

GL-807DESCRIPTION
AND RATING

ETI-165A

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(Pages 1 thru
4 revised
5-51)**PLIOTRON****DESCRIPTION**

The GL-807 is a five-electrode transmitting tube for use as an amplifier, modulator, and oscillator. The anode can dissipate 30 watts, and cooling is

accomplished by radiation. The cathode is the indirectly heated type. Maximum ratings apply up to 60 megacycles.

◆ TECHNICAL INFORMATION

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

GENERAL**Electrical Data**

	Minimum	Bogey	Maximum	
Heater Voltage.....	5.7	6.3	6.9	volts
Heater Current at Bogey Voltage.....	0.81	0.9	0.99	ampere
Amplification Factor, G ₁ -G ₂ , E _b =				
E _{c2} = 250 v, E _c = -10 v.....		8		
Direct Interelectrode Capacitances.....				
Grid-Plate (With External Shield).....	—	—	0.2	uuf
Input.....	10	12	14	uuf
Output.....	5.3	7	8.7	uuf

Mechanical Data

Mounting Position—Any.....				
Net Weight, approximate.....			2.5	ounces

◆ Technical information revised.

Supersedes ETI-165 dated 4-45

GENERAL  ELECTRIC


Electronic
TUBE

TECHNICAL INFORMATION (CONT'D)

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS AB1 (TRIODE CONNECTED)

Maximum ratings, absolute values	CCS	ICAS
D-c plate and grid—No. 2 voltage	400 max	400 max volts
Maximum signal d-c plate plus grid—No. 1 current*	125 max	125 max milliamperes
Maximum signal d-c plate plus grid—No. 2 input*	50 max	50 max watts
Plate plus grid—No. 2 dissipation*	25 max	30 max watts
Typical operation	CCS	ICAS
Unless otherwise specified, values are for two tubes		
D-c plate and grid—No. 2 voltage	400	400 volts
D-c grid—No. 1 voltage†	—45	—45 volts
Peak a-f grid—No. 1-to-grid-No. 1 voltage‡	90	90 volts
Zero—signal d-c plate plus grid—No. 2 current	60	60 milliamperes
Maximum—signal d-c plate plus Grid—No. 2 current	140	140 milliamperes
Effective load resistance, plate to plate	3000	3000 ohms
Maximum—signal driving power, approximate	0	0 watts
Maximum—signal power output, approximate	15	15 watts

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS AB2

Maximum ratings, absolute values			CCS	ICAS	
D-c plate voltage.....			600 max	750 max	volts
D-c grid—No. 2 voltage.....			300 max	300 max	volts
Maximum signal d-c plate current*			120 max	120 max	milliamperes
Maximum signal plate input*			60 max	90 max	watts
Maximum signal grid—No. 2 input*			3.5 max	3.5 max	watts
Plate dissipation*			25 max	30 max	watts
Typical operation			CCS	ICAS	
Unless otherwise specified, values are for two tubes					
D-c plate voltage.....	400	500	600	750	volts
D-c grid—No. 2 voltage.....	300	300	300	300	volts
D-c grid—No. 1 voltage**	—25	—29	—30	—32	volts
Peak A-F grid No. 1 to grid No. 1 voltage.....	78	86	78	92	volts
Zero—signal d-c plate current.....	90	72	60	52	milliamperes
Maximum—signal d-c plate current.....	240	240	200	240	milliamperes
Zero—signal d-c grid—No. 2 current.....	2.0	0.9	0.7	0.5	milliamperes
Maximum—signal d-c grid—No. 2 current.....	15	12	16	17	milliamperes
Effective load resistance, plate to plate.....	3200	4240	6400	6950	ohms
Maximum—signal driving power, approximate***	0.2	0.2	0.1	0.2	watts
Maximum—signal power output, approximate.....	55	75	80	120	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			600 max	750 max	volts
D-c grid—No. 2 voltage			300 max	300 max	volts
D-c plate current			80 max	90 max	milliamperes
Plate input			37.5 max	45 max	watts
Grid—No. 2 input			2.5 max	2.5 max	watts
Plate dissipation			25 max	30 max	watts
Typical operation			CCS	ICAS	
D-c plate voltage	400	500	600	750	volts
D-c grid—No. 2 voltage	250	250	250	300	volts
D-c grid—No. 1 voltage**	—25	—25	—25	—35	volts
Peak R-F grid—No. 1 voltage	30	30	20	27	volts
D-c plate current	75	75	62.5	60	milliamperes
D-c grid—No. 2 current	4	4	3	3	milliamperes
D-c grid—No. 1 current, approximate	0	0	0	0	milliamperes
Driving power, approximate//	0.25	0.25	0.2	0.12	watts
Power output, approximate	9	12.5	12.5	15	watts

