat Time	.20	Seconds
Filament Cold Resistance	0.018	Ohms
Anode-Cathode Capacitance	.14	μf

GENERAL  **ELECTRIC**

from JETEC release #1572, Jan. 23, 1956

TECHNICAL INFORMATION (CONT'D)

Mechanical

Mounting Position—Tube Axis Vertical—Cathode Up or Down

Mounting Support and Tube Connections—See K-69087-72A732 on page six for details.

Net Weight 4.6 Pounds

Thermal

Type of Cooling—Forced Air and Water

Water Flow through Tube, minimum 2 Quarts per Minute

Outgoing Water Temperature 70 Max C

Air Flow on Output Seal 10 Cubic Feet per Minute

Air Flow on Cathode Structure 10 Cubic Feet per Minute

Provision must be made to prevent application of filament or plate power to the tube before water and air cooling is applied, and to remove power in the case of cooling-system failure.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Maximum Ratings, Absolute Values

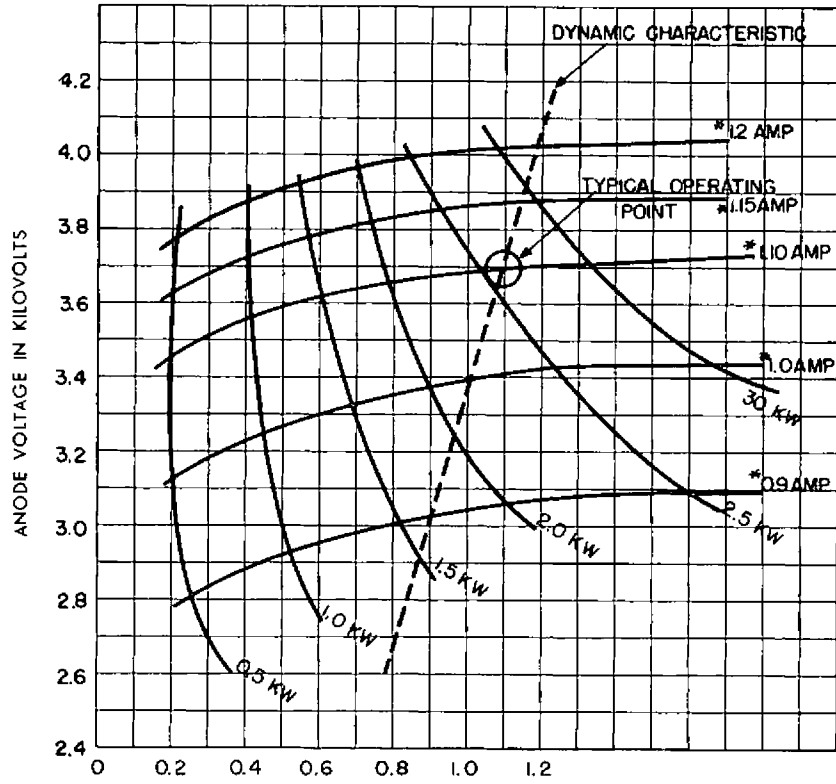
Filament Voltage*	13.2	Volts
Filament Current	.61	Amperes
Filament Surge Current	.85	Amperes
Anode Voltage	4100	Volts
Anode Current	1.5	Amperes
Plate Input	6000	Watts
Plate Dissipation	3500	Watts
Outgoing Anode Cooling Water	.70	Max C
Cathode Stem Temperature	200	Max C
(See Outline K-69087-72A731 on page seven for details)		
Voltage Standing Wave Ratio—Presented by the Load	3:1	

Typical Operating Conditions

Filament Voltage*	12.0	Volts
Filament Current	.55	Amperes
Frequency	.890 to 940	Megacycles
Anode Voltage	3700	Volts
Anode Current	1.10	Amperes
Power Output, minimum	2.5	Kilowatts
Pulling Factor, VSWR 1.5:1	.2	Megacycles
Pushing Factor, I_b from 0.3 to 1.0 ampere	2.6	Megacycles per Second per Ampere
Thermal Coefficient of Temperature	-0.07	Megacycles per Second per C
Magnetic Field—See K-69087-71A286 on page five for details.		

