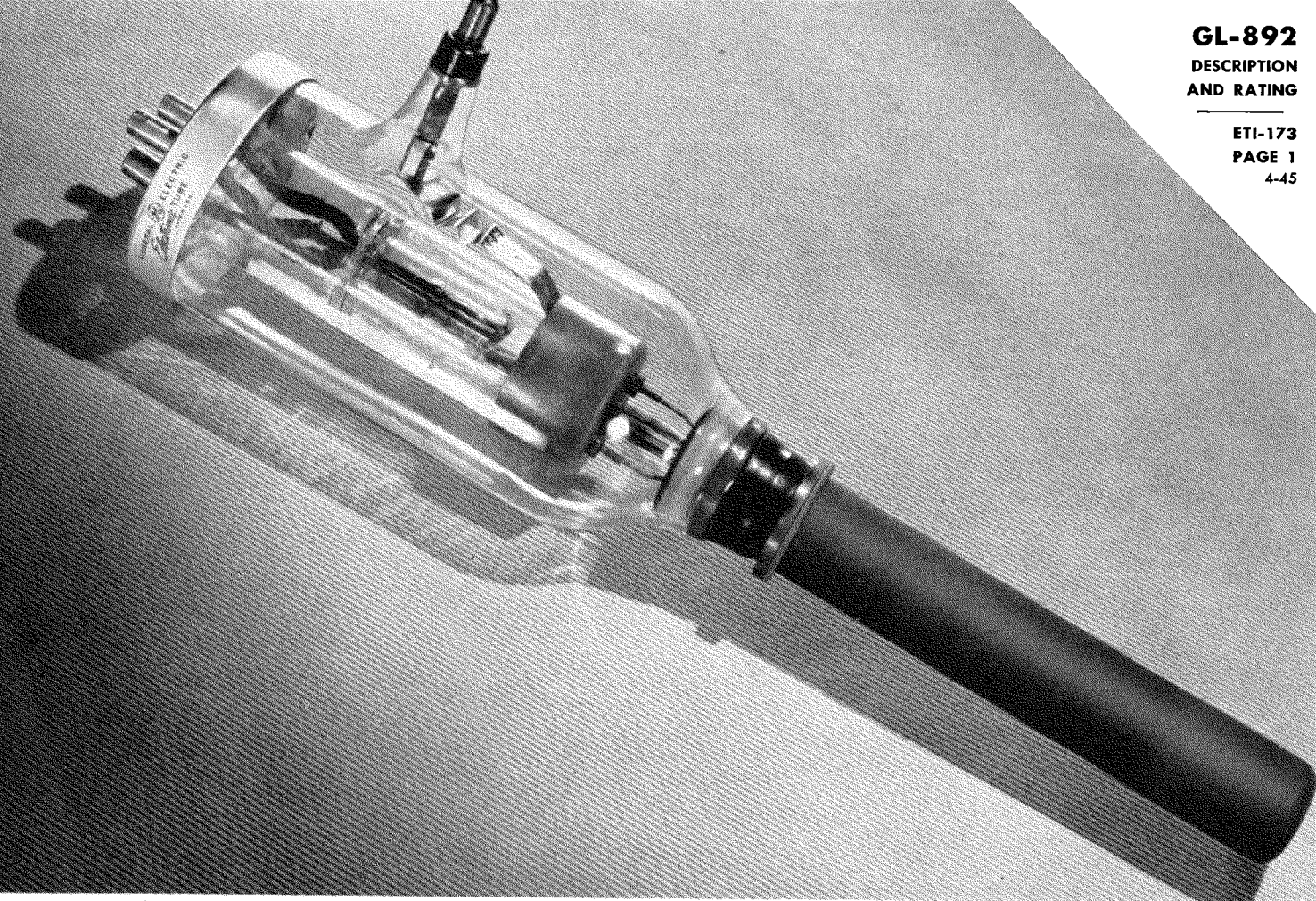




PLIOTRON

DESCRIPTION

The 892 is a three-electrode pliotron of the double-filament type for use as a radio-frequency power amplifier, oscillator, and Class B modulator. The construction of the filament permits operation

from two-phase or single-phase alternating current as well as from direct current, for all classes of service. The plate is water-cooled and is capable of dissipating 6.6 to 10 kilowatts.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes.....3

