

**TRIODE-PENTODE**

**FOR VHF CONVERTER APPLICATIONS**

**DESCRIPTION AND RATING**

The 6CG8-A is a miniature tube containing a medium-mu triode and a sharp-cutoff pentode. It is designed primarily for use as a combined triode oscillator and pentode mixer in VHF television receivers.

**GENERAL**

**ELECTRICAL**

Cathode—Coated Unipotential  
Heater Characteristics and Ratings

	Series Heater Operation	Parallel Heater Operation	
Heater Voltage, AC or DC	6.3	6.3 ± 0.6*	Volts
Heater Current	0.45 ± 0.03*	0.45†	Amperes
Heater Warm-up Time‡	11		Seconds

Direct Interelectrode Capacitances

	With Shield§	Without Shield	
<b>Pentode Section</b>			
Grid-Number 1 to Plate:			
(Pg1 to Pp), max.	0.02	0.04	pf
Input: Pg1 to (h+k+Pg2+Pg3)	4.8	4.6	pf
Output: Pp to (h+k+Pg2+Pg3)	1.6	0.9	pf
<b>Triode Section</b>			
Grid to Plate: (Tg to Tp)	1.5	1.5	pf
Input: Tg to (h+k+Pg3)	2.4	2.0	pf
Output: Tp to (h+k+Pg3)	1.0	0.5	pf
<b>Pentode-Grid Number 1 to</b>			
Triode Plate: (Pg1 to Tp), max.	0.04	0.05	pf
<b>Pentode Plate to Triode Plate:</b>			
(Pp to Tp), max.	0.008	0.05	pf
Heater to Cathode: (h to k)	6.5#	6.5	pf

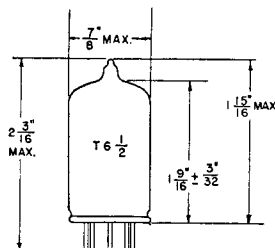
**MECHANICAL**

Mounting Position—Any  
Envelope—T-6½, Glass  
Base—E9-1, Small Button 9-Pin  
Outline Drawing—EIA 6-2  
Maximum Diameter . . . . . 7/8 Inches  
Maximum Over-all Length 2 3/16 Inches  
Maximum Seated Height . . . 1 1/16 Inches

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.

**PHYSICAL DIMENSIONS**

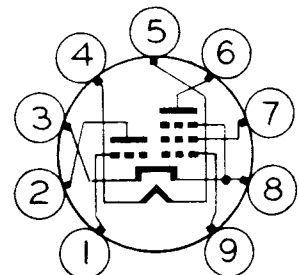


EIA 6-2

**TERMINAL CONNECTIONS**

- Pin 1—Triode Grid
- Pin 2—Triode Plate
- Pin 3—Cathode
- Pin 4—Heater
- Pin 5—Heater
- Pin 6—Pentode Plate
- Pin 7—Pentode Grid Number 2 (Screen)
- Pin 8—Cathode and Pentode Grid Number 3 (Suppressor)
- Pin 9—Pentode Grid Number 1

**BASING DIAGRAM**



EIA 9GF

**MAXIMUM RATINGS**

**DESIGN-MAXIMUM VALUES**

	<b>Pentode Section</b>	<b>Triode Section</b>	
Plate Voltage.....	275	275	Volts
Screen Supply Voltage.....	275	....	Volts
Screen Voltage—See Screen Rating Chart			
Positive DC Grid-Number 1 Voltage.....	0	0	Volts
Plate Dissipation.....	2.3	1.7	Watts
Screen Dissipation.....	0.45	....	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

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**

	<b>Pentode Section</b>		<b>Triode Section</b>	
Plate Voltage.....	100	125	125	Volts
Screen Voltage.....	70	125	....	Volts
Grid-Number 1 Voltage.....	0	-1.0	-1.0	Volts
Amplification Factor.....			40	
Plate Resistance, approximate.....		300000	6000	Ohms
Transconductance.....	5700	5500	6500	Micromhos
Plate Current.....		9.0	12	Milliamperes
Screen Current.....		2.2	....	Milliamperes
Grid-Number 1 Voltage, approximate				
I <sub>b</sub> = 20 Microamperes.....		-6.5	-7	Volts

**FOOTNOTES**

\* For series heater operation, 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. For parallel heater operation, 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 E<sub>f</sub> = 6.3 volts.

