



PLIOTRON

DESCRIPTION

The GL-592 is a three-electrode tube designed for use as an amplifier, oscillator or Class B modulator. The anode is capable of dissipating 200 watts for CCS conditions and 300 watts for ICAS condi-

tions. Forced-air cooling of the envelope is required. The cathode is a thoriated-tungsten filament. Maximum ratings apply up to 150 megacycles.

TECHNICAL INFORMATION

These data are for reference only. For design information, see the specifications.

GENERAL

Electrical Data	Minimum	Bogey	Maximum
Filament voltage.....	9.5	10.0	10.5 volts
Filament current at 10.0 volts.....	4.7	5.0	5.3 amperes
Amplification factor, $E_b = 2000$ volts; $I_b = 50$ ma d-c; $E_f = 10$ volts.....	21	25	29
Interelectrode capacitances			
With external shield*			
Grid-plate.....	2.9	3.3	3.7 micromicrofarads
Grid-filament.....	3.0	3.6	4.2 micromicrofarads
Plate-filament.....	0.22	0.29	0.36 micromicrofarad


Electronic
TUBE

GENERAL  ELECTRIC

Supersedes ETI-245A dated 6-47

TECHNICAL INFORMATION (CONT'D)

Mechanical Data

Mounting position—vertical, anode or cathode end down	
Required air flow to envelope†	.15 cubic feet per minute
Maximum bulb temperature	200 centigrade
Maximum seal temperature	150 centigrade
Net weight, approximate	6 ounces

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum Ratings, Absolute Values	CCS**	ICAS**
D-c plate voltage	3500 max	3500 max volts
Maximum signal d-c plate current†	250 max	350 max milliamperes
Maximum signal plate input†	600 max	900 max watts
Plate dissipation†	200 max	300 max watts
Typical Operation	CCS**	ICAS**
Unless otherwise specified, values are for two tubes		
D-c plate voltage	2600	3000 volts
D-c grid voltage	-77	-90 volts
Peak a-f grid to grid voltage	475	540 volts
Zero signal d-c plate current	40	50 milliamperes
Maximum signal d-c plate current	390	490 milliamperes
Effective load resistance, plate to plate	14000	13250 ohms
Maximum signal driving power, approximate	16	20 watts
Maximum signal power output, approximate	670	950 watts

PLATE-MODULATED RADIO-FREQUENCY POWER AMPLIFIER—CLASS C TELEPHONY

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

Maximum Ratings, Absolute Values	CCS**	ICAS**
D-c plate voltage	2600 max	3000 max volts
D-c grid voltage	-500 max	-500 max volts
D-c plate current	200 max	250 max milliamperes
D-c grid current	50 max	100 max milliamperes
Plate input	430 max	750 max watts
Plate dissipation	130 max	225 max watts
Typical Operation	CCS**	ICAS**
D-c plate voltage	2500	2800 volts
D-c grid voltage	-360	-360 volts
Peak r-f grid voltage	550	625 volts
D-c plate current	158	250 milliamperes
D-c grid current, approximate	35	60 milliamperes
Driving power, approximate	19	34 watts
Power output, approximate	300	503 watts

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C TELEGRAPHY

Key-down conditions per tube without amplitude modulation¶

Maximum Ratings, Absolute Values	CCS**	ICAS**
D-c plate voltage	3500 max	3500 max volts
D-c grid voltage	-500 max	-500 max volts
D-c plate current	250 max	350 max milliamperes
D-c grid current	50 max	100 max milliamperes
Plate input	670 max	1000 max watts
Plate dissipation	200 max	300 max watts

Typical Operation

D-c plate voltage	2600
D-c grid voltage	-240
Peak r-f grid voltage	457
D-c plate current	230
D-c grid current, approximate	45
Driving power, approximate	18
Power output, approximate	425

ICAS**

3000 volts
-250 volts
520 volts
320 milliamperes
60 milliamperes
30 watts
680 watts

* Tube located in center of a metal box 8 in. x 8 in. x 12 in.

