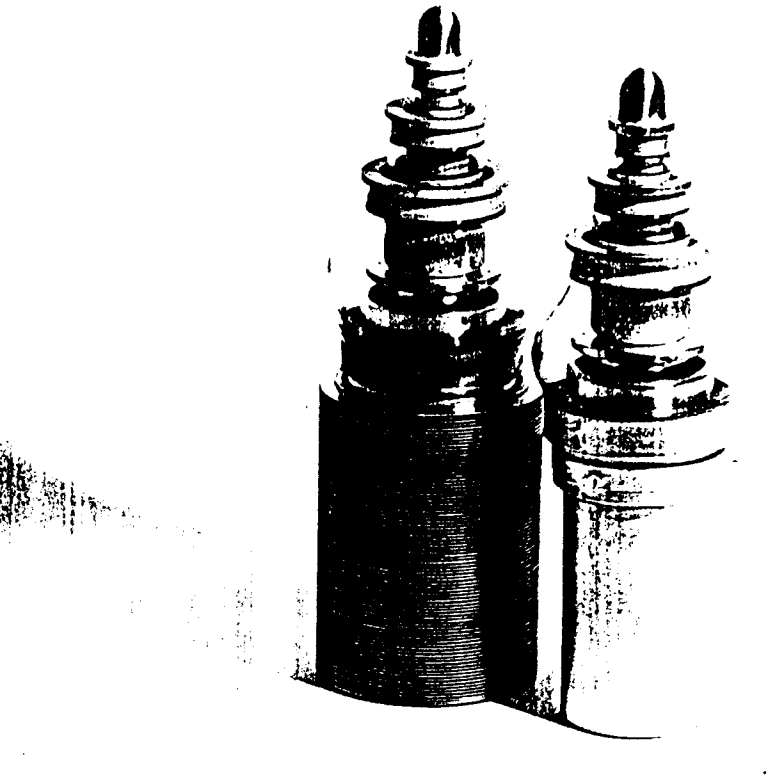


MACHLETT

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	$\mu\mu f$
Grid-Filament	50	$\mu\mu f$
Plate-Filament	1.8	$\mu\mu f$

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 Exhaust: 1150 cfm at 8.4" water	
Maximum incoming air temperature	50	°C
Air-Flow on Bulb and Seals, approximate	100	cfm†
Maximum Glass Temperature	165	°C
Net Weight, approximate		
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

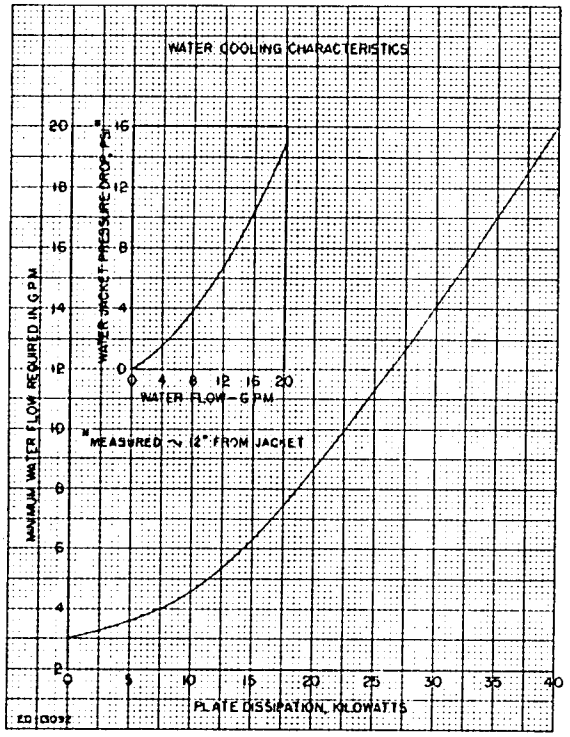
Typical Operation (Values are for two tubes)			ML-7124	
D-C Plate Voltage	9000	12000	12000	volts
D-C Grid Voltage	−1950	−2600	−2600	volts
Peak A-F Grid-to-Grid Voltage	3850	5150	5150	volts
Peak A-F Plate-to-Plate Voltage	11700	18000	16400	volts
Zero-Signal D-C Plate Current	0.4	0.4	0.4	amps
Max.-Signal 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	