* While the magnetron is oscillating, a portion of the input plate power (depending on load conditions) will cause the filament to overheat. Maximum life will be obtained by reducing the filament power during oscillation; if the loading changes rapidly, this reduction can best be done by an automatic control, otherwise, a manual correction may be used. The required reduction of power can be ascertained by decreasing the filament voltage until the hot filament resistance during oscillation is the same as that when the magnetron is not oscillating.

TYPICAL PERFORMANCE CHART

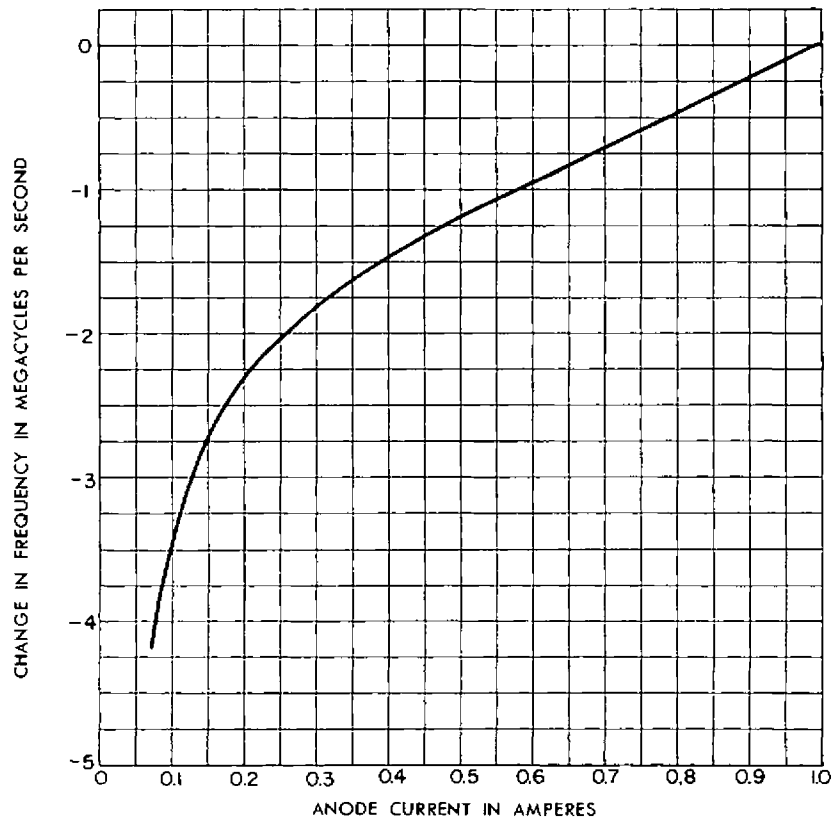


ANODE CURRENT IN AMPERES
 *CURRENT THROUGH ELECTROMAGNET. SEE OUTLINE K-69037-71A286
 ON PAGE FIVE.

