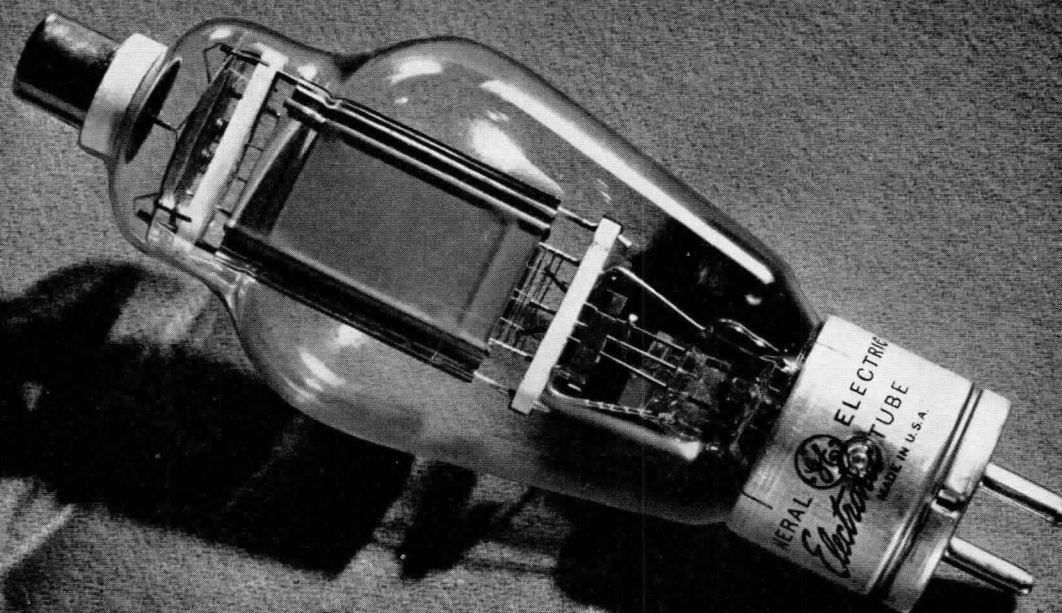




TRIODE

DESCRIPTION

The GL-8005 is a three-electrode tube designed for use as an audio- or radio-frequency amplifier. The anode is capable of dissipating 85 watts, and

cooling is accomplished by radiation. The cathode is a thoriated-tungsten filament. Maximum ratings apply up to a frequency of 60 megacycles.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes	3
Electrical	
Filament voltage	10 volts
Filament current	3.25 amperes
Amplification factor	20
Interelectrode capacitances	
Grid-plate	5 micromicrofarads
Grid-filament	6.4 micromicrofarads
Plate-filament	1 micromicrofarad
Frequency for maximum ratings	60 megacycles
Mechanical	
Mounting position	vertical, base down; horizontal with plane of electrodes vertical
Shipping weight, approximate	3 pounds
Net weight, approximate	4 ounces

GENERAL  ELECTRIC


Electronic
TUBE

TECHNICAL INFORMATION (CONT'D)

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum Ratings, Absolute Values

	CCS*	ICAS†	
D-c plate voltage.....	1250 max	1500 max	volts
Maximum signal d-c plate current‡.....	200 max	200 max	milliamperes
Maximum signal plate input‡.....	225 max	250 max	watts
Plate dissipation‡.....	75 max	85 max	watts

Typical Operation

	CCS*	ICAS†	
Unless otherwise specified, values are for two tubes			
D-c plate voltage.....	1250	1500	volts
D-c grid voltage.....	-55	-70	volts
Peak a-f grid-to-grid voltage.....	290	310	volts
Zero signal d-c plate current.....	40	40	milliamperes
Maximum signal d-c plate current.....	320	310	milliamperes
Effective load resistance, plate to plate.....	8000	10000	ohms
Maximum signal driving power, approximate.....	4	4	watts
Maximum signal power output, approximate.....	250	300	watts

RADIO-FREQUENCY POWER AMPLIFIER—CLASS B

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

Maximum Ratings, Absolute Values

	CCS*	ICAS†	
D-c plate voltage.....	1250 max	1500 max	volts
D-c plate current.....	100 max	100 max	milliamperes
Plate input.....	110 max	125 max	watts
Plate dissipation.....	75 max	85 max	watts

