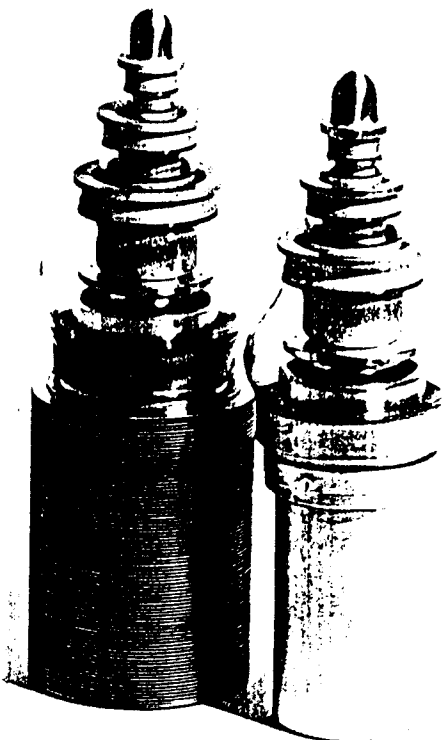




ML-7124

ML-7125

DESCRIPTION AND RATINGS



DESCRIPTION

The ML-7124 and ML-7125 are low-mu, three-electrode tubes designed specifically for use as Class AB1 linear amplifiers or modulators. The ML-7124 has a water-cooled, heavy-wall anode capable of dissipating 40 kilowatts with a

moderate rate of water flow. The ML-7125 has a forced-air-cooled, heavy-wall anode capable of dissipating 20 kW*. The cathode of each type is a sturdy, self-supporting, stress-free, thoriated-tungsten filament.

GENERAL CHARACTERISTICS

Electrical

Filament Voltage	8.0	Volts
Filament Current	200	Amps
Filament Starting Current, maximum	800	Amps
Filament Cold Resistance	0.0055	Ohms
Amplification Factor	4.5	
Interelectrode Capacitances:		
Grid-Plate	50	μf
Grid-Filament	50	μf
Plate-Filament	1.8	μf

Mechanical

Mounting Position	Vertical, anode down
Type of Cooling — ML-7124	Water and forced-air†
Water flow on anode, min. for 40 kW dissipation	20 gpm
Maximum outgoing water temperature	70 °C
Type of Cooling — ML-7125	Forced-air
Air flow on anode, min. for 20 kW dissipation*	Pressure: 1000 cfm at 7.7" water
Maximum incoming air temperature	Exhaust: 1150 cfm at 8.4" water
Air-Flow on Bulb and Seals, approximate	50 °C
Maximum Glass Temperature	100 cfm†
Net Weight, approximate	165 °C
ML-7124	16 lbs.
ML-7125	23 lbs.

*When used with Machlett Air Distributor, F-17798.

†Auxiliary air flow of 50-150 cfm may be required and should be distributed to maintain uniform glass temperature, not greater than 165°C, around the circumference of the seals.

NOTE: Inasmuch as developmental work on the ML-7124 and ML-7125 is not complete, consult the Machlett Engineering Department before designing equipment based on these data.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

(Continuous Commercial Service)

VALUES APPLY TO BOTH TYPES UNLESS OTHERWISE SPECIFIED

Audio-Frequency Power Amplifier and Modulator Class AB1

Maximum Ratings, Absolute Values	ML-7124	ML-7125	
D-C Plate Voltage	12500	12500	volts
Max.-Signal D-C Plate Current*	8.0	4.5	amps
Max.-Signal Plate Input*	80	55	kW
Plate Dissipation*	40	20	kW
Typical Operation (Values are for two tubes)	ML-7124		
D-C Plate Voltage	9000	12000	12000 volts
D-C Grid Voltage	-1950	-2600	-2600 volts
Peak A-F Grid-to-Grid Voltage	3850	5150	5150 volts
Peak A-F Plate-to-Plate Voltage	11700	18000	16400 volts
Zero-Signal D-C Plate Current	0.4	0.4	0.4 amps
Max.-Signal D-C Plate Current	8.9	7.8	11.0 amps
Effective Load Resistance, Plate-to-Plate	1670	2950	1900 ohms
Max.-Signal Driving Power	0	0	0 watts
Max.-Signal Power Output, approximate	41	54	71 kW