K-69087-72A734

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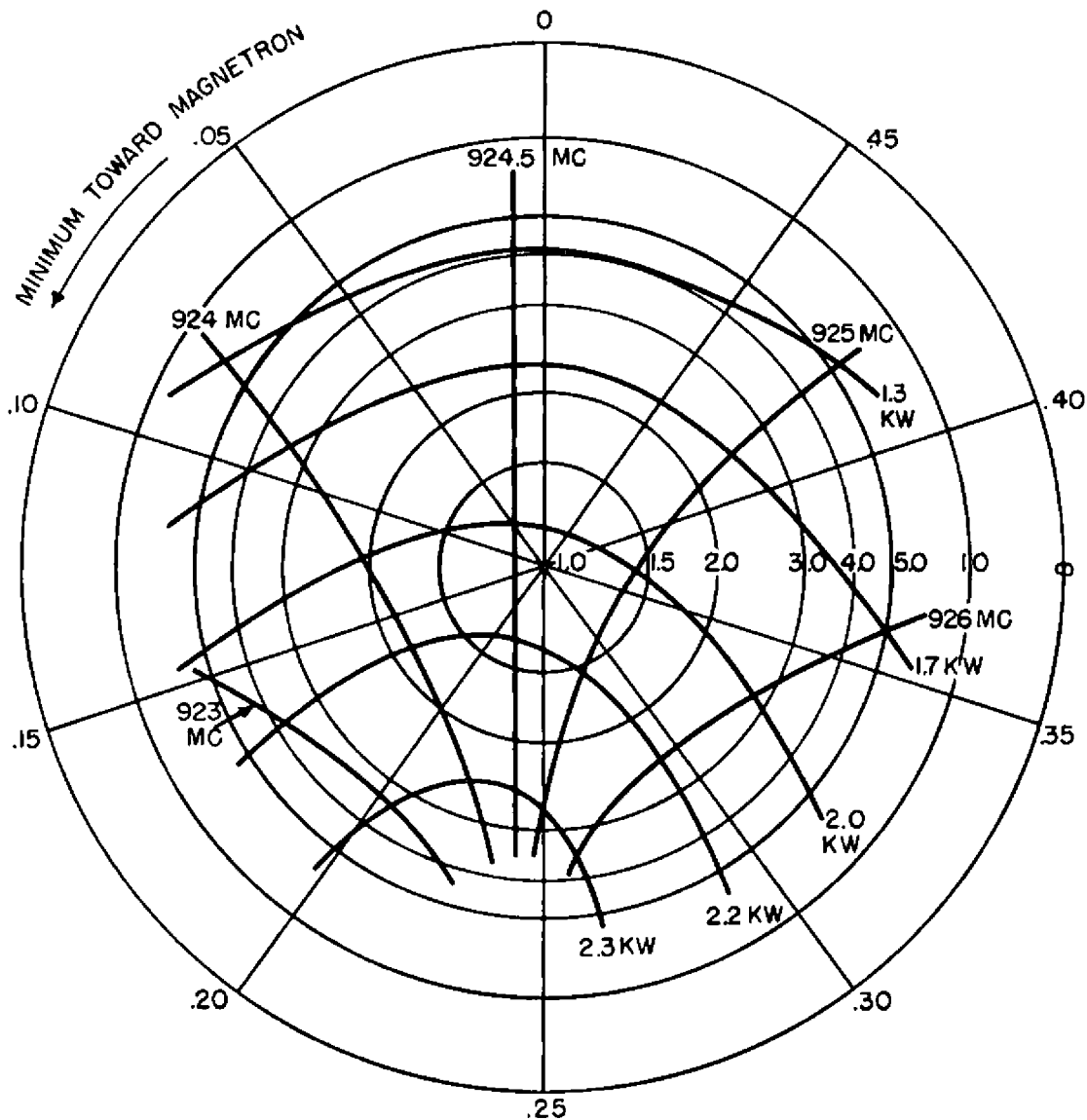
TYPICAL PUSHING CURVE



