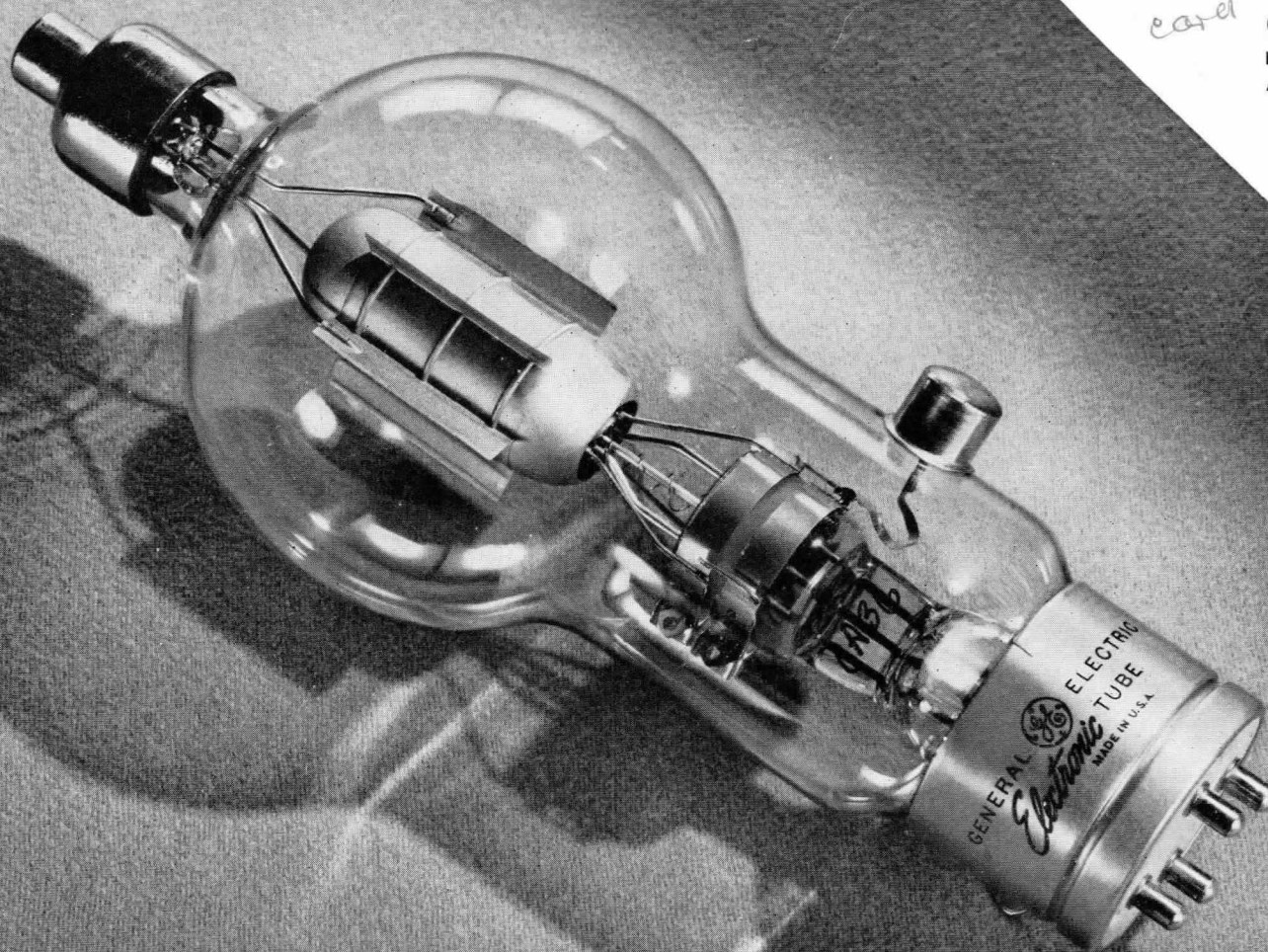




TRIODE

DESCRIPTION

The GL-806 is a three-electrode transmitting triode designed for use as a radio-frequency amplifier, oscillator, and Class B modulator. Maximum plate dissipation for Class C telegraph and Class B services is 225 watts (ICAS). The tantalum plate of this tube totally encloses the other electrodes and thus conserves power by eliminating loss from bulb bombardment and stray electrons. At 30 megacycles this construction provides the user

with more than 75 watts of additional power per tube. The GL-806 may be operated at maximum ratings at frequencies as high as 100 megacycles. In Class B modulator service (ICAS), two GL-806's are capable of modulating 100 per cent a radio-frequency amplifier having an input of 2240 watts. Plate and grid connections, brought out to the top and side of the bulb respectively, provide low-tube capacitances and high insulation.