TECHNICAL INFORMATION (CONT'D)

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.....		475 max		600 max	volts
D-c grid—No. 2 voltage.....		300 max		300 max	volts
D-c grid—No. 1 voltage.....		—200 max		—200 max	volts
D-c plate current.....		83 max		100 max	milliamperes
D-c grid—No. 1 current.....		5 max		5 max	milliamperes
Plate input.....		40 max		60 max	watts
Grid—No. 2 input.....		2.5 max		2.5 max	watts
Plate dissipation.....		16.5 max		25 max	watts
Typical operation		CCS		ICAS	
D-c plate voltage.....	375	400	475	600	volts
D-c grid—No. 2 voltage.....	225	225	225	275	volts
D-c grid—No. 1 voltage**.....	—75	—80	—85	—90	volts
Peak R-F grid—No. 1 voltage.....	90	95	110	115	volts
D-c plate current.....	80	80	83	100	milliamperes
D-c grid—No. 2 current.....	5	5.75	5	6.5	milliamperes
D-c grid—No. 1 current, approximate.....	3	3.5	4	4	milliamperes
Driving power, approximate.....	0.25	0.3	0.4	0.4	watts
Power output, approximate.....	17.5	22.5	27.5	42.5	watts

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C TELEGRAPHY

Key-down conditions per tube without amplitude modulation ¶

Maximum ratings, absolute values		CCS		ICAS	
D-c plate voltage.....		600 max		750 max	volts
D-c grid—No. 2 voltage.....		300 max		300 max	volts
D-c grid—No. 1 voltage.....		—200 max		—200 max	volts
D-c plate current.....		100 max		100 max	milliamperes
D-c grid No. 1 current.....		5 max		5 max	milliamperes
Plate input.....		60 max		75 max	watts
Grid—No. 2 input.....		3.5 max		3.5 max	watts
Plate dissipation.....		25 max		30 max	watts
Typical operation		CCS		ICAS	
D-c plate voltage.....	400	500	600	750	volts
D-c grid—No. 2 voltage.....	250	250	250	250	volts
D-c grid—No. 1 voltage**.....	—45	—45	—45	—45	volts
Peak r-f grid—No. 1 voltage.....	65	65	65	65	volts
D-c plate current.....	100	100	100	100	milliamperes
D-c grid—No. 2 current.....	7.5	6	7	6	milliamperes
D-c grid—No. 1 current, approximate.....	3.5	3.5	3.5	3.5	milliamperes
Driving power, approximate.....	0.2	0.2	0.2	0.2	watts
Power output, approximate.....	25	30	40	50	watts

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

†The type of input coupling network used should not introduce too much resistance in the grid—No. 1 circuit. Transformer or impedance coupling devices are recommended. When the grid—No. 1 is operated in the negative region with fixed bias, the d-c grid—No. 1 circuit resistance should not exceed 100,000 ohms. For higher values of d-c grid—No. 1 circuit resistance, cathode bias is required. Under no circumstances should the total d-c grid—No. 1 circuit resistance exceed 0.5 megohms.

‡The driver stage should be capable of supplying the No. 1 grids of the class AB stage with the specified driving voltage at low-distortion.

