

—PRODUCT INFORMATION—

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16BX11

Compactron Dissimilar-Double-Triode Pentode

- LOW HEATER POWER
- HIGH TRANSCONDUCTANCE VIDEO AMPLIFIER PENTODE
- GENERAL PURPOSE TRIODES

The 16BX11 is a compactron containing a high-mu triode, a medium-mu triode, and a sharp-cutoff pentode. The pentode is intended for video amplifier service and the triodes for general-purpose applications.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*..... 16 Volts

Heater Current..... 0.315 ± 0.02 Amperes

Heater Warm-up Time, average..... 11 Seconds

Direct Interelectrode Capacitances, approximate▲

Pentode Section

Grid-Number 1 to Plate: (Pg1 to Pp)..... 0.08 pf

Input: Pg1 to (Pk + Pg2 + Pg3 + h + i.s.)..... 11 pf

Output: Pp to (Pk + Pg2 + Pg3 + h + i.s.)..... 4.0 pf

Triode (Section 1)

Grid to Plate: (T1g to T1p)..... 1.9 pf

Input: T1g to (T1k + Pk + Pg3 + h + i.s.)..... 2.6 pf

Output: T1p to (T1k + Pk + Pg3 + h + i.s.)..... 0.7 pf

Triode (Section 2)

Grid to Plate: (T2g to T2p)..... 1.9 pf

Input: T2g to (T2k + Pk + Pg3 + h + i.s.)..... 3.4 pf

Output: T2p to (T2k + Pk + Pg3 + h + i.s.)..... 0.7 pf

Coupling

Pentode Plate to Triode Plate (Section 2):

(Pp to T2p), maximum..... 0.02 pf

Triode Plate (Section 1) to Triode Plate (Section 2):

(T1p to T2p), maximum..... 0.3 pf

MECHANICAL

Operating Position - Any

Envelope - T-9, Glass

Base - E12-70, Button 12-Pin

Outline Drawing - EIA 9-58

Maximum Diameter..... 1.188 Inches

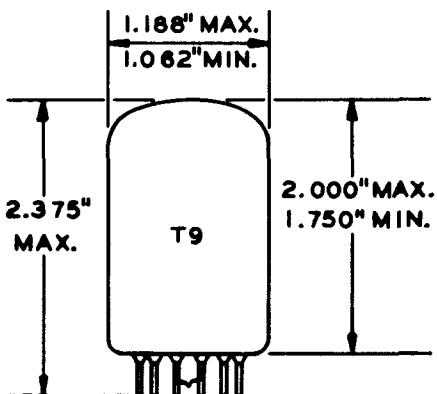
Minimum Diameter..... 1.062 Inches

Maximum Over-all Length..... 2.375 Inches

Maximum Seated Height..... 2.000 Inches

Minimum Seated Height..... 1.750 Inches

PHYSICAL DIMENSIONS

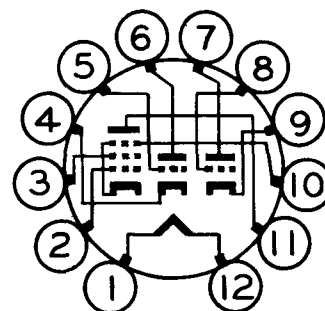


EIA 9-58

TERMINAL CONNECTIONS

- Pin 1 - Heater
- Pin 2 - Pentode Grid Number 1
- Pin 3 - Pentode Grid Number 2 (Screen)
- Pin 4 - Triode Cathode (Section 2)
- Pin 5 - Triode Grid (Section 2)
- Pin 6 - Triode Plate (Section 2)
- Pin 7 - Triode Plate (Section 1)
- Pin 8 - Triode Grid (Section 1)
- Pin 9 - Triode Cathode (Section 1)
- Pin 10 - Pentode Cathode, Grid Number 3, and Internal Shield
- Pin 11 - Pentode Plate
- Pin 12 - Heater

BASING DIAGRAM



EIA 12CA

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an

express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

MAXIMUM RATINGS**DESIGN-MAXIMUM VALUES****Pentode Section**

Plate Voltage.....	165	Volts
Screen Voltage.....	165	Volts
Positive DC Grid-Number 1 Voltage.....	0	Volts
Plate Dissipation.....	3.0	Watts
Screen Dissipation.....	1.0	Watts
Heater-Cathode Voltage		
Heater Positive with respect to Cathode		
DC Component.....	100	Volts
Total DC and Peak.....	200	Volts
Heater Negative with respect to Cathode		
Total DC and Peak.....	200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias.....	5000	Ohms
With Cathode Bias.....	10000	Ohms

