

8BU11

# Compactron Twin-Triode Pentode

The 8BU11 is a compactron containing two medium-mu triodes and a sharp-cutoff pentode.

## GENERAL

### ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC\* . . . . 7.8 Volts  
Heater Current† . . . . . 0.6±0.04 Amperes  
Heater Warm-up Time, Average§ . . . 11 Seconds  
Direct Interelectrode Capacitances¶

#### Triode (Section 1)

Grid to Plate: (T1g to T1p). . . . 1.7 pf  
Input: T1g to (T1k + Pk + Pg3 + h + i.s.) . . . . 3.2 pf  
Output: T1p to (T1k + Pk + Pg3 + h + i.s.) . . . . 2.0 pf

#### Triode (Section 2)

Grid to Plate: (T2g to T2p). . . . 1.8 pf  
Input: T2g to (T1k + T2k + Pk + Pg3 + h + i.s.) . . . . 3.0 pf  
Output: T2p to (T1k + T2k + Pk + Pg3 + h + i.s.) . . . . 1.7 pf

### Pentode Section

Grid-Number 1 to Plate:

(Pg1 to Pp) . . . . . 0.11 pf  
Input: Pg1 to (T1k + Pk + Pg2 + Pg3 + h + i.s.) . . . . 5.0 pf  
Output: Pp to (T1k + Pk + Pg2 + Pg3 + h + i.s.) . . . . 2.4 pf

### MECHANICAL

Operating Position - Any

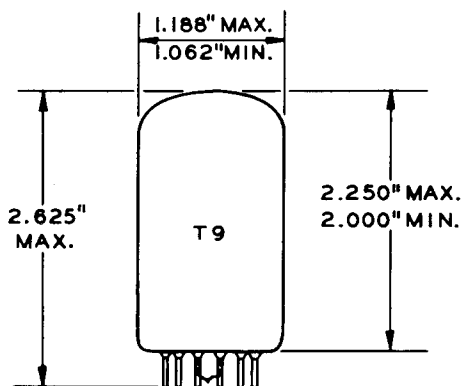
Envelope - T-9, Glass

Base - E12-70, Button 12-Pin

Outline Drawing - EIA 9-59

Maximum Diameter. . . . . 1.188 Inches  
Minimum Diameter. . . . . 1.062 Inches  
Maximum Over-all Length . . . . 2.625 Inches  
Maximum Seated Height . . . . . 2.250 Inches  
Minimum Seated Height . . . . . 2.000 Inches

### PHYSICAL DIMENSIONS

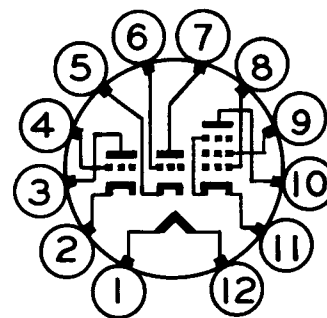


EIA 9-59

### TERMINAL CONNECTIONS

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

### BASING DIAGRAM



EIA 12FP

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 . . . . .                     | 330  | Volts   |
| Screen Supply Voltage . . . . .             | 330  | Volts   |
| Screen Voltage - See Screen Rating Chart    |      |         |
| Positive DC Grid-Number 1 Voltage . . . . . | 0    | Volts   |
| Plate Dissipation . . . . .                 | 2.5  | Watts   |
| Screen Dissipation . . . . .                | 0.55 | 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 . . . . .                   | 0.5  | Megohms |
| With Cathode Bias . . . . .                 | 1.0  | Megohms |

**Each Triode Section**

|                                         |     |         |
|-----------------------------------------|-----|---------|
| Plate Voltage . . . . .                 | 330 | Volts   |
| Positive DC Grid Voltage . . . . .      | 0   | Volts   |
| Plate Dissipation . . . . .             | 1.8 | 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 . . . . .                    | 125    | Volts        |
| Screen Voltage . . . . .                   | 125    | Volts        |
| Grid-Number 1 Voltage . . . . .            | -1.0   | Volts        |
| Plate Resistance, approximate . . . . .    | 200000 | Ohms         |
| Transconductance . . . . .                 | 7500   | Micromhos    |
| Plate Current . . . . .                    | 12     | Milliamperes |
| Screen Current . . . . .                   | 4.0    | Milliamperes |
| Grid-Number 1 Voltage, approximate         |        |              |
| I <sub>b</sub> = 30 Microamperes . . . . . | -8     | Volts        |

