

**6BA7****PENTAGRID CONVERTER**

9-PIN MINIATURE TYPE

6BA7GENERAL DATA**Electrical:**

Heater, for Unipotential Cathode:

Voltage. 6.3 ac or dc volts

Current. 0.3 amp

Direct Interelectrode Capacitances:^oGrid 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

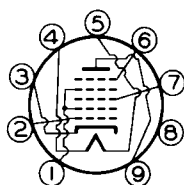
Pin 1-Grids No.2
& No.4

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

TUBE DEPARTMENT

TENTATIVE DATA

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



6BA7 PENTAGRID CONVERTER

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.

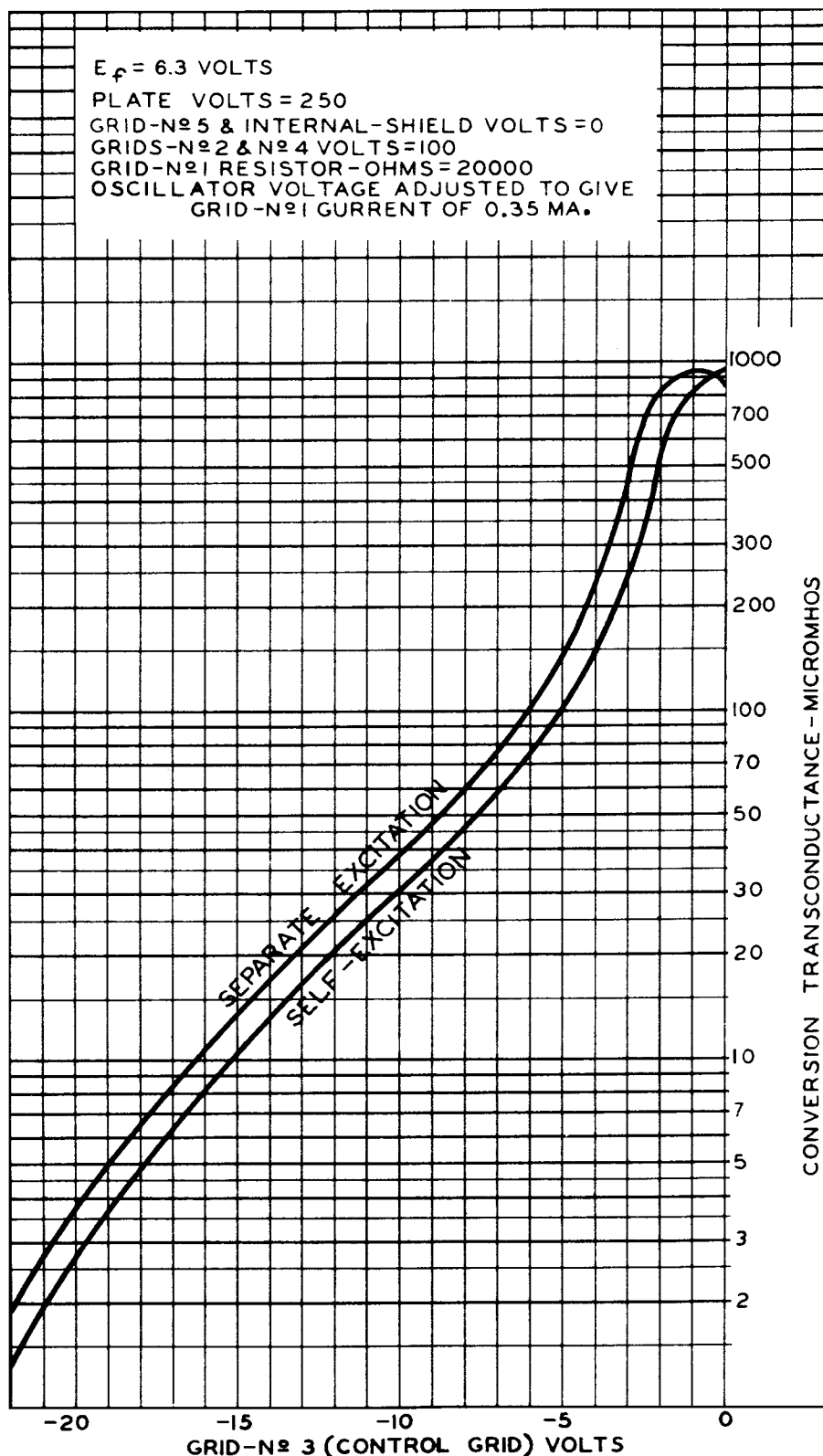
With grid-No.3 bias of -20 volts.



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OPERATION CHARACTERISTICS



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OPERATION CHARACTERISTICS WITH SELF-EXCITATION

 $E_f = 6.3$ VOLTS

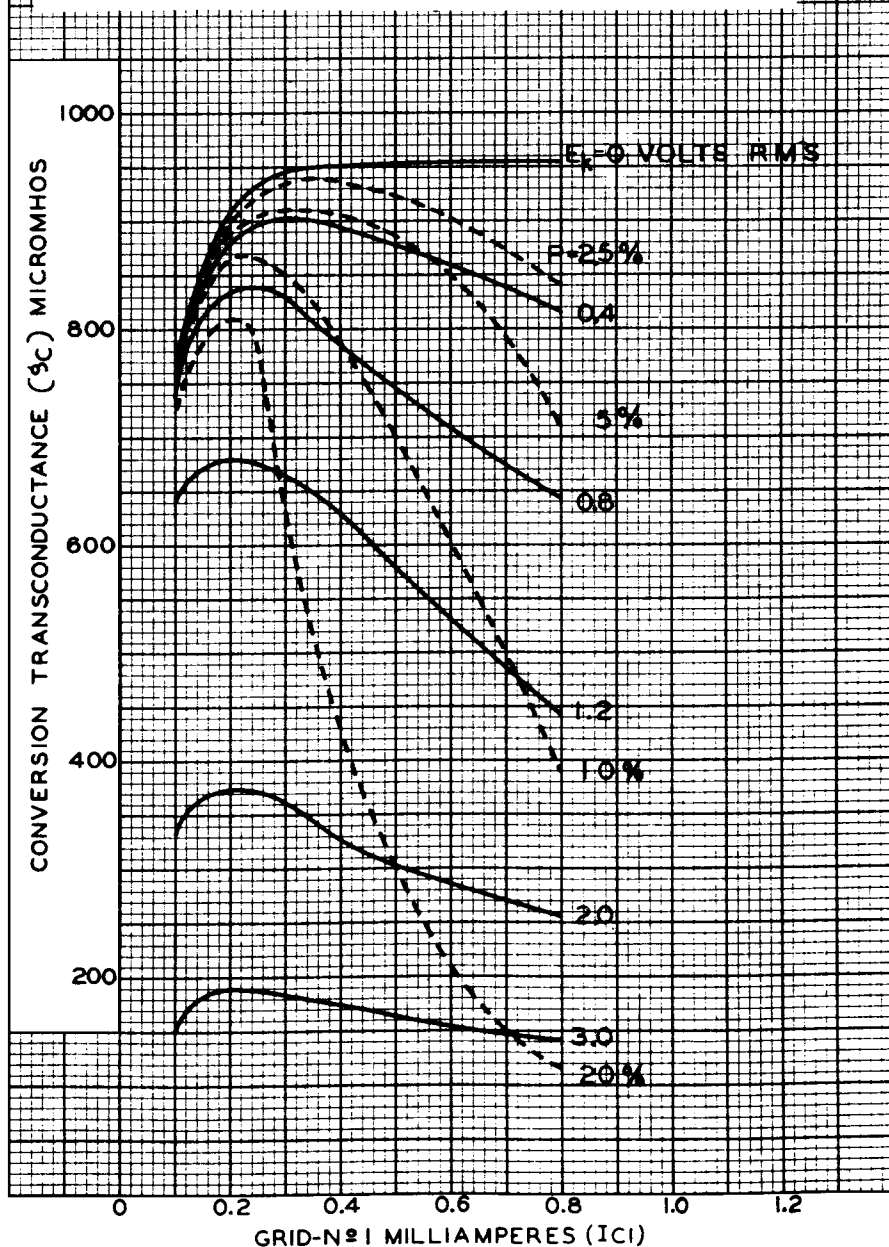
PLATE VOLTS = 250

GRID-Nº 5 & INTERNAL-SHIELD VOLTS = 0

GRIDS-Nº 2 & Nº 4 VOLTS = 100

GRID-Nº 3 (CONTROL GRID) VOLTS = -1

GRID-Nº 1 RESISTOR-OHMS = 20000

P-PERCENTAGE RATIO OF E_k TO $E_k + E_q$, WHERE E_k = VOLTAGE ACROSS OSCILLATOR-COIL SECTION
BETWEEN GROUND AND CATHODE AND E_q = OSCILLATOR VOLTAGE BETWEEN CATHODE
AND GRID

AUGUST 25, 1948

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6981R1



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OPERATION CHARACTERISTICS
WITH SEPARATE OSCILLATOR EXCITATION $E_f = 6.3$ VOLTS

PLATE VOLTS = 250

GRID-N $\neq$ 5 & INTERNAL-SHIELD VOLTS=0GRIDS-N $\neq$ 2 & N $\neq$ 4 VOLTS=100GRID-N $\neq$ 3 (CONTROL GRID) VOLTS=-1GRID-N $\neq$ 1 RESISTOR-OHMS=20000GRID-N $\neq$ 1 CURRENT VARIED BY ADJUSTMENT
OF OSCILLATOR VOLTAGE