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, a-c or d-c.....	5.0 volts
Filament current.....	9.5 amperes
Amplification factor.....	12.6
Direct interelectrode capacitances:	
Grid-plate.....	4.0 micromicrofarads
Grid-filament.....	5.5 micromicrofarads
Plate-filament.....	0.4 micromicrofarads
Mechanical	
Cooling.....	Air†
Mounting position.....	Vertical, base down

GENERAL  ELECTRIC


Electronic
TUBE

TECHNICAL INFORMATION (CONT'D)

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS B AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR, TWO TUBES

	Typical Operation		Maximum Ratings		
	CCS	ICAS	CCS	ICAS	
Filament voltage, a-c or d-c.....					5.0 volts
D-c plate voltage.....	2000	3000	3000	3300	volts
Max signal d-c plate current*.....			200	250	milliamperes
Max signal plate input*.....			500	825	watts
Plate dissipation*.....			150	225	watts
D-c grid voltage.....	-140	-230	-240		volts
Peak a-f grid-to-grid voltage.....	660	770	930		volts
Zero signal d-c plate current.....	80	50	80		milliamperes
Max signal d-c plate current.....	390	330	475		milliamperes
Load resistance, per tube.....	4500	5200	4000		ohms
Effective load resistance, plate-to-plate.....	18000	20800	16000		ohms
Max signal driving power, approx.....	19	15	35		watts
Max signal plate power output, approx.....	535	700	1120		watts

CLASS B RADIO-FREQUENCY POWER AMPLIFIER—TELEPHONY

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

D-c plate voltage.....	2000	3000	3300	3000	3300	volts
D-c grid voltage.....	-150	-240	-280			volts
D-c plate current.....	110	70	102	150	150	milliamperes
Plate input.....				225	338	watts
Plate dissipation.....				150	225	watts
Peak r-f grid voltage.....	180	200	290			volts
D-c grid current, approx.....	1	0	0			milliamperes
Driving power, approx ^o	8	5	10.3			watts
Power output, approx.....	70	70	115			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.....	2000	2500	3000	2500	3000	volts
D-c grid voltage [†]	-500	-600	-670	-1000	-1000	volts
	12500	15000	25000			ohms
D-c plate current.....	195	195	195	200	200	milliamperes
D-c grid current, approx**.....	40	40	27	50	50	milliamperes
Plate input.....				500	600	watts
Plate dissipation.....				110	150	watts
Peak r-f grid voltage.....	790	890	970			volts
Driving power, approx**.....	28	32	24			watts
Power output, approx.....	300	390	460			watts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—TELEGRAPHY

Key-down conditions per tube without modulation π

	CCS		ICAS		CCS		ICAS
D-c plate voltage.....	2000	2500	3000	3300	3000	3300	volts
D-c grid voltage [§]	-400	-500	-600	-600	-1000	-1000	volts
	16000	20000	24000	15000			ohms
	1800	2300	2700	1730			ohms
D-c plate current.....	195	195	195	300	200	305	milliamperes
D-c grid current, approx**.....	25	25	25	40	50	50	milliamperes
Plate input.....					600	1000	watts
Plate dissipation.....					150	225	watts
Peak r-f grid voltage.....	640	755	870	930			volts
Driving power, approx**.....	15	17	20	34			watts
Power output, approx.....	280	370	450	780			watts

*Averaged over any audio-frequency cycle.

†Forced ventilation from fan directed at middle and upper portions of bulb is required for continuous key-down conditions in Class C telegraph service and is recommended for other services at frequencies of 30 megacycles or higher.

