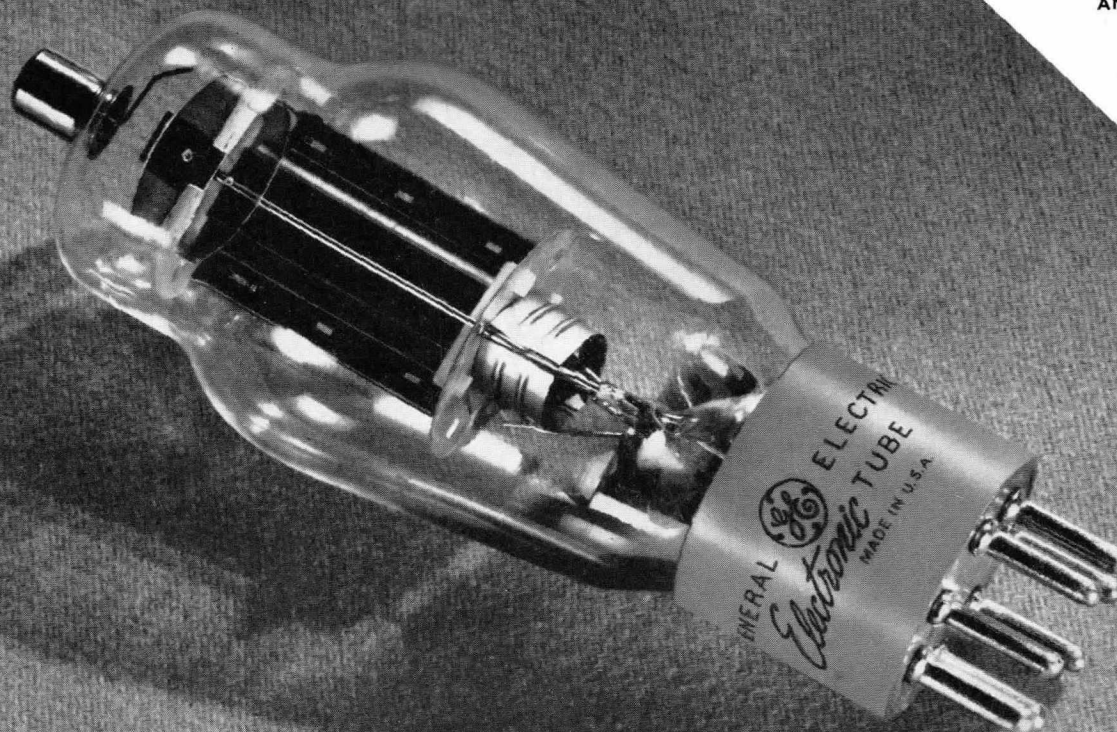




BEAM POWER TUBE

DESCRIPTION

The GL-1625 is a beam power transmitting tube of the heater-cathode type having a maximum plate dissipation rating of 30 watts (ICAS). The high power sensitivity of this tube makes it especially useful in frequency-multiplier service where high

harmonic output is essential. The 1625 may also be used as a crystal oscillator and buffer amplifier in medium-power transmitters using up to a half-kilowatt input. Neutralization is generally unnecessary in adequately shielded circuits.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes.....	5
Electrical	
Cathode—Indirectly heated.....	12.6 volts
Voltage.....	0.45 ampere
Current.....	8
Grid-screen amplification factor.....	0.2 micromicrofarad
Direct interelectrode capacitances.....	0.11 micromicrofarads
Grid-plate, with external shielding.....	0.7 micromicrofarads
Input.....	0.60 megacycles
Output.....	
Frequency for maximum ratings.....	


