ELECTRONICS

6BD11

COMPACTRON DISSIMILAR-DOUBLE-TRIODE PENTODE

DESCRIPTION AND RATING

The 6BD11 is a compactron containing a high-mu triode, a medium-mu triode, and a sharp-cutoff pentode. The high-mu triode is intended for general-purpose use, the medium-mu triode for sync separator service, and the pentode for video amplifier service.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

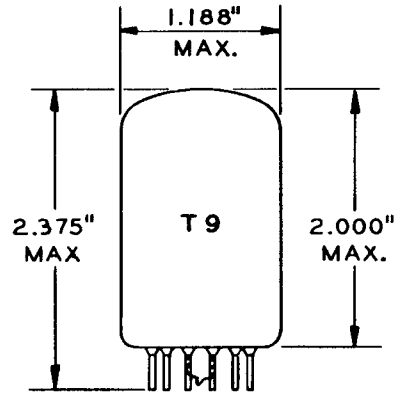
Heater Characteristics and Ratings		
Heater Voltage, AC or DC*	6.3±0.6	Volts
Heater Current†	1.05	Amperes
Direct Interelectrode Capacitances‡		
Triode (Section 1)		
Grid to Plate: (1Tg to 1Tp)	1.9	pf
Input: 1Tg to (1Tk + 2Tk + Pk + Pg3 + h + i.s.)	3.0	pf
Output: 1Tp to (1Tk + 2Tk + Pk + Pg3 + h + i.s.)	2.2	pf
Triode (Section 2)		
Grid to Plate: (2Tg to 2Tp)	3.6	pf
Input: 2Tg to (2Tk + Pk + Pg3 + h + i.s.)	2.4	pf
Output: 2Tp to (2Tk + Pk + Pg3 + h + i.s.)	3.8	pf
Pentode Section		
Grid-Number 1 to Plate: (Pg1 to Pp)	0.13	pf
Input: Pg1 to (2Tk + Pk + Pg2 + Pg3 + h + i.s.)	11	pf
Output: Pp to (2Tk + Pk + Pg2 + Pg3 + h + i.s.)	4.6	pf
Pentode Plate to Triode Plate (Section 2): (Pp to 2Tp), maximum	0.045	pf
Triode Plate (Section 1) to Triode Plate (Section 2): (1Tp to 2Tp), maximum	0.075	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
Maximum Over-all Length	2.375	Inches
Maximum Seated Height	2.000	Inches

PHYSICAL DIMENSIONS

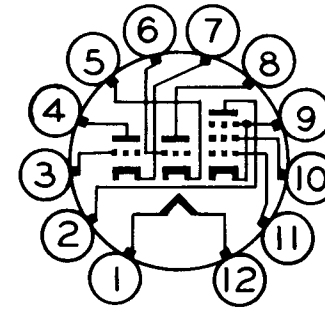


EIA 9-58

TERMINAL CONNECTIONS

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

BASING DIAGRAM



EIA 12DP

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MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Pentode Section

Plate Voltage	330	Volts
Screen-Supply Voltage	330	Volts
Screen Voltage - See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation	4.0	Watts
Screen Dissipation	1.1	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	1.0	Megohms
With Cathode Bias	1.0	Megohms

Triode (Section 1)

Plate Voltage	330	Volts
Positive DC Grid Voltage	0	Volts
Plate Dissipation	1.5	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 Circuit Resistance		
With Fixed Bias	0.5	Megohms
With Cathode Bias	1.0	Megohms

Triode (Section 2)

Plate Voltage	330	Volts
Positive DC Grid Voltage	0	Volts
Plate Dissipation	2.0	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 Circuit Resistance		
With Fixed Bias	0.5	Megohms
With Cathode Bias	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	135	Volts
Screen Voltage	135	135	Volts
Grid-Number 1 Voltage	0§	---	Volts
Cathode-Bias Resistor	---	100	Ohms
Plate Resistance, approximate	---	45000	Ohms
Transconductance	---	10400	Micromhos
Plate Current	34	17	Milliamperes
Screen Current	13	4.0	Milliamperes
Grid-Number 1 Voltage, approximate Ib = 100 Microamperes	---	-6	Volts

Triode (Section 1)

Plate Voltage		200	Volts
Grid Voltage		-2.0	Volts
Amplification Factor		68	
Plate Resistance, approximate		12400	Ohms
Transconductance		5500	Micromhos
Plate Current		7.0	Milliamperes
Grid Voltage, approximate Ib = 100 Microamperes		-5.5	Volts

Triode (Section 2)

Plate Voltage		200	Volts
Cathode-Bias Resistor		220	Ohms
Amplification Factor		41	
Plate Resistance, approximate		9400	Ohms
Transconductance		4400	Micromhos
Plate Current		9.2	Milliamperes
Grid Voltage, approximate Ib = 100 Microamperes		-6.5	Volts