Typical Operation (Values are for two tubes)

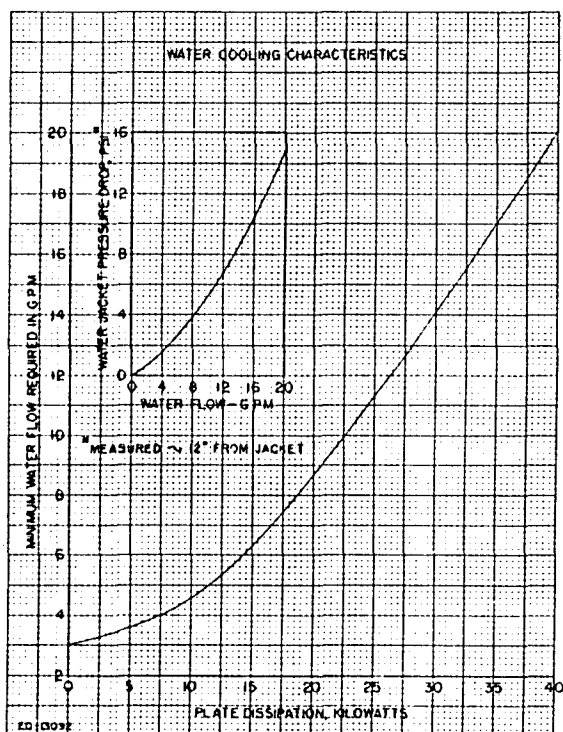
Random Noise Drive Conditions

	ML-7124	
D-C Plate Voltage	12000	12000 volts
D-C Grid Voltage	-2600	-2600 volts
Peak A-F Grid-to-Grid Voltage	5150	5150 volts
Peak A-F Plate-to-Plate Voltage	20600	18800 volts
Zero-Signal D-C Plate Current	0.4	0.4 amps
Max.-Signal D-C Plate Current	3.3	6.4 amps
Effective Load Resistance, Plate-to-Plate	8000	3760 ohms
Max.-Signal Driving Power	0	0 watts
Max.-Signal Power Output at 1.0 Power Factor	27	47 kVA
Load Power Factor	0-1.0	0-1.0

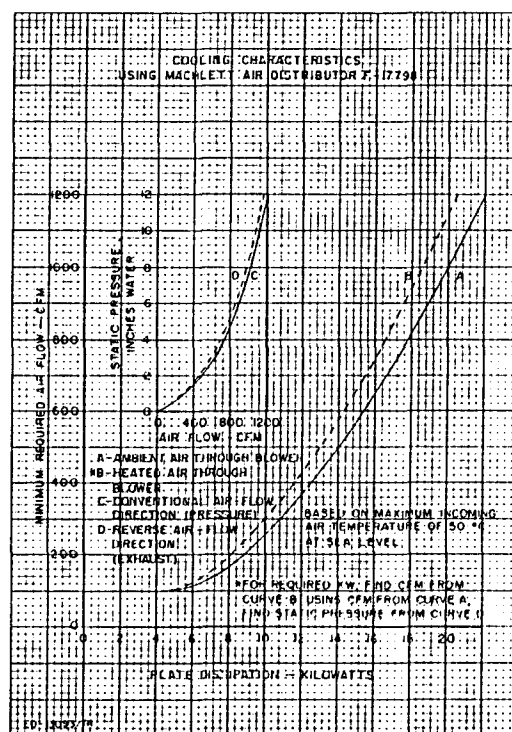
* Average over any audio-frequency cycle of sine-wave form.