## CHARACTERISTICS AND TYPICAL OPERATION (Cont'd)

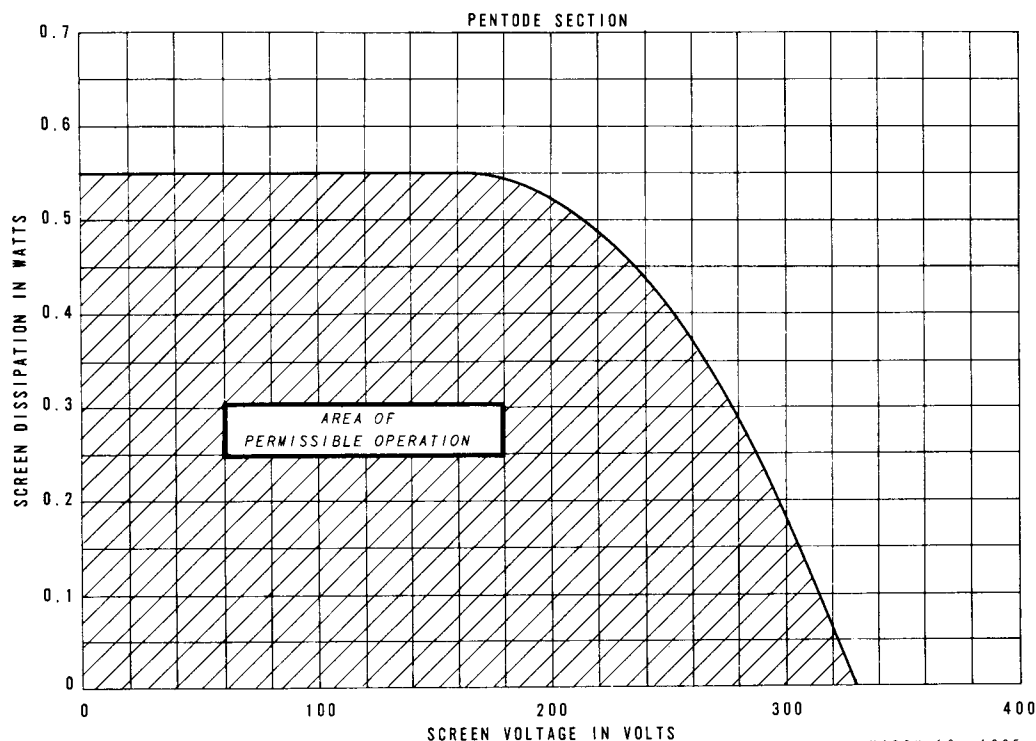
### Each Triode Section

|                                         |      |              |
|-----------------------------------------|------|--------------|
| Plate Voltage. . . . .                  | 125  | Volts        |
| Cathode-Bias Resistor . . . . .         | 68   | Ohms         |
| Amplification Factor . . . . .          | 43   |              |
| Plate Resistance, approximate . . . . . | 5000 | Ohms         |
| Transconductance. . . . .               | 8600 | Micromhos    |
| Plate Current. . . . .                  | 13.5 | Milliamperes |
| Grid-Voltage, approximate               |      |              |
| Ib = 100 Microamperes . . . . .         | -8   | Volts        |

