



## 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

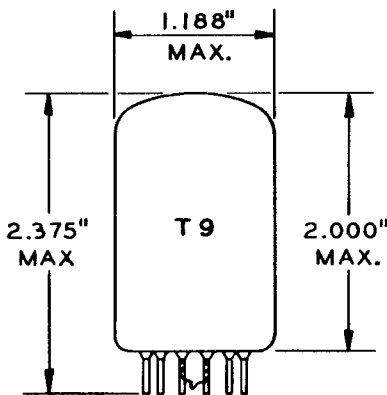
#### Pentode Section

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

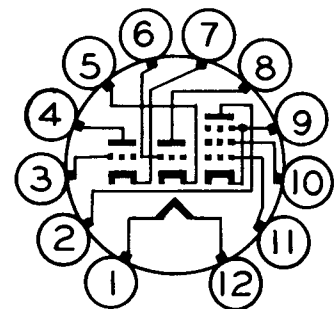


EIA 9-58

#### 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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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 . . . . .	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

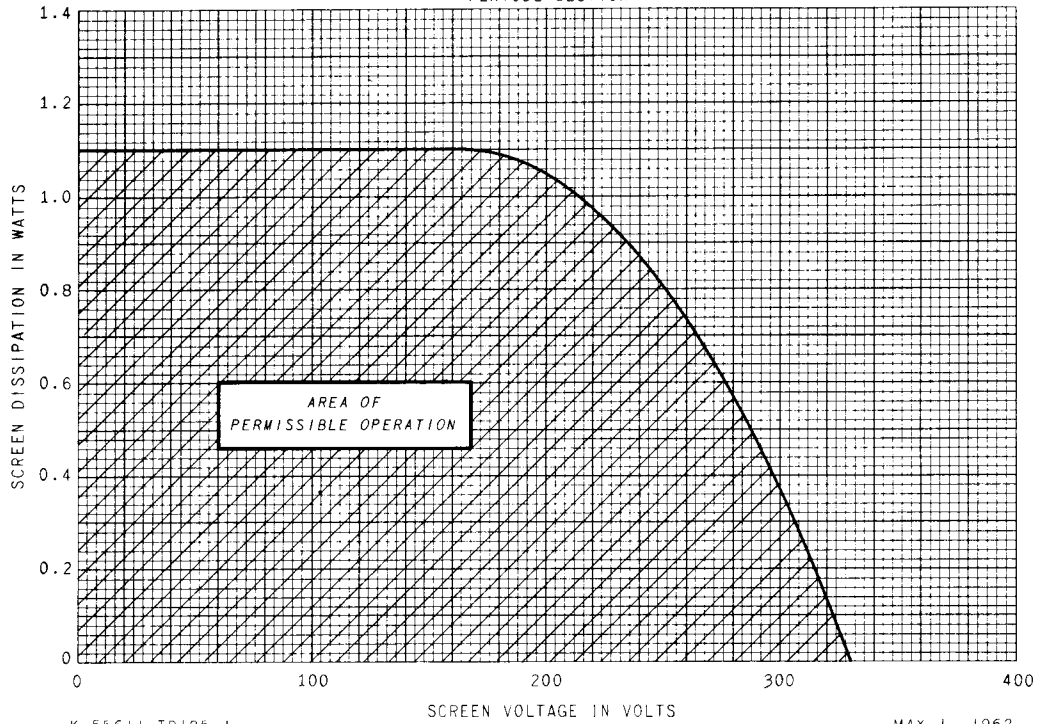
**Triode (Section 2)**

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

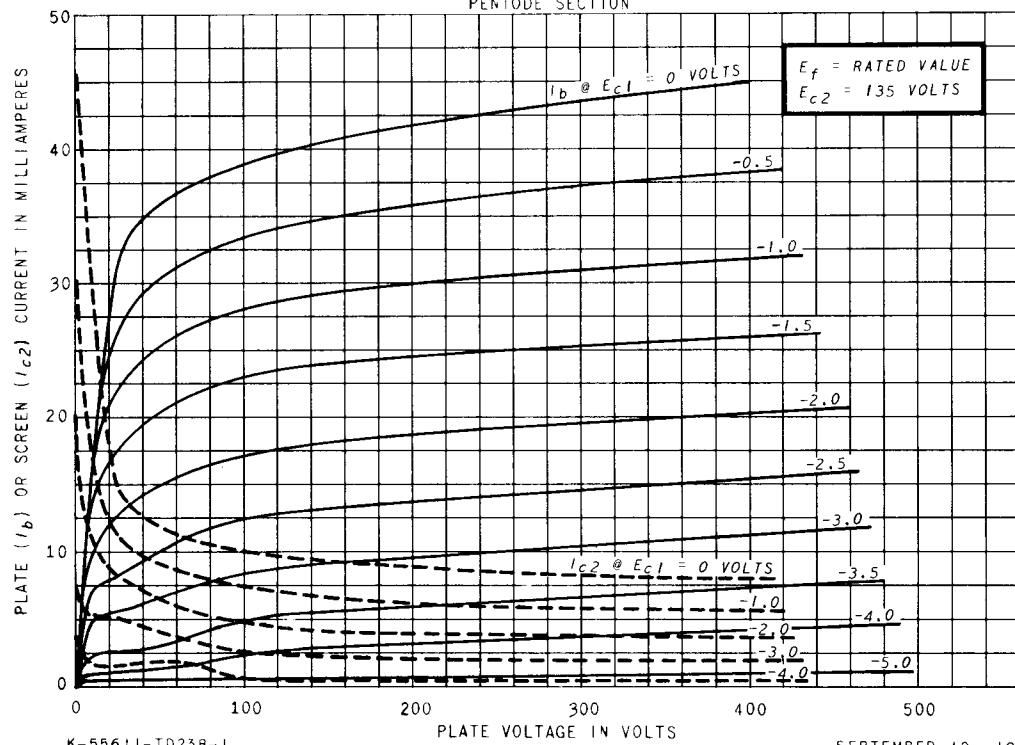
**NOTES**

- \* 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.

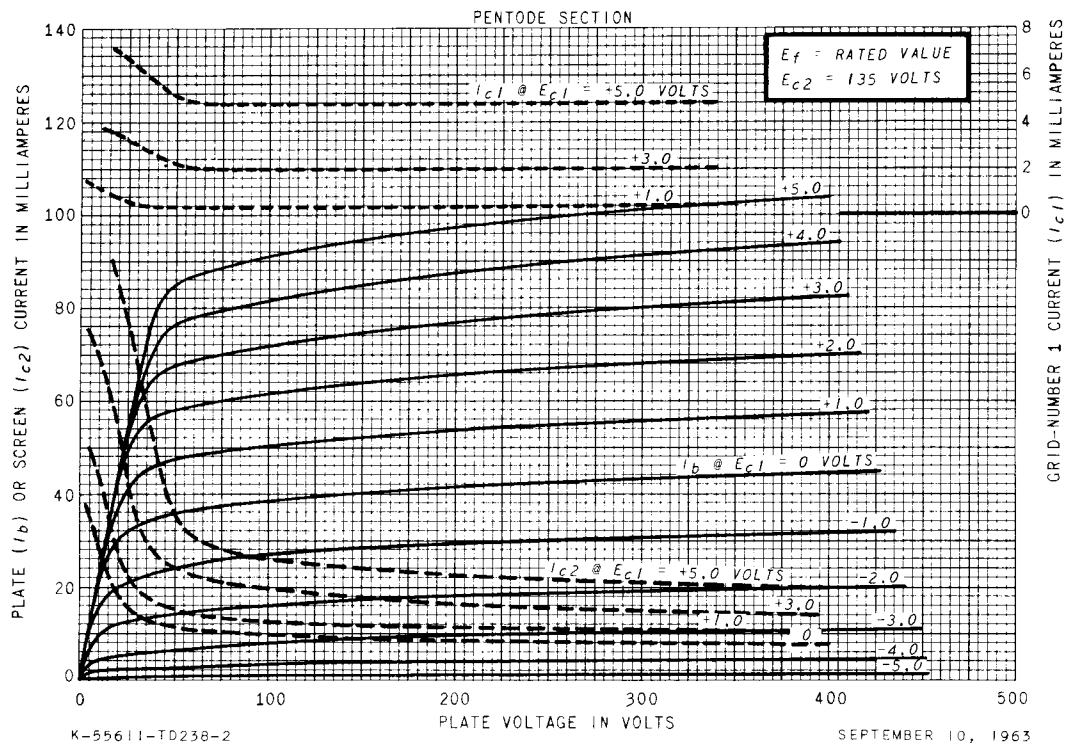
**SCREEN RATING CHART**  
 PENTODE SECTION



