

Rogers Electronic Tubes & Components

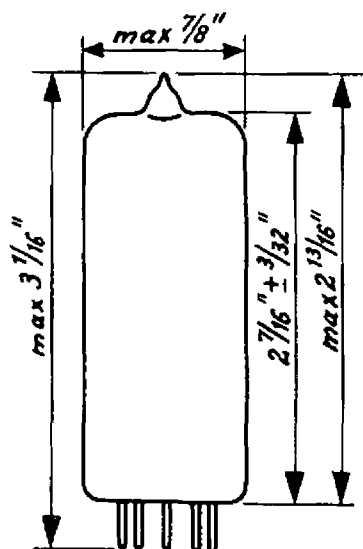
32A8

Description : Triode pentode; triode section for use as A.F. amplifier; pentode section for use as A.F. output tube.

MECHANICAL DATA

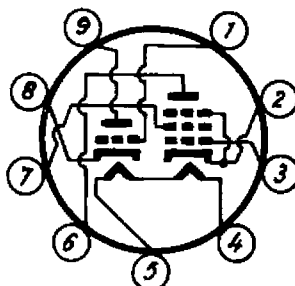
Cathode	coated, unipotential
Base	E9-1
Bulb	T6 1/2
Outline	6-4
Basing	9EX
Mounting position	any

TUBE OUTLINE



BOTTOM VIEW

OF BASE



BASE PIN

No.

ELEMENT

1	Triode grid
2	Pentode cathode and grid No. 3, internal shield
3	Pentode grid No. 1
4	Heater
5	Heater
6	Pentode plate
7	Grid No. 2
8	Triode cathode
9	Triode plate

HEATER DATA

Heater voltage	32 volts
Heater current	150 mamps

DIRECT INTERELECTRODE CAPACITANCES

Triode section

Grid to all other elements except plate	2.7 uuF
Plate to all other elements except grid	4.3 uuF
Plate to grid	4.2 uuF
Grid to heater	max. 0.02 uuF

Pentode section

Grid No. 1 to all other elements except plate	9.3 uuF
Plate to all other elements except grid No. 1	8.0 uuF
Plate to grid No. 1	max. 0.3 uuF
Grid No. 1 to heater	max. 0.3 uuF

DIRECT INTERELECTRODE CAPACITANCES (continued)Between triode and pentode section

Triode plate to pentode grid No. 1	max.	0.02 uuF
Triode grid to pentode plate	max.	0.02 uuF
Triode grid to pentode grid No. 1	max.	0.025 uuF
Triode plate to pentode plate	max.	0.25 uuF

MAXIMUM RATINGS (design center values)Pentode section

Plate voltage without plate current	550 volts max.
Plate voltage	250 volts max.
Plate dissipation	7 watts max.
Grid No.2 voltage without current	550 volts max.
Grid No. 2 voltage	250 volts max.
Grid No. 2 dissipation	1.8 watts max.
Peak grid No. 2 dissipation	3.2 watts max.
Cathode current	50 mamps max.
Grid No.1 circuit resistance with auto-matic bias	2 megohms max.
Grid No.1 circuit resistance with fixed bias	1 megohm max.
Voltage between heater and cathode	200 volts max.
Circuit resistance between heater and cathode	20000 ohms max.

Triode section

Plate voltage without plate current	550 volts max.
Plate voltage	250 volts max.
Plate dissipation	1 watt max.
Cathode current	15 mamps max.
Grid circuit resistance with automatic bias	3 megohms max.
Grid circuit resistance with fixed bias	1 megohm max.
Voltage between heater and cathode	200 volts max.
Circuit resistance between heater and cathode	20000 ohms max.
Grid circuit impedance (freq. = 50 c/s)	0.5 megohm max.