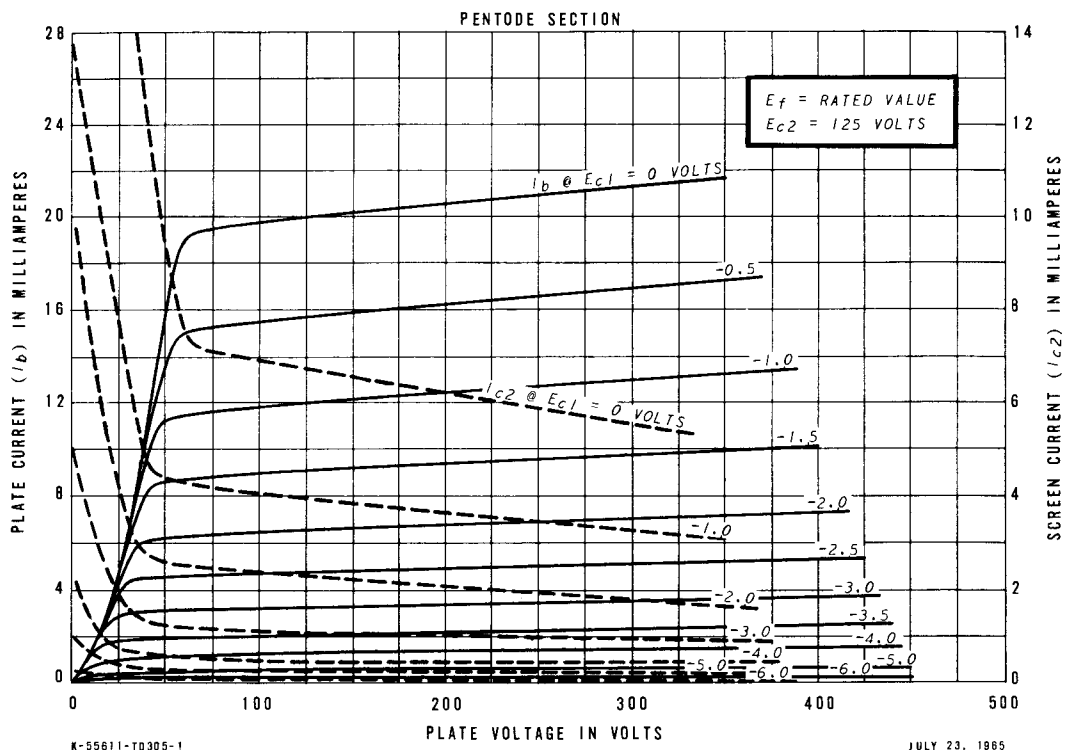
## NOTES

- \* Heater voltage for a bogey tube at If = 0.6 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 current 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.