CHARACTERISTIC RANGE VALUES FOR EQUIPMENT DESIGN

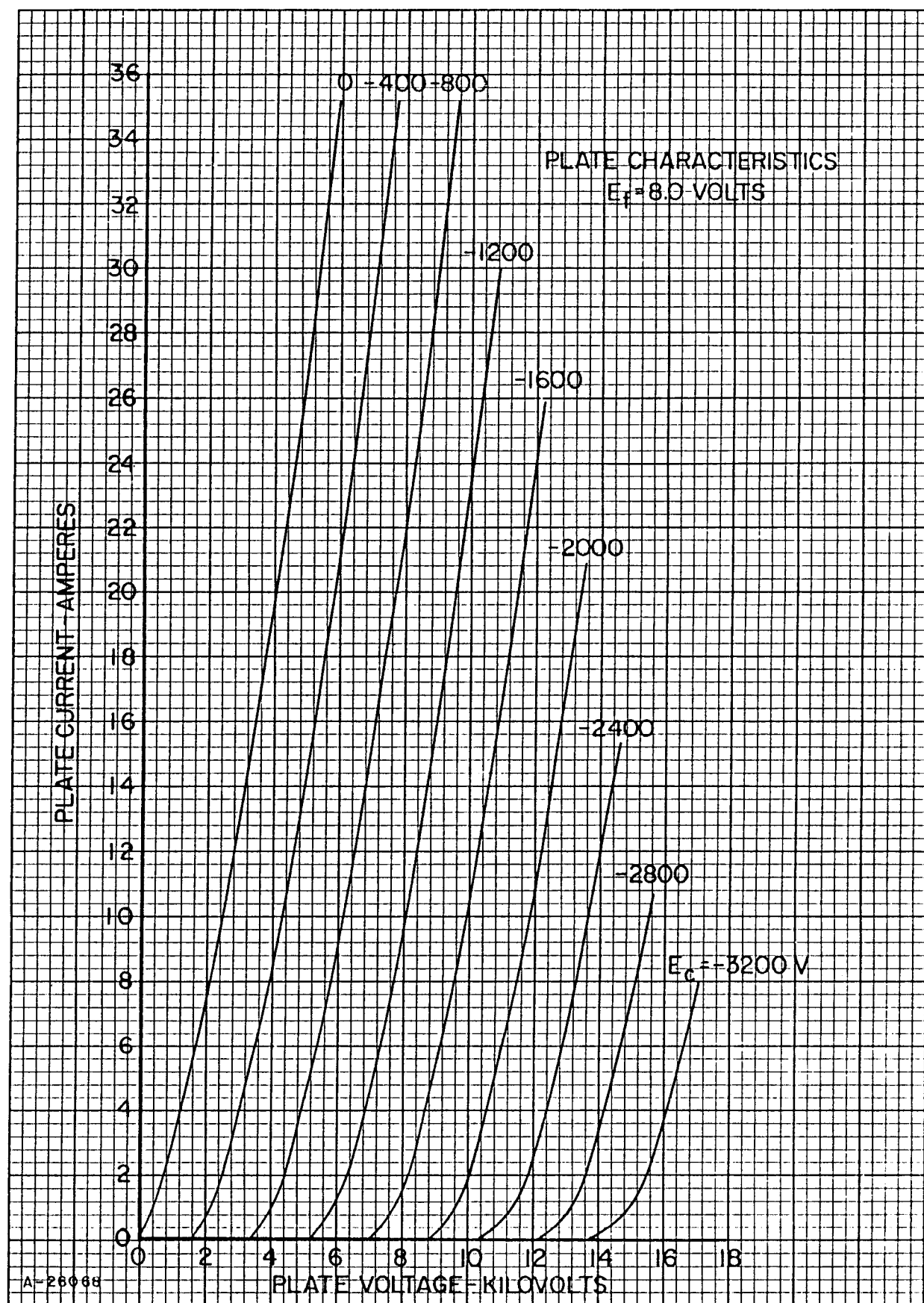
Characteristic	Conditions	Minimum	Limits Bogey	Maximum
Plate Voltage	$e_c = 0$ volts; $i_b = 35$ amps	e_b :	6.0	7.0 kv
Plate Voltage	$E_c \pm 0$ Vdc; $I_b = 3.0$ Adc	E_b :	1.1	1.3 kVdc
Plate Voltage	$E_c = -1000$ Vdc; $I_b = 3.0$ Adc	E_b :	5.6	6.3 kVdc
Grid Voltage	$E_b = 7.0$ kVdc; $I_b = 0.020$ Adc	E_c :	-1600	-2000 Vdc
Plate Power Output	$E_b = 12.0$ kVdc; $I_b = 3.7$ Adc	P_o :	22	— kW
	$E_c = -2600$ Vdc; $I_c = 0$ Adc			



