

# PHILIPS

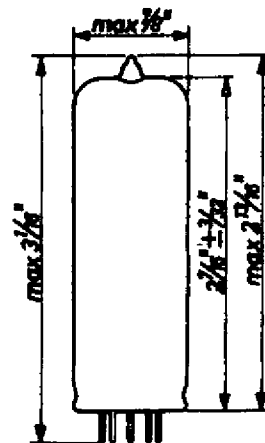
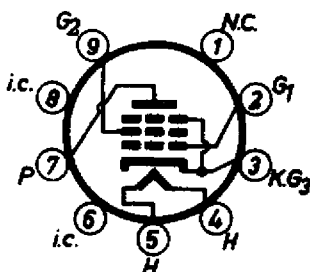
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## FRAME TIME BASE AND SOUND OUTPUT TUBE

### Physical Specifications

Cathode	Coated unipotential
Base	Small button noval 9-pin
Bulb	T6½
Maximum overall length	3 1/16"
Maximum seated height	2 13/16"
Bulb length excluding tip	2 7/16" ± 3/32"
Maximum diameter	7/8"
Mounting position	any
Basing connections - JETEC basing designation	9BL

- Pin 1 - Not connected
- Pin 2 - Grid No.1
- Pin 3 - Cathode and grid No.3
- Pin 4 - Heater
- Pin 5 - Heater
- Pin 6 - Internally connected
- Pin 7 - Plate
- Pin 8 - Internally connected
- Pin 9 - Grid No.2



### General Electrical Data

Heater voltage	16.5 volts
Heater current	300 ma

### Direct Interelectrode Capacitances

Grid No.1 to all other elements except plate	11 μμF
Plate to all other elements except grid No.1	5.9 μμF
Plate to grid No.1	max. 1 μμF
Grid No.1 to heater	max. 0.15 μμF

### Maximum Ratings

Plate voltage (without current)	550 volts
Peak positive plate voltage	2500 volts <sup>1)</sup>
Peak negative plate voltage	500 volts
Average plate voltage	250 volts
Plate dissipation	9 watts
Grid No.2 voltage (without current)	550 volts
Grid No.2 voltage	250 volts
Grid No.2 dissipation	2.5 watts
Cathode current	75 ma
Grid current starting point. Grid No.1 voltage when grid No.1 current = +0.3 $\mu$ amp	-1.3 volt
Grid No.1 circuit resistance with automatic bias	1 megohm
Grid No.1 circuit resistance with fixed bias	0.4 megohm
Heater-cathode voltage	200 volts
External heater-cathode resistance	20,000 ohms

### Operating Conditions as Class A Sound Output Amplifier

Plate and supply voltage	170	200 volts
Grid No.2 series resistor	0	680 ohms
Grid No.1 bias	-10.4	-13.9 volts
Plate current	53	45 ma
Grid No.2 current	10	8.5 ma
Transconductance	9000	7600 micromhos
Plate resistance	20,000	24,000 ohms
Amplification factor of grid No.2 with respect to grid No.1	10	10
Load resistance	3000	4000 ohms
Output when distortion is 10 %	4.0	4.2 watts
A.C.grid No.1 voltage when distortion is 10 %	6.0	7.0 volts(rms)
A.C.grid voltage when out- put is 50 milli-watts	0.5	0.55 volts(rms)

<sup>1)</sup> Maximum permitted pulse duration 10% of one cycle, with a maximum of 2 milli-seconds.

Operating Conditions as Class A Sound Output Amplifier  
(two tubes)