K-69087-72A735

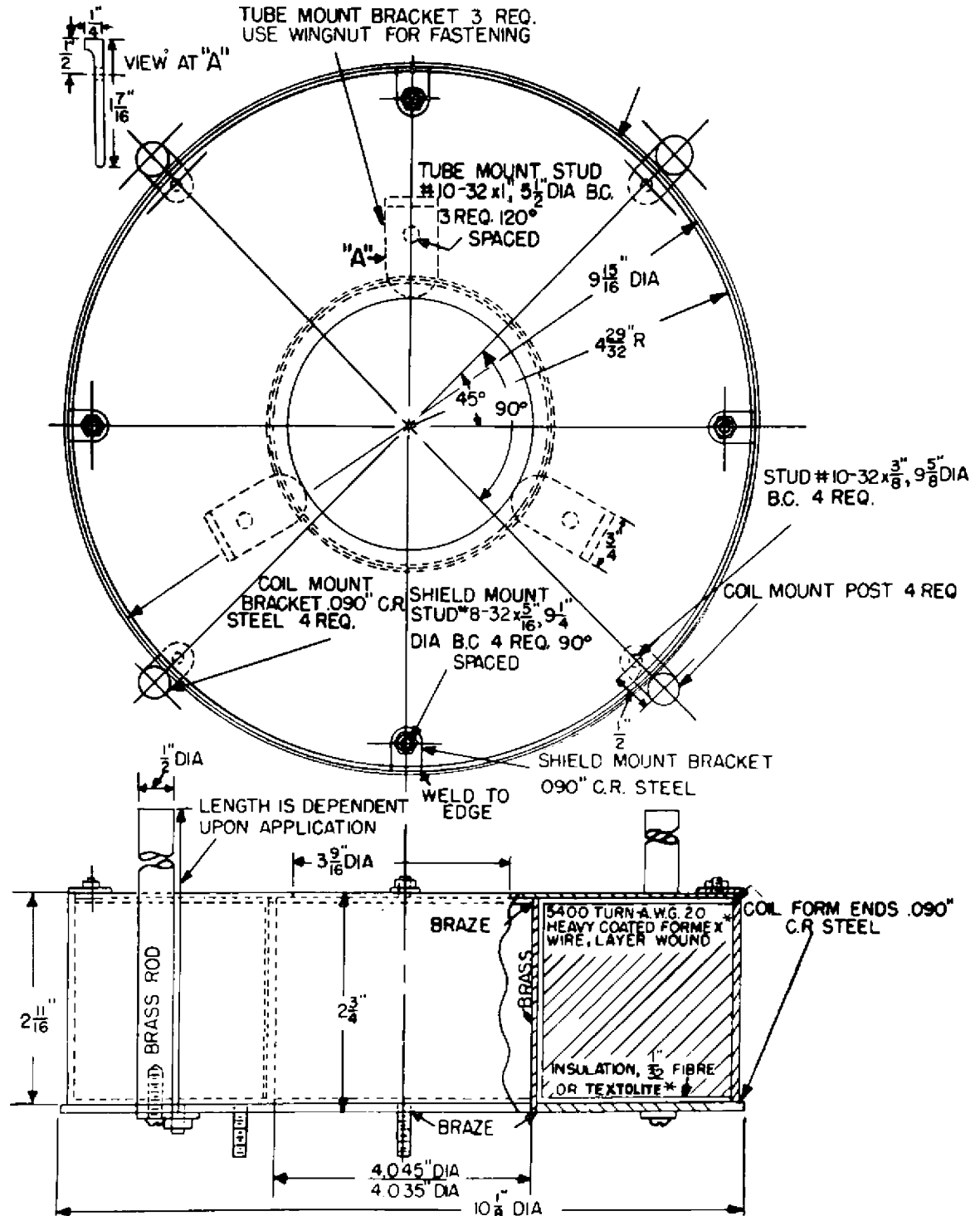
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RIEKE DIAGRAM



CONSTANT ANODE VOLTAGE = 3.3 KILOVOLTS.
ELECTROMAGNET—SEE OUTLINE K-69087-71A286 ON PAGE FIVE FOR DETAILS.
REFERENCE POINT IS 1 3/4" BELOW MOUNTING FLANGE (CENTER OF THE ANODE).
FIELD SHUNT RESISTANCE = 5 KILOHMS.