**When the tube is operated at its maximum ratings and the grid is driven positive, the total d-c grid—No. 1 circuit resistance should not exceed 30,000 ohms. If additional bias is required, it must be supplied by a cathode resistor or a fixed supply. When the tube is operated at less than maximum ratings, the d-c grid—No. 1 circuit resistance may be as high as 100,000 ohms.

***Driver stage should be capable of supplying the No. 1 grids of the class AB stage with the specified driving power at low distortion. The effective resistance per grid—No. 1 circuit of the class AB stage should be kept below 500 ohms and the effective impedance at the highest response frequency should not exceed 700 ohms.

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

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

TECHNICAL INFORMATION (CONT'D)

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.

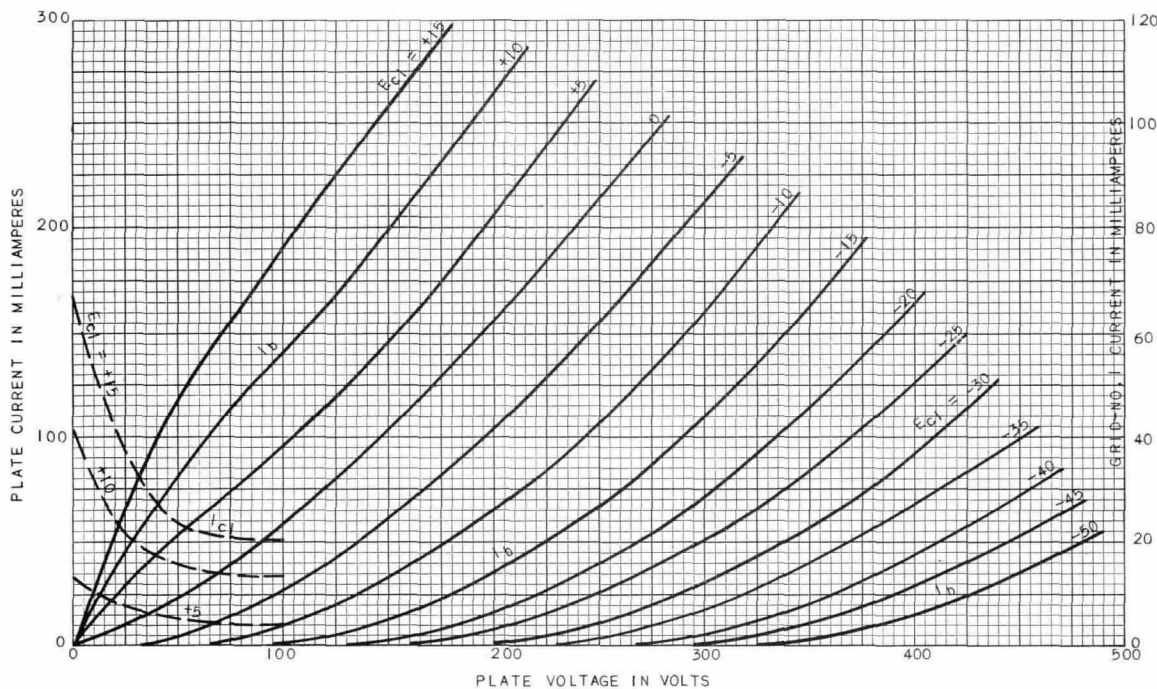
Frequency	60	80	125 megacycles
Percentage of maximum rated plate Voltage and plate input			
Class B	100	90	75 per cent
Class C plate modulated	100	80	55 per cent
Class C unmodulated	100	80	55 per cent

