PHILIPS 6086

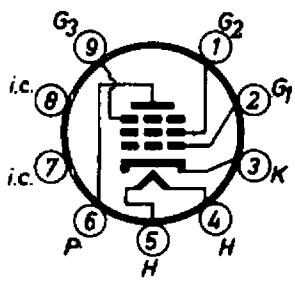
LONG LIFE PENTODE FOR TELEPHONE EQUIPMENT

Physical specifications

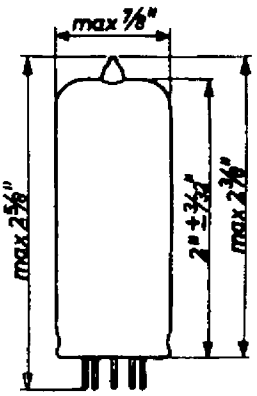
Cathode	Coated unipotential
Base	Small button noval 9-pin
Bulb	T6½
Maximum overall length	2 5/8"
Maximum seated height	2 3/8"
Bulb length excluding tip	2" ± 3/32"
Maximum diameter	7/8"
Mounting position	any
Basing connections - JETEC basing designation	9BK

Pin 1 - Grid No.2
Pin 2 - Grid No.1
Pin 3 - Cathode
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Plate
Pin 7 - Internally connected
Pin 8 - Internally connected
Pin 9 - Grid No.3

Bottom view of base



Tube outline



General Electrical Data

Heater data

Heater voltage	18 volts
Heater current	100 ma

Direct Interelectrode Capacitances

Grid No.1 to all other elements except plate	8.8 µµF
Plate to all other elements except grid No.1	3.6 µµF
Grid No.1 to plate	max. 0.015 µµF
Grid No.1 to heater	max. 0.15 µµF
Cathode to all other elements	5.6 µµF

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Ratings (Design center values)		
Plate voltage (without current)	max.	550 volts
Plate voltage	max.	210 volts
Plate dissipation	max.	2.1 watts
Grid No.2 voltage (without current)	max.	550 volts
Grid No.2 voltage	max.	210 volts
Grid No.2 dissipation	max.	0.35 watt
Cathode current	max.	16 ma
Grid No.1 current starting point. Grid No.1 voltage at grid No.1 current = +0.3 μ amp	max.	-1.1 volts
Grid No.1 circuit resistance (with automatic grid bias)	max.	1 megohm
External resistance between heater and cathode	max.	20,000 ohms
Voltage between heater and cathode	max.	60 volts

Typical characteristics	
Plate voltage	210 volts
Grid No.3 voltage	0 volt
Grid No.2 voltage	120 volts
Cathode resistor	165 ohms
Plate current	10 ma
Screen grid current	2.1 ma
Transconductance	9000 micromhos
Plate resistance	0.5 megohm
Amplification factor of grid No.2 with respect to grid No.1	34
Equivalent noise resistance	750 ohms

Operating characteristics as Class A output amplifier		
Plate supply voltage	120	210 volts
Grid No.2 supply voltage	120	120 volts
Grid No.2 resistor	5600	5600 ohms
Cathode resistor	180	180 ohms
Plate current	8.3	8.3 ma
Grid No.2 current	1.7	1.7 ma
Internal plate resistance	0.42	0.44 megohm
Load resistance	10,000	20,000 ohms
Transconductance	8200	8200 micromhos

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Operating characteristics as Class A output amplifier (continued)			
Output at a distortion of 10 %	345	660	milliwatts
Grid No.1 A.C. voltage at a distortion of 10 %	1.1	1.1	volts(rms)
Output at grid current starting point	400	870	milliwatts
Grid No.1 A.C. voltage at an output of 50 milliwatts	0.35	0.25	volts(rms)