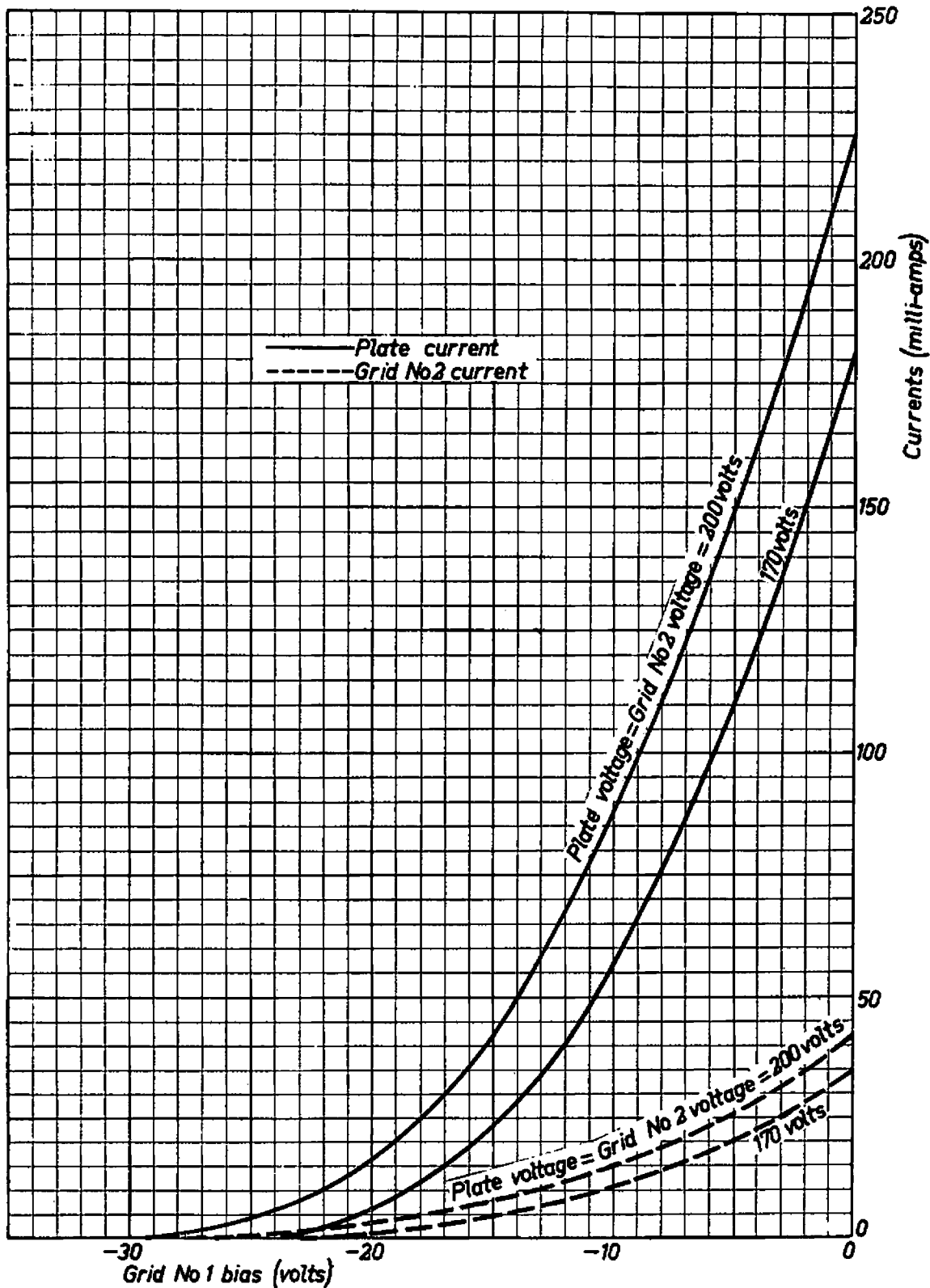
Plate voltage	170	200	volts
Grid No.2 voltage	170	200	volts
Cathode resistor	100	135	ohms
Load resistance (plate to plate)	4000	4000	ohms
A.C. grid No.1 voltage	0 2x9.3	0 2x13.5	volts(rms)
Plate current	2x46 2x50	2x45 2x52	ma
Grid No.2 current	2x8.7 2x17	2x8.5 2x19	ma
Output	0 9	0 12	watts
Distortion	- 5	- 5	%

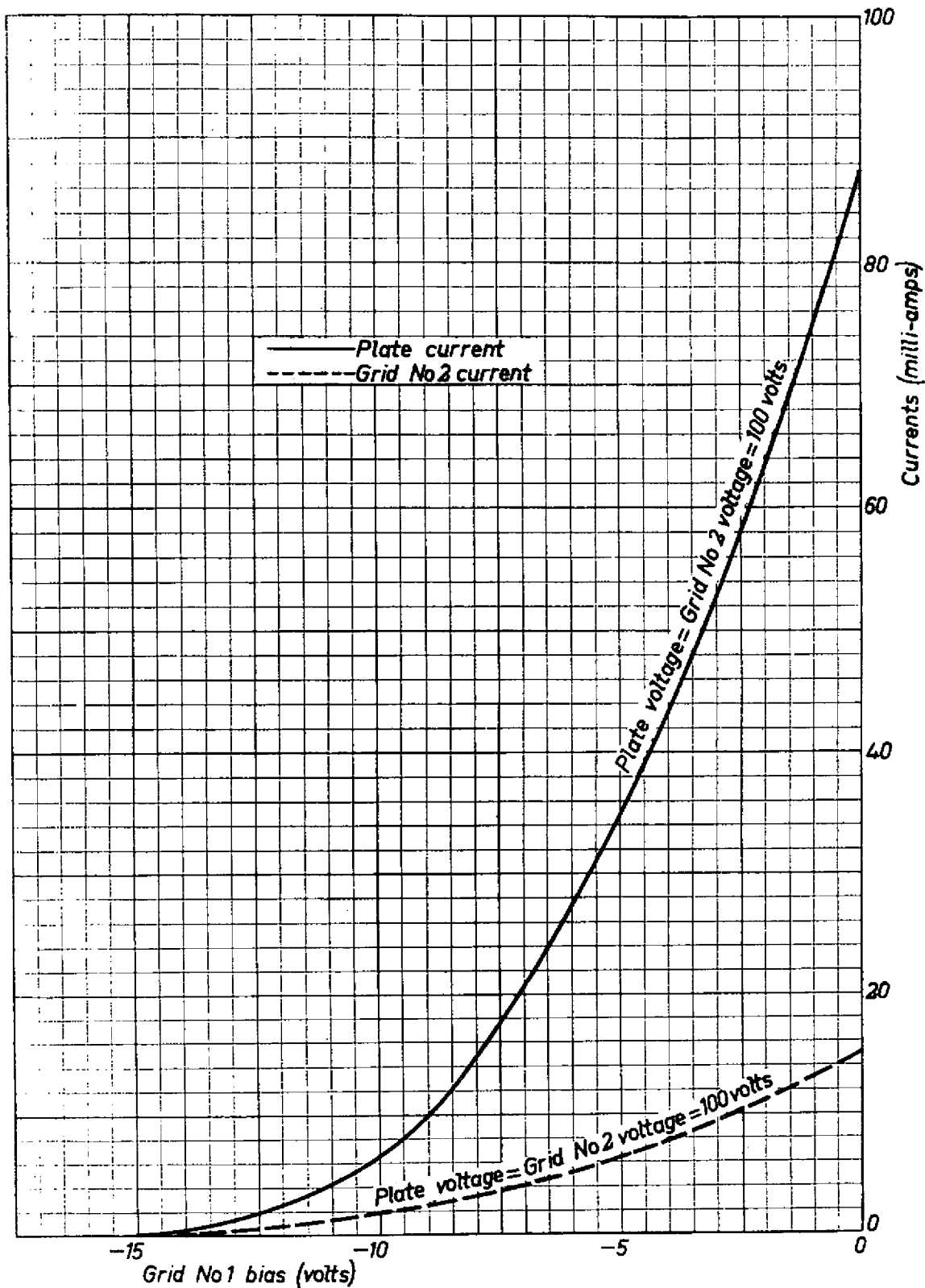
Optimum Peak Plate Current in Frame Output Operation

