6X8

TRIODE-PENTODE CONVERTER

9-PIN MINIATURE TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage	6.3	ac or dc volts
Current	0.45	amp

Direct Interelectrode Capacitances:

	Without External Shield	*With External Shield*°	
Triode Unit:			
Grid to plate	1.4	1.4	μμf
Grid to cathode and heater	2	2.6	μμf
Plate to cathode and heater	0.5	1	μμf
Pentode Unit:			
Grid No.1 to plate	0.09 max.	0.06 max.	μμf
Grid No.1 to cathode, grid No.3, grid No.2, and heater	4.3	4.5	μμf
Plate to cathode, grid No.3, grid No.2, and heater	0.7	1.4	μμf
Pentode grid No.1 to triode plate	0.045 max.	0.035 max.	μμf
Pentode plate to triode plate	0.040 max.	0.008 max.	μμf
Heater to cathode	6	6●	μμf ←
Pentode Unit Connected as Triode:■			
Grid No.1 to plate and grid No.2	1.4	1.3	μμf
Grid No.1 to cathode, grid No.3, and heater	3	3.2	μμf
Plate and grid No.2 to cathode, grid No.3, and heater	1.6	2	μμf

Characteristics:

	Triode Unit	*Pentode Unit*	
Plate-Supply Voltage	100	250	volts
Grid-No.3 (Suppressor-Grid)	–	*Connected to cathode at socket*	
Grid-No.2 (Screen-Grid) Voltage	–	150	volts
Cathode Resistor	100	200	ohms

° With external shield JETEC No.315 connected to cathode, except as noted.

● With external shield JETEC No.315 connected to ground.

■: See next page.

← Indicates a change.

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TRIODE-PENTODE CONVERTER

	Triode Unit	*Pentode Unit*	
Amplification Factor	40	–	
Plate Resistance (Approx.)	6900	750000	ohms
Transconductance	5800	4600	μmhos
Plate Current	8.5	7.7	ma
Grid-No.2 Current	–	1.6	ma
Grid-No.1 Voltage (Approx.) for plate current of 10 μamp	-10	-10	volts

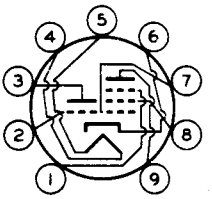
Pentode Unit Connected as Triode■

Plate-Supply Voltage	150	volts
Cathode Resistor	250	ohms
Amplification Factor	42	
Plate Resistance (Approx.)	7900	ohms
Transconductance	4000	μmhos
Plate Current	7.8	ma
Grid-No.1 Voltage (Approx.) for plate current of 10 μamp	-10	volts

Mechanical:

Mounting Position	Any
Maximum Overall Length	2-3/16"
Maximum Seated Length	1-15/16"
Length, Base Seat to Bulb Top (Excluding tip)	1-9/16" ± 3/32"
Maximum Diameter	7/8"
Dimensional Outline	*See General Section*
Bulb	T6-1/2
Base	Small-Button Noval 9-Pin (JETEC No.E9-1)
Basing Designation for BOTTOM VIEW	9AK

Pin 1 – Pentode Grid No.3
Pin 2 – Triode Grid
Pin 3 – Triode Plate
Pin 4 – Heater
Pin 5 – Heater



Pin 6 – Cathode
Pin 7 – Pentode Grid No.1
Pin 8 – Pentode Grid No.2
Pin 9 – Pentode Plate

CONVERTER SERVICE

Maximum Ratings, *Design-Center Values:*

	Triode Unit as Osc.	*Pentode Unit as Mixer*	
PLATE VOLTAGE	250 max.	250 max.	volts
GRID-No.3 (SUPPRESSOR-GRID) VOLTAGE	–	0 max.	volts
GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE	–	250 max.	volts
GRID-No.2 VOLTAGE	–	*See Grid-No.2 Input Rating Chart at front of Receiving Tube Section*	

■: See next page.