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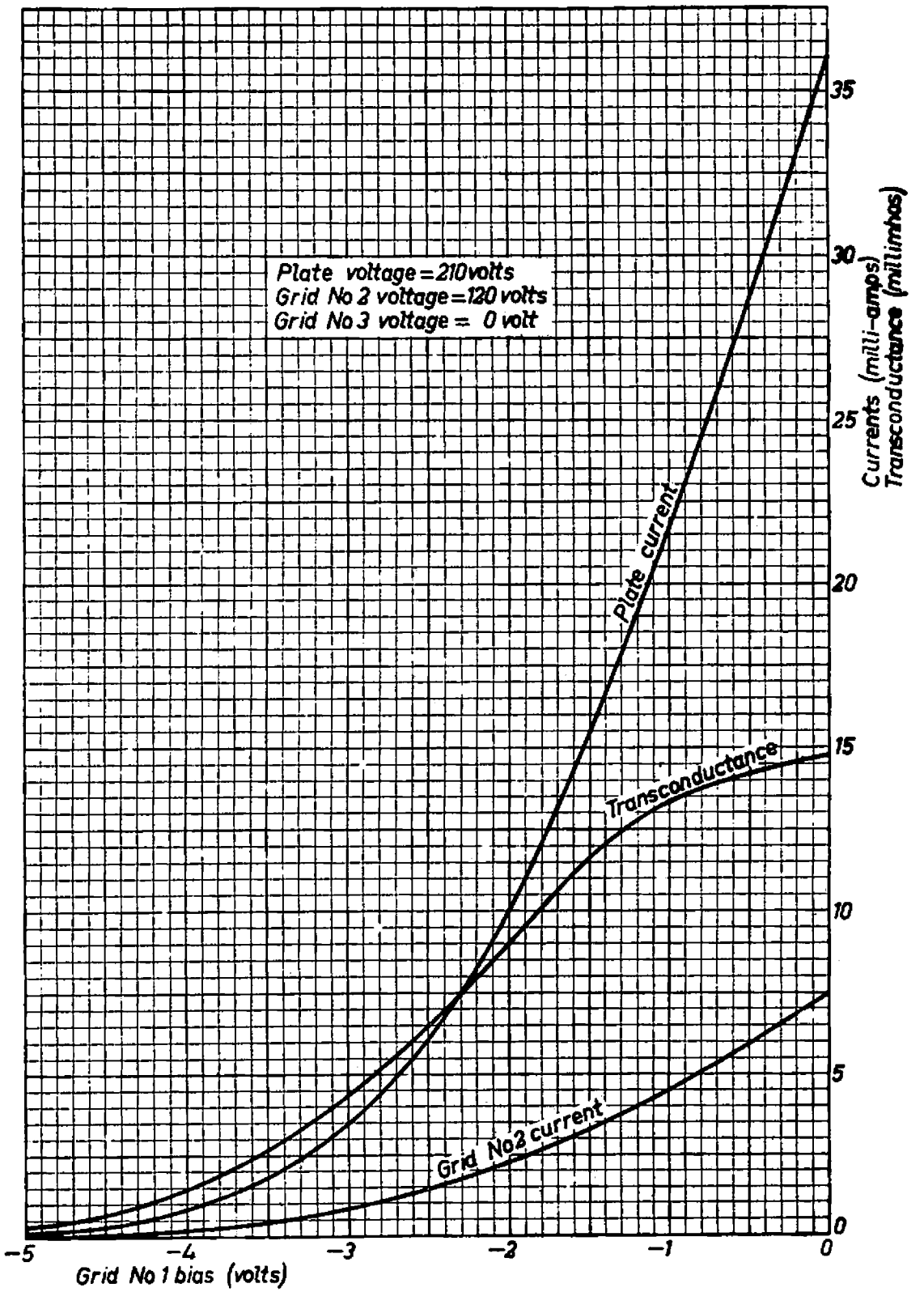
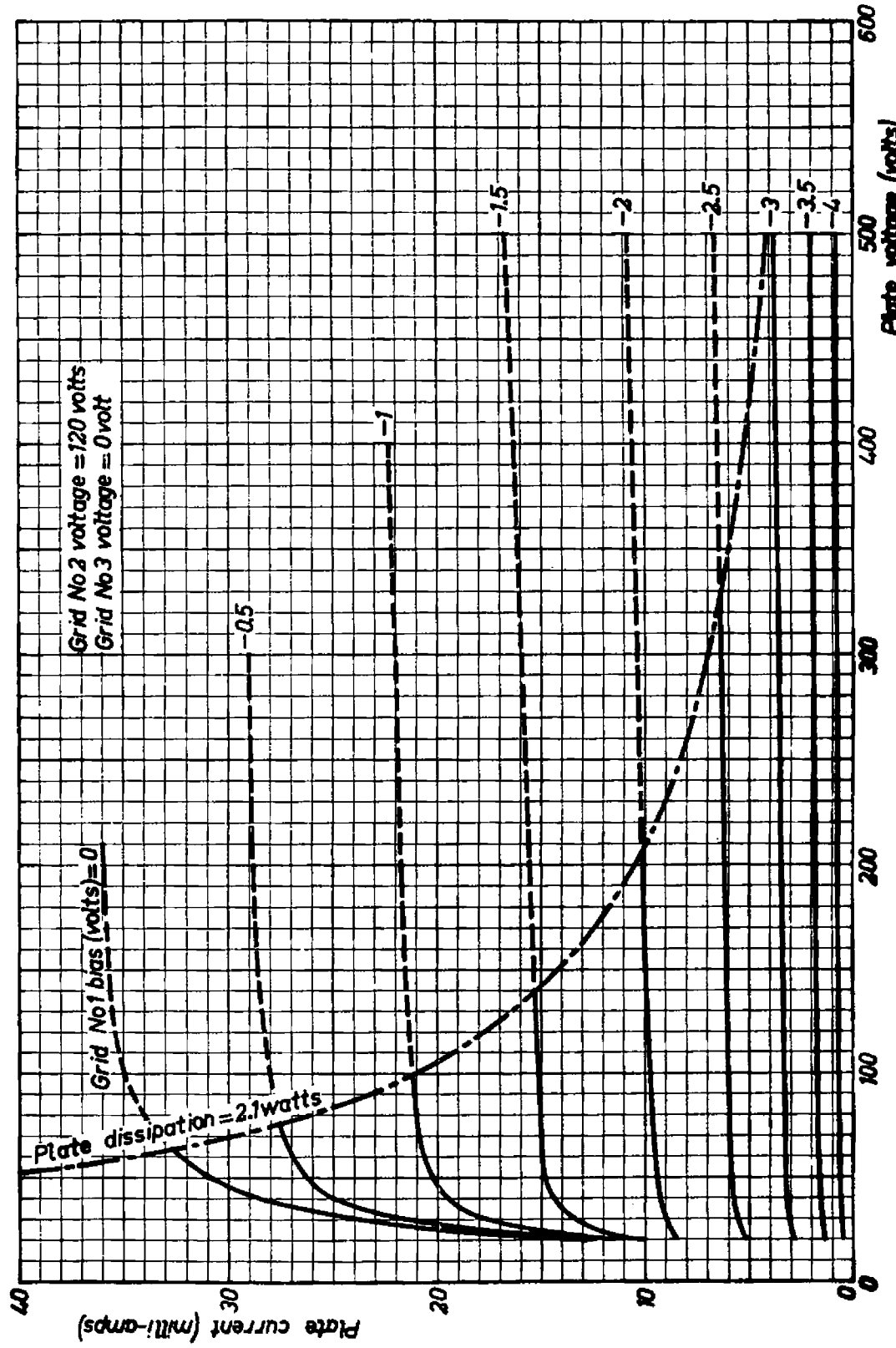


