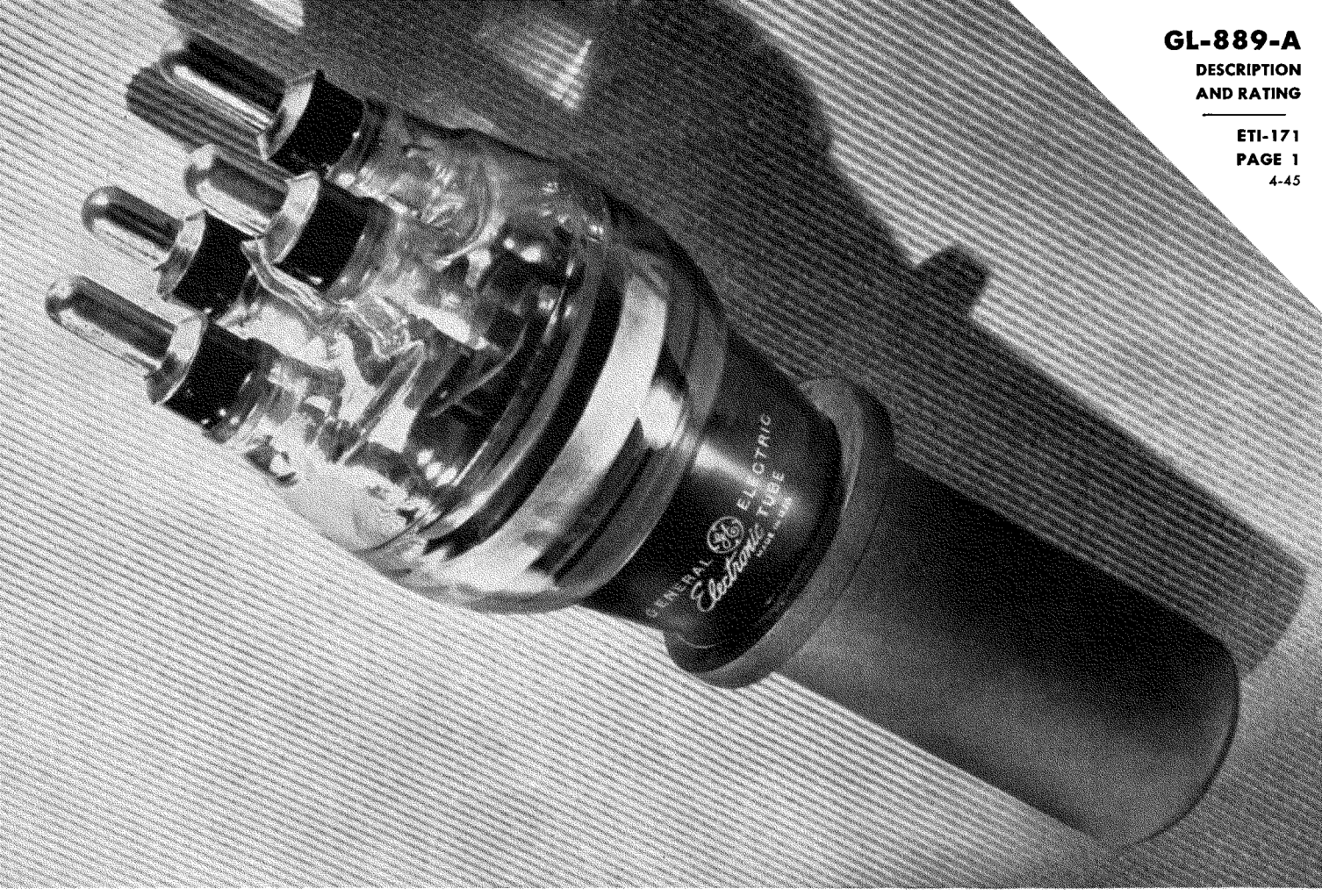


PLIOTRON

DESCRIPTION

The GL-889-A is a three-electrode power tube designed for use as a radio-frequency, amplifier, oscillator, or Class B modulator. The plate is water-cooled and is capable of dissipating 3 to 5 kilowatts, depending upon the class of service. The design of the mount and terminal connections minimizes lead inductance and makes the tube particularly suitable for high-frequency applications.

TECHNICAL INFORMATION

These data are for reference only. For design information refer to specifications.

