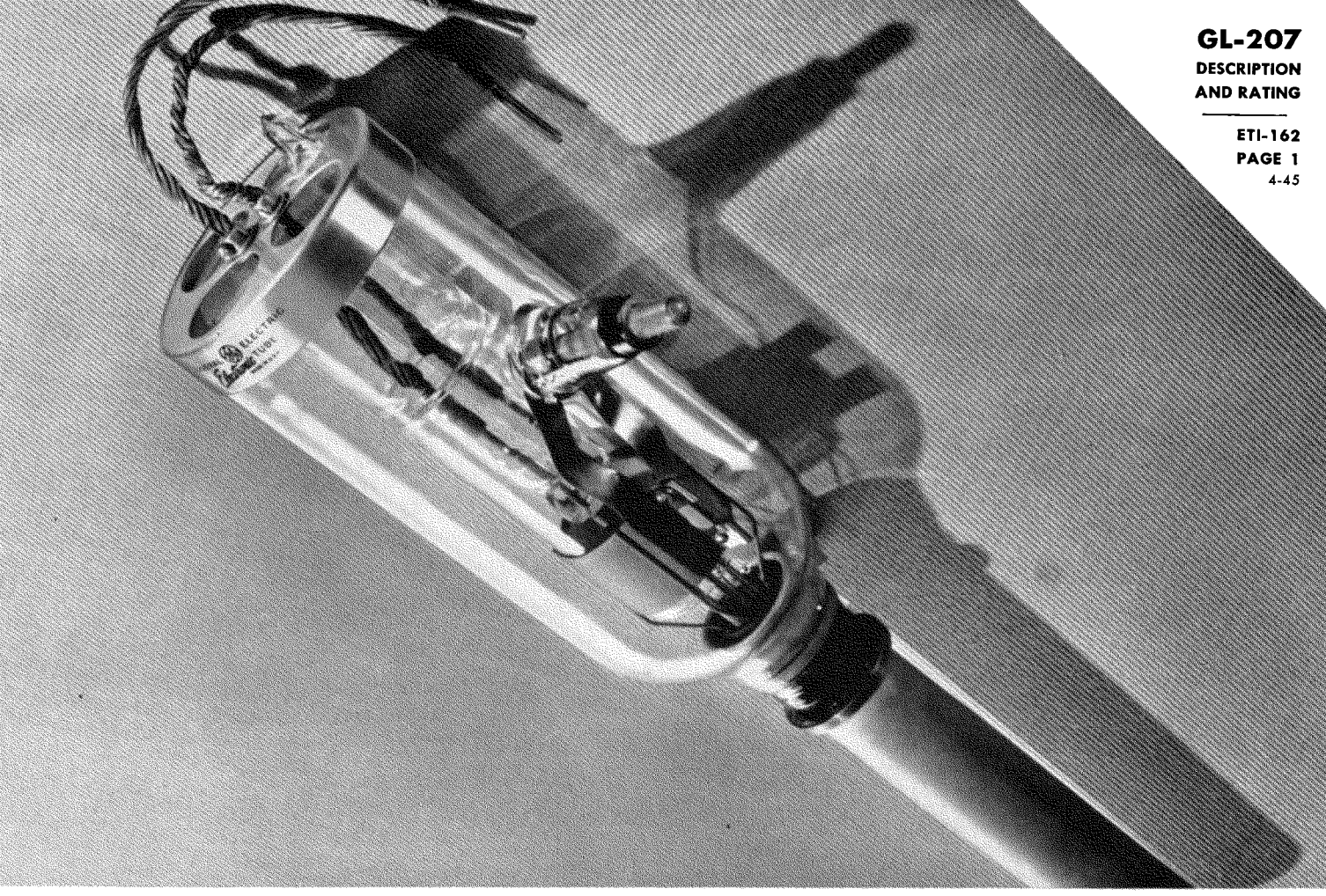


PLIOTRON

DESCRIPTION

The GL-207 is a three-electrode vacuum tube designed for use as a radio-frequency power amplifier, oscillator, or Class B modulator. The plate is water-cooled and is capable of dissipating 6.6 to 10 kilowatts, depending on the service in which the tube is used.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Electrical