Triodes

	(Section 1)	(Section 2)	
Plate Voltage.....	330	330	Volts
Positive DC Grid Voltage.....	0	0	Volts
Plate Dissipation.....	2.0	1.5	Watts
Heater-Cathode Voltage			
Heater Positive with respect to Cathode			
DC Component.....	100	100	Volts
Total DC and Peak.....	200	200	Volts
Heater Negative with respect to Cathode			
Total DC and Peak.....	200	200	Volts
Grid-Circuit Resistance			
With Fixed Bias.....	0.5	0.5	Megohms
With Cathode Bias.....	1.0	1.0	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION**AVERAGE CHARACTERISTICS****Pentode Section**

Plate Voltage.....	35	125	Volts
Screen Voltage.....	125	125	Volts
Grid-Number 1 Voltage.....	0	---	Volts
Cathode-Bias Resistor.....	---	56	Ohms
Plate Resistance, approximate.....	---	100000	Ohms
Transconductance.....	---	11300	Micromhos
Plate Current.....	20	12	Milliamperes
Screen Current.....	9.2	3.8	Milliamperes
Grid-Number 1 Voltage, approximate			
I _b = 100 Microamperes.....	---	-3	Volts

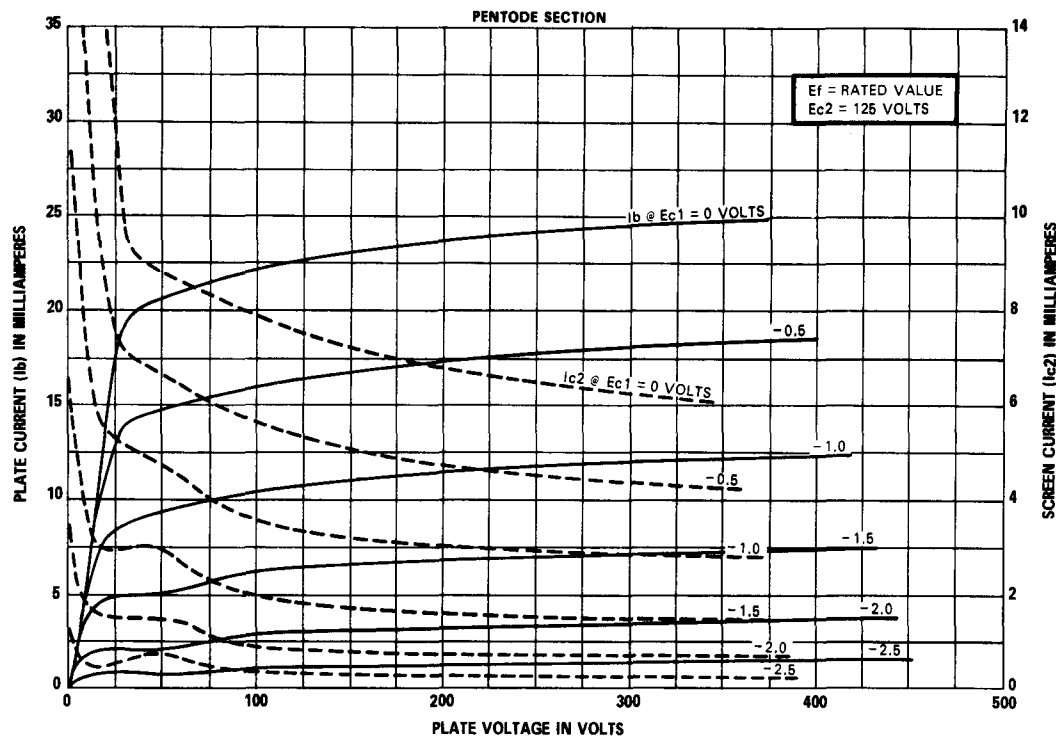
Triodes

	(Section 1)	(Section 2)	
Plate Voltage.....	150	150	Volts
Cathode-Bias Resistor.....	150	220	Ohms
Amplification Factor.....	42	57	
Plate Resistance, approximate.....	6800	8400	Ohms
Transconductance.....	6200	6800	Micromhos
Plate Current.....	11	7.6	Milliamperes
Grid Voltage, approximate			
I _b = 100 Microamperes.....	-6	-4.5	Volts

NOTES

- * Heater voltage for a bogey tube at $I_f = 0.315$ amperes.
- The equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater within the specified tolerance.
- ♦ The time required for the voltage across the heater to reach 80 percent of the bogey value after applying 4 times the bogey heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the bogey heater voltage divided by the bogey heater current.
- ▲ Without external shield.

