

EITEL-McCULLOUGH, INC.

SAN BRUNO, CALIFORNIA

250TL

LOW-MU TRIODE

MODULATOR
OSCILLATOR
AMPLIFIER

The Eimac 250TL is a low-mu triode having a maximum plate dissipation of 250 watts. It is intended for use as an amplifier, oscillator or modulator, and can be used at its maximum ratings at frequencies up to 40 Mc.

Cooling of the 250TL is accomplished by radiation from the plate, which operates at a visible red color at maximum dissipation, and by means of air circulation around the envelope.

GENERAL CHARACTERISTICS

ELECTRICAL

Filament: Thoriated tungsten	
Voltage	5.0 volts
Current	10.5 amperes
Amplification Factor (Average)	14
Direct Interelectrode Capacitances (Average)	
Grid-Plate	3.0 μfd
Grid-Filament	3.7 μfd
Plate-Filament	0.7 μfd
Transconductance ($i_b=350$ ma., $E_b=3000\text{V.}$, $E_{c2}=-130\text{V.}$)	2650 μmhos
Frequency for Maximum Ratings	40 Mc.

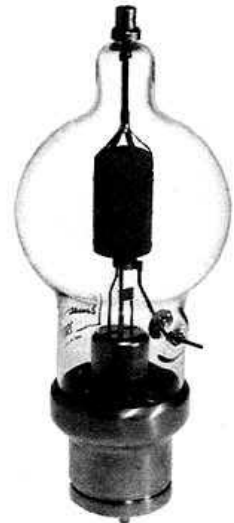
MECHANICAL

Base: Medium 4-pin bayonet type, fits E. F. Johnson No. 211 series sockets, National XM-50 socket, or the equivalent.
For pin connections, see outline drawing.

Mounting - Vertical, base down or up.
Cooling - Convection and radiation.

Recommended Heat Dissipating Connectors:

Plate	Eimac HR-6
Grid	Eimac HR-3
Maximum Overall Dimensions:	
Length	10.13 inches
Diameter	3.81 inches
Net weight	10.4 ounces
Shipping weight (Average)	2.25 pounds



AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR

Class-AB₂ (Sinusoidal wave, two tubes unless otherwise specified)

MAXIMUM RATINGS	
D-C PLATE VOLTAGE	3000 MAX. VOLTS
MAX-SIGNAL D-C PLATE CURRENT, PER TUBE	350 MAX. MA.
MAX-SIGNAL PLATE DISSIPATION, PER TUBE	250 MAX. WATTS

RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Class-C Telephony or FM Telephony (Key-down conditions, per tube)

MAXIMUM RATINGS	
D-C PLATE VOLTAGE	4000 MAX. VOLTS
D-C PLATE CURRENT	350 MAX. MA.
PLATE DISSIPATION	250 MAX. WATTS
GRID DISSIPATION	35 MAX. WATTS

PLATE MODULATED RADIO FREQUENCY POWER AMPLIFIER

Class-C Telephony (Carrier conditions, per tube)

MAXIMUM RATINGS	
D-C PLATE VOLTAGE	3200 MAX. VOLTS
D-C PLATE CURRENT	280 MAX. MA.
PLATE DISSIPATION	165 MAX. WATTS
GRID DISSIPATION	35 MAX. WATTS

TYPICAL OPERATION

D-C Plate Voltage	1500	2000	3000	Volts
D-C Grid Voltage (approx.)*	-40	-90	-170	Volts
Zero-Signal D-C Plate Current	200	150	100	Ma.
Max-Signal D-C Plate Current	700	650	500	Ma.
Effective Load, Plate-to-Plate	3800	6150	13,000	Ohms
Peak A-F Grid Input Voltage (per tube)	390	410	400	Volts
Max-Signal Peak Driving Power	76	74	32	Watts
Max-Signal Nominal Driving Power	38	37	16	Watts
Max-Signal Plate Power Output	580	800	1000	Watts

*Adjust for given zero-signal plate current.

TYPICAL OPERATION, per tube* (Frequencies up to 40 Mc.)