GENERAL CHARACTERISTICS

Number of electrodes	3	
Electrical		
Filament voltage	11	volts
Filament current	125	amperes
Average Characteristics		
Amplification Factor, $E_b = 5$ kv, $I_b = 1.0$ amp, $E_c = 75$ v, $E_f = 11$ v a-c	21	
Grid-plate transconductance	9000	micromhos
Direct interelectrode capacitances:		
Grid-plate	17.5	micromicrofarads
Grid-filament	23.3	micromicrofarads
Plate-filament	2.7	micromicrofarads
Frequency for maximum ratings	50	megacycles

Electronic TUBE

GENERAL ELECTRIC

TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling	water and forced air
Maximum outlet temperature	70 centigrade
Water flow	3–6 gal per min
Air flow to bulb, from a 3-inch diam nozzle	15 cu ft per min
Gasket	Cat. No. 5182028P8
Net weight, approximate	2 pounds
Shipping weight, approximate	9 pounds
Mounting position	vertical, anode down

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS B AUDIO-FREQUENCY POWER AMPLIFIER (TWO TUBES):

		Typical Operation		Maximum* Ratings	
D-c plate voltage	5000	6000	7500	8500	volts
Maximum signal plate current†, per tube				2.0	amperes
D-c maximum signal plate input†, per tube				12	kilowatts
Plate dissipation†, per tube				5.0	kilowatts
D-c grid voltage	180	−230	−300		volts
Peak a-f grid input voltage	1460	1680	1700		volts
Zero signal plate current	0.4	0.4	0.4		ampere
Maximum signal plate current	3.2	3.6	3.2		amperes
Maximum signal plate input†	16	21.6	24		kilowatts
Maximum signal driving power, approx	170	180	150		watts
Effective load, plate-to-plate	2520	3680	5000		ohms
Maximum signal plate power output	8.8	12	15		kilowatts

CLASS B RADIO-FREQUENCY POWER AMPLIFIER

Carrier conditions per tube for use with a max modulation factor of 1.0

D-c plate voltage	6000	7500	8500	volts
D-c grid voltage	−250	−300		volts
D-c plate current	0.9	0.9	1.0	ampere
Plate input			7.5	kilowatts
Plate dissipation			5.0	kilowatts
Peak r-f grid input voltage	920	1000		volts
Driving power, approx‡	95	80		watts
Plate power output	1.5	2		kilowatts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—PLATE-MODULATED

Carrier conditions per tube for use with a max modulation factor of 1.0

D-c plate voltage	5000	6000	6000	volts
D-c grid voltage	−800	−900	−1000	volts
D-c plate current	0.9	1.0	1.0	amperes
D-c grid current, approx	0.12	0.1	0.25	amperes
Plate input			6.0	kilowatts
Plate dissipation			3.0	kilowatts
Peak r-f grid input voltage, approx	1300	1420		volts
Driving power, approx	155	140		watts
Plate power output	2.75	4.0		kilowatts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation π