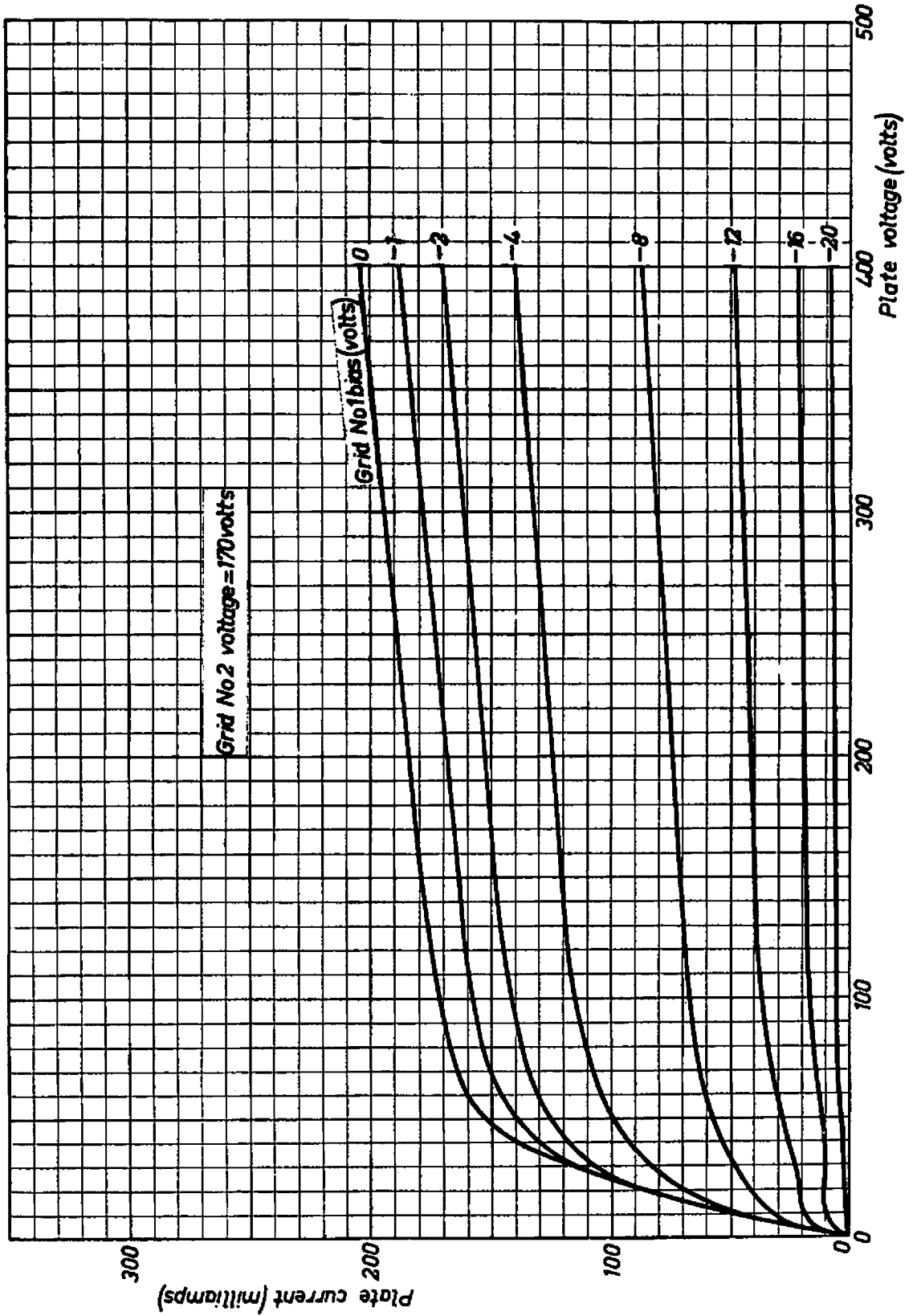
To allow for tube spread and for deterioration during life in frame output application the circuit should be designed around a peak plate current not exceeding 90 ma at a plate voltage of 50 volts and a grid No.2 voltage of 170 volts and not exceeding 120 ma at a plate voltage of 60 volts and a grid No.2 voltage of 200 volts.