◆ GL-807

AVERAGE PLATE CHARACTERISTICS

TRIODE CONNECTION

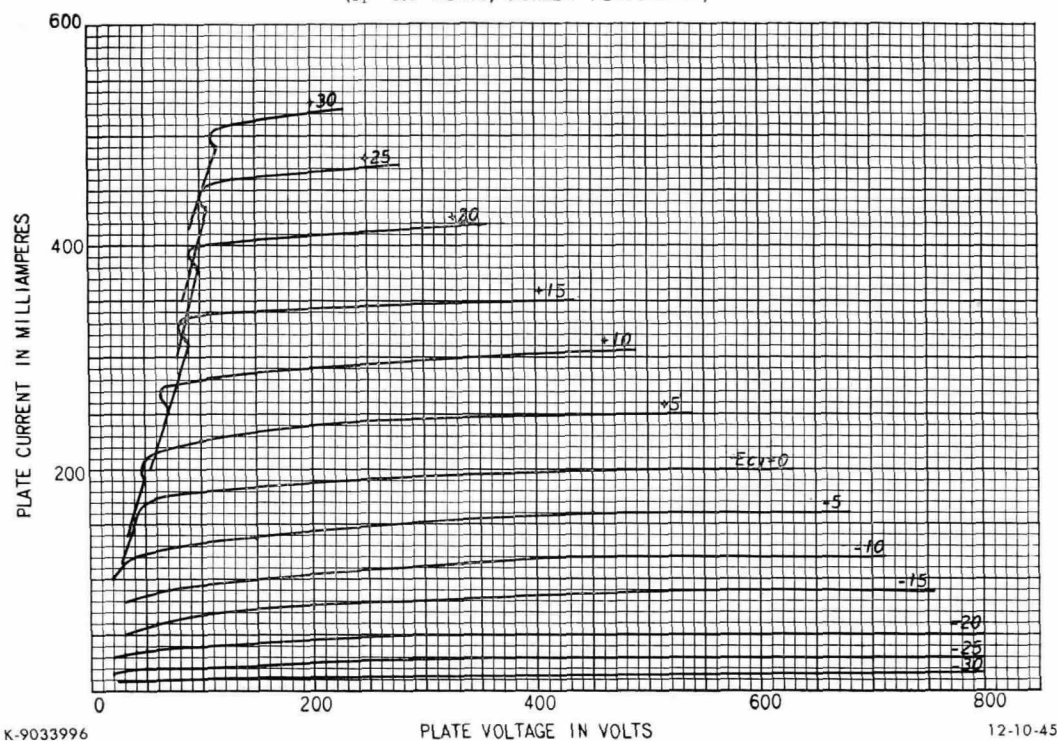
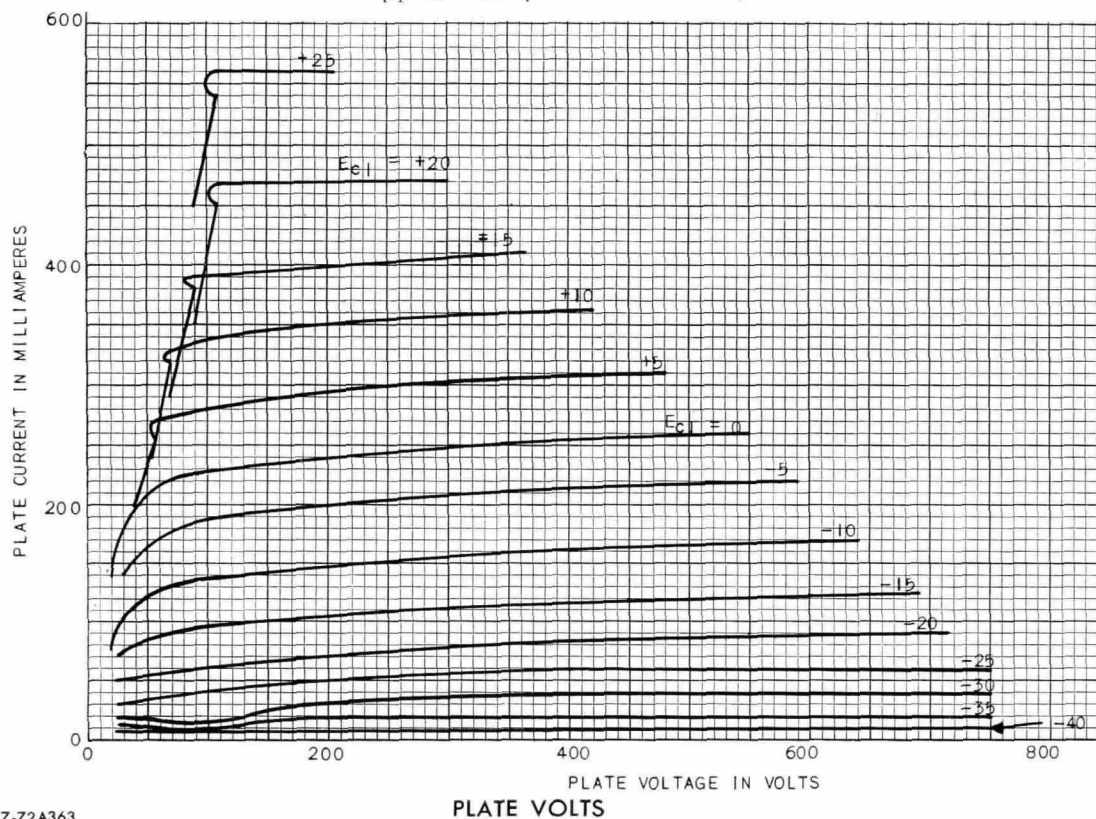
GRID NO. 2 CONNECTED TO PLATE, $E_f = 6.3$ VOLTS