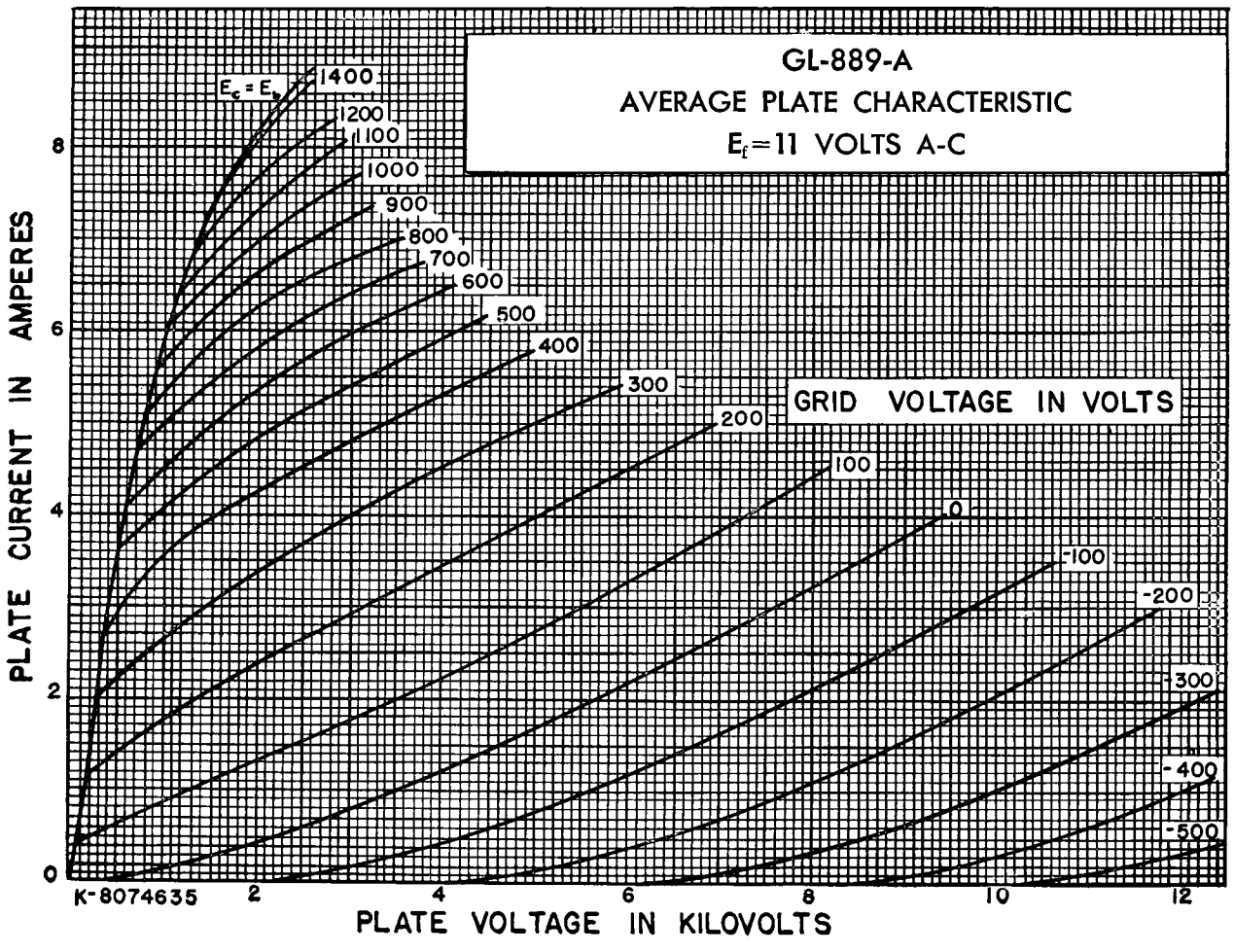
D-c plate voltage	5000	6000	7500	8500	volts
D-c grid voltage	−500	−600	−800	−1000	volts
D-c plate current	1.5	1.8	2.0	2.0	amperes
D-c grid current, approx	0.19	0.21	0.24	0.25	ampere
Plate input				16	kilowatts
Plate dissipation				5	kilowatts
Peak r-f grid input voltage, approx	1200	1460	1830		volts
Driving power, approx	220	290	400		watts
Plate power output	5	7	10		kilowatts

†Averaged over any audio-frequency cycle.
‡At crest of audio-frequency cycle.
πModulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

APPLICATION NOTES

*GL-889 can be operated at maximum ratings in all classes of service at frequencies as high as 50 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced as the frequency is raised. (Other maximum ratings are the same as shown under TECHNICAL INFORMATION.) The tabulation below shows the highest percentage of maximum plate voltage and power input that can be used up to 150 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency	50	75	100	150	megacycles
Class B r-f					
Max plate voltage and plate input	100	90	83	72	per cent
Class C plate-modulated					
Max plate voltage and plate input	100	85	75	60	per cent
Class C					
Max plate voltage	100	87	78	65	per cent
Max plate input	100	85	70	50	per cent
Plate Series Protective Resistors (see paragraph describing plate circuit under Installation in the Instructions)					
Series resistor	25	50	100	150	ohms
Maximum power output of rectifier	16	40	100	250	kilowatts