Electrical

Cathode—filamentary, two-unit type

Excitation 1-phase a-c, 2-phase a-c, or d-c

Voltage, per unit.....11 volts

Current.....60 amperes

Amplification factor.....50

Direct interelectrode capacitances

Grid-plate.....30 micromicrofarads

Grid-filament.....20 micromicrofarads

Plate-filament.....1.5 micromicrofarads

Frequency for maximum ratings.....1.6 megacycles



GENERAL  ELECTRIC

TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling	water
Maximum outlet temperature	70 centigrade
Water flow	3 to 8 gallons per minute
Gasket	cat. no. 5182028P3
Net weight, approximate	3 pounds
Shipping weight, approximate	10 pounds

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS B AUDIO-FREQUENCY POWER AMPLIFIER (TWO TUBES)

D-c plate voltage	15000	volts
Max-signal d-c plate current*	2.0	amperes
Max-signal plate input*	20	kilowatts
Plate dissipation	7.5	kilowatts
Typical operation:		
Unless otherwise specified, values are for 2 tubes.		
D-c plate voltage	6000	10000 12500 volts
D-c grid voltage†	0	−90 −170 volts
Peak a-f grid-to-grid voltage	1200	1620 1530 volts
Zero-signal d-c plate current	0.5	0.5 0.4 ampere
Max-signal d-c plate current	2.5	3.2 2.8 amperes
Load resistance (per tube)	1050	1600 2500 ohms
Effective load resistance (plate-to-plate)	4200	6400 10000 ohms
Max-signal driving power, approximate	415	525 420 watts
Max-signal power output, approximate	8	20 22 kilowatts

CLASS B RADIO-FREQUENCY POWER AMPLIFIER

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

D-c plate voltage	15000	volts
D-c plate current	1.0	amperes
Plate input	15	kilowatts
Plate dissipation	10	kilowatts
Typical operation:		
D-c plate voltage	6000	10000 14000 volts
D-c grid voltage†	0	−100 −190 volts
Peak r-f grid voltage	300	470 510 volts
D-c plate current	0.67	0.93 0.95 amperes
Driving power°, approximate	65	50 30 watts
Power output, approximate	1	2.5 4 kilowatts

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	10000	volts
D-c grid voltage	−3000	volts
D-c plate current	1.0	ampere
D-c grid current	0.25	ampere
Plate input	10	kilowatts
Plate dissipation	6.6	kilowatts
Typical operation:		
D-c plate voltage	6000	8000 10000 volts
D-c grid voltage	−1000	−1300 −1600 volts
Peak r-f grid voltage	1675	2000 2400 volts
D-c plate current	0.77	0.75 0.72 ampere
D-c grid current, approximate	0.19	0.18 0.12 ampere
Driving power, approximate	310	350 260 watts
Power output, approximate	3.5	5 6 kilowatts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation††

D-c plate voltage.....	15000	volts
D-c grid voltage.....	-3000	volts
D-c plate current.....	2.0	amperes
D-c grid current.....	0.25	ampere
Plate input.....	30	kilowatts
Plate dissipation.....	10	kilowatts

Typical operation:

D-c plate voltage.....	8000	10000	12000	volts
D-c grid voltage.....	-1000	-1300	-1600	volts
Peak r-f grid voltage.....	1800	2300	2800	volts
D-c plate current.....	1.1	1.4	1.64	amperes
D-c grid current, approximate.....	0.18	0.18	0.18	ampere
Driving power, approximate.....	320	400	500	watts
Power output, approximate.....	6.5	10	14	kilowatts

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

†With d-c filament supply.

