

**MECHANICAL DATA**

Bulb . . . . .	T-6 $\frac{1}{2}$
Base . . . . .	E9-1, Small Button
Outline . . . . .	6-2
Basing . . . . .	9DW
Cathode . . . . .	Coated Unipotential
Mounting Position . . . . .	Any

**ELECTRICAL DATA**

**HEATER CHARACTERISTICS**

	<b>5AT8</b>	<b>6AT8</b>
Heater Voltage . . . . .	4.7	6.3 Volts
Heater Current . . . . .	600	450 Ma
Heater Warm-up Time <sup>1</sup> . . . . .	11	Seconds
<b>Heater-Cathode Voltage (Design Center Values)</b>		
Heater Negative with Respect to Cathode		
Total DC and Peak . . . . .	200	200 Volts Max.
Heater Positive with Respect to Cathode		
DC . . . . .	100	100 Volts Max.
Total DC and Peak . . . . .	200	200 Volts Max.

**DIRECT INTERELECTRODE CAPACITANCES**

	<b>Shielded<sup>2</sup></b>	<b>Unshielded</b>
<b>Triode Section</b>		
Grid to Plate . . . . .	1.5	1.5 $\mu\mu\text{f}$
Input . . . . .	2.4	2.0 $\mu\mu\text{f}$
Output . . . . .	1.0	0.5 $\mu\mu\text{f}$
<b>Pentode Section</b>		
Grid No. 1 to Plate . . . . .	0.016	0.025 $\mu\mu\text{f}$ Max.
Input . . . . .	4.7	4.5 $\mu\mu\text{f}$
Output . . . . .	1.6	0.9 $\mu\mu\text{f}$
<b>Pentode Section Triode Connected<sup>3</sup></b>		
Grid No. 1 to Plate . . . . .	1.3	1.3 $\mu\mu\text{f}$
Input . . . . .	3.3	3.0 $\mu\mu\text{f}$
Output . . . . .	2.5	1.7 $\mu\mu\text{f}$
<b>Coupling</b>		
Pentode Grid No. 1 to Triode Plate . . . . .	0.04	0.05 $\mu\mu\text{f}$ Max.
Pentode Plate to Triode Plate . . . . .	0.007	0.05 $\mu\mu\text{f}$ Max.
Heater to Cathode . . . . .	6.5 <sup>4</sup>	6.5 $\mu\mu\text{f}$

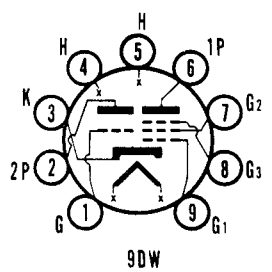
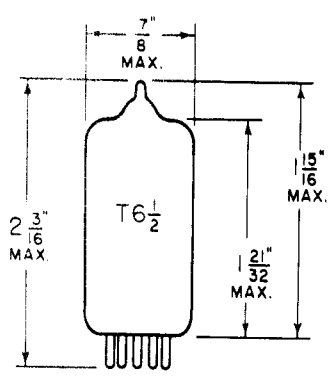
**RATINGS (Design Center Values)**

	<b>Triode Section as Oscillator</b>	<b>Pentode Section as Mixer</b>
<b>Converter Service</b>		
Plate Voltage . . . . .	250	250 Volts Max.
Grid No. 3 Voltage . . . . .		0 Volts Max.
Grid No. 2 Supply Voltage . . . . .		250 Volts Max.
Grid No. 2 Voltage . . . . .		See Rating Chart
Grid No. 1 Voltage		
Negative Bias Value . . . . .	40	40 Volts Max.
Positive Bias Value . . . . .	0	0 Volts Max.
Plate Dissipation . . . . .	1.5	2.0 Watts Max.
Grid No. 2 Input . . . . .		0.4 Watt Max.
Grid No. 1 Input . . . . .	0.5	Watt Max.
<b>Pentode Section as Triode Connected Mixer<sup>3</sup></b>		
Plate Voltage . . . . .		250 Volts Max.
Grid No. 1 Voltage		
Negative Bias Value . . . . .		40 Volts Max.
Positive Bias Value . . . . .		0 Volts Max.
Plate Dissipation . . . . .		2.4 Watts Max.

