



12SY7

PENTAGRID CONVERTER

SINGLE-ENDED METAL TYPE

For use with 12-cell storage-battery supply

GENERAL DATA**Electrical:**

Heater, for Unipotential Cathode:

Voltage. 12.6 ac or dc volts
 Current. 0.15 amp

Direct Interelectrode Capacitances:

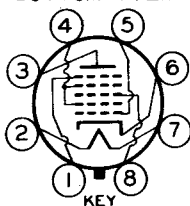
Grid No.3 to All Other Electrodes (RF Input) 9.5 μ f
 Plate to All Other Electrodes (Mixer Output) 12 μ f
 Grid No.1 to All Other Electrodes (Osc. Input) 7 μ f
 Grid No.3 to Plate 0.13 max. μ f
 Grid No.1 to Grid No.3 0.15 max. μ f
 Grid No.1 to Plate 0.06 max. μ f
 Grid No.1 to Shell, Grid No.5, and All
 Other Electrodes Except Cathode 4.4 μ f
 Grid No.1 to Cathode 2.6 μ f
 Cathode to Shell, Grid No.5, and All
 Other Electrodes Except Cathode 5 μ f

Mechanical:

Mounting Position. Any
 Maximum Overall Length 2-5/8"
 Maximum Seated Length. 2-1/16"
 Maximum Diameter 1-5/16"
 Bulb Metal Shell, MT-8G
 Base Small Wafer Octal 8-Pin 8R

Basing Designation for BOTTOM VIEW

Pin 1 - Shell,
 Grid No.5
 Pin 2 - Heater
 Pin 3 - Plate
 Pin 4 - Grids No.2 &
 No.4



Pin 5 - Grid No.1
 Pin 6 - Cathode
 Pin 7 - Heater
 Pin 8 - Grid No.3

CONVERTER**Maximum Ratings, Design-Center Values:**

PLATE VOLTAGE. 300 max. volts
 GRIDS-No.2 and No.4 (SCREEN) VOLTAGE . . . 100 max. volts
 GRIDS-No.2 and No.4 SUPPLY VOLTAGE . . . 300 max. volts
 PLATE DISSIPATION. 1.0 max. watt
 GRIDS-No.2 & No.4 DISSIPATION. 1.0 max. watt
 TOTAL CATHODE CURRENT. 14 max. ma.
 GRID-No.3 (CONTROL GRID) VOLTAGE:
 Negative bias value. 50 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

• with shell connected to cathode.

JUNE 20, 1946

TUBE DIVISION

TENTATIVE DATA

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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PENTAGRID CONVERTER

Characteristics - Separate Excitation: *

Plate Voltage.	26.5	100	250	volts
Grids-No.2 & No.4 Voltage	26.5	100	100	volts
Grid-No.3 Voltage.	-1	-2	-2	volts
Grid-No.1 (Oscillator Grid) Resistor	20000	20000	20000	ohms
Plate Resistance (Approx.)	-	0.5	1.0	megohm
Conversion Transconductance	250	425	450	μmhos
Conversion Transconductance (Approx.)	8 [♣]	2 [□]	2 [□]	μmhos
Plate Current.	0.45	3.3	3.5	ma.
Grids-No.2 & No.4 Current	1.7	8.5	8.5	ma.
Grid-No.1 Current.	0.1	0.5	0.5	ma.
Total Cathode Current. . .	2.25	12.3	12.5	ma.

NOTE: The transconductance between grid No.1 and grids No.2 and No.4 connected to plate (not oscillating) is approximately 4500 μmhos under the following conditions: grids No.1, No.3, No.5 and shell at 0 volts; grids No.2 and No.4 and plate at 100 volts. Under the same conditions, the plate current is 27 milliamperes, and the amplification factor is 13.

* 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 -6 volts.

□ With grid-No.3 bias of -35 volts.