† Maximum incoming air temperature 45 C. Flow directed at the side of the bulb from 2-inch diameter nozzle 3 inches from the center line of the tube. Center line of nozzle $1\frac{7}{8}$ in. down from top of plate terminal. An alternate method of cooling for many applications is the use of an 8-inch household fan located 10 inches from the tube and blowing air directly at the tube. When operating under full ICAS rating it is necessary to use a finned anode connector.

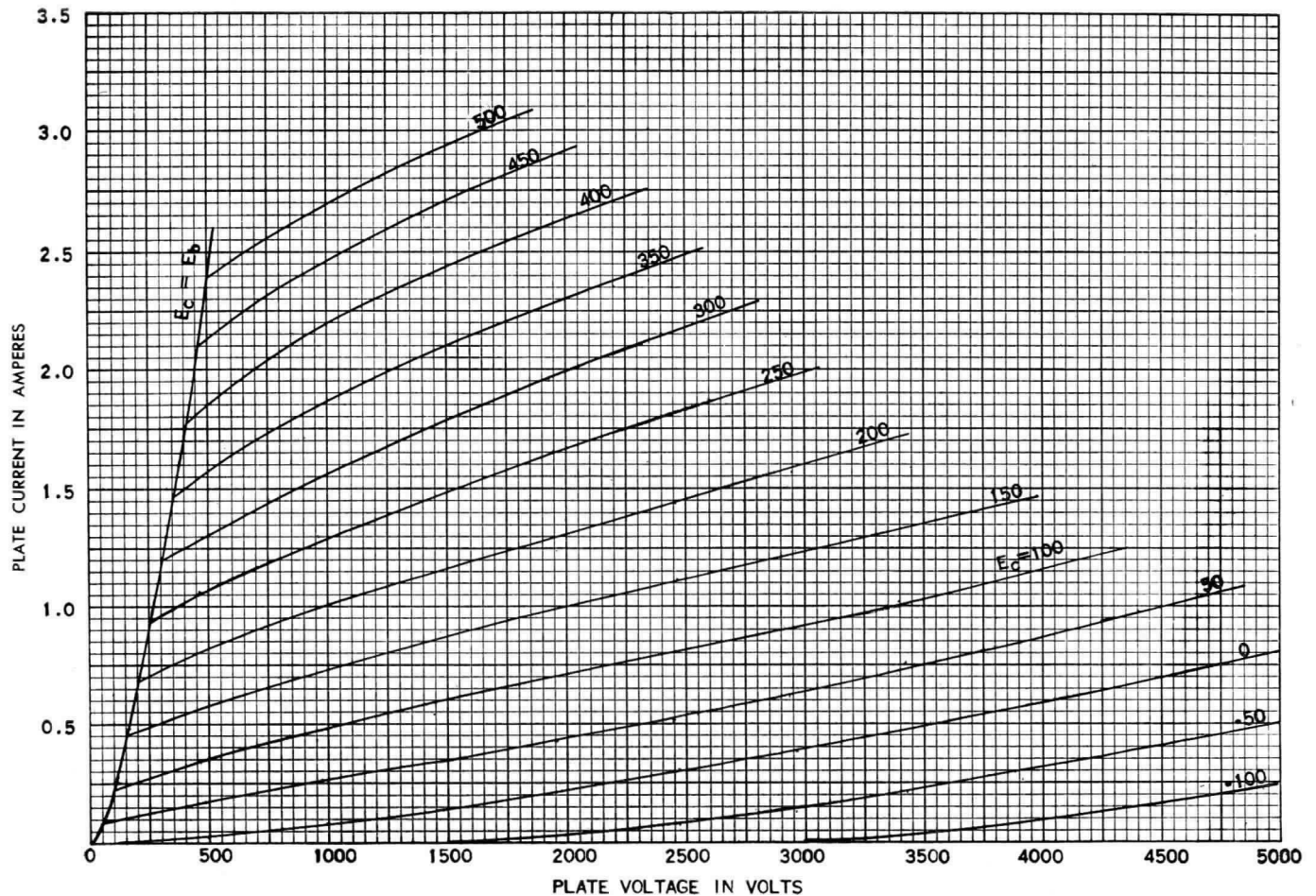
‡ Averaged over any audio-frequency cycle of sine-wave form.