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TRIODE-PENTODE CONVERTER

	Triode Unit as Osc.	*Pentode Unit as Mixer*	
GRID-No.1 (CONTROL-GRID) VOLTAGE:			
Negative bias value	40 max.	40 max.	volts
Positive bias value	0 max.	0 max.	volts
GRID-No.2 INPUT:			
For grid-No.2 voltages up to 125 volts	–	0.4 max.	watt
For grid-No.2 voltages between 125 and 250 volts	–	*See Grid-No.2 Input Rating Chart at front of Receiving Tube Section*	
GRID INPUT	0.5 max.	–	watt
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	100 max.	100 max.	volts
Heater positive with respect to cathode	100 max.	100 max.	volts

Pentode Unit as Triode-Connected Mixer■

PLATE VOLTAGE	250 max.	volts
GRID-No.1 (CONTROL-GRID) VOLTAGE:		
Negative bias value	40 max.	volts
Positive bias value	0 max.	volts
PLATE DISSIPATION	2.4 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	100 max.	volts
Heater positive with respect to cathode	100 max.	volts

Typical Operation:

	Triode Unit as 250-Mc Osc.●	*Pentode Unit as Mixer**	
Plate Voltage	150	150	volts
Grid No.3	–	*Connected to cathode at socket*	
Grid-No.2 Voltage	–	150	volts
Mixer Grid-No.1 Supply Voltage	–	-3.5	volts
Oscillator Voltage (rms) at mixer grid No.1	–	2.6	volts
Mixer Grid-No.1-Circuit Resistance	–	120000	ohms
Oscillator Grid Resistor	2700	–	ohms
Conversion Transconductance	–	2100	μmhos
Plate Current	13	6.2	ma
Grid-No.2 Current	–	1.8	ma
Grid Current	3.6	–	ma

■, ●, *: See next page.

← Indicates a change.

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6X8

TRIODE-PENTODE CONVERTER

	Triode Unit as 250-Mc Osc.●	*Pentode Unit as Mixer**	
Grid-No.1 Current	–	2	μamp
Oscillator Power Output (Approx.)	0.5	–	watt

Pentode Unit as Triode-Connected Mixer■

Plate Voltage	150	volts
Grid-No.1 Supply Voltage	-3.5	volts
Oscillator Voltage (rms) at grid No.1	2.6	volts
Grid-No.1-Circuit Resistance	120000	ohms
Conversion Transconductance	2800	μmhos
Plate Current	7.8	ma
Grid-No.1 Current	2	μamp

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

■ Grid No.3 connected to cathode, and grid No.2 connected to plate.

● In TV or FM receivers, it is generally desirable to operate the oscillator with less power input than shown in the tabulated data in order to avoid over-excitation and excessive oscillator radiation.

* With separate excitation and triode unit connected to ground.

OPERATING CONSIDERATIONS

When the 6X8 is used as the converter in AM broadcast receivers, it is important that the tuned plate-load impedance of the first if coil not exceed 75000 ohms. Any higher value will cause excessive degeneration due to feedback in the pentode mixer unit.

