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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. μf Grid No.3 to Plate . . . 0.35 max. μf Grid No.1 to Grid No.3. 0.15 max. μf

Grid No.1 to All Other

Electrodes and Heater. 5.4 μf

Grid No.3 to All Other

Electrodes and Heater. 6.9 μf

Plate to All Other

Electrodes and Heater. 7.6 μf ^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

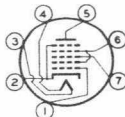
Pin 1-Grid No.1

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

SEPT. 1, 1950

TUBE DEPARTMENT

TENTATIVE DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



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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

Cutoff Condition	Note	Min.	Max.	
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.

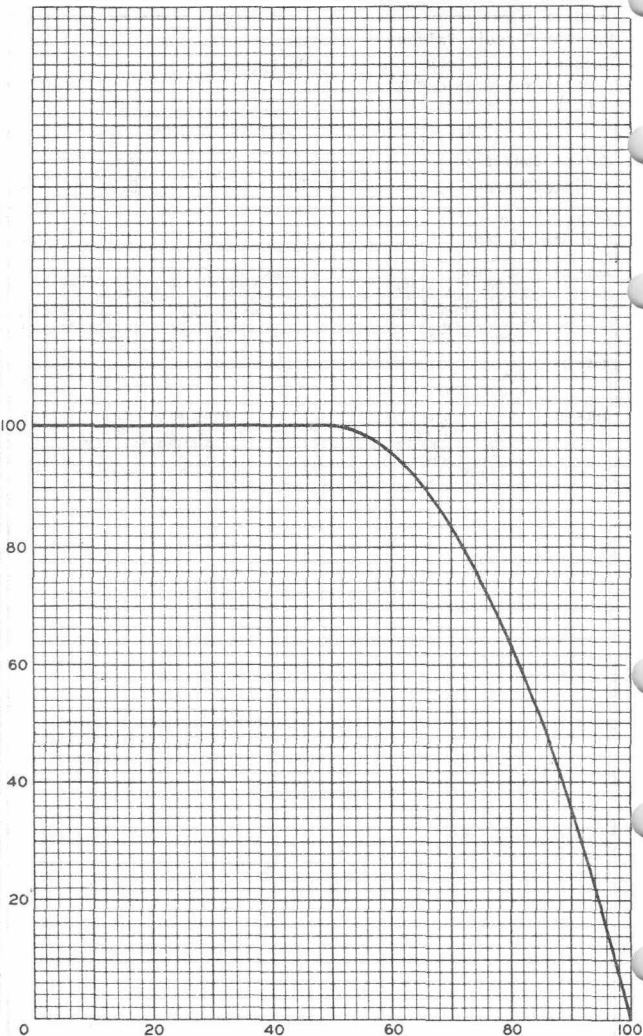
Note 1b: For conditions with grid No.3 as control electrode: values are same as for Note 1a except that grid-No.3 supply volts = -10 and grid-No.1 supply volts = 0.

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 CURVEGRIDS - N^o 2 & N^o 4 INPUT EXPRESSED AS PER CENT OF MAX. GRIDS - N^o 2 & N^o 4 INPUT RATINGGRIDS - 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