Electronic
TUBE

GENERAL  ELECTRIC

TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling.....	convection
Net weight, approximate.....	4 ounces
Shipping weight, approximate.....	3 pounds
Mounting position.....	any

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS AB ₁ AUDIO-FREQUENCY POWER AMPLIFIER (TWO TUBES)					Typical Operation	Maximum Ratings	
	CCS			ICAS	CCS	ICAS	
D-c plate voltage.....	400	500	600	750	600	750	volts
Maximum signal plate current, per tube†.....					120	120	milliamperes
D-c maximum signal plate input, per tube†.....					60	90	watts
Plate dissipation, per tube†.....					25	30	watts
D-c grid voltage.....	—25	—25	—30	—32			volts
Positive d-c grid voltage.....	300	300	300	300	300	300	volts
Peak a-f grid input voltage, grid-to-grid..	78	78	78	92			volts
Zero signal plate current.....	100	100	60	60			milliamperes
Maximum signal plate current.....	240	240	200	240			milliamperes
Maximum signal screen grid current.....	10	10	10	10			milliamperes
Screen grid input†.....					3.5	3.5	watts
Peak grid input power‡.....	0.35	0.6	0.4	0.5			watts
Load resistance, per tube.....	800	1060	1600	1740			ohms
Effective load, plate-to-plate.....	3200	4240	6400	6960			ohms
Maximum signal plate power output§.....	55	75	80	120			watts

CLASS B RADIO-FREQUENCY POWER AMPLIFIER

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

	CCS		ICAS		CCS	ICAS
D-c plate voltage.....	400	500	600	750	600	750 volts
D-c grid voltage.....	-25	-25	-25	-35		volts
D-c screen grid voltage.....	250	250	250	300	300	300 volts
D-c grid current.....	0	0	0	0		milliamperes
D-c plate current.....	75	75	62.5	60	80	90 milliamperes
D-c screen grid current.....	4	4	3	3		milliamperes
Plate input.....					37.5	45 watts
Screen grid input.....					2.5	2.5 watts
Plate dissipation.....					25	30 watts
Peak r-f grid input voltage.....	30	30	20	27		volts
Driving power ♦, approximate.....	0.25	0.25	0.2	0.12		watt
Plate power output.....	9	12.5	12.5	15		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

	CCS		ICAS		CCS	ICAS
D-c plate voltage.....	325	400	475	600	475	600 volts
D-c grid voltage.....	-75	-80	-85	-90	-200	-200 volts
From a grid resistor of.....	25000	22800	21300	22500		ohms
D-c screen voltage.....	225	225	225	275	300	300 volts
From a series resistor of Δ.....	20000	30000	50000	50000		ohms
D-c plate current.....	80	80	83	100	83	100 milliamperes
D-c grid current, approximate.....	3	3.5	4	4	5	5 milliamperes
D-c screen grid current.....	5	5.75	5	6.5		milliamperes
Plate input.....					40	60 watts
Screen grid input.....					2.5	2.5 watts
Plate dissipation.....					16.5	25 watts
Peak r-f grid input voltage, approximate..	90	95	110	115		volts
Driving power, approximate.....	0.25	0.3	0.4	0.4		watts
Plate power output.....	17.5	22.5	27.5	42.5		watts

TECHNICAL INFORMATION (CONT'D)

CLASS C RADIO-FREQUENCY AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation +

	CCS		ICAS		CCS	ICAS	
D-c plate voltage.....	400	500	600	750	600	750	volts
D-c grid voltage.....					-200	-200	volts
From a fixed supply of.....	-45	-45	-45	-45			volts
From a cathode resistor of.....	410	410	410	410			ohms
From a grid resistor of.....	12800	12800	12800	12800			ohms
D-c screen grid voltage.....					300	300	volts
From a fixed supply of.....	250	250	250	250			volts
From a series resistor of.....	20000	42000	50000	85000			ohms
D-c plate current.....	100	100	100	100	100	100	milliamperes
D-c grid current, approximate.....	3.5	3.5	3.5	3.5	5	5	milliamperes
D-c screen grid current.....	7.5	6	7	6			milliamperes
Plate input.....					60	75	watts
Plate dissipation.....					25	30	watts
Screen grid input.....					3.5	3.5	watts
Peak r-f grid input voltage, approximate.....	65	65	65	65			volts
Driving power, approximate.....	0.2	0.2	0.2	0.2			watt
Plate power output.....	25	30	40	50			watts

φ Subscript (2) indicates that grid current flows during some part of input cycle.