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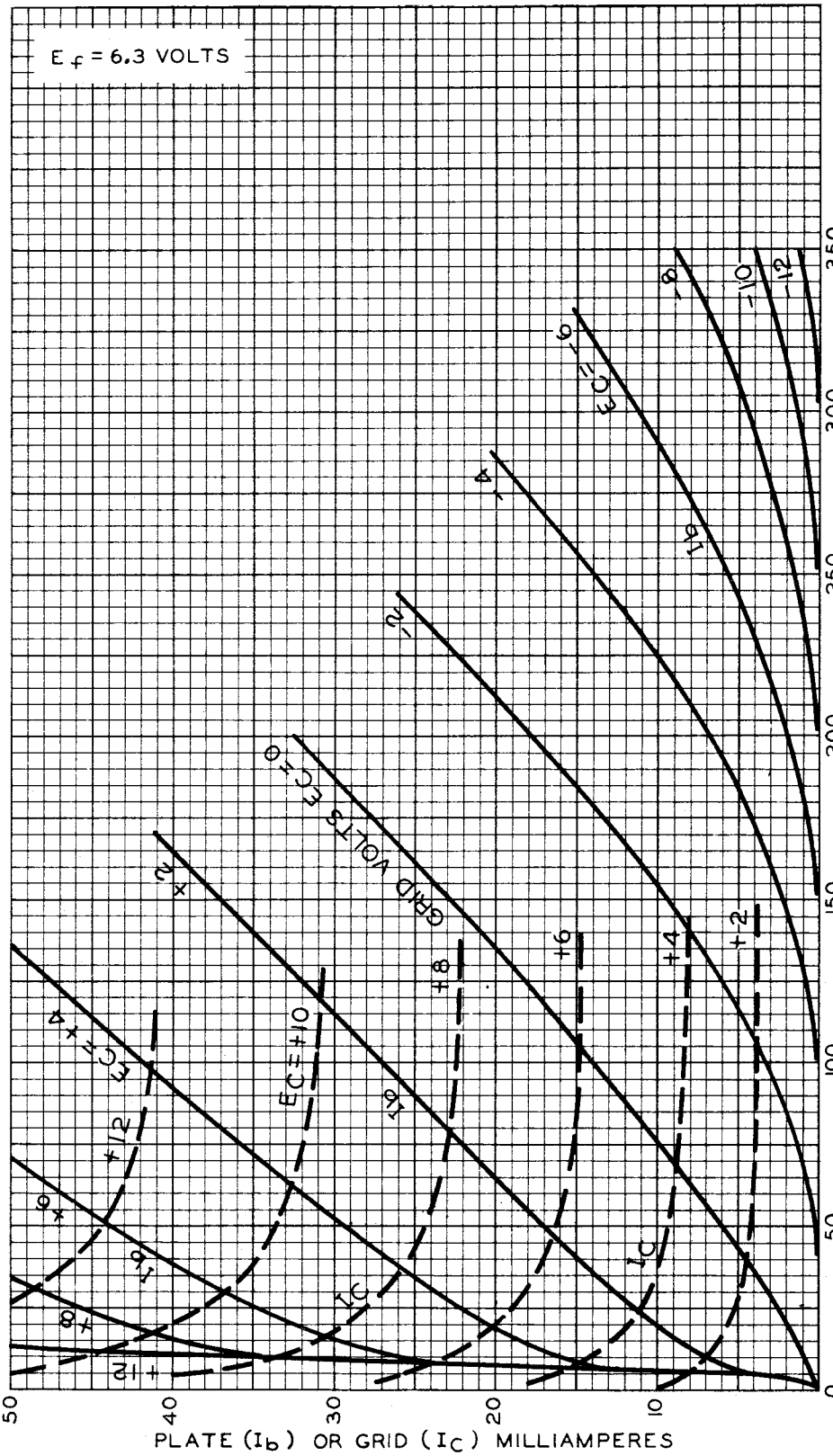
6X8