K-69087-72A369

◆ New Drawing.

4-18-50

*GL-807 AVERAGE PLATE CHARACTERISTICS WITH E_{c1} AS VARIABLE $(E_f = 6.3$ VOLTS, SCREEN VOLTS = 250)*GL-807 AVERAGE PLATE CHARACTERISTICS WITH E_{c1} AS VARIABLE $(E_f = 6.3$ VOLTS, SCREEN VOLTS = 300)

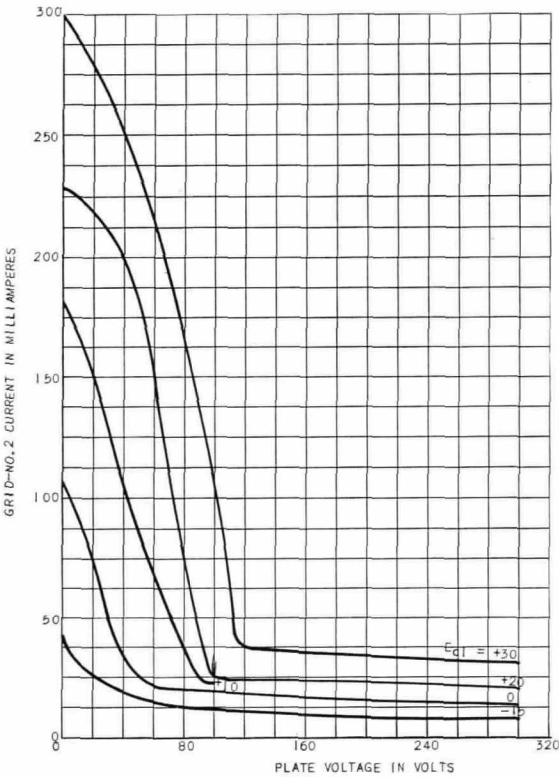
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†GL-807 AVERAGE CHARACTERISTICS
($E_f = 6.3$ VOLTS, SCREEN VOLTS = 300)

