SYLVANIA

engineering data service

SYLVANIA
6AT8
5AT8

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	μμf
Input	2.4	2.0	μμf
Output	1.0	0.5	μμf
Pentode Section			
Grid No. 1 to Plate	0.016	0.025	μμf Max.
Input	4.7	4.5	μμf
Output	1.6	0.9	μμf
Pentode Section Triode Connected[3]			
Grid No. 1 to Plate	1.3	1.3	μμf
Input	3.3	3.0	μμf
Output	2.5	1.7	μμf
Coupling			
Pentode Grid No. 1 to Triode Plate	0.04	0.05	μμf Max.
Pentode Plate to Triode Plate	0.007	0.05	μμf Max.
Heater to Cathode	6.5[4]	6.5	μμf

RATINGS (Design Center Values)

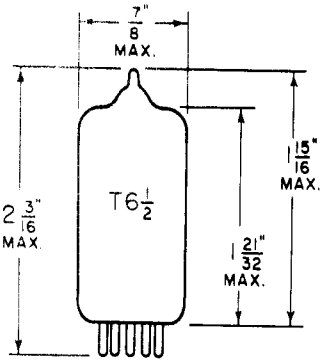
Converter Service	Triode Section as Oscillator	Pentode Section as Mixer	
Plate Voltage	250	250	Volts Max.
Grid No. 3 Voltage		0	Volts Max.
Grid No. 2 Supply Voltage		250	Volts Max.
Grid No. 2 Voltage		See Rating Chart	
Grid No. 1 Voltage			
Negative Bias Value	40	40	Volts Max.
Positive Bias Value	0	0	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.

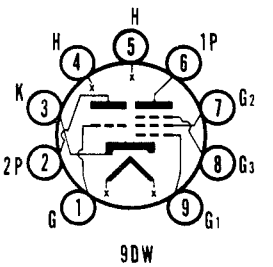
	Pentode Section as Triode Connected Mixer[3]	
Plate Voltage	250	Volts Max.
Grid No. 1 Voltage		
Negative Bias Value	40	Volts Max.
Positive Bias Value	0	Volts Max.
Plate Dissipation	2.4	Watts Max.

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.





9DW

SYLVANIA ELECTRIC PRODUCTS INC.

RADIO TUBE DIVISION
EMPORIUM, PA.

Prepared and Released By The TECHNICAL PUBLICATIONS SECTION EMPORIUM, PENNSYLVANIA

JULY 1955

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	μmhos
Grid No. 1 Bias for I_b = 10 μa (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.

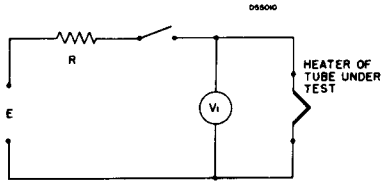
TYPICAL OPERATION

	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	μmhos
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	μmhos
Plate Current	7.8	Ma
Grid No. 1 Current	2.0	μa

NOTES:

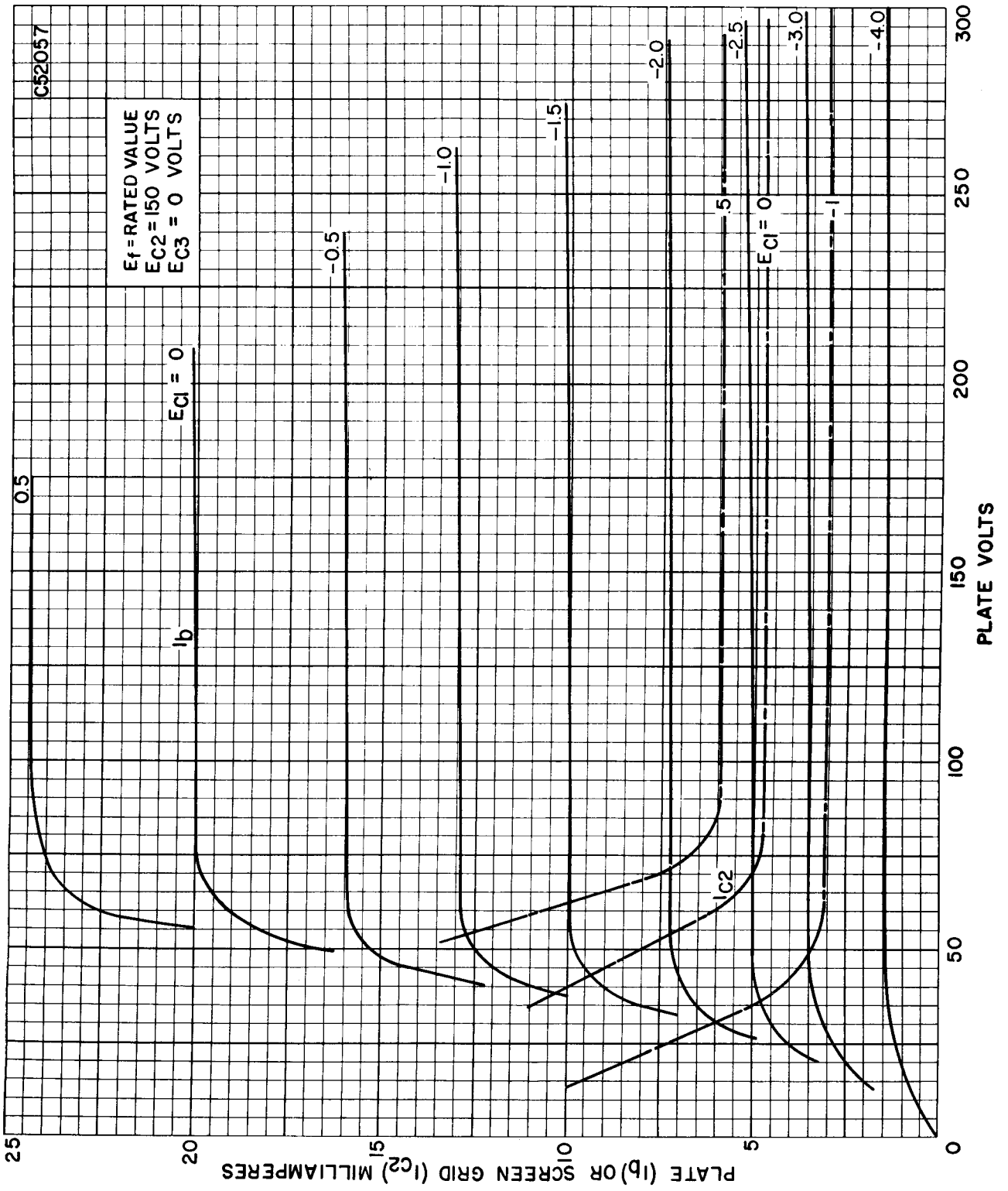
1. *Heater Warm-up Time is defined as the time required in the circuit shown below for the voltage across the heater terminals to increase from zero to the heater test voltage (V1). The conditions used in conjunction with the test circuit depend upon the rated heater voltage and current of the tube under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



