

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

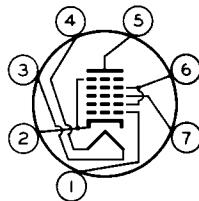
Direct Interelectrode Capacitances:

	<i>Without External Shield</i>	<i>With External Shield^a</i>	
Grid No.3 to all other electrodes (RF input)	7	7	$\mu\mu\text{f}$
Plate to all other electrodes (Mixer input)	8	13	$\mu\mu\text{f}$
Grid No.1 to all other electrodes (Oscillator input)	5.5	5.5	$\mu\mu\text{f}$
Grid No.3 to plate.	0.3 max.	0.25 max.	$\mu\mu\text{f}$
Grid No.3 to grid No.1.	0.15 max.	0.15 max.	$\mu\mu\text{f}$
Grid No.1 to plate.	0.1 max.	0.05 max.	$\mu\mu\text{f}$
Grid No.1 to cathode & grid No.5	3	3	$\mu\mu\text{f}$
Cathode & grid No.5 to all other electrodes except grid No.1.	15	20	$\mu\mu\text{f}$

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 (Aprox.).	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 $\mu_a = 10$	-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.

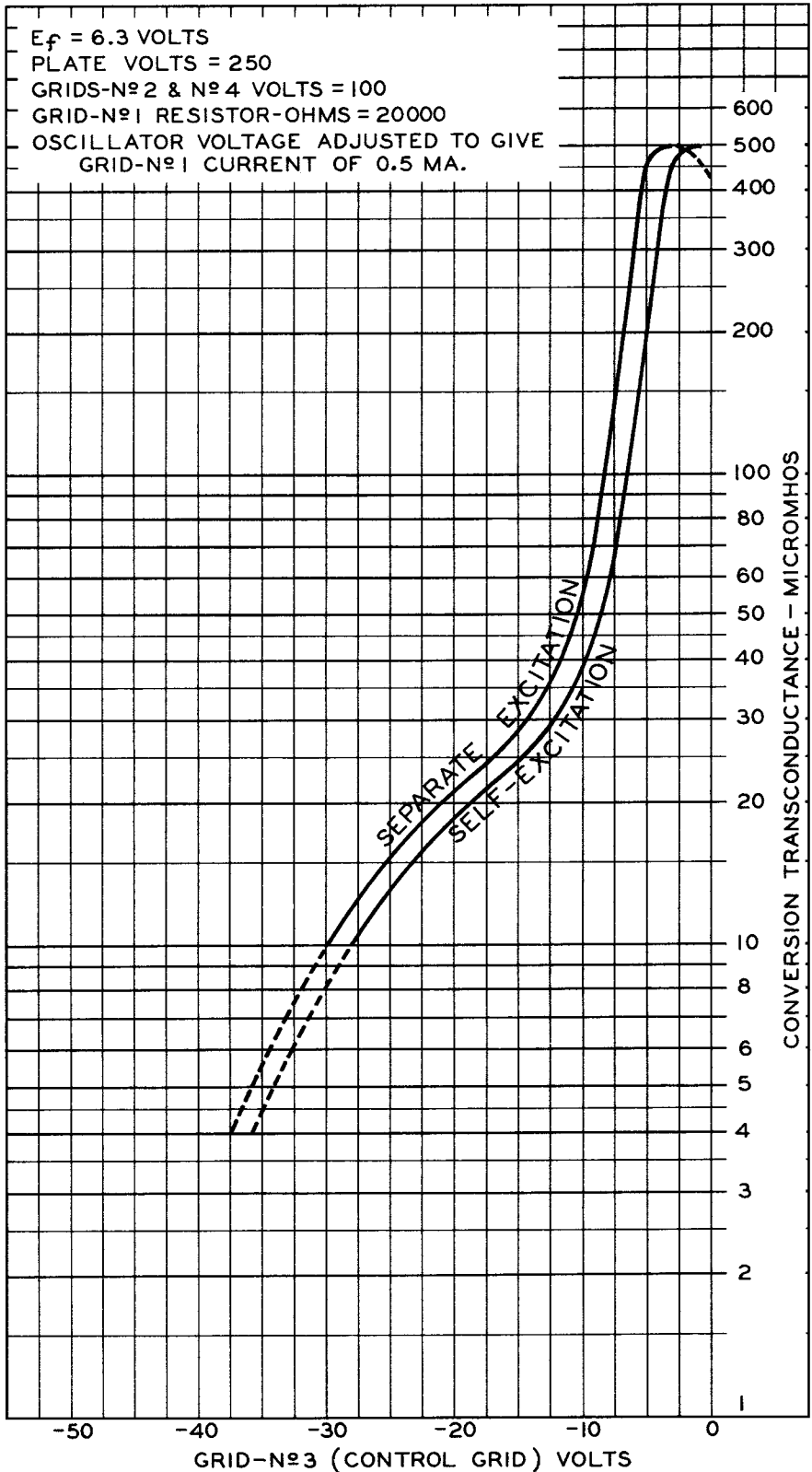




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OPERATION CHARACTERISTICS



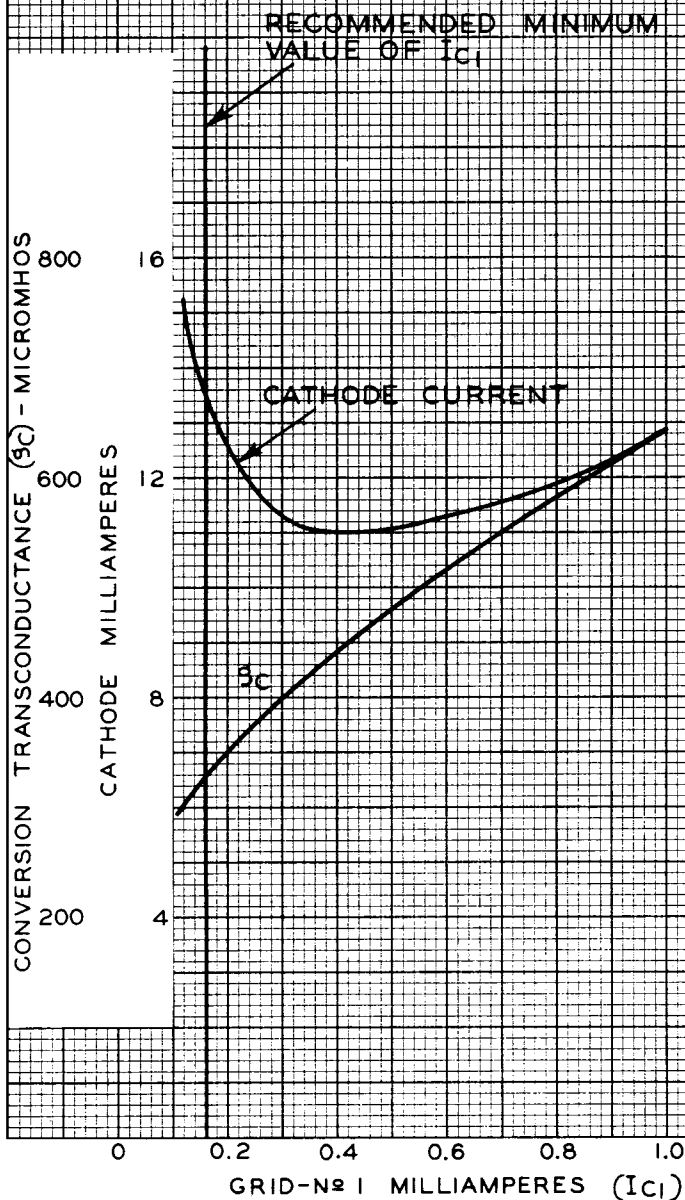
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OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

$E_f = 6.3$ 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

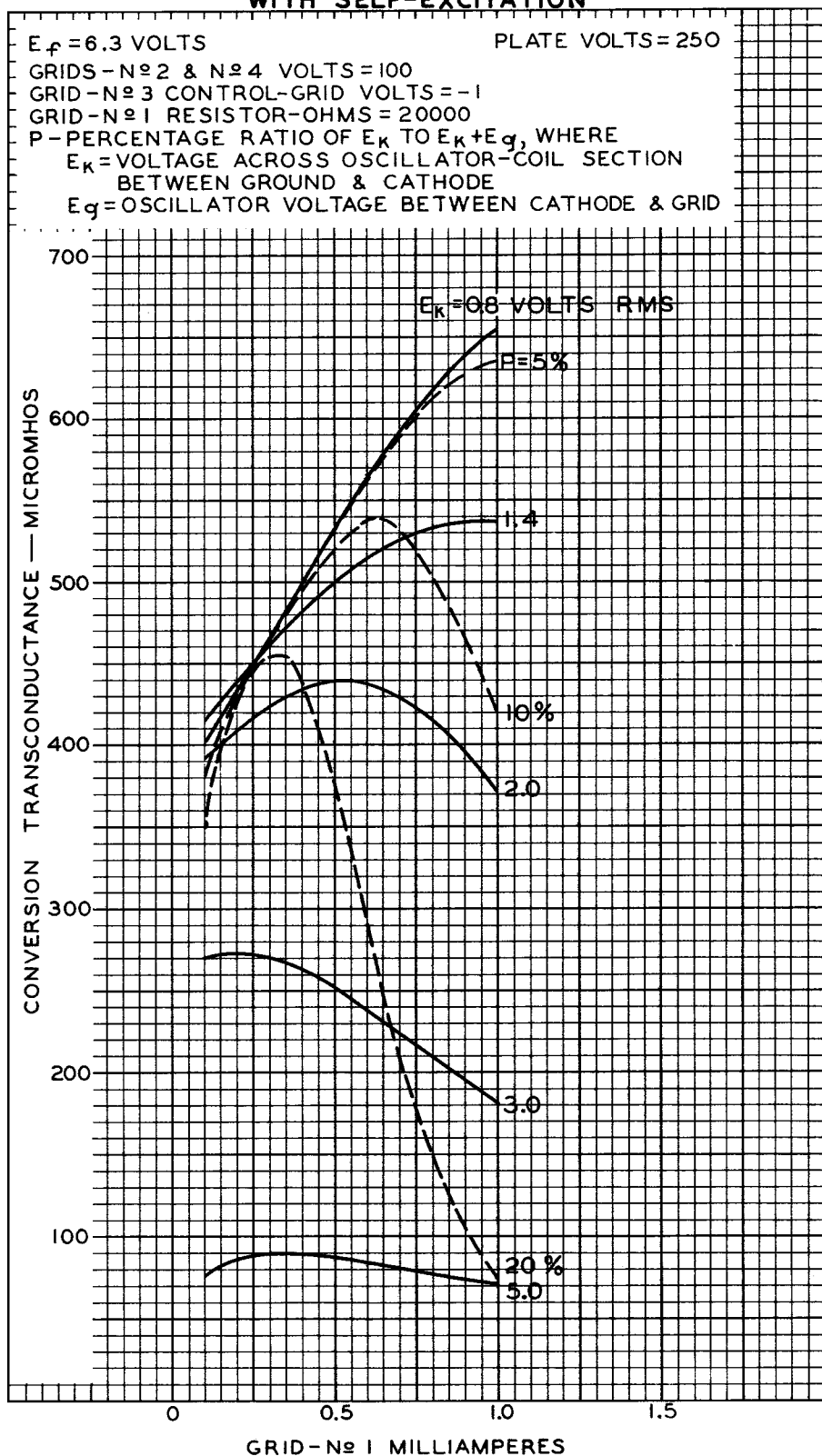
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OPERATION CHARACTERISTICS
WITH SELF-EXCITATION

