

TECHNICAL DATA

**MODULATOR
OSCILLATOR
AMPLIFIER**

The Eimac 450TH is a high- μ power triode having a maximum plate dissipation rating of 450 watts, and is intended for use as an amplifier, oscillator and modulator. It can be used at its maximum ratings at frequencies as high as 40 Mc.

Cooling of the 450TH 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	-	-	-	-	-	-	-	-	-	-	7.5 volts
Current	-	-	-	-	-	-	-	-	-	-	12.0 amperes

Note: Dual connections for each filament lead are provided within the base of the tube (see basing diagram). Corresponding socket terminals must be connected in parallel to provide proper distribution of filament and R-F charging currents.

[illegible]

Direct Interelectrode Capacitances (Average)

Inter-electrode Capacitances (Average)									
Grid-plate	-	-	-	-	-	-	-	-	5.0 μfd .
Grid-Filament	-	-	-	-	-	-	-	-	8.8 μfd .
Plate-Filament	-	-	-	-	-	-	-	-	0.8 μfd .

Transconductance ($i_b = 500 \text{ ma.}, E_b = 4000 \text{ v.}$)

[illegible]

MECHANICAL

[illegible]

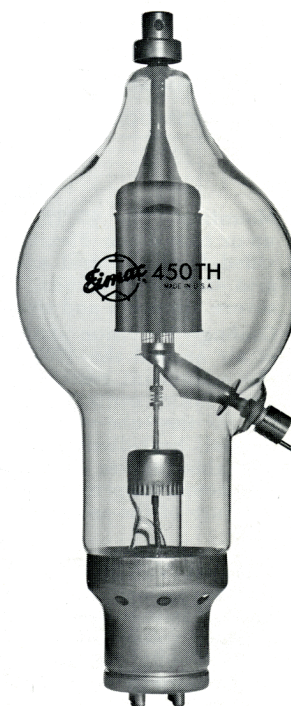
Note: Adequate ventilation or air cooling must be provided so that the seals and envelope do not exceed 200°C under operating conditions.

Socket - - - Johnson Type No. 211 or National Type No. XM50 or equivalent.

Recommended Heat Dissipating Connectors:

[illegible]

Note: The grid terminal of the 450TH is now .560" in diameter. To accommodate existing equipment designed for the older style 450TH having .098" diameter grid terminals, an adapter pin is provided with the newer tubes. This adapter pin is threaded so that it may be removed from the grid terminal of the tube. The small grid terminal, if used, requires an HR-4 heat dissipating connector. (See outline drawing.)

[illegible]

AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR

Class AB, (Sinusoidal wave, two tubes unless otherwise specified)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	-	-	-	-	6000 MAX. VOLTS
MAX-SIGNAL D-C PLATE CURRENT PER TUBE	-	-	-	-	600 MAX. MA.
PLATE DISSIPATION, PER TUBE	-	-	-	-	450 MAX. WATTS

TYPICAL OPERATION—2 TUBES

D-C Plate Voltage	3000	4000	5000	Volts
D-C Grid Voltage (approx.)*	-50	-85	-115	Volts
Zero-Signal D-C Plate Current	200	150	120	Ma.
Max-Signal D-C Plate Current	770	675	620	Ma.
Effective Load, Plate-to-Plate	7800	12,800	18,600	Ohms
Peak A-F Grid Input Voltage (per tube)	225	235	267	Volts
Max-Signal Peak Driving Power	40	40	40	Watts
Max-Signal Nominal Driving Power (approx.)	20	17	20	Watts
Max-Signal Plate Power Output	1400	1800	2200	Watts

*Adjust to give stated zero-signal plate current.

PLATE MODULATED RADIO FREQUENCY AMPLIFIER

Class-C Telephony (Carrier conditions, per tube)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	-	-	-	-	4500 MAX. VOLTS
D-C PLATE CURRENT	-	-	-	-	500 MAX. MA.
PLATE DISSIPATION	-	-	-	-	300 MAX. WATTS
GRID DISSIPATION	-	-	-	-	80 MAX. WATTS