*The curves under Type 6SA7 also
apply to the 12SY7.*

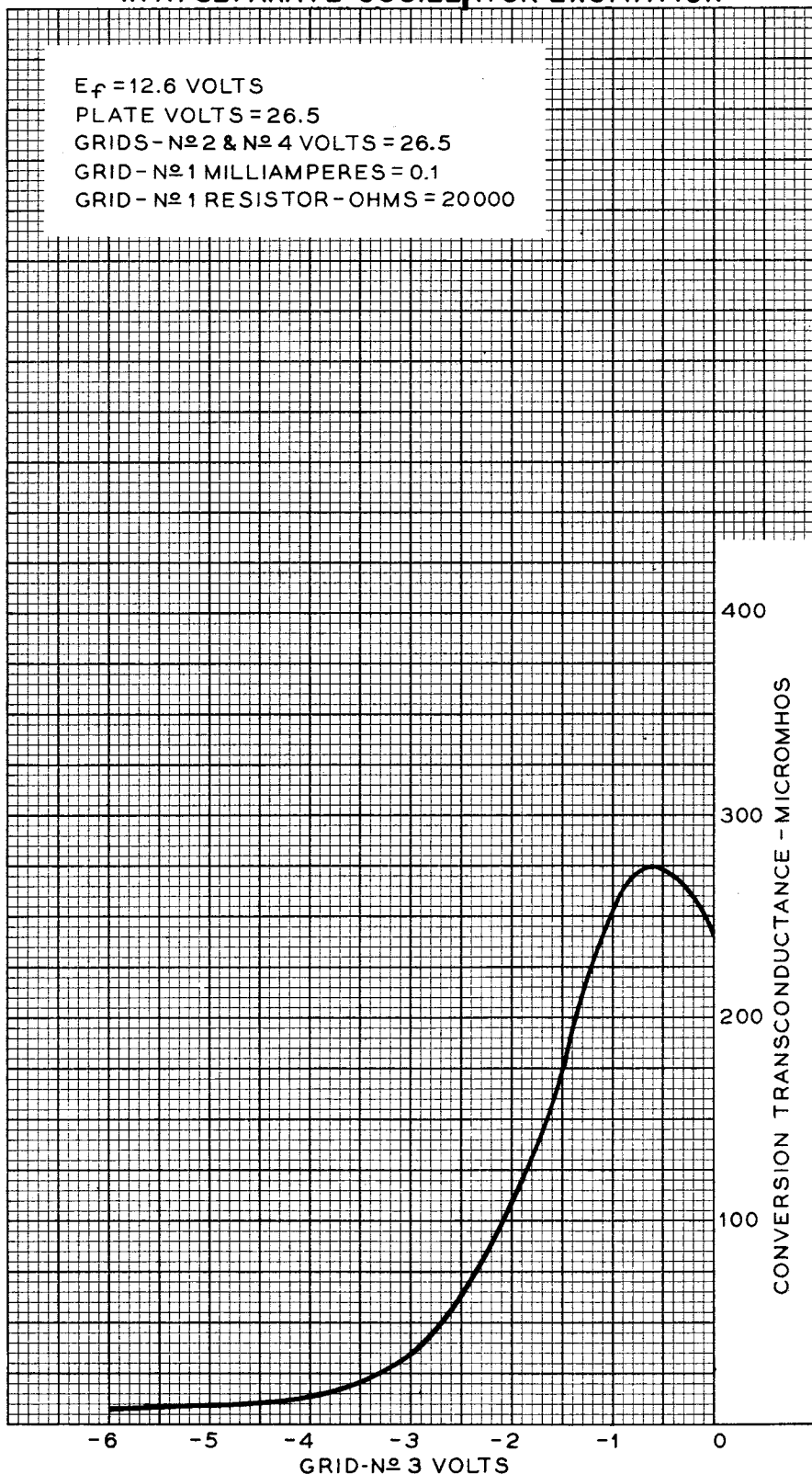


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OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

$E_f = 12.6$ VOLTS
PLATE VOLTS = 26.5
GRIDS - No 2 & No 4 VOLTS = 26.5
GRID - No 1 MILLIAMPERES = 0.1
GRID - No 1 RESISTOR - OHMS = 20000



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OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