Plate voltage = 210 volts
Grid No 2 voltage = 120 volts
Grid No 3 voltage = 0 volt
Plate current
Transconductance
Grid No2 current
Currents (milli-amps)
Transconductance (millimhos)
35
30
25
20
15
10
5
0
−5
−4
−3
−2
−1
0
Grid No 1 bias (volts)


Grid No 2 voltage = 120 volts
Grid No 3 voltage = 0 volt
Grid No 1 bias (volts) = 0
Plate dissipation = 2.1 watts
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
Plate current (milli-amps)
40
30
20
10
0
Plate voltage (volts)
600
500
400
300
200
100
0

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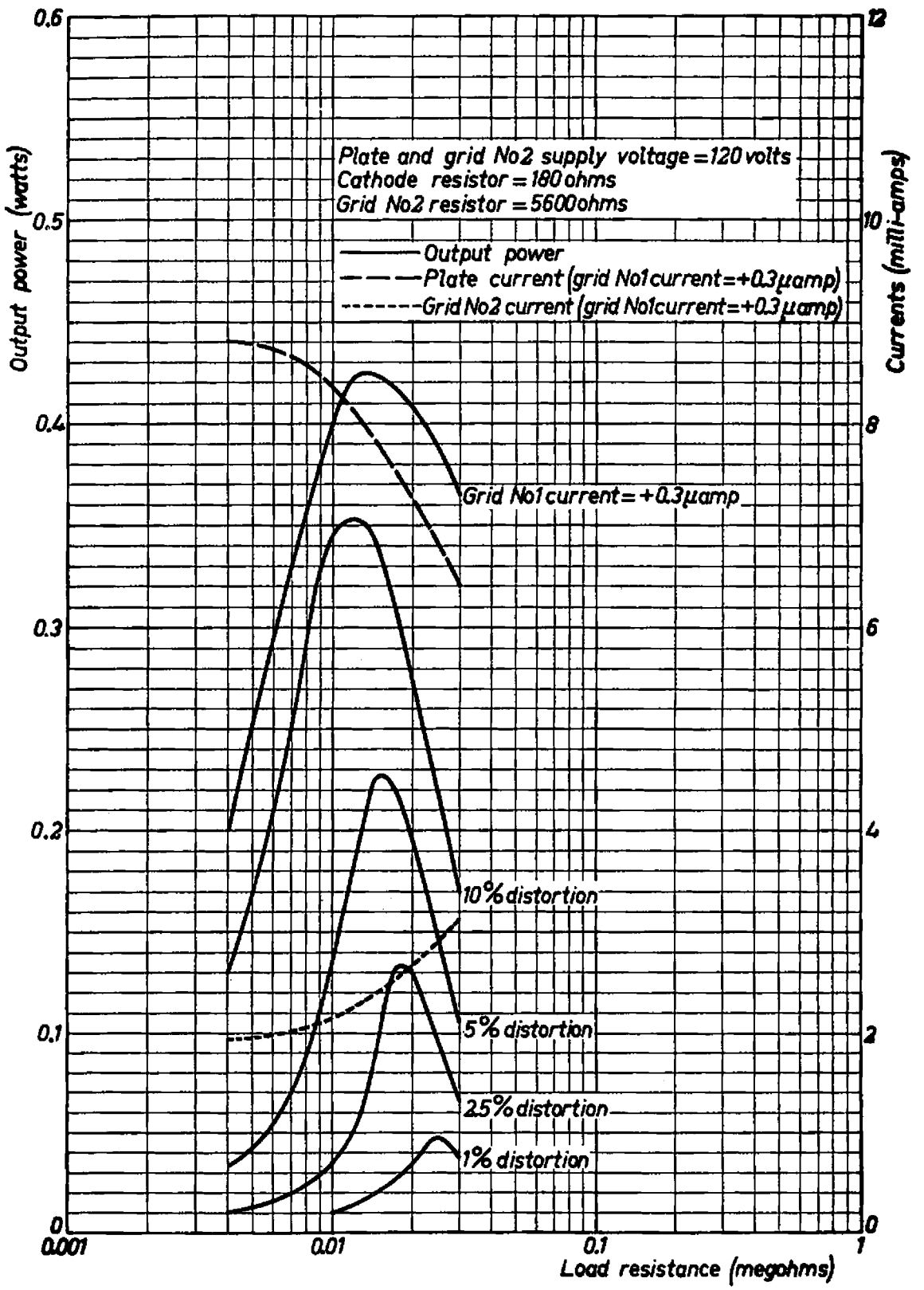