NOTES

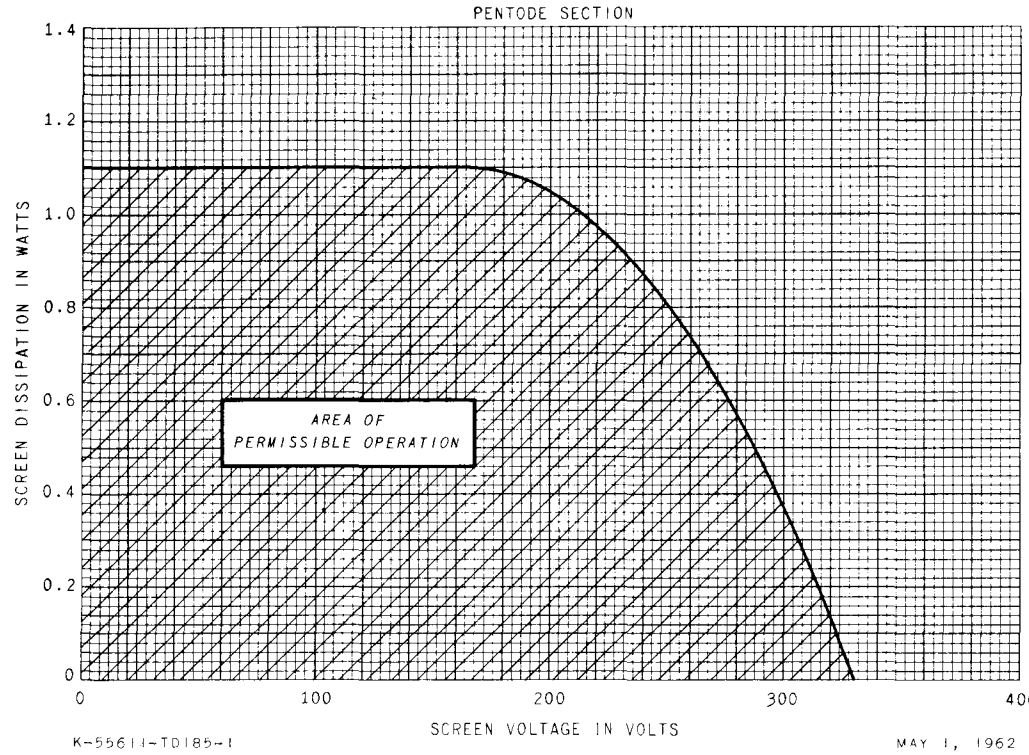
* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

† Heater current of a bogey tube at Ef = 6.3 volts.

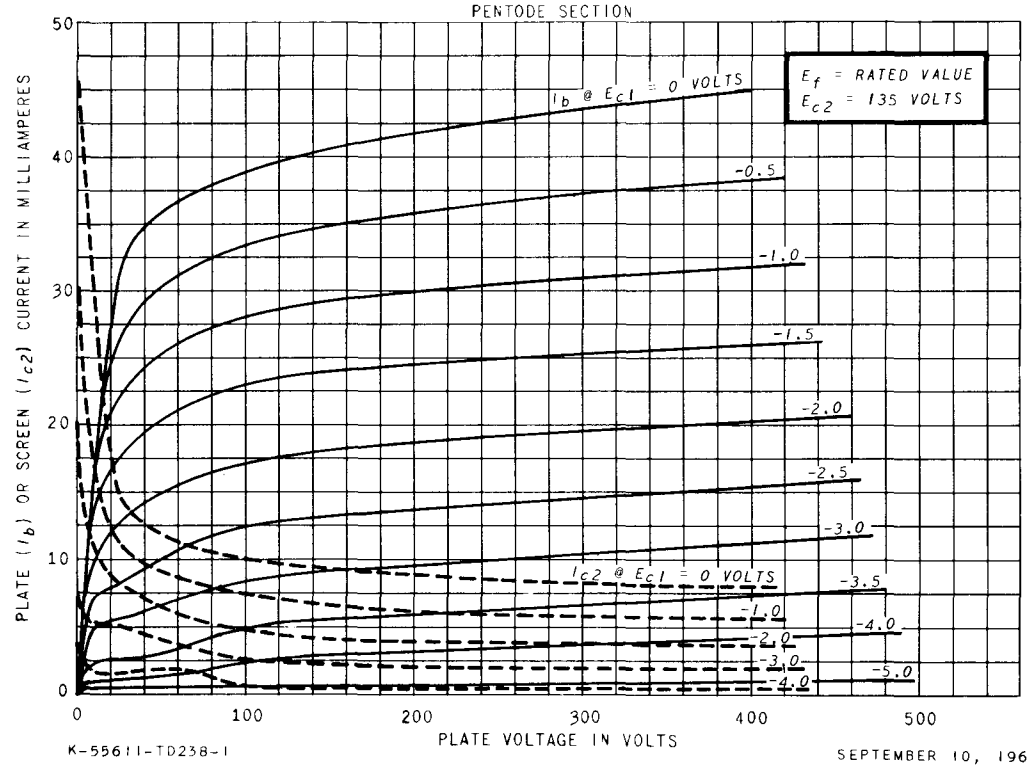
‡ Without external shield.

§ Applied for short interval (two seconds maximum) so as not to damage tube.