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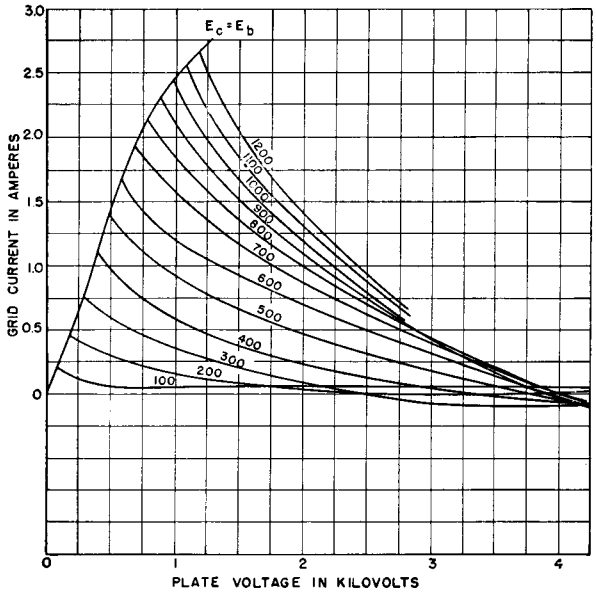
GL-889-A
TYPICAL GRID-PLATE TRANSFER CHARACTERISTIC
$E_f = 11$ VOLTS A-C



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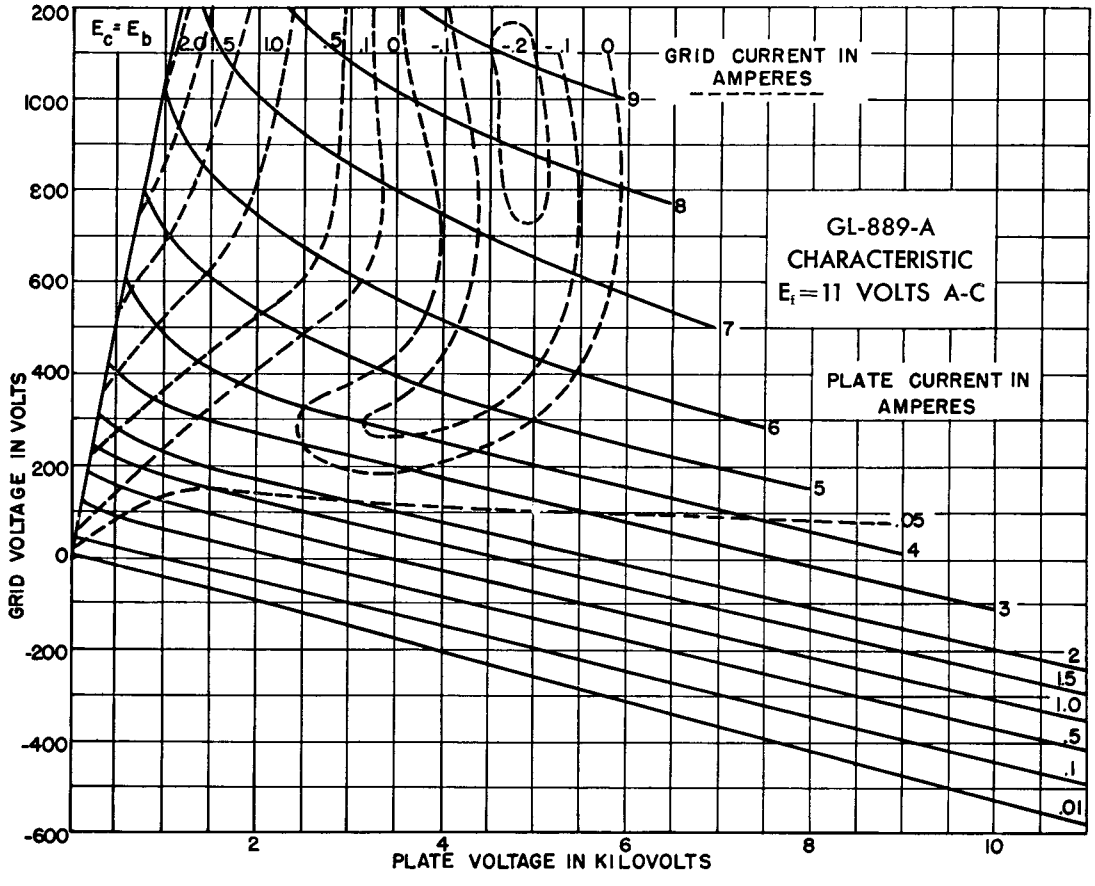