TYPICAL CHARACTERISTICSPentode section

Plate voltage	100	170	200	200 volts
Grid No. 2 voltage	100	170	200	200 volts
Grid No. 1 bias	-6.0	-11.5	-12.5	-16 volts
Plate current	26	41	35	35 mamps

Grid No. 2 current	5.0	8.0	6.5	7.0 mamps
Transconductance	6800	7500	6800	6400 micromhos
Plate resistance	15000	16000	20500	20000 ohms
Amplification factor of grid No.2 with respect to grid No. 1	10	9.5	9.5	9.5
<u>Triode section</u>				
Plate voltage				100 volts
Grid voltage				0 volts
Plate current				3.5 mamps
Transconductance				2500 micromhos
Amplification factor				70

OPERATING CHARACTERISTICS of the pentode section as audio output tube,
class A

Plate voltage	100	170	200	200 volts
Grid No. 2 voltage	100	170	200	200 volts
Grid No. 1 bias	-6.0	-11.5	-12.5	-16 volts
Plate current	26	41	35	35 mamps
Grid No. 2 current	5.0	8.0	6.5	7.0 mamps
Load resistance	3900	3900	5600	5600 ohms
Power output at a harmonic distortion of 10%	1.05	3.3	3.4	3.5 watts
Required input A.F.voltage	3.8	6.0	5.8	6.6 volts (rms)
Required input A.F.voltage at a power output of 50 milliwatts	0.65	0.59	0.56	0.60 volts (rms)

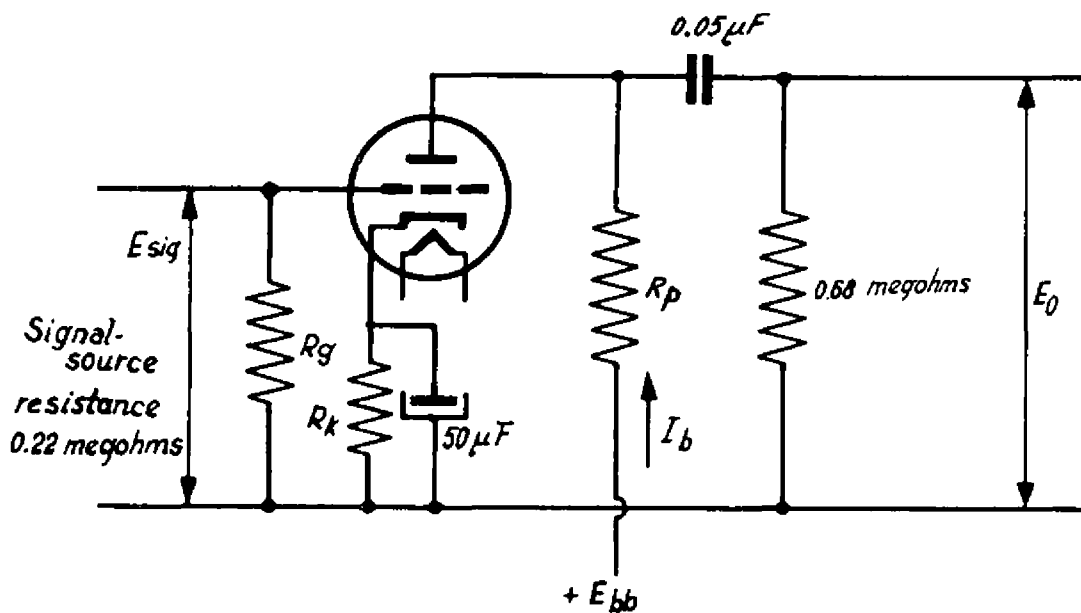
MICROPHONY

The triode section can be used without special precautions against microphonic effect in circuits in which an input voltage of at least 10 millivolts gives an output power of 50 milliwatts.

HUM

In order to statisfy the hum requirement for the triode section of -60 db at an output power of 50 milliwatts, the input voltage for 50 milliwatts output must be higher than 10 millivolts when the grid circuit impedance at 50 cycles/second $\leq$ 0.5 megohm. In this case the A.C.voltage between pin 5 and cathode must be zero. When the A.C.voltage between pin 5 and cathode is 12.6 volts, the input voltage for 50 milliwatts output must be at least 20 millivolts.