¶ Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.

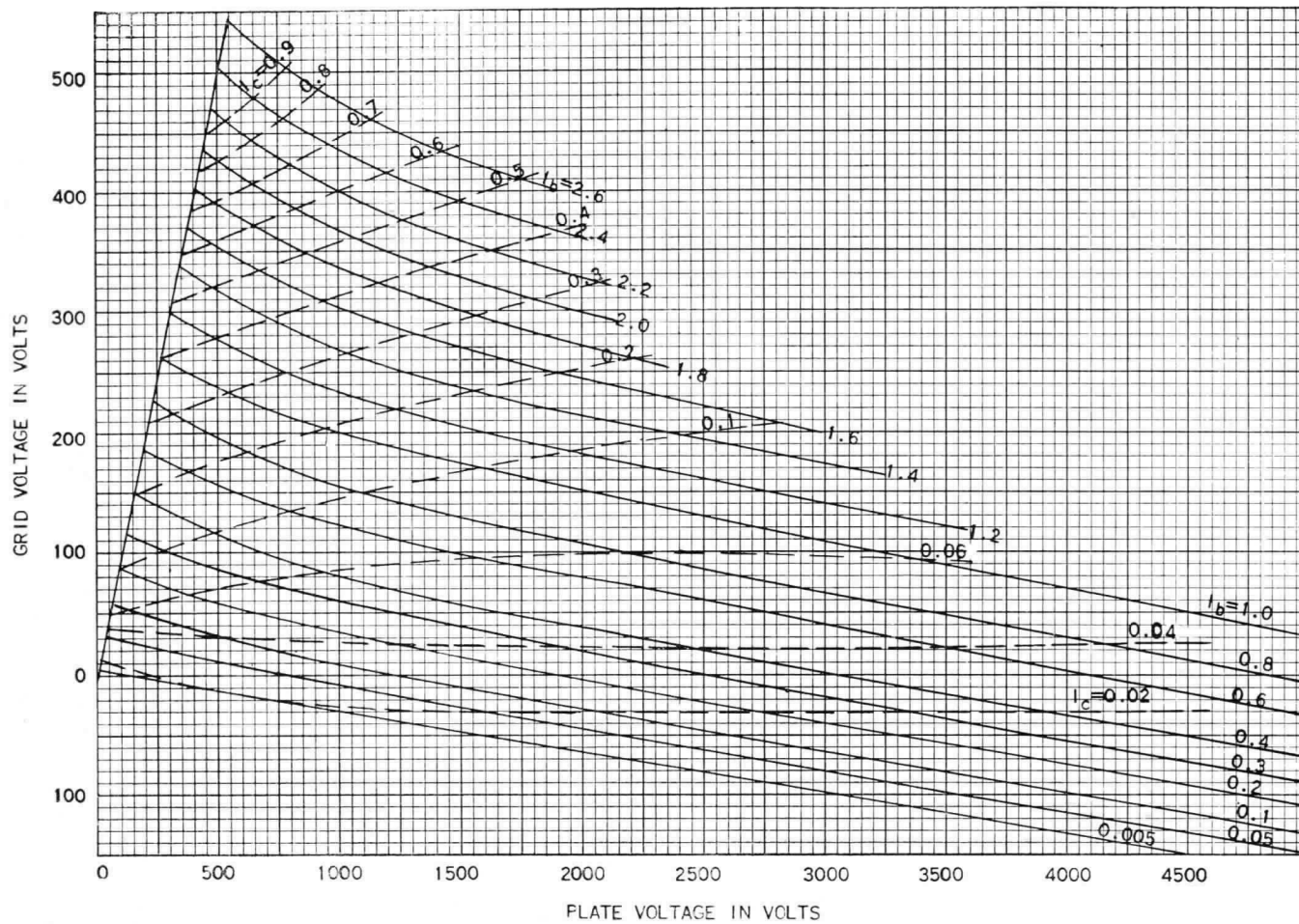
** CCS = Continuous Commercial Service.