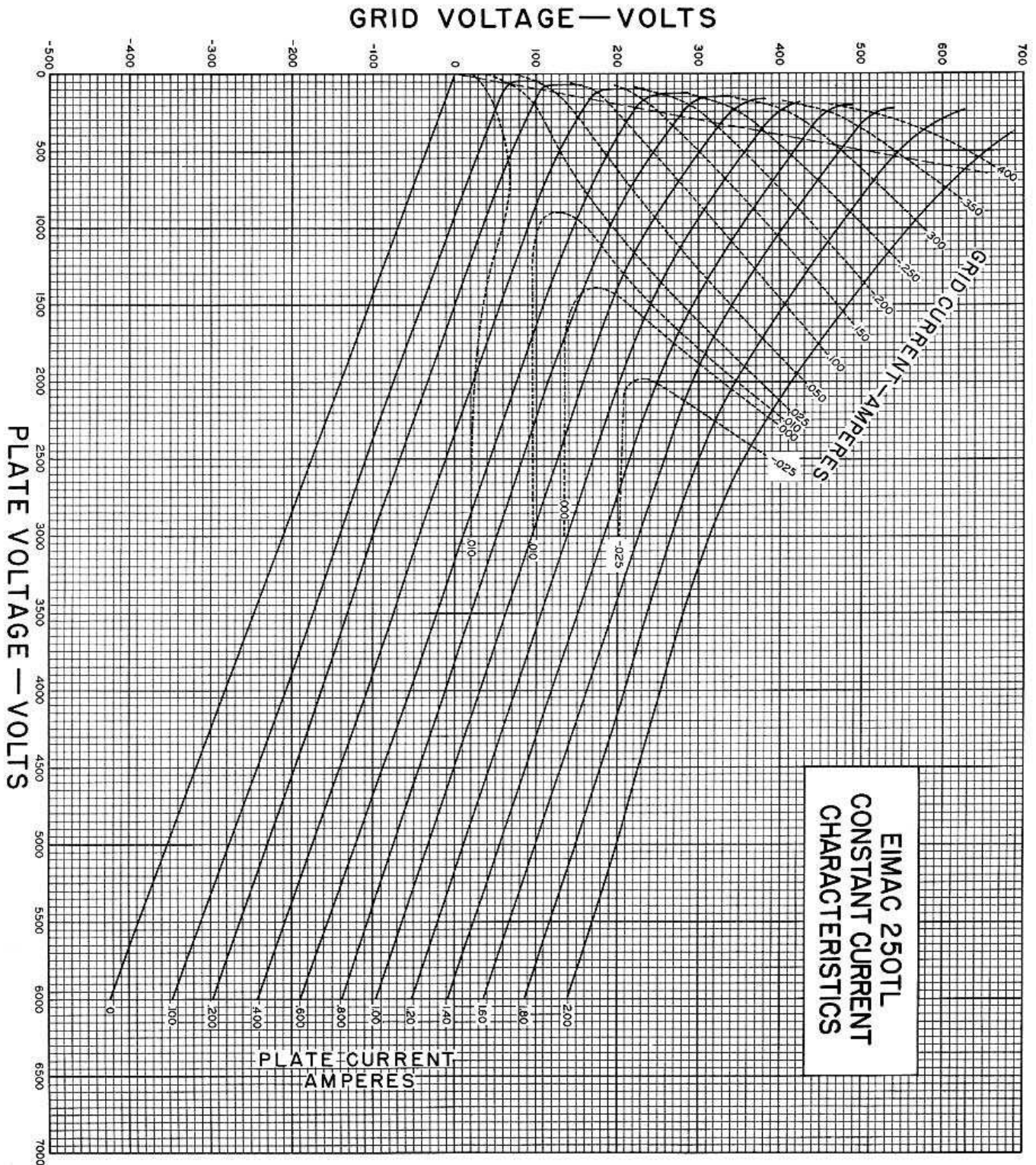
D-C Plate Voltage	2000	3000	4000	Volts
D-C Grid Voltage	-200	-350	-500	Volts
D-C Plate Current	350	335	310	Ma.
D-C Grid Current	45	45	40	Ma.
Peak R-F Grid Input Voltage (approx.)	575	720	900	Volts
Driving Power (approx.)	22	29	33	Watts
Grid Dissipation (approx.)	14	15	14	Watts
Power Input	700	1000	1250	Watts
Plate Dissipation	245	250	250	Watts
Plate Power Output	455	750	1000	Watts

*These figures show actual measured tube performance and do not allow for variations in circuit losses.

TYPICAL OPERATION, per tube* (Frequencies up to 40 Mc.)

D-C Plate Voltage	2000	2500	3000	Volts
D-C Plate Current	250	225	200	Ma.
Total D-C Bias Voltage	-520	-485	-520	Volts
Grid Resistor	13,000	15,000	17,500	Ohms
Fixed D-C Bias Supply Voltage	-140	-220	-266	Volts
D-C Grid Current	29	20	14	Ma.
Peak R-F Grid Input Voltage	840	795	795	Volts
Driving Power (approx.)	24	16	11	Watts
Grid Dissipation (approx.)	9	6	5	Watts
Plate Power Input	500	565	600	Watts
Plate Dissipation	165	165	165	Watts
Plate Power Output	335	400	435	Watts