Typical Operation

	CCS*	ICAS†	
D-c plate voltage.....	1250	1500	volts
D-c grid voltage.....	-65	-80	volts
Peak r-f grid voltage.....	85	90	volts
D-c plate current.....	85	83	milliamperes
D-c grid current, approximate.....	2	1	milliamperes
Driving power, approximate.....	5.5	5	watts
Power output, approximate.....	40	45	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.....	1000 max	1250 max	
D-c grid voltage.....	-200 max	-200 max	
D-c plate current.....	160 max	200 max	milliamperes
D-c grid current.....	45 max	45 max	milliamperes
Plate input.....	160 max	240 max	watts
Plate dissipation.....	50 max	75 max	watts

Typical Operation

	CCS*	ICAS†	
D-c plate voltage.....	1000	1250	volts
D-c grid voltage.....	-195	-195	volts
Peak r-f grid voltage.....	350	350	volts
D-c plate current.....	160	190	milliamperes
D-c grid current, approximate.....	28	28	milliamperes
Driving power, approximate.....	9	9	watts
Power output, approximate.....	115	170	watts

* Continuous commercial service.

† Intermittent commercial and amateur service.

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

π At crest of audio-frequency cycle with modulation factor of 1.0.

TECHNICAL INFORMATION (CONT'D)

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C TELEGRAPHY

Key-down conditions per tube without modulation Δ

Maximum Ratings, Absolute Values

	CCS*	ICAS†	
D-c plate voltage.....	1250 max	1500 max	volts
D-c grid voltage.....	-200 max	-200 max	volts
D-c plate current.....	200 max	200 max	milliamperes
D-c grid current.....	45 max	45 max	milliamperes
Plate input.....	240 max	300 max	watts
Plate dissipation.....	75 max	85 max	watts

Typical Operation

	CCS*	ICAS†	
D-c plate voltage.....	1250	1500	volts
D-c grid voltage.....	-115	-130	volts
Peak r-f grid voltage.....	240	255	volts
D-c plate current.....	190	200	milliamperes
D-c grid current, approximate.....	30	32	milliamperes
Driving power, approximate.....	6.5	7.5	watts
Power output, approximate.....	170	220	watts

When the 8005 is used in the final amplifier or a preceding stage of a transmitter designed for break-in operation and oscillator keying, a small amount of fixed bias must be used to maintain the plate current at a safe value. With a plate voltage of 1500 volts, a fixed bias of at least -50 volts should be used.

OSCILLATOR OPERATION WITH UNFILTERED PLATE SUPPLY

	A	B	
Plate voltage.....	1750 max	1125 max	volts
D-c grid voltage.....	-125 max	-125 max	volts
D-c plate current.....	125 max	180 max	milliamperes
D-c grid current.....	25 max	40 max	milliamperes
Plate input.....	240 max	240 max	watts
Plate dissipation.....	75 max	75 max	watts

Typical Operation in Push-pull Circuit at 50 Megacycles

Plate voltage.....	1750 rms	1100	volts
Grid resistor.....	2000	2000	ohms
D-c plate current.....	250	360	milliamperes
D-c grid current.....	35	40	milliamperes
Power output, approximate.....	330	330	watts
Circuit power output, approximate 85 per cent circuit efficiency....	280	280	watts

A—Self-rectified a-c supply. Plate voltages are rms values.

B—Separate rectified (no filter) single-phase, full-wave plate supply.

For applications where grid current and grid voltage may vary widely because of fluctuating loads. It is important to design equipment so that the maximum grid-current and grid-voltage ratings are never exceeded for any load. An approximate rule is to adjust the grid-current and grid-voltage values at full-load to one-half the corresponding maximum values. This operating condition permits grid-current and grid-voltage values to rise for zero-load to twice their full-load values, and usually provides adequate leeway.

* Continuous commercial service.

† Intermittent commercial and amateur service.