AVERAGE CHARACTERISTICS

TRIODE UNIT



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6X8

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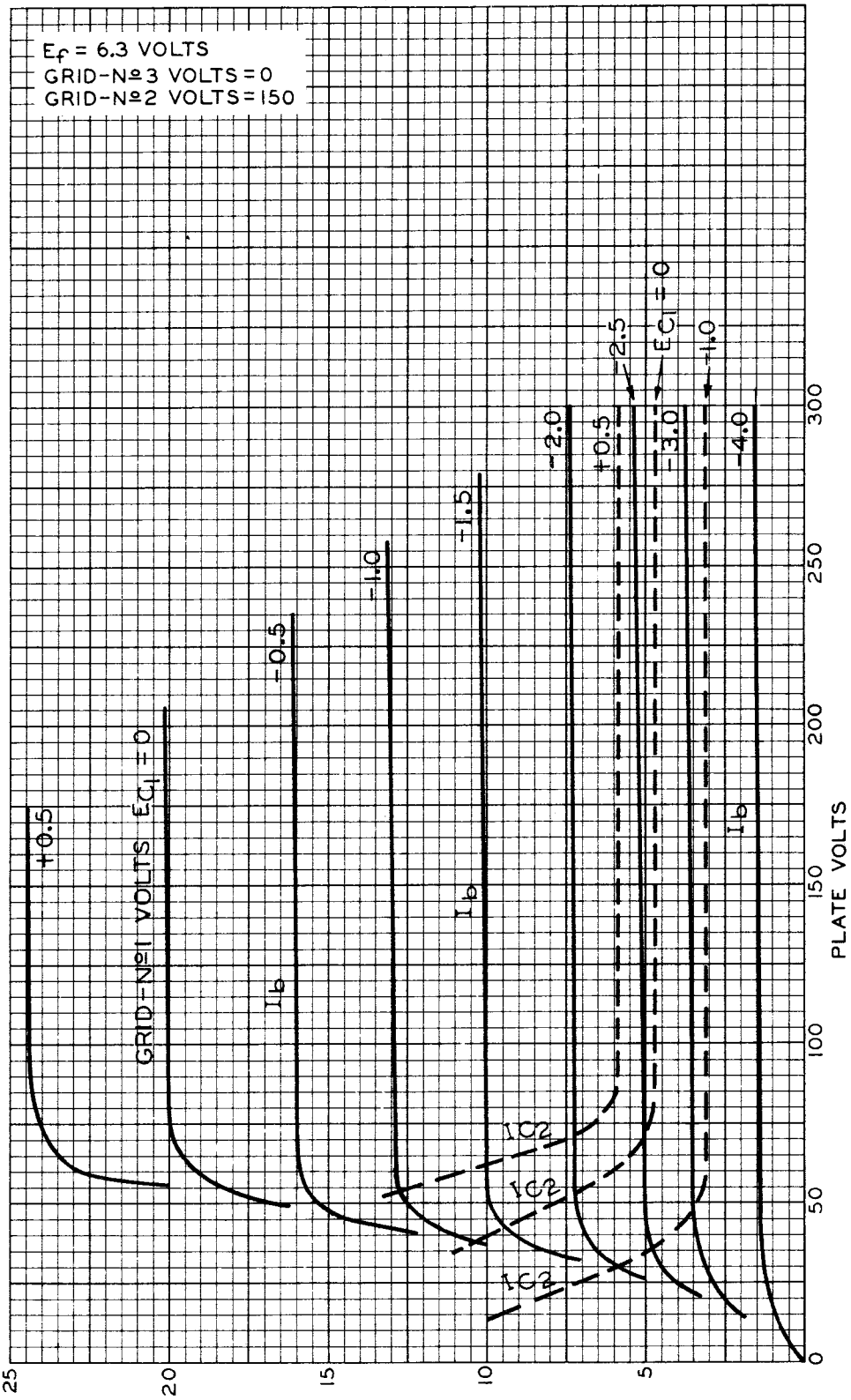
6X8