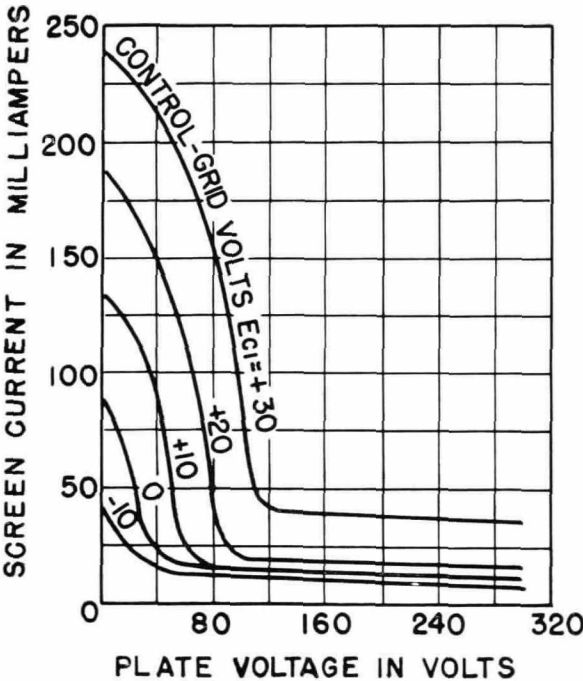


K-69087-72A370

4-20-50

†Revised Drawing.

†GL-807 AVERAGE CHARACTERISTICS
($E_f = 6.3$ VOLTS, SCREEN VOLTS = 250)

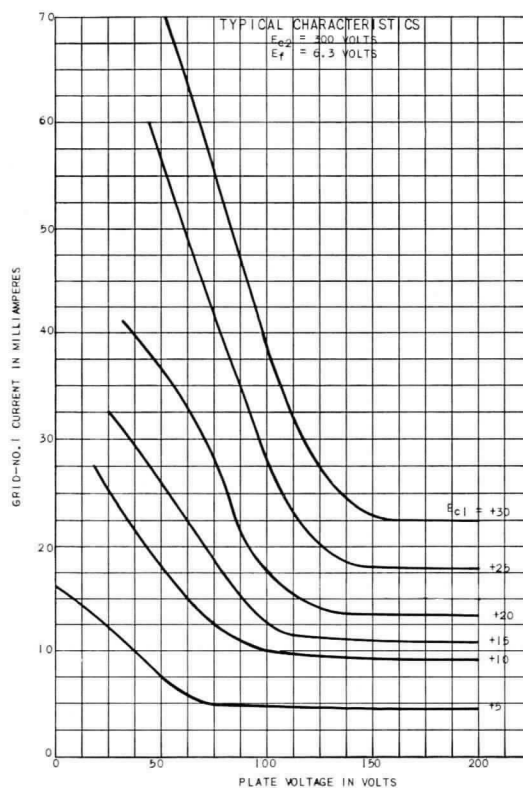


K-9033963

10-8-45

†New Drawing.

♦GL-807 TYPICAL CHARACTERISTICS

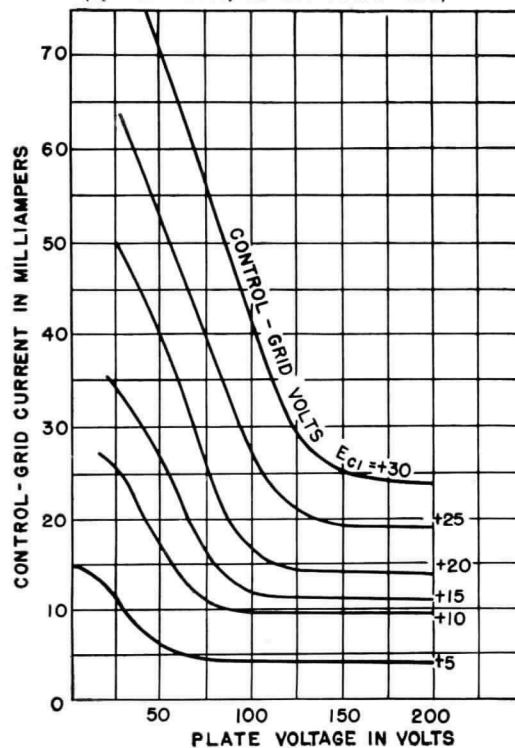
(E_f = 6.3 VOLTS, SCREEN VOLTS = 300)

K-69087-72A371

♦Revised Drawing.