SCREEN RATING CHART



AVERAGE PLATE CHARACTERISTICS



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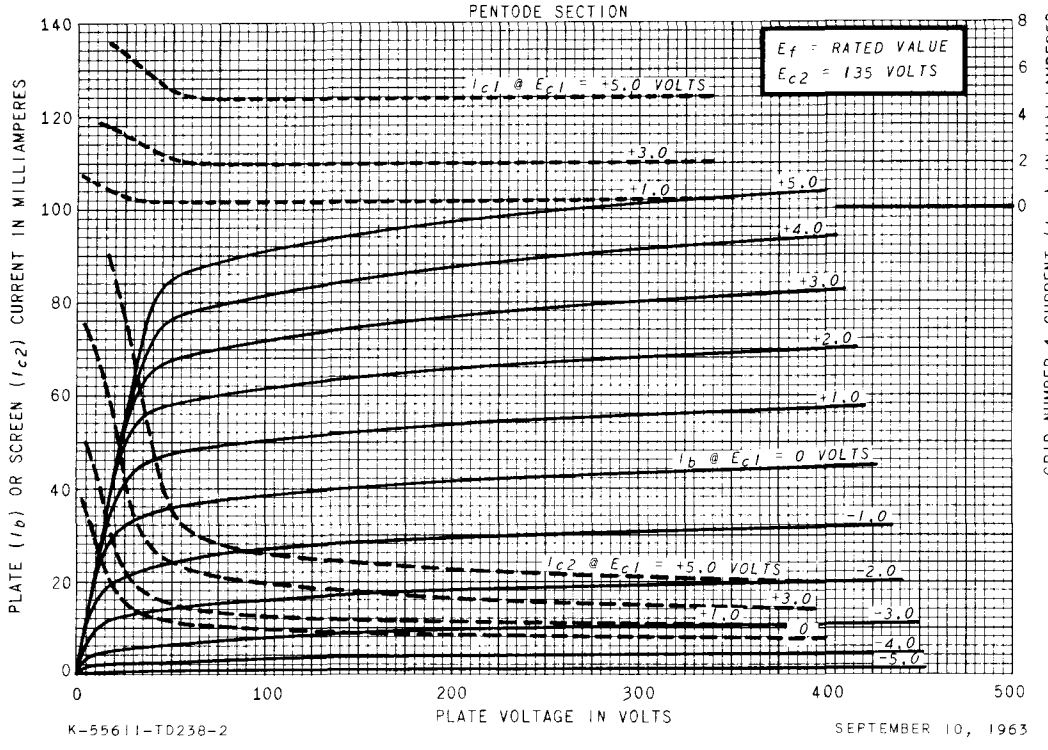
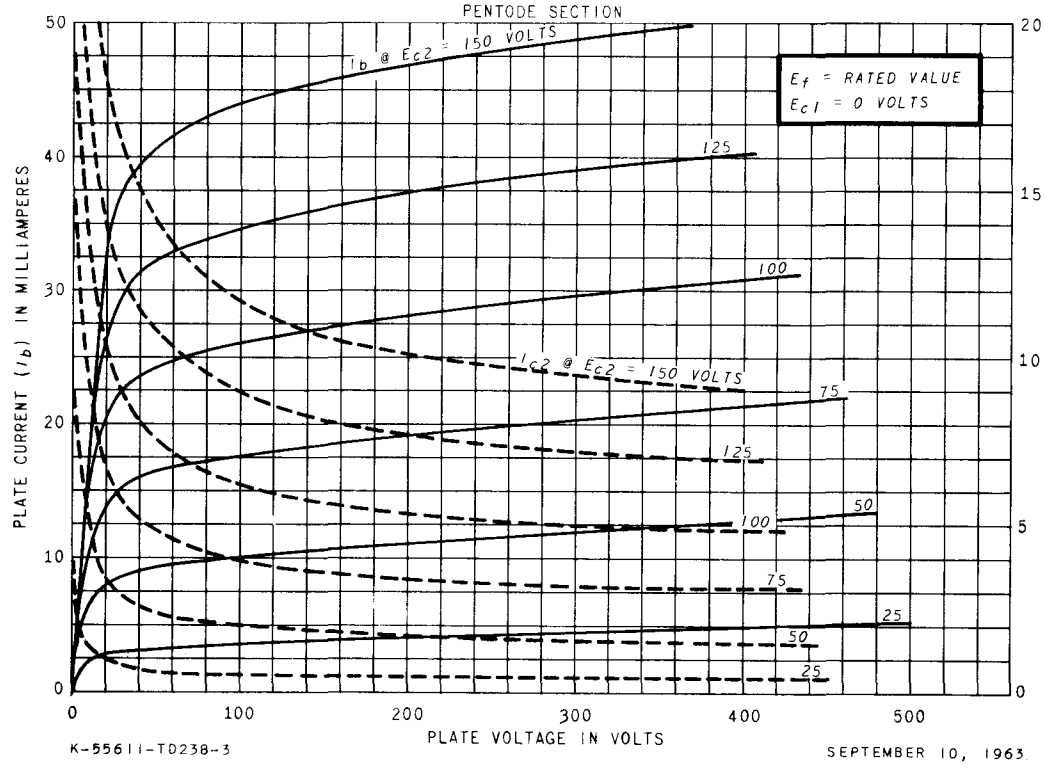
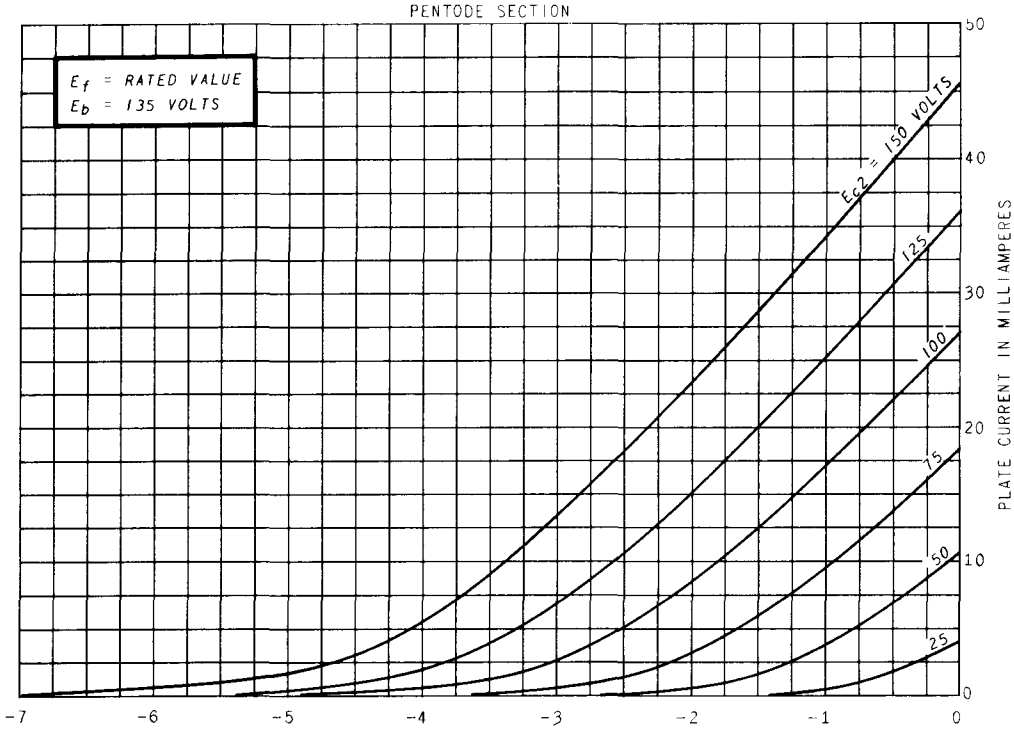


AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

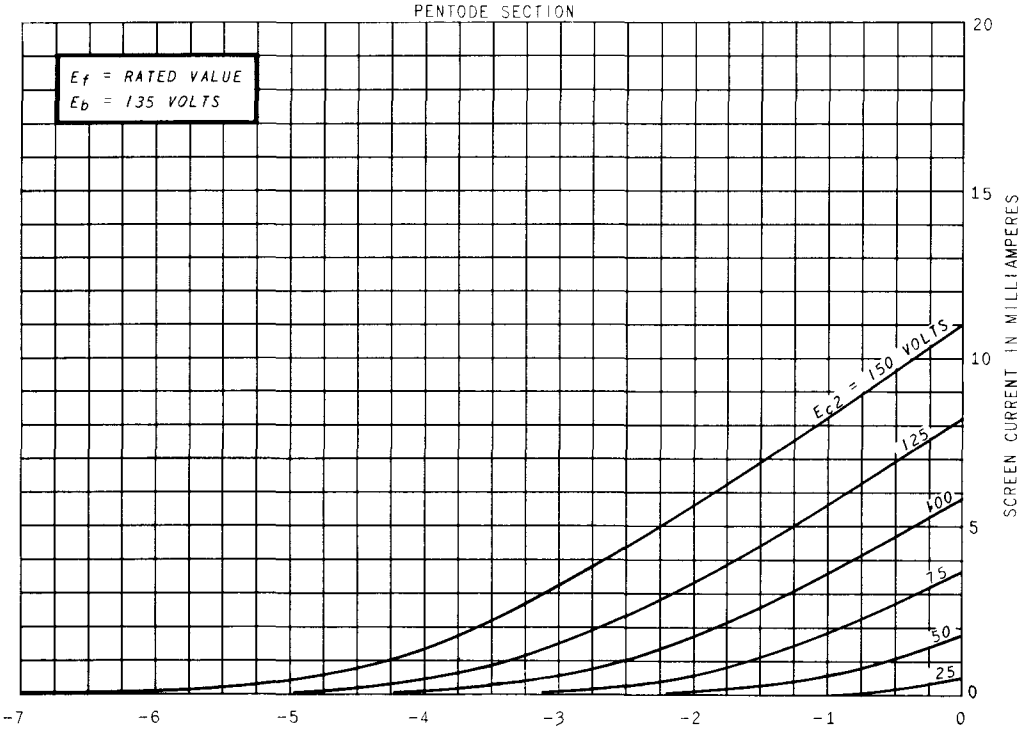


K-5561I-TD238-4

SEPTEMBER 10, 1963

AVERAGE TRANSFER CHARACTERISTICS

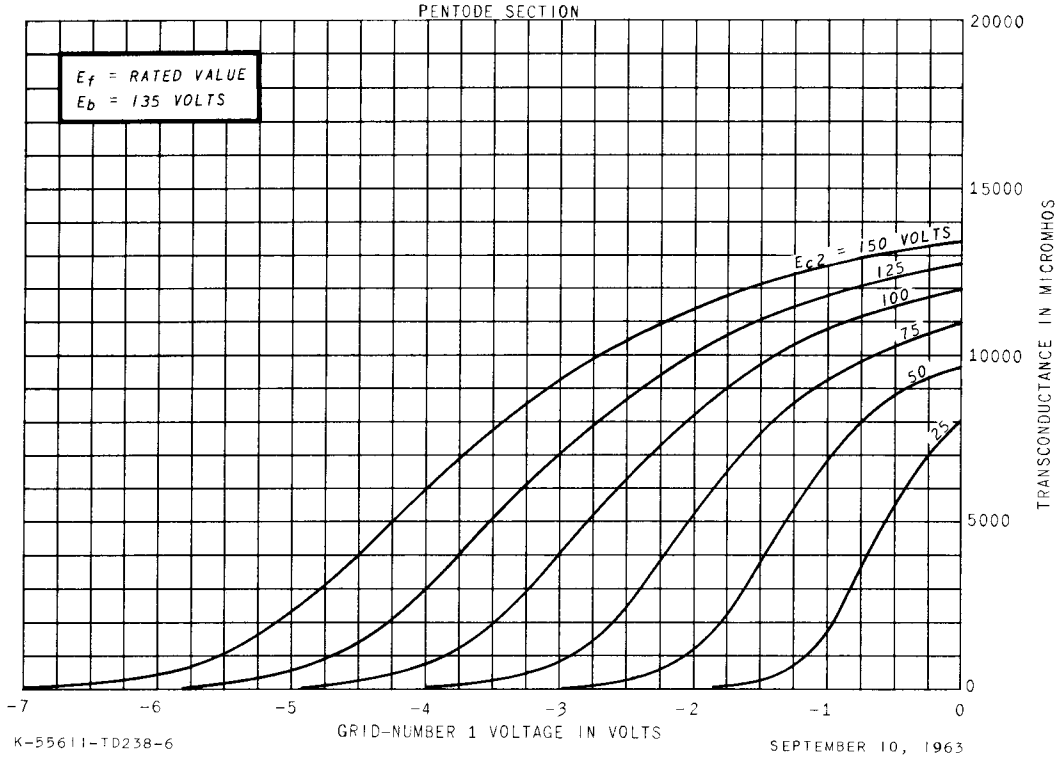