AVERAGE CHARACTERISTICS

PENTODE UNIT



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92CM-7532

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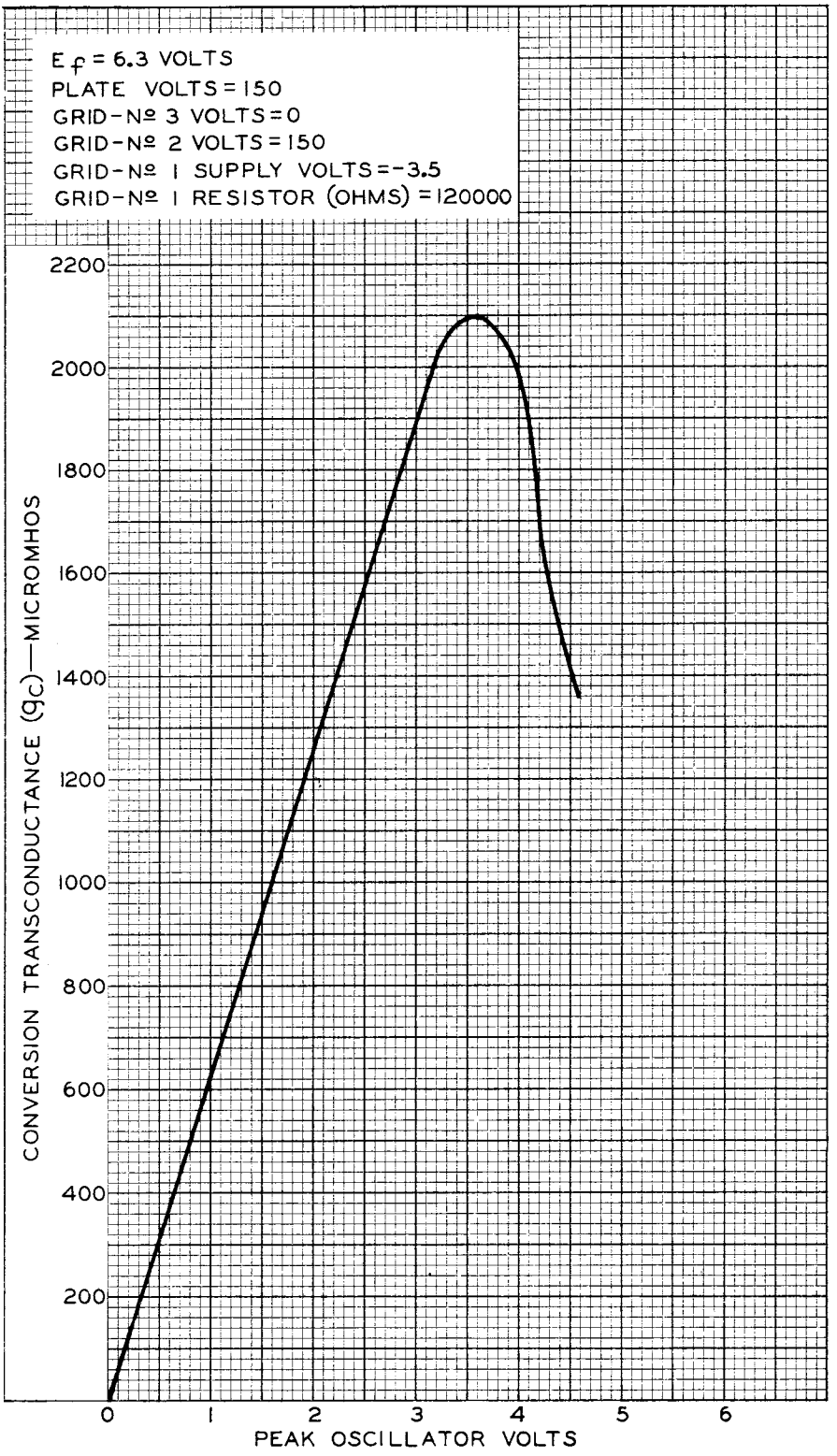
6X8

