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PENTAGRID AMPLIFIERFOR "ON-OFF" CONTROL APPLICATIONS INVOLVING
LONG PERIODS OF OPERATION UNDER CUTOFF CONDITIONS**GENERAL DATA****Electrical:**

Heater, for Unipotential Cathode:

Voltage. 6.3 $\pm$ 10% ac or dc volts

Current. 0.3 amp

Microphonism Not Tested

Direct Interelectrode Capacitances (Approx.):^oGrid No.1 to Plate . . . 0.08 max. $\mu\mu\text{f}$ Grid No.3 to Plate . . . 0.35 max. $\mu\mu\text{f}$ Grid No.1 to Grid No.3. 0.15 max. $\mu\mu\text{f}$

Grid No.1 to All Other

Electrodes and Heater. 5.4 $\mu\mu\text{f}$

Grid No.3 to All Other

Electrodes and Heater. 6.9 $\mu\mu\text{f}$

Plate to All Other

Electrodes and Heater. 7.6 $\mu\mu\text{f}$ ^o With no external shield.**Characteristics, Class A Amplifier:**

Plate Voltage. 67.5 67.5 volts

Grids-No.2 and No.4 Voltage. . . . 67.5 67.5 volts

Grid-No.3 Voltage. 0 -4 volts

Grid-No.1 Voltage. 0 0 volts

Grid-No.1-to-Plate

Transconductance. 2000 - μmhos

Grid-No.3-to-Plate

Transconductance. - 1100 μmhos **Mechanical:**

Mounting 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"

Maximum Diameter 3/4"

Bulb T-5-1/2"

Base Small-Button Miniature 7-Pin

Basing Designation for BOTTOM VIEW 7CH

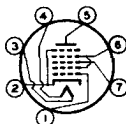
Pin 1-Grid No.1

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

**GATED AMPLIFIER IN COMPUTER SERVICE
& "ON-OFF" CONTROL SERVICE****Maximum Ratings, Absolute Values:**

PLATE VOLTAGE. 250 max. volts

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PENTAGRID AMPLIFIER

GRIDS-No.2 and No.4 VOLTAGE.	See Curve
GRIDS-No.2 and No.4 SUPPLY VOLTAGE	250 max. volts
GRID-No.3 SUPPLY VOLTAGE:	
Negative bias value.	100 max. volts
Positive bias value.	0 max. volts
Peak negative value.	200 max. volts
Peak positive value.	90 max. volts
GRID-No.1 SUPPLY VOLTAGE:	
Negative bias value.	100 max. volts
Positive bias value.	0 max. volts
Peak negative value.	200 max. volts
Peak positive value: Limited in any application by the peak cathode current and the grid-No.1 input	
PLATE DISSIPATION.	1 max. watt
GRID-No.3 INPUT.	0.5 max. watt
GRIDS-No.2 and No.4 INPUT.	1 max. watt
GRID-No.1 INPUT.	0.5 max. watt
DC CATHODE CURRENT	20 max. ma
PEAK CATHODE CURRENT	70 max. ma
PEAK HEATER-CATHODE VOLTAGE:	
Heater negative with respect to cathode. .	90 max. volts
Heater positive with respect to cathode. .	90 max. volts
BULB TEMPERATURE (At hottest point on bulb surface)...	120 max. °C

Typical Operation:

	CUTOFF CONDITION		ZERO-BIAS CONDITION	
	Grid-No.1 Control	Grid-No.3 Control		
Plate-Supply				
Voltage.	150	150	150	volts
Grid-No.3 Supply				
Voltage.	0	-10	0	volts
Grids-No.2 & No.4				
Supply Voltage . . .	75	75	75	volts
Grid-No.1 Supply				
Voltage.	-10	0	0	volts
Plate-Circuit				
Resistance . . .	20000	20000	20000	ohms
Grid-No.3-Circuit				
Resistance . . .	47000	47000	47000	ohms
Grids-No.2 & No.4				
Series Resistor. . .	470	470	470	ohms
Grid-No.1-Circuit				
Resistance . . .	47000	47000	47000	ohms
Plate Current. . . .	0	0	5.8	ma
Grids-No.2 & No.4				
Current.	0	14	9	ma



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Maximum Circuit Values:**Grid-No.1 or Grid-No.3-Circuit Resistance:**

For fixed-bias operation 0.5 max. megohm

For cathode-bias operation 1.0 max. megohm

RANGE VALUES FOR EQUIPMENT DESIGN

<i>Cutoff Condition</i>	<i>Note</i>	<i>Min.</i>	<i>Max.</i>	
Plate Current. . . .	1a and 1b	-	0.2	ma
Zero-Bias Condition				
Plate Current. . . .	2	5.0	6.5	ma

Note 1a: For conditions with grid No.1 as control electrode: 6.3 volts on heater, plate-supply volts = 150, grid-No.3 supply volts = 0, grids-No.2 & No.4 supply volts = 75, grid-No.1 supply volts = -10, plate-circuit resistance (ohms) = 20000, grid-No.3 circuit resistance (ohms) = 47000, grids-No.2 & No.4 series resistor (ohms) = 470, and grid No.1-circuit resistance (ohms) = 47000.

