

February 15, 1960

POWER AMPLIFIER TRIODE TYPE WL-5736

The WL-5736 is a three-electrode tube designed for use as an oscillator, amplifier, and modulator. The forced-air-cooled anode is capable of dissipating 2.5 kilowatts. An efficient thoriated-tungsten filament is employed. Maximum ratings apply up to 60 megacycles. A low back-pressure radiator is provided as an integral part of the tube.

GENERAL DATA

Electrical	Minimum	Bogey	Maximum	
Filament Voltage.....	5.7	6.0	6.3	volts
Filament Current at Bogey Voltage.....	57	60	63	amp
Filament Starting Current.....	-	-	300	amp
Filament Cold Resistance.....	-	0.016	-	ohms
Amplification Factor.....	18	22	26	
Interelectrode Capacitances				
Grid to Plate.....	12	16	21	μmf
Grid to Filament.....	15	19	22	μmf
Plate to Filament.....	0.2	0.80	1.0	μmf
Mechanical				
Mounting Position.....	Vertical, anode up or down			
Type of Cooling.....	Forced air			
Maximum Incoming Air Temperature.....	45			$^{\circ}\text{C}$
Minimum Required Air Flow on Anode (Except television ratings)				
Plate Dissipation, percent rating.....	100 ¹	80	60	percent
Air Flow in Cubic Feet Per Minute.....	150	100	70	cfm
Pressure in Inches of Water, static.....	2.7	1.3	0.9	in.
Required Air Flow on Filament and Grid Seals				
Air flow through radiator normally is sufficient				
Maximum Glass Temperature.....	160			$^{\circ}\text{C}$
Net Weight, approximate.....	3.75			lbs
Shipping Weight, approximate.....	9			lbs

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR, CLASS B

Maximum Ratings, Absolute Values	ccs ²	
Maximum DC Plate Voltage.....	3000	volts
Maximum DC Plate Current at Maximum Signal ³	1.75	amp
Maximum Plate Input at Maximum Signal ³	4200	watts
Maximum Plate Dissipation ³	2500	watts

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR, CLASS B (cont.)

Typical Operation

Unless otherwise specified, values are for two tubes

	CCS ²	
DC Plate Voltage.....	3000	volts
DC Grid Voltage.....	-160	volts
Peak Audio-Frequency Voltage, grid to grid.....	820	volts
DC Plate Current at Zero Signal.....	0.66	amp
DC Plate Current at Maximum Signal.....	2.80	amp
Effective Load Resistance, plate to plate.....	3060	ohms
Maximum Signal Driving Power, approximate.....	140	watts
Maximum Signal Power Output.....	4350	watts
Load Resistance, per tube.....	765	ohms

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 ²	
DC Plate Voltage, maximum.....	3500	volts
DC Plate Current, maximum.....	1.75	amp
Plate Input, maximum.....	3500	watts
Plate Dissipation, maximum.....	2500	watts

Typical Operation

	CCS ²	
DC Plate Voltage.....	3000	volts
DC Grid Voltage.....	-160	volts
Peak Radio-Frequency Grid Voltage.....	280	volts
DC Plate Current.....	1.1	amp
DC Grid Current, approximate.....	0.050	amp
Driving Power, approximate ⁴	15	watts
Power Output, approximate.....	800	watts