**Subject to wide variations depending on the impedance of the load circuit. High-impedance load circuits require more grid current and driving power to obtain the desired output. Low-impedance circuits need less grid current and driving power, but plate-circuit efficiency is sacrificed. The driving stage should be capable of delivering considerably more than the required driving power.

‡Obtained by grid resistor of value shown or by partial self-bias methods.

§Obtained by grid resistor (16000, 20000, 24000, 12800), by cathode resistor (1800, 2300, 2700, 1730) or from fixed-bias source.

π 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 a-f cycle with modulation factor of 1.0.

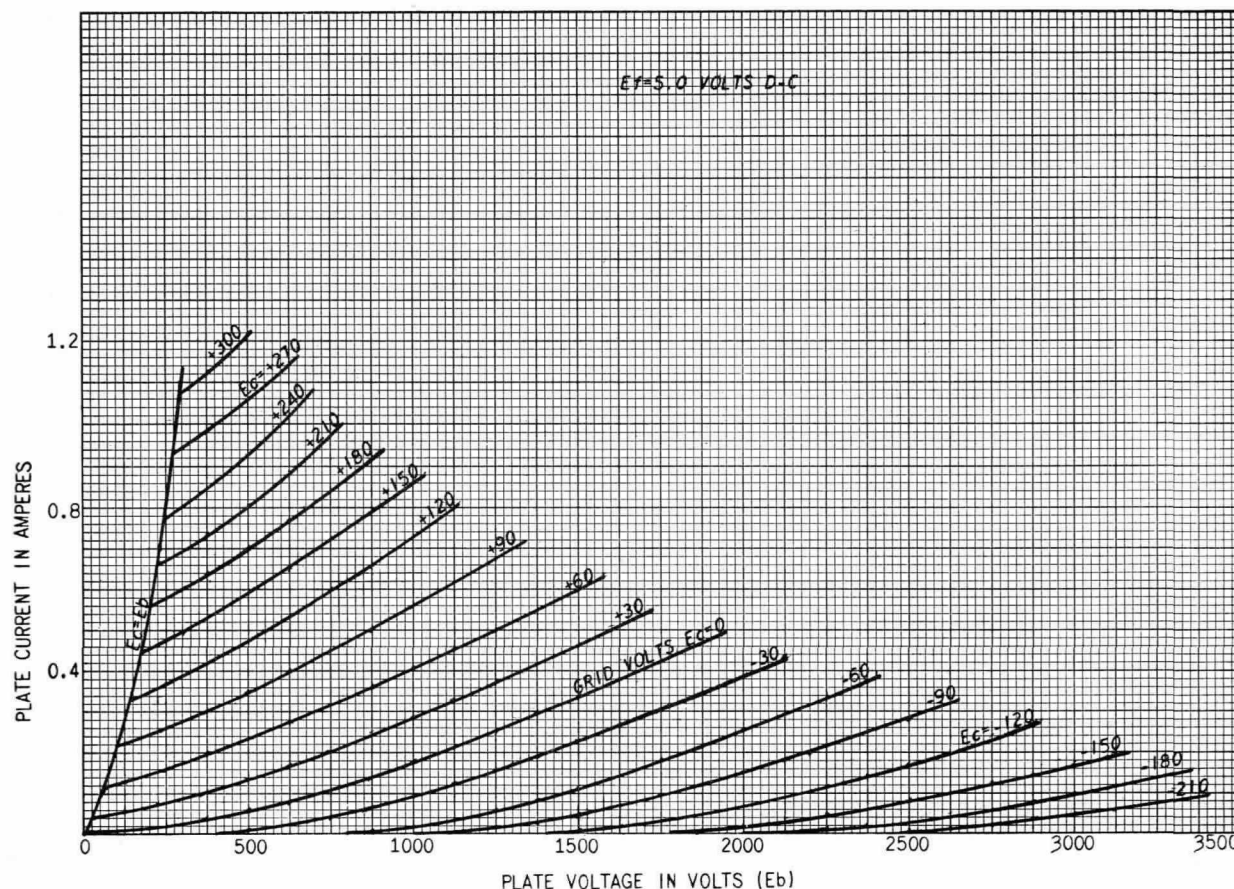
APPLICATION NOTES

The GL-806 can be operated at frequencies as high as 30 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 100 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulbs at these frequencies.

Frequency.....	30	50	100 megacycles
Max permissible percentage of max rated plate voltage and plate input			
Class B	100	90	78 per cent
Class C, plate modulated.....	100	80	50 per cent
Class C, unmodulated	100	80	50 per cent

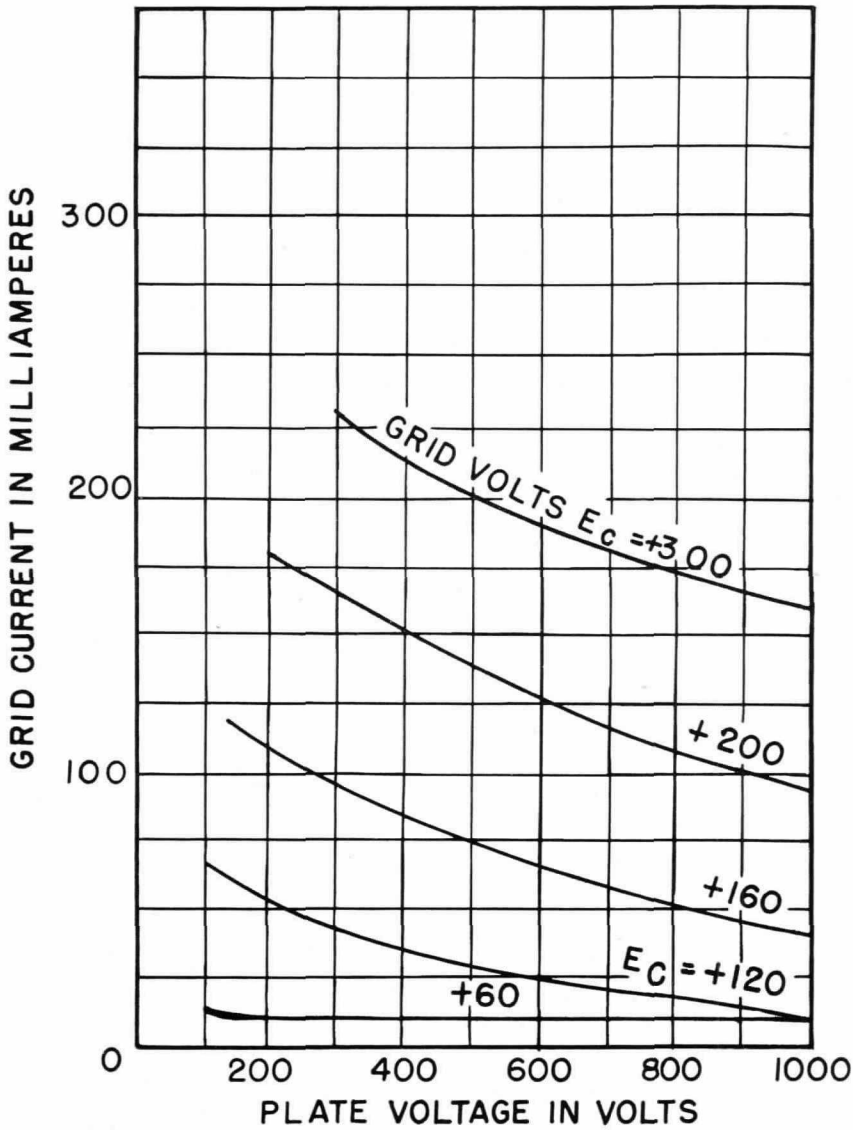
