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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.	μμf
Grid No.3 to Plate	0.35 max.	μμf
Grid No.1 to Grid No.3	0.15 max.	μμf
Grid No.1 to All Other Electrodes and Heater	5.4	μμf
Grid No.3 to All Other Electrodes and Heater	6.9	μμf
Plate to All Other Electrodes and Heater	7.6	μμf

o With no external shield.

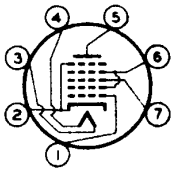
Characteristics, Class A Amplifier:

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" ± 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

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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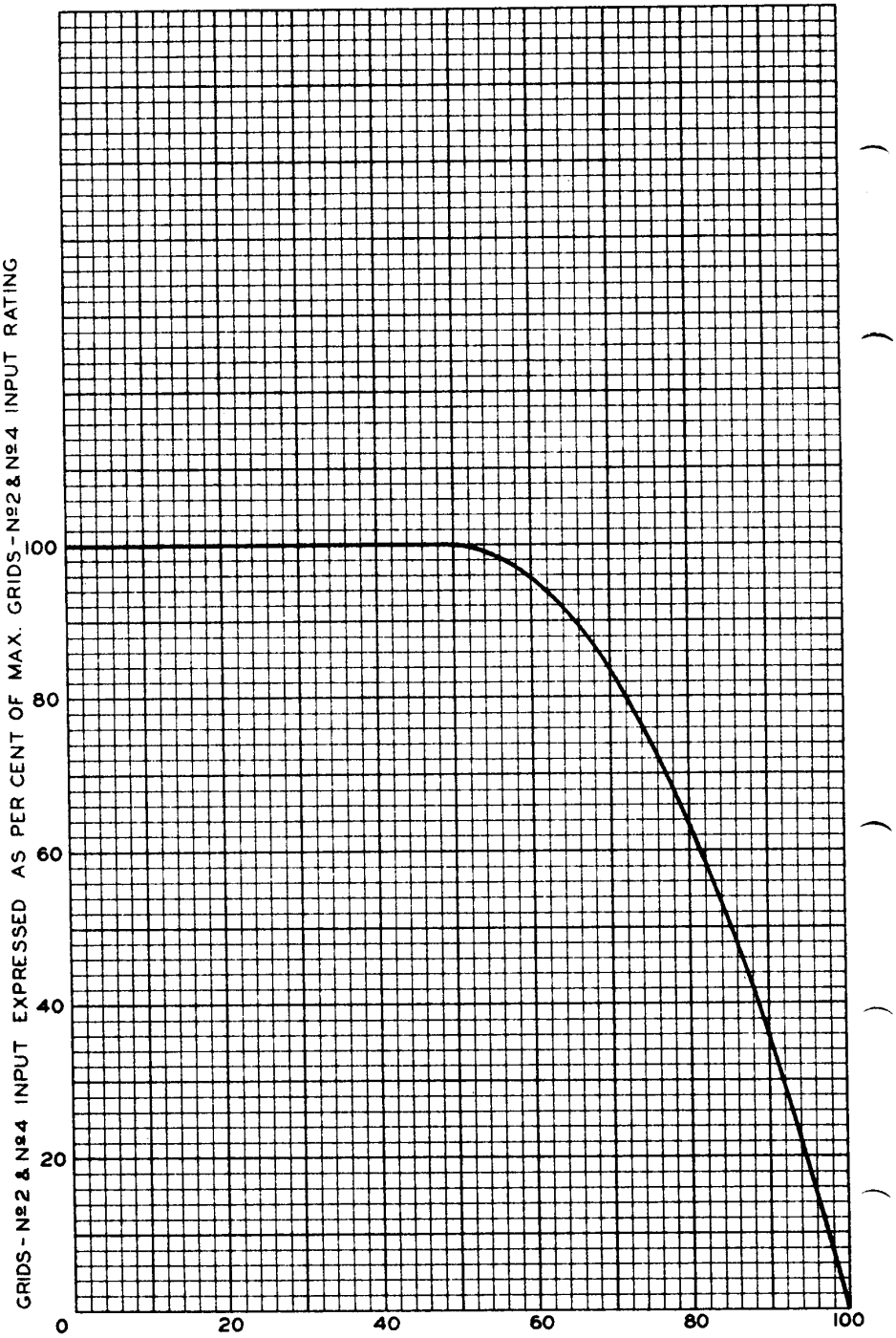
GRIDS - Nº 2 & Nº 4 INPUT RATING CURVE