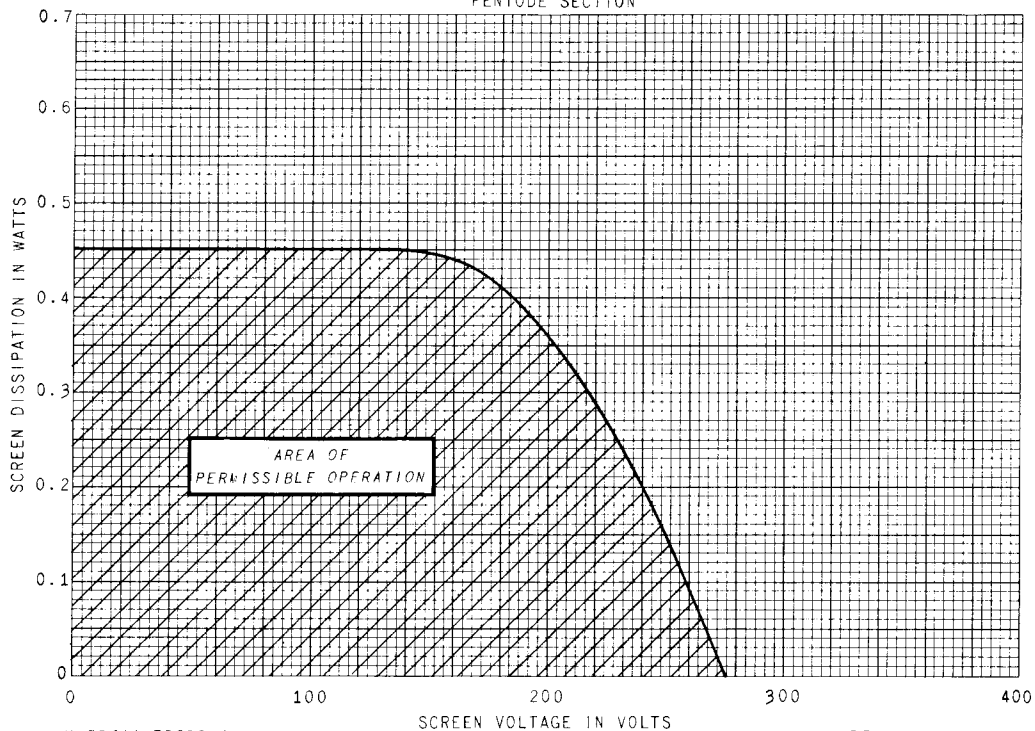
‡ The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

§ With external shield (EIA 315) connected to cathode unless otherwise indicated.