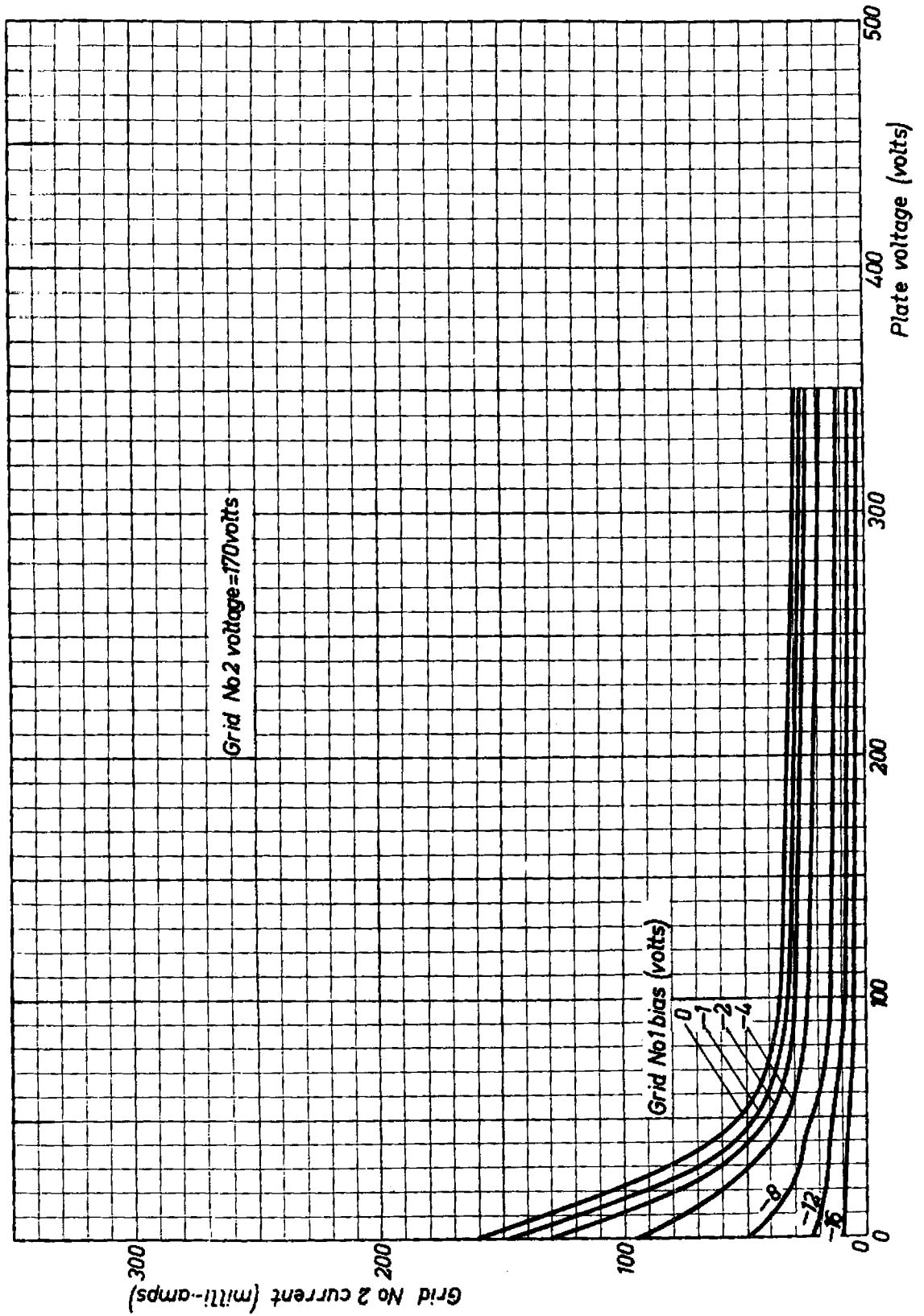
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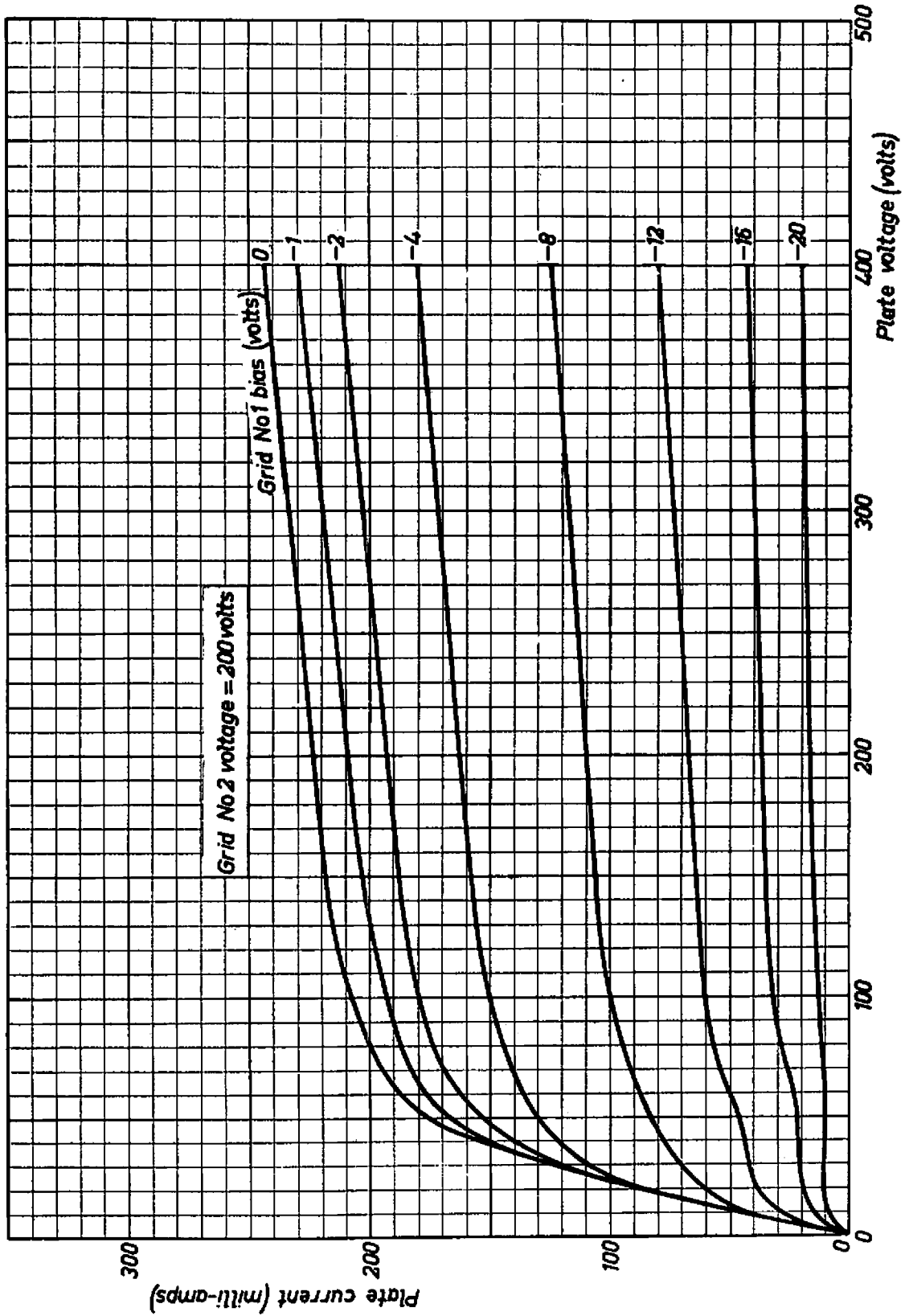




