



6BA7

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PENTAGRID CONVERTER

9-PIN MINIATURE TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage	6.3	ac or dc volts
Current	0.3	amp

Direct Interelectrode Capacitances:^o

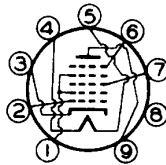
Grid No.3 to All Other Electrodes (RF Input)	9.5	$\mu\mu\text{f}$
Plate to All Other Electrodes (Mixer Output)	8.3	$\mu\mu\text{f}$
Grid No.1 to All Other Electrodes (Osc. Input)	6.7	$\mu\mu\text{f}$
Grid No.3 to Plate	0.19 max.	$\mu\mu\text{f}$
Grid No.3 to Grid No.1	0.1 max.	$\mu\mu\text{f}$
Grid No.1 to Plate	0.05 max.	$\mu\mu\text{f}$
Grid No.1 to All Other Electrodes Except Cathode	3.4	$\mu\mu\text{f}$
Grid No.1 to Cathode	3.3	$\mu\mu\text{f}$
Cathode to All Other Electrodes Except Grid No.1	4.0	$\mu\mu\text{f}$

^o With no external shield.

Mechanical:

Mounting Position	Any
Maximum Overall Length	2-5/8"
Maximum Seated Length	2-3/8"
Length, Base Seat to Bulb Top (excluding tip)	2" \pm 3/32"
Maximum Diameter	7/8"
Bulb	T-6-1/2
Base	Small-Button Noval 9-Pin
Basing Designation for BOTTOM VIEW	8CT

- Pin 1-Grids No.2 & No.4
- Pin 2-Grid No.1
- Pin 3-Cathode
- Pin 4-Heater
- Pin 5-Heater



- Pin 6-Grid No.5, Internal Shield
- Pin 7-Grid No.3
- Pin 8-Internal Shield
- Pin 9-Plate

CONVERTER SERVICE

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE	300 max.	volts
GRID-No.5 & INTERNAL-SHIELD VOLTAGE [▲]	0 max.	volts
GRIDS-No.2 & No.4 VOLTAGE	100 max.	volts
GRIDS-No.2 & No.4 SUPPLY VOLTAGE	300 max.	volts
PLATE DISSIPATION	2.0 max.	watts
GRIDS-No.2 & No.4 DISSIPATION	1.5 max.	watts
TOTAL CATHODE CURRENT	22 max.	ma

[▲] See next page.

SEPT. 30, 1948

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TENTATIVE DATA

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GRID-No.3 VOLTAGE:

Negative bias value. 100 max. volts
 Positive bias value. 0 max. volts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode. 90 max. volts
 Heater positive with respect to cathode. 90 max. volts

Characteristics - Separate Excitation:*

Plate Voltage.	100	250	volts
Grid-No.5 & Internal Shield. . .	Connected directly to ground		
Grids-No.2 & No.4 (Screen) Voltage . . .	100	100	volts
Grid-No.3 (Control Grid) Voltage	-1	-1	volt
Grid-No.1 (Oscillator Grid) Resistor . .	20000	20000	ohms
Plate Resistance (Approx.)	0.5	1	megohm
Conversion Transconductance	900	950	μ mhos
Conversion Transconductance (Approx.)* .	3.5	3.5	μ mhos
Plate Current.	3.6	3.8	ma
Grids-No.2 & No.4 Current.	10.2	10	ma
Grid-No.1 Current.	0.35	0.35	ma
Total Cathode Current.	14.2	14.2	ma

NOTE: The transconductance between grid No.1 and grids No.2 & No.4 connected to plate (not oscillating) is approximately 8000 micromhos under the following conditions: signal applied to grid No.1 at zero bias; grids-No.2 and No.4 and plate at 100 volts; grid No.3 grounded. Under the same conditions, the plate current is 32 milliamperes and the amplification factor is 16.5.

* Internal shield (Pins No.6 and No.8) connected directly to ground.

* The characteristics shown with separate excitation correspond very closely with those obtained in a self-excited oscillator circuit operating with zero bias.

With grid-No.3 bias of -20 volts.

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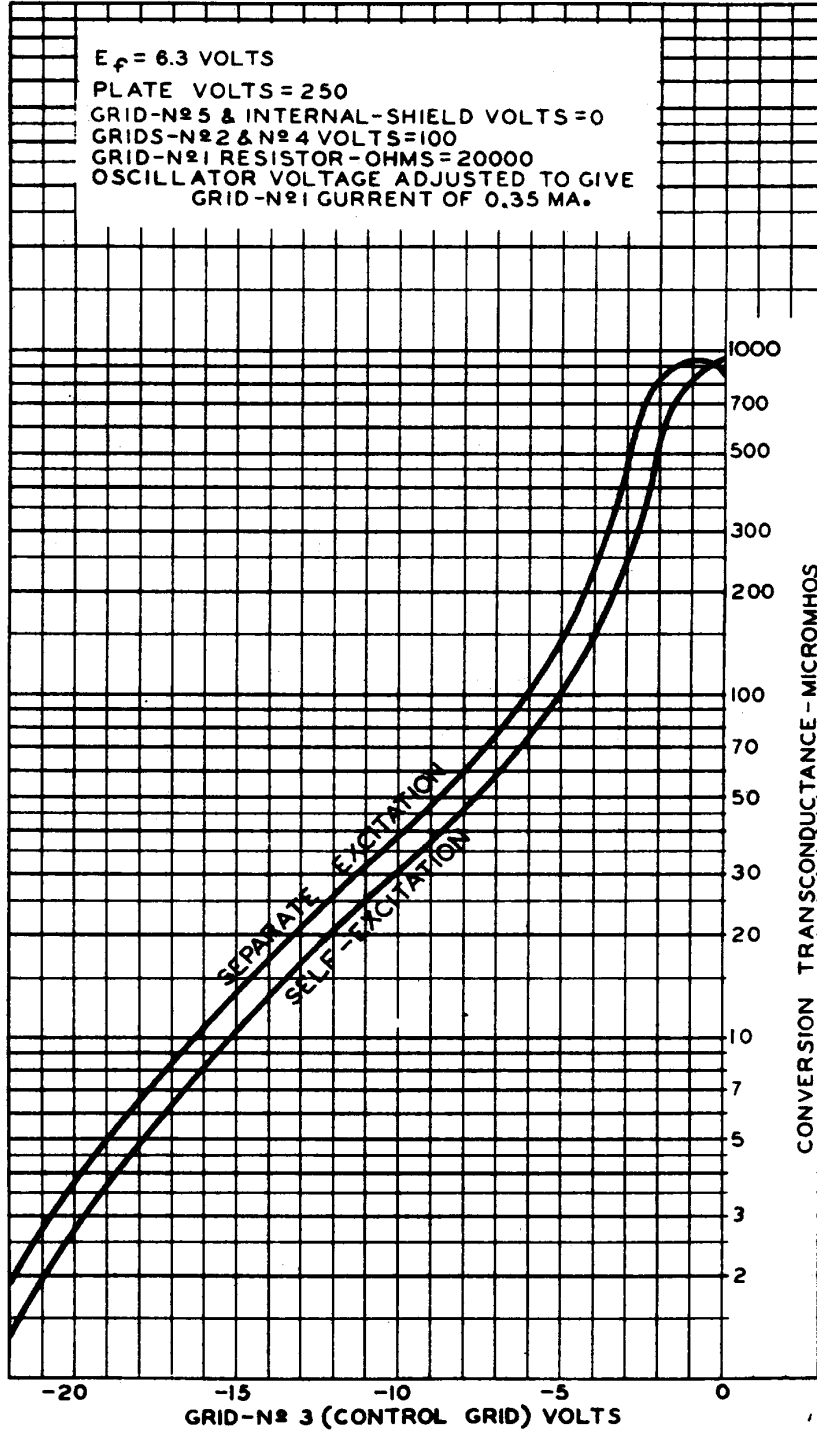
TENTATIVE DATA



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OPERATION CHARACTERISTICS



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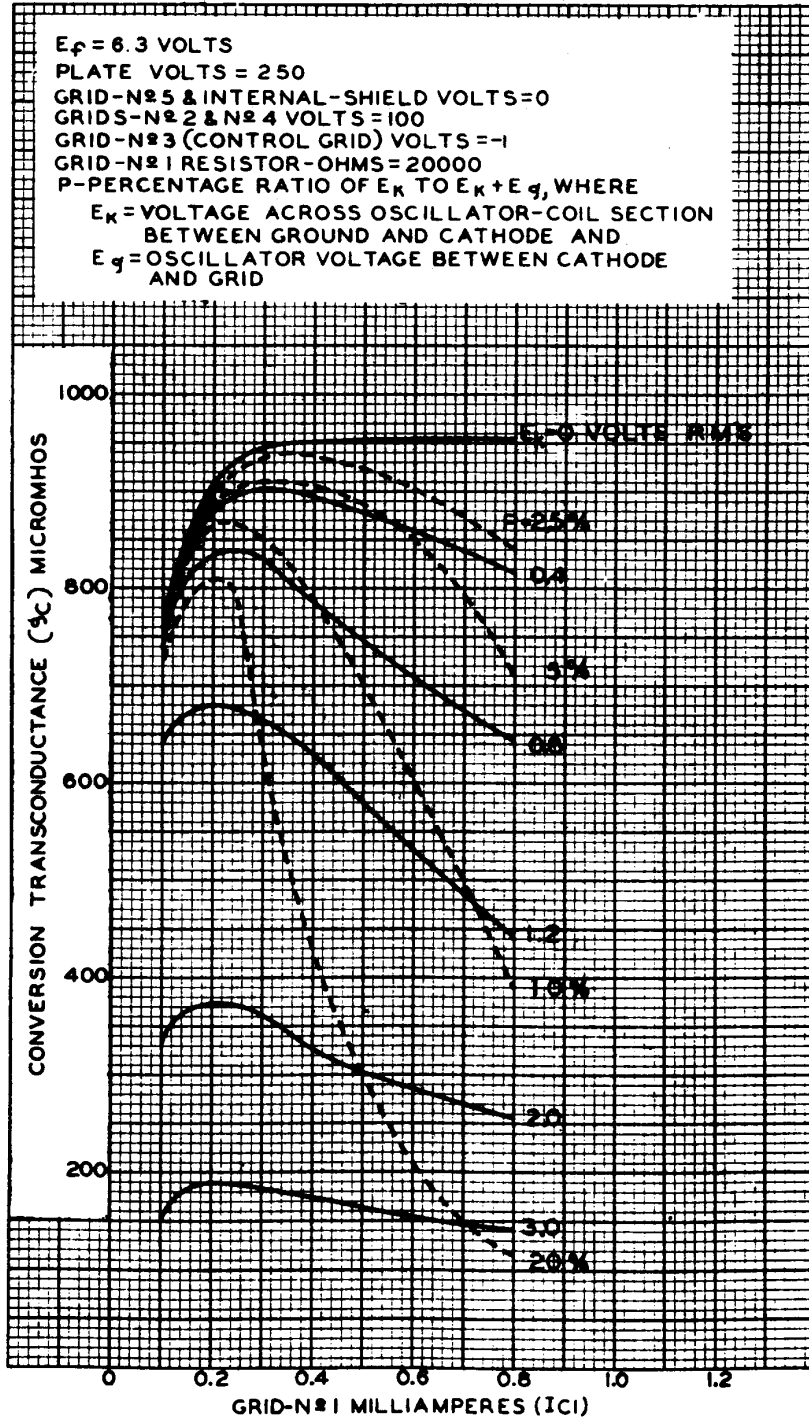
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OPERATION CHARACTERISTICS
WITH SELF-EXCITATION

$E_f = 6.3$ VOLTS
 PLATE VOLTS = 250
 GRID-N \circ 5 & INTERNAL-SHIELD VOLTS=0
 GRIDS-N \circ 2 & N \circ 4 VOLTS=100
 GRID-N \circ 3 (CONTROL GRID) VOLTS=-1
 GRID-N \circ 1 RESISTOR-OHMS=20000
 P-PERCENTAGE RATIO OF E_k TO $E_k + E_g$, WHERE
 E_k = VOLTAGE ACROSS OSCILLATOR-COIL SECTION
 BETWEEN GROUND AND CATHODE AND
 E_g = OSCILLATOR VOLTAGE BETWEEN CATHODE
 AND GRID



AUGUST 25, 1948

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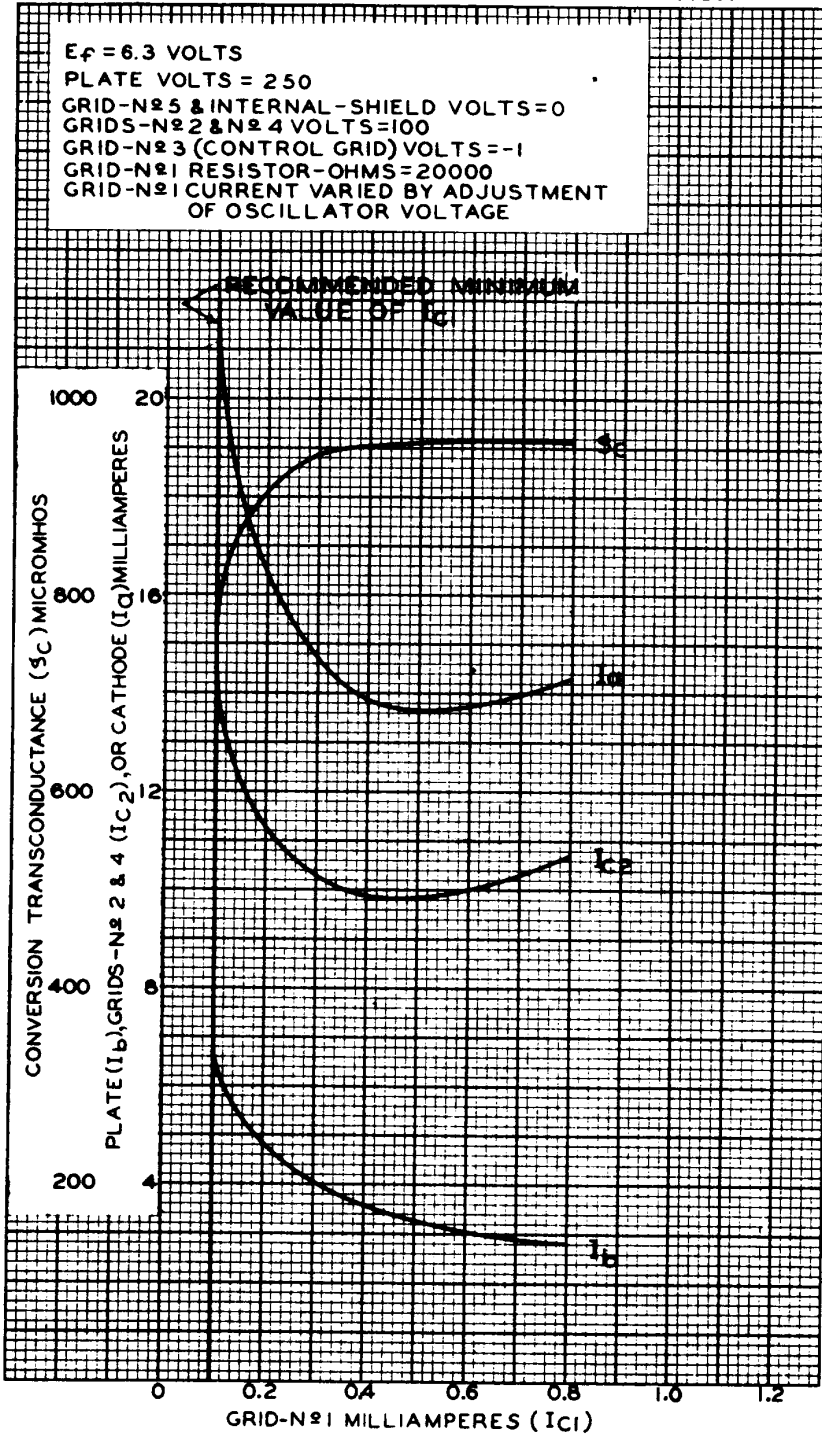


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OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

$E_f = 6.3$ VOLTS
 PLATE VOLTS = 250
 GRID-N^o5 & INTERNAL-SHIELD VOLTS=0
 GRIDS-N^o2 & N^o4 VOLTS=100
 GRID-N^o3 (CONTROL GRID) VOLTS=-1
 GRID-N^o1 RESISTOR-OHMS=20000
 GRID-N^o1 CURRENT VARIED BY ADJUSTMENT
 OF OSCILLATOR VOLTAGE



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92CM-6980R2