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PENTAGRID AMPLIFIER

FOR "ON-OFF" CONTROL APPLICATIONS INVOLVING
LONG PERIODS OF OPERATION UNDER CUTOFF CONDITIONS

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage	6.3 ± 10%	ac or dc volts
Current	0.3	amp

Microphonism Not Tested

Direct Interelectrode Capacitances (Approx.):^o

Grid 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	-	μhos
Grid-No.3-to-Plate Transconductance	-	1100	μhos

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" ± 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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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
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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.

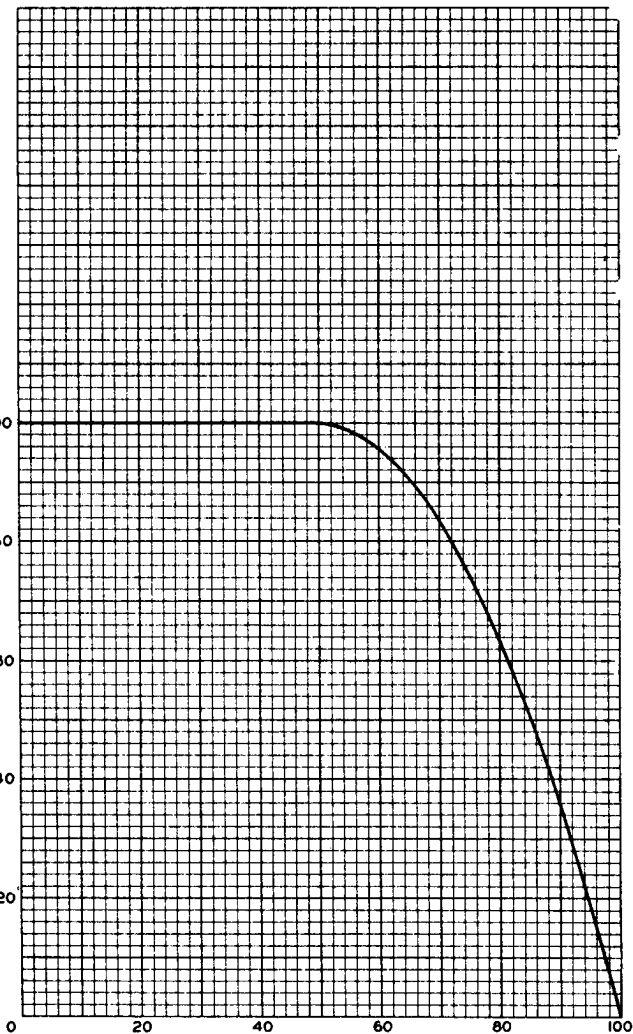
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GRIDS - N^o 2 & N^o 4 INPUT RATING CURVE

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

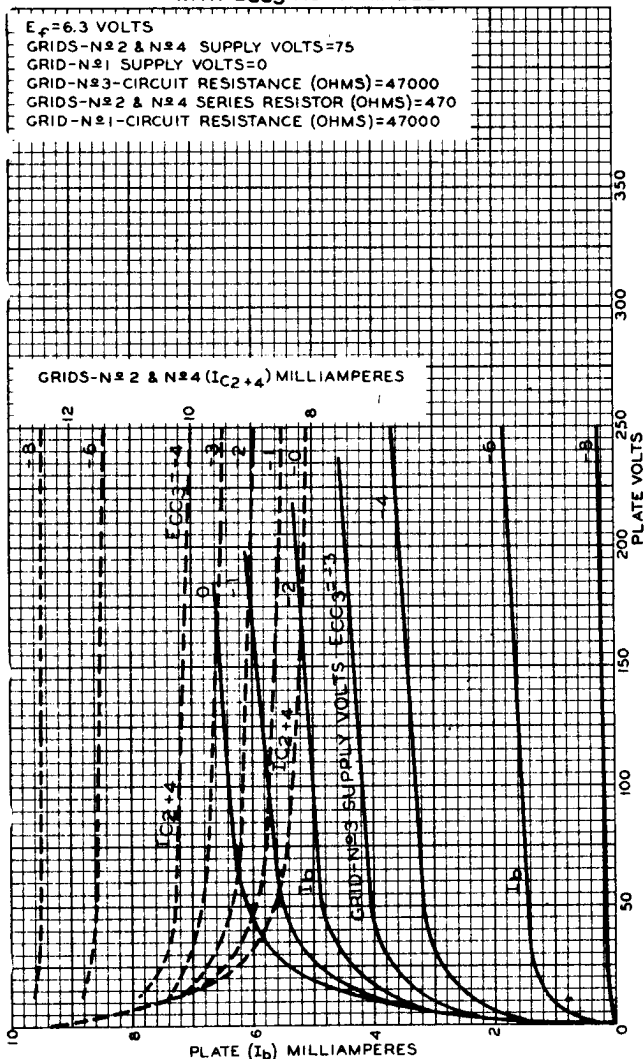
92CM - 7500

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



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AVERAGE OPERATION CHARACTERISTICS
WITH ECC3 AS VARIABLE

JUNE 8, 1950

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7499



AVERAGE OPERATION CHARACTERISTICS WITH ECC1 AS VARIABLE

$E_f = 6.3$ VOLTS

GRID-N^o3 SUPPLY VOLTS = 0

GRIDS-N^o2 & N^o4 SUPPLY VOLTS = 75

GRID-N^o3 - CIRCUIT RESISTANCE (OHMS) = 47000

GRIDS-N^o2 & N^o4 SERIES RESISTOR (OHMS) = 470

GRID-N^o1 - CIRCUIT RESISTANCE (OHMS) = 47000

