

Pentagrid Converter

7-PIN MINIATURE TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage (AC or DC) $6.3 \pm 10\%$ volts

Current at 6.3 volts. 0.3 amp

Direct Interelectrode Capacitances:

	Without External Shield	With External Shield ^a	
Grid No.3 to all other electrodes (RF input)	7	7	μf
Plate to all other electrodes (Mixer input)	8	13	μf
Grid No.1 to all other electrodes (Oscillator input)	5.5	5.5	μf
Grid No.3 to plate.	0.3 max.	0.25 max.	μf
Grid No.3 to grid No.1.	0.15 max.	0.15 max.	μf
Grid No.1 to plate.	0.1 max.	0.05 max.	μf
Grid No.1 to cathode & grid No.5	3	3	μf
Cathode & grid No.5 to all other electrodes except grid No.1.	15	20	μf

Mechanical:

Operating Position. Any

Maximum Overall Length. 2-1/8"

Maximum Seated Length. 1-7/8"

Length, Base Seat to Bulb Top (Excluding tip) 1-1/2" $\pm$ 3/32"

Diameter. 0.650" to 0.750"

Dimensional Outline See General Section

Bulb. T5-1/2

Base. Small-Button Miniature 7-Pin (JEDEC No.E7-1)

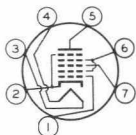
Basing Designation for BOTTOM VIEW. 7CH

Pin 1-Grid No.1

Pin 2-Cathode,
Grid No.5

Pin 3-Heater

Pin 4-Heater



Pin 5-Plate

Pin 6-Grid No.2,
Grid No.4

Pin 7-Grid No.3

CONVERTER

Maximum Ratings, Design-Maximum Values:

PLATE VOLTAGE 330 max. volts

GRID-No.3 (CONTROL-GRID) VOLTAGE:

Negative-bias value 55 max. volts

Positive-bias value 0 max. volts

GRIDS-No.2 & No.4 (SCREEN-GRID)

SUPPLY VOLTAGE. 330 max. volts

GRIDS-No.2 & No.4 VOLTAGE 110 max. volts

← Indicates a change.



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CATHODE CURRENT	15.5	max.	ma
GRIDS-No.2 & No.4 INPUT	1.1	max.	watts
PLATE DISSIPATION	1.1	max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode .	200	max.	volts
Heater positive with respect to cathode .	200 ^b	max.	volts

Characteristics:

With separate excitation^c

Plate Voltage	100	250	volts
Grid-No.3 Voltage	-1.5	-1.5	volts
Grids-No.2 & No.4 Voltage	100	100	volts
RMS Grid-No.1 (Oscillator Grid) Voltage. .	10	10	volts
Grid-No.1 Resistor.	20000	20000	ohms
Plate Resistance (Approx.).	0.4	1	megohm
Conversion Transconductance	455	475	μ mhos
Grid-No.3 Voltage (Approx.) for			
conversion transconductance (μ mhos) =			
10.	-30	-30	volts
100	-6	-6	volts
Plate Current	2.6	2.9	ma
Grids No.2 & No.4 Current	7	6.8	ma
Grid-No.1 Current	0.5	0.5	ma
Cathode Current	10.1	10.2	ma

Oscillator Characteristics (Not Oscillating):

With grids No.2 & No.4 connected to plate

Plate and Grids-No.2 & No.4 Voltage	100	volts
Grid-No.3 Voltage	0	volts
Grid-No.1 Voltage	0	volts
Amplification Factor between grid No.1 and		
grids No.2 & No.4 connected to plate.		
Transconductance between grid No.1 and	20	
grids No.2 & No.4 connected to plate.	7250	μ mhos
Cathode Current	25	ma
Grid-No.1 Voltage (Approx.) for plate μ a = 10. . .	-11	volts

^a With external shield JEDEC No.316 connected to cathode.

^b The dc component must not exceed 100 volts.