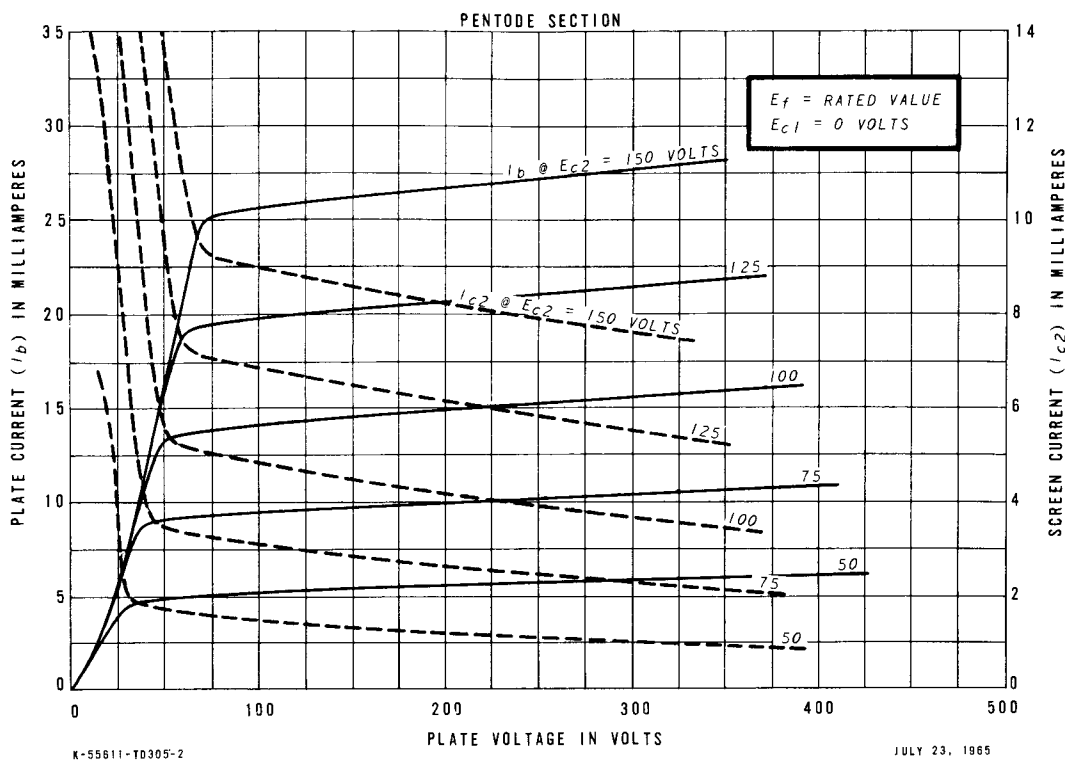
## SCREEN RATING CHART



## AVERAGE PLATE CHARACTERISTICS

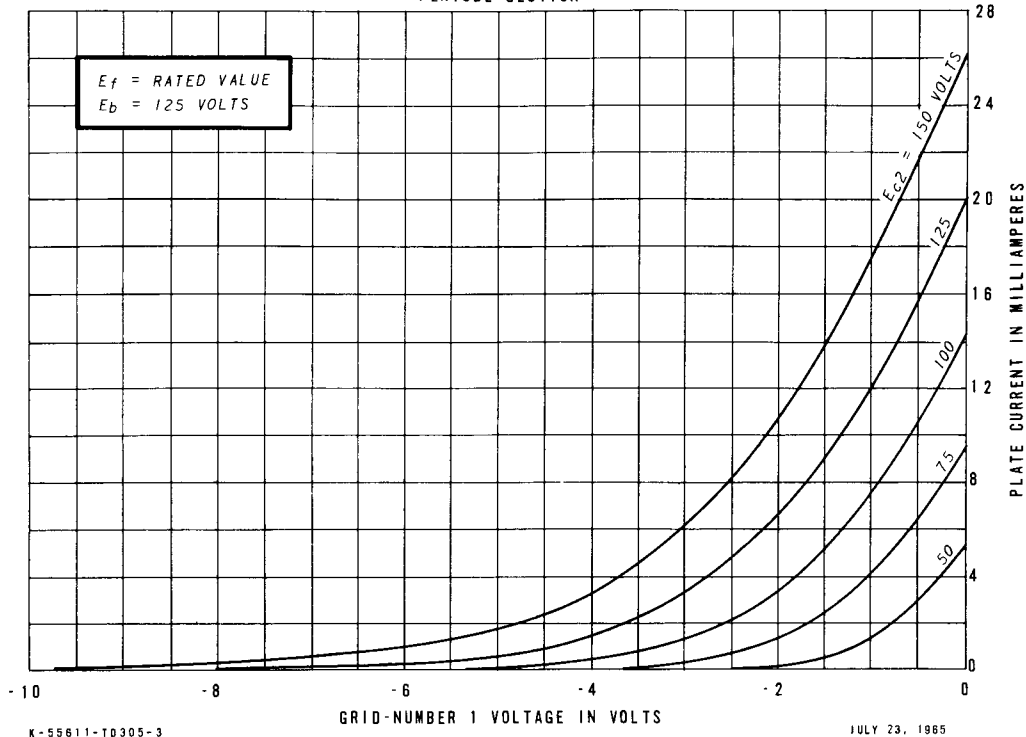


