

MECHANICAL DATA

Bulb	T-6½
Base	E9-1, Small Button 9-Pin
Outline	6-2
Basing	9DW
Cathode	Coated Unipotential
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

	5AT8	6AT8
Heater Voltage	4.7	6.3 Volts
Heater Current	600	450 Ma
Heater Warm-up Time ¹	11	Seconds
Heater-Cathode Voltage (Design Center Values)		
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

	Shielded ²	Unshielded
Triode Section		
Grid to Plate	1.5	1.5 μf
Input	2.4	2.0 μf
Output	1.0	0.5 μf
Pentode Section		
Grid No. 1 to Plate	0.016	0.025 μf Max.
Input	4.7	4.5 μf
Output	1.6	0.9 μf
Pentode Section Triode Connected³		
Grid No. 1 to Plate	1.3	1.3 μf
Input	3.3	3.0 μf
Output	2.5	1.7 μf
Coupling		
Pentode Grid No. 1 to Triode Plate	0.04	0.05 μf Max.
Pentode Plate to Triode Plate	0.007	0.05 μf Max.
Heater to Cathode	6.5 ⁴	6.5 μf

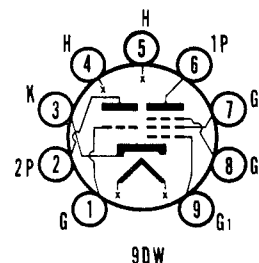
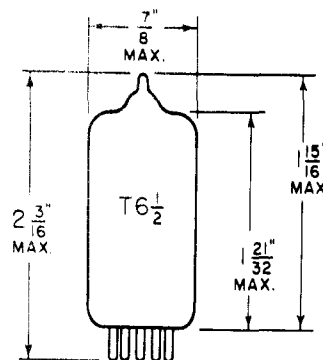
RATINGS (Design Center Values)

	Triode Section as Oscillator	Pentode Section as Mixer
Converter Service		
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.
Pentode Section as Triode Connected Mixer³		
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

JULY 1955

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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 μ 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.

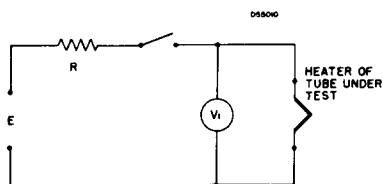
TYPICAL OPERATION

	Triode Section as 250 Mc Oscillator ⁵	Pentode Section as Mixer ⁶
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 μ 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 μa
Oscillator Power Output (approx.) ⁴	0.5	Watt

	Pentode Section as Triode Connected Mixer ³
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 μ mhos
Plate Current	7.8 Ma
Grid No. 1 Current	2.0 μa

NOTES:

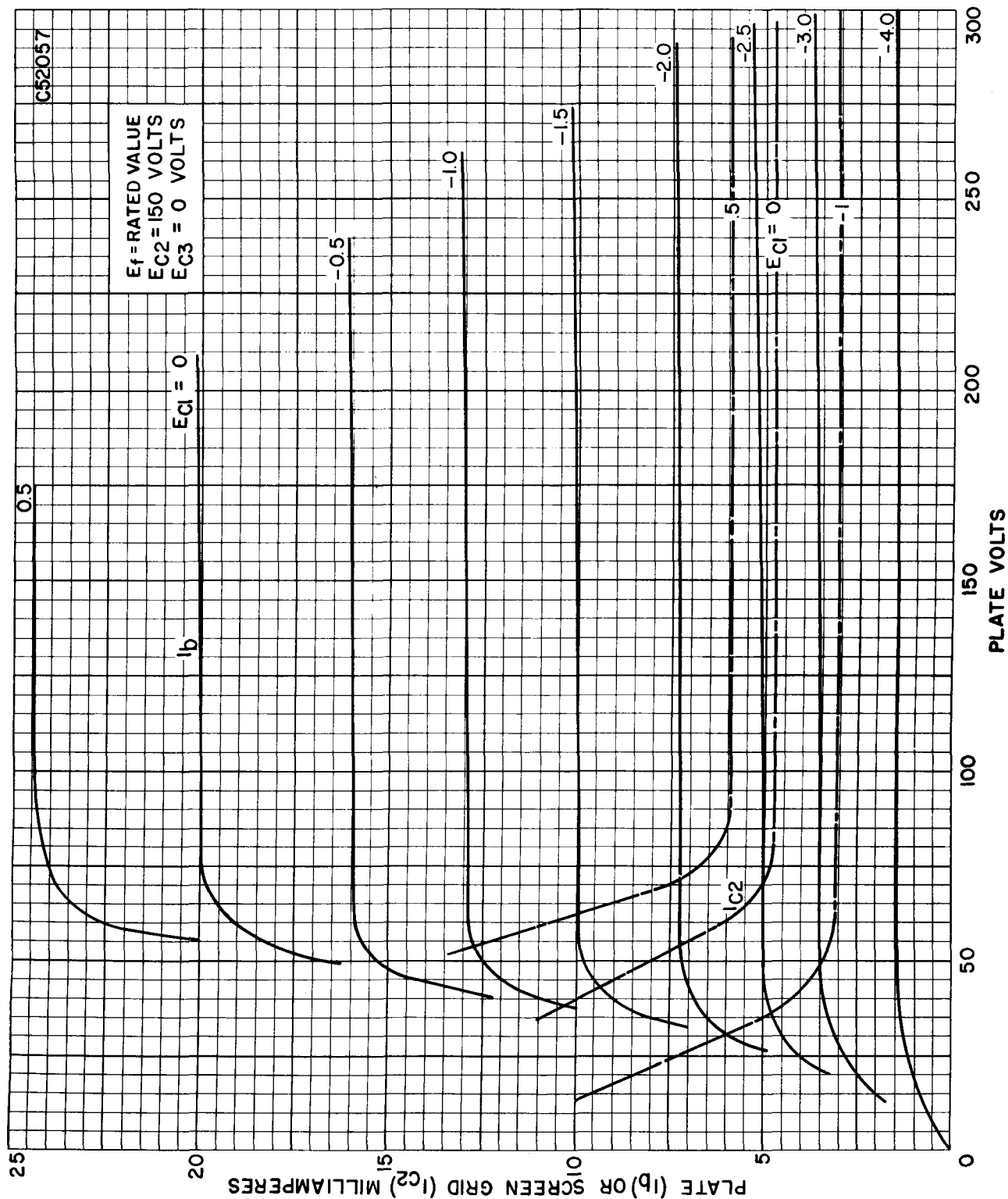
1. *Heater Warm-up Time is defined as the time required in the circuit shown below for the voltage across the heater terminals to increase from zero to the heater test voltage (V_1). The conditions used in conjunction with the test circuit depend upon the rated heater voltage and current of the tube under test. For this type: $E = 18.8$ Volts, $R = 23.6$ Ohms, $V_1 = 3.75$ Volts.*



- E — Applied Voltage, RMS or DC
 R — Total Series Resistance
 V_1 — Heater Test Voltage, RMS or DC
 (80% Rated Heater Voltage)

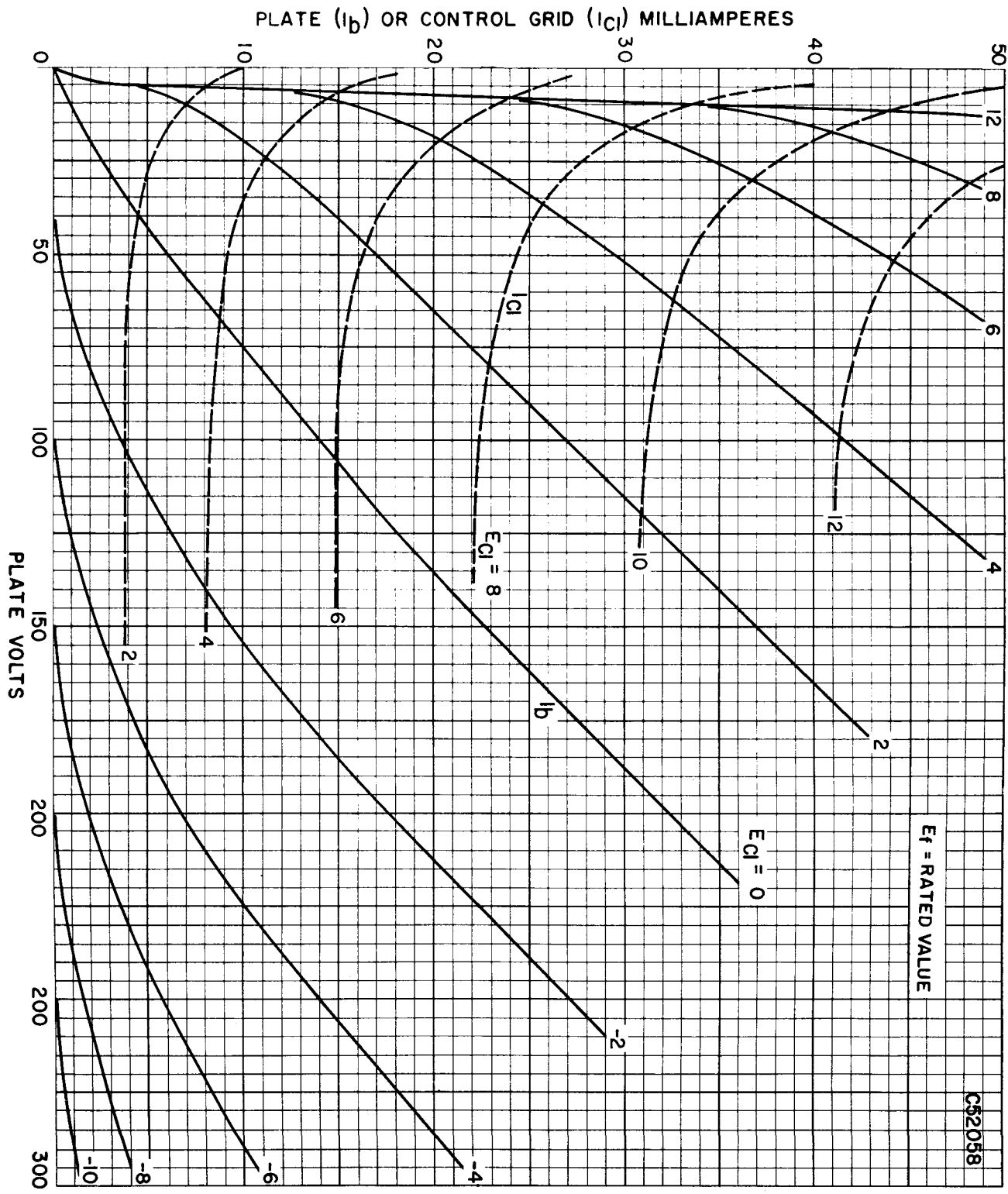
2. External shield No. 315 connected to cathode.
3. Grid No. 3 connected to cathode; Grid No. 2 connected to plate.
4. Shield No. 315 connected to ground.
5. In tv or fm receivers, it is generally desirable to operate the oscillator with less power input than shown in the tabulated data in order to avoid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

AVERAGE PLATE CHARACTERISTICS
PENTODE SECTION

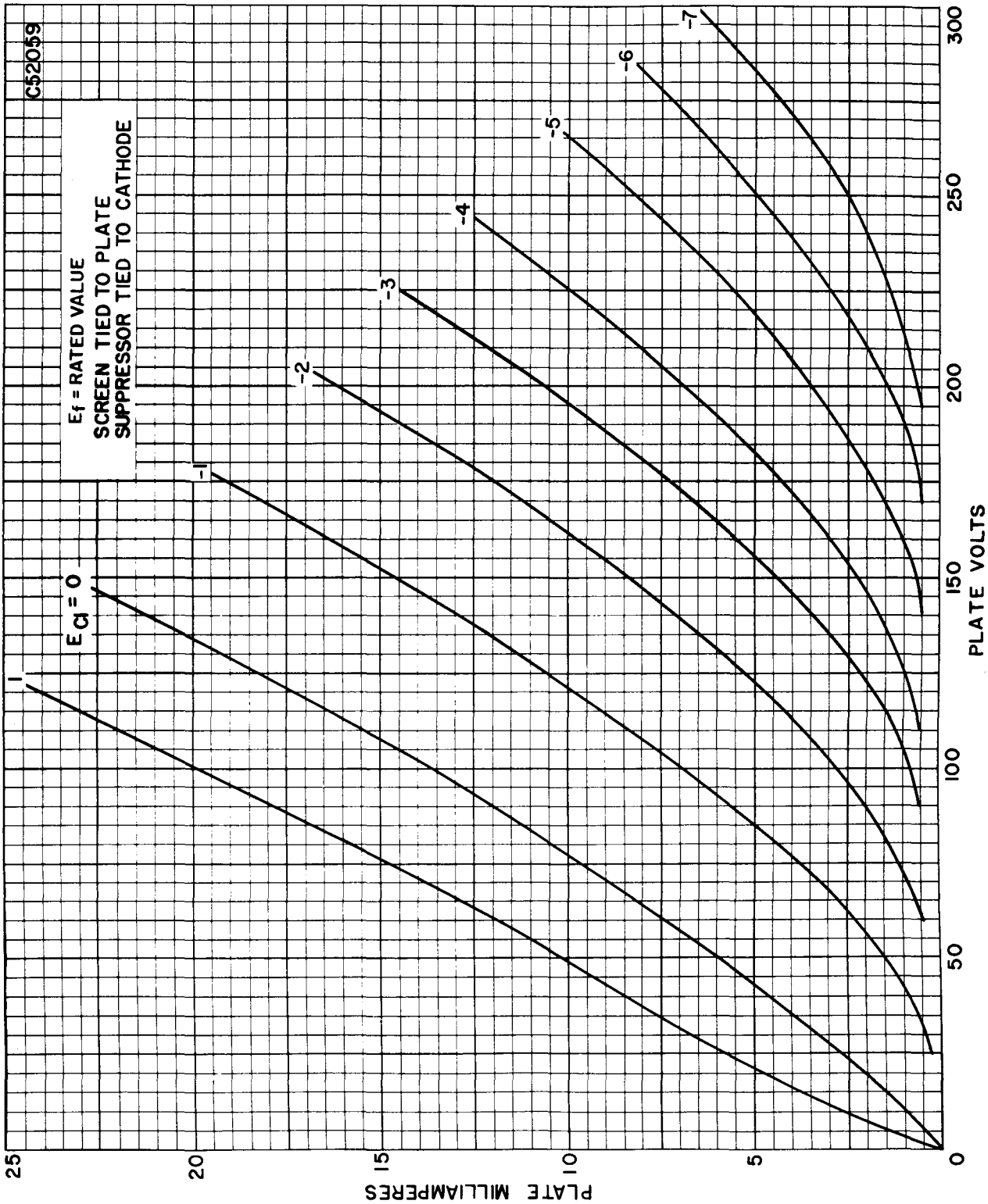


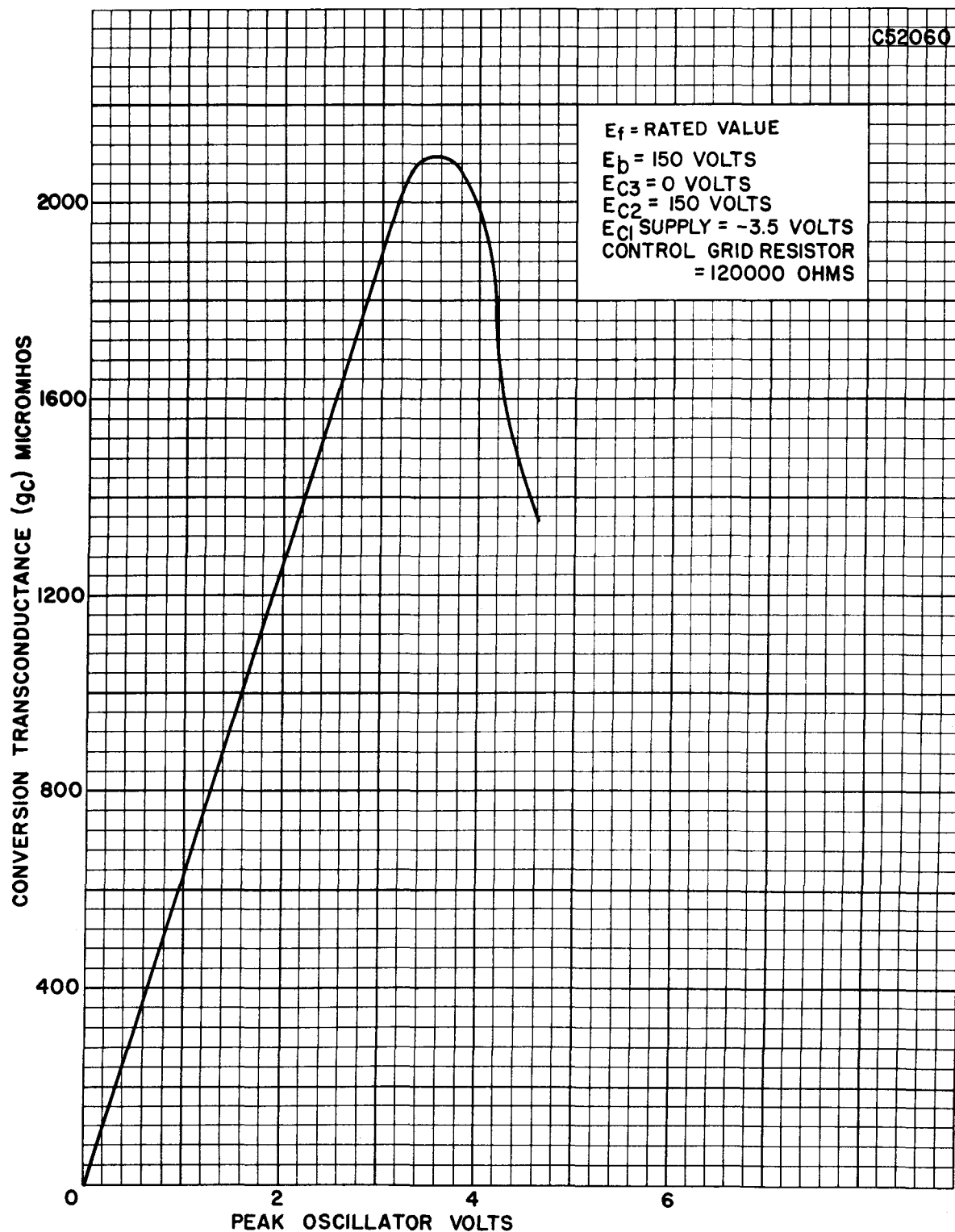
6AT8
5AT8