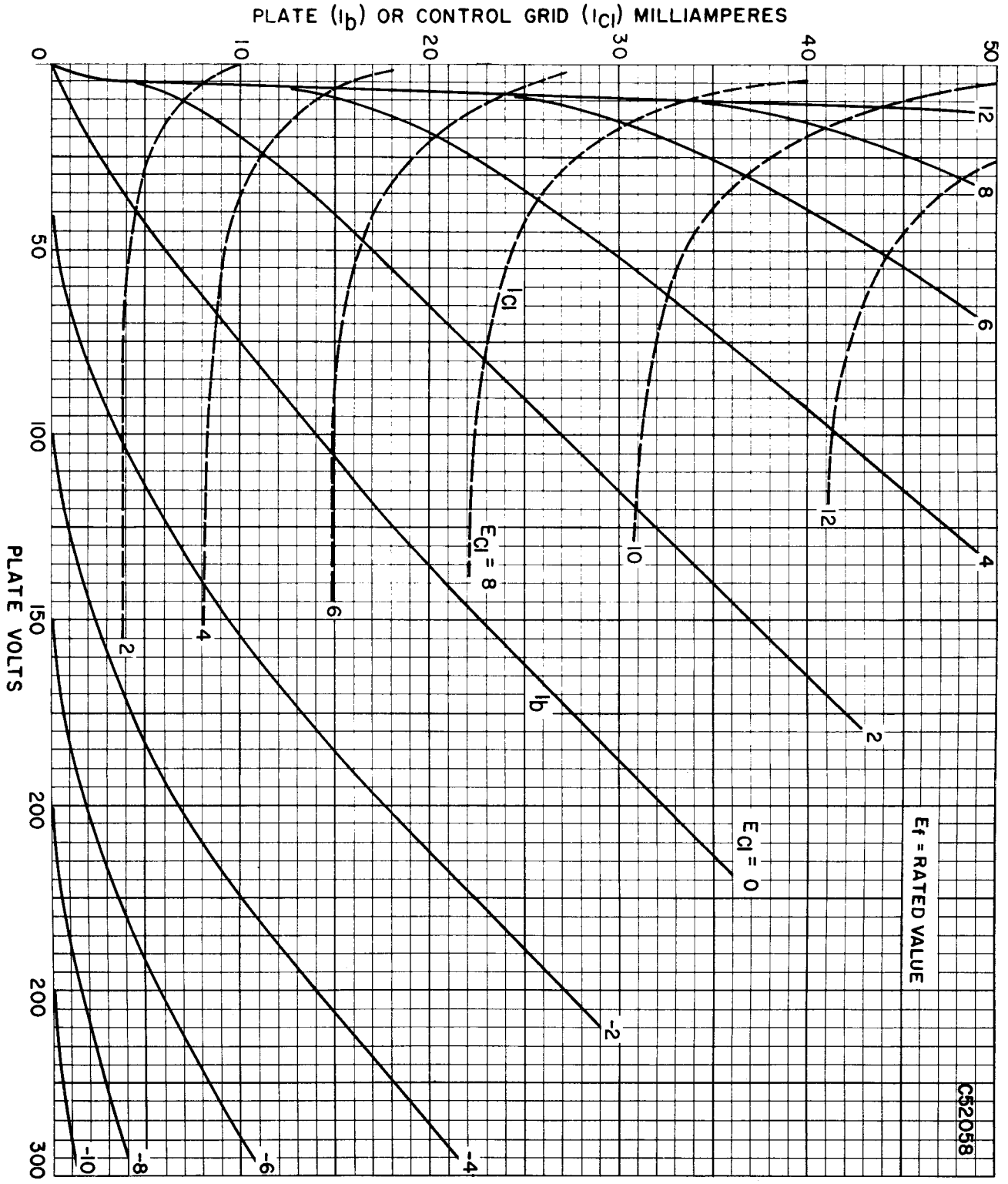
E — Applied Voltage, RMS or DC
R — Total Series Resistance
V1 — Heater Test Voltage, RMS or DC (80% Rated Heater Voltage)