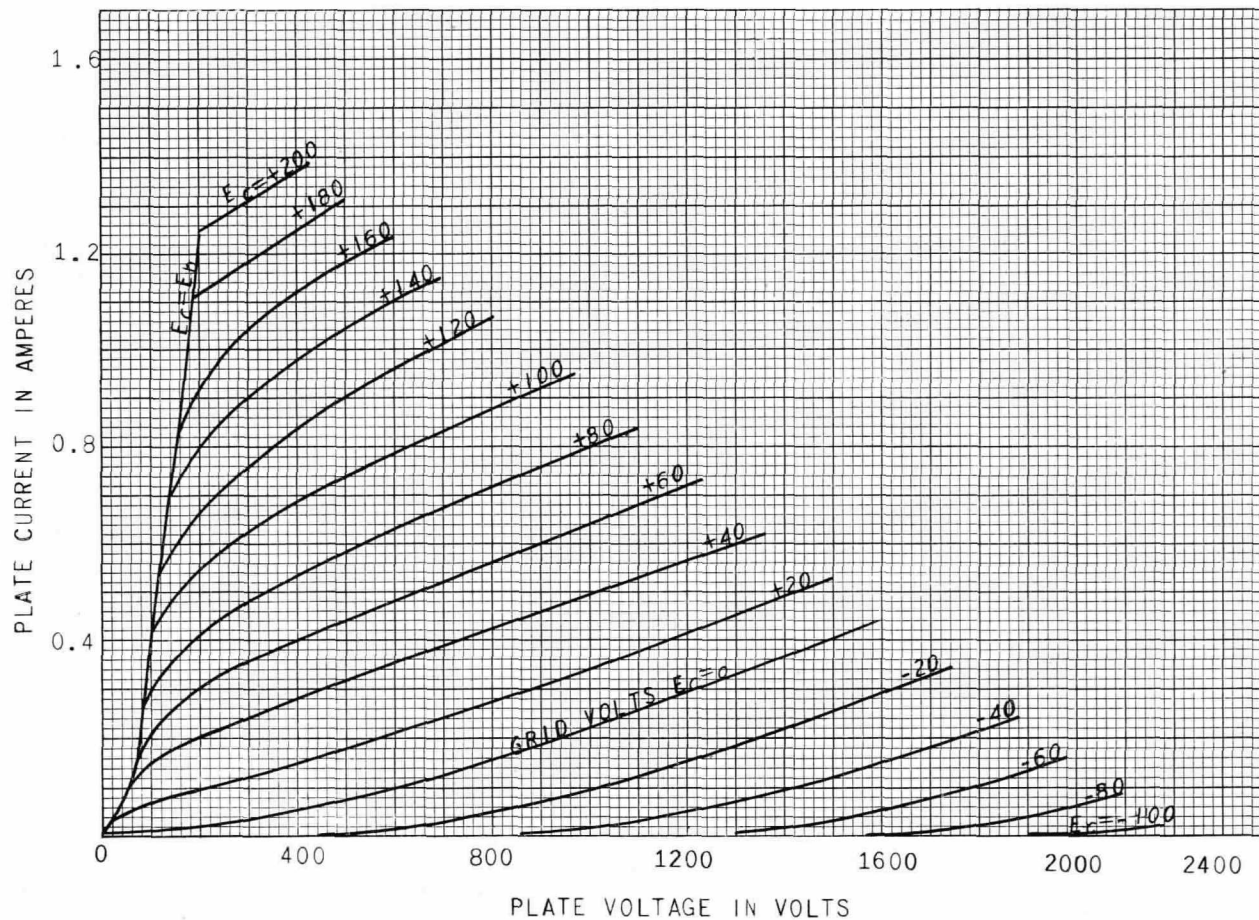
Δ Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.

APPLICATION NOTES

Maximum ratings apply up to 60 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced according to the tabulation below (other maximum ratings are the same as shown above). Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency.....	60	80	100 megacycles
Percentage of maximum Rated Plate Voltage and Plate Input			
Class B.....	100	90	83 per cent
Class C plate modulated.....	100	75	60 per cent
Class C unmodulated.....	100	75	60 per cent

