



6BA7

PENTAGRID CONVERTER

9-PIN MINIATURE TYPE

6BA7

GENERAL 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 μf Plate to All Other Electrodes
(Mixer Output) 8.3 μf Grid No.1 to All Other Electrodes
(Osc. Input) 6.7 μf Grid No.3 to Plate 0.19 max. μf Grid No.3 to Grid No.1 0.1 max. μf Grid No.1 to Plate 0.05 max. μf Grid No.1 to All Other Electrodes
Except Cathode 3.4 μf Grid No.1 to Cathode 3.3 μf Cathode to All Other Electrodes
Except Grid No.1 4.0 μf ^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

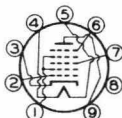
Pin 1-Grids No.2
& No.4

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
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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.

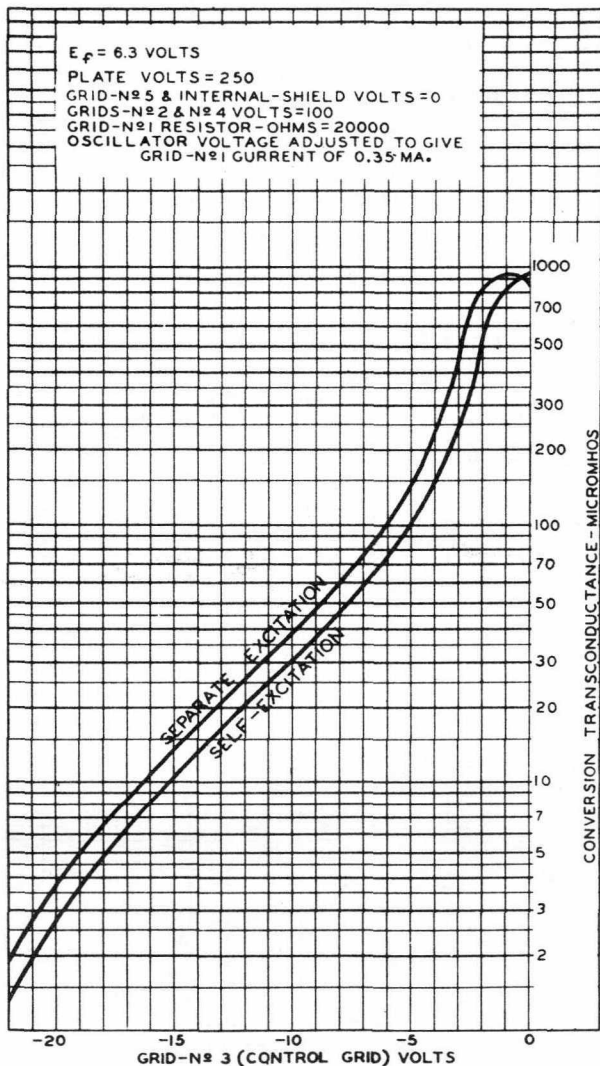
With grid-No.3 bias of -20 volts.



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OPERATION CHARACTERISTICS



AUGUST 27, 1948

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6982RI

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OPERATION CHARACTERISTICS WITH SELF-EXCITATION

 $E_f = 6.3$ VOLTS

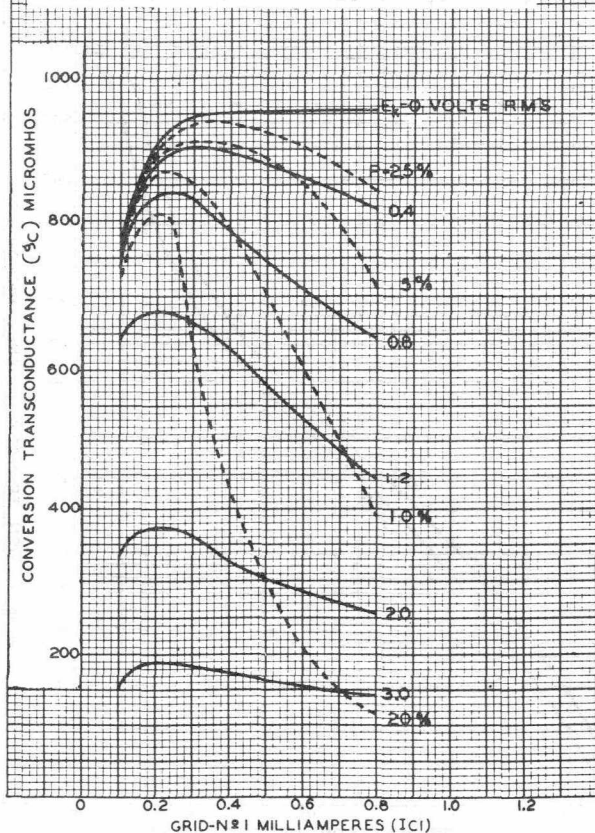
PLATE VOLTS = 250

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



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OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

$E_f = 6.3$ VOLTS
PLATE VOLTS = 250
GRID-Nº5 & INTERNAL-SHIELD VOLTS = 0
GRIDS-Nº2 & Nº4 VOLTS = 100
GRID-Nº3 (CONTROL GRID) VOLTS = -1
GRID-Nº1 RESISTOR-OHMS = 20000
GRID-Nº1 CURRENT VARIED BY ADJUSTMENT
OF OSCILLATOR VOLTAGE