RADIO-FREQUENCY POWER AMPLIFIER, CLASS B

Grounded-grid, wide-band television service, maximum frequency 88 megacycles

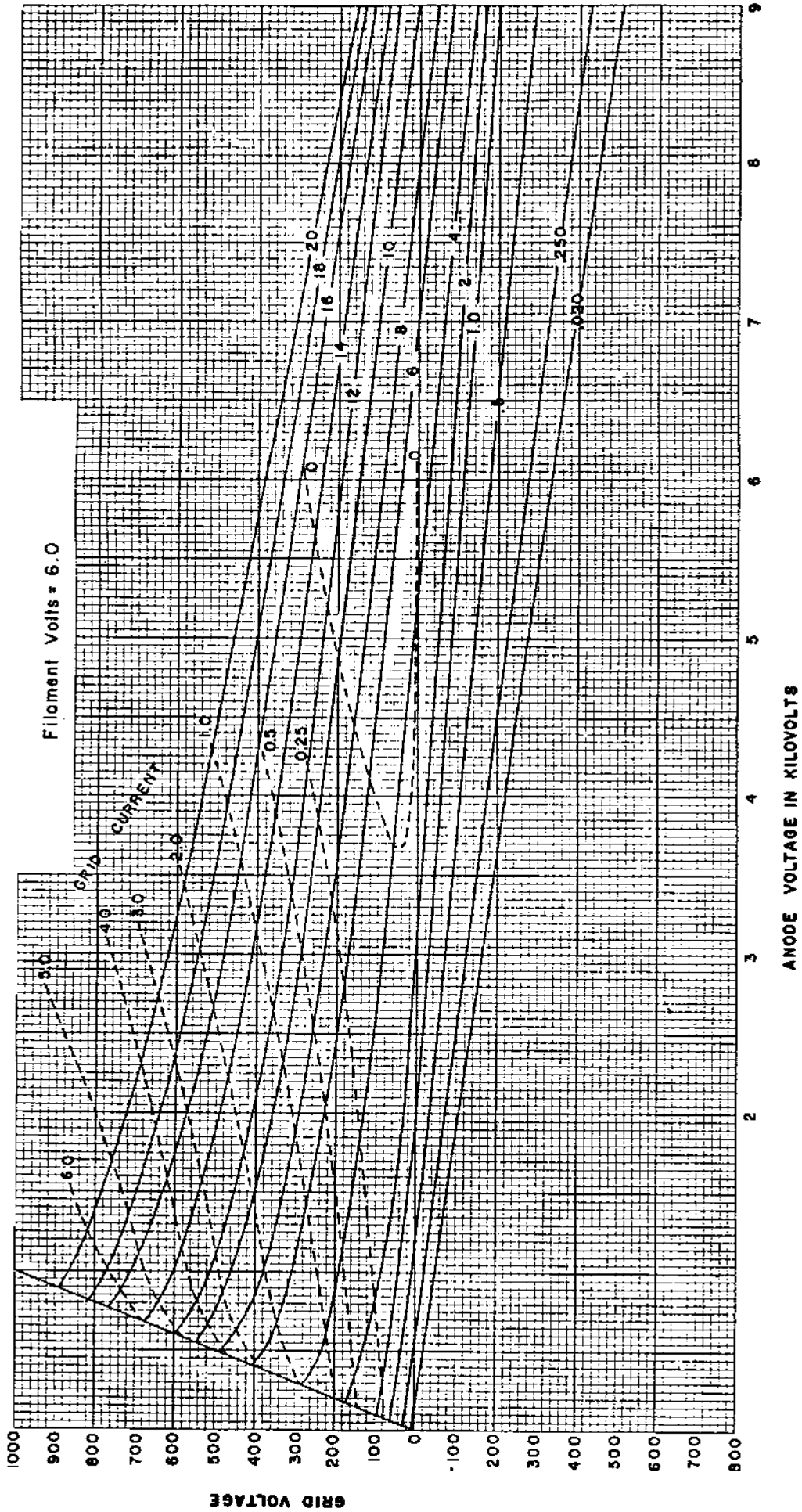
Maximum Ratings, Absolute Values

	CCS ²	
DC Plate Voltage, maximum.....	3500	volts
DC Plate Current, maximum.....	1.75	amp
Plate Input, maximum.....	4000	watts
Plate Dissipation, maximum ⁵	2800	watts

Typical Operation

	CCS ²	
DC Plate Voltage.....	2600	volts
DC Plate Current		
Synchronizing Level.....	2.32	amp
Black Level.....	1.87	amp
DC Grid Voltage.....	-160	volts

AVERAGE CONSTANT - CURRENT - CHARACTERISTICS



RADIO-FREQUENCY POWER AMPLIFIER, CLASS B (television service continued)

Typical Operation (cont.)	CC ²
Peak Radio-Frequency Grid Voltage	838 volts
Synchronizing Level	800 volts
Black Level	0.430 amp
DC Grid Current	0.126 amp
Synchronizing Level	1100 watts
Black Level	835 watts
Power Output, approximate	3480 watts
Synchronizing Level	1690 watts
Black Level	

