GENERAL ELECTRIC

Transmitting Tube GL-211 - - Instructions

U.S. Army Signal Corps Tube Type VT-4-C

The GL-211 is a general-purpose three-electrode vacuum tube and may be used as a Class A, B, or C amplifier.

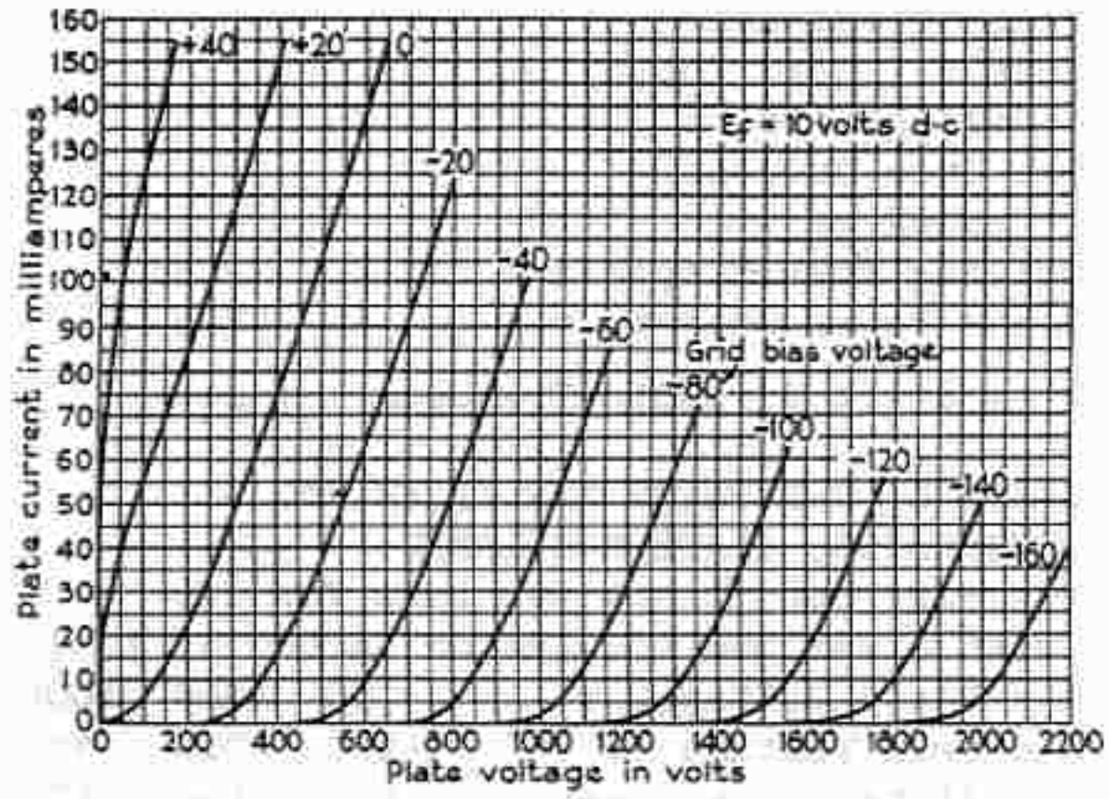
TECHNICAL INFORMATION

GENERAL CHARACTERISTICS:	
Filament Voltage, volts	10
Filament Current, amperes	3.25
Amplification Factor	12
Grid-plate Transconductance, mmhos, I_b = 60 ma	3600
Direct Interelectrode Capacitances, µµf	
Grid-plate	14.5
Input	6
Output	5.5
Base	Jumbo 4- Large Pin
Net Weight, oz approx	8
Shipping Weight, lb approx	4

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

	Typical Operation			Max Ratings
CLASS A A-F AMPLIFIER AND MODULATOR:				
D-c Plate Voltage, v	750	1000	1250	1250
Plate Dissipation, w				75
D-c Grid Voltages, v	-46	-61	-75	
Peak Grid Swing, approx volts	41	56	75	
D-c Plate Current, ma	34	53	60	
Plate Resistance, ohms	4400	3800	3600	
Load Resistance, ohms	8800	7600	9200	
Plate Power Output (5% Second Harmonic), w	5.6	12	19.7	
CLASS B A-F POWER AMPLIFIER (TWO TUBES):				
D-c Plate Voltage, v		1000	1250	1250
Max Signal Plate Current(per tube)§,amp				0.175
D-c Max Signal Plate Input (per tube)§,w				220
Plate Dissipation (per tube)§, w				100
D-c Grid Voltage, v		-72	-95	
Peak A-f Grid Input Voltage, v		380	410	
Zero Signal Plate Current, ma		20	20	
Max Signal Plate Current, ma		320	320	
Max Signal Driving Power, approx w		7.5	8	
Effective Load (plate to plate), ohms		6900	9000	
Max Signal Plate Power Output, watts		200	260	