Filament		tungsten
Voltage	22	volts
Current	51	amperes
Average characteristics, $E_b = 10{,}000$, $I_b = 750$ ma, $E_f = 22$		
Grid voltage	−310	volts
Amplification factor	20	
Grid-plate transconductance, $I_b = 750$ ma	5700	micromhos
Direct interelectrode capacitances		
Grid-plate	27	micromicrofarads
Input	18	micromicrofarads
Output	2.0	micromicrofarads
Frequency for maximum tarings	1.5	megacycles

GE Electronic TUBE

GENERAL ELECTRIC

TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling	water
Water flow	3–8 gallons per minute
Maximum outlet temperature	70 centigrade
Base	3906
Gasket	Cat. No. 5182028P3
Maximum over-all dimensions	
Length	20¼ inches
Radius	6½ inches
Net weight, approximate	3 pounds
Shipping weight, approximate	10 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	6000	10000	12500	15000	volts
Maximum signal plate current, per tube*				2.0	amperes
D-c maximum signal plate input, per tube*				20	kilowatts
Plate dissipation, per tube*				7.5	kilowatts
D-c grid voltage	−210	−410	−575		volts
Peak a-f grid input voltage	1520	2140	2300		volts
Zero signal plate current	0.5	0.5	0.4		ampere
Maximum signal plate current	2.5	3.2	2.8		amperes
Maximum signal driving power, approx.	190	380	400		watts
Effective load, plate-to-plate	4200	6400	10000		ohms
Maximum signal plate power output	8	20	22.5		kilowatts

* Averaged over any audio-frequency cycle.

CLASS B RADIO-FREQUENCY POWER AMPLIFIER

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

D-c plate voltage	6000	10000	14000	15000	volts
D-c grid voltage	−225	−440	−650		volts
D-c plate current	0.62	0.93	1.0	1.0	ampere
Plate input				15	kilowatts
Plate dissipation				10	kilowatts
Peak r-f grid input voltage	400	600	730		volts
Driving power #, approx.	72	16	0		watts
Plate power output	1	2.5	4		kilowatts

\# At crest of audio-frequency cycle.

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

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

D-c plate voltage	6000	8000	10000	10000	volts
D-c grid voltage	−1200	−1600	−2000	−3000	volts
D-c plate current	0.76	0.78	0.75	1.0	ampere
D-c grid current, approximate	0.15	0.14	0.07	0.20	ampere
Plate input				10	kilowatts
Plate dissipation				6.6	kilowatts
Peak r-f grid input voltage, approx.	1860	2300	2660		volts
Driving power, approx.	280	325	185		watts
Plate power output	3.5	5	6		kilowatts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation.##

