



6CG8

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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:

	<i>Without External Shield</i>	<i>With External Shield⁰</i>	
Triode Unit:			
Grid to plate	1.5	1.5	μf
Grid to cathode & pentode grid No.3, and heater.	2.6	3	μf
Plate to cathode & pentode grid No.3, and heater.	0.05	1	μf
Pentode Unit:			
Grid No.1 to plate. . . .	0.03 max.	0.016 max.	μf
Grid No.1 to cathode & grid No.3, grid No.2, and heater. . . .	4.8	5	μf
Plate to cathode & grid No.3, grid No.2, and heater. . . .	0.9	1.6	μf
Pentode grid No.1 to triode plate.	0.05 max.	0.04 max.	μf
Pentode plate to triode plate.	0.05 max.	0.007 max.	μf
Heater to cathode	5.5	5.5 [•]	μf

Characteristics:

	<i>Triode Unit</i>	<i>Pentode Unit</i>	
Plate-Supply Voltage.	100	250	volts
Grid-No.2 Supply Voltage. . . .	—	150	volts
Cathode Resistor.	100	200	ohms
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

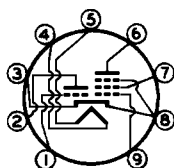
⁰ With external shield JETEC No.315 connected to cathode except as noted.[•] With external shield JETEC No.315 connected to ground.



TRIODE-PENTODE CONVERTER

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" $\pm$ 3/32"
Maximum Diameter.	7/8"
Dimensional Outline.	See General Section
Bulb.	T-6-1/2
Base.	Small-Button Noval 9-Pin (JETEC No. E9-1)
Basing Designation for BOTTOM VIEW.	9GF
Pin 1-Triode Grid	Pin 7-Pentode
Pin 2-Triode Plate	Grid No. 2
Pin 3-Cathode	Pin 8-Pentode
Pin 4-Heater	Grid No. 3,
Pin 5-Heater	Cathode
Pin 6-Pentode Plate	Pin 9-Pentode
	Grid No. 1



CONVERTER SERVICE

Maximum Ratings, Design-Center Values:

	Triode Unit as Osc.	Pentode Unit as Mixer	
PLATE VOLTAGE.	250 max.	250 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

GRID-No. 1 (CONTROL-GRID) VOLTAGE:			
Negative bias value. . .	40 max.	40 max.	volts
Positive bias value. . .	0 max.	0 max.	volts
PLATE DISSIPATION.	1.5 max.	2 max.	watts

GRID-No. 2 INPUT:			
For grid-No. 2 voltages up to 150 volts.	—	0.5 max.	watt
For grid-No. 2 voltages between 150 and 300 volts.	—	See Grid-No. 2 Input	

Rating Chart at front of Receiving Tube Section

GRID-No. 1 INPUT.	0.5 max.	—	watt
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode. . .	200 max.	200 max.	volts
Heater positive with respect to cathode. . .	200 [▲] max.	200 [▲] max.	volts

[▲] The dc component must not exceed 100 volts.



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TRIODE-PENTODE CONVERTER**Typical Operation:**

	<i>Triode Unit as 250-Mc Osc. •</i>	<i>Pentode Unit as Mixer*</i>	
Plate Voltage.	150	150	volts
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 Trans- conductance.	—	2100	μ mhos
Plate Current.	13	6.2	ma
Grid-No.2 Current.	—	1.8	ma
Grid Current	3.6	—	ma
Grid-No.1 Current.	—	2	μ amp
Oscillator Power Output (Approx.)	0.5	—	watt

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

- 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.