**QUICK REFERENCE DATA**

The Sylvania Type 6AT8 is a miniature medium mu triode and sharp cutoff pentode designed for application as a combined vhf oscillator and mixer.

The 5AT8, except for heater characteristics, is identical to the 6AT8. The 5AT8 incorporates controlled heater warm-up time and a 600 Ma heater for operation in television receivers employing a series heater string.



**SYLVANIA ELECTRIC PRODUCTS INC.**

**RADIO TUBE DIVISION EMPORIUM, PA.**

*Prepared and Released By The TECHNICAL PUBLICATIONS SECTION EMPORIUM, PENNSYLVANIA*

CHARACTERISTICS

	Triode Section	Pentode Section
Plate Voltage . . . . .	100	250 Volts
Grid No. 3 Voltage . . . . .	Connected to Cathode at Socket	
Grid No. 2 Voltage . . . . .		150 Volts
Cathode Bias Resistor . . . . .	100	200 Ohms
Amplification Factor . . . . .	40	
Plate Resistance (approx.) . . . . .	6900	750,000 Ohms
Transconductance . . . . .	5800	4600 $\mu$ mhos
Grid No. 1 Bias for $I_b = 10 \mu a$ (approx.) . . . . .	-10	-10 Volts
Plate Current . . . . .	8.5	7.7 Ma
Grid No. 2 Current . . . . .		1.6 Ma
Grid No. 1 Circuit Resistance		
Fixed Bias . . . . .	0.1	Megohm
Cathode Bias . . . . .	0.5	Megohm Max.

TYPICAL OPERATION

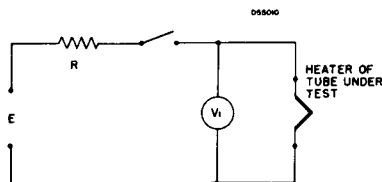
	Triode Section as 250 Mc Oscillator <sup>5</sup>	Pentode Section as Mixer <sup>6</sup>
Plate Voltage . . . . .	150	150 Volts
Grid No. 3 Voltage . . . . .	Connected to Cathode at Socket	
Grid No. 2 Voltage . . . . .		150 Volts
Mixer Grid No. 1 Supply Voltage . . . . .		-3.5 Volts
Oscillator Voltage at Mixer Grid No. 1 (RMS) . . . . .		2.6 Volts
Mixer Grid No. 1 Circuit Resistance . . . . .		120,000 Ohms
Oscillator Grid Resistor . . . . .	2700	Ohms
Conversion Transconductance . . . . .		2100 $\mu$ mhos
Plate Current . . . . .	13	6.2 Ma
Grid No. 2 Current . . . . .		1.8 Ma
Grid No. 1 Current . . . . .	3.6	Ma
Grid No. 1 Current . . . . .		2.0 $\mu a$
Oscillator Power Output (approx.) <sup>4</sup> . . . . .	0.5	Watt

	Pentode Section as Triode Connected Mixer <sup>3</sup>
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 . . . . .	120,000 Ohms
Conversion Transconductance . . . . .	2800 $\mu$ mhos
Plate Current . . . . .	7.8 Ma
Grid No. 1 Current . . . . .	2.0 $\mu a$

NOTES:

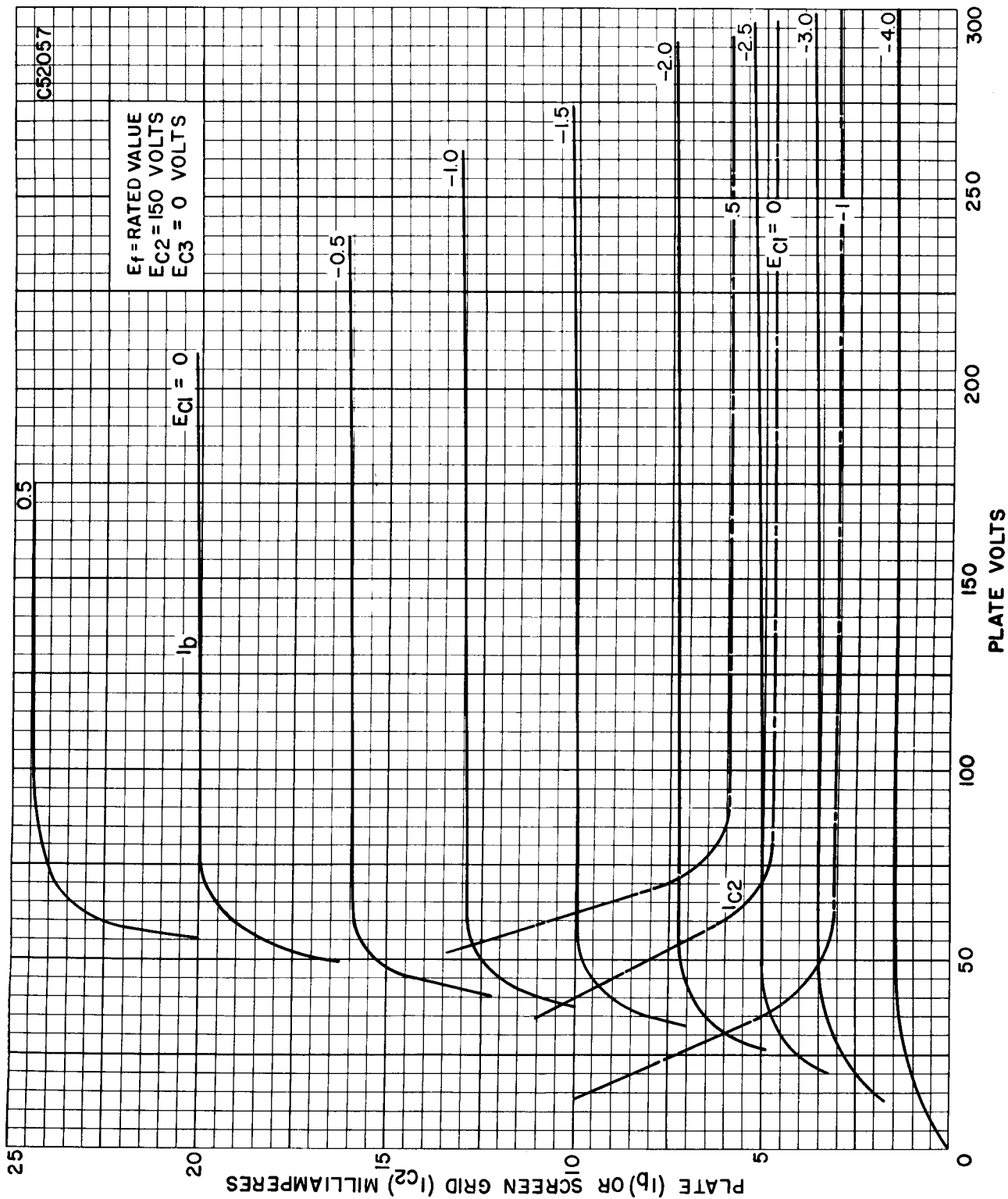
1. Heater Warm-up Time is defined as the time required in the circuit shown below for the voltage across the heater terminals to increase from zero to the heater test voltage (V1). The conditions used in conjunction with the test circuit depend upon the rated heater voltage and current of the tube under test. For this type: E = 18.8 Volts, R = 23.6 Ohms, V1 = 3.75 Volts.