§ Averaged over any audio-frequency cycle



Average Plate Characteristics

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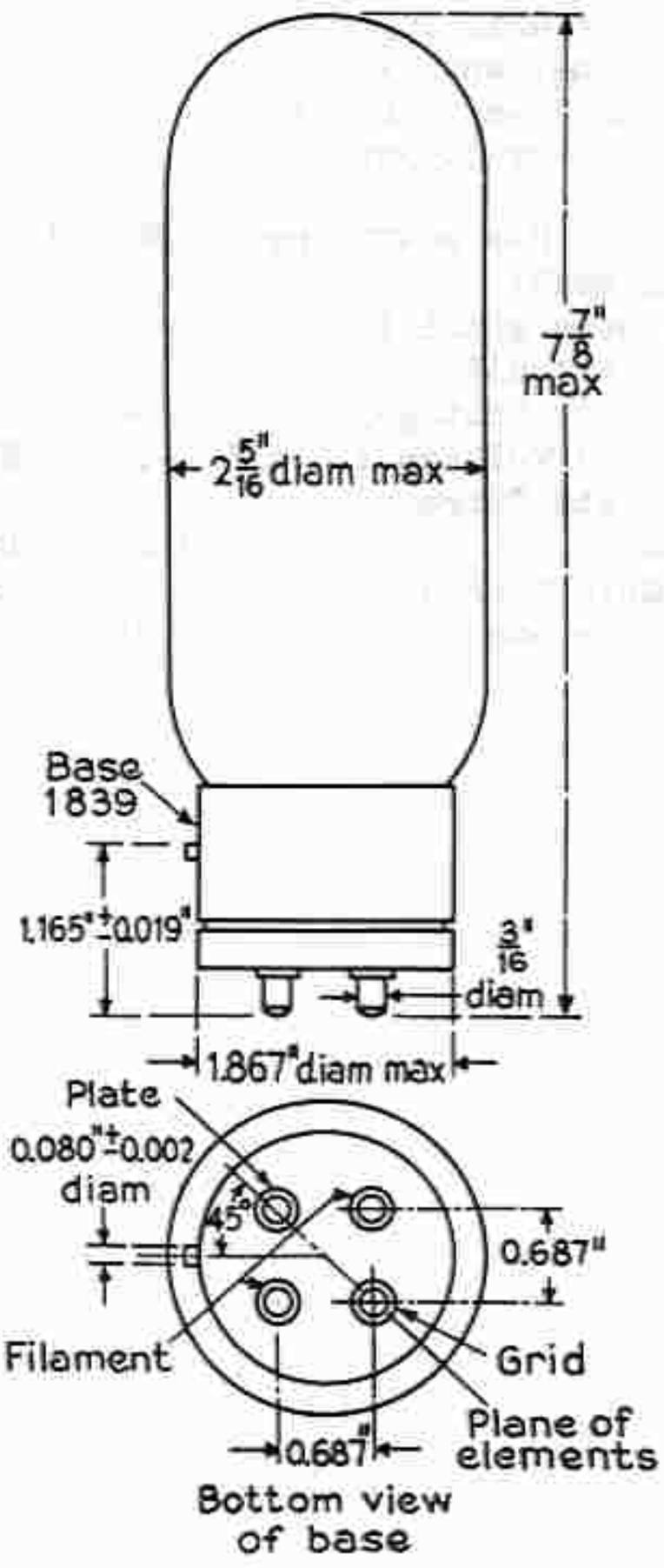

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	Typical Operation		Max Ratings
CLASS B R-F POWER AMPLIFIER:			
(Carrier conditions per tube for use with a maximum modulation factor of 1.0)			
D-c Plate Voltage, v	1000	1250	1250
D-c Grid Voltage, v	-72	-95	
D-c Plate Current, amp	0.130	0.106	0.150
Plate Input, w			150
Plate Dissipation, w			100
Peak R-f Grid Input Voltage, volts	125	125	
D-c Grid Current, approx ma	5	1	
Driving Power†, approx w	10	7.5	
Plate Power Output, w	40	42.5	

† At crest of audio-frequency cycle.

CLASS C R-F POWER AMPLIFIER AND OSCILLATOR, PLATE MODULATED:			
(Carrier conditions per tube for use with a maximum modulation factor of 1.0)			
D-c Plate Voltage, v	750	1000	1000
D-c Grid Voltage, v	-200	-260	-400
D-c Plate Current, amp	0.150	0.150	0.175
D-c Grid Current, approx amp	0.035	0.035	0.050
Plate Input, watts			175
Plate Dissipation, w			67
Peak R-f Grid Input Voltage, approx v	350	410	
Driving Power, approx w	12	14	
Plate Power Output	65	100	

CLASS C R-F POWER AMPLIFIER AND OSCILLATOR:				
(Key down conditions per tube without modulation)‡				
D-c Plate Voltage, v	750	1000	1250	1250
D-c Grid Voltage, v	-135	-175	-225	-400
D-c Plate Current, amp	0.150	0.150	0.150	0.175
D-c Grid Current, approx amp	0.018	0.018	0.018	0.050
Plate Input, w				220
Plate Dissipation, watts				100
Peak R-f Grid Input Voltage, approx v	275	315	375	
Driving Power, approx w	5	6	7	
Plate Power Output, watts	65	100	130	

‡ 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.

The tube should be mounted so as to operate in a vertical position with the base end down.

The normal value of grid leak, when the tube is used as an oscillator or r-f power amplifier (Class C), is in the neighborhood of 5000 ohms, although this may be replaced by a suitable fixed bias. If self-bias is used the cathode resistor should be approximately 1000 ohms.

The maximum ratings apply only at frequencies below 15 megacycles. For operation at higher frequencies adequate ventilation and normal ambient temperatures must be maintained, and the plate voltage must be reduced as indicated.

Frequency, megacycles	15	30	80
Percentage of Maximum Rated Plate Voltage and Plate Input	100	75	50

The resonant frequency of the grid-plate circuit is approximately 100 megacycles.