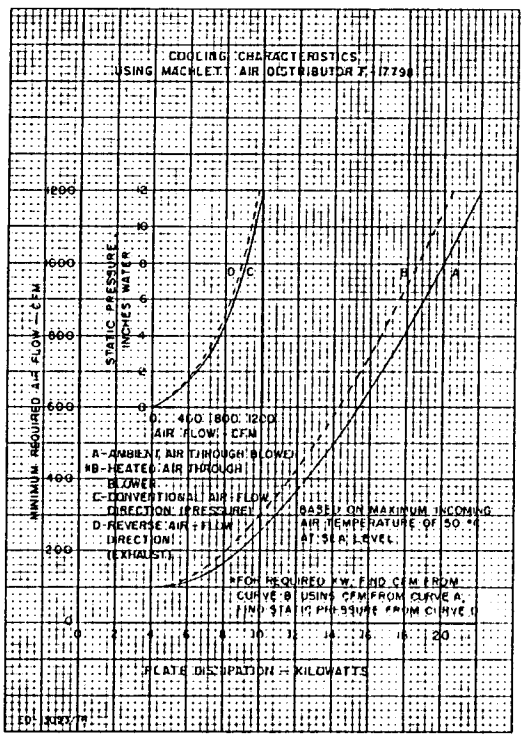
*Average over any audio-frequency cycle of sine-wave form.

CHARACTERISTIC RANGE VALUES FOR EQUIPMENT DESIGN

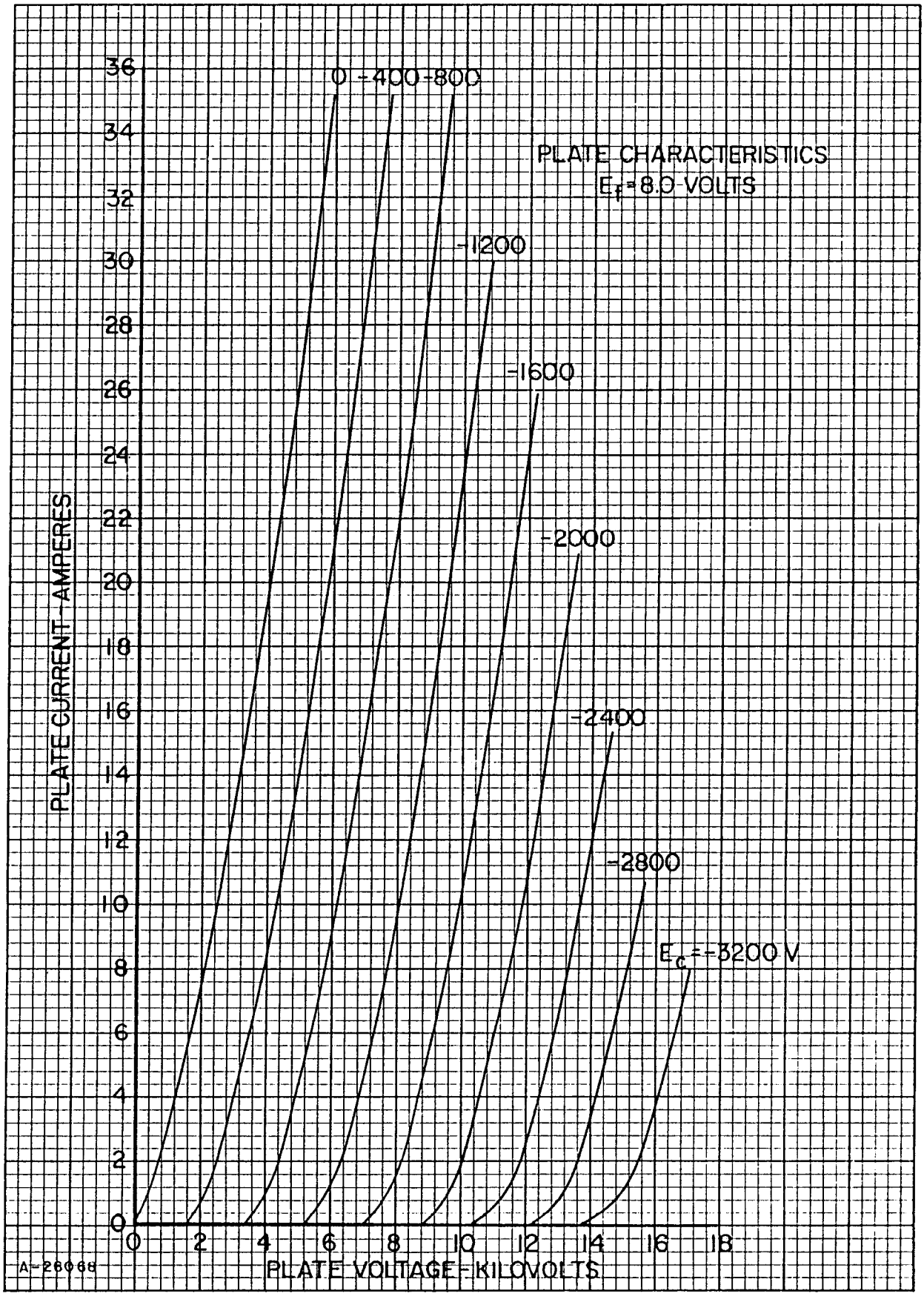
Characteristic	Conditions		Limits Minimum	Bogey	Maximum	
Plate Voltage	$e_c = 0$ volts; $i_b = 35$ amps	e_b:	——	6.0	7.0	kv
Plate Voltage	$E_c \doteq 0$ Vdc; $I_b = 3.0$ Adc	E_b:	1.0	1.1	1.3	kVdc
Plate Voltage	$E_c = -1000$ Vdc; $I_b = 3.0$ Adc	E_b:	5.0	5.6	6.3	kVdc
Grid Voltage	$E_b = 7.0$ kVdc; $I_b = 0.020$ Adc	E_c:	−1400	−1600	−2000	Vdc
Plate Power Output	$E_b = 12.0$ kVdc; $I_b = 3.7$ Adc $E_c = -2600$ Vdc; $I_c = 0$ Adc	P_o:	22	27	——	kW