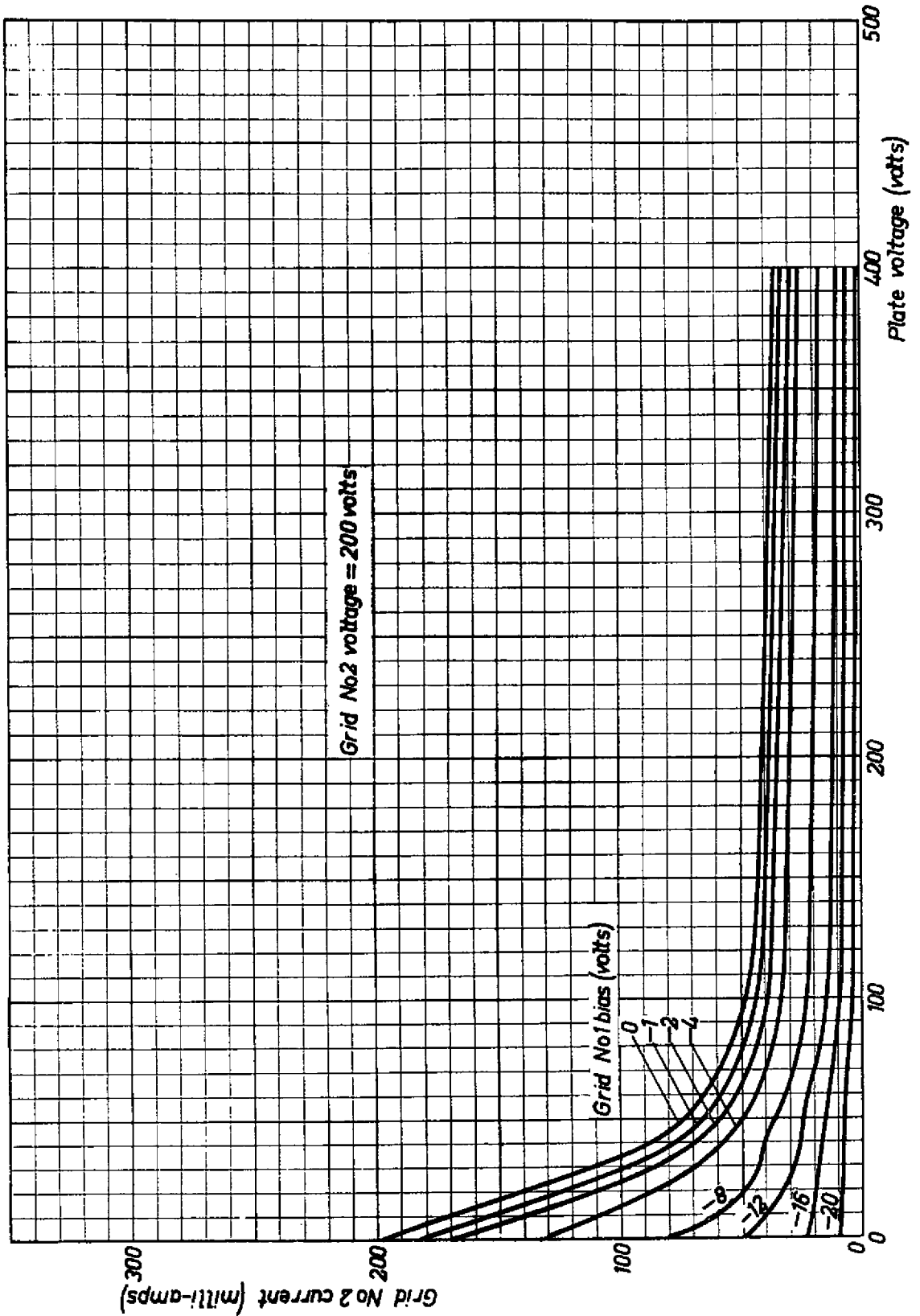


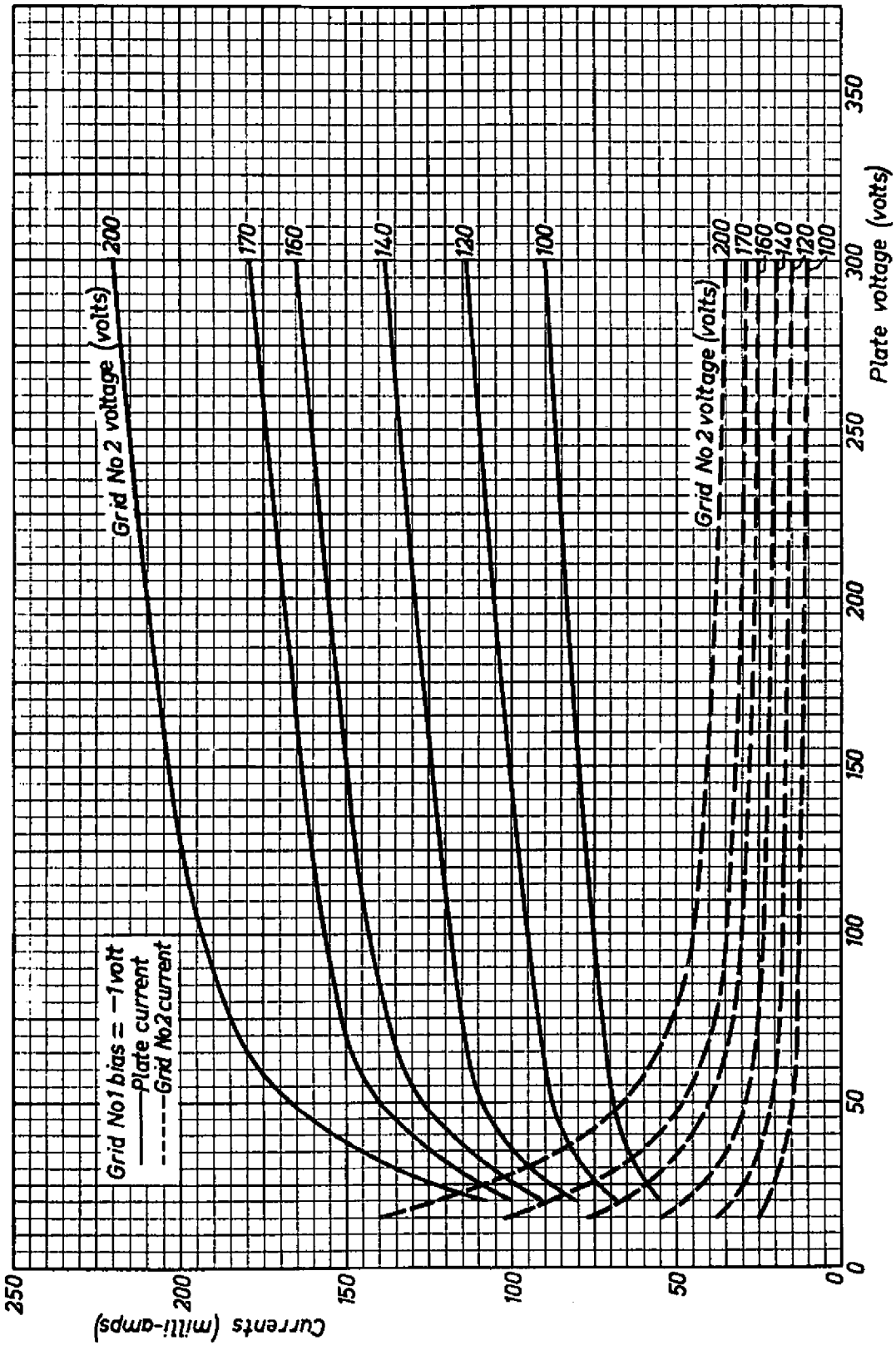