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR, CLASS C TELEGRAPHY

Key-down conditions per tube without amplitude modulation

Maximum Ratings, Absolute Values	CC ²		
	AT 80 MC		
	AT 110 MC		
Plate Voltage, maximum	5000	3800	volts
Plate Current, maximum	1.4	1.4	amp
Plate Input, maximum	5000	3800	watts
Plate Dissipation, maximum	2500	2500	watts
DC Grid Voltage, maximum	-1000	-700	volts
DC Grid Current, maximum	0.8	0.8	amp

Typical Operation

	AT 80 MC	CC ²	AT 110 MC
DC Plate Voltage	3000	3800	3800
DC Grid Voltage	-850	-400	-300
Peak Radio-Frequency Grid Voltage	1200	940	856
DC Plate Current	1.0	1.0	1.0
DC Grid Current	0.210	0.250	0.195
Driving Power, approximate	250	235	85
Power Output, approximate	4100	2850	2350

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	CC ²	
DC Plate Voltage, maximum	3500	volts
DC Grid Voltage, maximum	-1000	volts
DC Plate Current, maximum	1.4	amp
DC Grid Current, maximum	0.6	amp
Plate Input, maximum	4000	watts
Plate Dissipation, maximum	1650	watts

PLATE-MODULATED RADIO-FREQUENCY POWER AMPLIFIER, CLASS C TELEPHONY (cont.)

Typical Operation

DC Plate Voltage	3500	volts
DC Grid Voltage	-800	volts
Peak Radio-Frequency Grid Voltage	950	volts
DC Plate Current	1.38	amp
DC Grid Current	0.76	amp
Driving Power, approximate	270	watts
Power Output, approximate	3200	watts

HIGH FREQUENCY RATINGS

Maximum ratings apply up to 40 megacycles. The tube may be operated at higher frequencies provided the maximum values of the plate voltage and power input are reduced according to the tabulation below. All other maximum ratings remain as shown above. Special attention should be given to adequate ventilation of the bulb at these frequencies. See special television service ratings.

FREQUENCY	CLASS B		CLASS C UNMODULATED	
	Percent of Maximum	Percent of Maximum	Percent of Maximum	Percent of Maximum
Megacycles	Plate Volts	Input Watts	Plate Volts	Input Watts
40	100	100	100	100
100	85	80	80	80
300	60	60	50	50