PENTODE SECTION



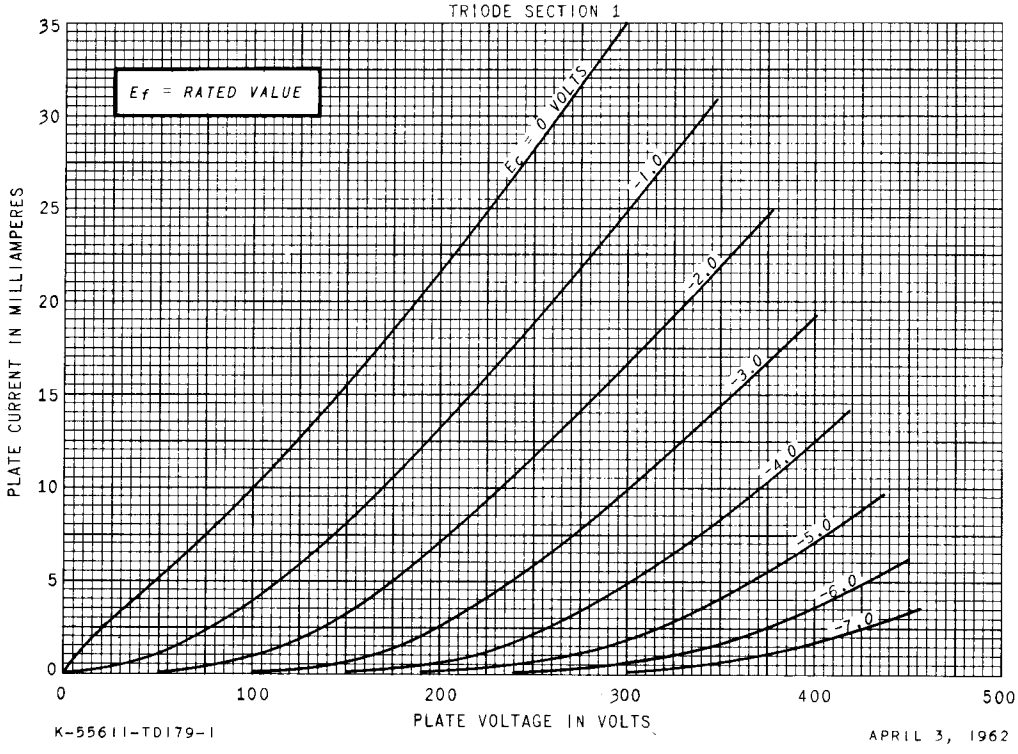
K-5561I-TD238-5

SEPTEMBER 10, 1963

AVERAGE TRANSFER CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS



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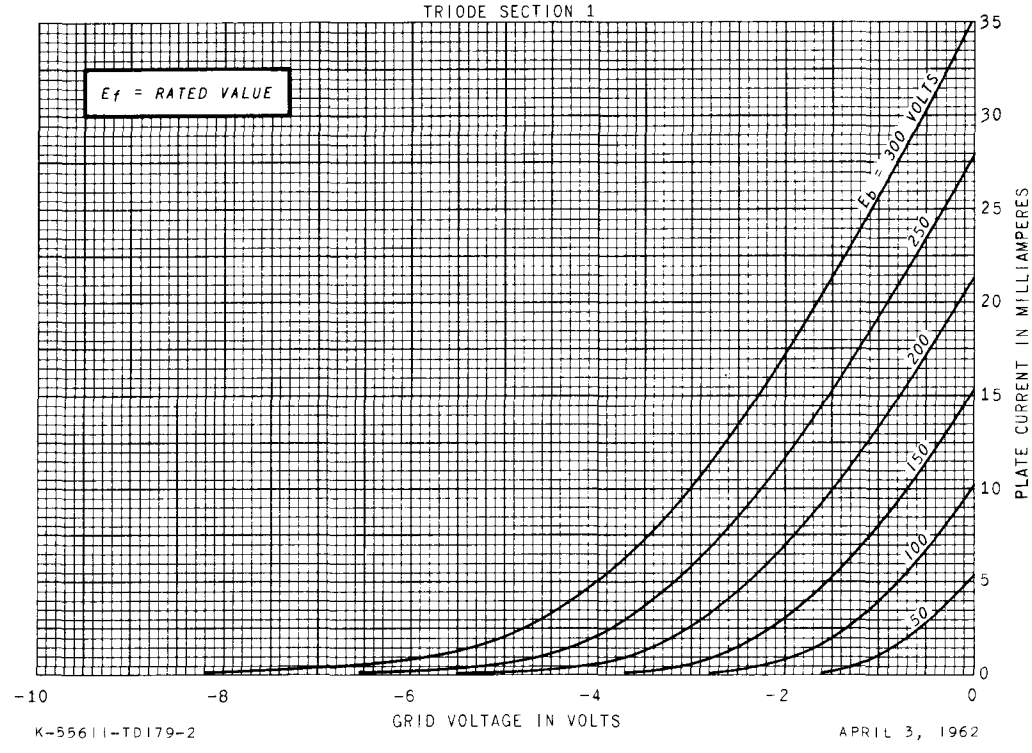

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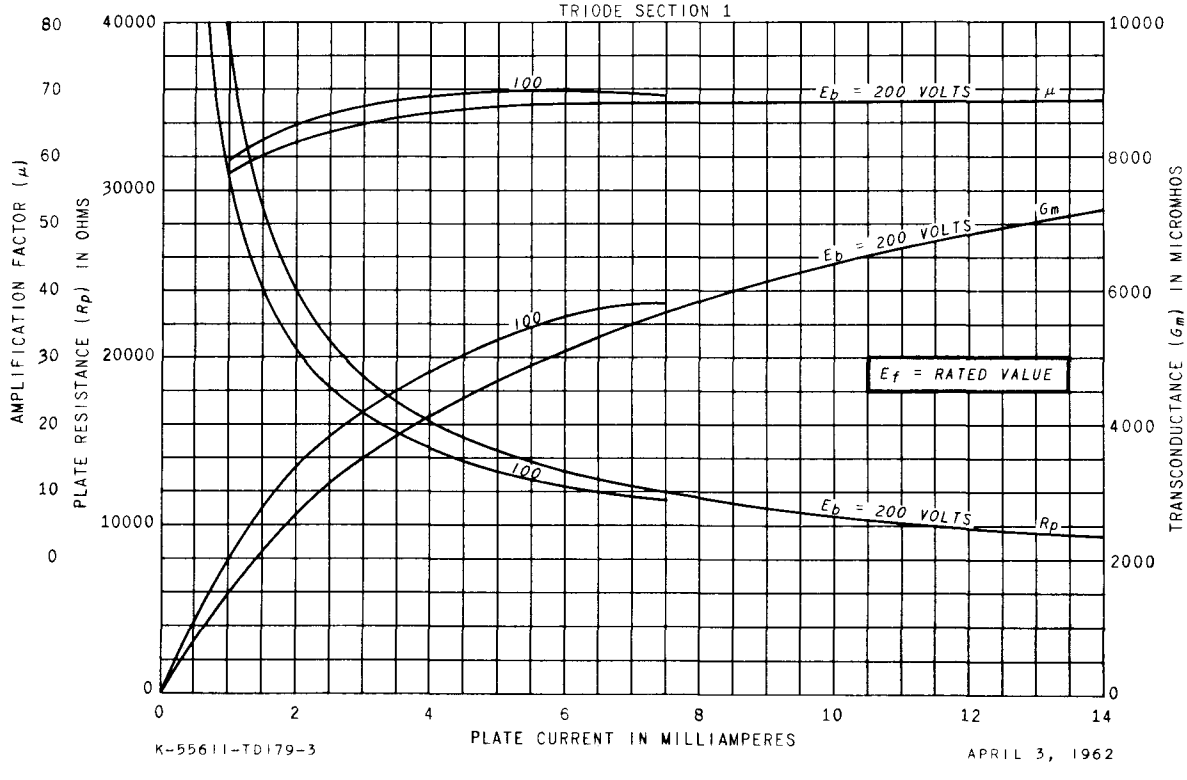

