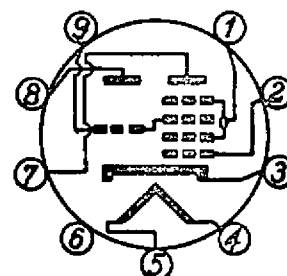


Type 6AN7

Triode-Hexode Frequency Converter

Physical Specifications

| | |
|---|--------------------------|
| Cathode | Coated unipotential |
| Base | Small button noval 9-pin |
| Bulb | T 6½ |
| Maximum overall length | 2-5/8 inches |
| Maximum seated height | 2-3/8 inches |
| Bulb length excluding tip | 2±3/32 inches |
| Maximum diameter | 7/8 inches |
| Mounting position | Any |
| Basing connections - JETEC basing designation | 9 Q |
| Pin 1 - Hexode screen grids | |
| Pin 2 - Hexode control grid | |
| Pin 3 - Cathode and internal shield | |
| Pin 4 - Heater | |
| Pin 5 - Heater | |
| Pin 6 - Internal connection | |
| Pin 7 - Hexode plate | |
| Pin 8 - Triode plate | |
| Pin 9 - Triode grid and hexode grid No.3 | |



General Electrical Data

| | | |
|--|-----------|---------|
| Heater voltage | 6.3 | volts |
| Heater current | 0.23 | amperes |
| Direct interelectrode capacitances | | |
| Hexode grid No.1 to all other electrodes | 3.8 | µF |
| Hexode plate to all other electrodes | 9.2 | µF |
| Between hexode grid No.1 and hexode plate | max. 0.1 | µF |
| Between hexode grid No.1 and heater | max. 0.15 | µF |
| Triode grid + hexode grid No.3 to all other electrodes except triode plate | 5.6 | µF |
| Triode plate to all other electrodes except triode grid + hexode grid No.3 | 2.4 | µF |
| Between triode plate and triode grid + hexode grid No.3 | 1.4 | µF |
| Between hexode grid No.1 and triode grid + hexode grid No.3 | max. 0.35 | µF |
| Between hexode plate and triode grid + hexode grid No.3 | max. 0.2 | µF |

Type 6AN7
(Continued)

Maximum ratings, Design center values

Hexode section

| | |
|--|-------------|
| Plate voltage (without current) | 550 volts |
| Plate voltage | 250 volts |
| Plate dissipation | 1.5 watts |
| Grid No.2 and 4 voltage (without current) | 550 volts |
| Grid No.2 and 4 voltage (anode current less than 1 ma) | 250 volts |
| Grid No.2 and 4 voltage (anode current = 3 ma) | 125 volts |
| Grid No.2 and 4 dissipation | 0.3 watts |
| Grid No.1 voltage at grid No.1 current = +0.3 μ a | -1.3 volts |
| Cathode current | 7 ma |
| External resistance between grid No.1 and cathode | 3 megohms |
| External resistance between grid No.3 and cathode | 3 megohms |
| External resistance between heater and cathode | 20 000 ohms |
| Voltage between heater and cathode | 50 volts |

Triode section

| | |
|--|-------------|
| Plate voltage (without current) | 550 volts |
| Plate voltage | 175 volts |
| Plate dissipation | 0.8 watts |
| Grid voltage at grid current = +0.3 μ a | -1.3 volts |
| Cathode current | 6 ma |
| External resistance between grid and cathode | 3 megohms |
| External resistance between heater and cathode | 20 000 ohms |
| Voltage between heater and cathode | 50 volts |

Typical characteristics of the triode section

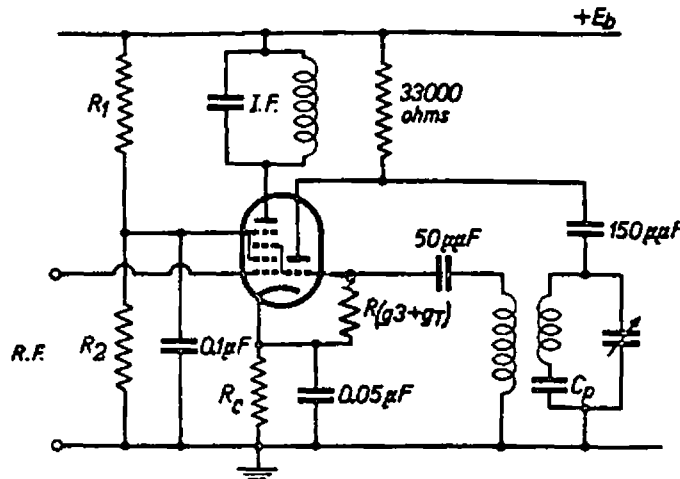
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|----------------------|----------------|
| Plate voltage | 100 volts |
| Grid voltage | 0 volts |
| Plate current | 10 ma |
| Transconductance | 2800 micromhos |
| Amplification factor | 22 |

Type 6AN7
(Continued)

Operating characteristics of the triode section as oscillator

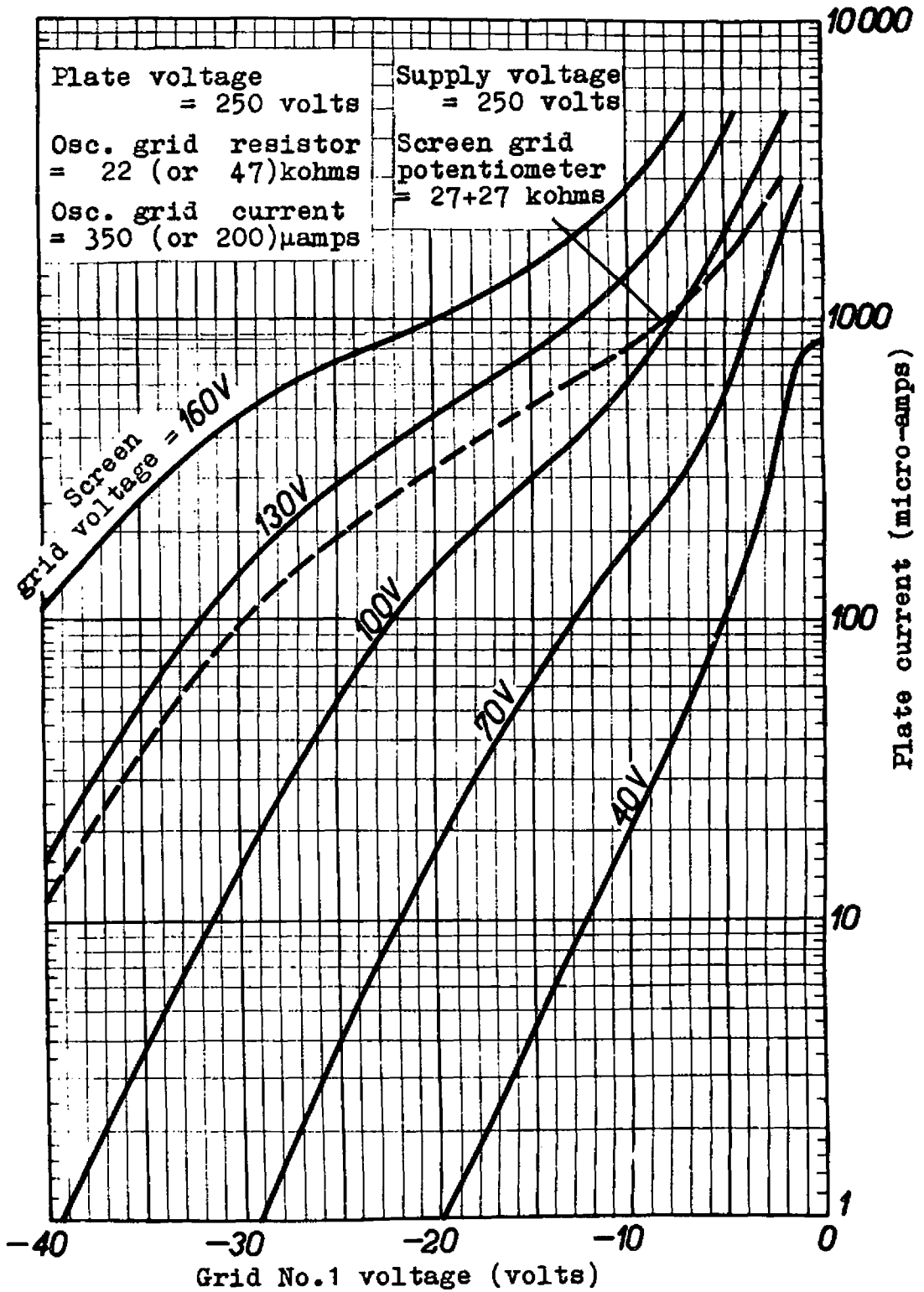
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|----------------------------|--------|------------------------|
| Supply voltage | 250 | 250 volts |
| Plate resistor | 33 000 | 33 000 ohms |
| Grid resistor | 22 000 | 47 000 ohms |
| Grid current | 350 | 200 μ a |
| Plate current | 5.1 | 4.8 ma |
| Oscillator voltage | 8 | 8 volts _{rms} |
| Effective transconductance | 600 | 550 micromhos |

Operating characteristics of the hexode section as frequency converter



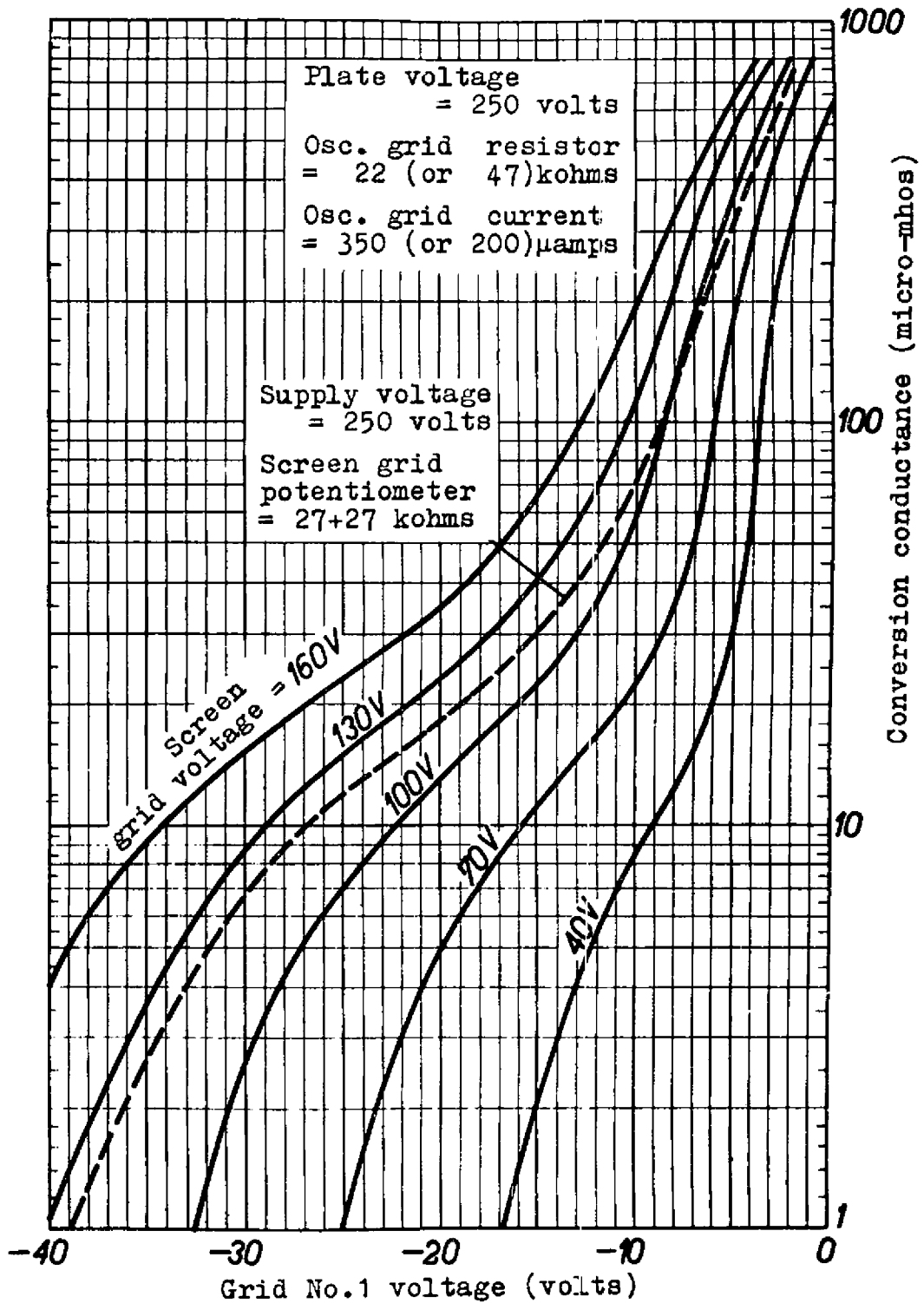
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|------------------------------------|-------------------|----------------|
| Supply and hexode plate voltage | 250 | volts |
| R1 (see circuit diagram) | 27 000 | ohms |
| R2 (see circuit diagram) | 27 000 | ohms |
| Cathode resistor | 180 | ohms |
| Grid No.3 and triode grid resistor | 22 000 | ohms |
| Grid No.3 and triode grid current | 350 ^{*)} | μ a |
| Grid No.1 voltage | -2 | -29 volts |
| Grid No.2 and 4 voltage | 85 | 124 volts |
| Plate current | 3.0 | - ma |
| Grid No.2 and 4 current | 3.0 | - ma |
| Conversion conductance | 750 | 7.5 micromhos |
| Plate resistance | min. 1 | min. 5 megohms |
| Equivalent noise resistance | 75 000 | - ohms |

^{*)} If the oscillator grid resistor is chosen to 47 000 ohms, the grid current has to be adjusted to 200 μ a.



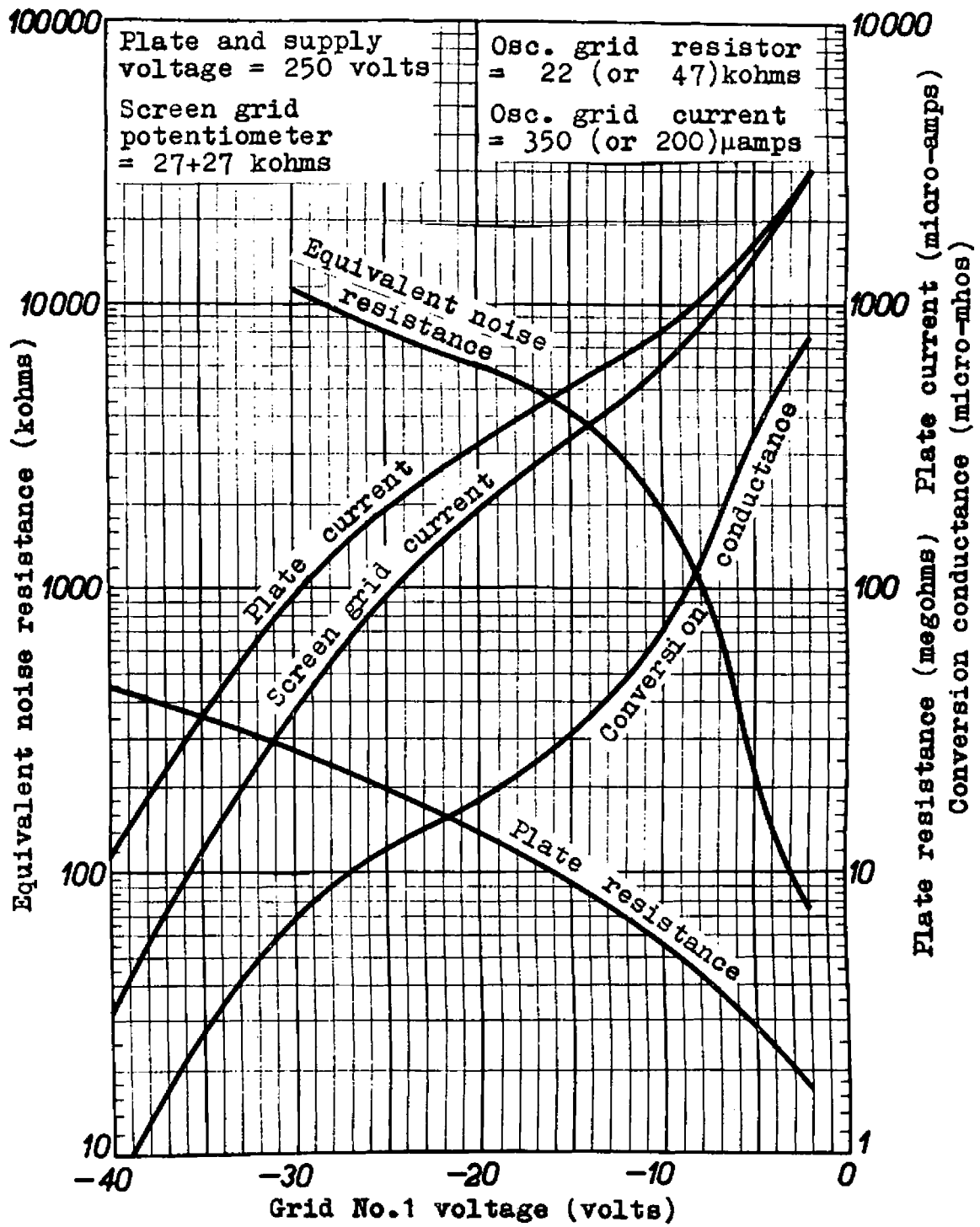
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A.



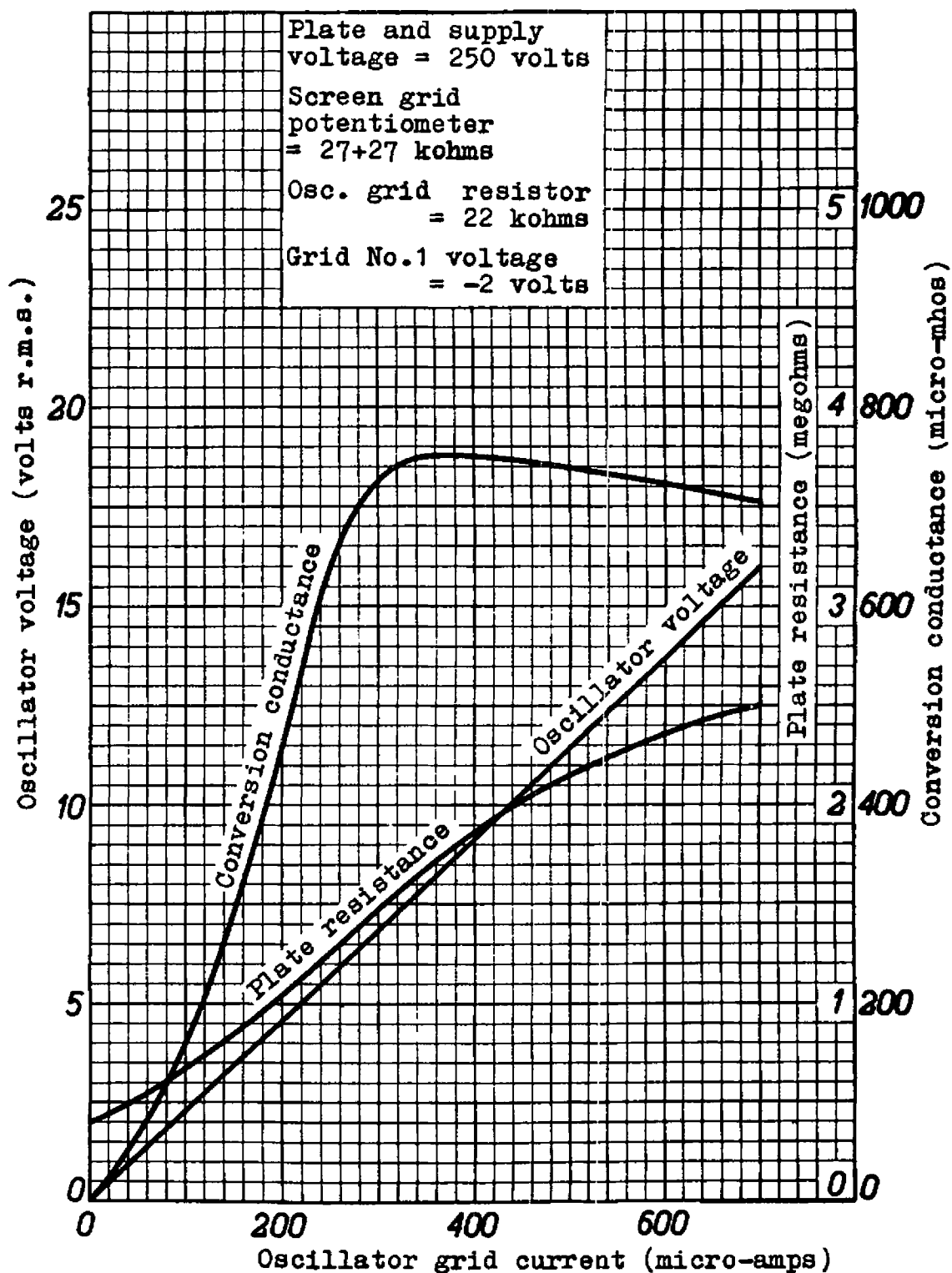
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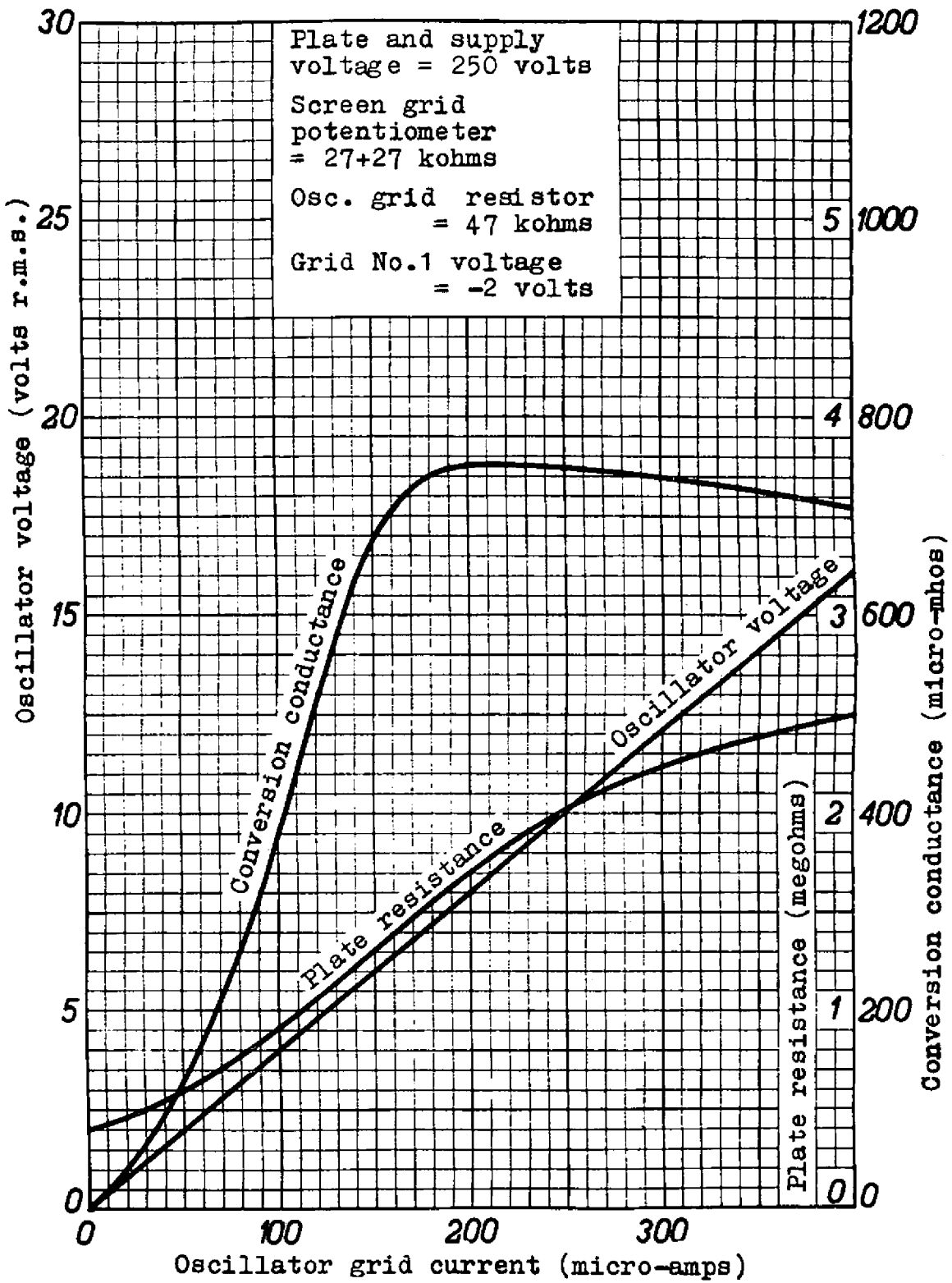
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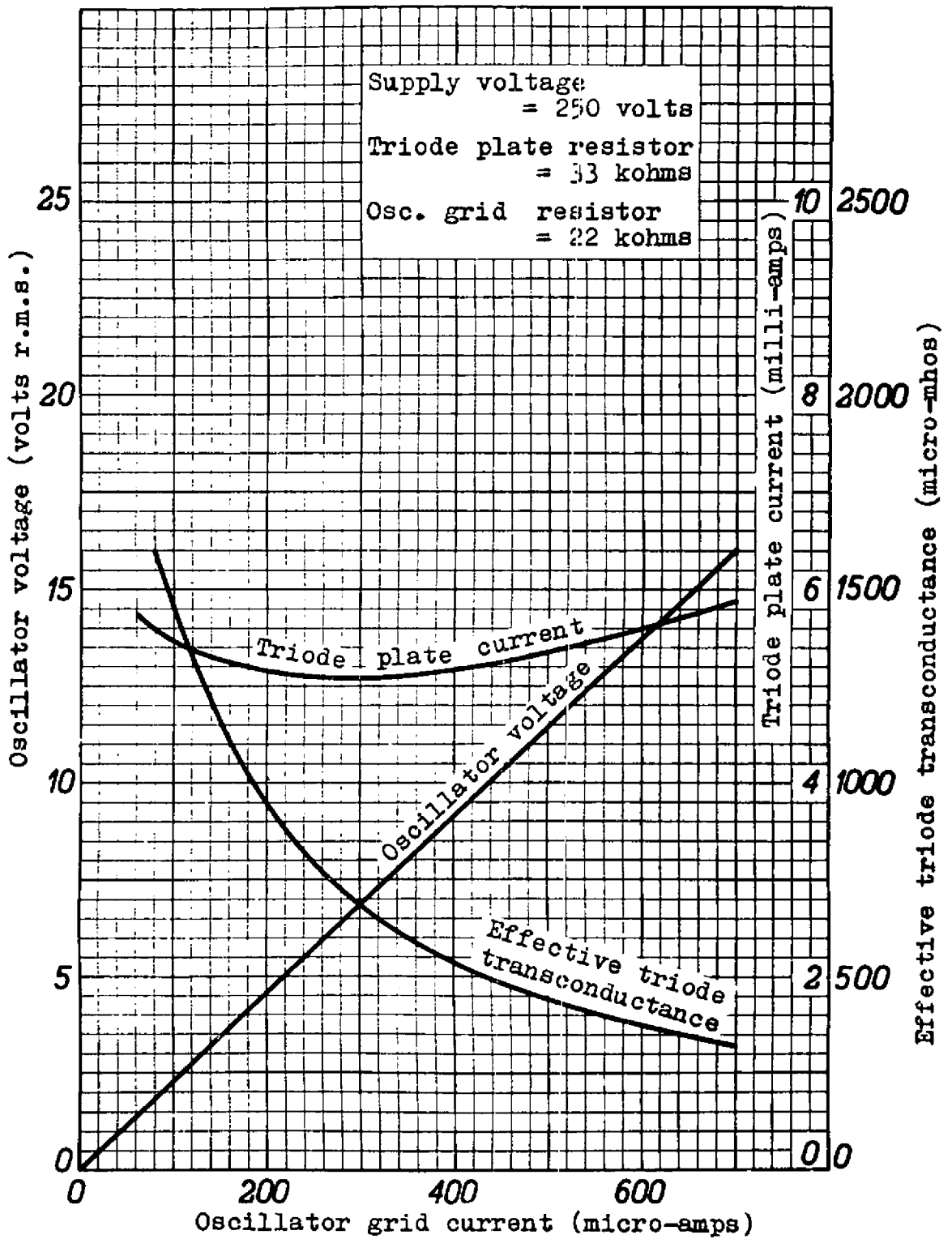
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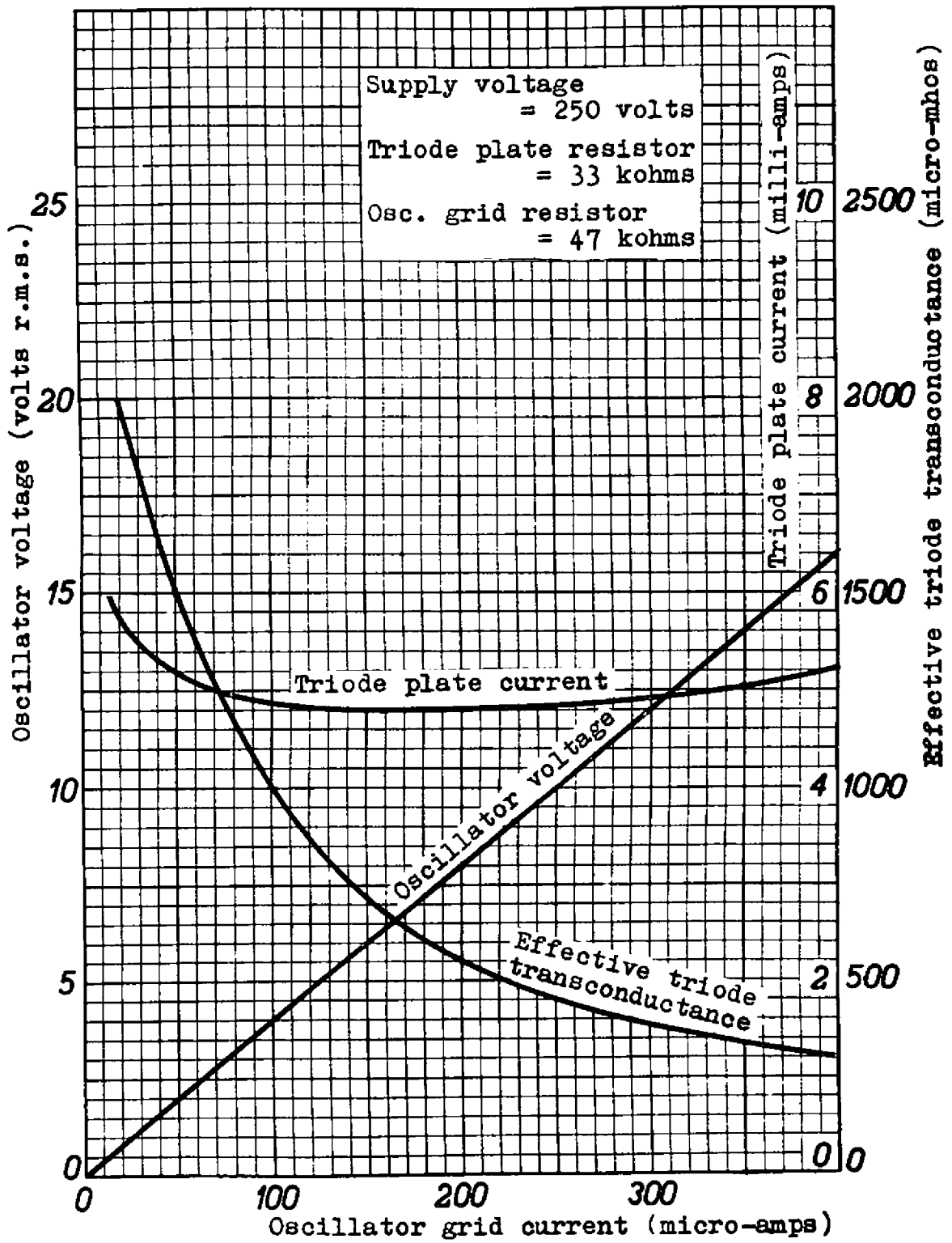
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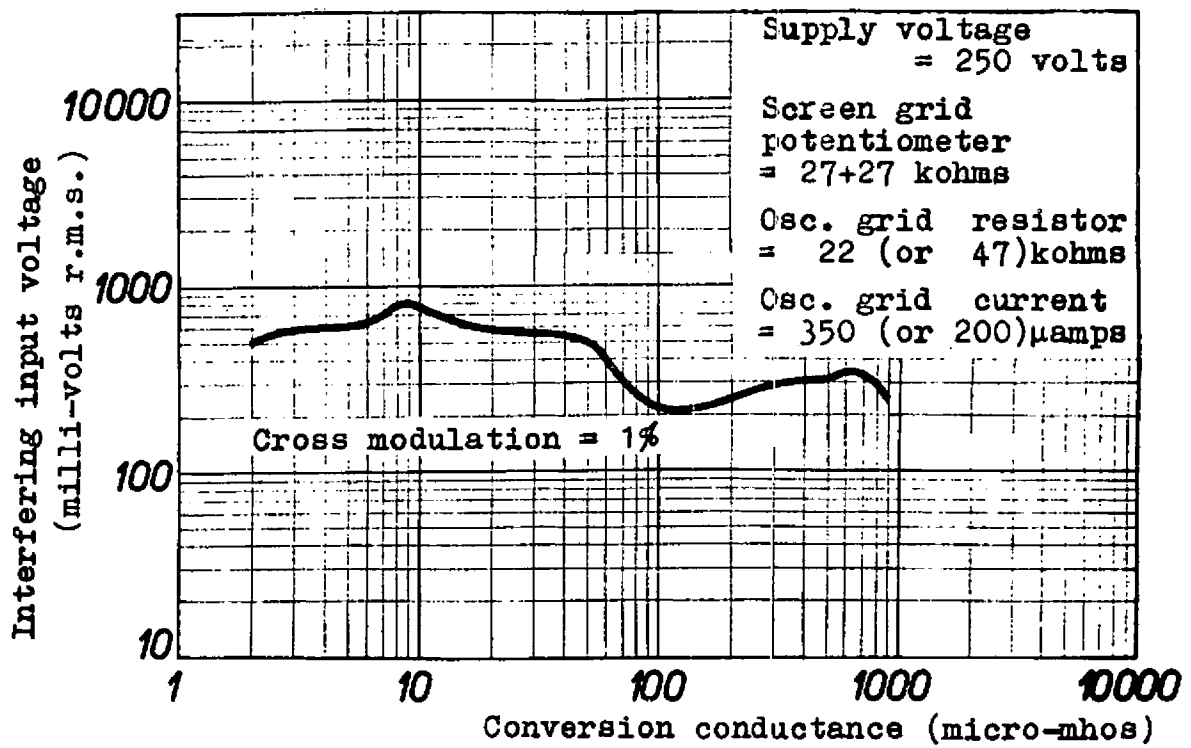
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F.



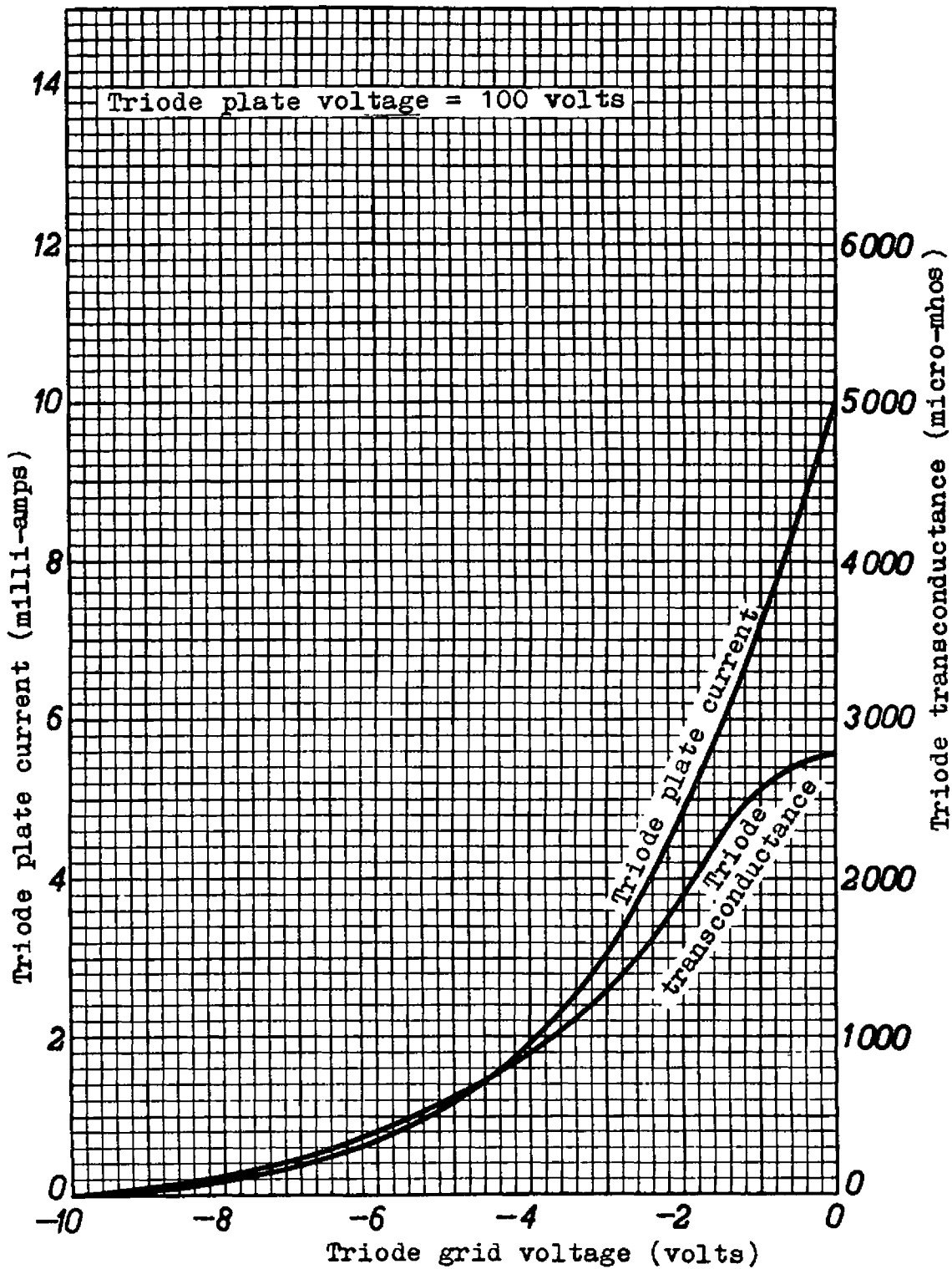
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H.



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I.