AVERAGE PLATE CHARACTERISTICS
TRIODE SECTION

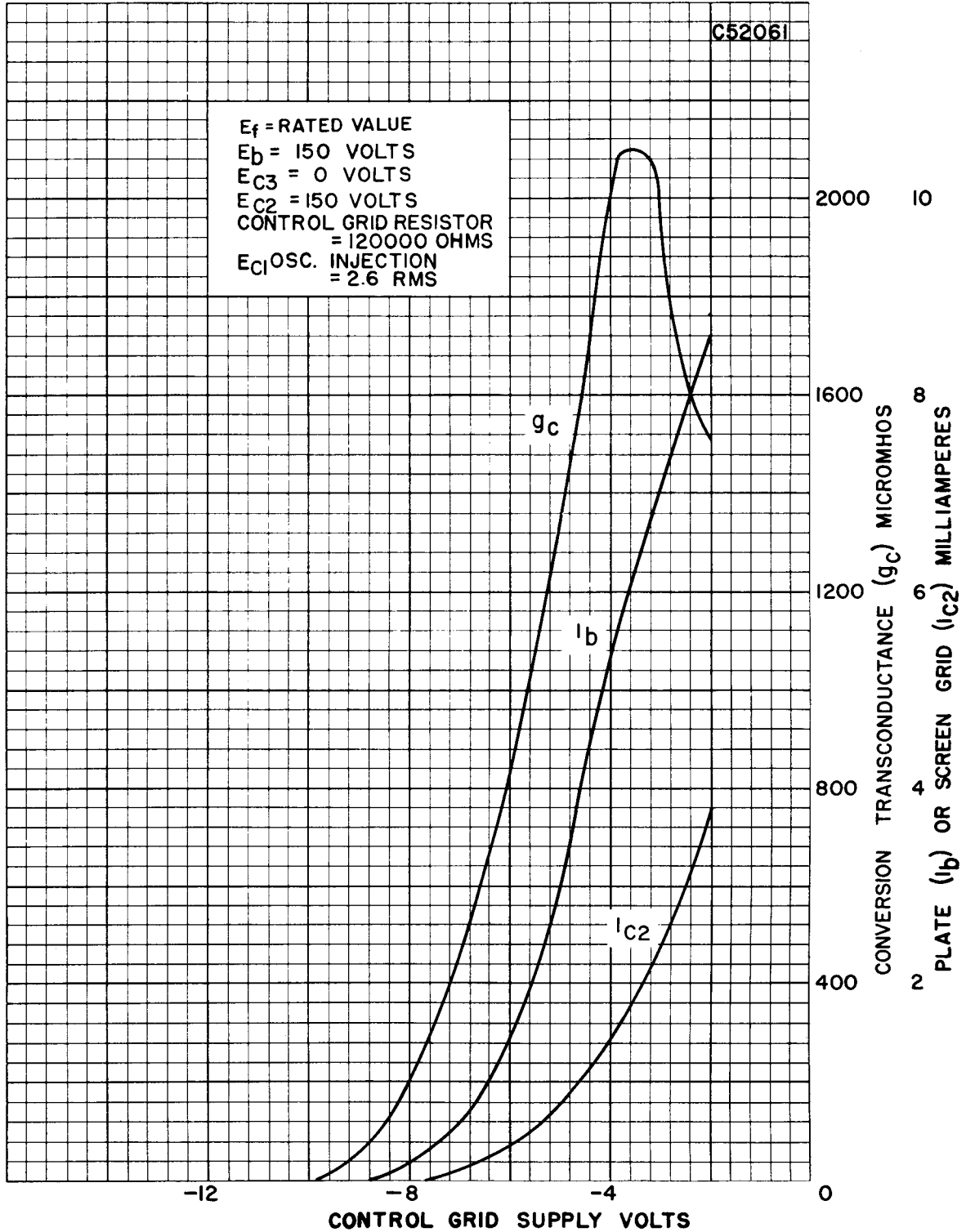


AVERAGE PLATE CHARACTERISTICS
TRIODE SECTION



AVERAGE OPERATION CHARACTERISTICS
SEPARATE EXCITATION — PENTODE SECTION

AVERAGE OPERATION CHARACTERISTICS
SEPARATE EXCITATION — PENTODE SECTION



6AT8
5AT8

RATING CURVE