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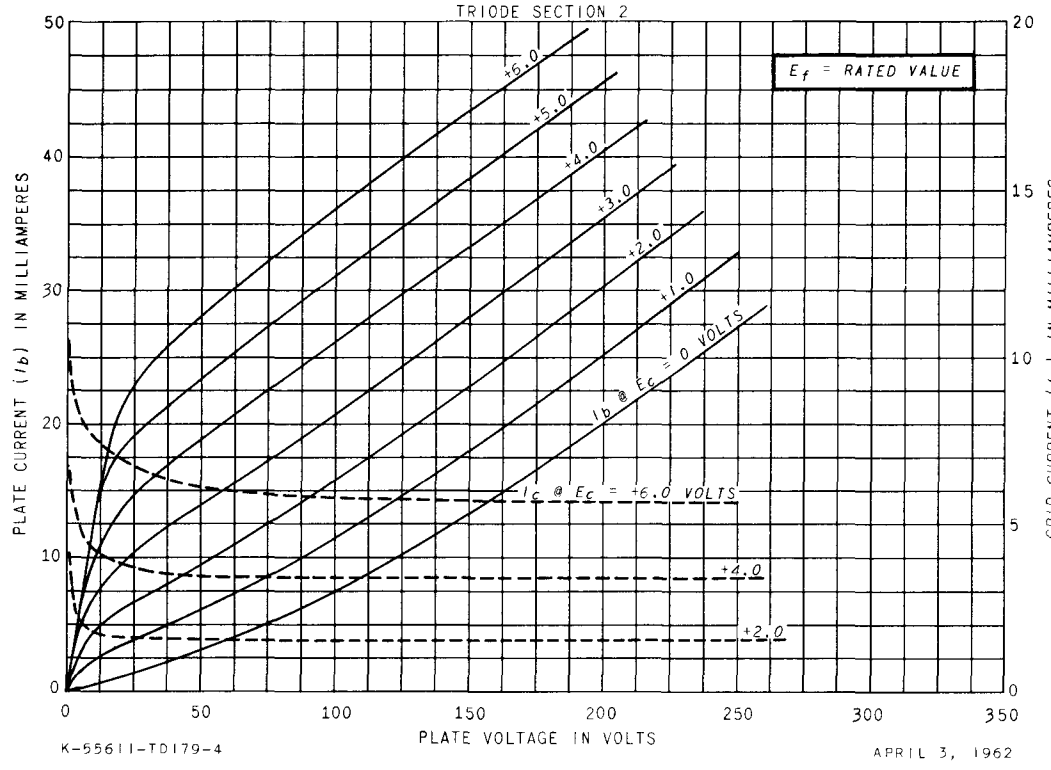

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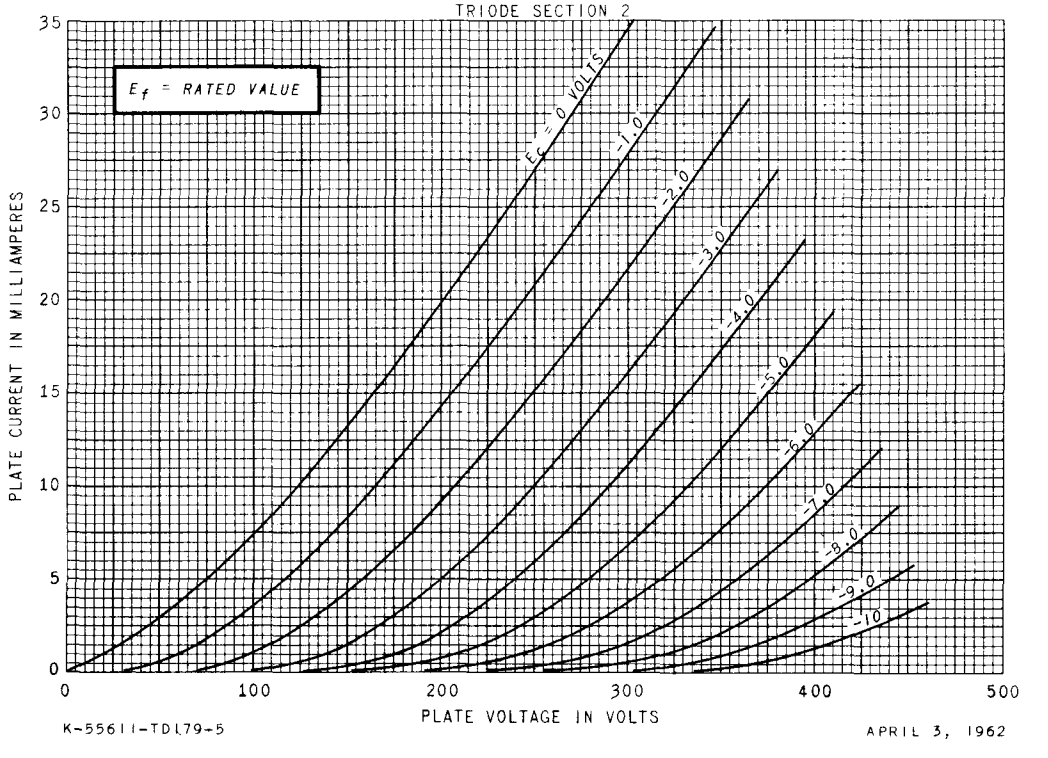