°At crest of a-f cycle with modulation factor of 1.0.

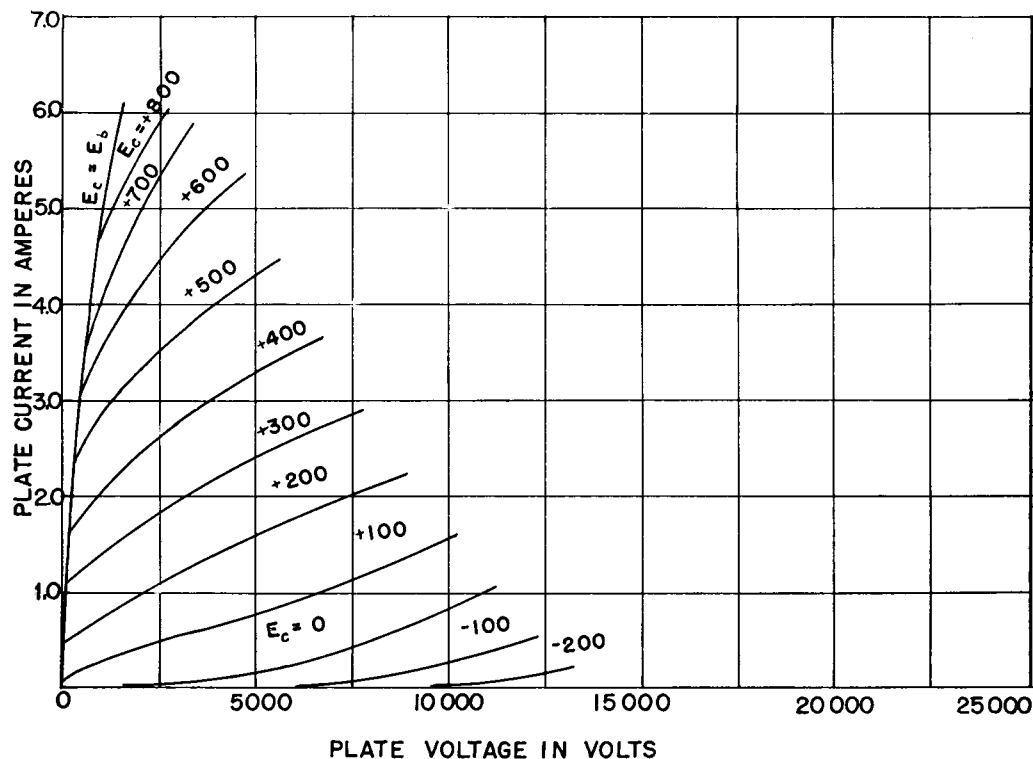
††Modulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