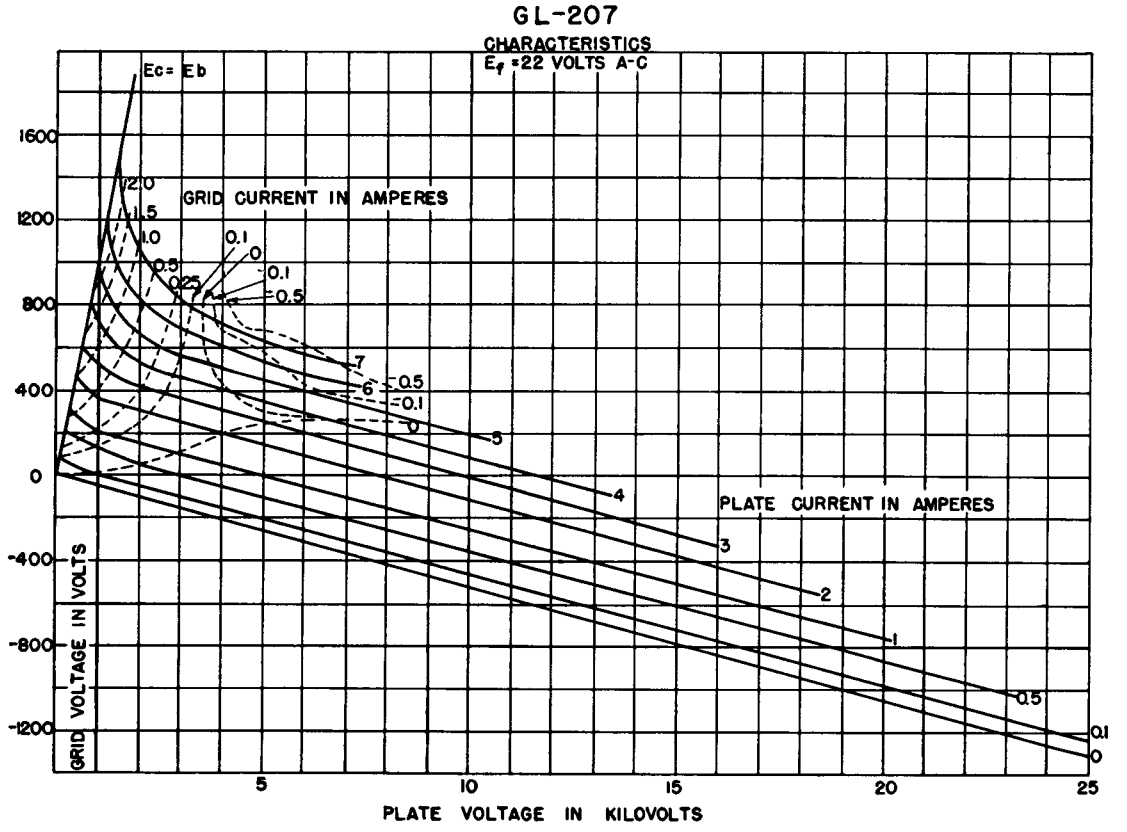
D-c plate voltage	8000	10000	12000	15000	volts
D-c grid voltage	−1000	−1200	−1600	−3000	volts
D-c plate current	1.1	1.33	1.67	2.0	amperes
D-c grid current, approx.	0.17	0.12	0.09	0.2	ampere
Plate input				30	kilowatts
Plate dissipation				10	kilowatts
Peak r-f grid input voltage	1730	2050	2650		volts
Driving power, approx.	295	245	235		watts
Plate power output	6.5	10	15		kilowatts

\#\# Modulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed the 115 per cent of the carrier conditions.

APPLICATION NOTES

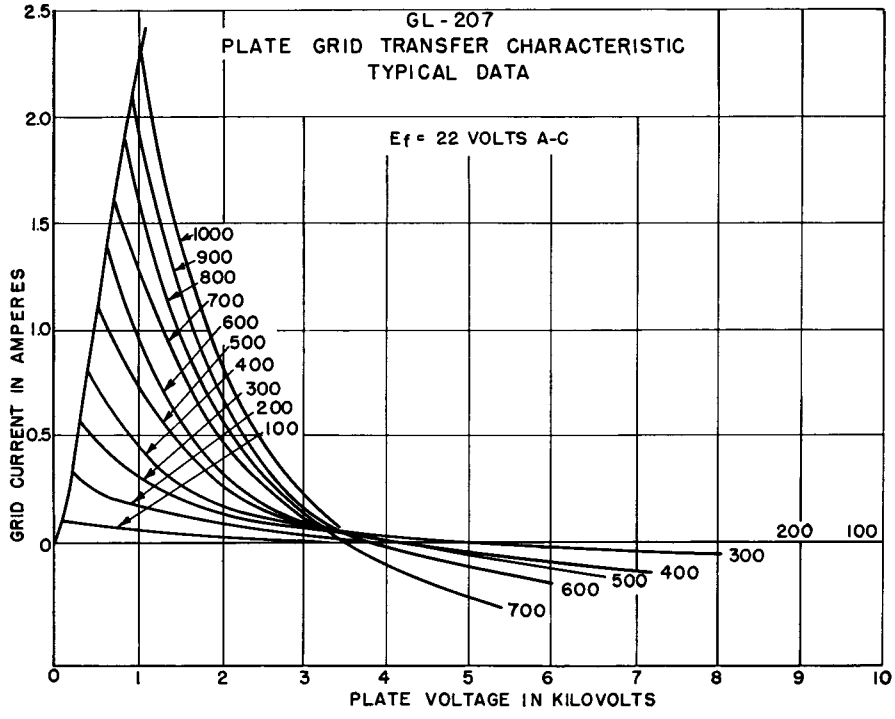
The GL-207 can be operated at frequencies as high as 1.5 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced as the frequency is raised (other maximum ratings are the same as shown under TECHNICAL INFORMATION). The tabulation below shows the highest percentage of maximum plate voltage and power input that can be used up to 20 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency				1.5	7.5	20	megacycles
Percentage of maximum rated plate voltage and plate input							
Class B				100	85	76	per cent
Class C plate modulated				100	75	50	per cent
Class C unmodulated				100	75	50	per cent
Plate series protective resistors							
Series resistor	25	50	200	250	275	300	ohms
Maximum power output of rectifier	16	40	100	250	640	1600	kilowatts