ELECTROMAGNET FOR GL-6787

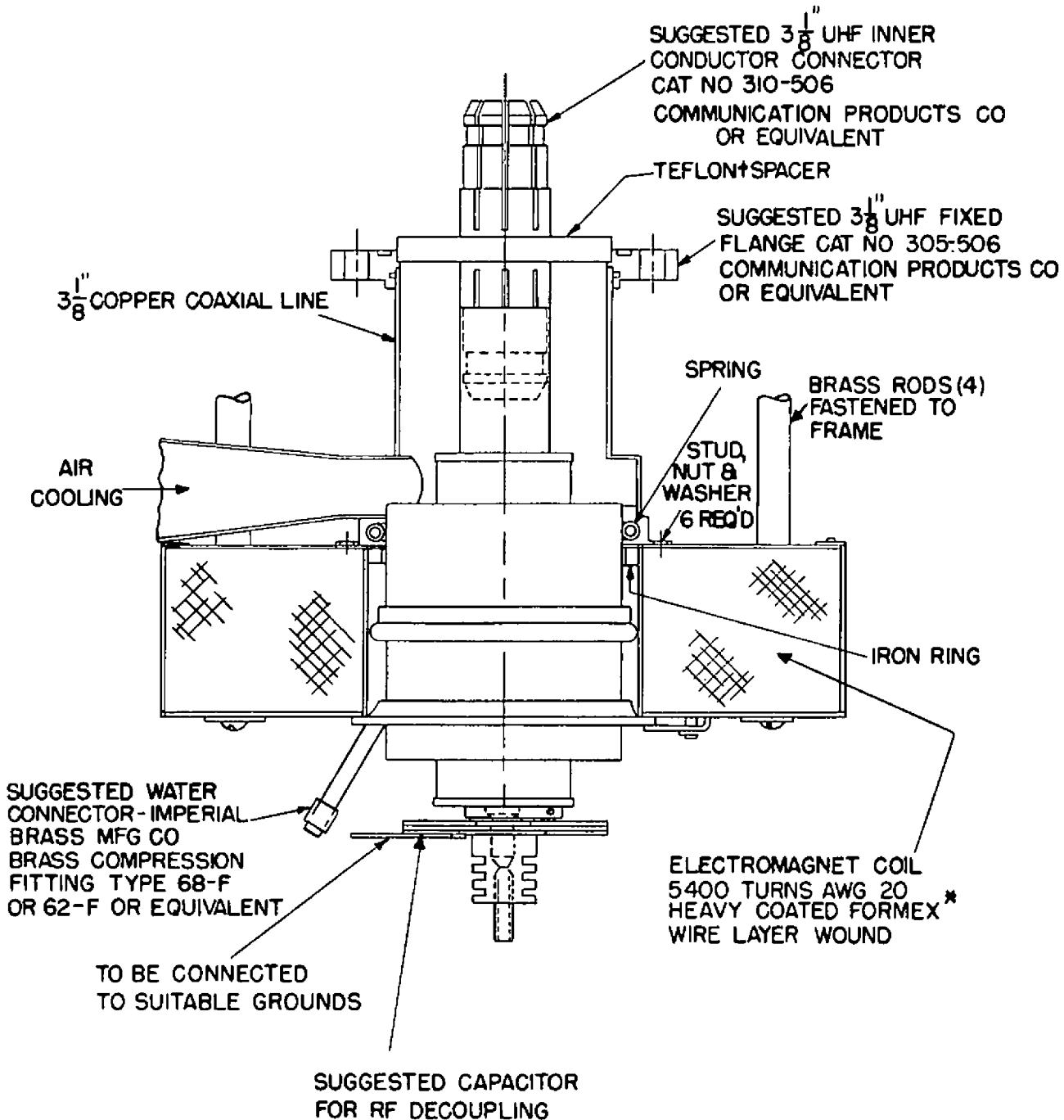


NOTES:

1. ALL STUDS PROTRUDING FROM COIL FORM ARE SET INTO TAPPED HOLES, BRAZED, AND THEN GROUND FLUSH ON INSIDE OF FORM.

*REGISTERED TRADEMARK OF GENERAL ELECTRIC COMPANY.

MOUNTING FOR GL-6787



*REGISTERED TRADEMARK OF GENERAL ELECTRIC COMPANY.

†REGISTERED TRADEMARK OF E. I. du PONT de NEMOURS AND COMPANY, INC.