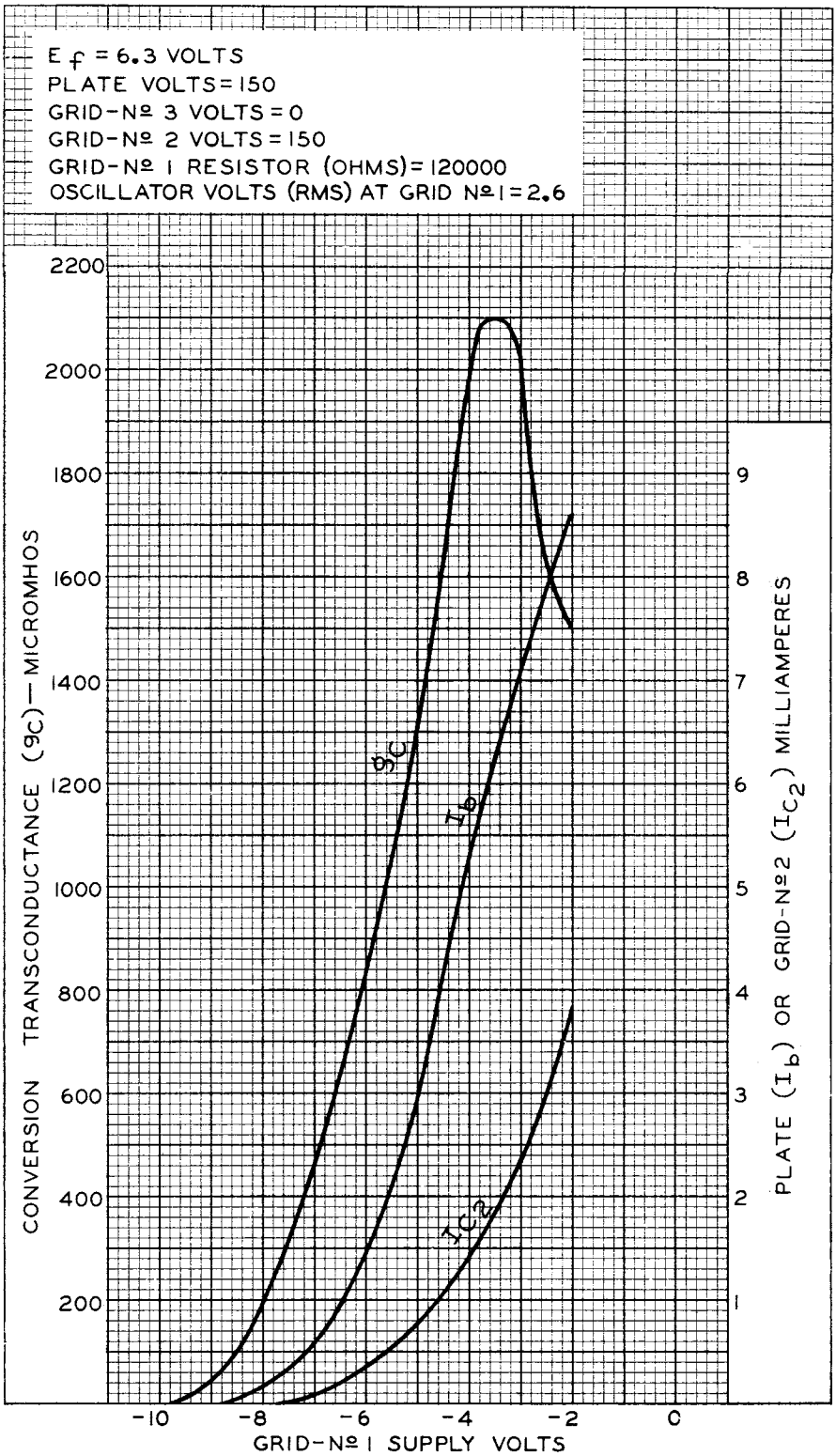
OPERATION CHARACTERISTIC
WITH SEPARATE OSCILLATOR EXCITATION
PENTODE UNIT



6X8

6X8

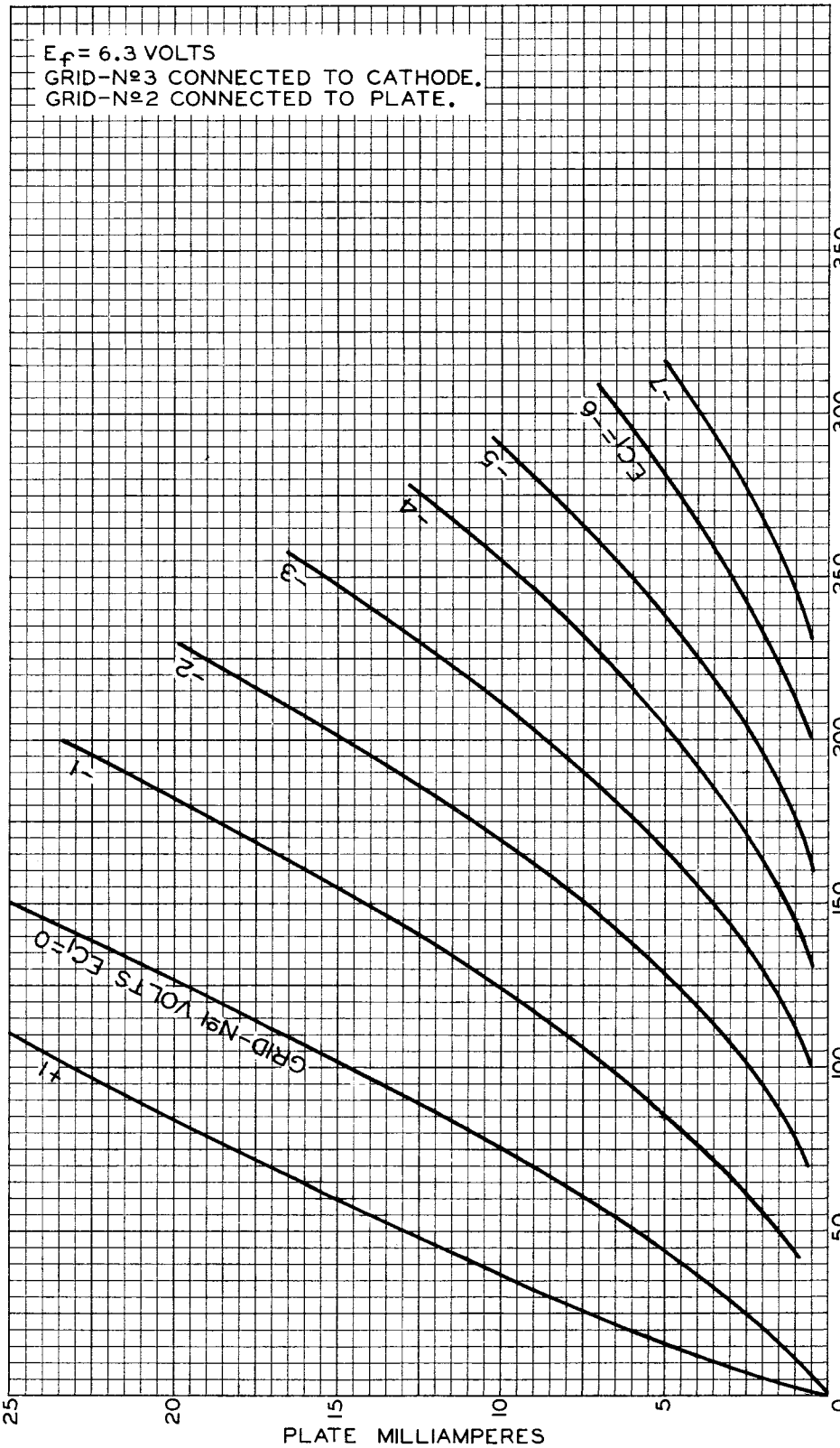
OPERATION CHARACTERISTICS