OPERATING CHARACTERISTICS OF THE TRIODE SECTION AS A.F. AMPLIFIER

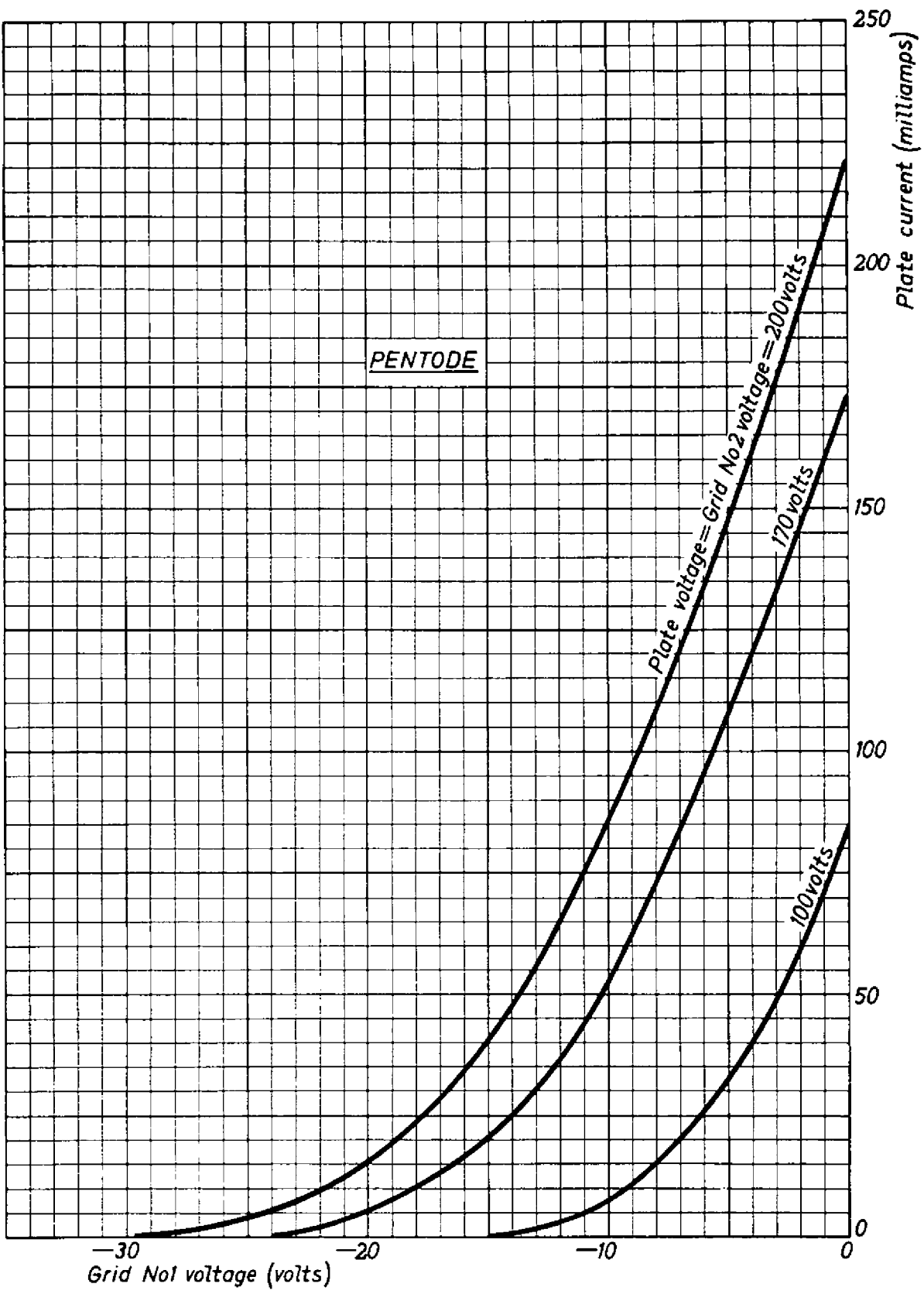


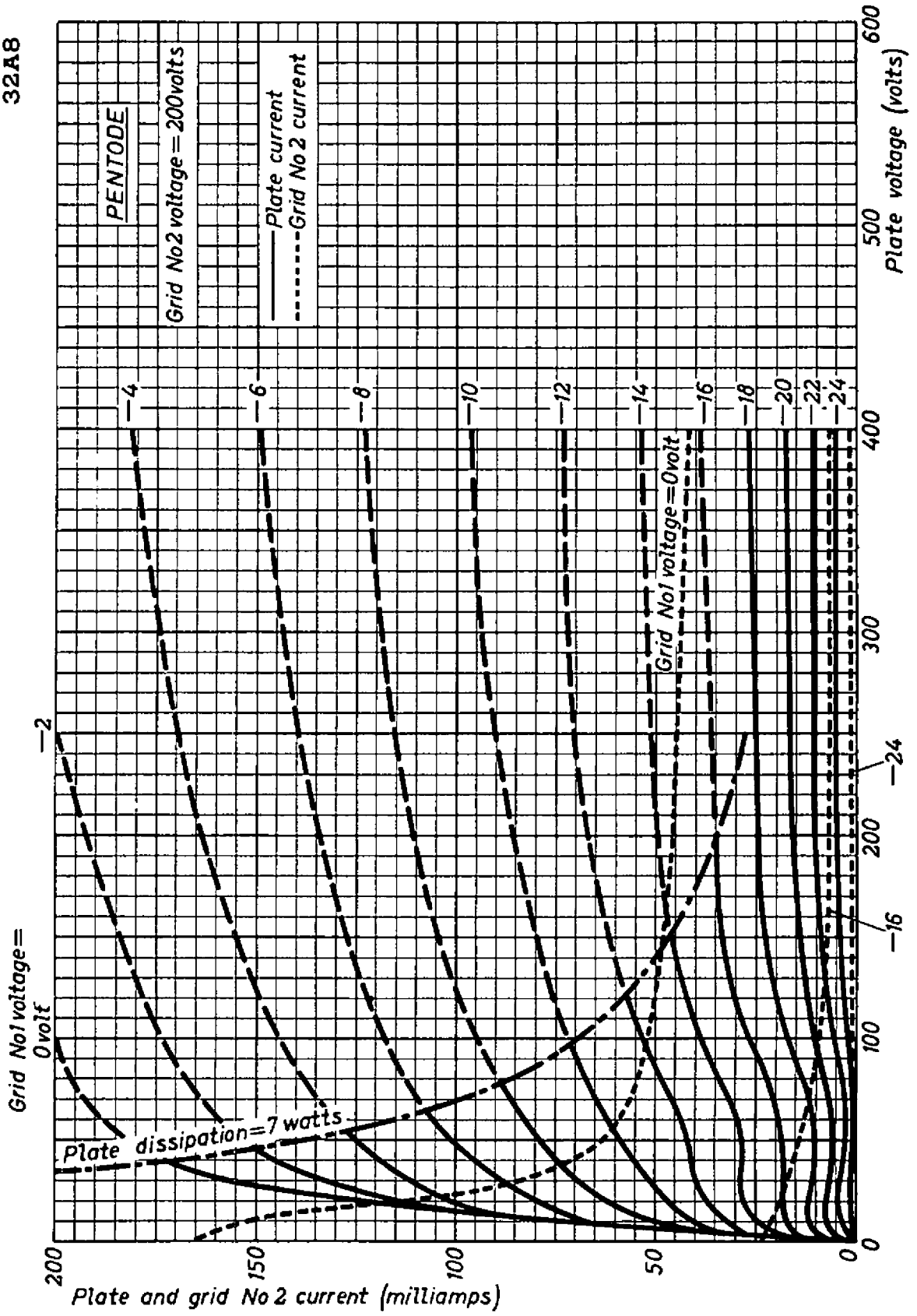
E_{bb} volts	R_g megohms	R_k ohms	R_p megohms	I_b mamps	E_o volts(rms)	$\frac{E_o}{E_{sig}}$ (1)	total har- monics
200	3	2200	0.22	0.52	26	52	1.6 (2
170	3	2700	0.22	0.43	25	51	2.3 (2
100	3	2700	0.22	0.23	15	47	4.0 (2
200	22	0	0.1	1.05	24	50	1.5 (3
170	22	0	0.1	0.86	19	49	1.4 (3
100	22	0	0.1	0.37	8	42	1.3 (2
200	22	0	0.22	0.61	25	55	1.4 (3
170	22	0	0.22	0.50	20	53	1.4 (3
100	22	0	0.22	0.22	9	46	1.5 (2

1) Measured at small input voltage

2) At lower output voltages the distortion is proportionally lower

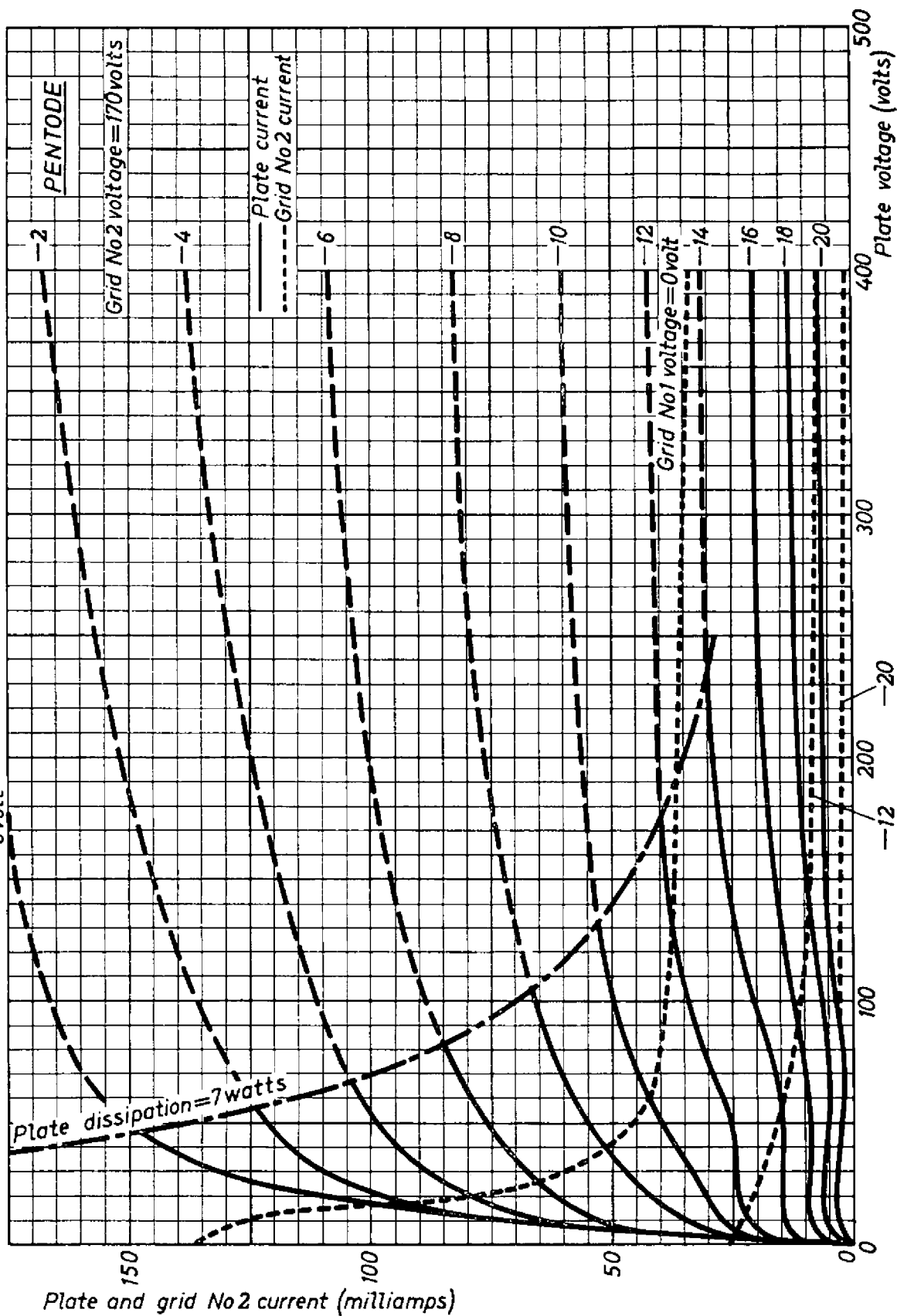
3) At lower output voltages the distortion remains approx. constant up to $V_o = 5 V_{eff}$. At values $< 5 V_{eff}$ the distortion is proportionally lower.





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Grid No1 voltage = 0 volt



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