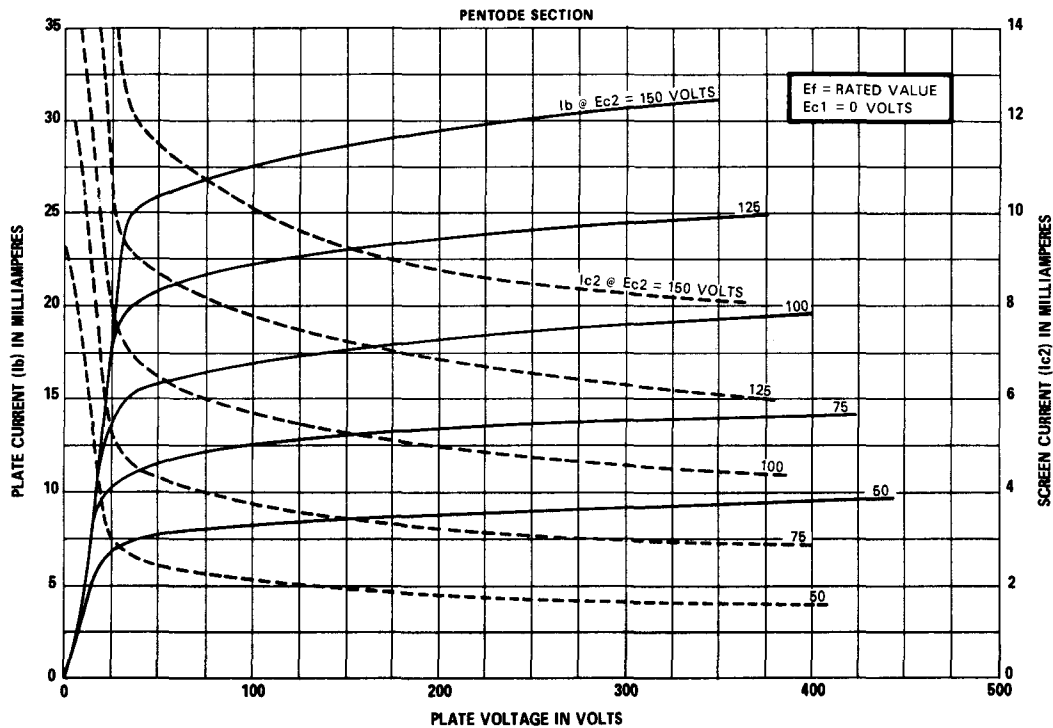
AVERAGE PLATE CHARACTERISTICS



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August 19, 1968

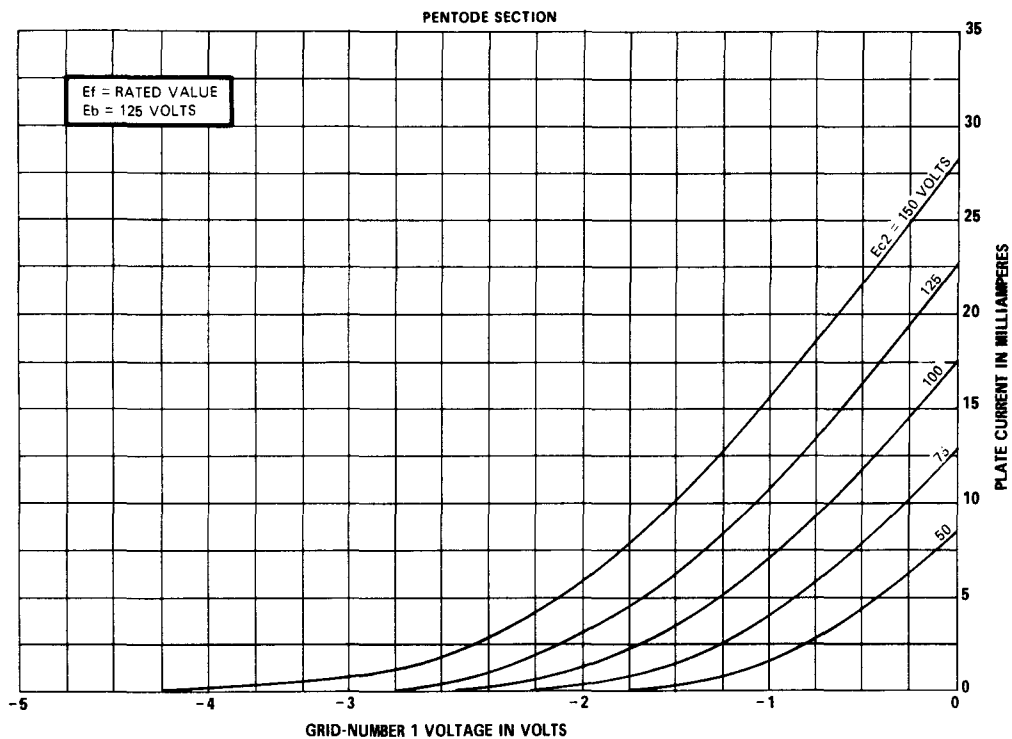