APPLICATION NOTES

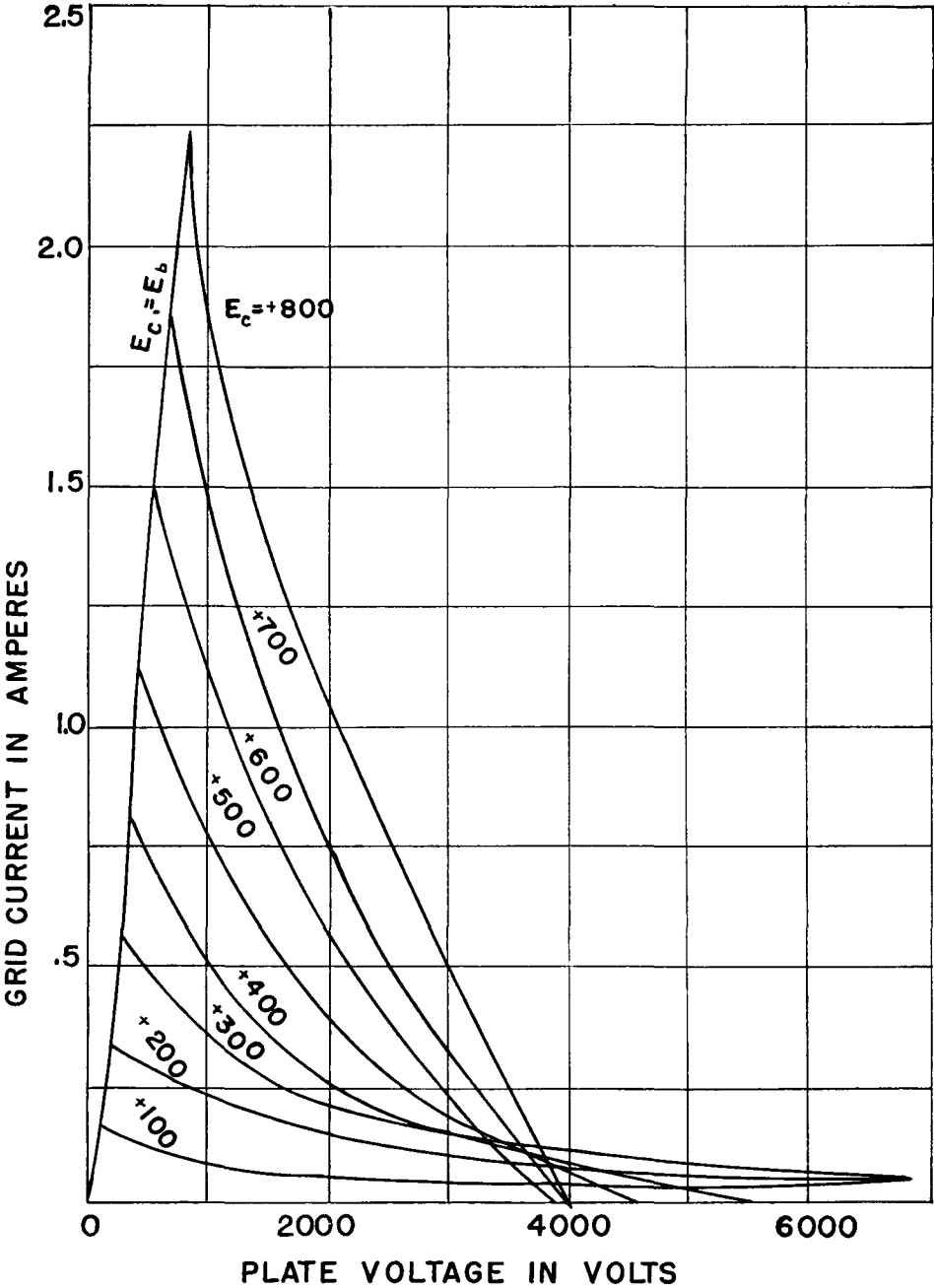
GL-892 can be operated at maximum ratings in all classes of service at frequencies as high as 1.6 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced as the frequency is raised (other maximum ratings are the same as shown under MAXIMUM RAT-

ING). The tabulation below shows the highest percentage of maximum plate voltage and power input that can be used up to 20 mc for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