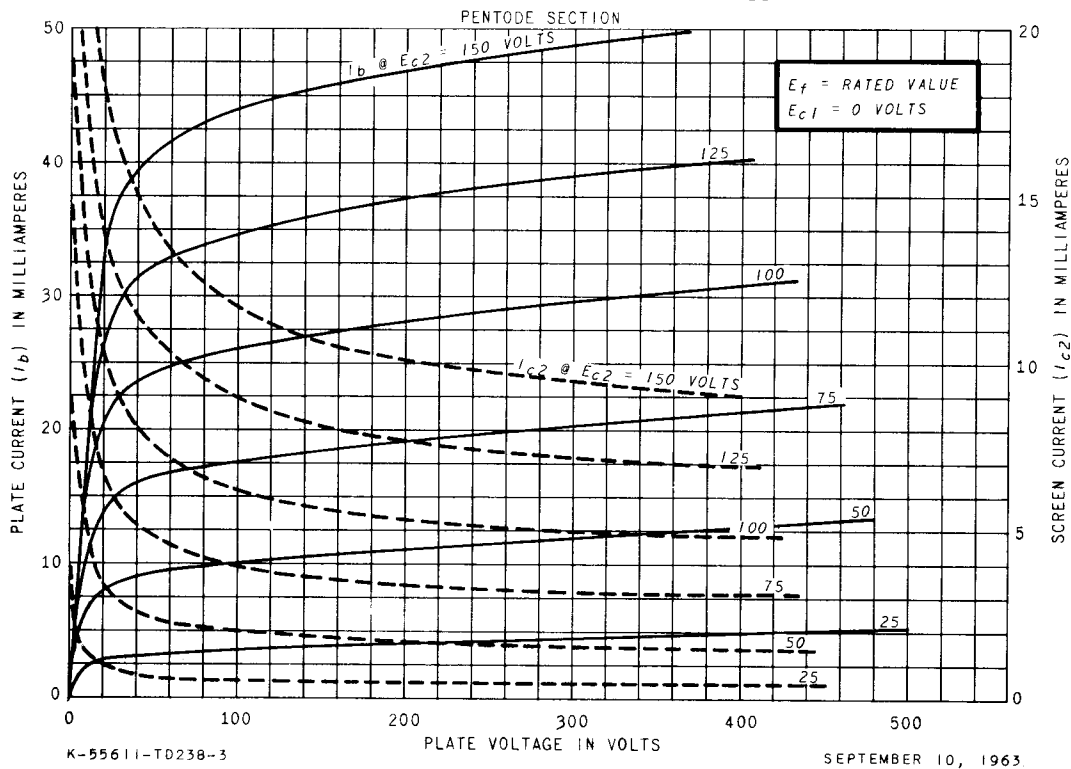
**AVERAGE PLATE CHARACTERISTICS**  
 PENTODE SECTION