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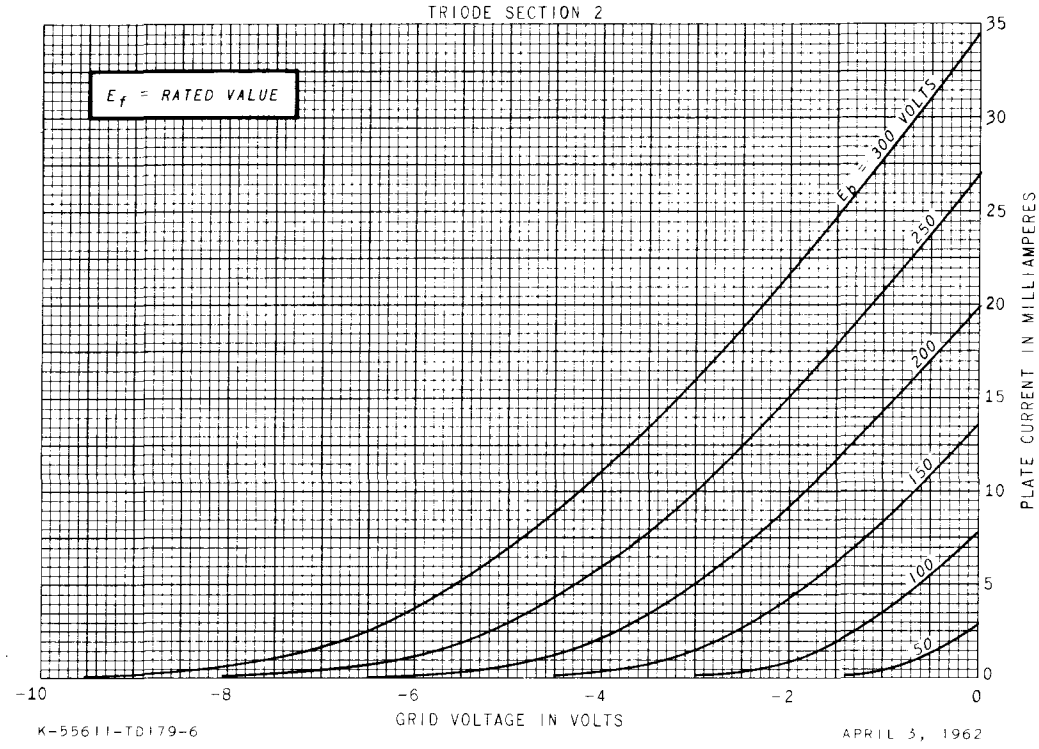

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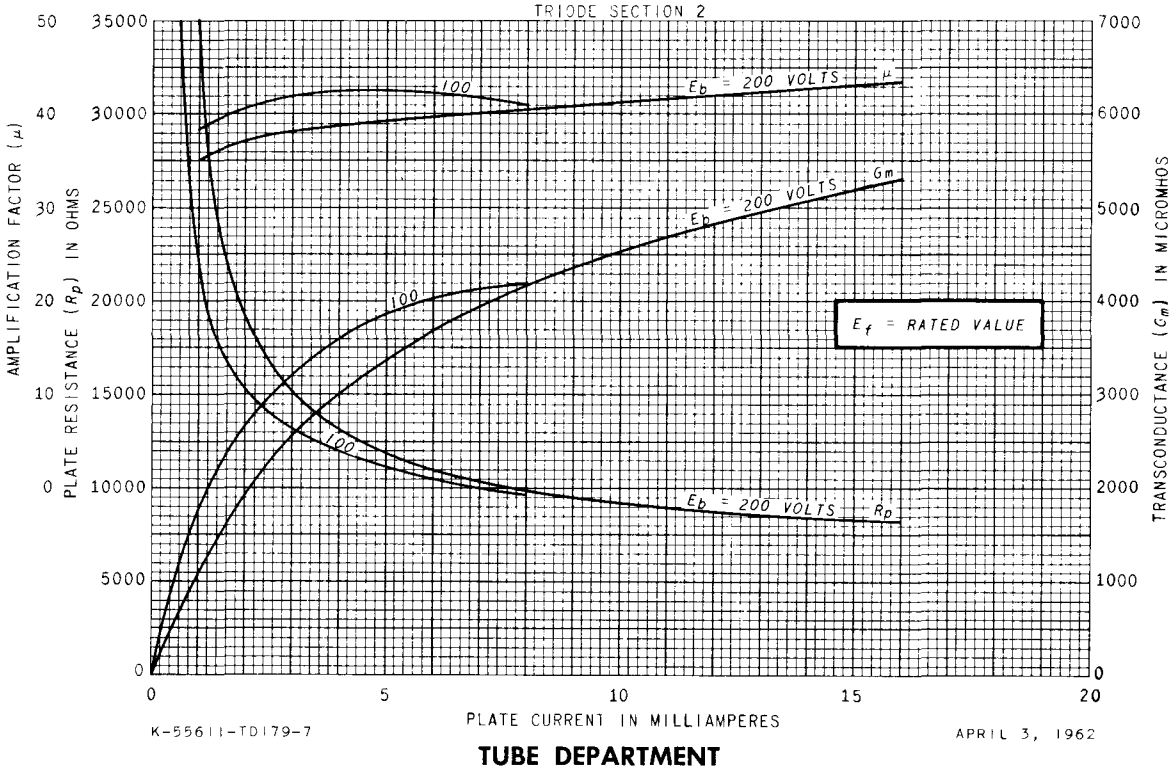

TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky