

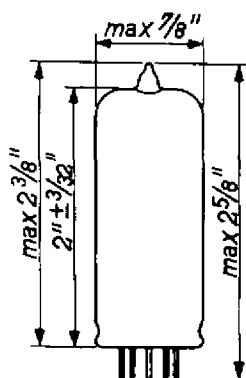
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TRIODE-HEXODE for use as frequency converter

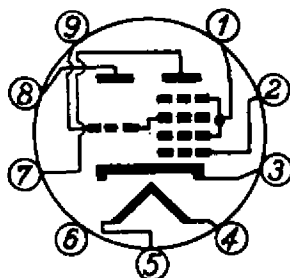
MECHANICAL DATA

Cathode	Coated unipotential
Base	E9-1
Bulb	T6½
RETMA basing designation	9Q
Mounting position	Any

TUBE OUTLINE



BOTTOM VIEW
OF BASE



BASE
PIN NO.

ELEMENT

- | | |
|---|----------------------------------|
| 1 | Hexode grids No.2 and 4 |
| 2 | Hexode grid No.1 |
| 3 | Cathode, internal shield |
| 4 | Heater |
| 5 | Heater |
| 6 | Internal connection |
| 7 | Hexode plate |
| 8 | Triode plate |
| 9 | Triode grid and hexode grid No.3 |

ELECTRICAL DATA

HEATER DATA

Heater voltage	14 volts
Heater current	0.1 amp

DIRECT INTERELECTRODE CAPACITANCES

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
Between cathode and triode grid + hexode grid No.3	5.6 μF
Between cathode and triode plate	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

MAXIMUM RATINGS OF THE HEXODE SECTION (Design Center Values)

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 watt
Cathode current	10 mamps
External resistance between grid No.3 and cathode	3 megohms
External resistance between grid No.1 and cathode	3 megohms
External resistance between heater and cathode	20,000 ohms
Voltage between heater and cathode	150 volts

MAXIMUM RATINGS OF THE TRIODE SECTION (Design Center Values)

Plate voltage (without current)	550 volts
Plate voltage	175 volts
Plate dissipation	0.8 watt
Cathode current	6 mamps
External resistance between grid and cathode	3 megohms
External resistance between heater and cathode	20,000 ohms
Voltage between heater and cathode	150 volts

TYPICAL CHARACTERISTICS OF THE TRIODE SECTION

Plate voltage	100 volts
Grid voltage	0 volt
Plate current	10 mamps
Transconductance	2800 μ mhos
Amplification factor	22

OPERATING CHARACTERISTICS OF THE TRIODE SECTION AS OSCILLATOR

Supply voltage	100		170		200		volts
Plate resistor	10 000		10 000		22 000		ohms
Oscillator voltage		4		8		8	volts, rms
Grid resistor	22,000	47,000	22,000	47,000	22,000	47,000	ohms
Grid current	175	100	350	200	350	200	μamps
Plate current	3.4	3.1	6.5	5.7	5.5	5.2	mamps
Effective transconductance	700	600	750	650	650	550	μmhos

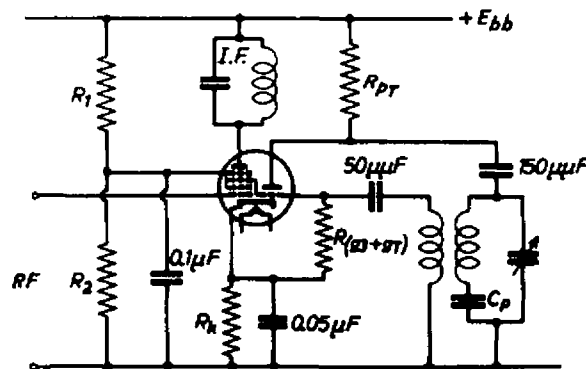
OPERATING CHARACTERISTICS OF THE HEXODE SECTION AS frequency converter

Plate and supply voltage	100	170	volts		
R ₁ (see circuit diagram)	18,000	18,000	ohms		
R ₂ (see circuit diagram)	27,000	27,000	ohms		
Cathode resistor	180	180	ohms		
Grid No.3 and triode grid resistor	22,000	22,000	ohms		
Grid No.3 and triode grid current (see note 1 page 4)	175	350	μamps		
Grid No.1 voltage	-1.0	-13.5	-1.85	-25	volts
Grid No.2 and 4 voltage	43	57	70	100	volts
Plate current	1.2	-	2.1	-	mamps
Grid No.2 and 4 current	1.46	-	2.6	-	mamps
Conversion conductance	530	5.3	670	6.7	μ mhos
Plate resistance	>1.0	>5	>1.0	>5	megohms
Equivalent noise resistance	60,000	-	65,000	-	ohms

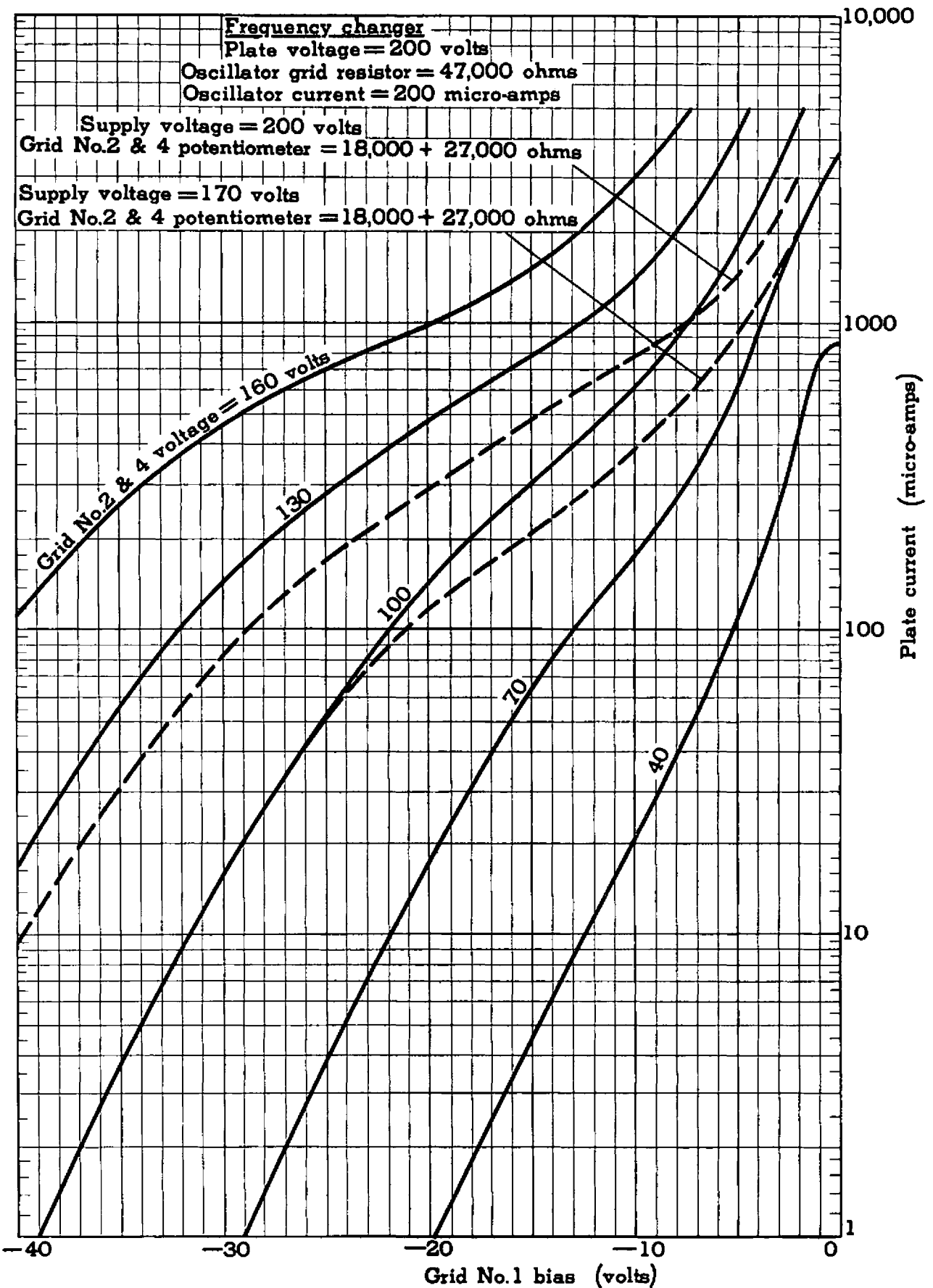
OPERATING CHARACTERISTICS OF THE HEXODE SECTION (CONTINUED)

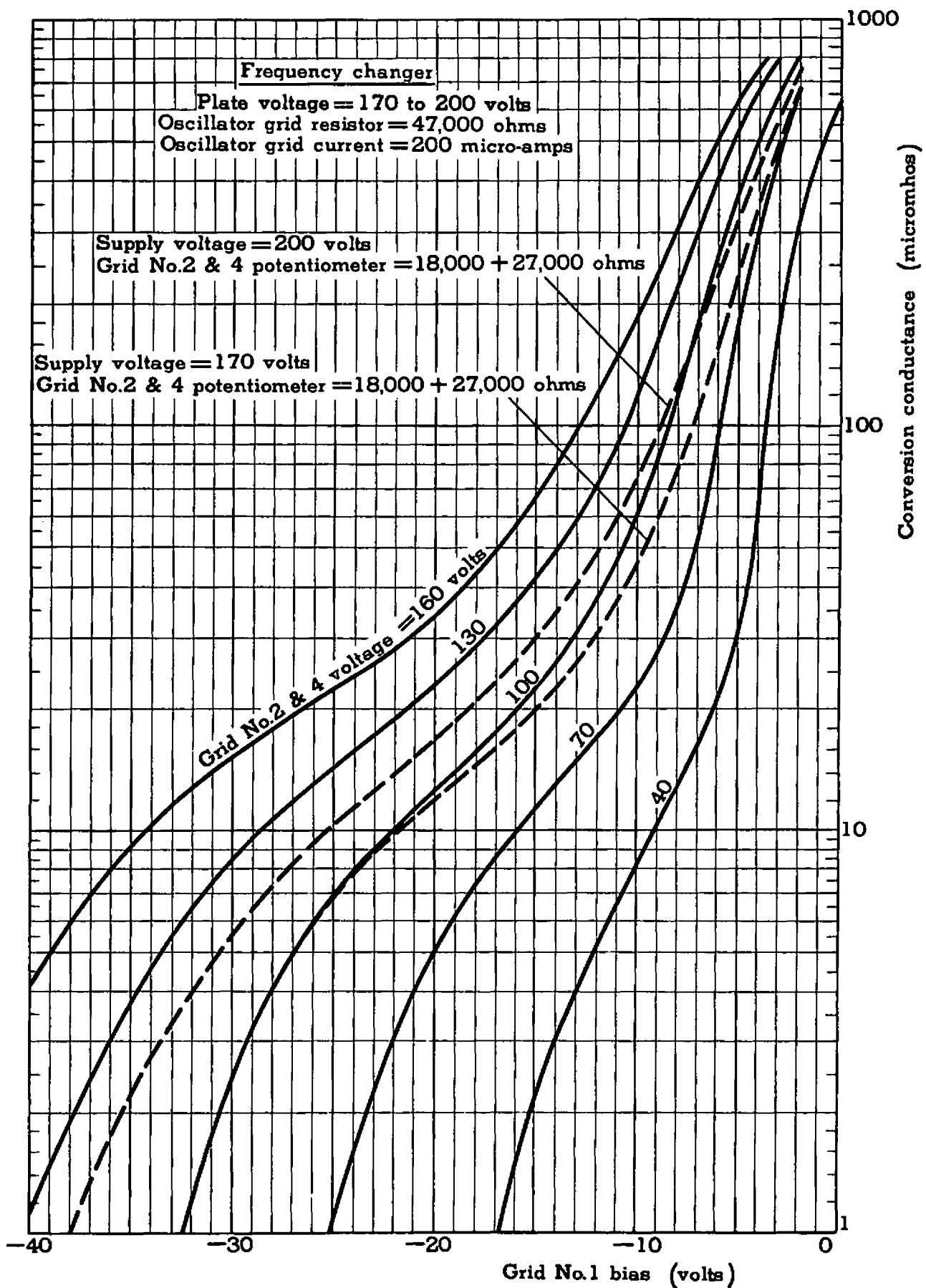
Plate and supply voltage	200	volts
R ₁ (see circuit diagram)	18,000	ohms
R ₂ (see circuit diagram)	27,000	ohms
Cathode resistor	180	ohms
Grid No.3 and triode grid resistor	22,000	ohms
Grid No.3 and triode grid current (see note 1)	350	μamps
Grid No.1 voltage	-2 -27.5	volts
Grid No.2 and 4 voltage	85	119 volts
Plate current	3.0	- mamps
Grid No.2 and 4 current	3.0	- mamps
Conversion conductance	750	7.5 μmhos
Plate resistance	>1.0	>5 megohms
Equivalent noise resistance	75,000	- ohms

Note 1

For the alternative of grid No.3 resistor, viz 47,000 ohms, the grid current should be adjusted to 100 μamps at a supply voltage of 100 volts and to 200 μamps at a supply voltage of 170 volts or 200 volts

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