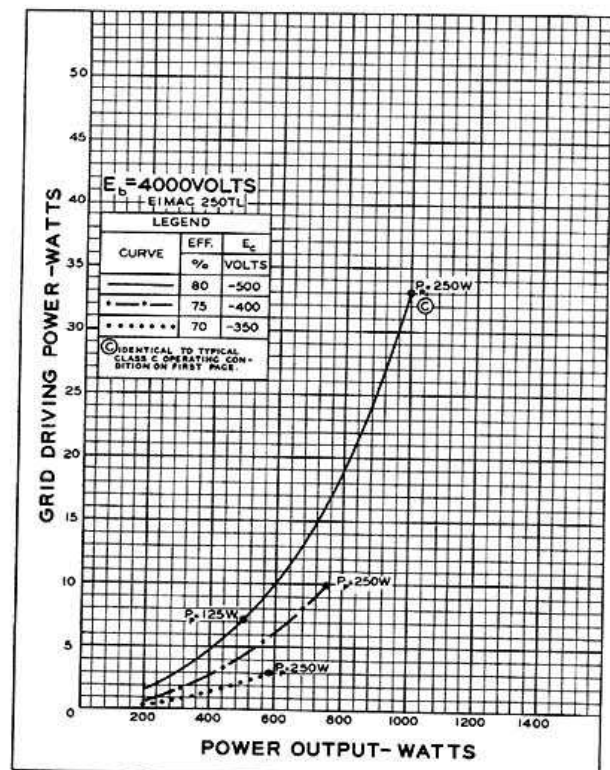
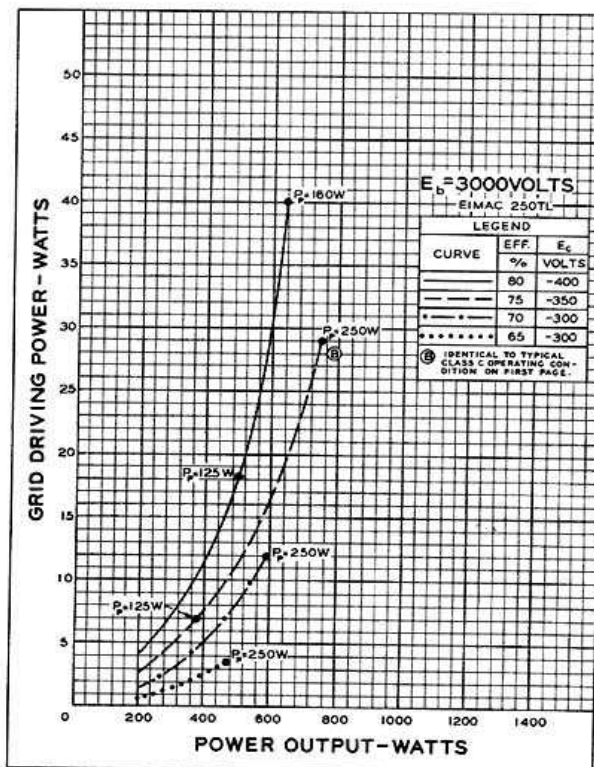
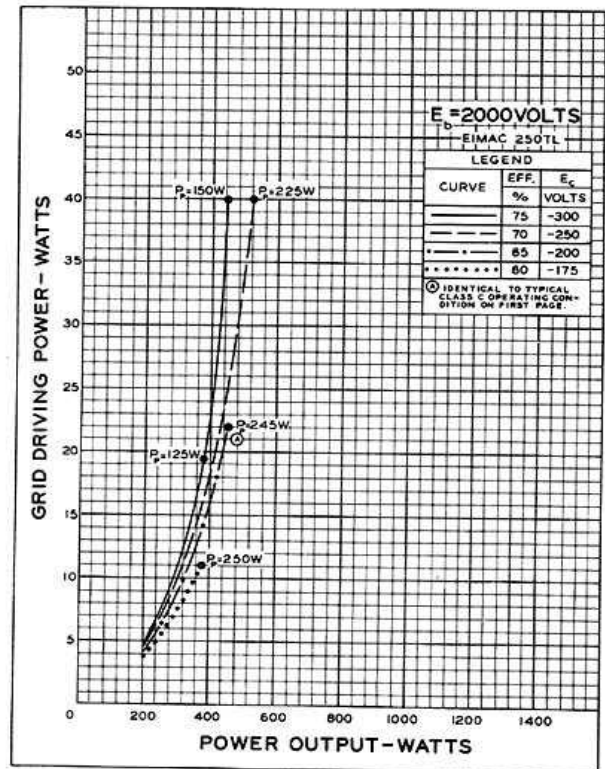
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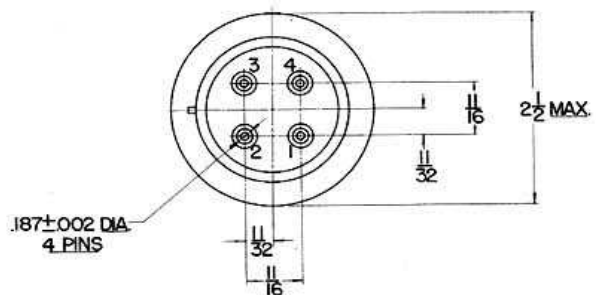
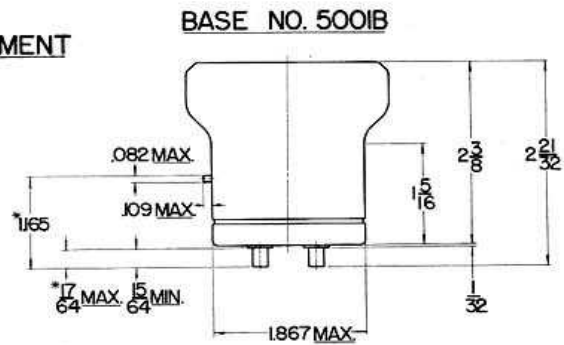
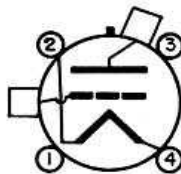
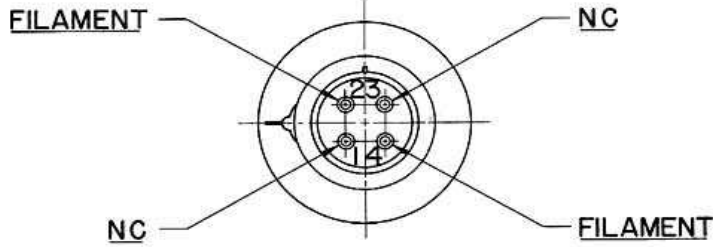
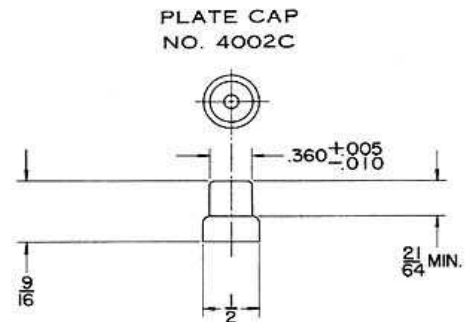
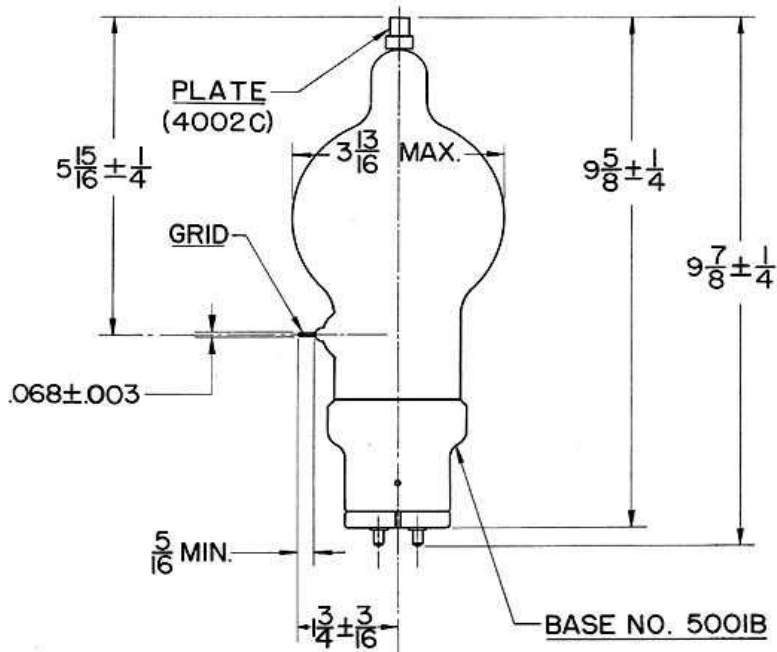


DRIVING POWER vs. POWER OUTPUT

The three charts on this page show the relationship of plate efficiency, power output and grid driving power at plate voltages of 2000, 3000 and 4000 volts. These charts show combined grid and bias losses only. The driving power and power output figures do not include circuit losses. The plate dissipation in watts is indicated by P_p .

Points A, B, and C are identical to the typical Class C operating conditions shown on the first page under 2000, 3000, and 4000 volts respectively.





*ON FINISHED TUBE ADD .060 FOR SOLDER