AVERAGE PLATE CHARACTERISTICS



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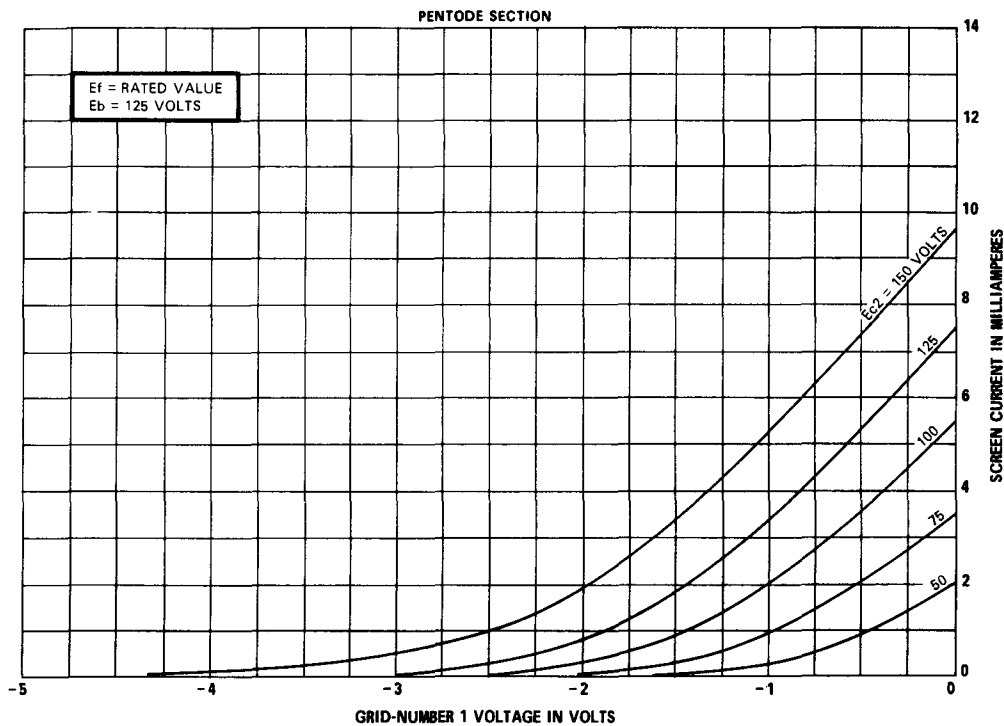
AVERAGE TRANSFER CHARACTERISTICS



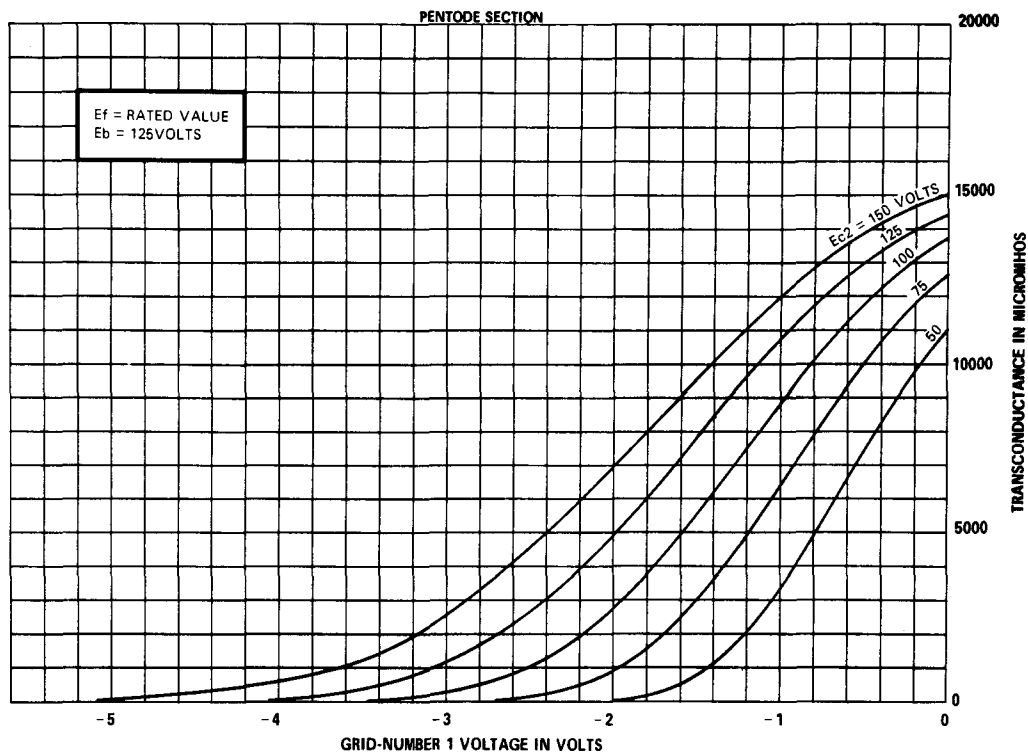
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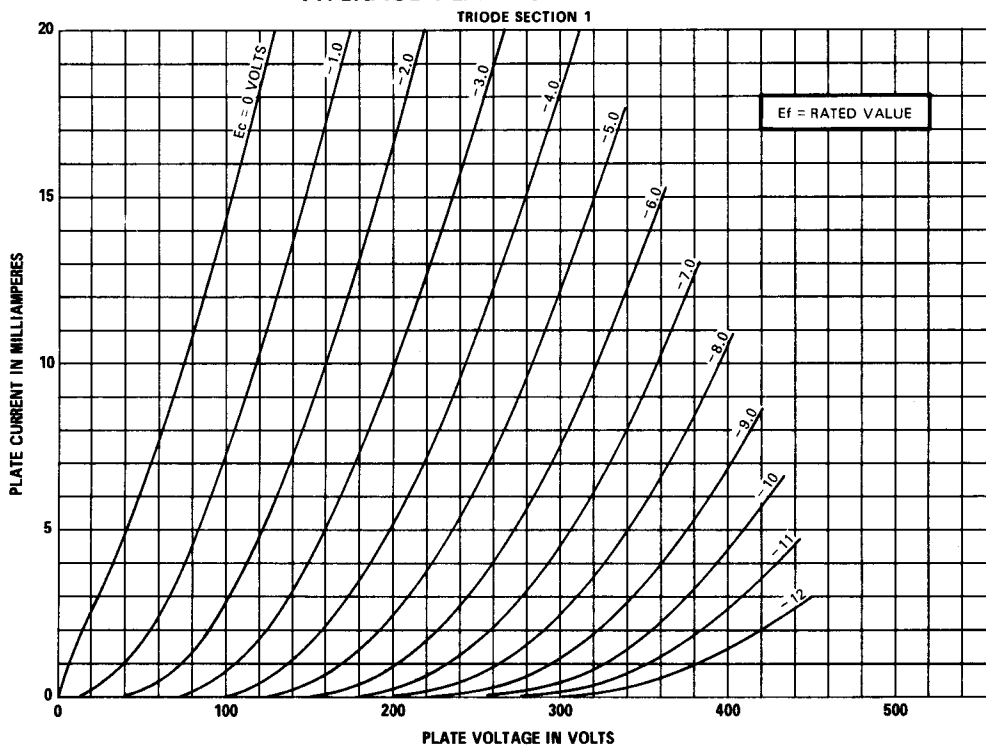
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