JUNE 8, 1950

TUBE DEPARTMENT

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM - 7500

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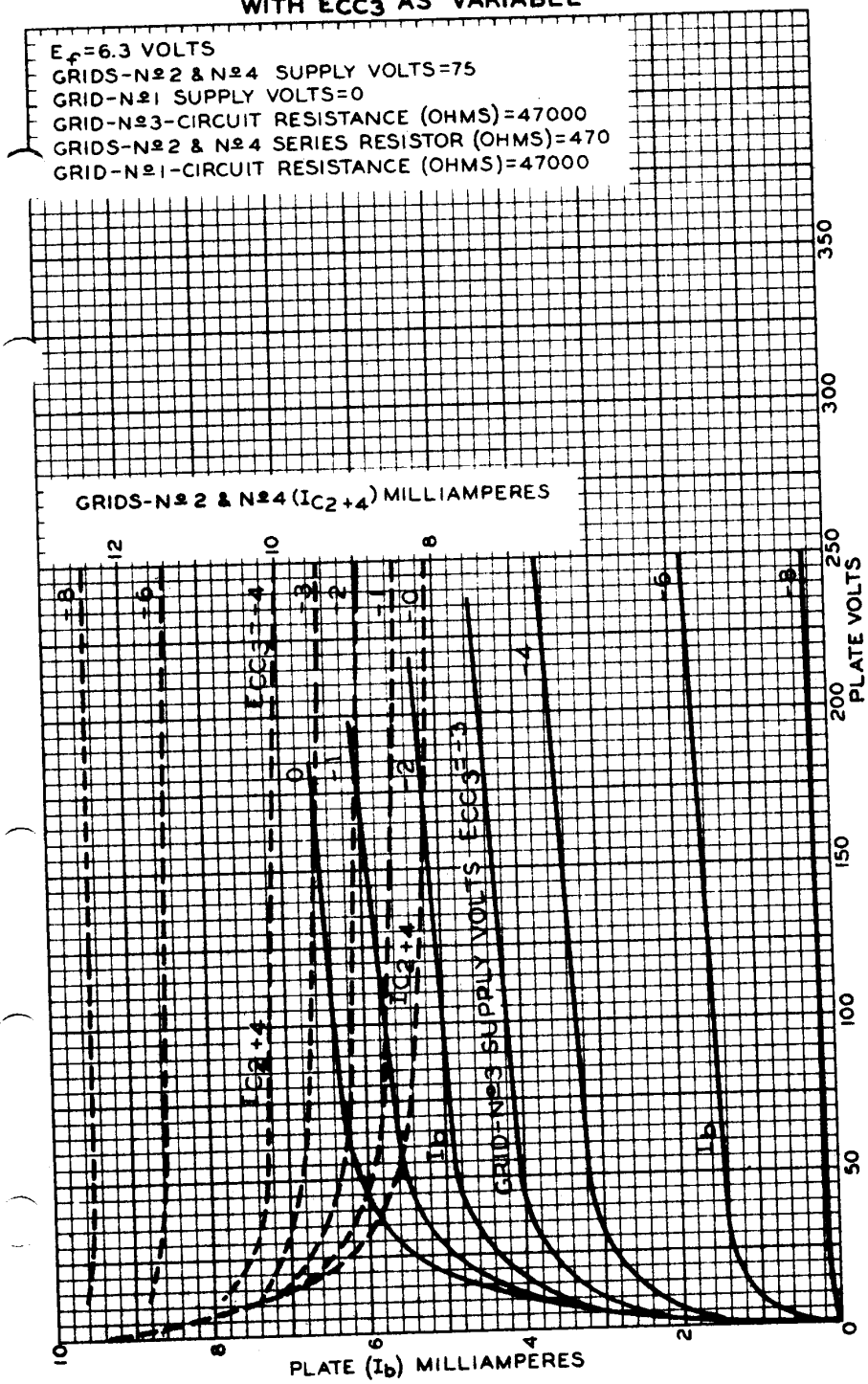
AVERAGE OPERATION CHARACTERISTICS
WITH ECC3 AS VARIABLE