- E — Applied Voltage, RMS or DC
- R — Total Series Resistance
- V1 — Heater Test Voltage, RMS or DC  
(80% Rated Heater Voltage)

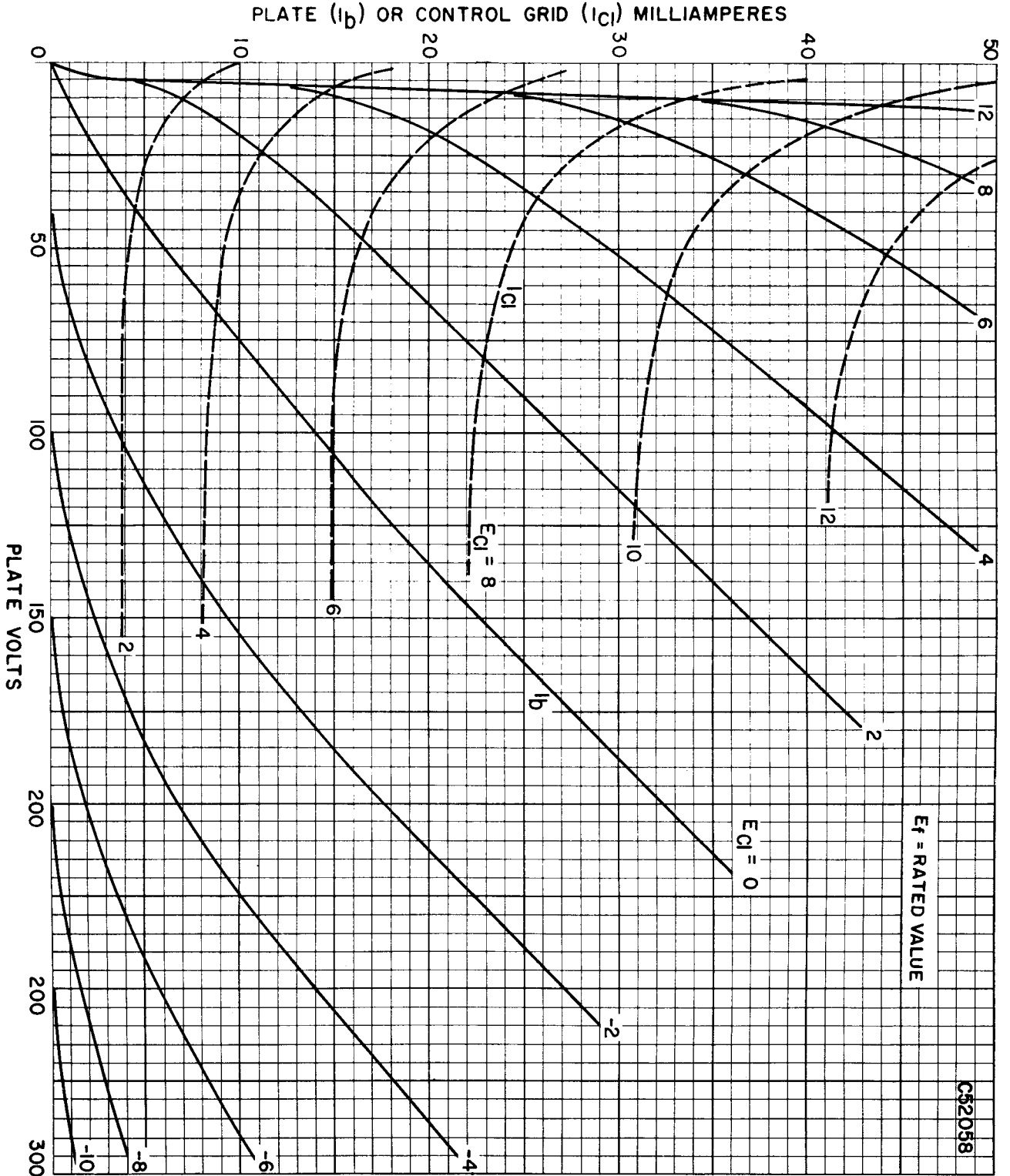
2. External shield No. 315 connected to cathode.
3. Grid No. 3 connected to cathode; Grid No. 2 connected to plate.
4. Shield No. 315 connected to ground.
5. In tv or fm receivers, it is generally desirable to operate the oscillator with less power input than shown in the tabulated data in order to avoid over-excitation and excessive oscillator radiation.
6. With separate excitation and triode unit grounded.