AVERAGE PLATE CHARACTERISTICS

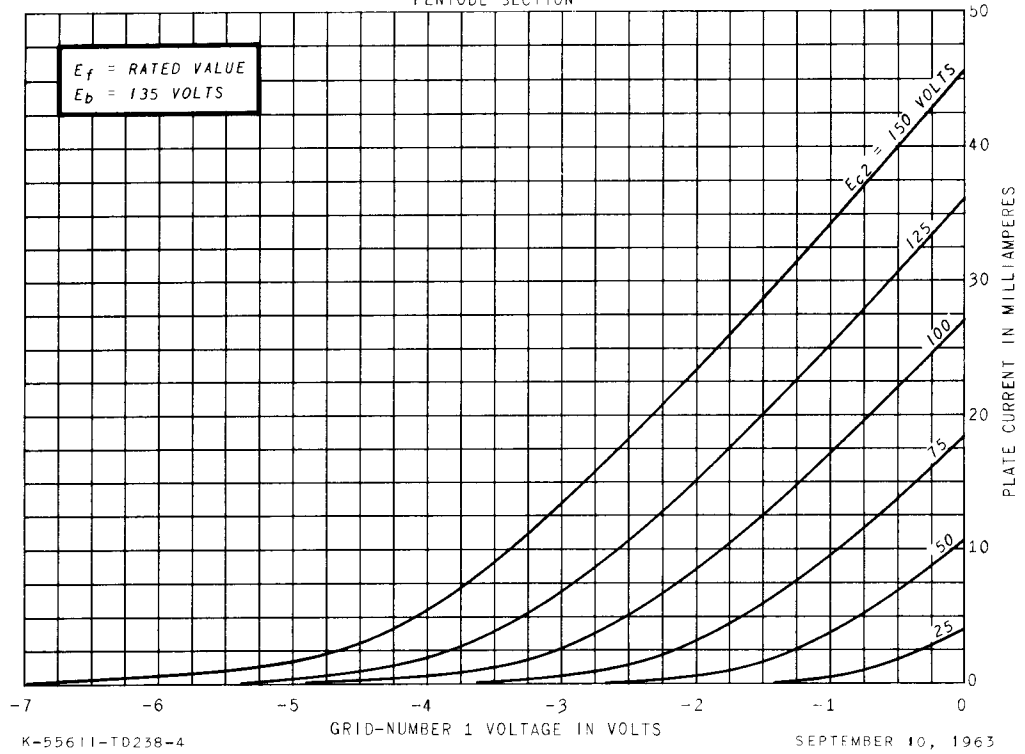


AVERAGE PLATE CHARACTERISTICS



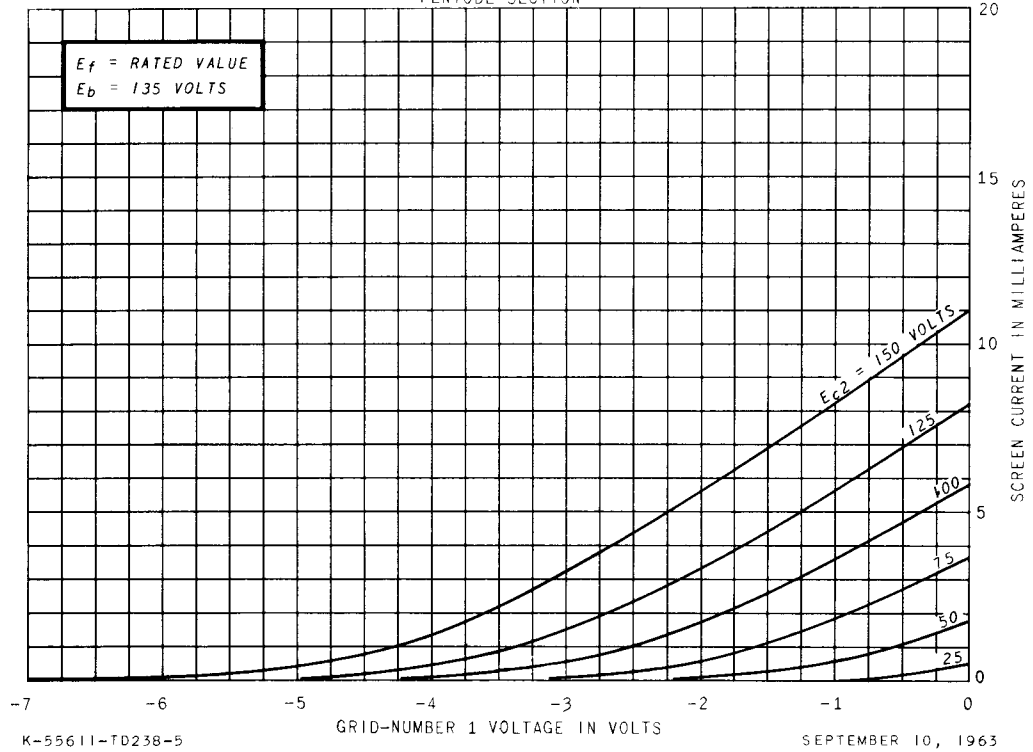
### AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



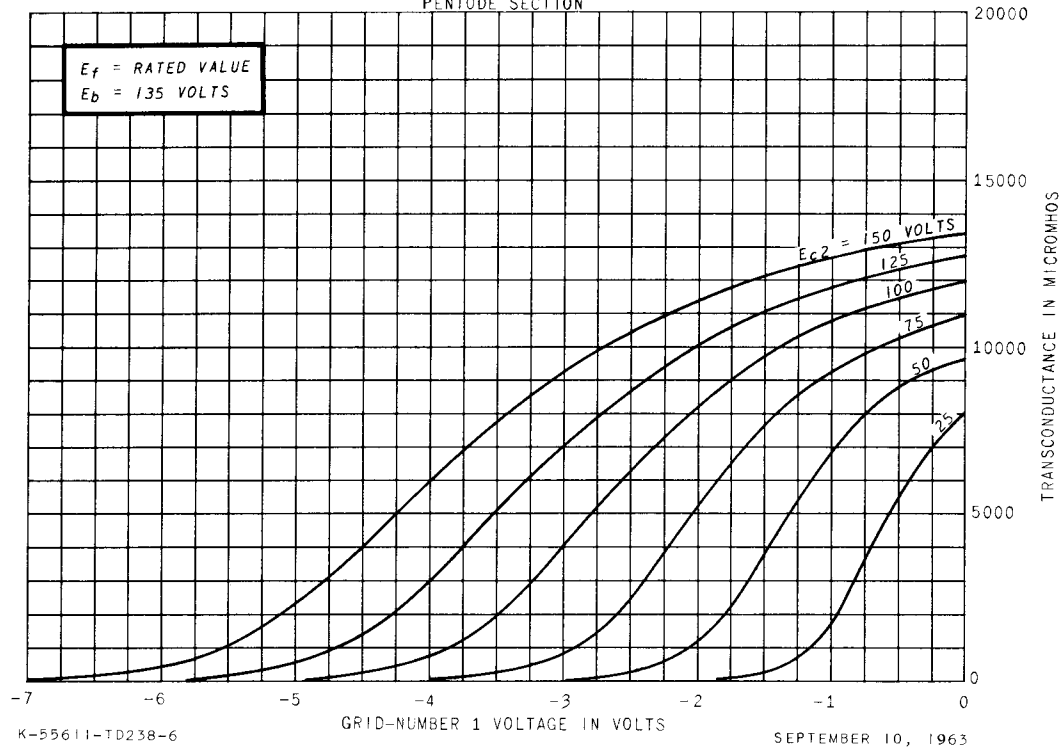
### AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