Note 1b: For conditions with grid No.3 as control electrode: values are same as for Note 1a except that grid-No.3 supply volts = -10 and grid-No.1 supply volts = 0.

Note 2: For conditions with 6.3 volts on heater, plate-supply volts = 150, grids-No.2 and No.4 supply volts = 75, grid-No.3 supply volts = 0, grid No.1 supply volts = 0, plate-circuit resistance (ohms) = 20000, grid-No.3-circuit resistance (ohms) = 47000, grids-No.2 and No.4 series resistor (ohms) = 470, and grid-No.1-circuit resistance (ohms) = 47000.

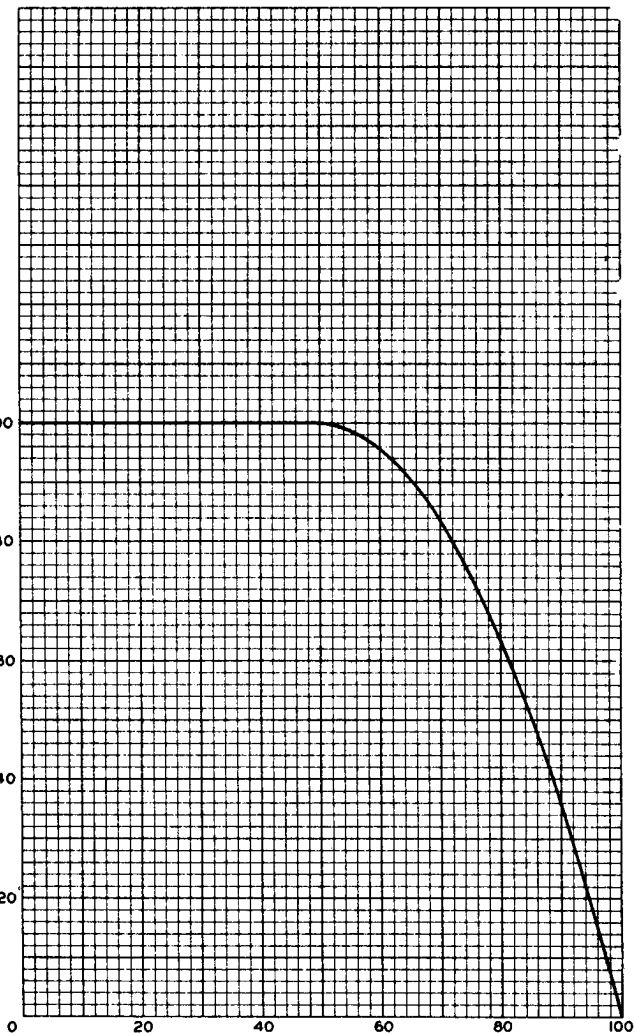
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GRIDS - N^o 2 & N^o 4 INPUT RATING CURVE