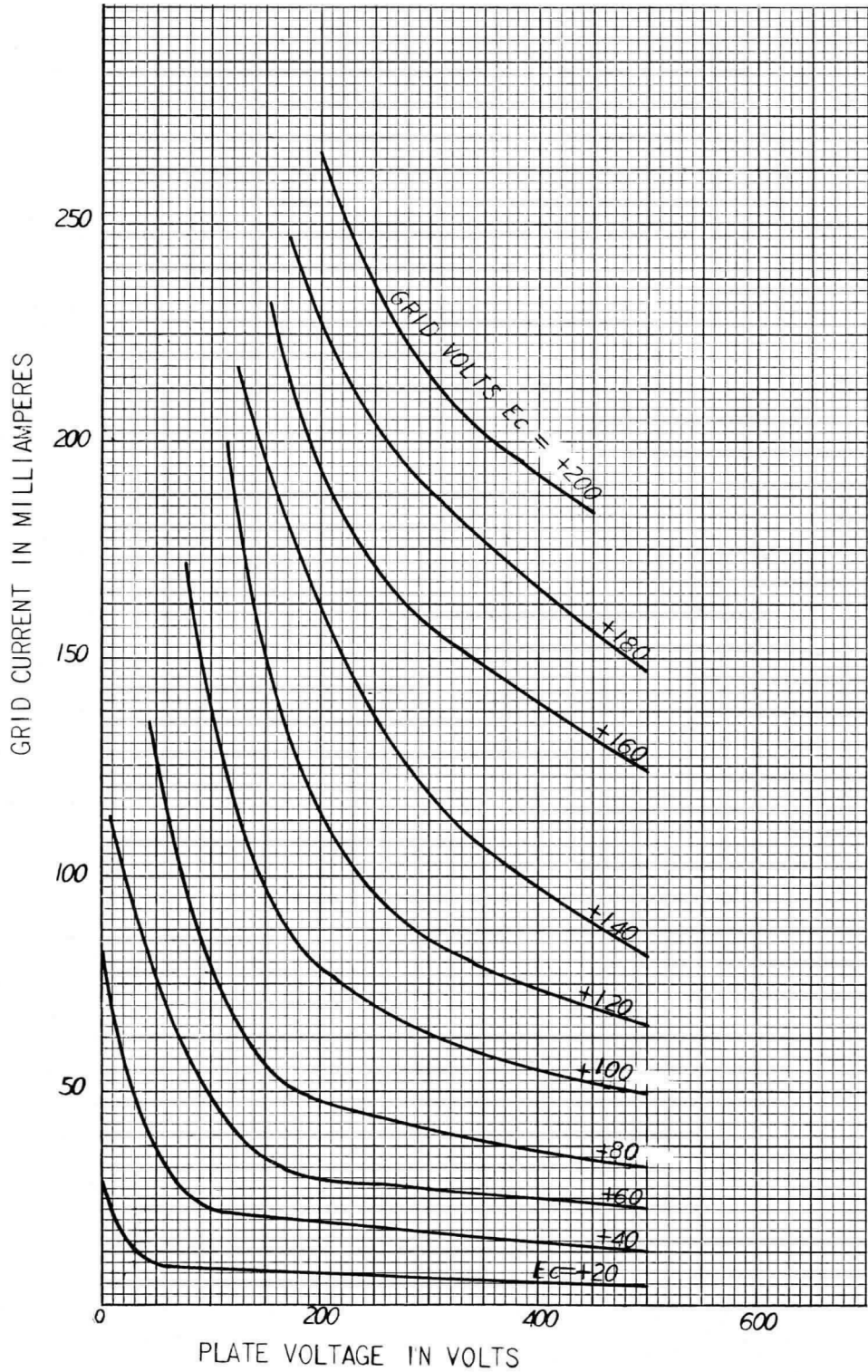
GL-8005
AVERAGE PLATE CHARACTERISTICS
 $E_f = 10$ VOLTS D-C