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

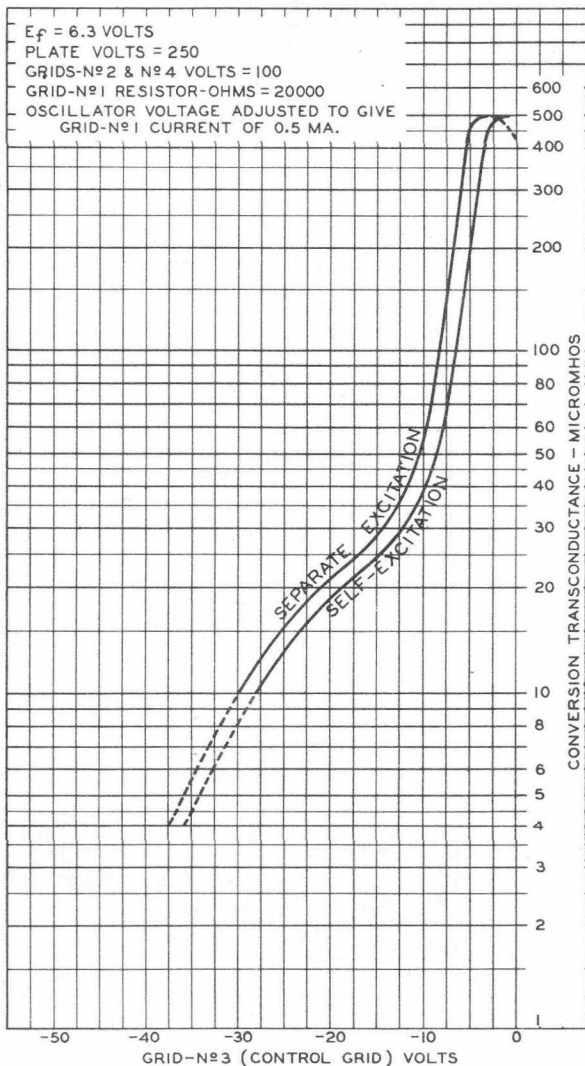




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OPERATION CHARACTERISTICS



SEPT. 26, 1945

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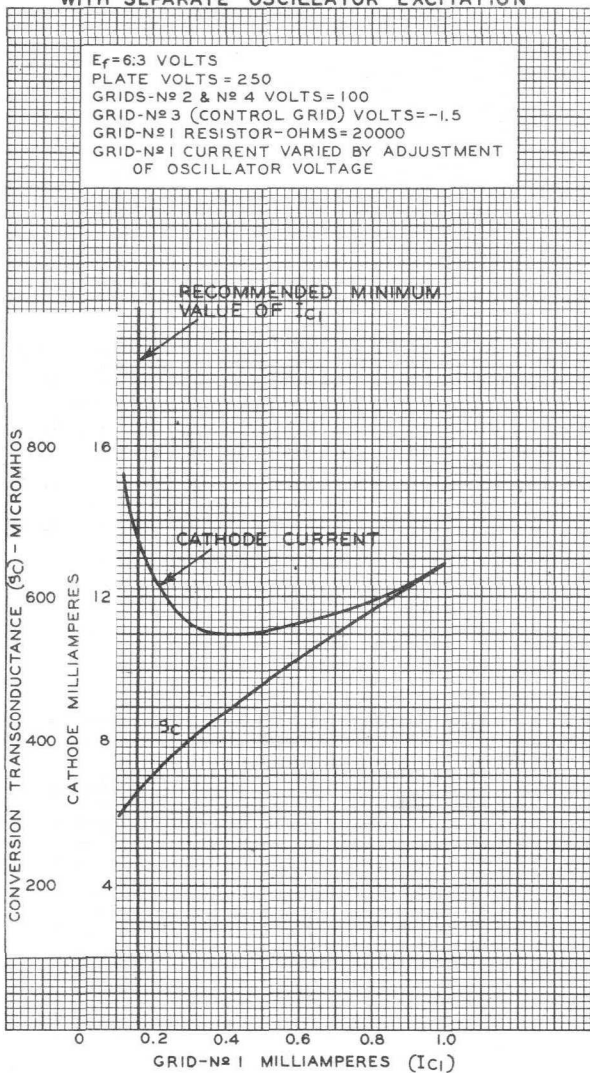
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OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