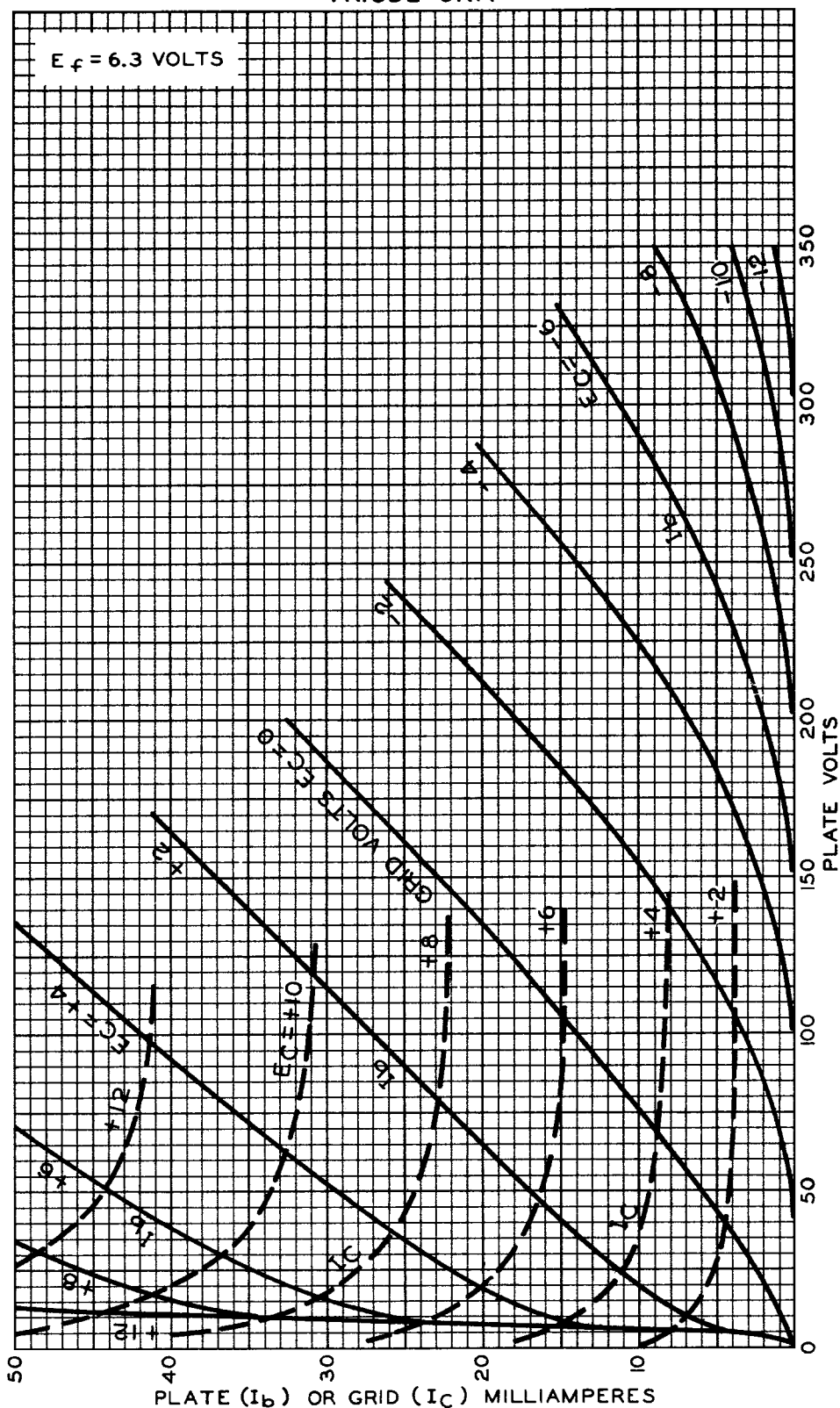
* With separate excitation and triode unit connected to ground.

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AVERAGE CHARACTERISTICS TRIODE UNIT