TYPICAL OPERATION, PER TUBE*

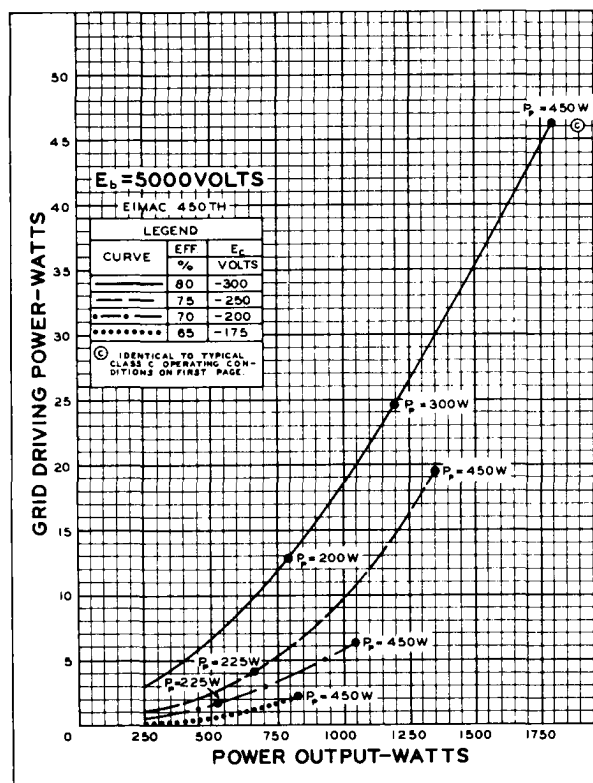
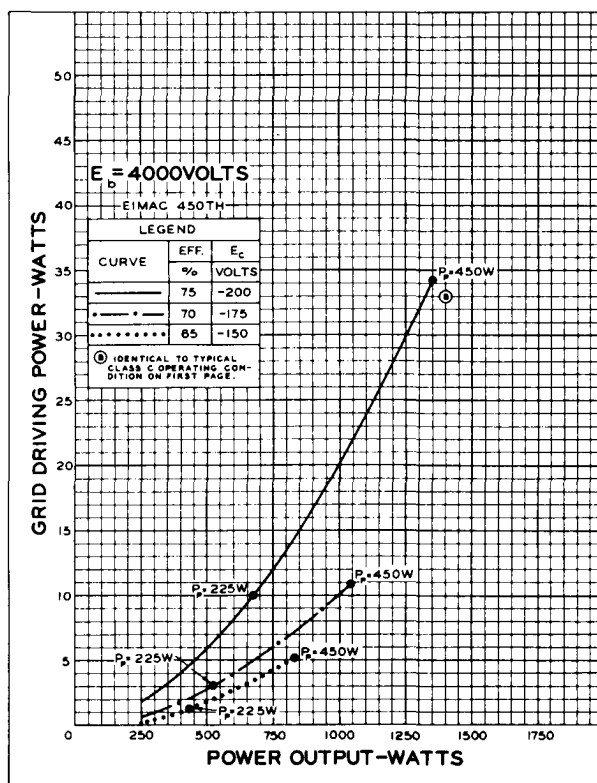
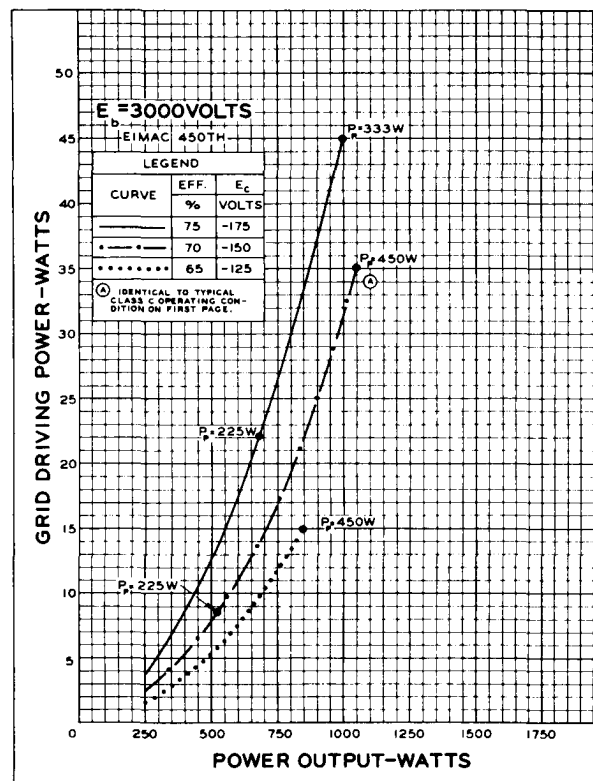
D-C Plate Voltage	-	-	3000	4000	4500	Volts
D-C Plate Current	-	-	380	340	345	Ma.
Total Bias Voltage	-	-	-250	-300	-350	Volts
Fixed Bias Voltage	-	-	-100	-150	-175	Volts
Grid Resistor	-	-	2500	3500	3500	Ohms
D-C Grid Current	-	-	60	43	50	Ma.
Peak R-F Grid Input Voltage	-	-	490	525	585	Volts
Driving Power (approx.)	-	-	30	23	29	Watts
Grid Dissipation	-	-	14	10	12	Watts
Plate Power Input	-	-	1150	1360	1550	Watts
Plate Dissipation	-	-	300	300	300	Watts
Plate Power Output	-	-	850	1060	1250	Watts

*The figures are for one tube operating at maximum plate dissipation as a plate modulated Class-C amplifier. The output figures do not allow for circuit losses.

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 3000, 4000, and 5000 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 3000, 4000, and 5000 volts respectively.





450TH

EIMAC 450TH

TYPICAL
CONSTANT CURRENT
CHARACTERISTICS

— PLATE CURRENT — AMPERES
- - - GRID CURRENT — AMPERES