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.*

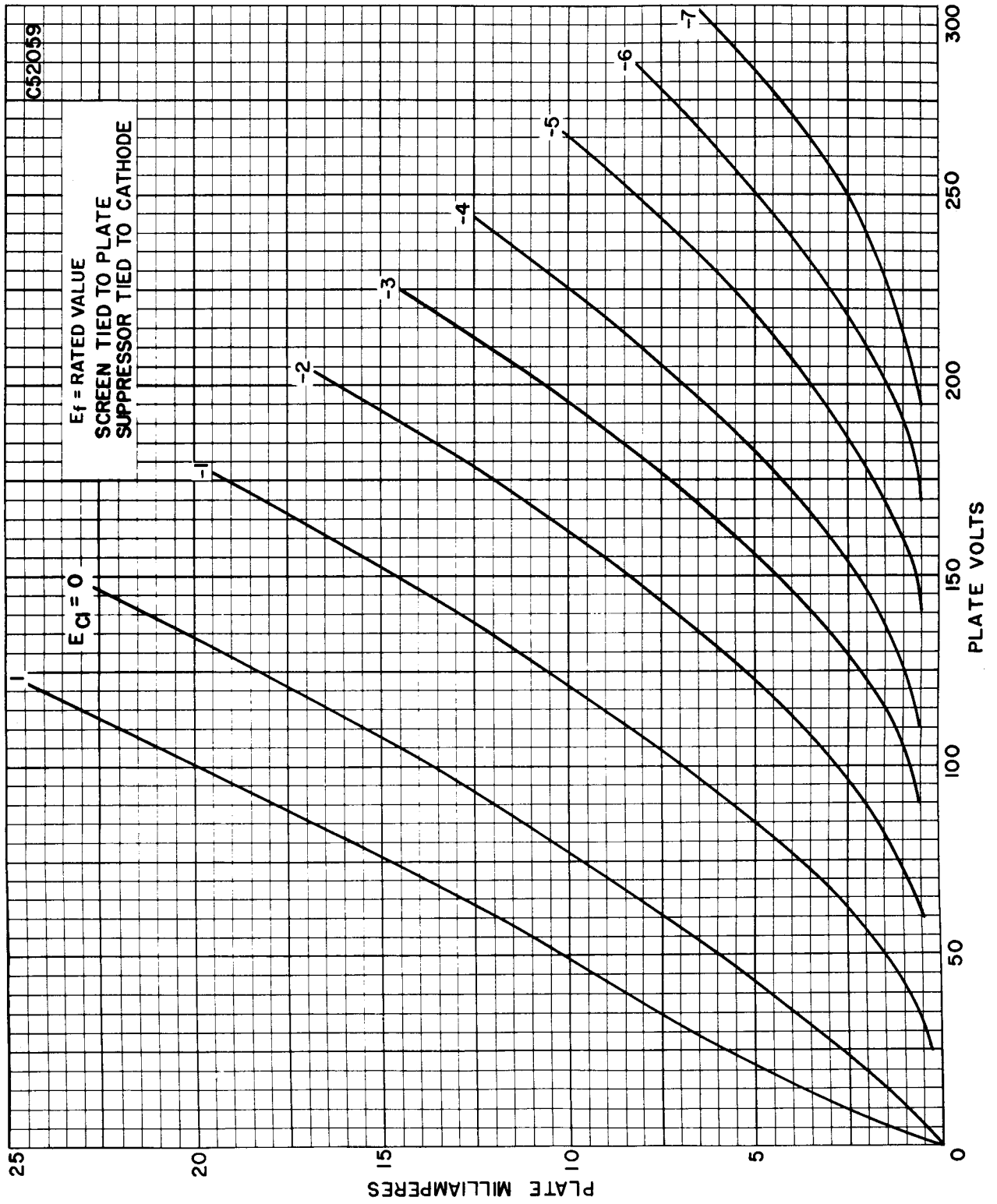
AVERAGE PLATE CHARACTERISTICS
PENTODE SECTION