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OPERATION CHARACTERISTIC
WITH SELF-EXCITATION $E_f = 6.3$ VOLTS

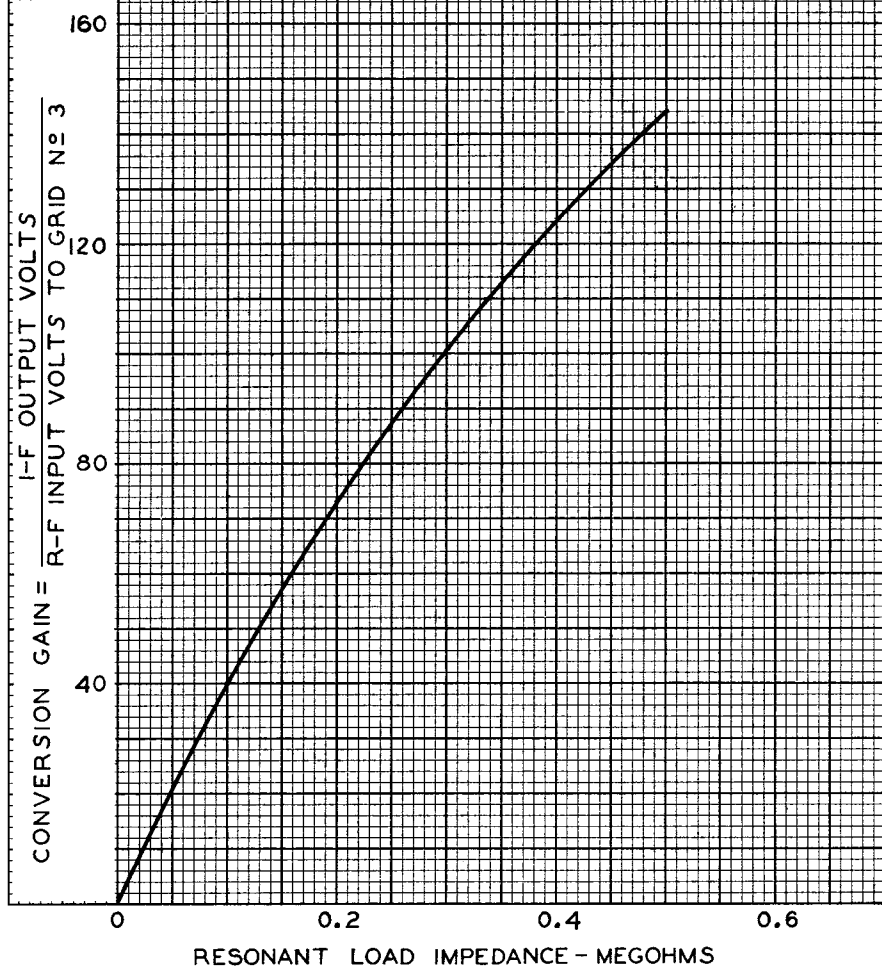
PLATE VOLTS = 250

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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