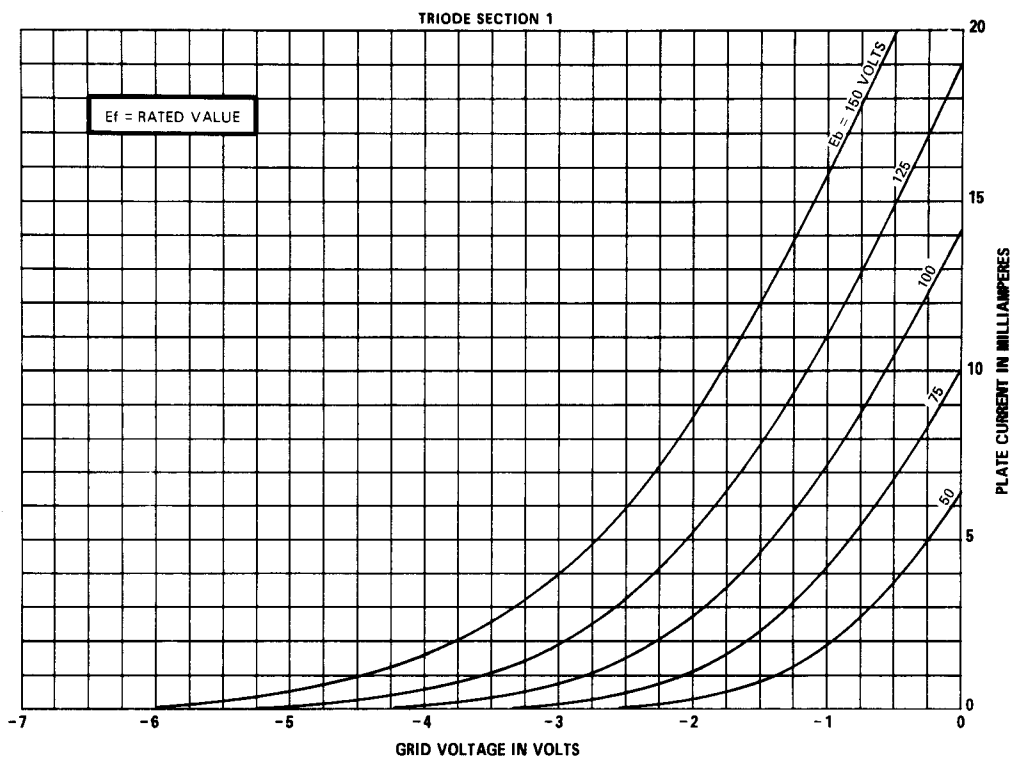
AVERAGE PLATE CHARACTERISTICS



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AVERAGE TRANSFER CHARACTERISTICS



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AVERAGE PLATE CHARACTERISTICS
TRIODE SECTION 2

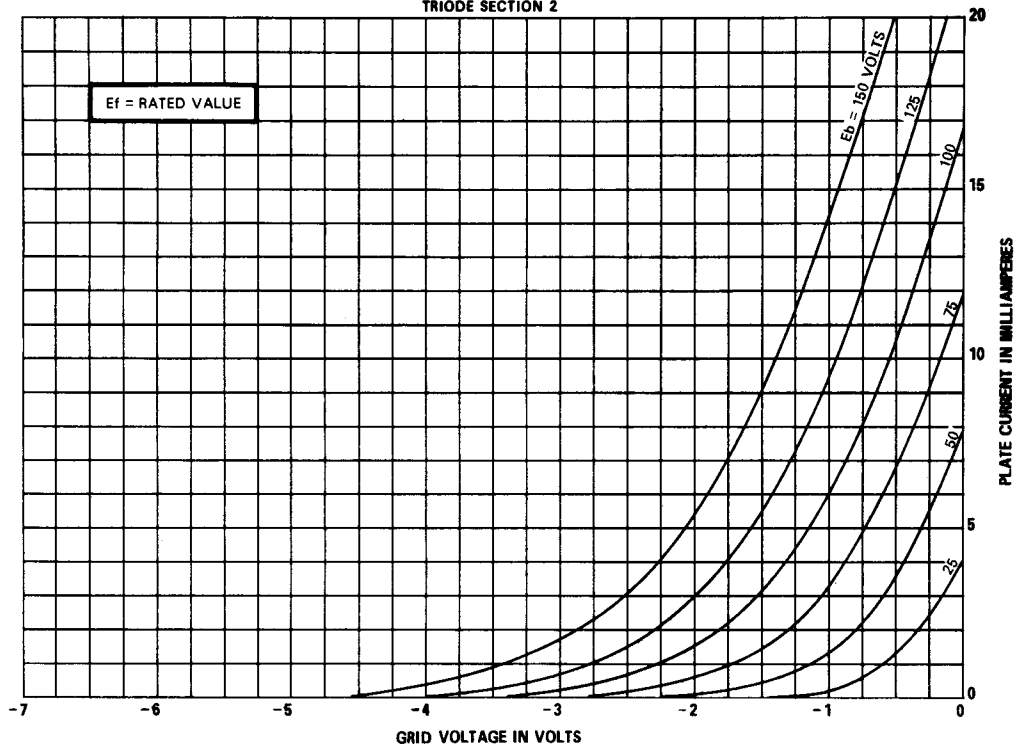
Y-axis: PLATE CURRENT IN MILLIAMPERES (0 to 20)
X-axis: PLATE VOLTAGE IN VOLTS (0 to 500)