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92CM-7531

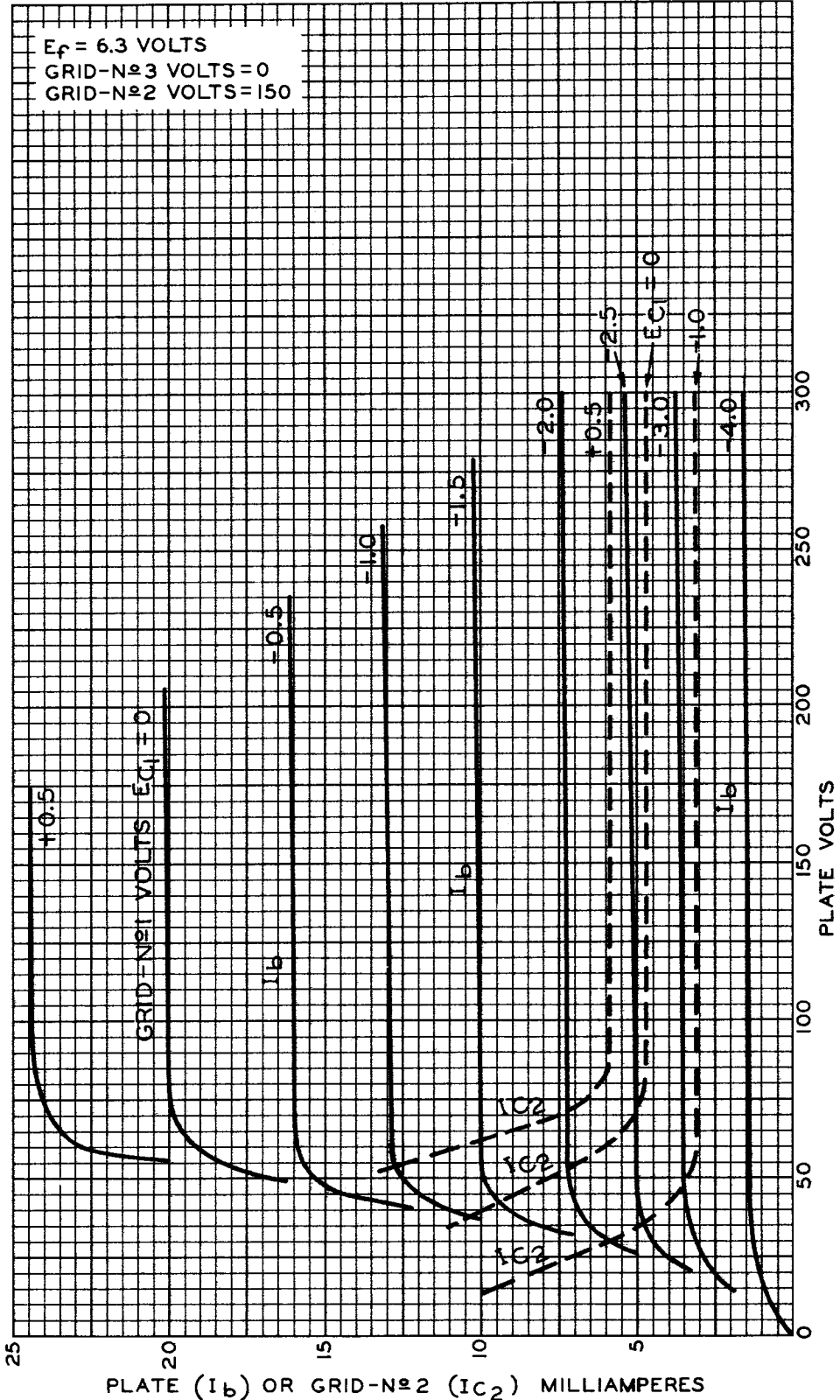
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AVERAGE CHARACTERISTICS PENTODE UNIT