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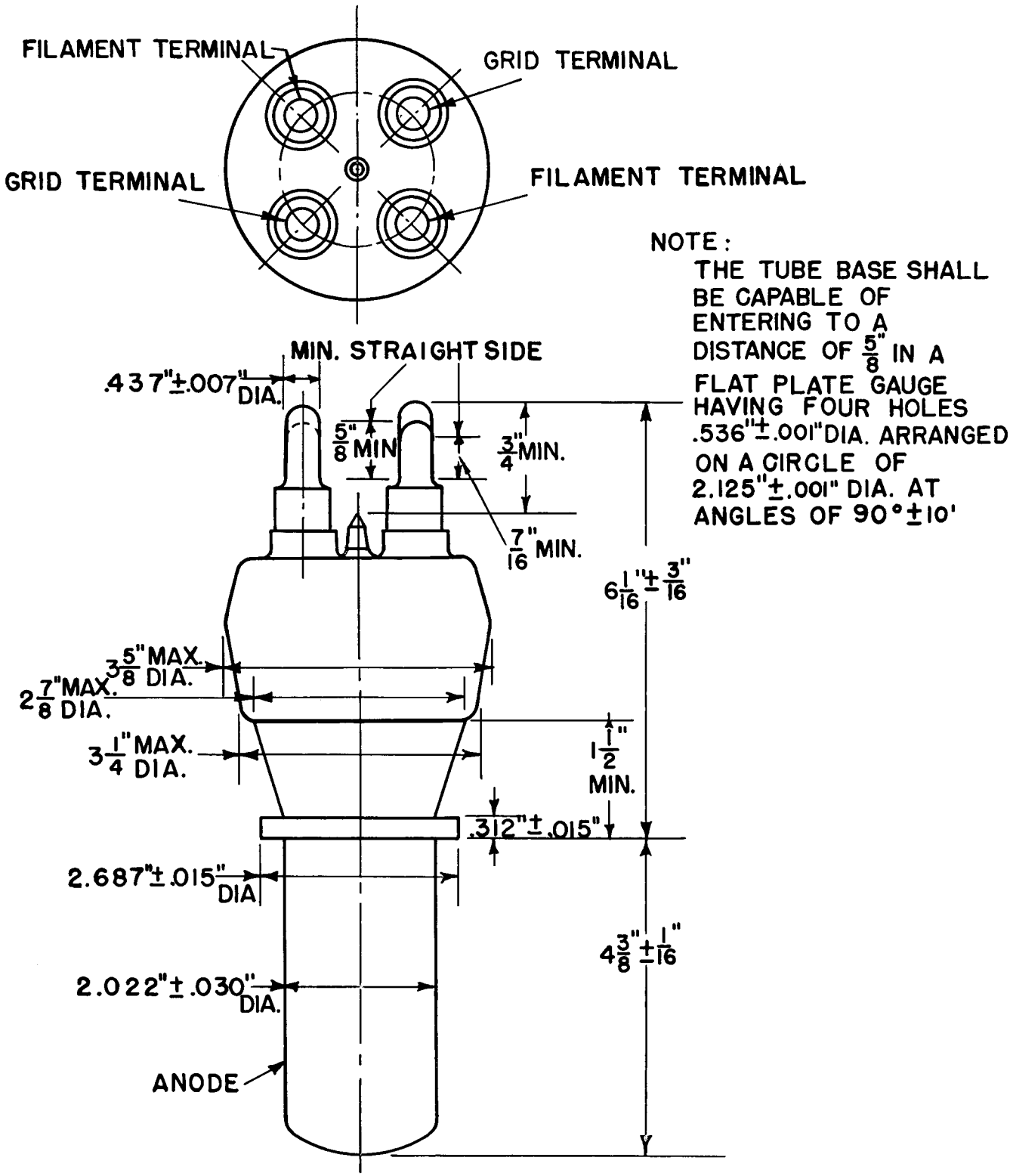

NOTE:
THE TUBE BASE SHALL BE CAPABLE OF ENTERING TO A DISTANCE OF $\frac{5}{8}$" IN A FLAT PLATE GAUGE HAVING FOUR HOLES .536" ± .001" DIA. ARRANGED ON A CIRCLE OF 2.125" ± .001" DIA. AT ANGLES OF 90° ± 10'

OUTLINE
GL-889-A PLIOTRON

Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.

4-45 (4M)
Filing No. 8850