WITH SEPARATE OSCILLATOR EXCITATION
PENTODE UNIT



RCA

6X8

AVERAGE PLATE CHARACTERISTICS
PENTODE UNIT CONNECTED AS TRIODE



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6X8

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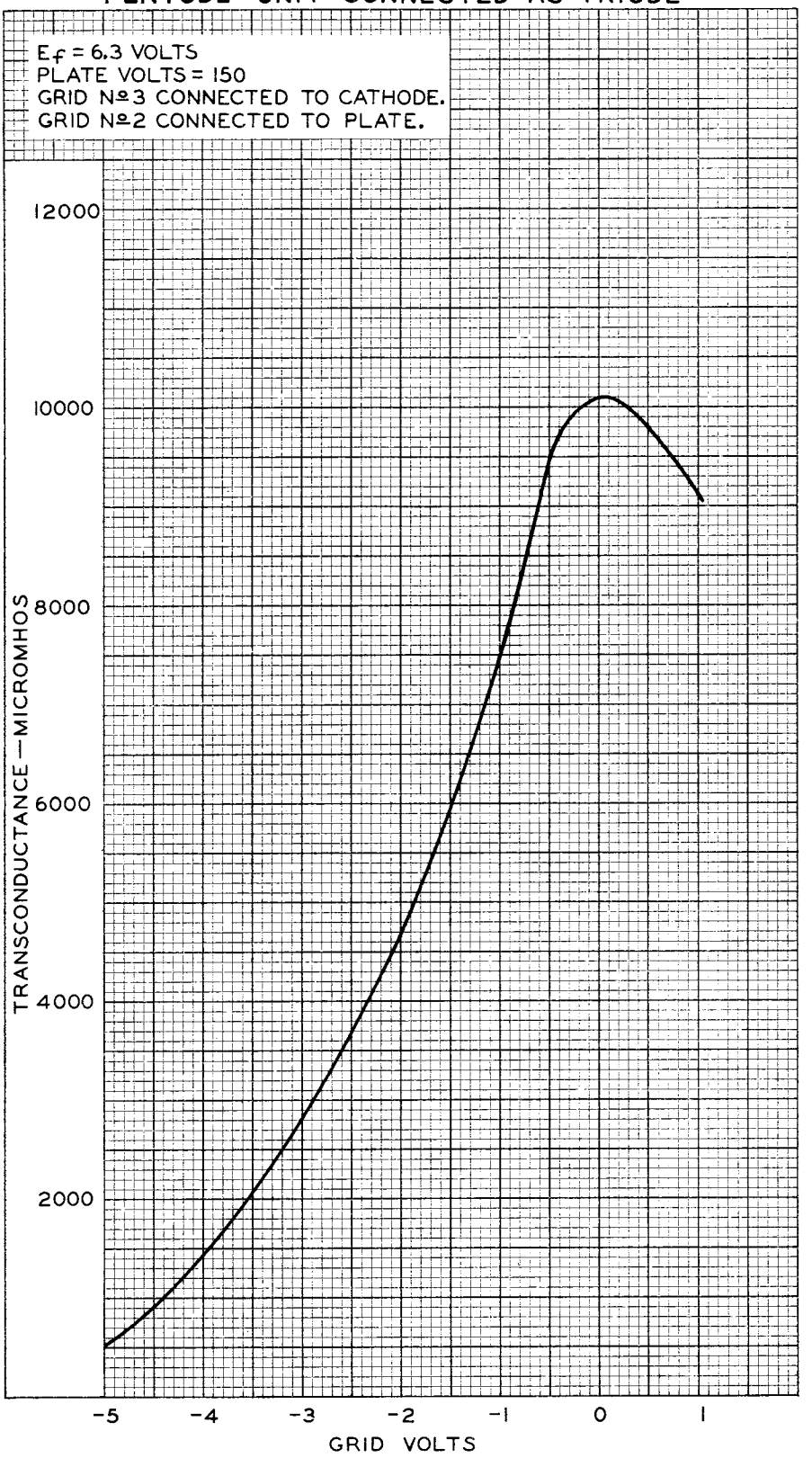
6X8

AVERAGE CHARACTERISTIC
PENTODE UNIT CONNECTED AS TRIODE



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92CM-7844