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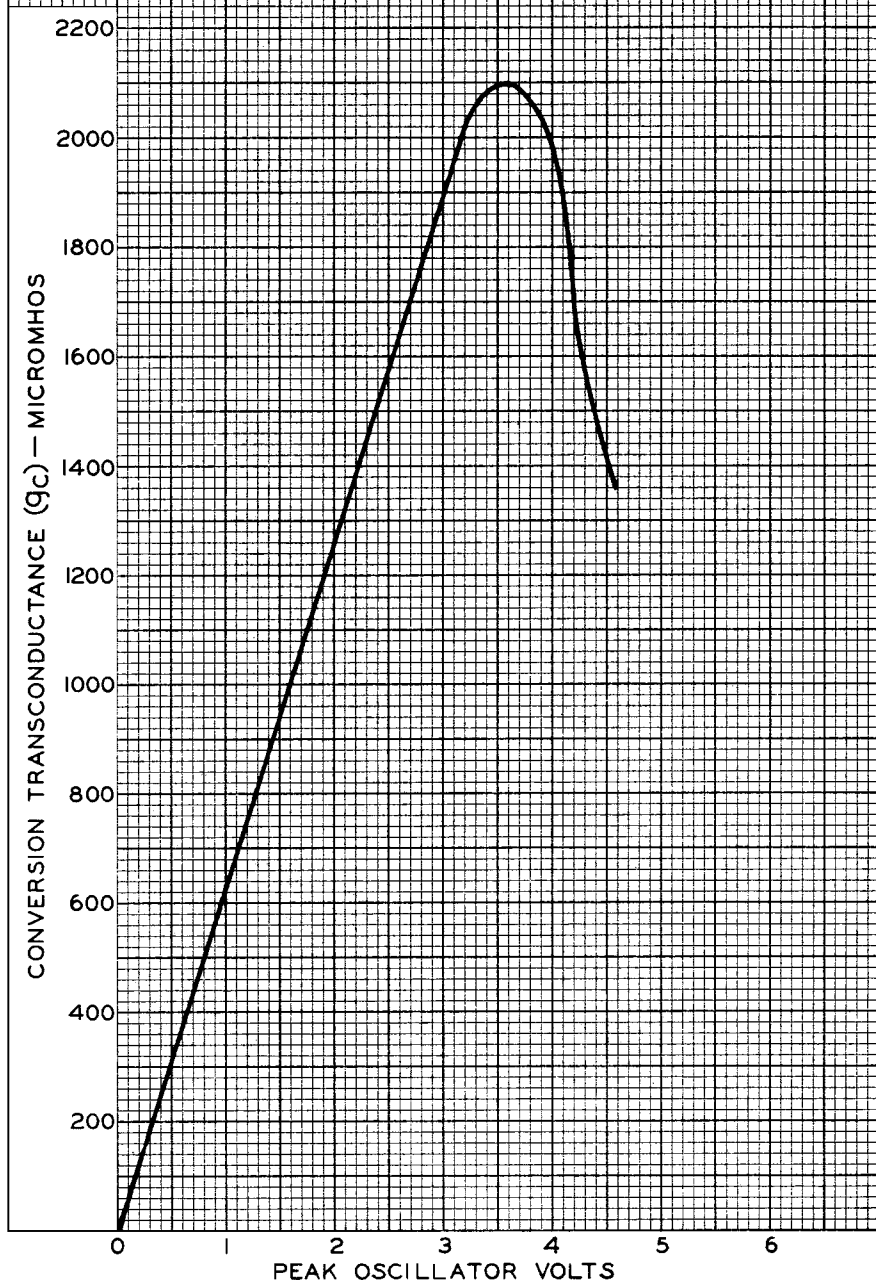
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OPERATION CHARACTERISTIC
WITH SEPARATE OSCILLATOR EXCITATION
PENTODE UNIT

$E_f = 6.3$ VOLTS
PLATE VOLTS = 150
GRID-Nº 3 VOLTS = 0
GRID-Nº 2 VOLTS = 150
GRID-Nº 1 SUPPLY VOLTS = -3.5
GRID-Nº 1 RESISTOR (OHMS) = 120000





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OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION PENTODE UNIT

$E_f = 6.3$ VOLTS
PLATE VOLTS = 150
GRID-Nº 3 VOLTS = 0
GRID-Nº 2 VOLTS = 150
GRID-Nº 1 RESISTOR (OHMS)
= 1200
OSCILLATOR VOLTS AT
GRID Nº1 = 2.6 RMS

CONVERSION TRANSDUCTANCE (g_c)—MICROMHOS

2000
1800
1600
1400
1200
1000
800
600
400
200

-10 -8 -6 -4 -2 0
GRID-Nº 1 SUPPLY VOLTS

g_c

I_b

I_{C2}

PLATE (I_b) OR GRID-Nº2 (I_{C2}) MILLIAMPERES

10

9

8

7

6

5

4

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92CM-7547R1