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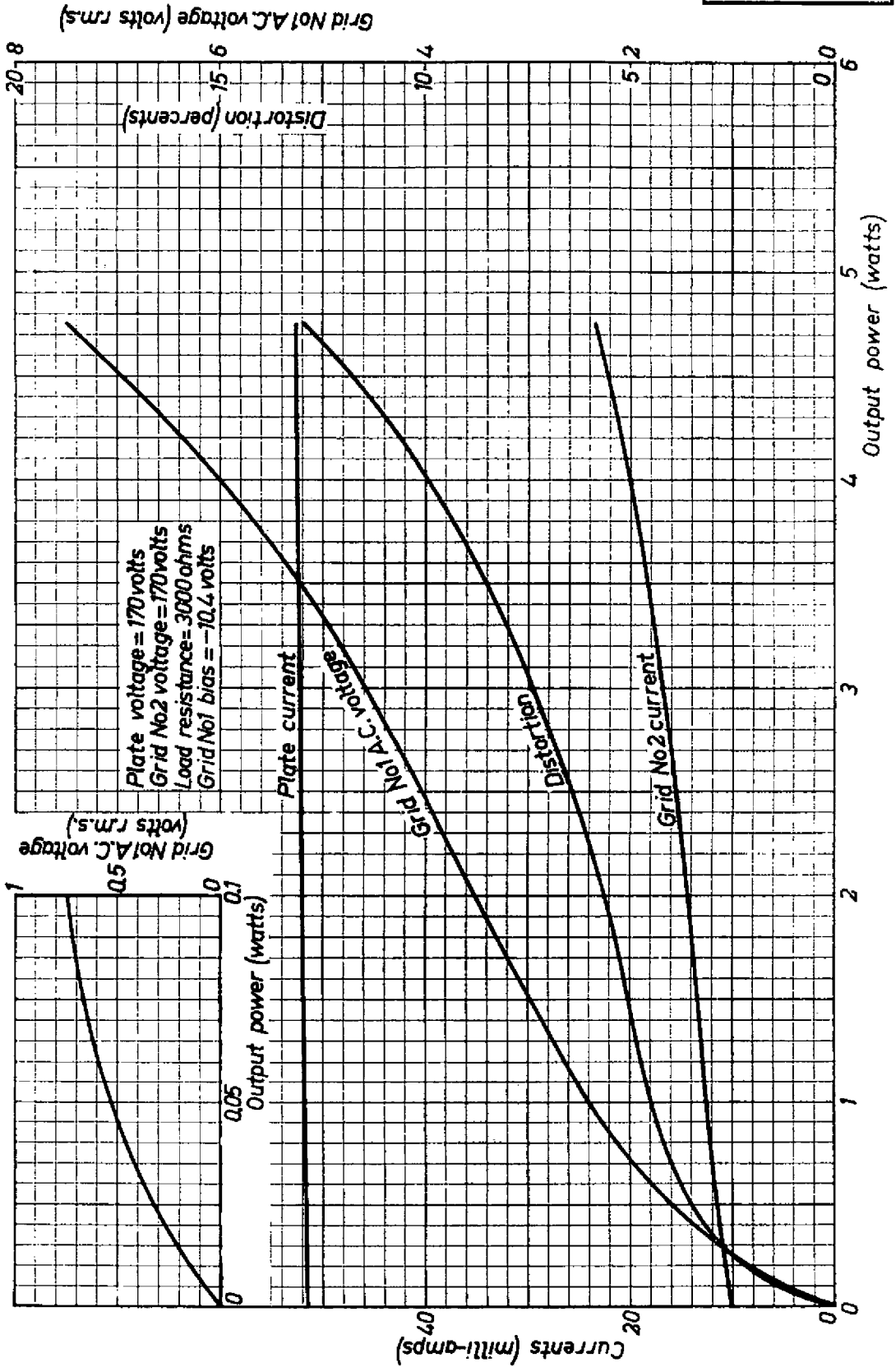