$E_f = 6.3$ VOLTS
PLATE VOLTS = 250
GRIDS-Nº 2 & Nº 4 VOLTS = 100
GRID-Nº 3 (CONTROL GRID) VOLTS = -1.5
GRID-Nº 1 RESISTOR-OHMS = 20000
GRID-Nº 1 CURRENT VARIED BY ADJUSTMENT
OF OSCILLATOR VOLTAGE



NOV. 12, 1945

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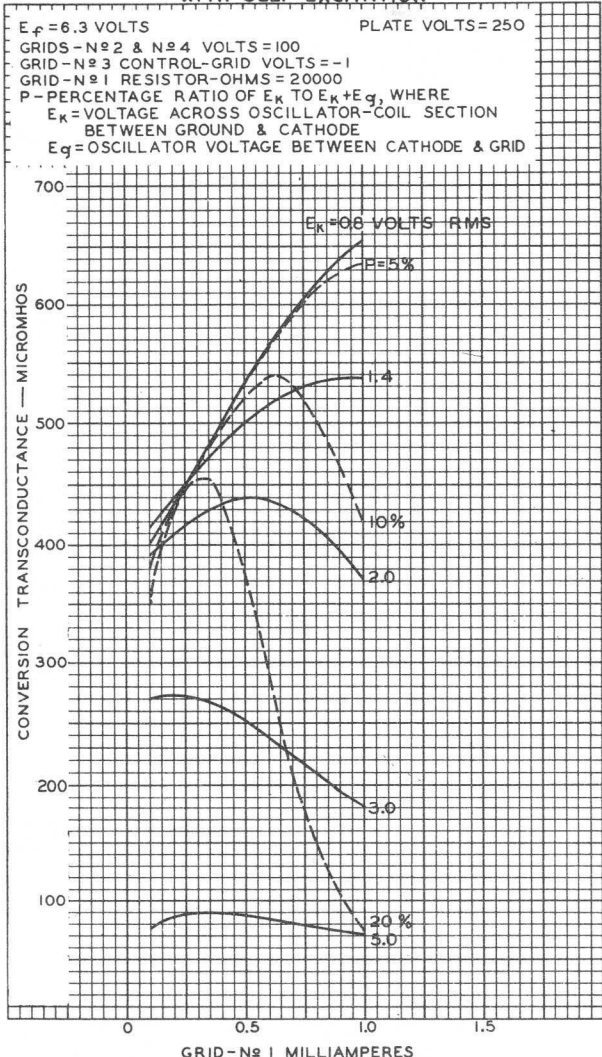
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OPERATION CHARACTERISTICS WITH SELF-EXCITATION



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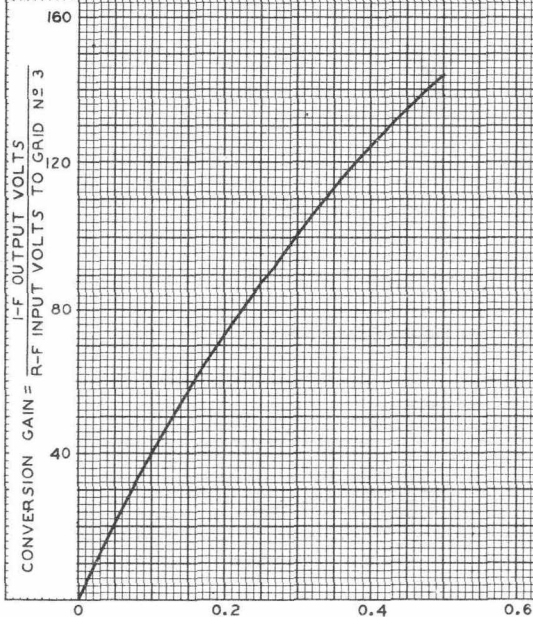
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OPERATION CHARACTERISTIC
WITH SELF-EXCITATION

$E_f = 6.3$ VOLTS
PLATE VOLTS = 250
GRIDS-Nº 2 & Nº 4 VOLTS = 100
GRID-Nº 3 VOLTS = 0
GRID-Nº 1 RESISTOR-OHMS = 20000
GRID-Nº 1 MILLIAMPERES = 0.5



OCT. 16, 1945

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