# With external shield (EIA 315) connected to ground.

SCREEN RATING CHART

PENTODE SECTION

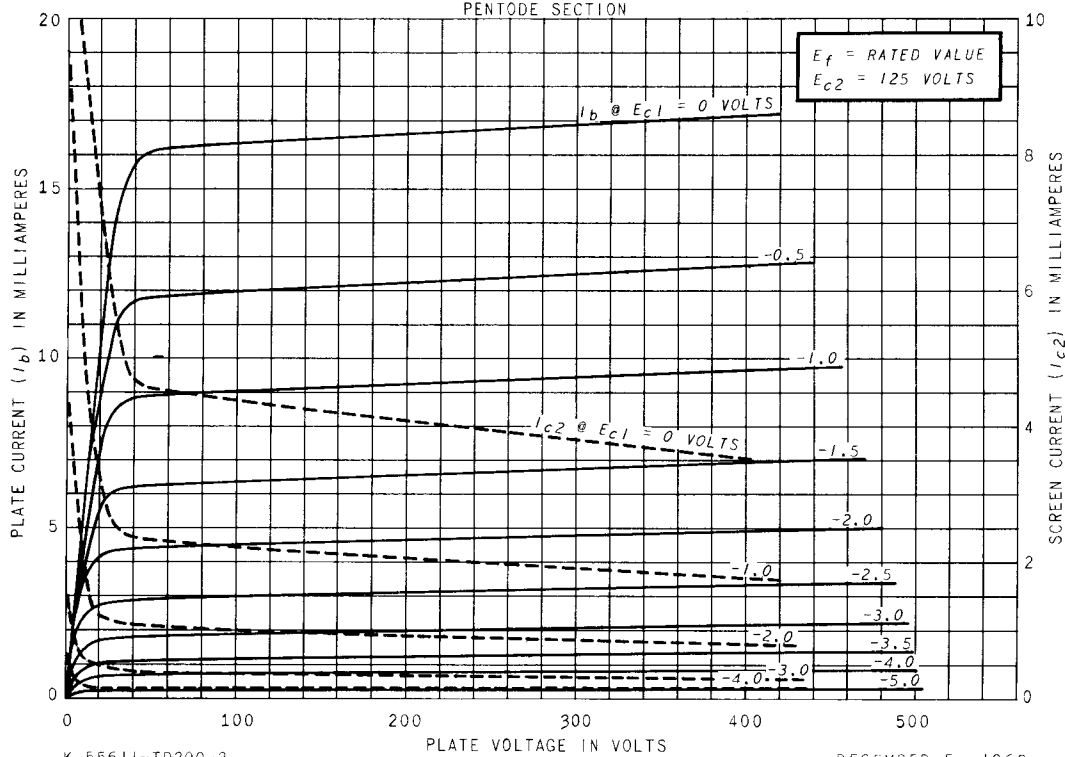


K-55611-TD200-1

DECEMBER 5, 1962

AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION

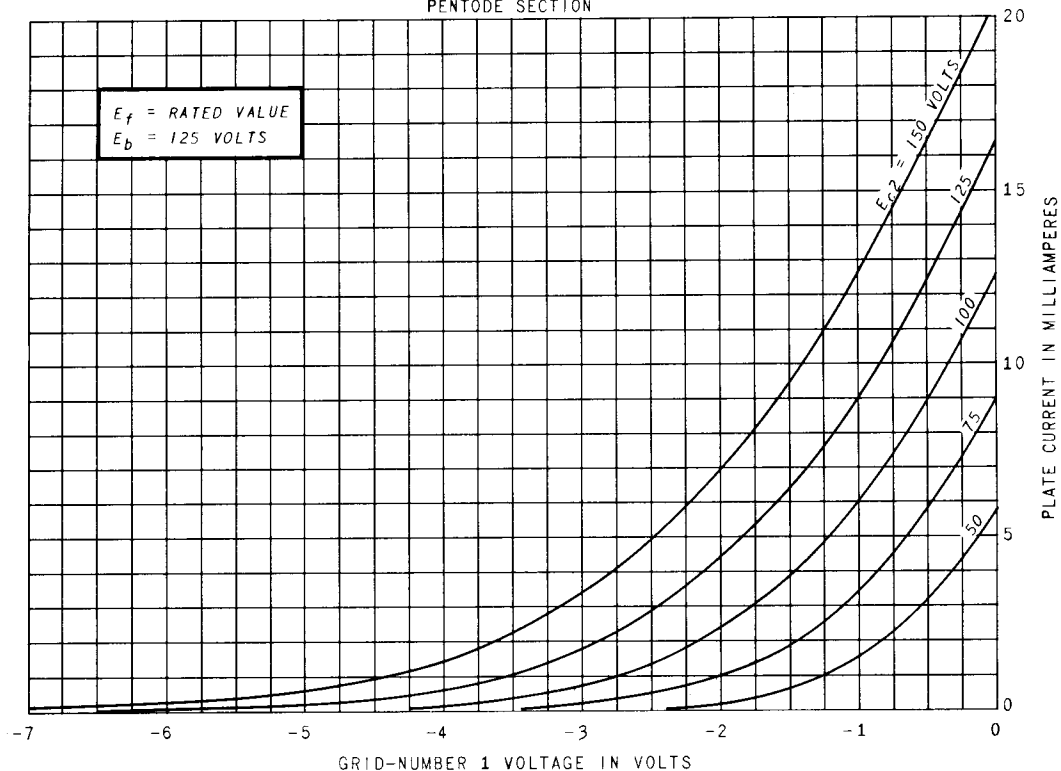


K-55611-TD200-2

DECEMBER 5, 1962

### AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

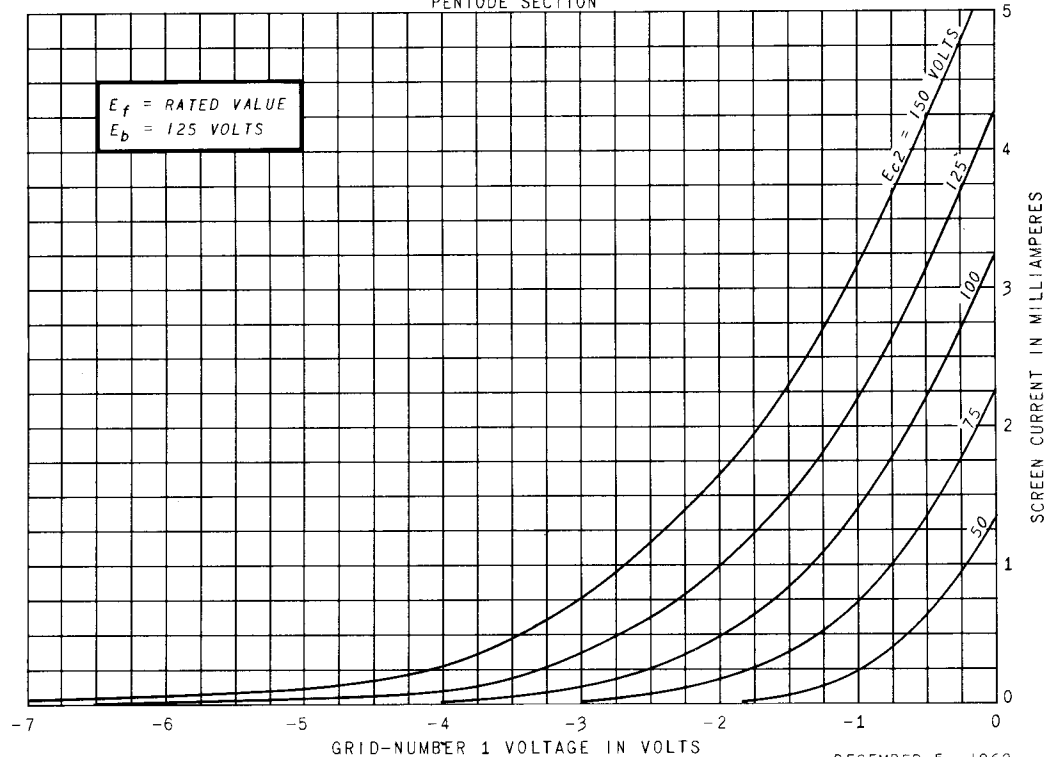


K-55611-TD200-3

DECEMBER 5, 1962

### AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

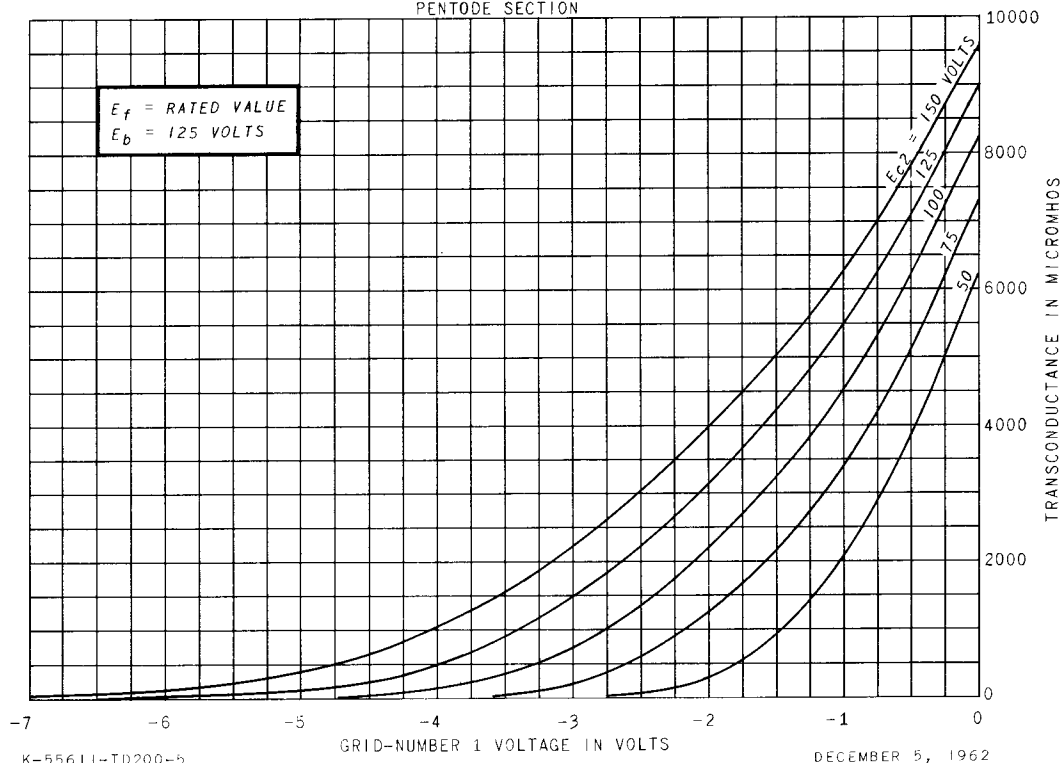


K-55611-TD200-4

DECEMBER 5, 1962

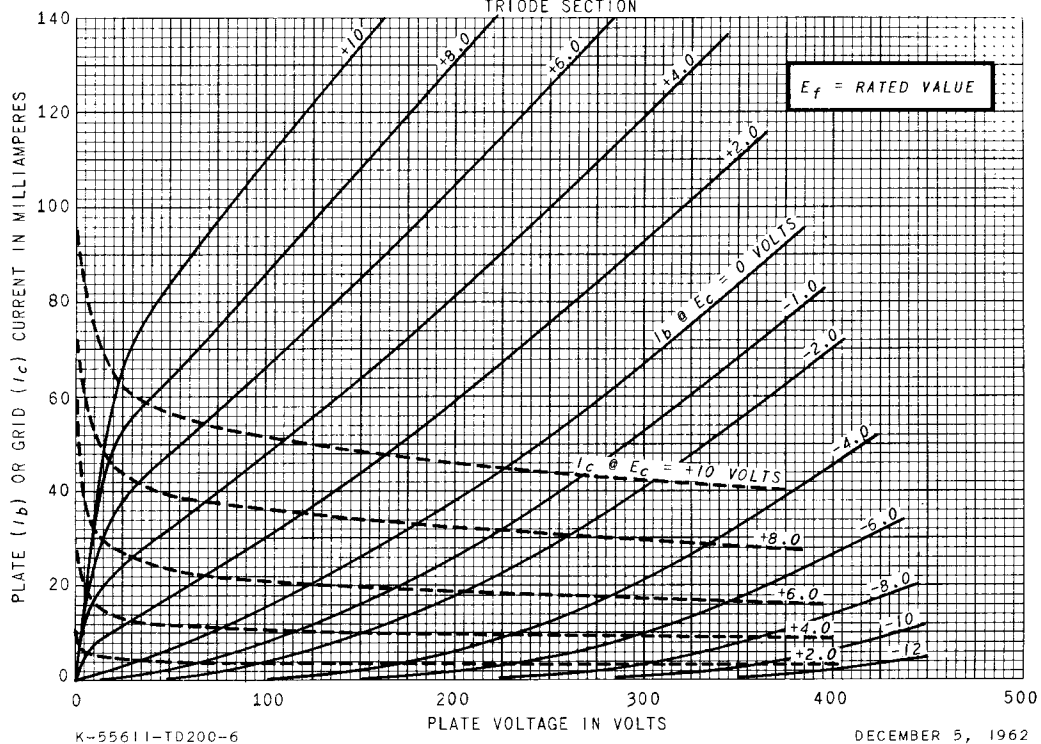
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



