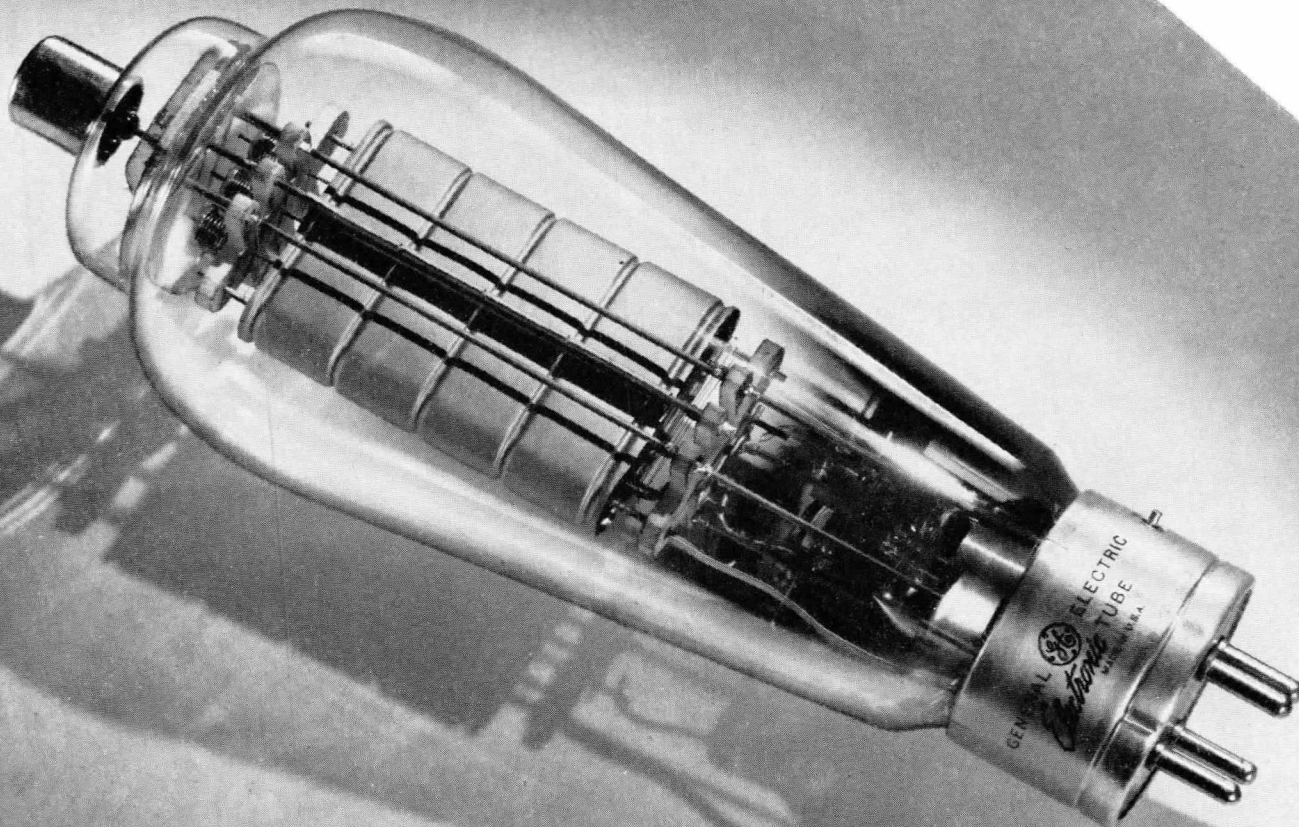




TRIODE

DESCRIPTION

The GL-159 is a three-electrode transmitting tube designed for use as a Class B and C radio-frequency power amplifier, Class C oscillator or as a Class B

modulator. This tube can be operated at maximum ratings at frequencies as high as 15 megacycles and at frequencies up to 35 megacycles at reduced ratings.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes.....	3
Electrical	
Cathode—Filamentary	
Filament voltage.....	10 volts
Filament current.....	9.6 amperes
Average characteristics, $E_b = 2000$, $I_b = 100$ ma $E_f = 10$ v a-c	
Grid voltage.....	-80 volts
Amplification factor.....	20
Grid-plate transconductance.....	6500 micromhos
Direct interelectrode capacitances	
Grid-plate.....	17.6 micromicrofarads
Input.....	11 micromicrofarads
Output.....	5 micromicrofarads
Frequency for maximum ratings.....	15 megacycles

GENERAL ELECTRIC


Electronic
TUBE

TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling	Convection
Maximum ambient temperature	60 centigrade
Net weight, approx.	1 pound
Shipping weight, approx.	3 pounds
Mounting position	vertical, base up or down—horizontal, filament in vertical plane