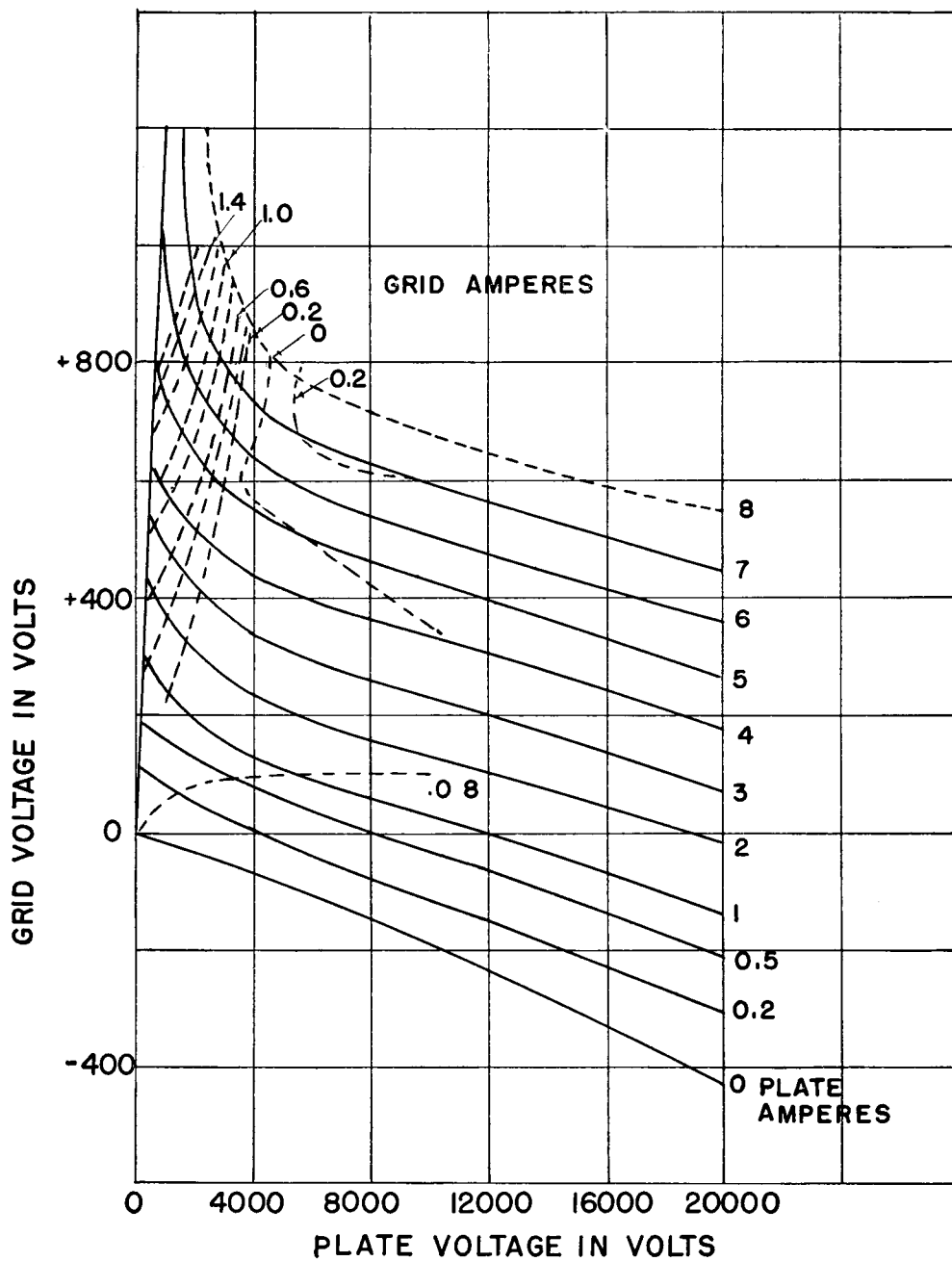
Frequency.....	1.6	7.5	20	megacycles
Maximum permissible percentage of maximum rated plate voltage and plate input:				
Class B telephony.....	100	85	76	per cent
Class C plate-modulated.....	100	85	75	per cent
Class C unmodulated.....	100	75	50	per cent



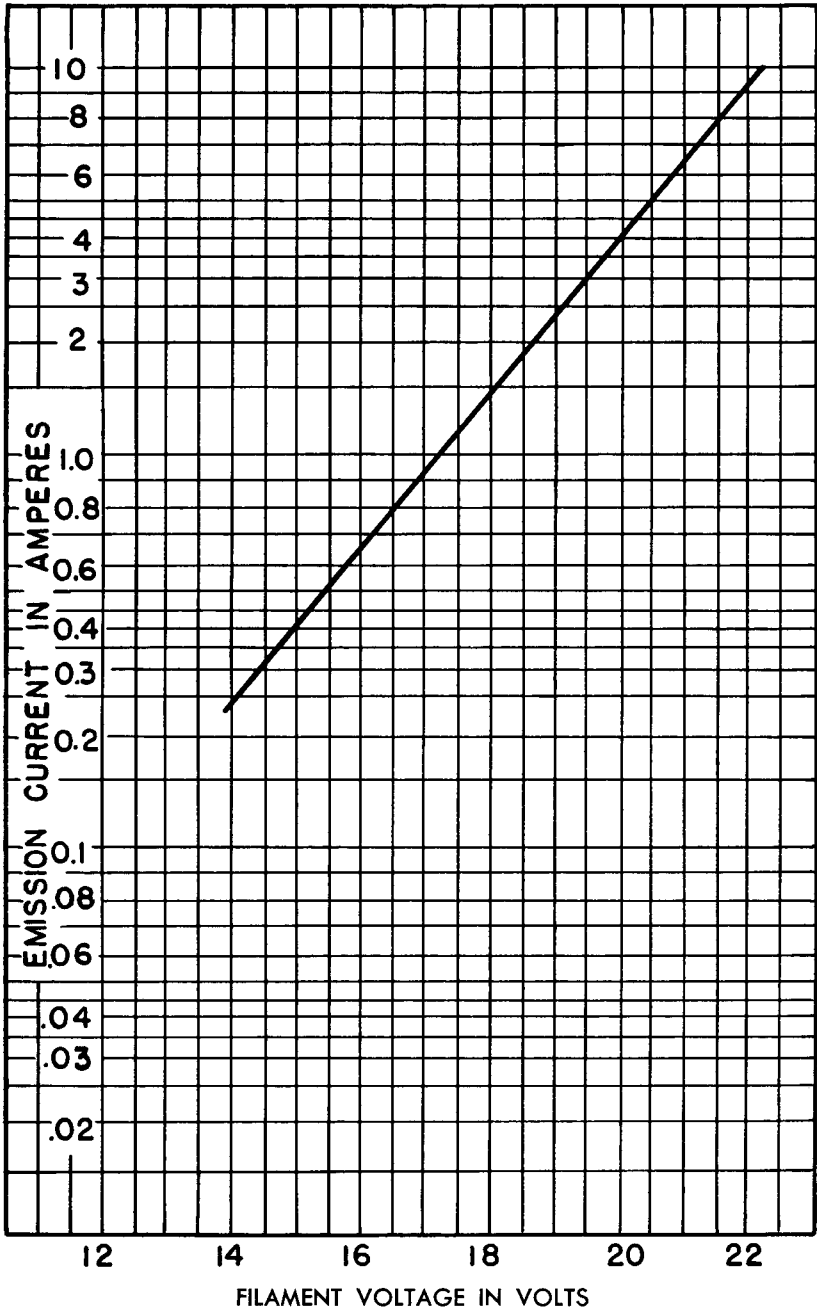
GL-892 AVERAGE PLATE CHARACTERISTICS ($E_f = 22$ VOLTS A-C)



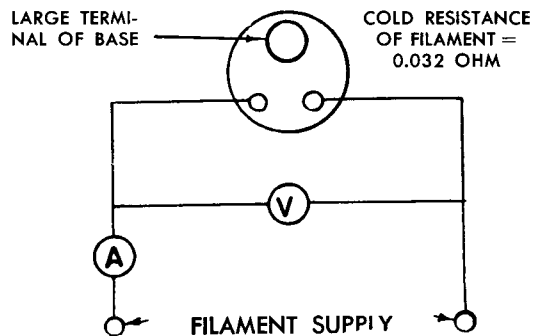
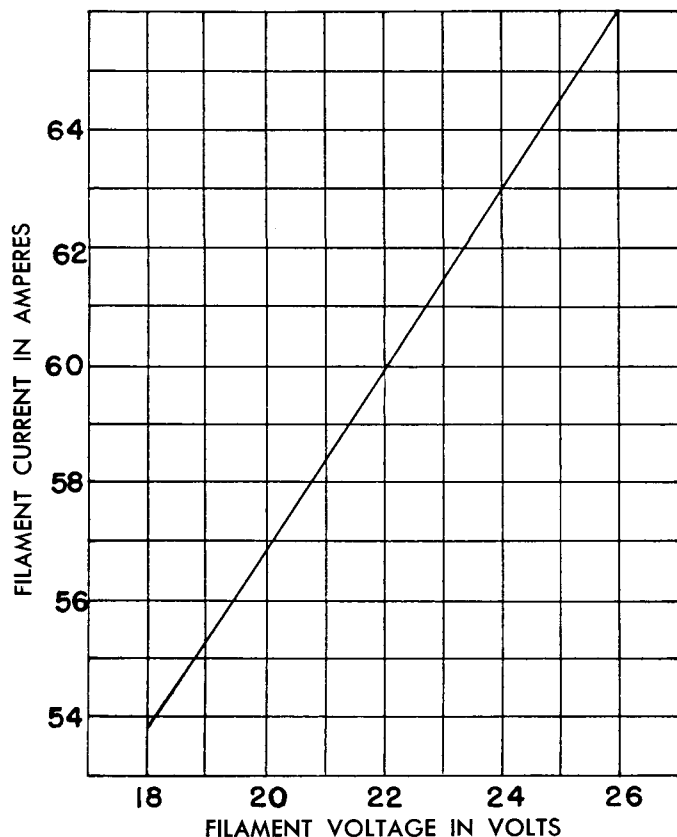
GL-892 GRID-CURRENT CHARACTERISTICS ($E_f = 22$ VOLTS A-C)



GL-892 CONSTANT CURRENT PLATE AND GRID CHARACTERISTICS ($E_f = 22$ VOLTS A-C)



GL-892 AVERAGE FILAMENT EMISSION CHARACTERISTIC

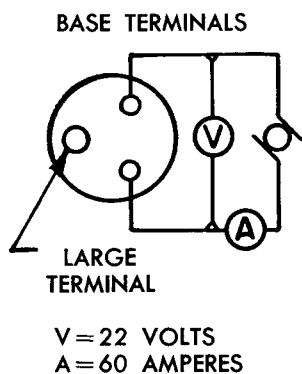


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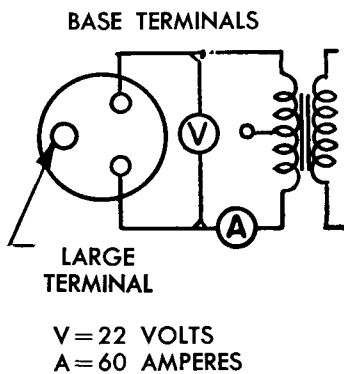
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GL-892 AVERAGE FILAMENT CHARACTERISTICS