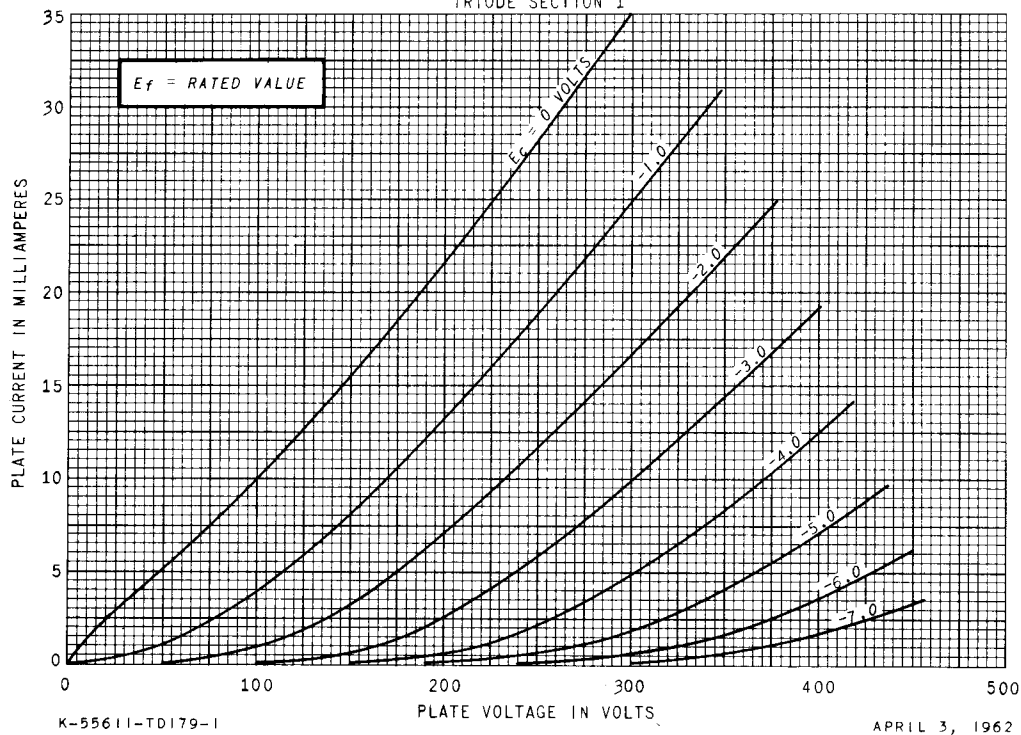
### AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