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS B AUDIO-FREQUENCY POWER AMPLIFIER (TWO TUBES)

	Typical Operation		Maximum Ratings
D-c plate voltage	1500	2000	2000 volts
Max signal d-c plate current, per tube			400 amperes
D-c max signal plate input, per tube†			750 watts
Plate dissipation, per tube†			250
D-c grid voltage	-73	-100	volts
Peak a-f grid input voltage	370	400	volts
Zero signal plate current	0.030	0.030	ampere
Max signal plate current	0.720	0.660	ampere
Max driving power, approx.	5	4	watts
Effective load, plate-to-plate	4400	6880	ohms
Max signal plate power output, approx.	720	900	watts

CLASS B RADIO-FREQUENCY POWER AMPLIFIER

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

D-c plate voltage	1500	2000	2000 volts
D-c grid voltage	-65	-90	volts
D-c plate current	0.240	0.190	0.300 ampere
Plate input			400 watts
Plate dissipation			250 watts
Peak r-f grid input voltage	200	200	volts
Driving power output, § approx.	3.5	2.5	watts
Plate power output, approx.	120	130	watts

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	1250	1500	1500	1500 volts
D-c grid voltage	-200	-240	-240	-400 volts
D-c plate current	0.360	0.360	0.400	0.400 ampere
Plate input				600 watts
Plate dissipation				150 watts
Peak r-f grid input voltage	350	390	400	volts
Driving power	7	7	9	watts
Plate power output	330	400	450	watts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation.‡

D-c plate voltage	1500	2000	2000	2000 volts
D-c grid voltage	-150	-200	-200	-400 volts
D-c plate current	0.360	0.360	0.400	0.400 ampere
D-c grid current, approx.	0.014	0.014	0.017	0.100 ampere
Plate input				800 watts
Plate dissipation				250 watts
Peak r-f grid input voltage, approx.	295	340	350	volts
Driving power, approx.	4	5	6	watts
Plate power output, approx.	400	560	620	watts

‡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.

§At crest of audio-frequency cycle.

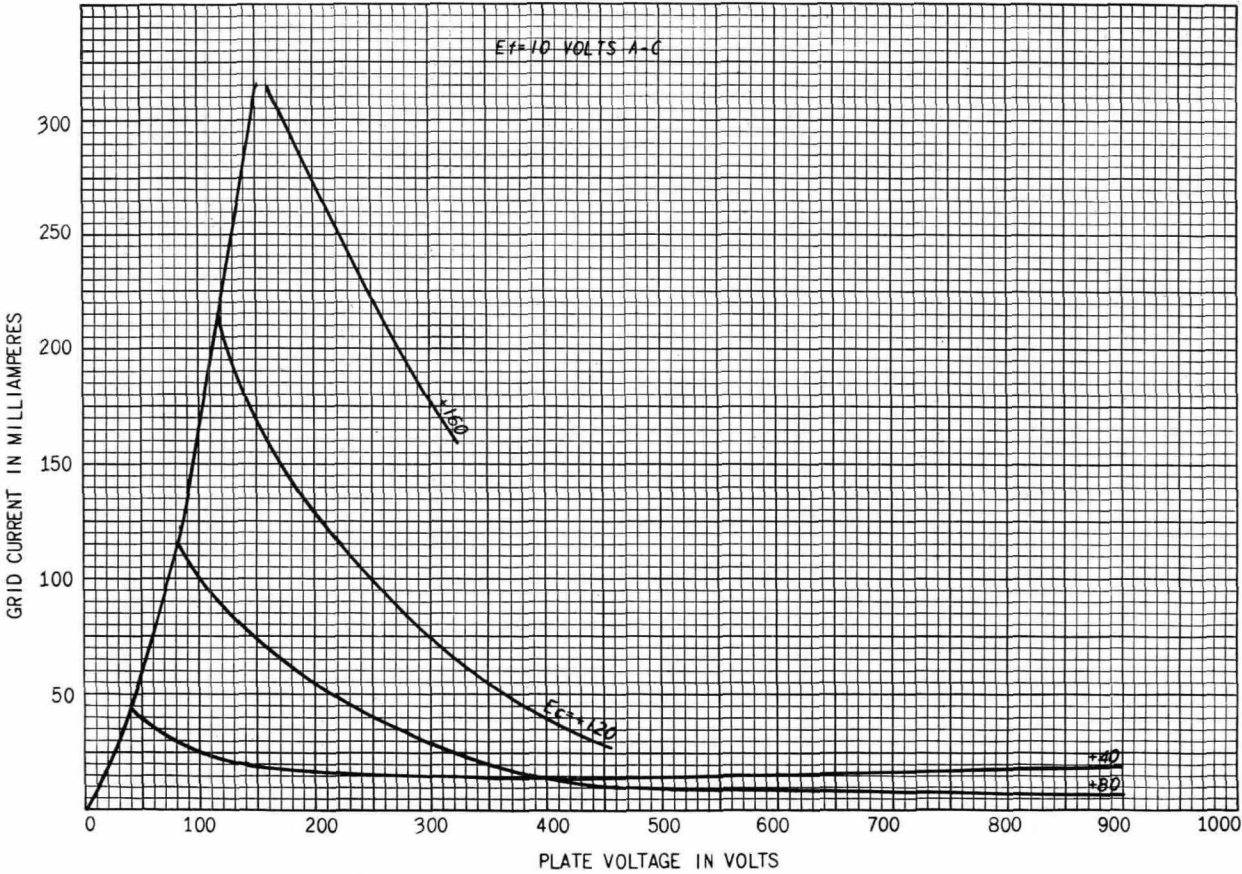
†Averaged over any audio-frequency cycle.