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

‡ Driver stage should be capable of supplying the grids of the Class AB₂ stage with the specified peak values at low distortion. The effective resistance per grid circuit of the Class AB₂ stage should be kept below 500 ohms and the effective impedance of the highest desired response frequency should not exceed 700 ohms.

§ With zero-impedance driver and perfect regulation, plate circuit distortion does not exceed 2 per cent. In practice, plate-voltage regulation, positive grid voltage regulation, and grid bias regulation should not be greater than 5 per cent, 5 per cent, and 3 per cent, respectively.

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

△ Connected to modulated plate-voltage supply.

+ 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.

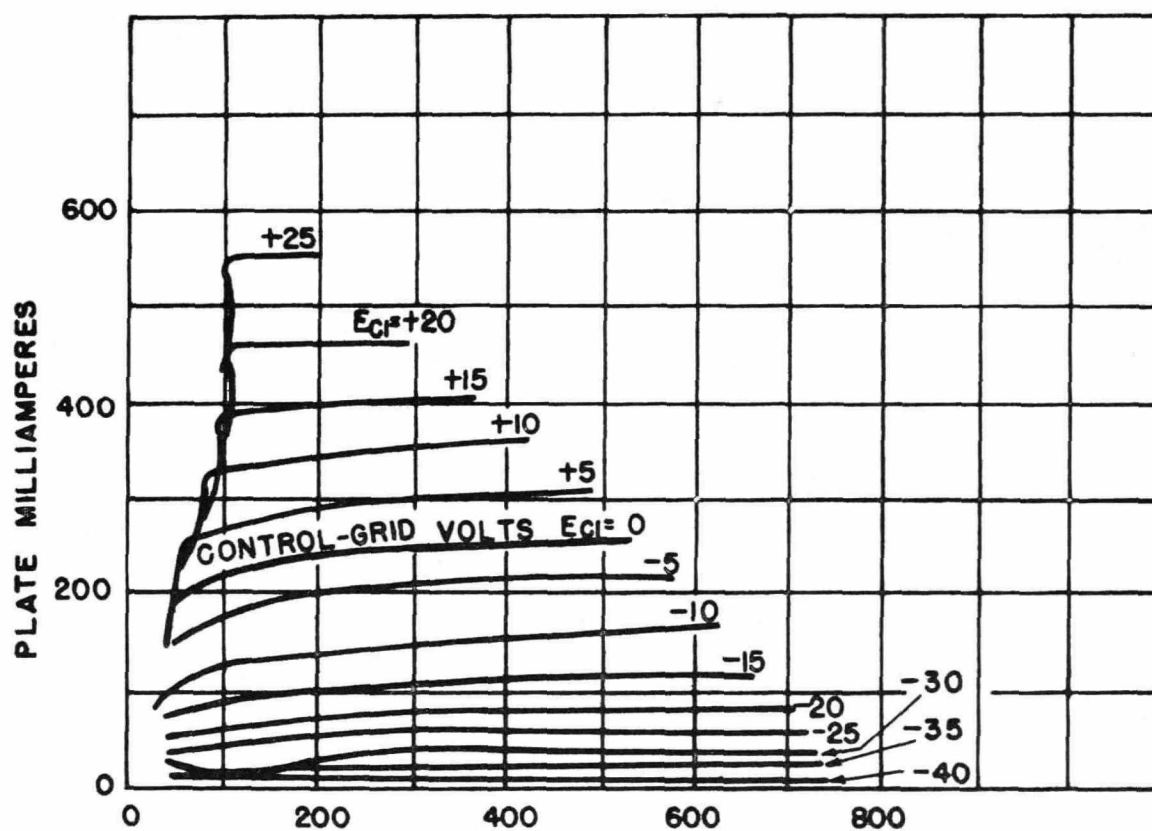
APPLICATION NOTES

The GL-1625 can be operated at frequencies as high as 60 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).