4 20-50

♦GL-807 TYPICAL CHARACTERISTICS

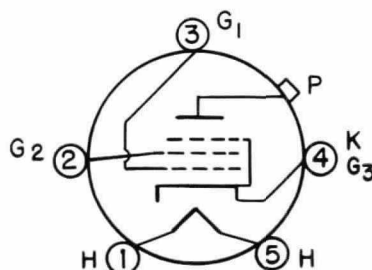
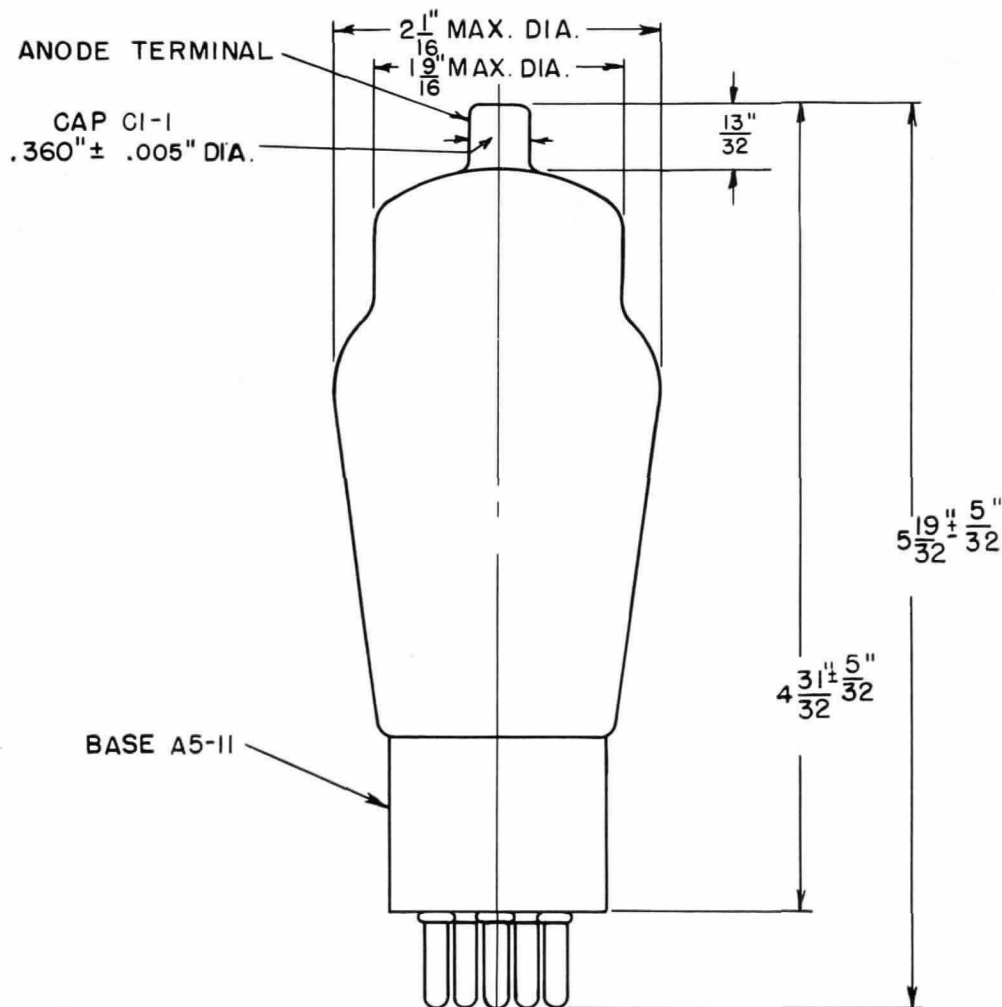
(E_f = 6.3 VOLTS, SCREEN VOLTS = 250)

K-9033956

♦New Drawing.

10-8-45

OUTLINE
GL-807 PIOTRON



BASING DIAGRAM

K-8639602
Revised Drawing.

3-30-50

Tube Divisions, Electronics Department

GENERAL ELECTRIC

Schenectady, N. Y.