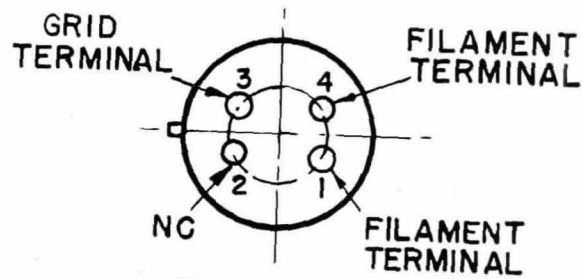
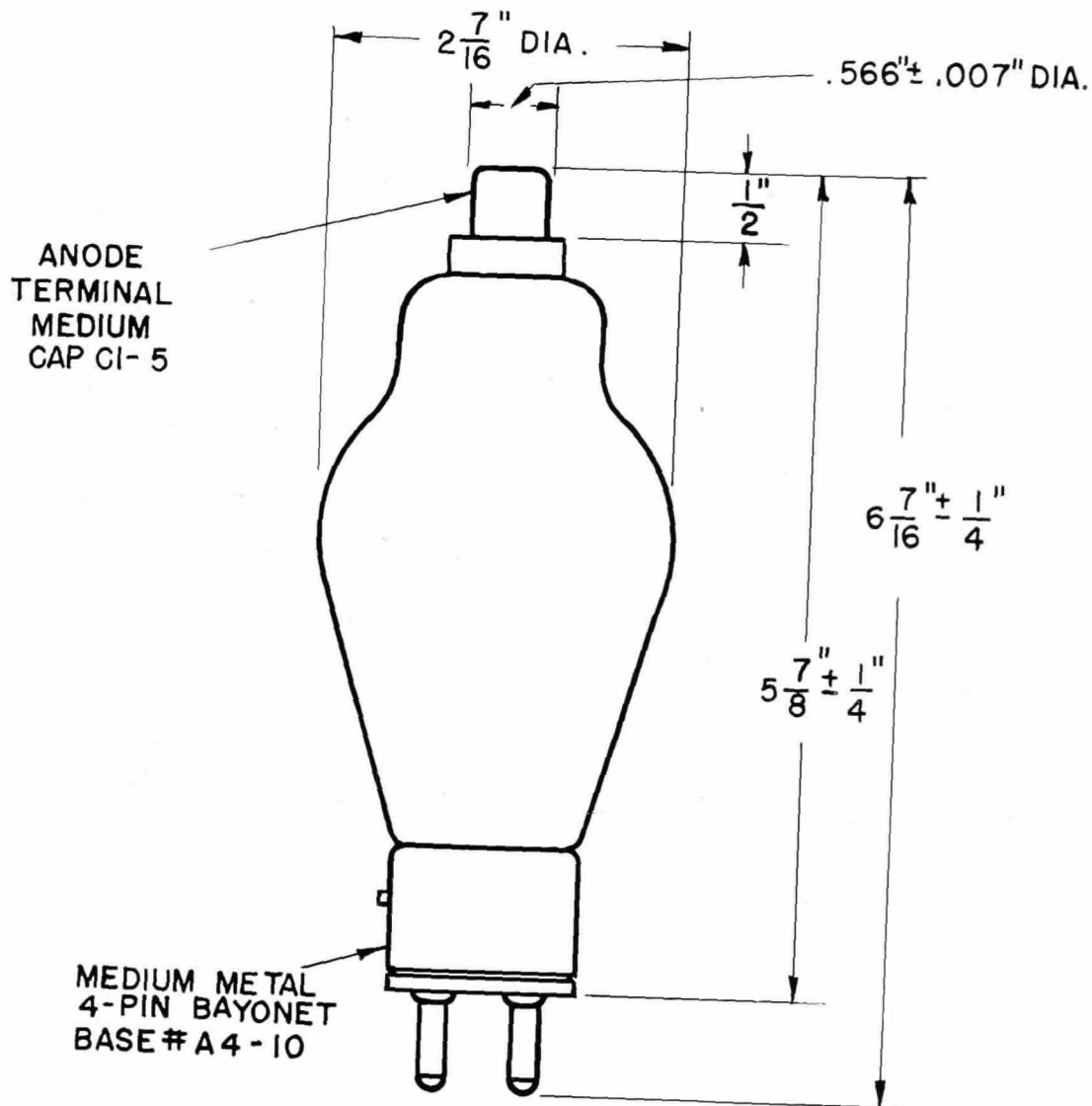


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GL-8005
TYPICAL CHARACTERISTICS
 $E_f = 10$ VOLTS D-C





GL-8005 OUTLINE

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7-26-46

Electronics Department
GENERAL ELECTRIC
 Schenectady, N. Y.