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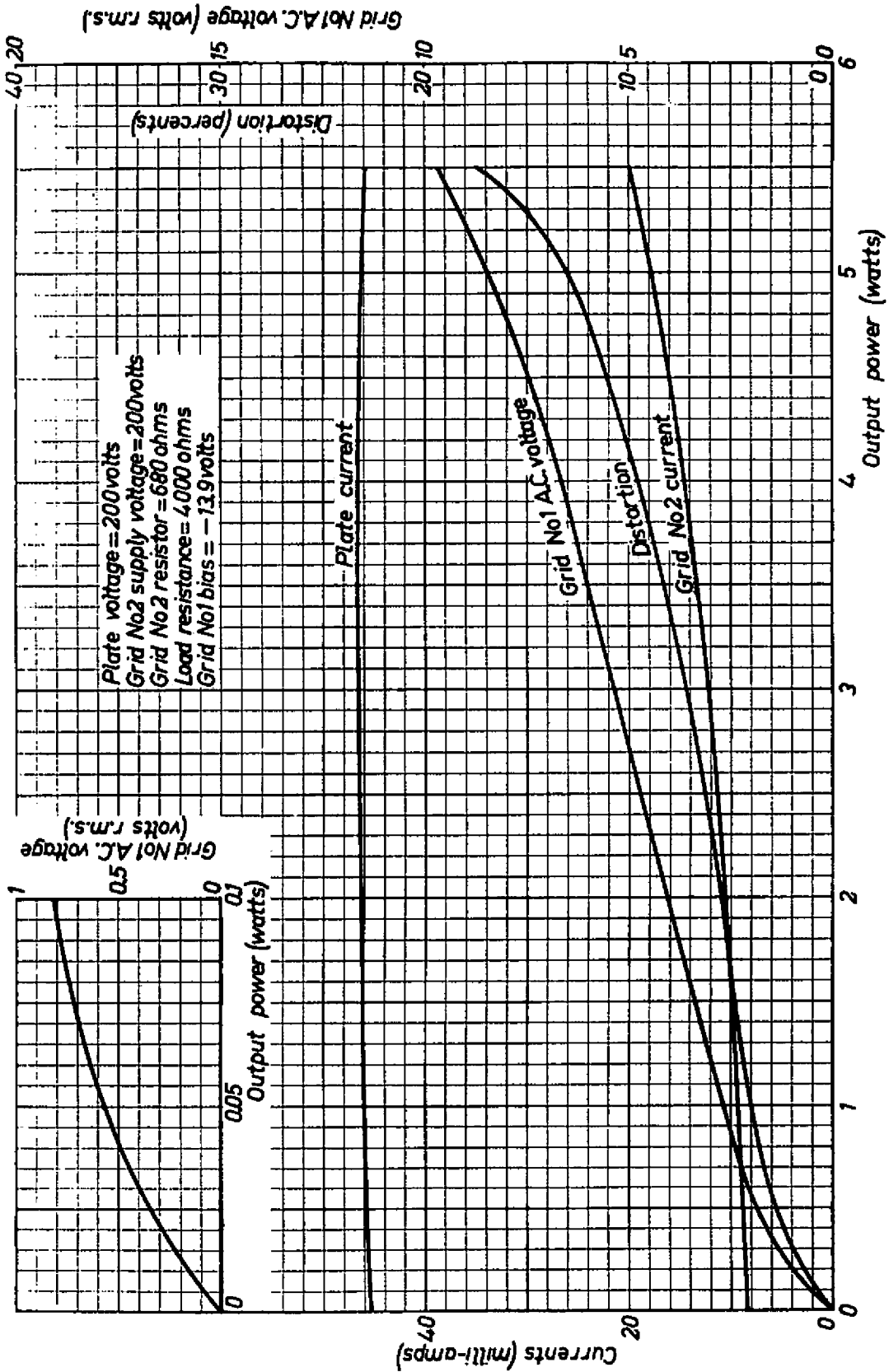