E_f=6.3 VOLTS
GRIDS-№2 & №4 SUPPLY VOLTS=75
GRID-№1 SUPPLY VOLTS=0
GRID-№3-CIRCUIT RESISTANCE (OHMS)=47000
GRIDS-№2 & №4 SERIES RESISTOR (OHMS)=470
GRID-№1-CIRCUIT RESISTANCE (OHMS)=47000



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92CM-7499

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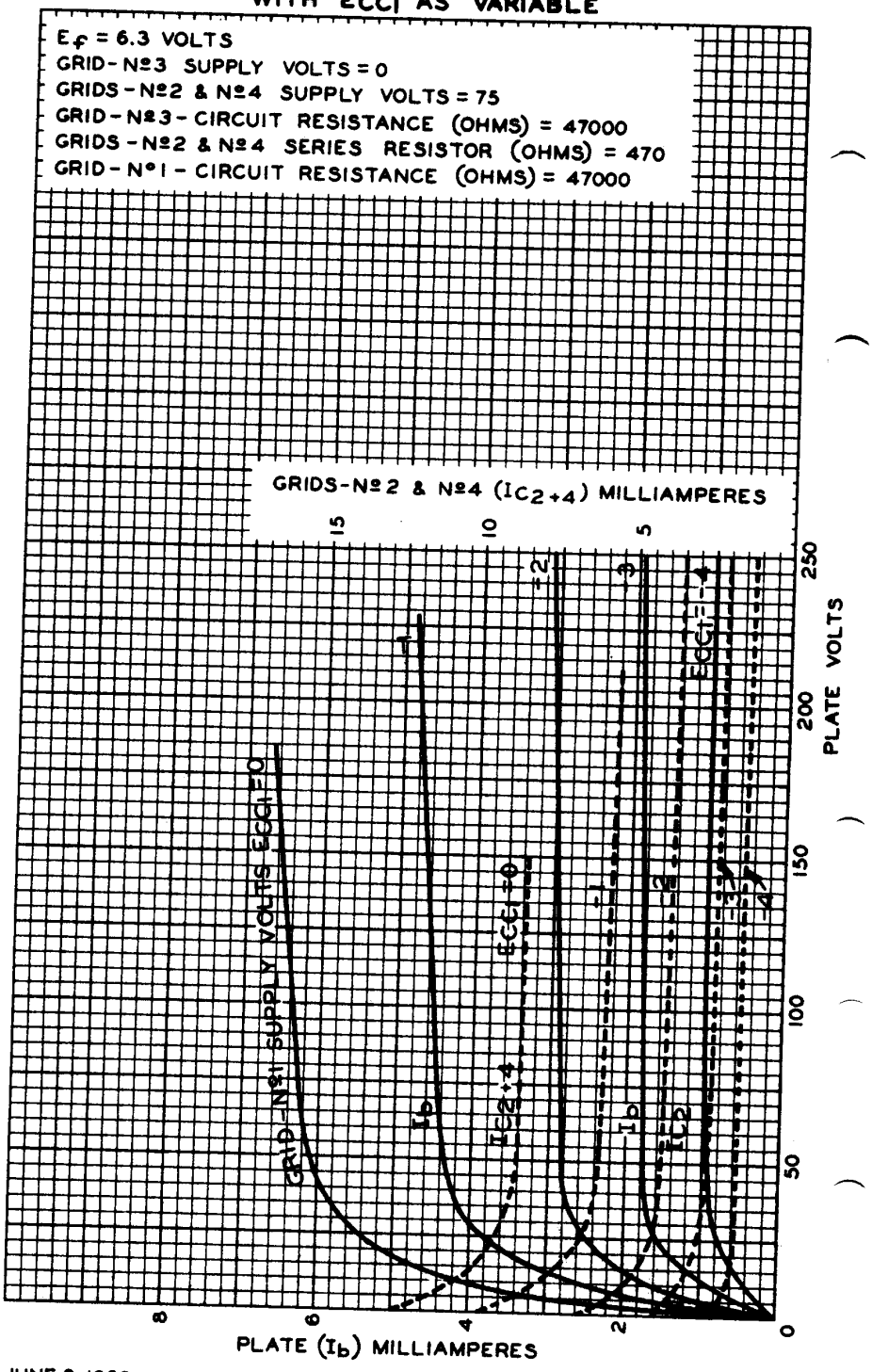
AVERAGE OPERATION CHARACTERISTICS

WITH ECC1 AS VARIABLE



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92CM-7498