AVERAGE PLATE CHARACTERISTICS  
PENTODE SECTION

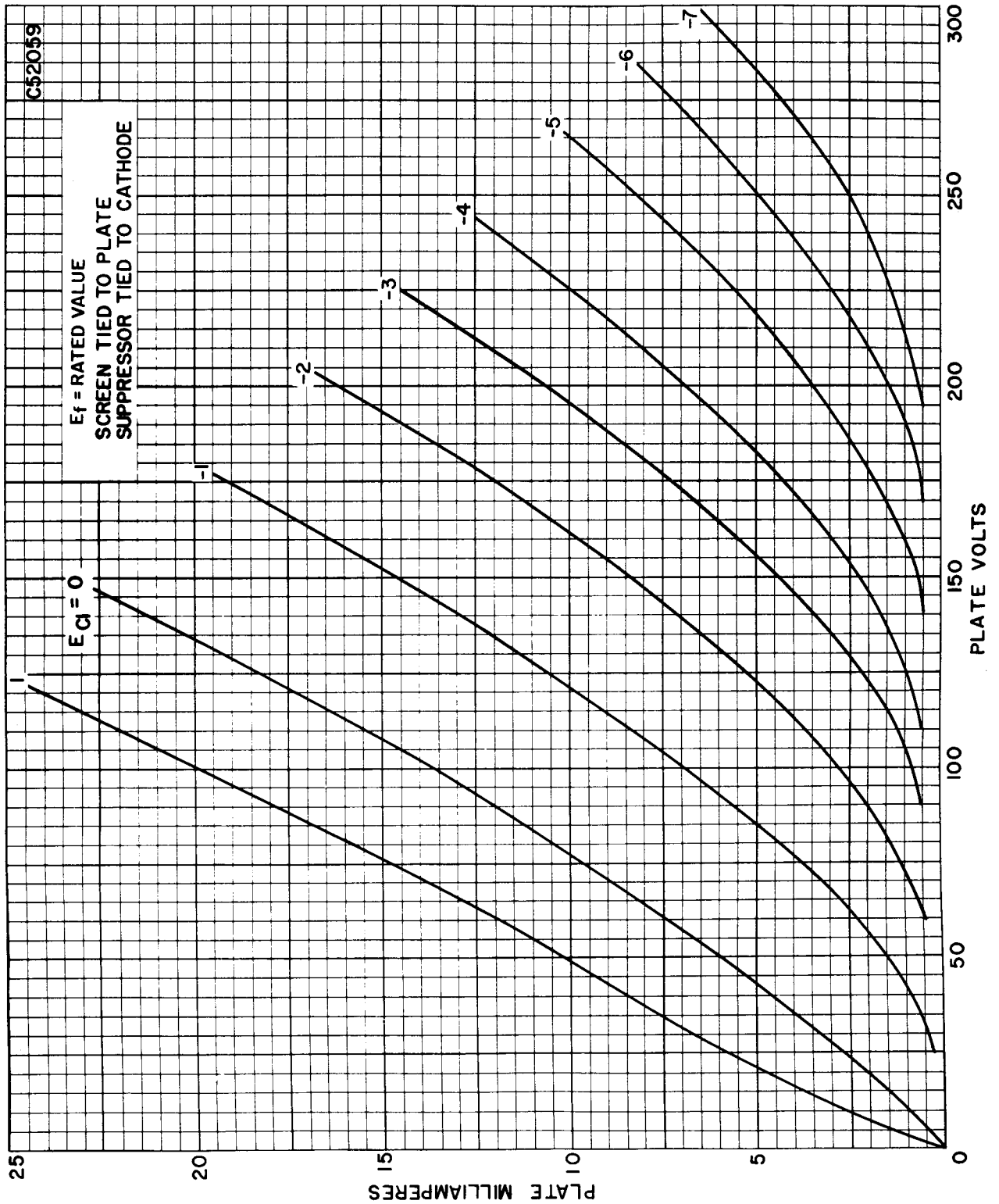


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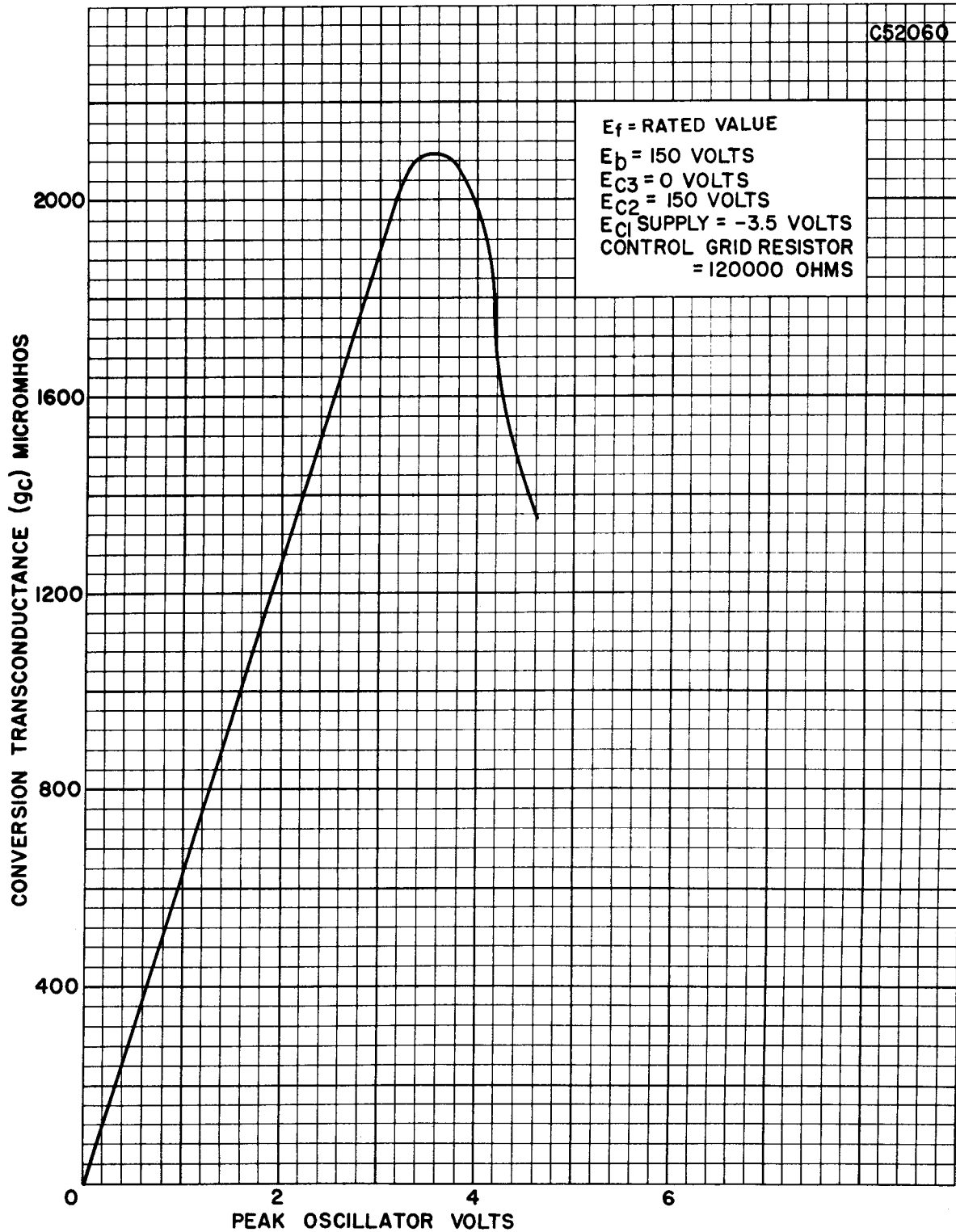
AVERAGE PLATE CHARACTERISTICS  
TRIODE SECTION



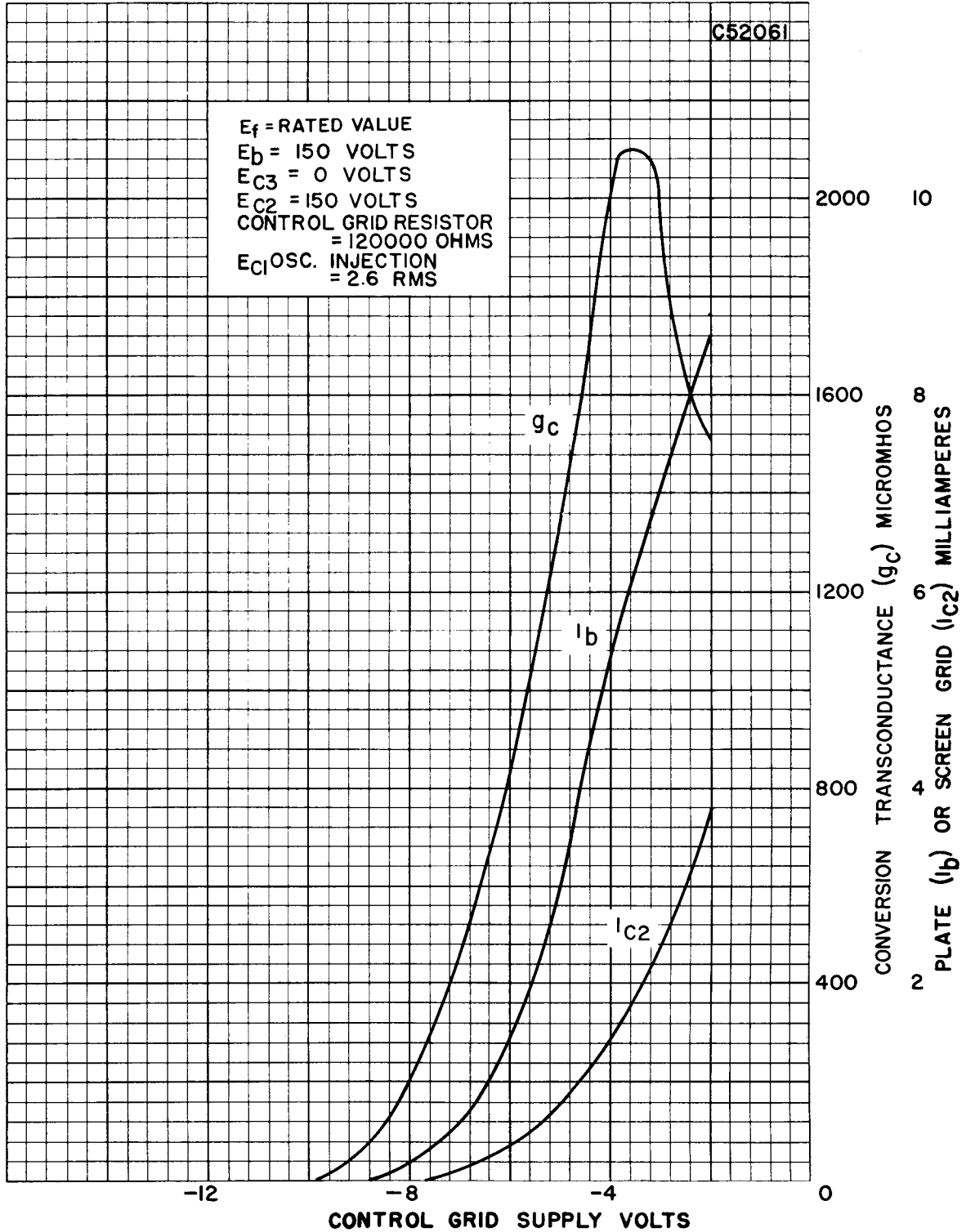
AVERAGE PLATE CHARACTERISTICS  
TRIODE SECTION



AVERAGE OPERATION CHARACTERISTICS  
SEPARATE EXCITATION — PENTODE SECTION



AVERAGE OPERATION CHARACTERISTICS  
SEPARATE EXCITATION — PENTODE SECTION



RATING CURVE