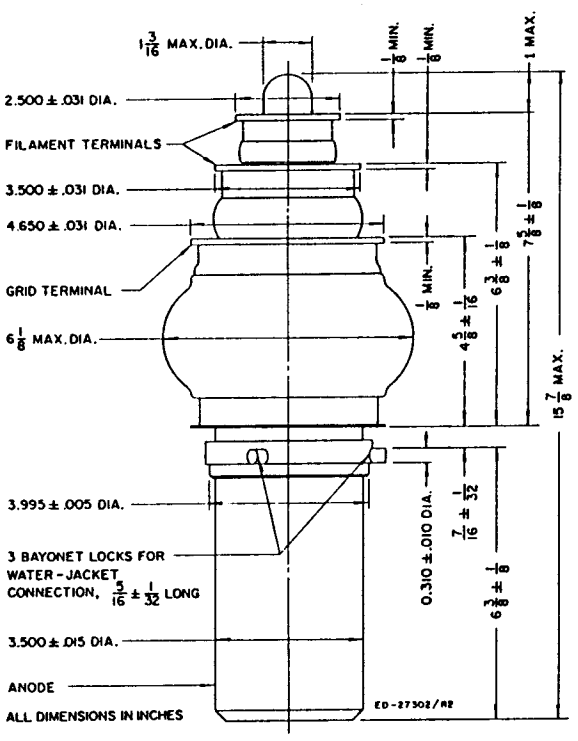
ML-7124 COOLING CHARACTERISTICS



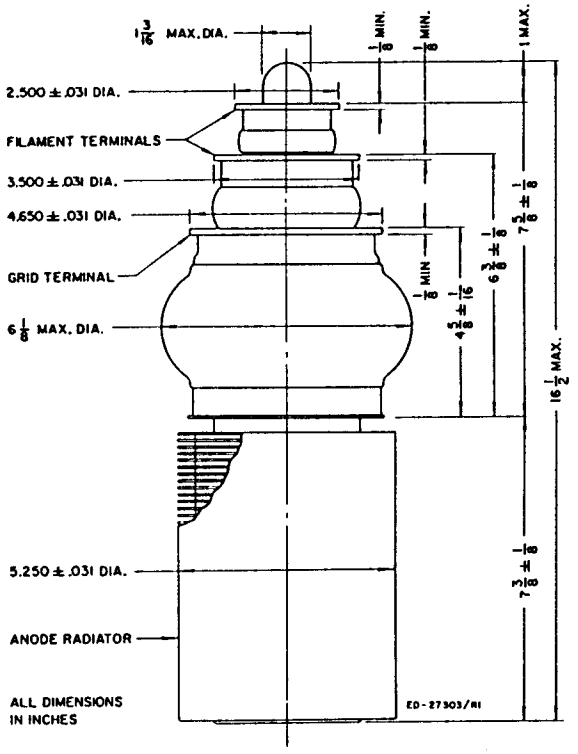
ML-7125 COOLING CHARACTERISTICS



ML-7124 AND ML-7125 PLATE CHARACTERISTICS



DIMENSIONS — ML-7124



DIMENSIONS — ML-7125

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