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92CM - 7500

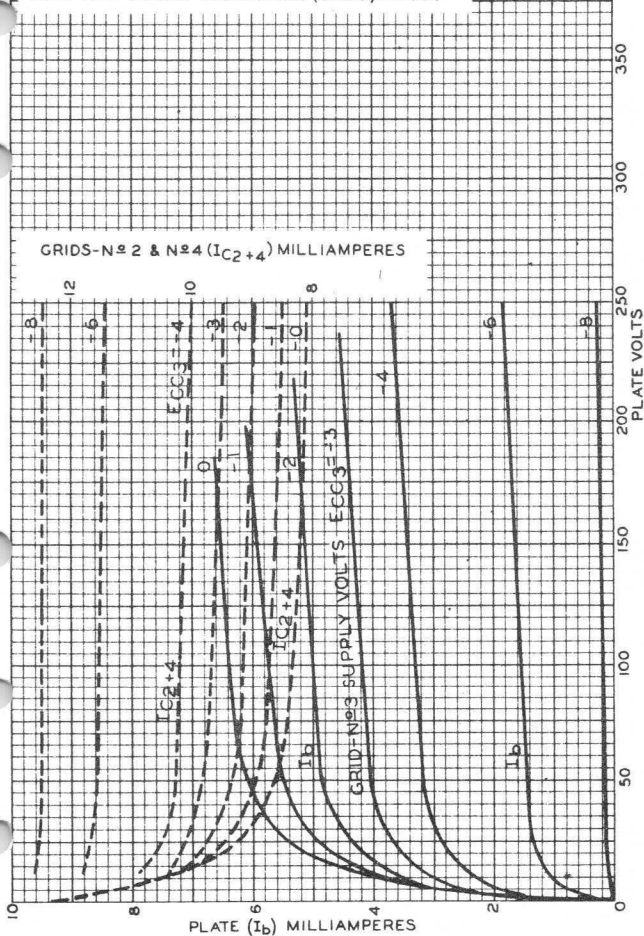
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AVERAGE OPERATION CHARACTERISTICS WITH ECC3 AS VARIABLE

 $E_f = 6.3$ VOLTSGRIDS-N^o2 & N^o4 SUPPLY VOLTS=75GRID-N^o1 SUPPLY VOLTS=0GRID-N^o3-CIRCUIT RESISTANCE (OHMS)=47000GRIDS-N^o2 & N^o4 SERIES RESISTOR (OHMS)=470GRID-N^o1-CIRCUIT RESISTANCE (OHMS)=47000

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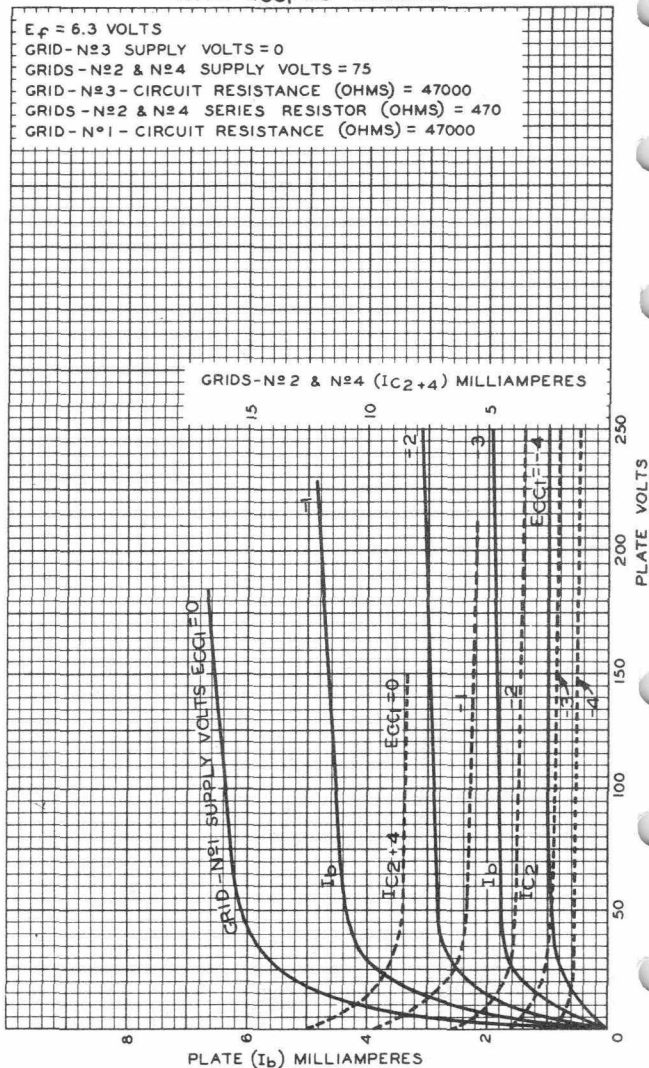
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AVERAGE OPERATION CHARACTERISTICS WITH ECC1 AS VARIABLE



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92CM-7498