## AVERAGE PLATE CHARACTERISTICS



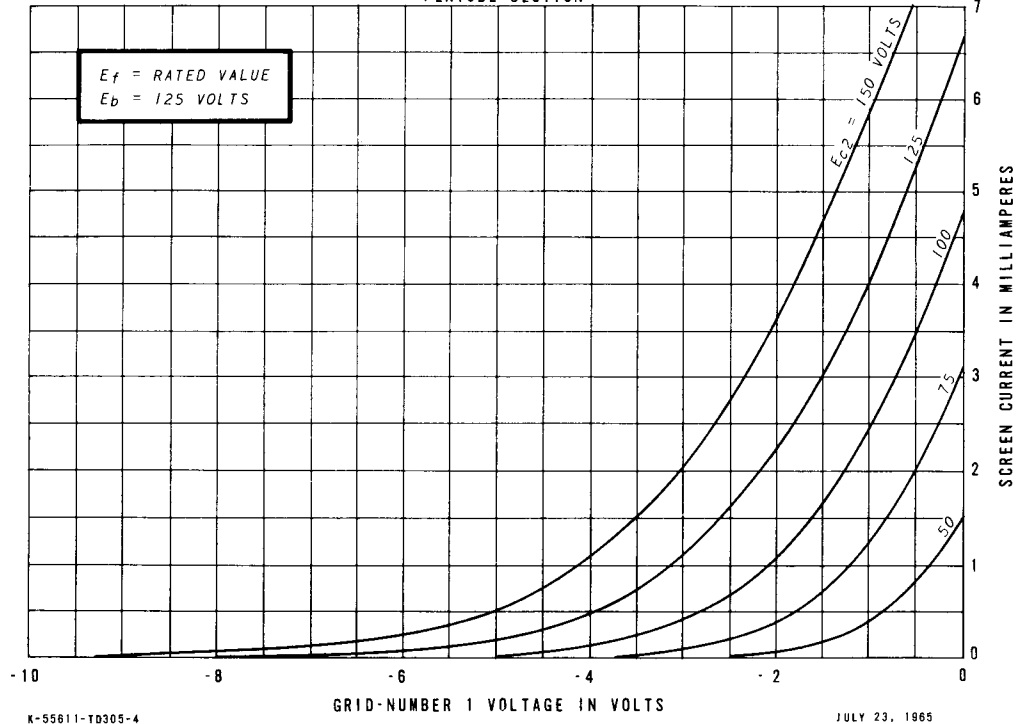
# AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