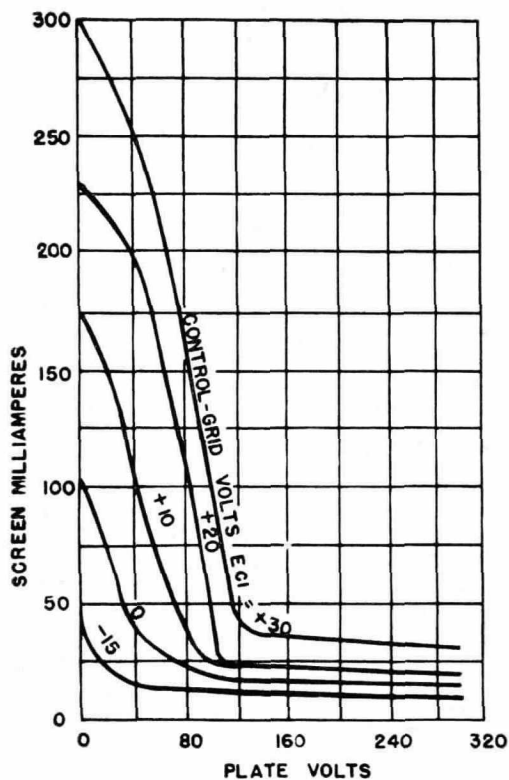
The tabulation below shows the highest percentage of maximum plate voltage and power input that can be used up to 125 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency.....	60	80	125	megacycles
Maximum permissible percentage of maximum rated plate voltage and plate input				
Class B.....	100	90	75	per cent
Class C, plate-modulated.....	100	80	55	per cent
Class C, telegraphy.....	100	80	55	per cent

GL-1625 AVERAGE PLATE CHARACTERISTICS

(E_{c1} AS VARIABLE, E_f = 6.3 VOLTS, SCREEN VOLTS = 300)