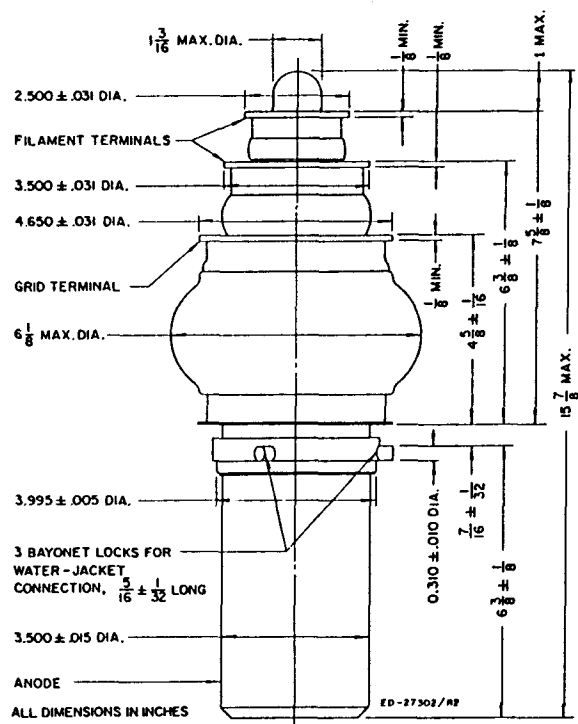
ML-7124 COOLING CHARACTERISTICS



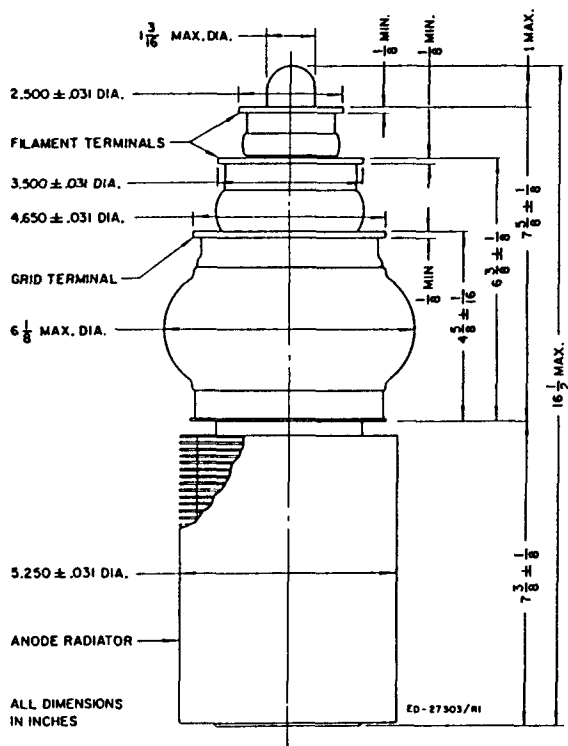
ML-7125 COOLING CHARACTERISTICS



ML-7124 AND ML-7125 PLATE CHARACTERISTICS



DIMENSIONS — ML-7124



DIMENSIONS — ML-7125

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