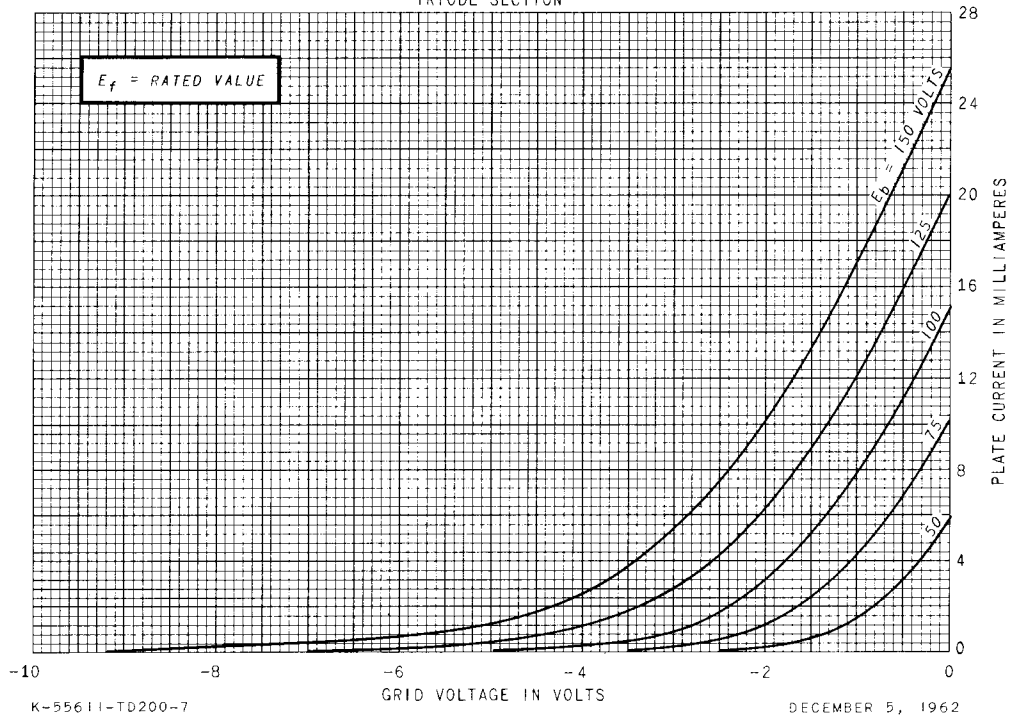
AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION



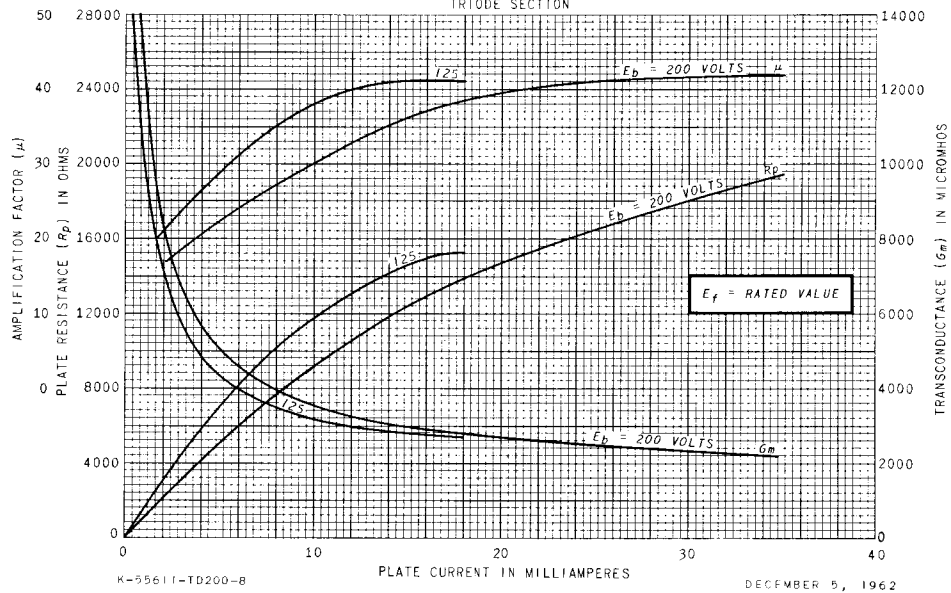
### AVERAGE TRANSFER CHARACTERISTICS

TRIODE SECTION



### AVERAGE CHARACTERISTICS

TRIODE SECTION



RECEIVING TUBE DEPARTMENT



Owensboro, Kentucky