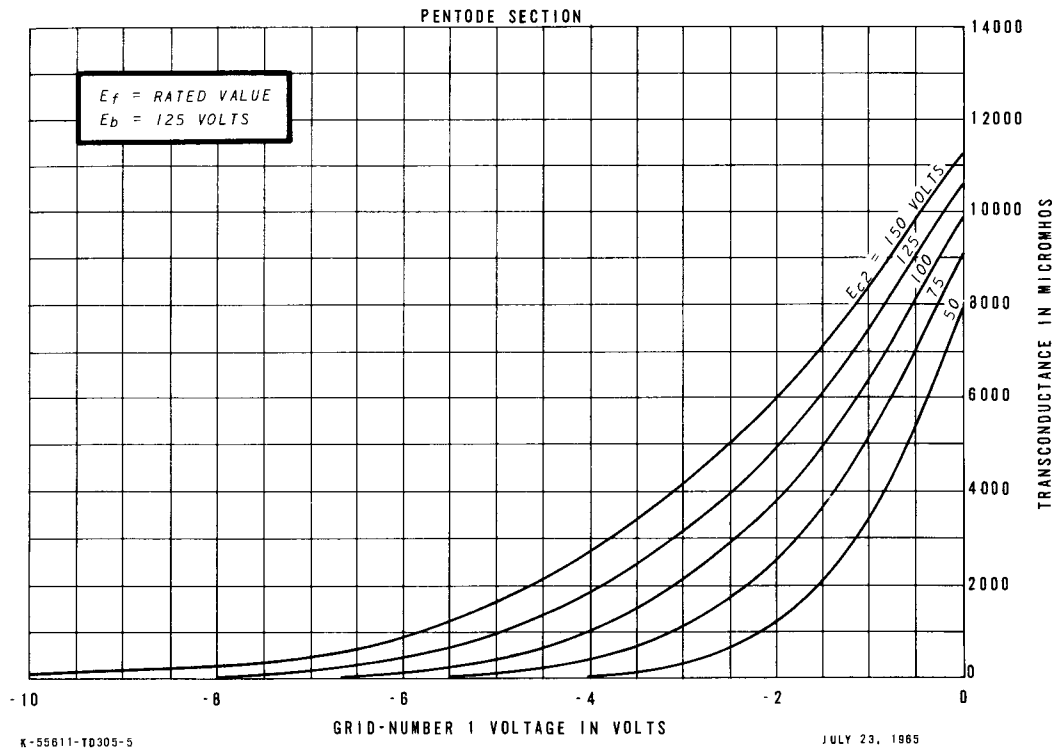


# AVERAGE TRANSFER CHARACTERISTICS

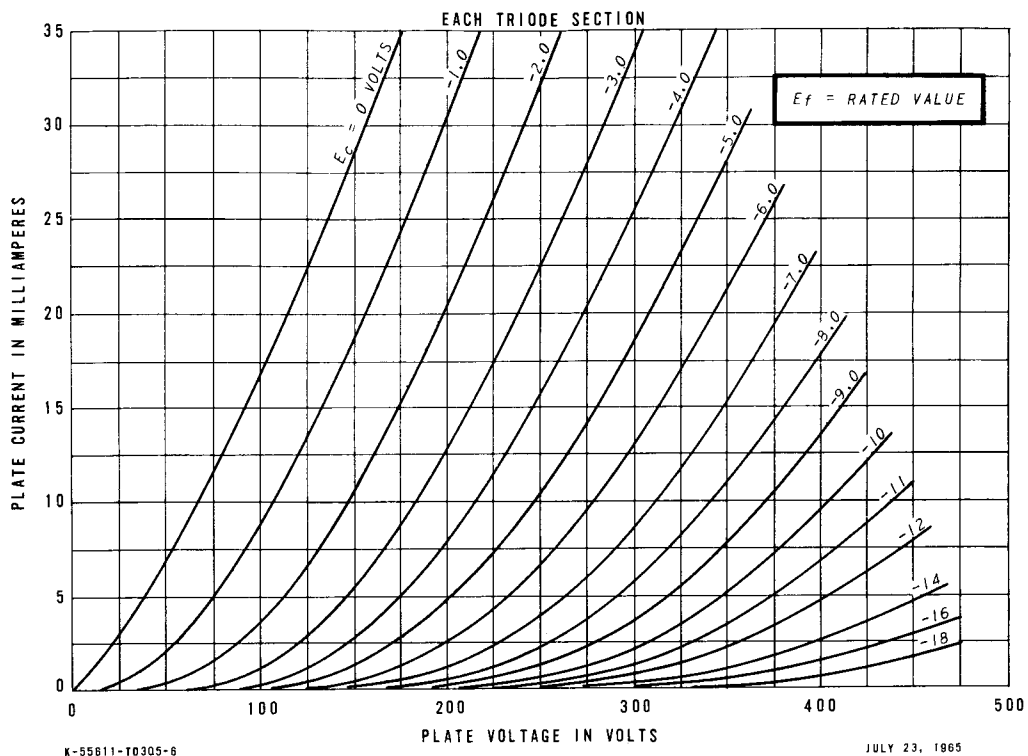
PENTODE SECTION



## AVERAGE TRANSFER CHARACTERISTICS

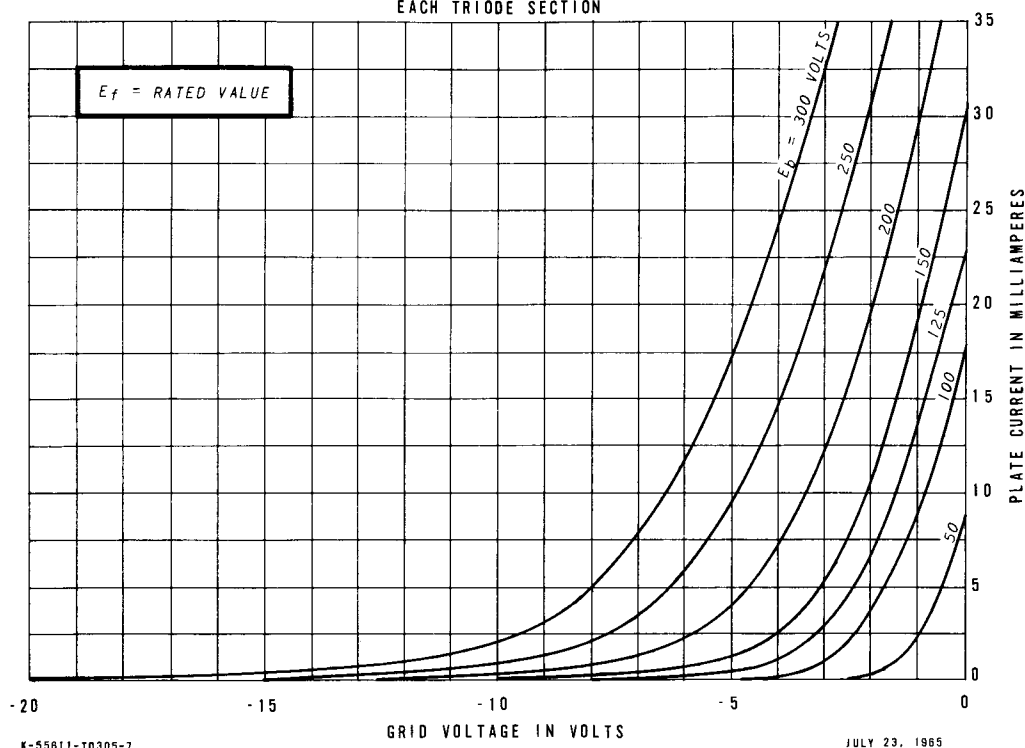