APPLICATION NOTES

The GL-159 can be operated at frequencies as high as 15 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 above). The tabulation below shows the highest percentage of maximum plate voltage and power input that can be used up to 35 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency	15	25	35 megacycles
Percentage of maximum rated plate voltage and plate input			
Class B	100	85	74 per cent
Class C plate modulated	100	75	50 per cent
Class C unmodulated	100	75	50 per cent

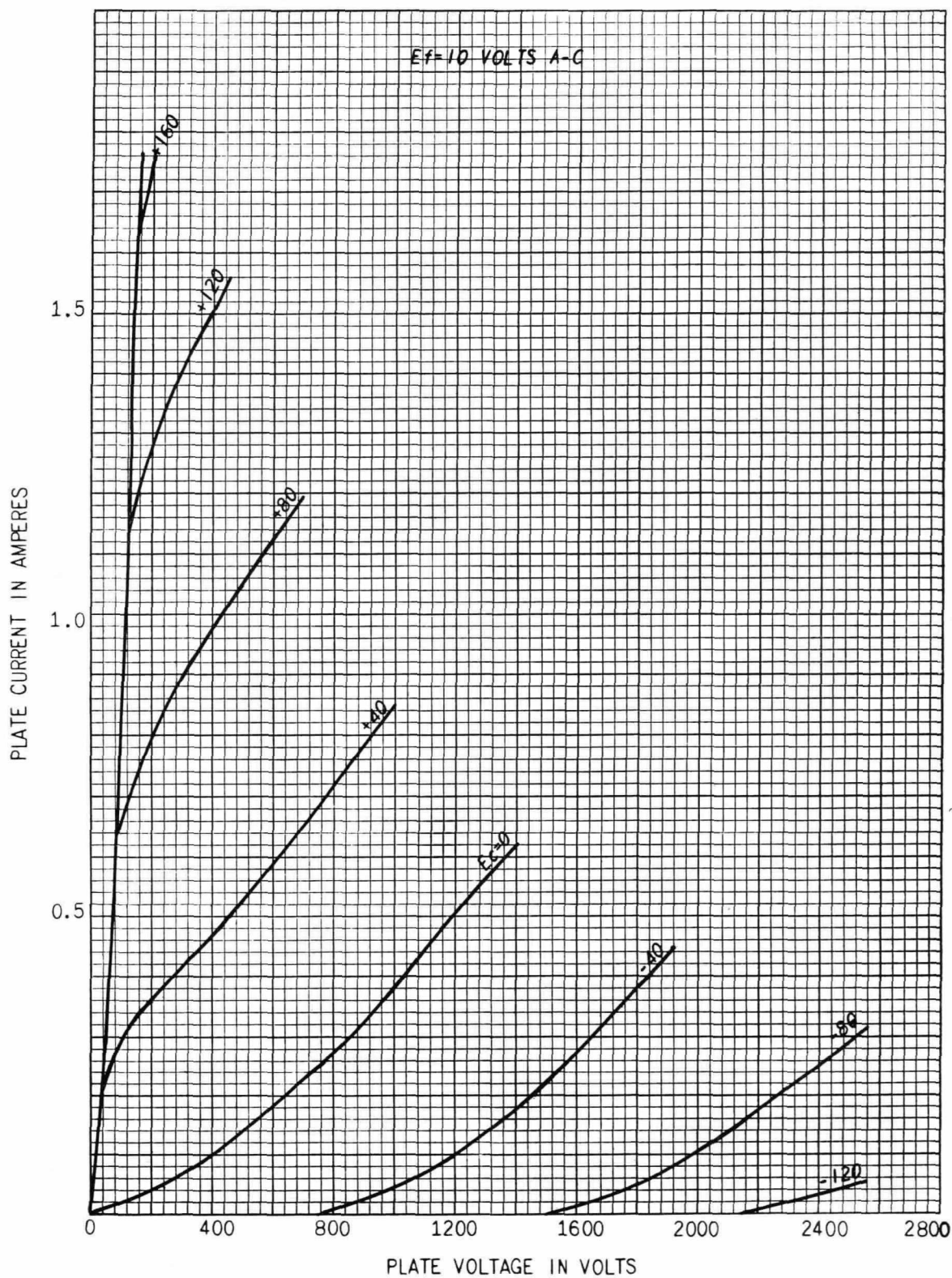
GL-159 PLATE-GRID TRANSFER CHARACTERISTICS