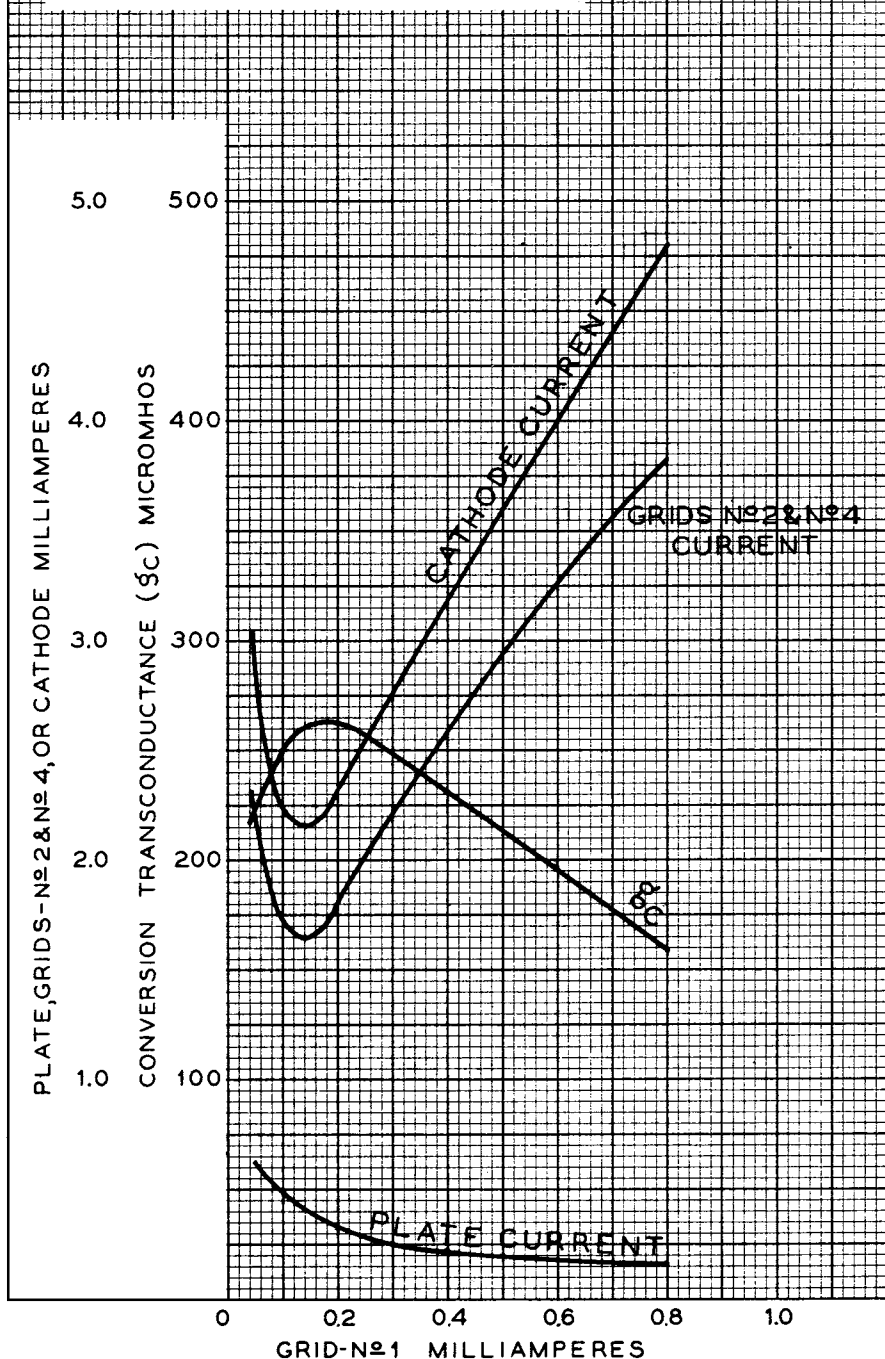
$E_f = 12.6$ VOLTS

PLATE VOLTS = 26.5

GRIDS-Nº 2 & Nº 4 VOLTS = 26.5

GRID-Nº 1 RESISTOR - OHMS = 20 000

GRID-Nº 3 VOLTS = -1



JULY 30, 1946

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6787