GRIDS - N^o 2 & N^o 4 INPUT EXPRESSED AS PER CENT OF MAX. GRIDS - N^o 2 & N^o 4 SUPPLY VOLTAGE RATING



GRIDS - N^o 2 & N^o 4 VOLTAGE EXPRESSED AS PER CENT OF MAX. GRIDS - N^o 2 & N^o 4 SUPPLY VOLTAGE RATING

JUNE 8, 1950

TUBE DEPARTMENT

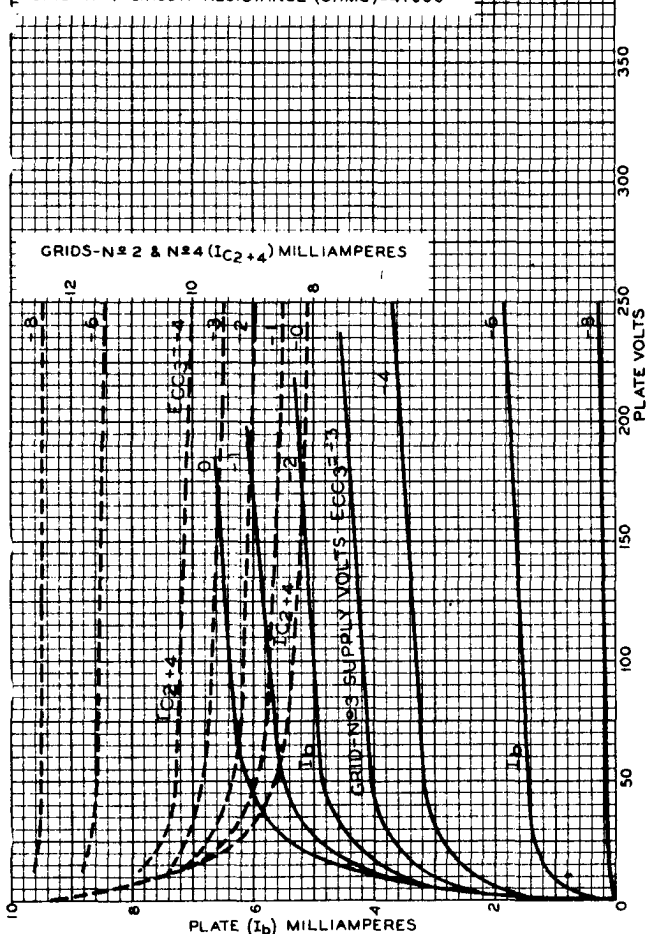
92CM - 7500

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



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AVERAGE OPERATION CHARACTERISTICS
WITH ECC3 AS VARIABLE $E_f = 6.3$ VOLTSGRIDS-N₂ & N₄ SUPPLY VOLTS=75GRID-N₁ SUPPLY VOLTS=0GRID-N₃-CIRCUIT RESISTANCE (OHMS)=47000GRIDS-N₂ & N₄ SERIES RESISTOR (OHMS)=470GRID-N₁-CIRCUIT RESISTANCE (OHMS)=47000

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AVERAGE OPERATION CHARACTERISTICS WITH ECC1 AS VARIABLE

$E_f = 6.3$ VOLTS

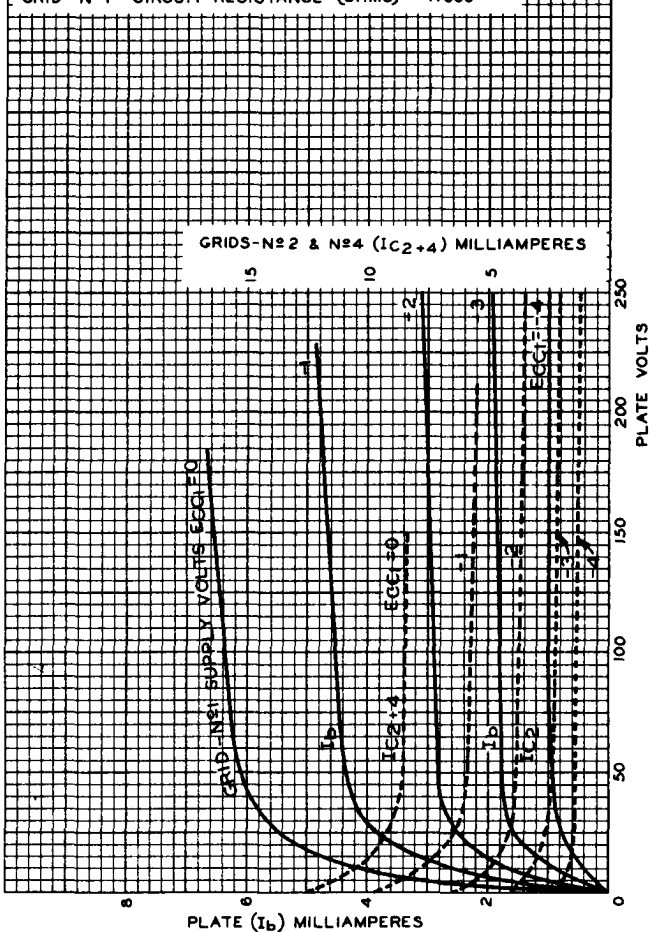
GRID-N ϕ 3 SUPPLY VOLTS = 0

GRIDS-N ϕ 2 & N ϕ 4 SUPPLY VOLTS = 75

GRID-N ϕ 3 - CIRCUIT RESISTANCE (OHMS) = 47000

GRIDS-N ϕ 2 & N ϕ 4 SERIES RESISTOR (OHMS) = 470

GRID-N ϕ 1 - CIRCUIT RESISTANCE (OHMS) = 47000



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92CM-7498