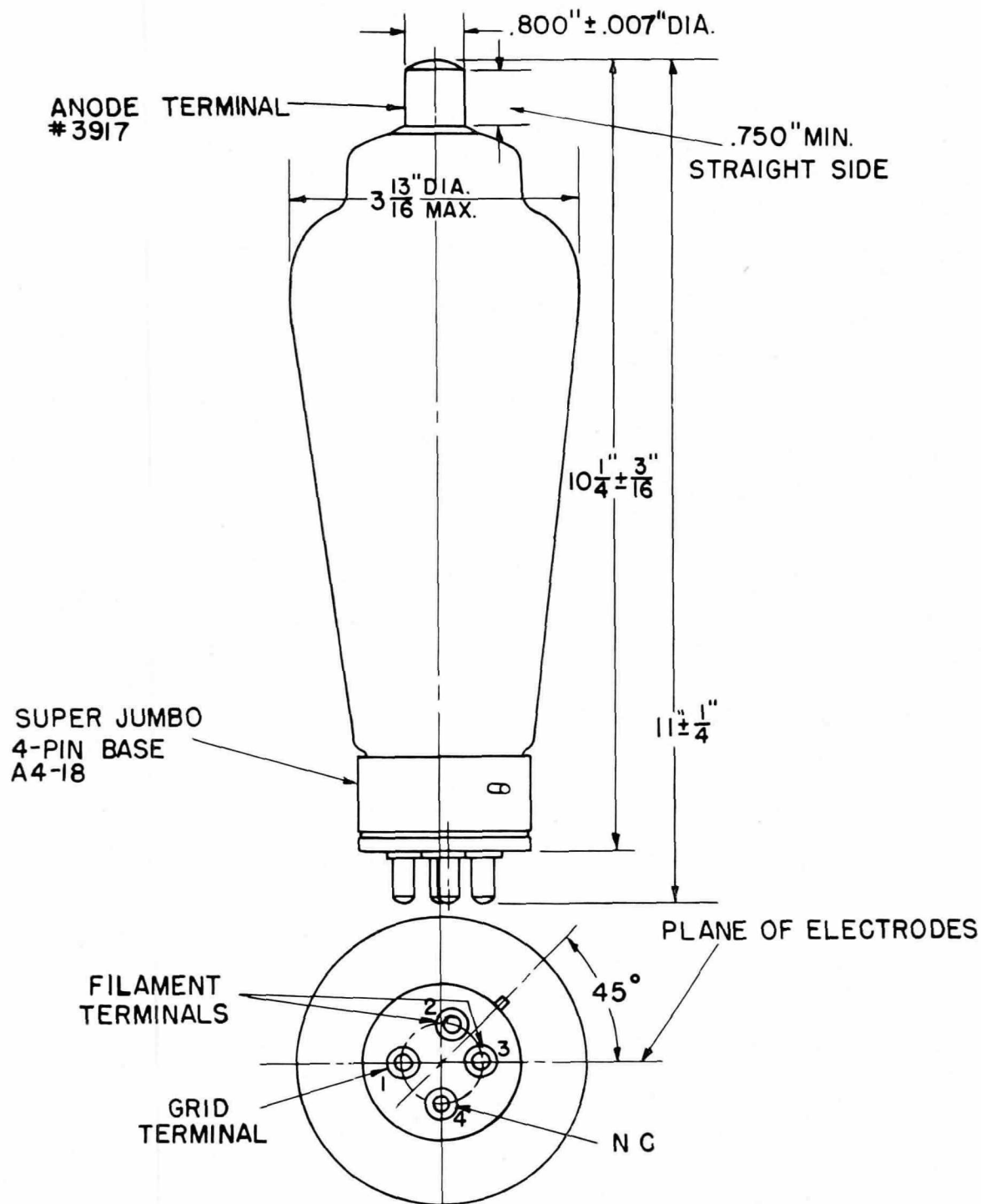


K-6917438

1-9-46

GL-159 AVERAGE PLATE CHARACTERISTICS





GL-159 OUTLINE

Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.