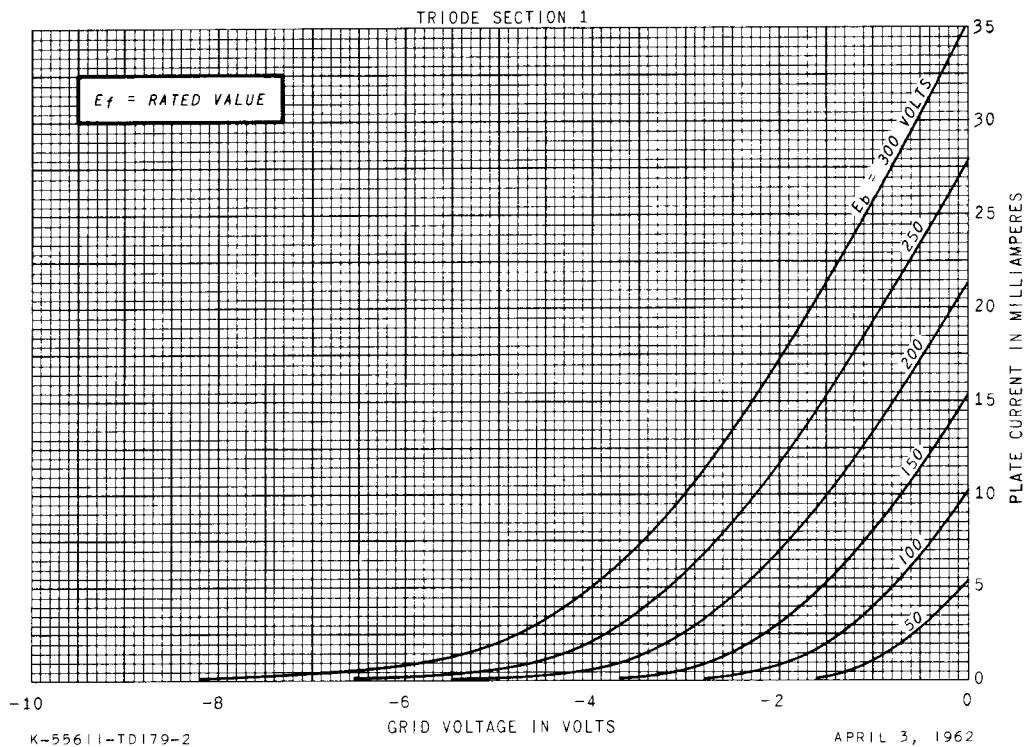


### AVERAGE PLATE CHARACTERISTICS

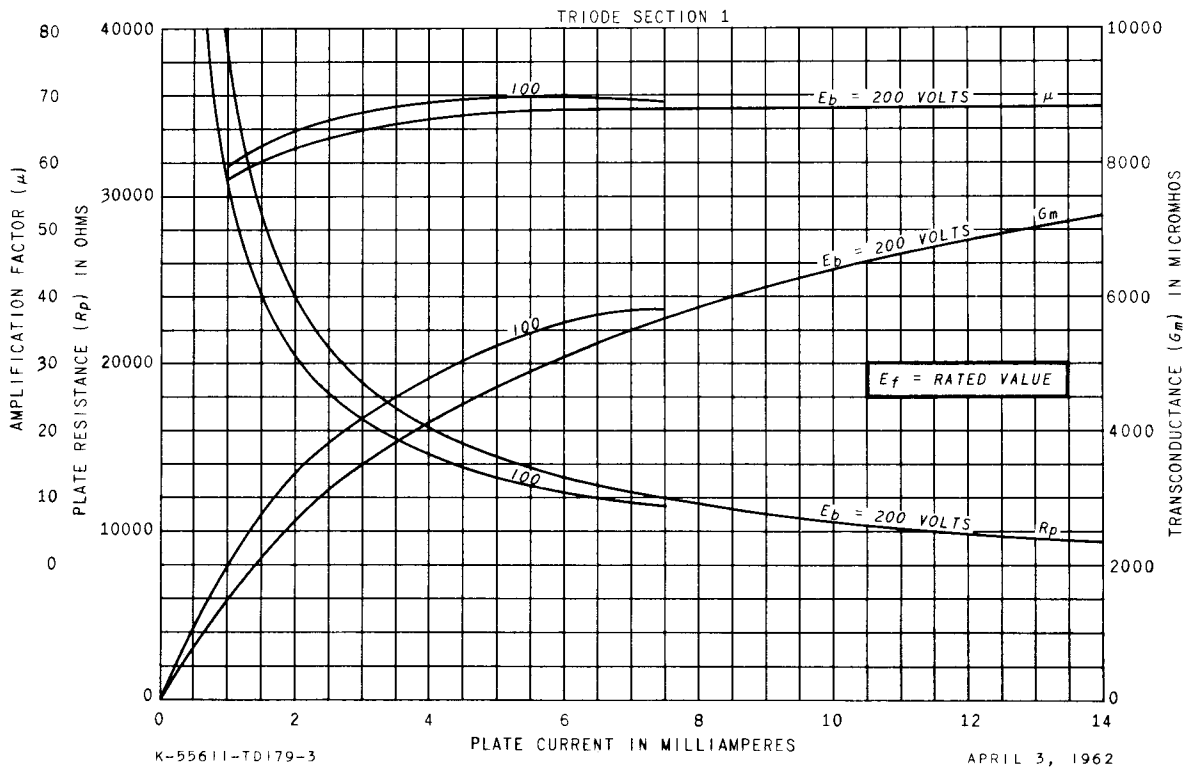
TRIODE SECTION 1



**AVERAGE TRANSFER CHARACTERISTICS**

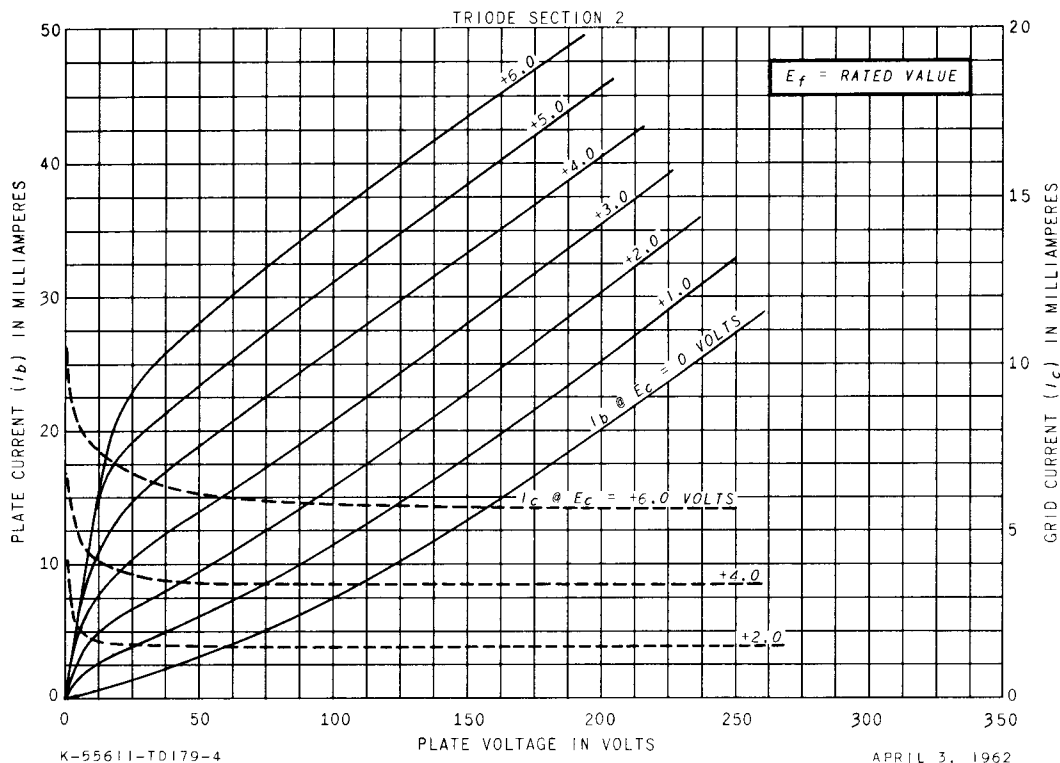


**AVERAGE CHARACTERISTICS**

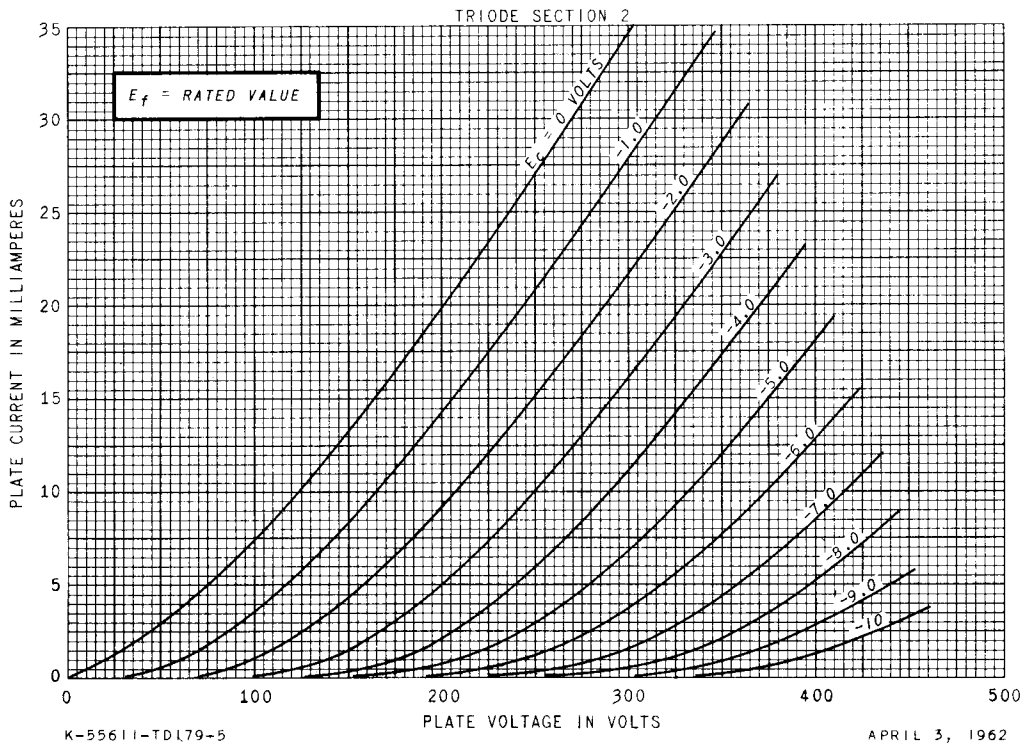




**AVERAGE PLATE CHARACTERISTICS**

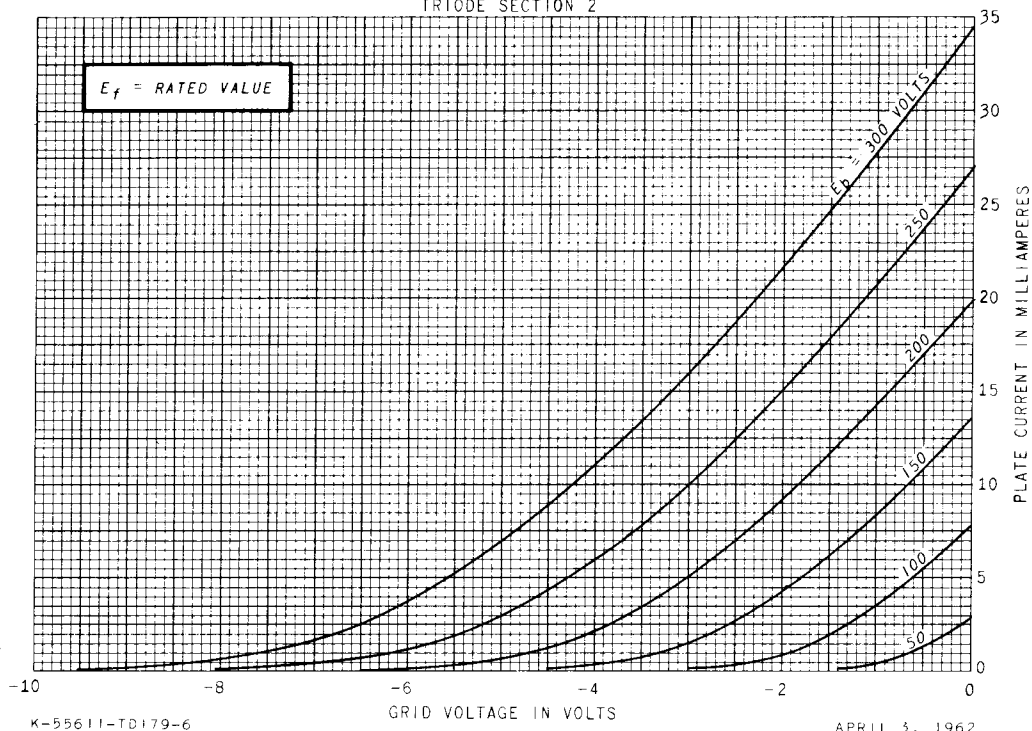