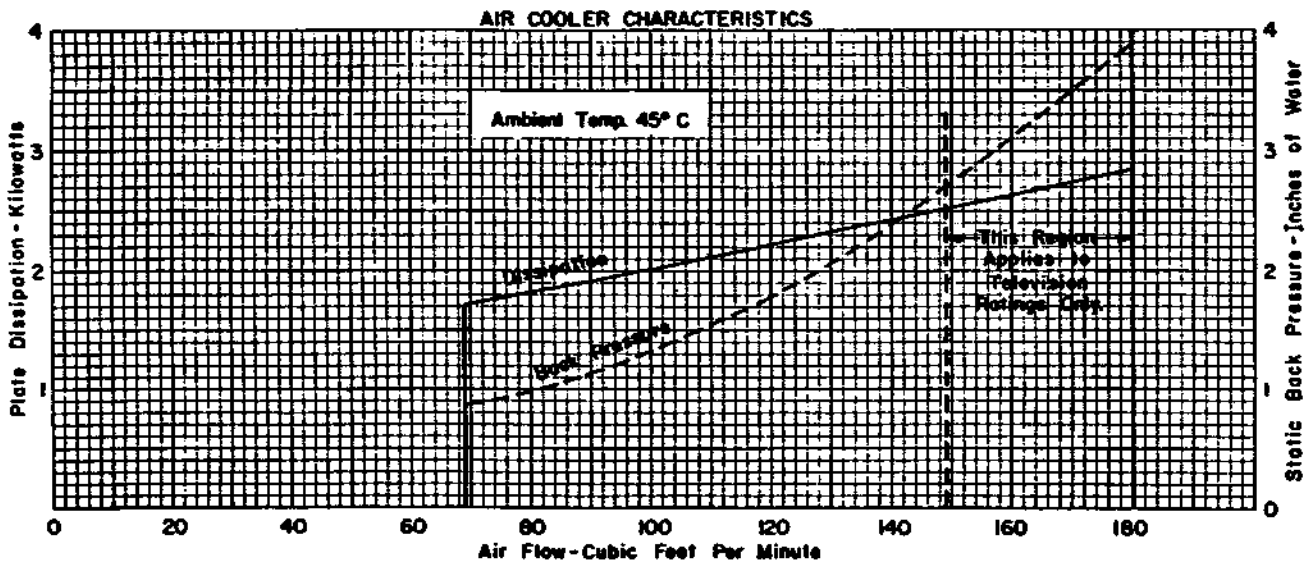
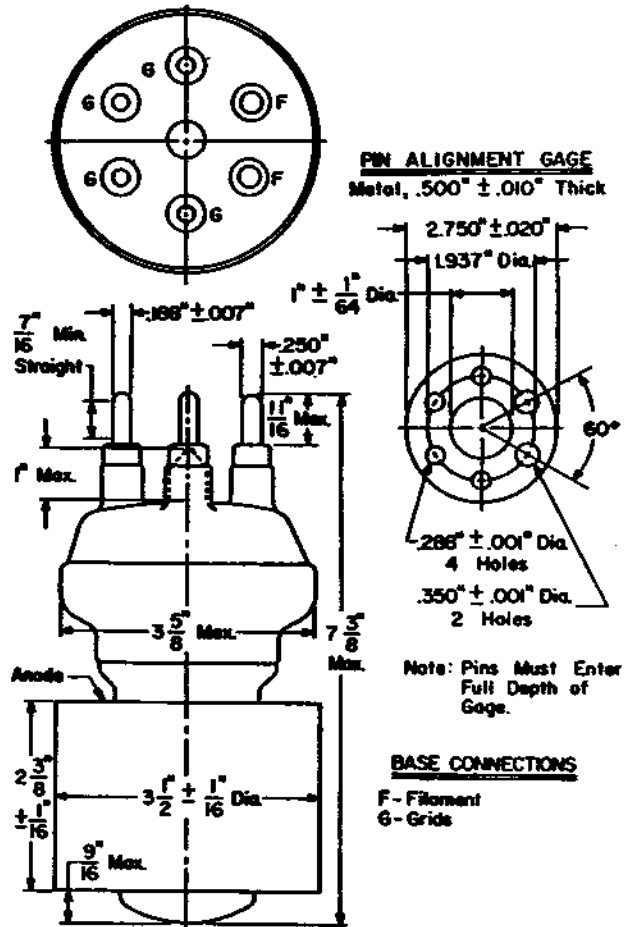
ELECTRICAL DATA AND LIMITS