** ICAS = Intermittent Commercial and Amateur Service.

GL-592
AVERAGE PLATE CHARACTERISTIC
($E_i = 10$ VOLTS A-C)



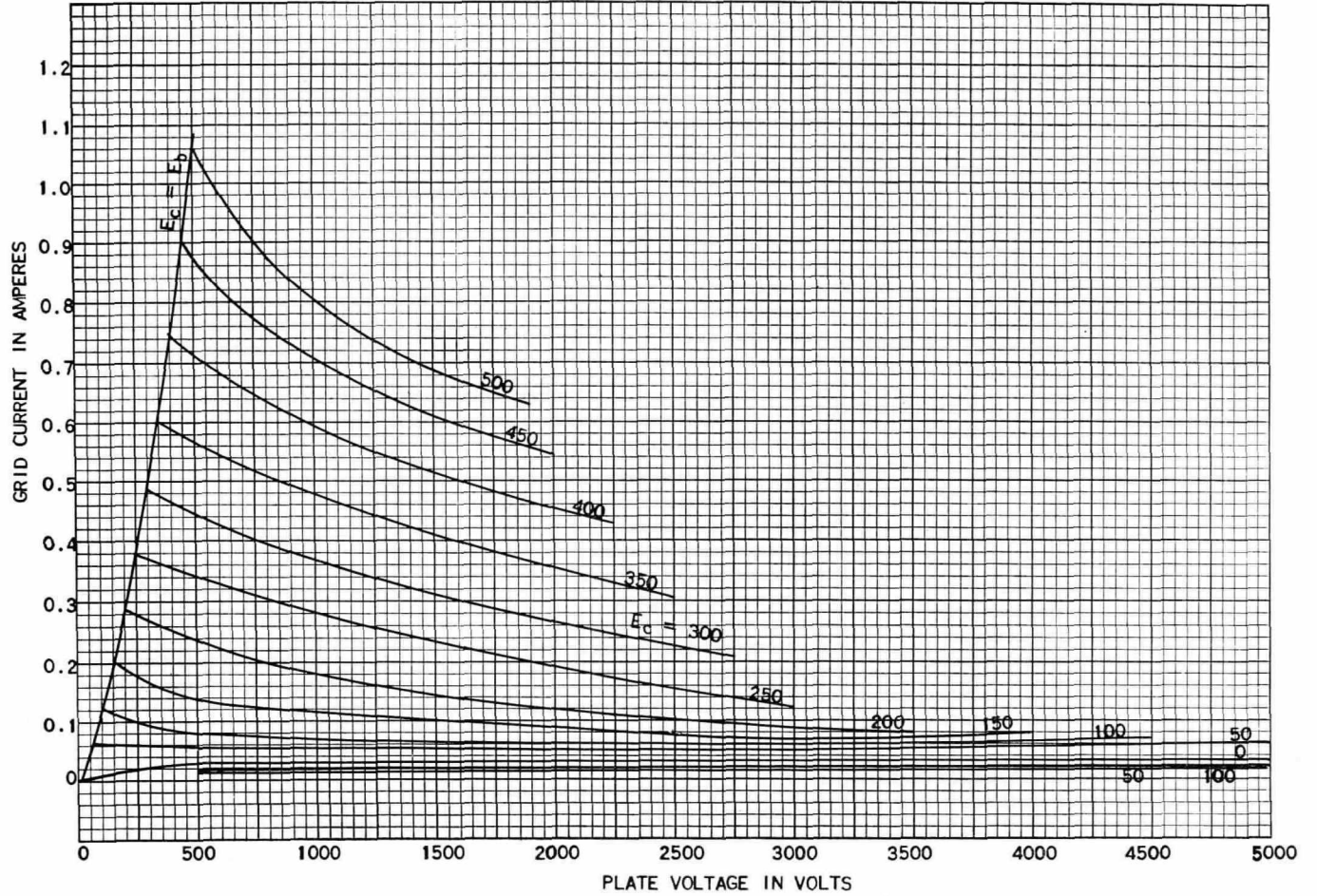
GL-592
CHARACTERISTIC CURVES
 $E_i = 10$ VOLTS A-C