## AVERAGE PLATE CHARACTERISTICS



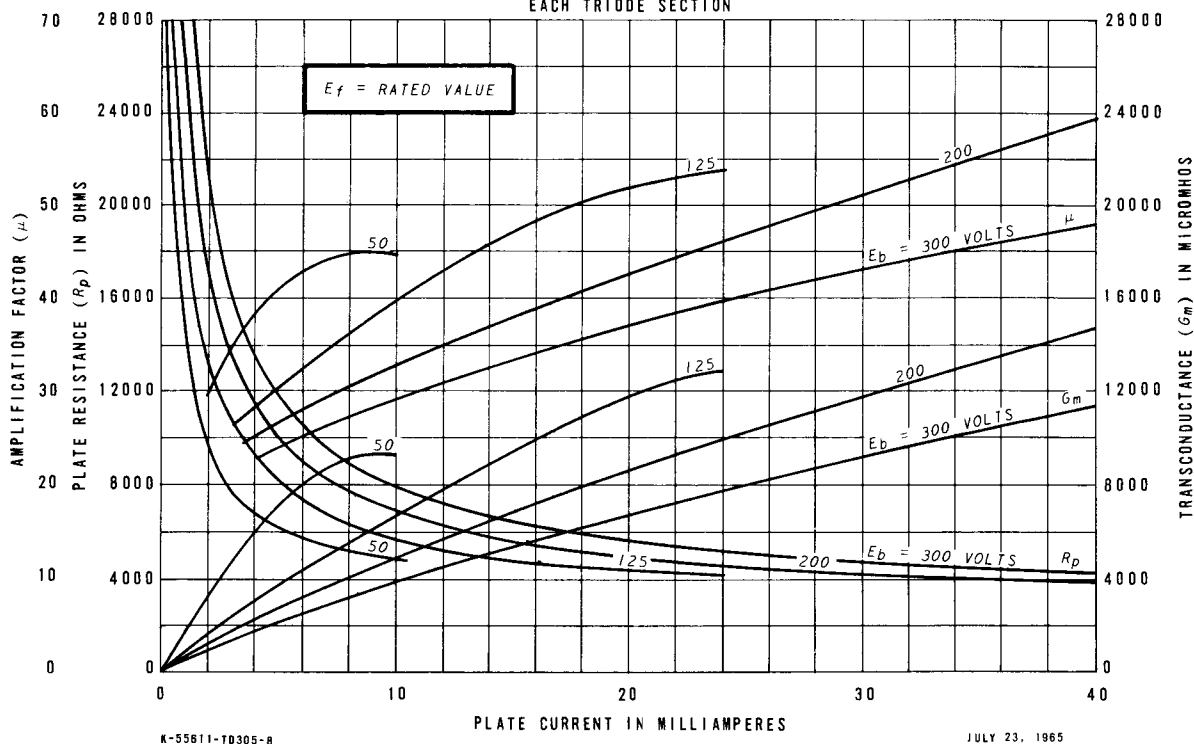
# AVERAGE TRANSFER CHARACTERISTICS

EACH TRIODE SECTION



# AVERAGE CHARACTERISTICS

EACH TRIODE SECTION



TUBE DEPARTMENT  
**GENERAL**  **ELECTRIC**  
Owensboro, Kentucky