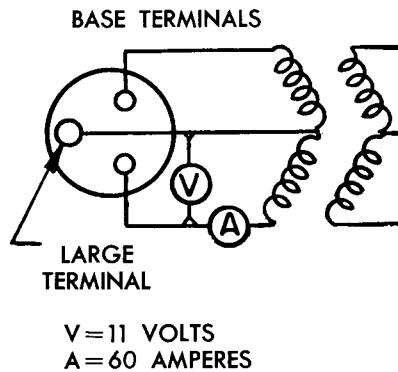
WITH D-C
EXCITATION



WITH SINGLE-PHASE
A-C EXCITATION



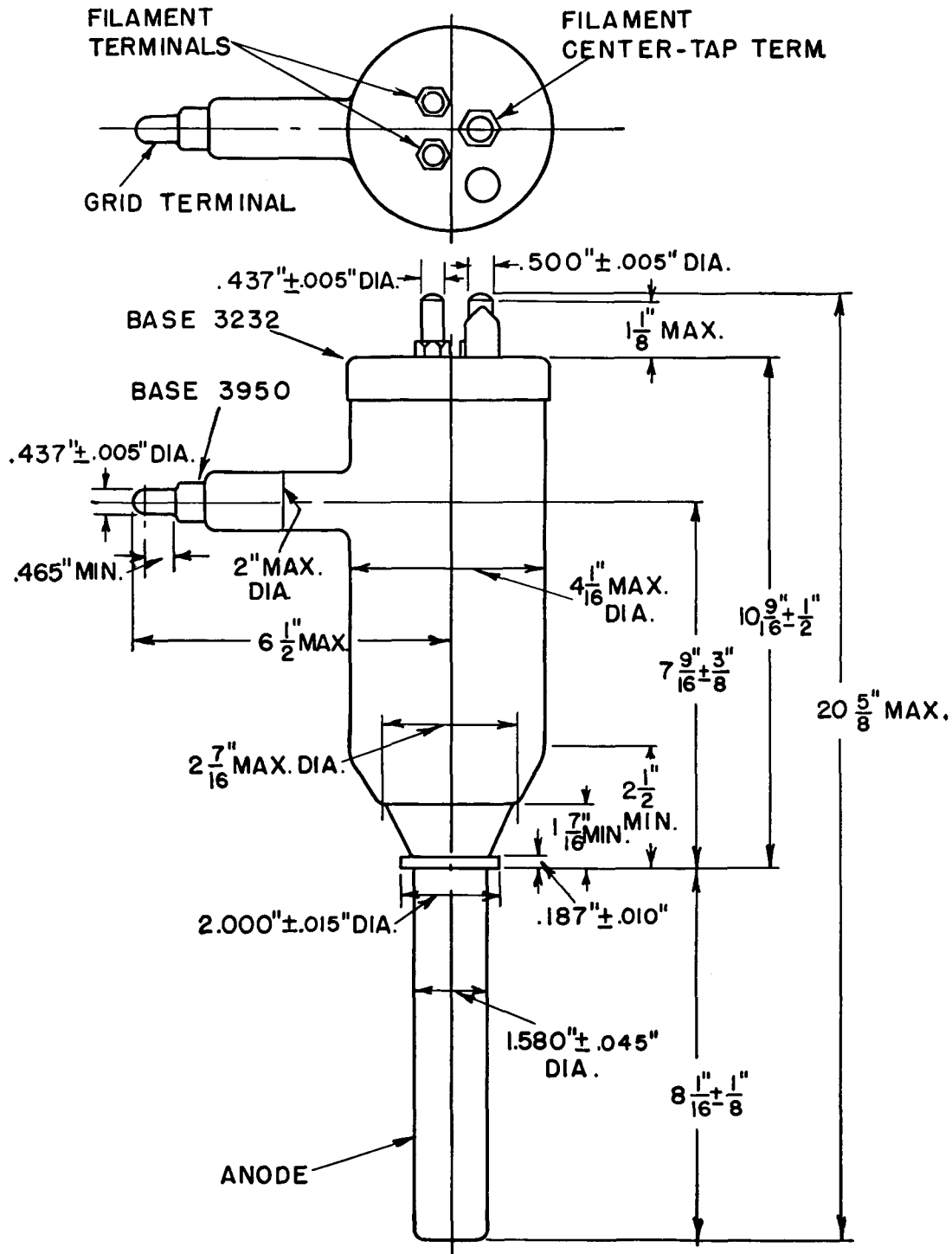
WITH TWO-PHASE
A-C EXCITATION



GL-892 FILAMENT CONNECTIONS

K-9033547

12-1-44



OUTLINE GL-892 PIOTRON

K-6966979

9-23-44

NOTE: Mounting position vertical, anode down.

Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.