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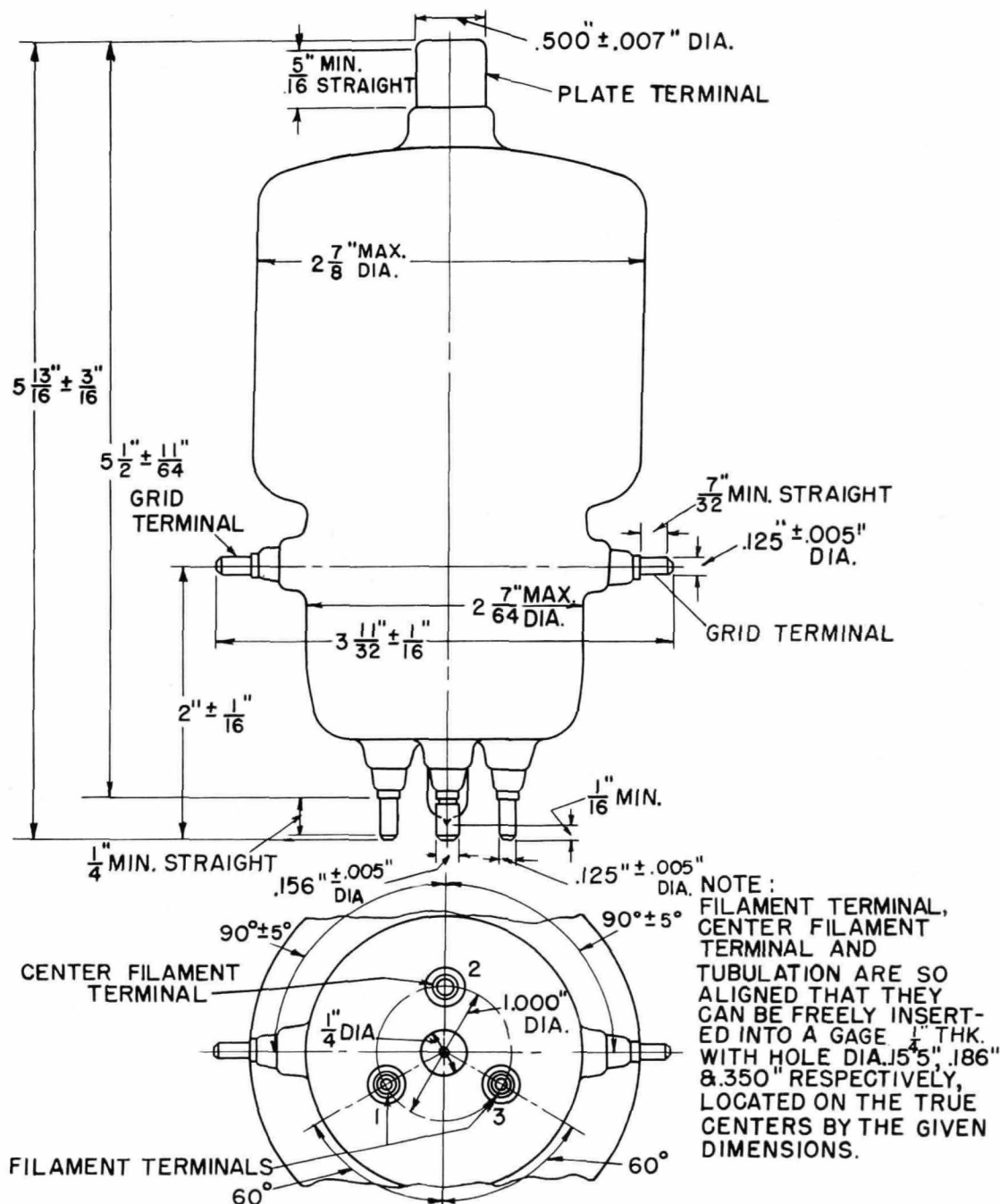
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GL-592
TYPICAL GRID-PLATE CHARACTERISTIC
 $E_i = 10$ VOLTS A-C



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OUTLINE
GL-592 PIOTRON

N-21200AZ

12-7-45

Tube Divisions, Electronics Department

GENERAL ELECTRIC
Schenectady, N. Y.