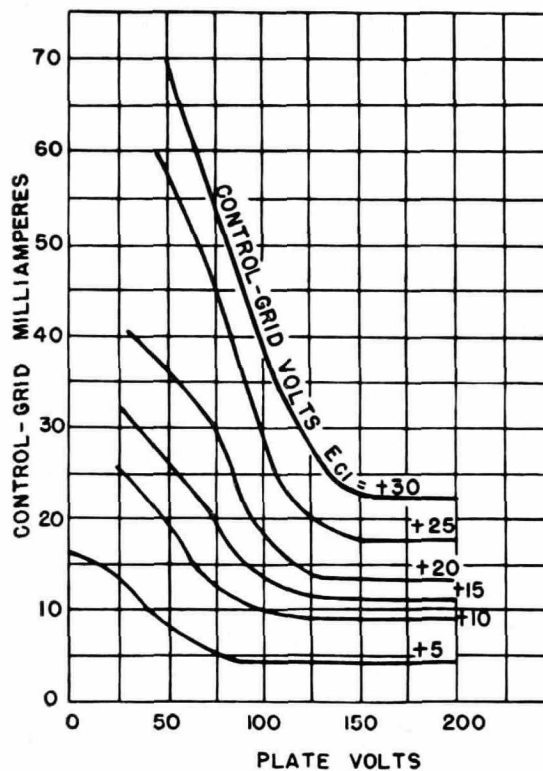
GL-1625 AVERAGE CHARACTERISTICS

 $(E_f = 6.3 \text{ VOLTS, SCREEN VOLTS} = 300)$ 

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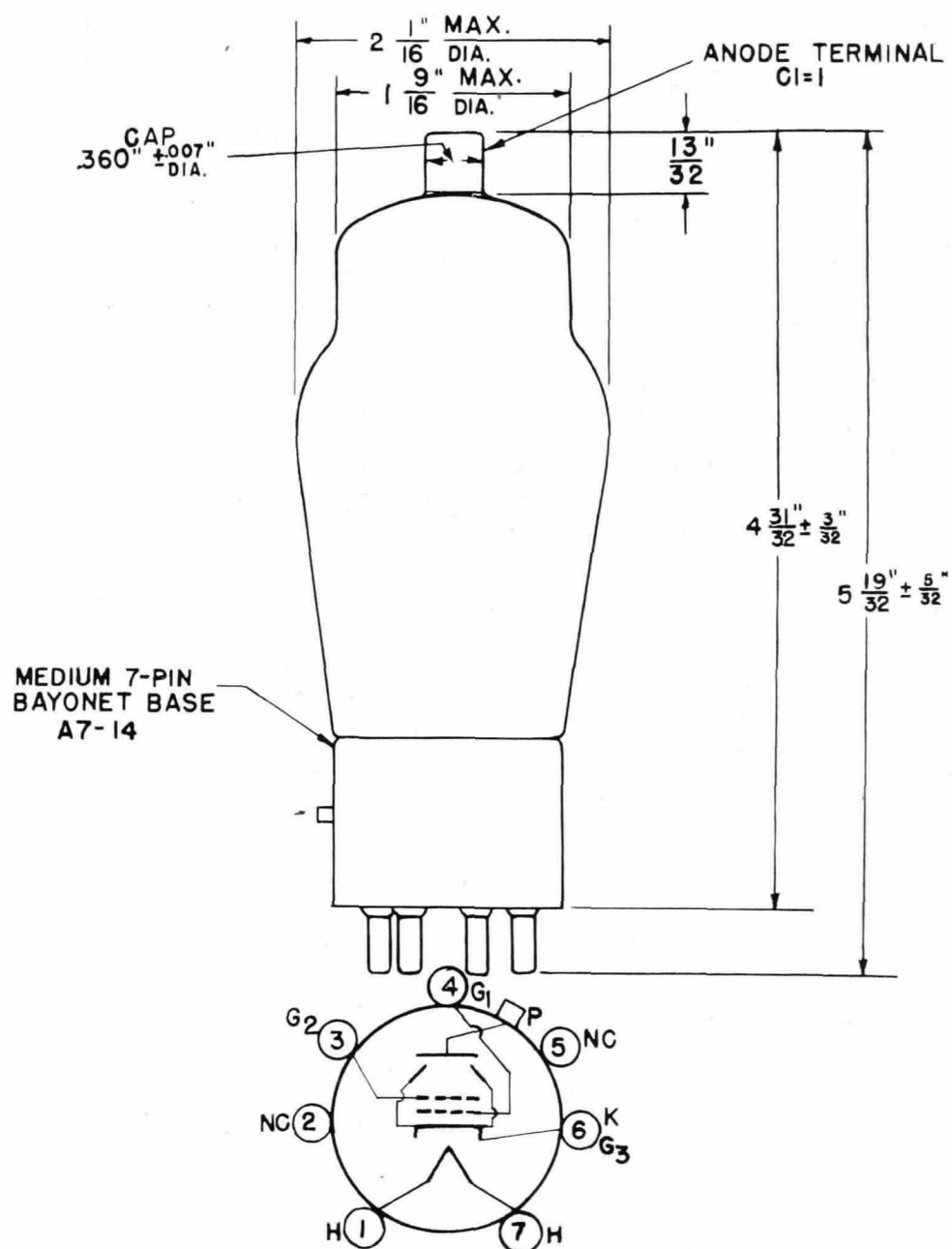
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GL-1625 TYPICAL CHARACTERISTICS

 $(E_f = 6.3 \text{ VOLTS, SCREEN VOLTS} = 300)$ 

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BOTTOM VIEW OF BASING DIAGRAM

GL-1625 OUTLINE

K-9033905

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