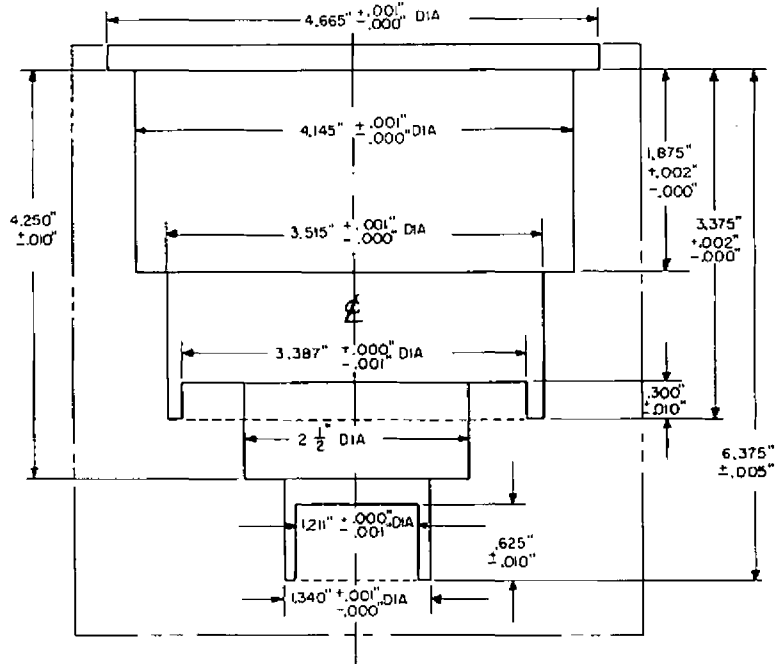
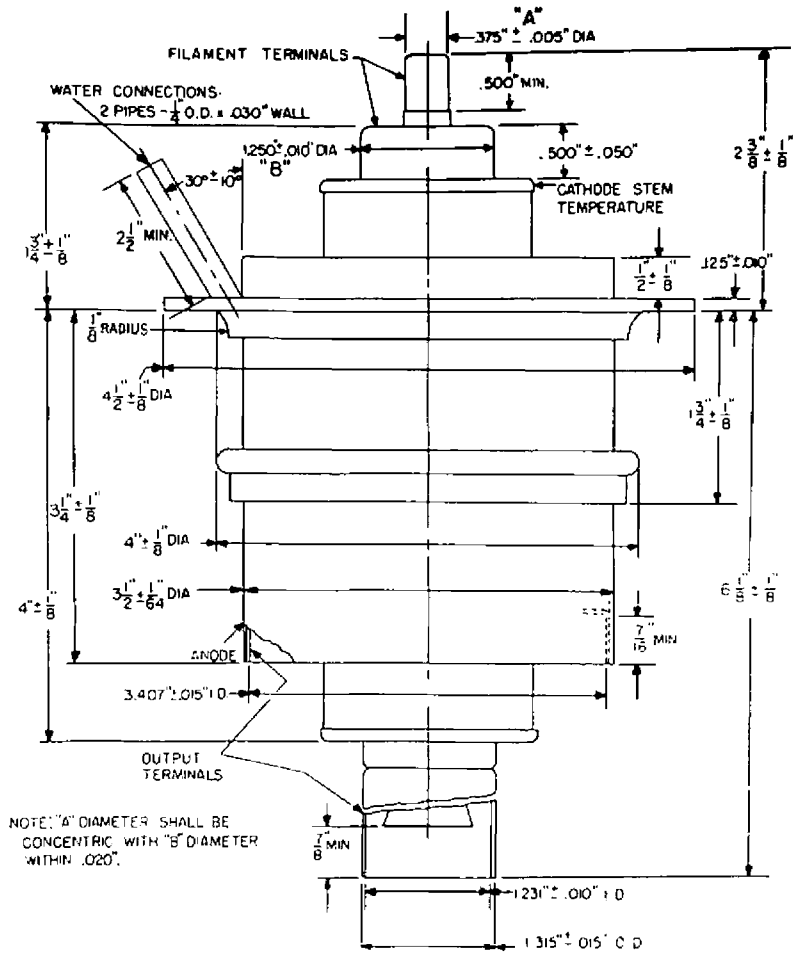
OUTLINE

GL-6787

ET-T1246

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NOTE: THE CONCENTRICITY AND OVALNESS OF THE TUBE SHALL BE DEFINED BY THE ABOVE FIXTURE INTO WHICH THE TUBE SHALL FIT FREELY.
ALL DIAMETERS OF THE ABOVE FIXTURE SHALL BE CONCENTRIC WITH THE 3.515" ± .001" DIAMETER WITHIN .001".
-.000"

March 18, 1957

Release No. 1572C

Type No. 6787

<u>ITEM</u>	<u>AS REGISTERED</u>	<u>AS PROPOSED</u>
Thermal		
Water Flow through Tube, minimum	2	3 Quarts per Minute
Typical Operating Conditions		
Frequency	890 to 940	910 to 928 Megacycles with footnote reference**

**Variations in operating parameters within maximum specified ratings may cause the frequency to deviate beyond the specified limits. The maximum deviation however, will not exceed 890 to 940 megacycles.

Rieke Diagram

Change:	924.5 to	0 Megacycles
	925 to	+0.5 Megacycles
	926 to	+1.5 Megacycles
	923 to	-1.5 Megacycles
	924 to	-0.5 Megacycles

Add Footnote: Frequency stated in megacycles deviation from center frequency.

Electromagnet

Change:	9 15/16" Diameter	11 7/16 Inches
	4 29/32" Radius	5 21/32 Inches

Mounting

Remove capacitors and delete the two notes referenced to them

Outline

change - Water, Connections, 2 Pipes	1/4	3/8 Inch OD
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