GL-806 AVERAGE PLATE CHARACTERISTICS

$E_f = 5.0$ VOLTS D-C



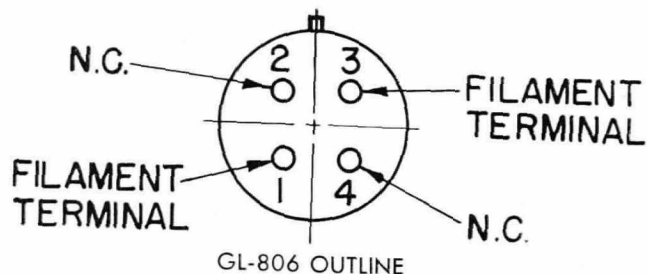
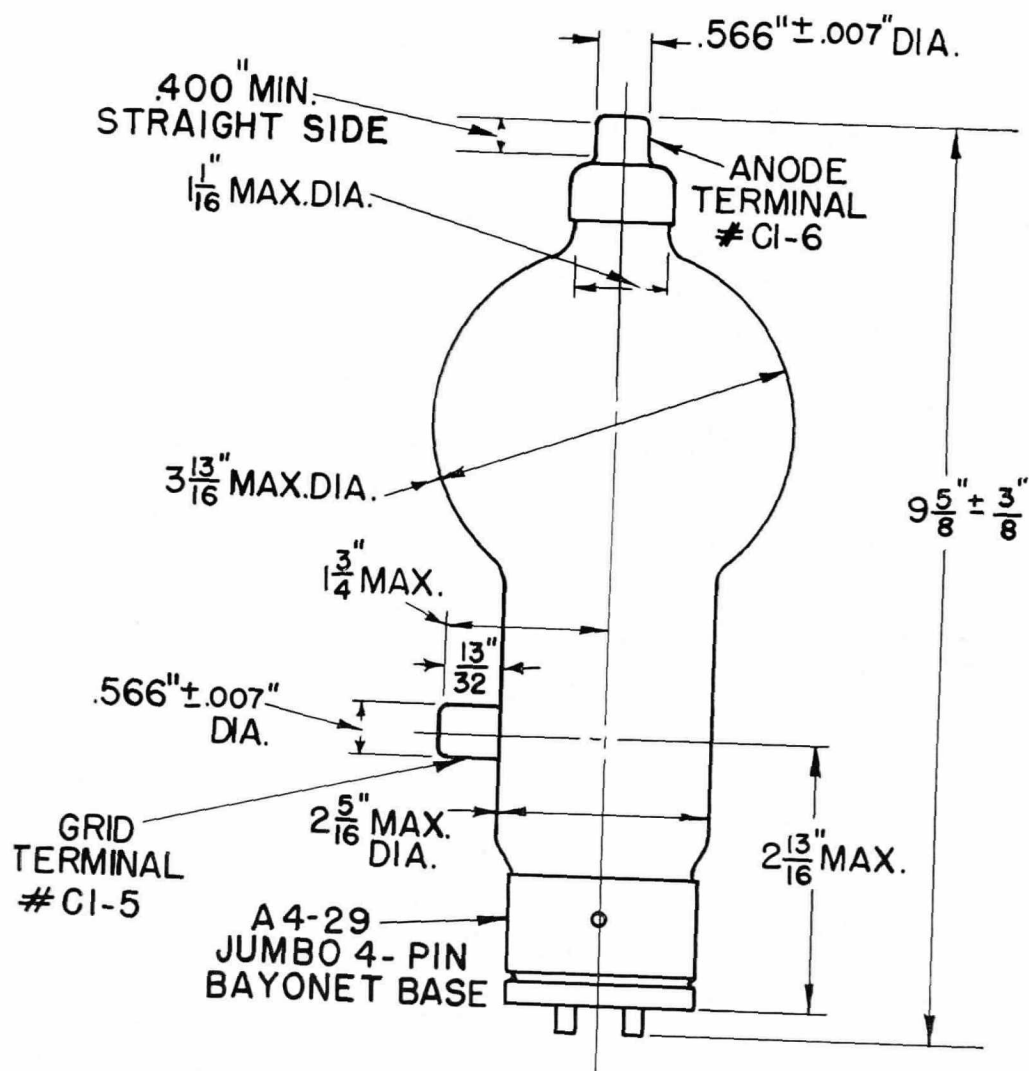
GL-806 TYPICAL CHARACTERISTICS

$E_i = 5.0$ VOLTS D-C



K-9033922

8-17-45



K-9033889

7-10-45

Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.