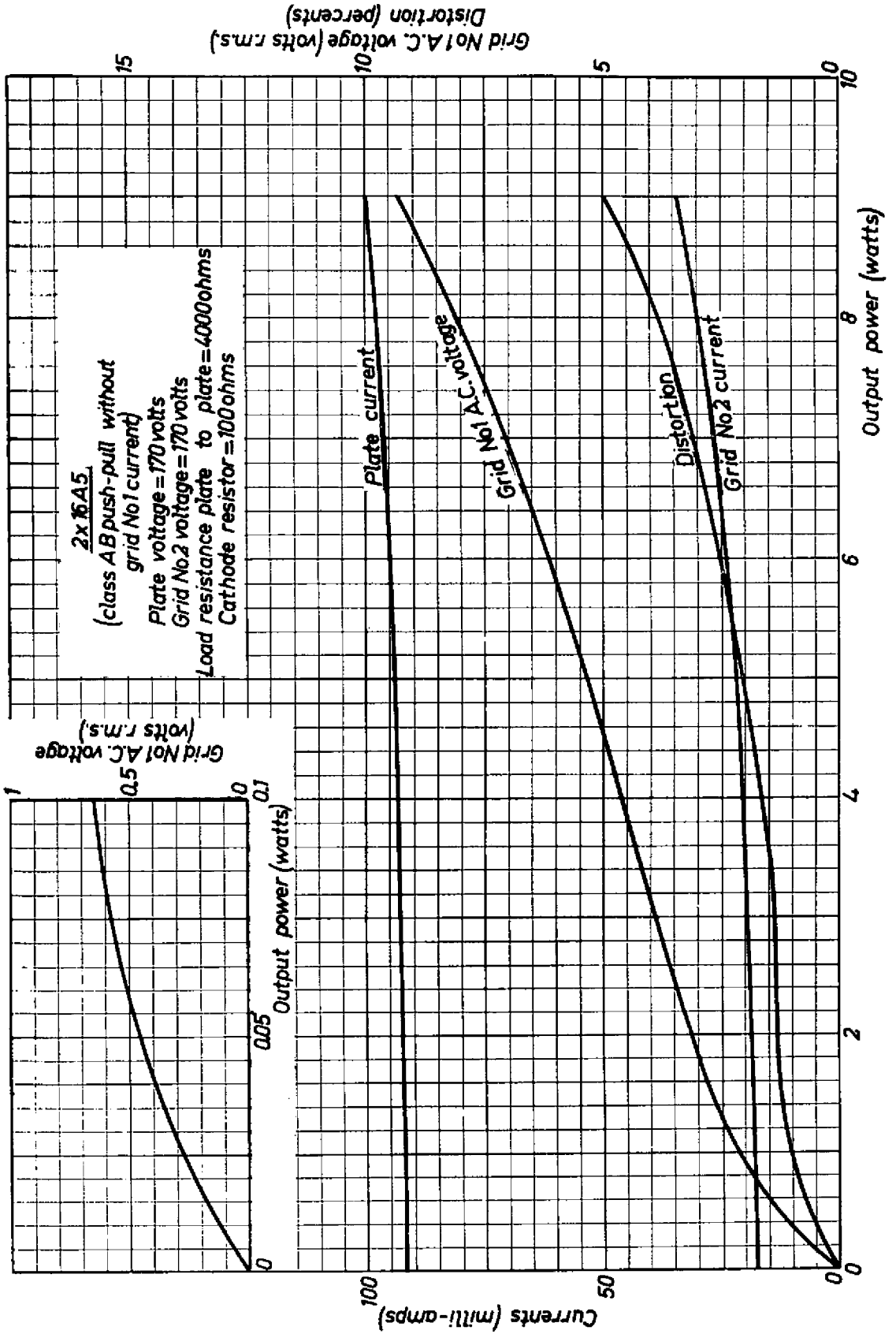




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