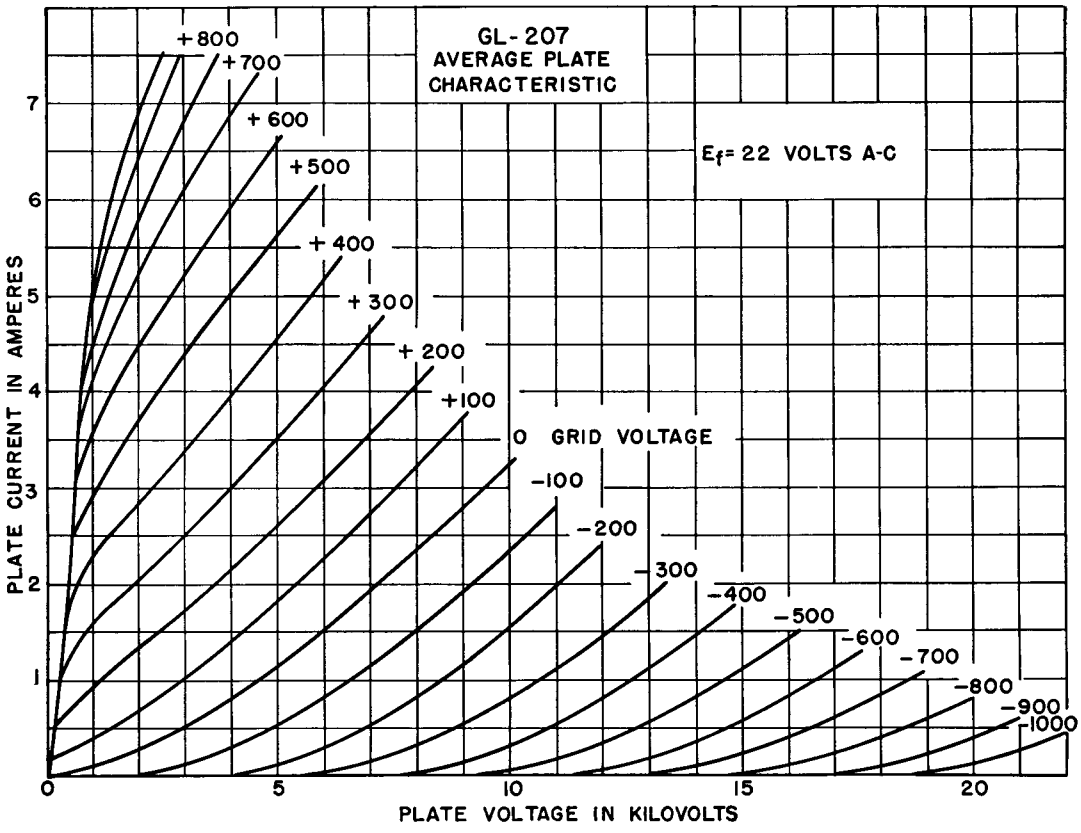


K-6966464

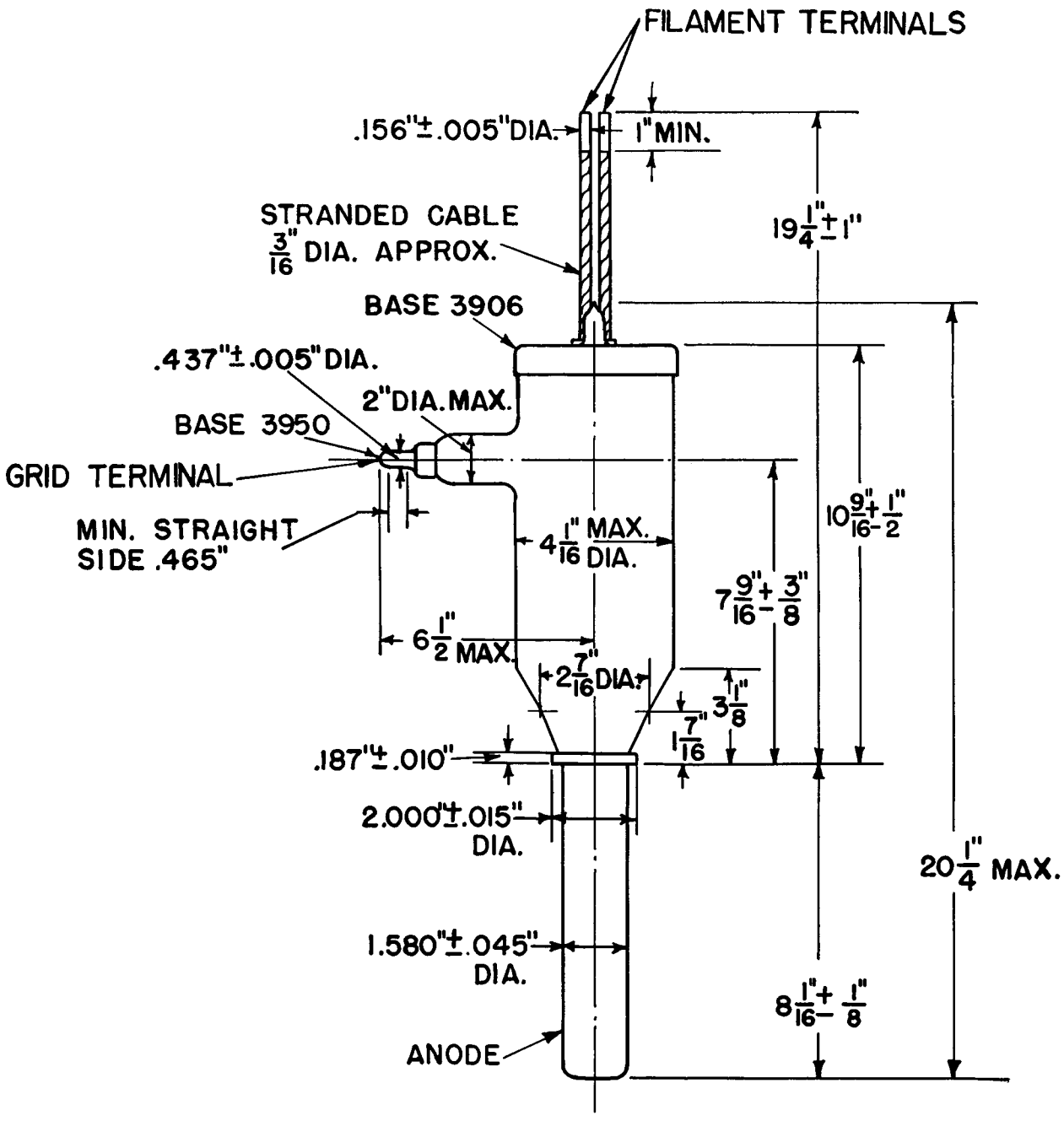
11-2-44



K-6966465 9-26-44



K-6966463 9-26-44



OUTLINE
GL-207 PLIOTRON

K-5182095

9-23-44

Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.

4-45 (4M)
Filing No. 8850