EITEL-McCULLOUGH, INC.

SAN BRUNO, CALIFORNIA

LOW-MU TRIODE **MODULATOR OSCILLATOR** AMPLIFIER

The Eimac 75TL is a low-mu power triode intended for use as an amplifier, oscillator, or modulator. It has a maximum plate dissipation rating of 75 watts and a maximum plate voltage rating of 3000 volts at frequencies up to 40 Mc. Forced-air cooling is not required in properly designed equipment operating at frequencies below 40 Mc.

The 75TL in Class-C R-F service will deliver up to 225 watts plate power output with 8 watts driving power. Two 75TL's in Class-B modulator service will deliver up to 350 watts maximum-signal

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LECTRICAL											ı	W.	
Filament: Thoriated t	-												<i>/</i> ***
Voltage -				-	-		-	-	5.0	volts	j		1
Current -				-			-	-		amperes	İ		11.
Amplification Factor		•		-	-		-	-		- 12			7]
Direct Interelectrode	Capacita											****	- A-
Grid-Plate				-	-		-	-	-	2.4 μμξ			
Grid-Filame				•	-		-	-	-	2.6 $\mu\mu$ f			1
Plate-Filam							-	-	-	0.4 $\mu\mu$ f			out the
Transconductance (I							-	-		0 μ mhos		in the	
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Basing					_		_		•	drawing			W W
Socket	Johnso									quivalent	L		
Mounting Position							-				Ver	tical, bas	se down or
Cooling					_		_	-			Cor	vection	and radia
Maximum Temperatu					_		-	_					- 22!
Recommended Heat													
Plate -	- -	-			_			-					Eimac H
Grid -					_		-	_					Eimac H
Maximum Overall Div	mensions:												
Length -				. <u>-</u>	_		-	_		-			7.25 inch
Diameter	_			. <u>-</u>	_		-	_		-			2.81 inch
Net Weight -							_	-					3 ound
Shipping Weight (A	verage)						_	-					1.5 pour
			401 1711			TYPIC	'AI OP	ERATIO	N (Fred	uencies un	to 40 Mc.)		
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IF IT IS DESIRED TO OPERATE THIS TUBE UNDER CONDITIONS WIDELY DIFFERENT FROM THOSE GIVEN UNDER "TYPICAL OPERATION", POSSIBLY EXCEEDING MAXIMUM RATINGS, WRITE EITEL-McCULLOUGH, INC., FOR INFORMATION AND RECOMMENDATIONS.



AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR

Class-AB.

MAXIMUM RATINGS (Per tube)

D-C PLATE VOLTAGE	-	-	3000 MAX. VOLT
MAX-SIGNAL D-C PLATE CURRENT	-	-	225 MAX. MA.
PLATE DISSIPATION	-	-	75 MAX. WATT
GRID DISSIPATION	_	-	I3 MAX, WATT

TYPICAL OPERATION (Sinusoidal wave, two tubes unless otherwise specified) TYPICAL OPERATION (Sinusoidal wave, D-C Plate Voltage
D-C Grid Voltage
Peak A-F Grid Input Voltage (per tube)
Zero-Signal D-C Plate Current
Max-Signal D-C Plate Current
Max-Signal Avg. Driving Power (approx.)
Max-Signal Peak Driving Power
Effective Load, Plate-to-Plate
Max-Signal Plate Power Output
Max-Signal Plate Dissipation (per tube)
Total Harmonic Distortion 2000 volts —190 volts 300 volts 1000 1500 -130 ma. ma. watts 285 250 19 watts 18,000 ohms 350 watts 5300 200 11,000 75 4.5 75 75 watts 2.0 6.0 per cent $^1\!Adjust$ to give stated zero-signal plate current. The effective grid-circuit resistance for each tube must not exceed 250,000 ohms in class- AB_1 operation.

APPLICATION

13 MAX. WATTS

MECHANICAL

Mounting-The 75TL must be mounted vertically, base down or up. The plate and grid leads should be flexible. The tube must be protected from vibration and shock. Cooling-Heat Dissipating Connectors (Eimac HR-3 and HR-2) should be used at the plate and grid terminals of the 75TL. If the free circulation of air around the tube is restricted, a small fan or centrifugal blower should be used to provide additional cooling for the plate and grid seals.

Cooling requirements will be met if the temperature of the plate and grid seals is not allowed to exceed 225°C. One method of measuring these temperatures is provided by the use of "Tempilaq", a temperature-sensitive lacquer available from the Tempil Corporation, New York 11, N.Y.

Filament Voltage—For maximum tube life the filament voltage, as measured directly at the base pins, should be the rated value of 5.0 volts. Variations must be kept within the range of 4.75 to 5.25 volts.

Bias Voltage—Although there is no maximum limit on the bias voltage which may be used on the 75TL, there is little advantage in using bias voltages in excess of those given under "Typical Operation," except in certain very specialized applications. Where bias is obtained by a grid leak, suitable protective means must be provided to prevent excessive plate dissipation in the event of loss of excitation.

Plate Voltage—The plate-supply voltage for the 75TL should not exceed 3000 volts. In most cases there is little advantage in using plate-supply voltages higher than those given under "Typical Operation" for the power output desired.