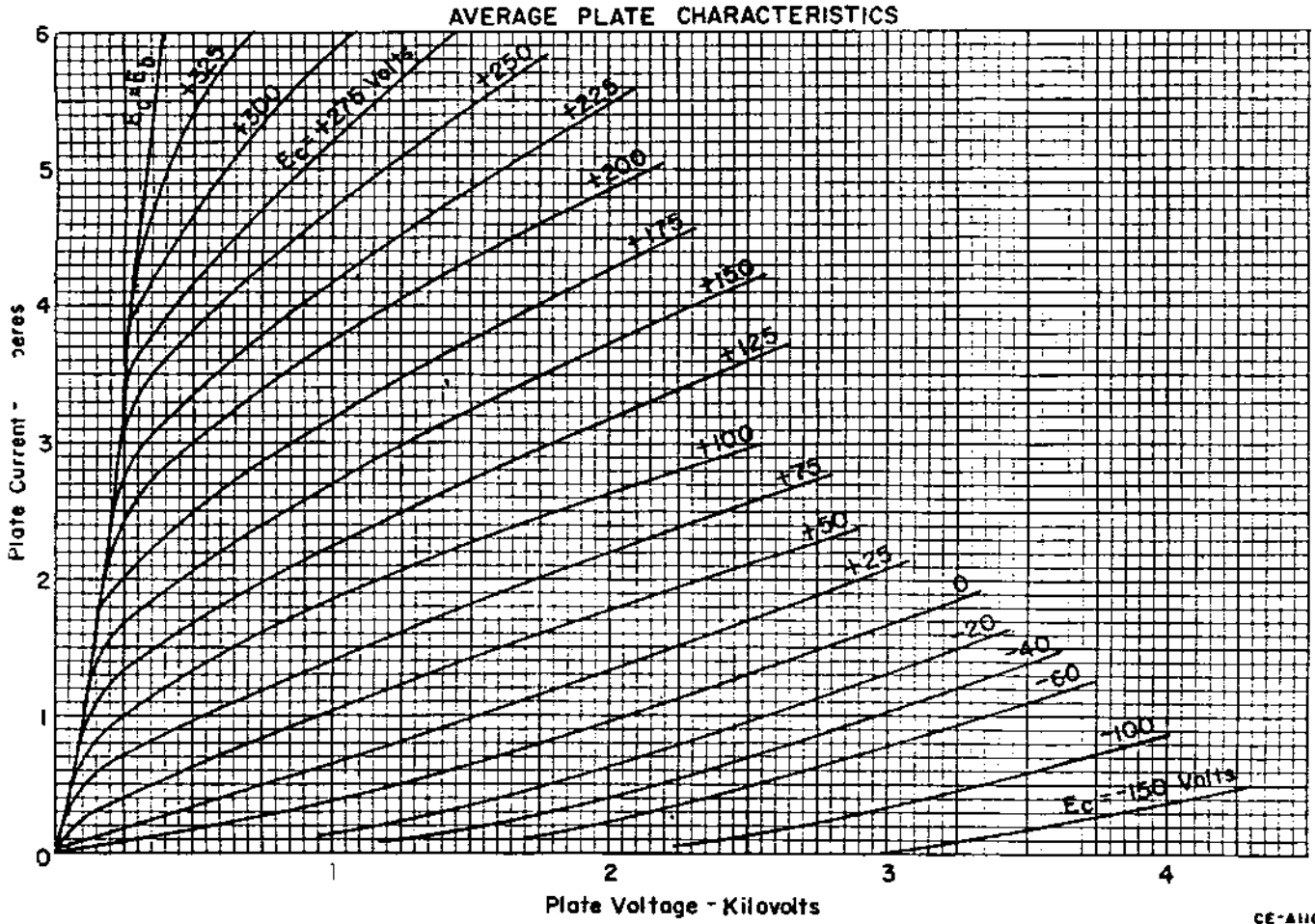
Characteristics	LIMITS	
	Minimum	Maximum
Grid Voltage	-	340
Grid Current	1.0 to 6 amperes	2.2
Plate Voltage	1350 to 3500	1650
Plate Current	0.40 to 1.40 amperes	1.870
Peak Cathode Current	1.0	amp
Power Output	3800	watts

Conditions:
 I_b = 6 amperes
 E_b = 1000 volts
 I_p = 6 amperes
 E_p = 1000 volts
 I_b = 0.40 amperes
 E_b = 30 volts
 I_b = 0.40 amperes
 E_b = 30 volts
 I_b = 1.0 amperes
 E_b = 3000 volts
 I_b = 1.0 amperes
 I_p = 0.5 amperes
 freq. = 60 megacycles
 (Symbol I_h)
 (Symbol P_o)

FOOTNOTES

1. Except as otherwise noted.
2. Continuous commercial service.
3. Averaged over any audio-frequency cycle of sine-wave form.
4. At crest of audio-frequency cycle with modulation factor of 1.0.
5. Requires 180 cubic feet per minute of cooling air at 4 inches of water static pressure.
6. Includes power transferred from the driver stage.
7. Modulation, essentially negative, may be used if the positive peak of the carrier envelope does not exceed 115 percent of the carrier conditions.
8. Represents maximum usable cathode current for the tube as plate current plus grid current for any condition of operation.





CE-A1107