**AVERAGE PLATE CHARACTERISTICS**



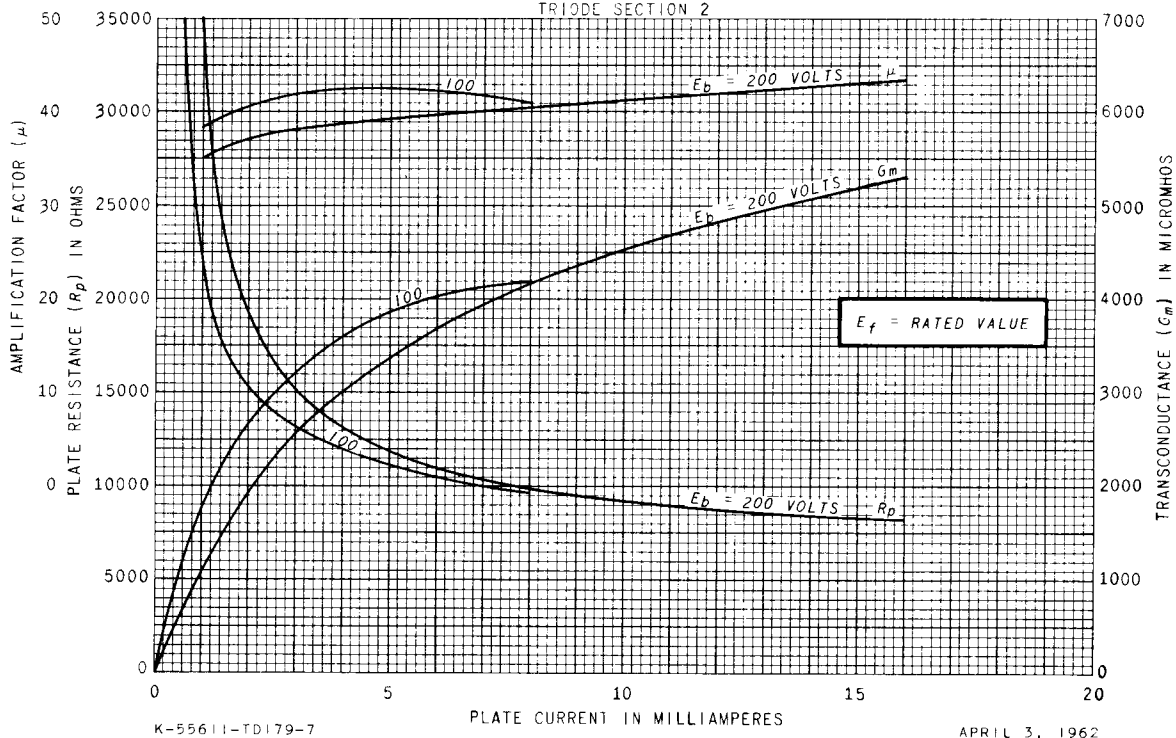
**AVERAGE TRANSFER CHARACTERISTICS**

TRIODE SECTION 2



**AVERAGE CHARACTERISTICS**

TRIODE SECTION 2



TUBE DEPARTMENT



Owensboro, Kentucky