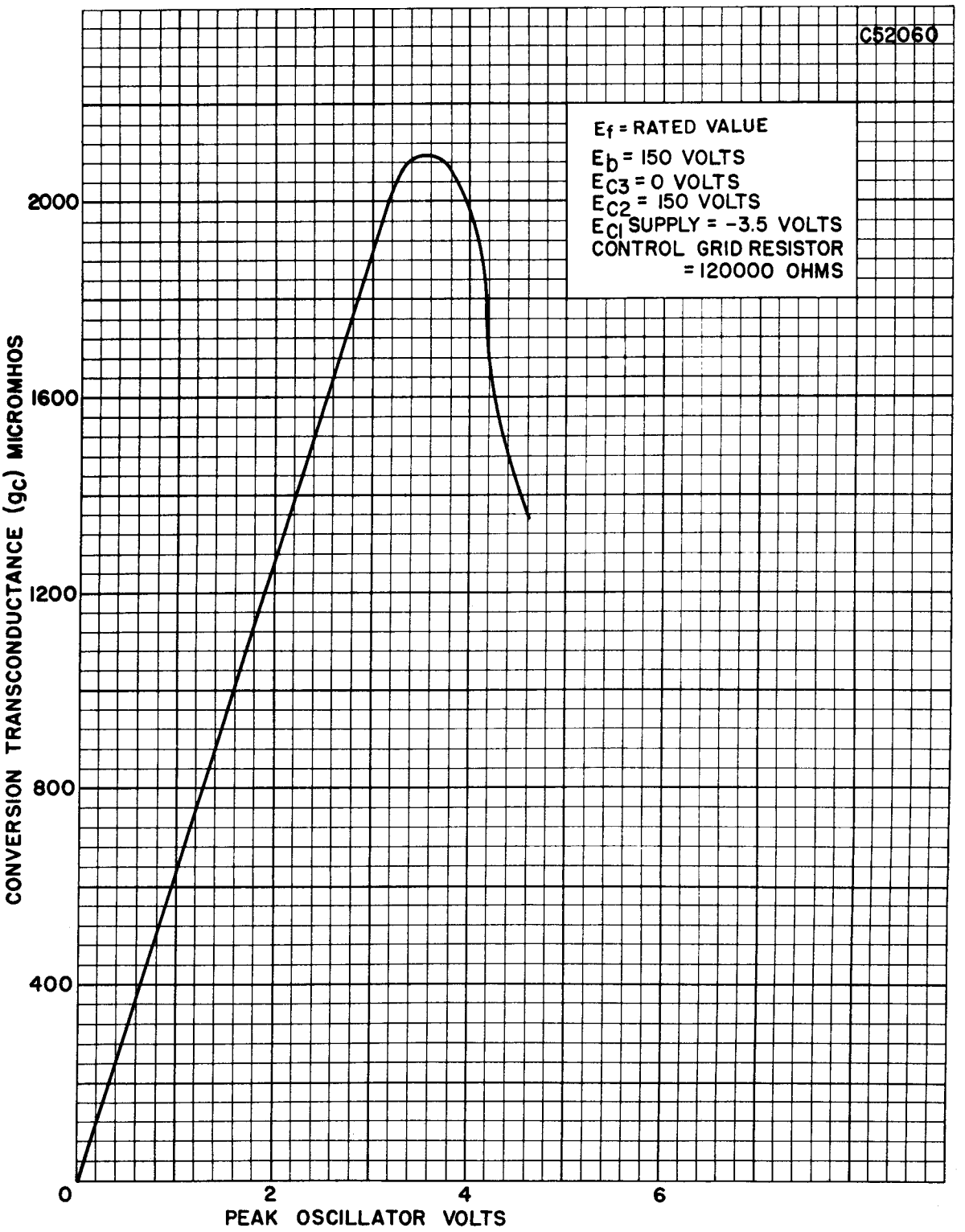
AVERAGE PLATE CHARACTERISTICS
TRIODE SECTION