Curves for E_c (Volts): 0, -1.0, -2.0, -3.0, -4.0, -5.0, -6.0, -7.0, -8.0, -9.0, -10

Box: $E_f = \text{RATED VALUE}$

AVERAGE TRANSFER CHARACTERISTICS

TRIODE SECTION 2

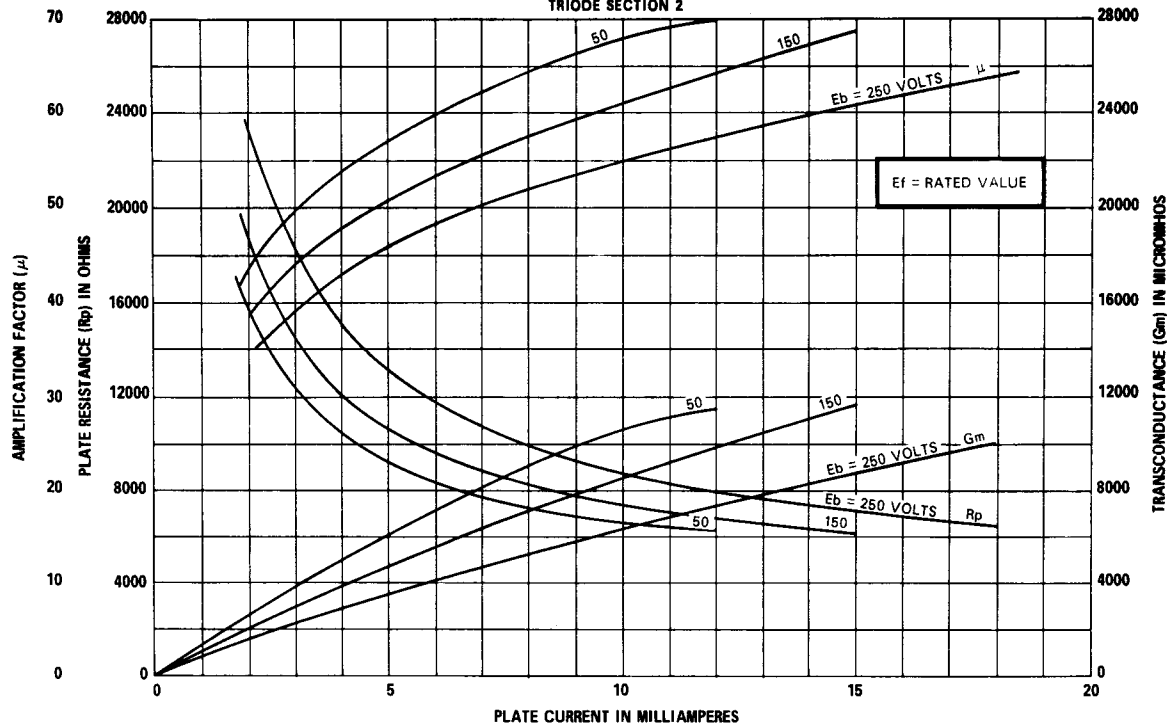


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August 10, 1968

AVERAGE CHARACTERISTICS

TRIODE SECTION 2



K-55611-TD352-11

August 19, 1968

TUBE DEPARTMENT

GENERAL  ELECTRIC

Owensboro, Kentucky 42301