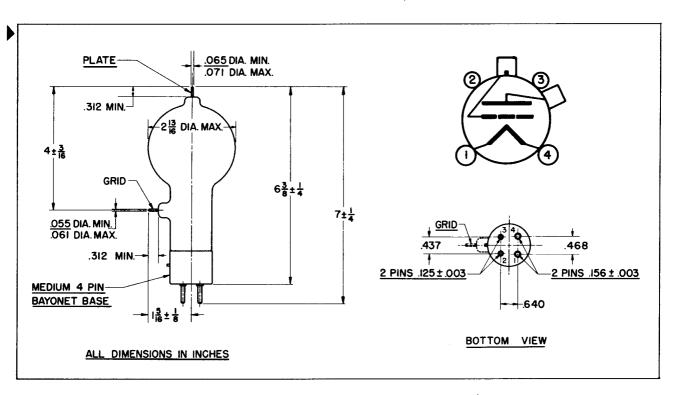
Grid Dissipation-The power dissipated by the grid of the 75TL must not exceed 13 watts. Grid dissipation may be calculated from the following expression:

$$P_g = e_{cmp}I_c$$
where $P_g = Grid$ dissipation,
 $e_{cmp} = Peak$ positive grid voltage, and
 $I_c = D$ -c grid current.

ecmp may be measured by means of a suitable peak voltmeter connected between filament and grid.² In equipment in which the plate loading varies widely, such as oscillators used for radio-frequency heating, care should be taken to make certain that the grid dissipation does not exceed the maximum rating under any condition of loading.

Plate Dissipation—The plate of the 75TL operates at a visibly red temperature at its maximum rated dissipation of 75 watts. Plate dissipation in excess of the maximum rating is permissible only for short periods of time, such as during tuning procedures.

²For suitable peak v.t.v.m. circuits see, for instance, "Vacuum Tube Ratings", Eimac News, January, 1945. This article is available in reprint form on request.





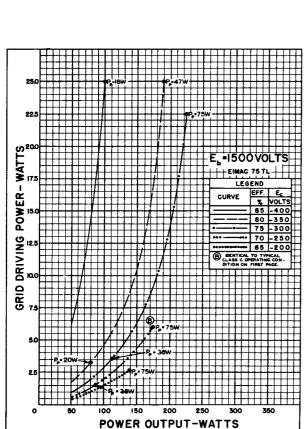
DRIVING POWER vs. POWER OUTPUT

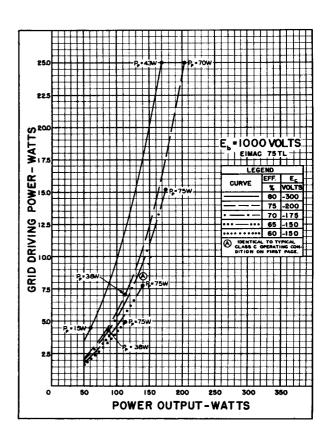
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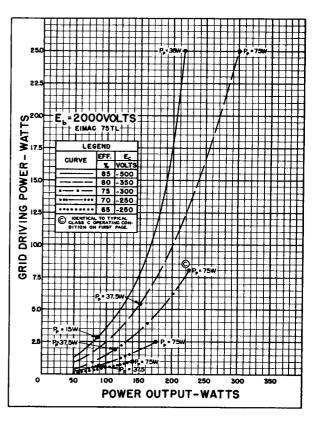
The three charts on this page show the relationship of plate efficiency, power output and grid driving power at plate voltages of 1000, 1500 and 2000 volts. These charts show combined grid and bias losses only. The driving power and power output figures do not include circuit losses. The plate dissipation in watts is indicated by $P_{\rm p}$.

Points A, B, and C are identical to the typical Class C operating conditions shown on the first page under 1000, 1500, and 2000 volts respectively.

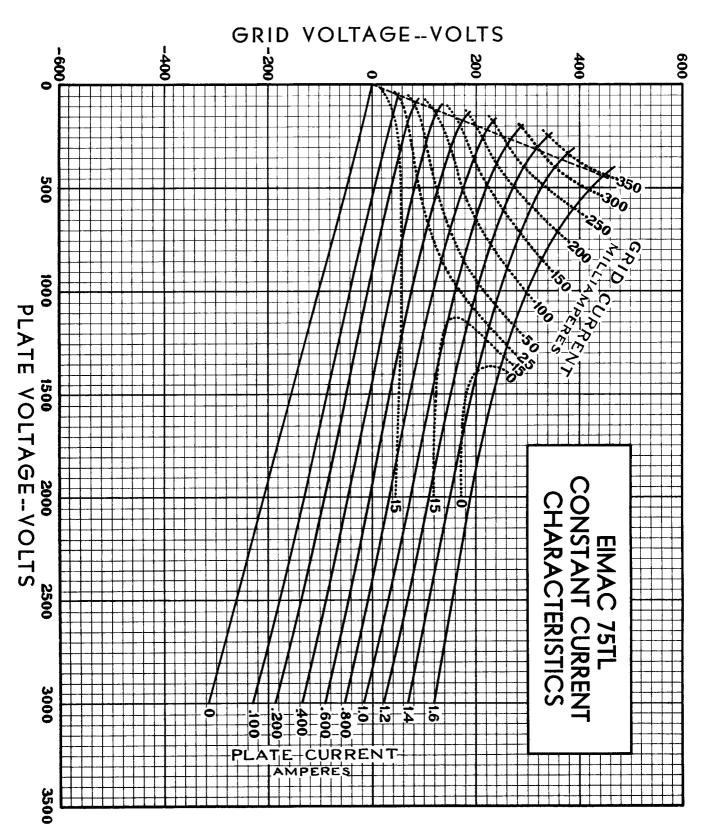
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Page Four

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