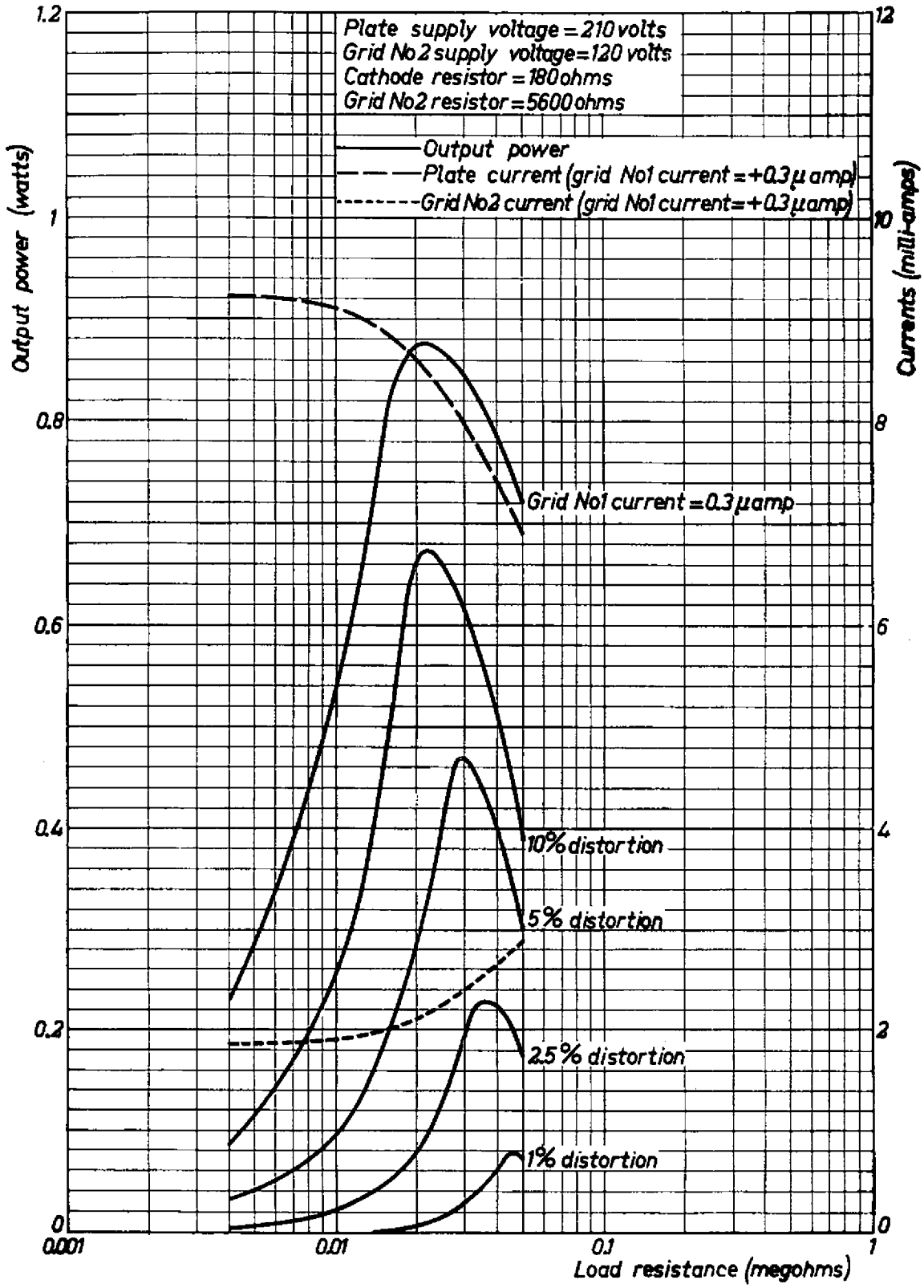
Plate supply voltage = 210 volts
Grid No2 supply voltage = 120 volts
Cathode resistor = 180 ohms
Grid No2 resistor = 5600 ohms
Output power
Plate current (grid No1 current = +0.3 μamp)
Grid No2 current (grid No1 current = +0.3 μamp)
Grid No1 current = 0.3 μamp
10% distortion
5% distortion
2.5% distortion
1% distortion
Output power (watts)
Currents (milli-amps)
Load resistance (megohms)
1.2
1
0.8
0.6
0.4
0.2
0
12
10
8
6
4
2
0
0.001
0.01
0.1
1