AVERAGE PLATE CHARACTERISTICS
TRIODE SECTION



AVERAGE OPERATION CHARACTERISTICS
SEPARATE EXCITATION — PENTODE SECTION



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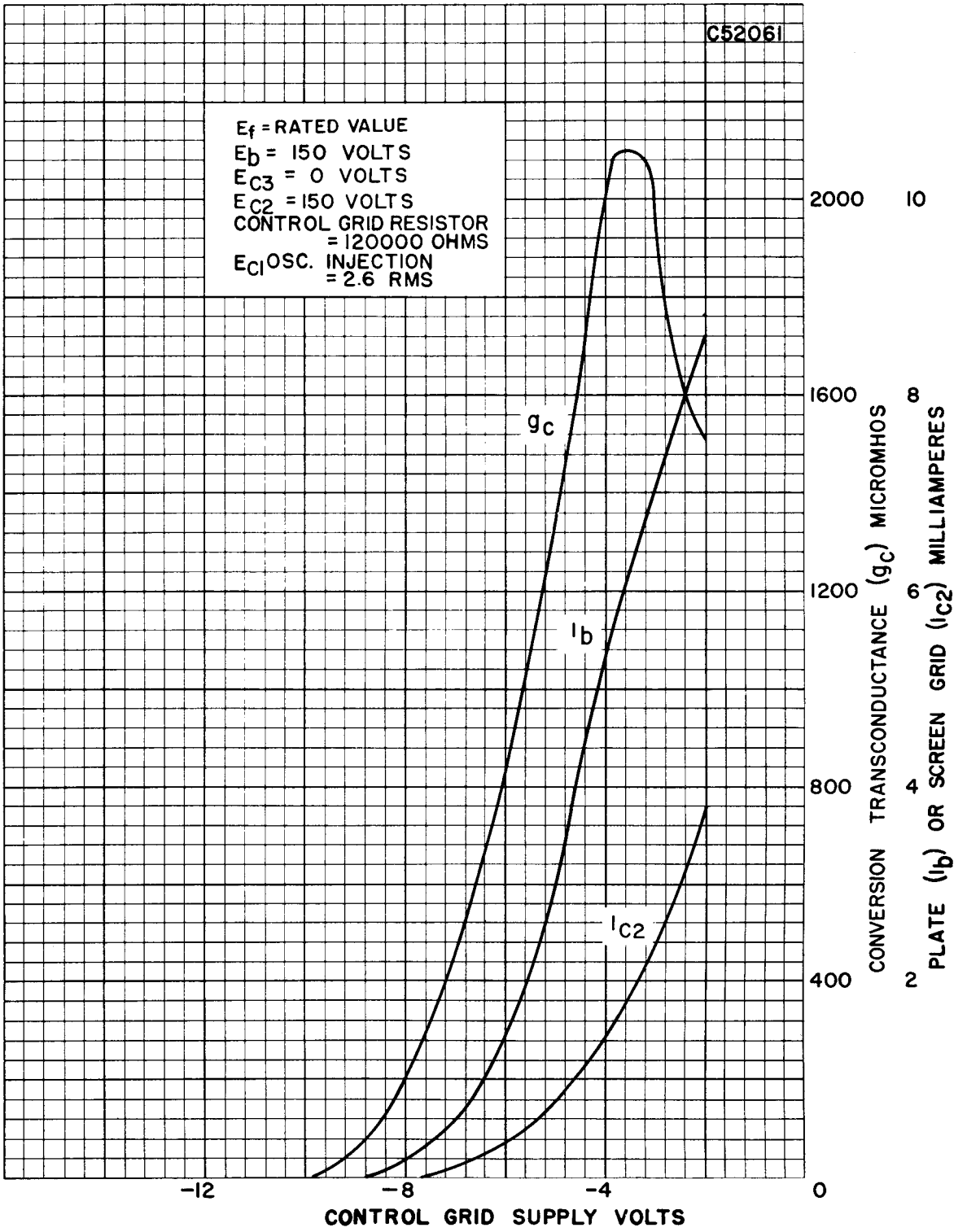
SEPARATE EXCITATION — PENTODE SECTION



RATING CURVE