6CG8-A

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

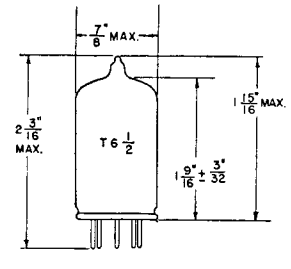
	With Shield§	Without Shield	
Pentode Section			
Grid-Number 1 to Plate: (Pg1 to Pp), max.	0.02	0.04	pf
Input: Pg1 to (h+k+Pg2+Pg3)	4.8	4.6	pf
Output: Pp to (h+k+Pg2+Pg3)	1.6	0.9	pf
Triode Section			
Grid to Plate: (Tg to Tp)	1.5	1.5	pf
Input: Tg to (h+k+Pg3)	2.4	2.0	pf
Output: Tp to (h+k+Pg3)	1.0	0.5	pf
Pentode-Grid Number 1 to Triode Plate: (Pg1 to Tp), max.	0.04	0.05	pf
Pentode Plate to Triode Plate: (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 15/16	Inches

PHYSICAL DIMENSIONS

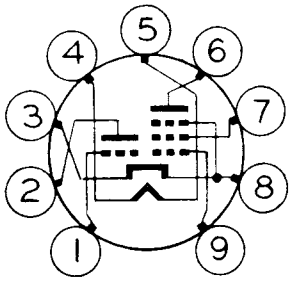


EIA 6-2

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

	Pentode Section	Triode Section	
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

	Pentode Section		Triode Section	
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				
Ib = 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.

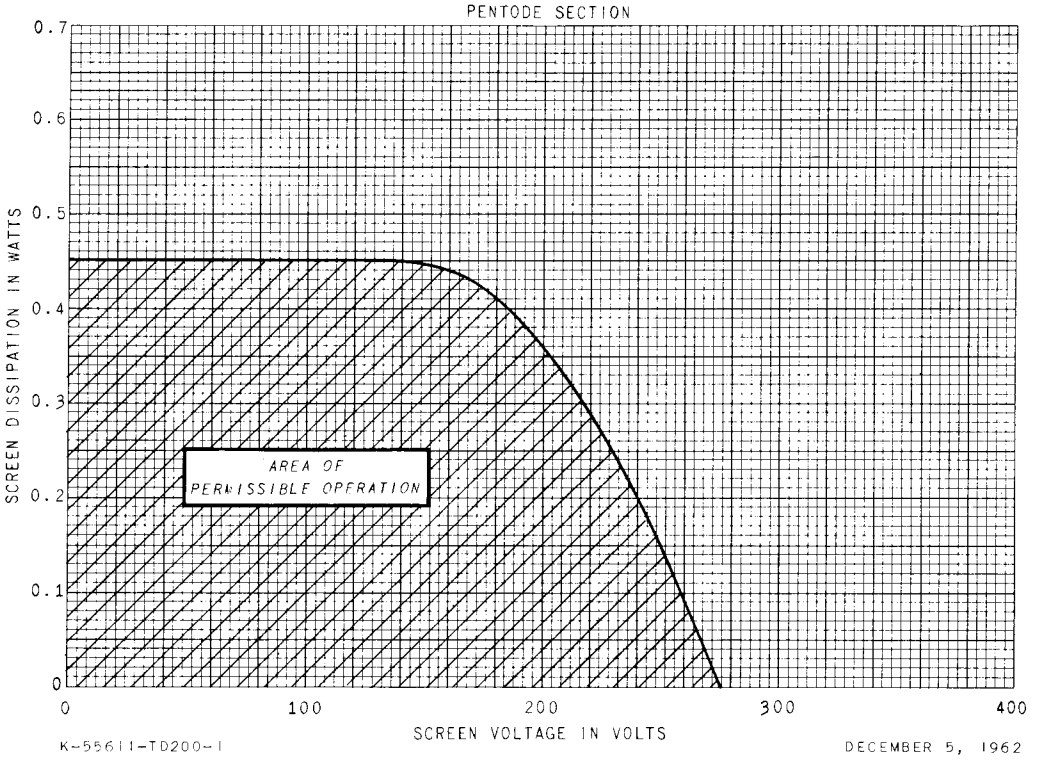
† Heater current of a bogey tube at Ef = 6.3 volts.

‡ 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.

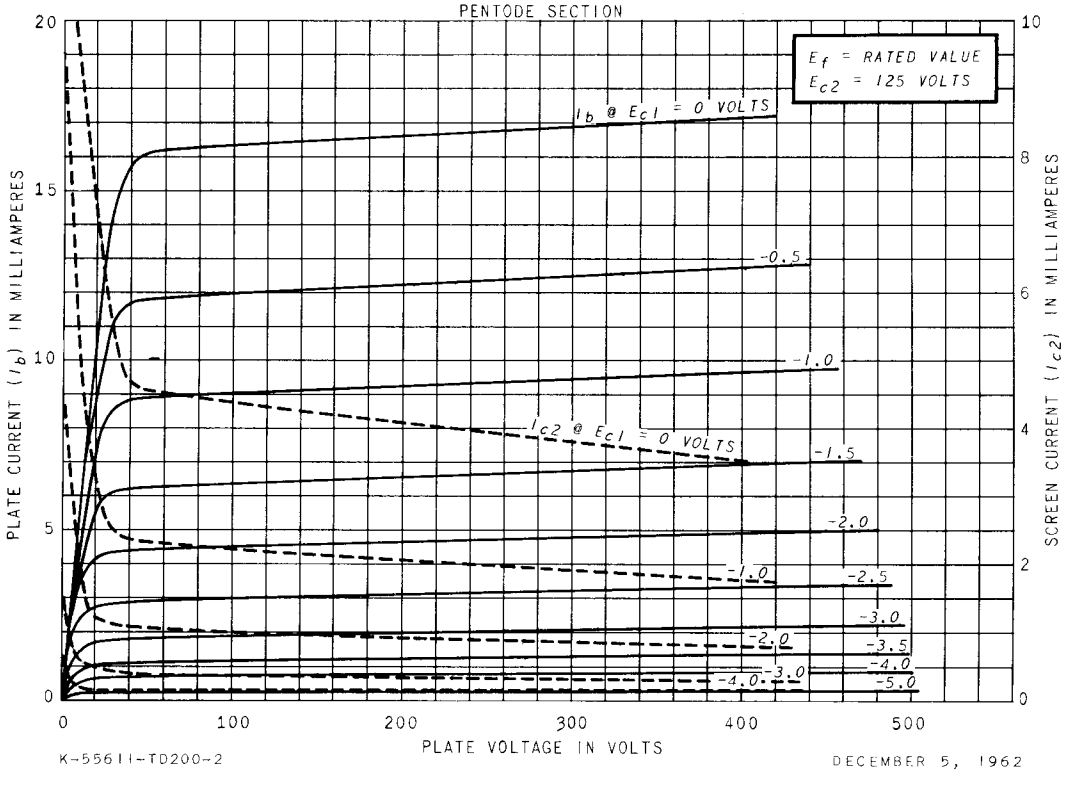
§ With external shield (EIA 315) connected to cathode unless otherwise indicated.

With external shield (EIA 315) connected to ground.

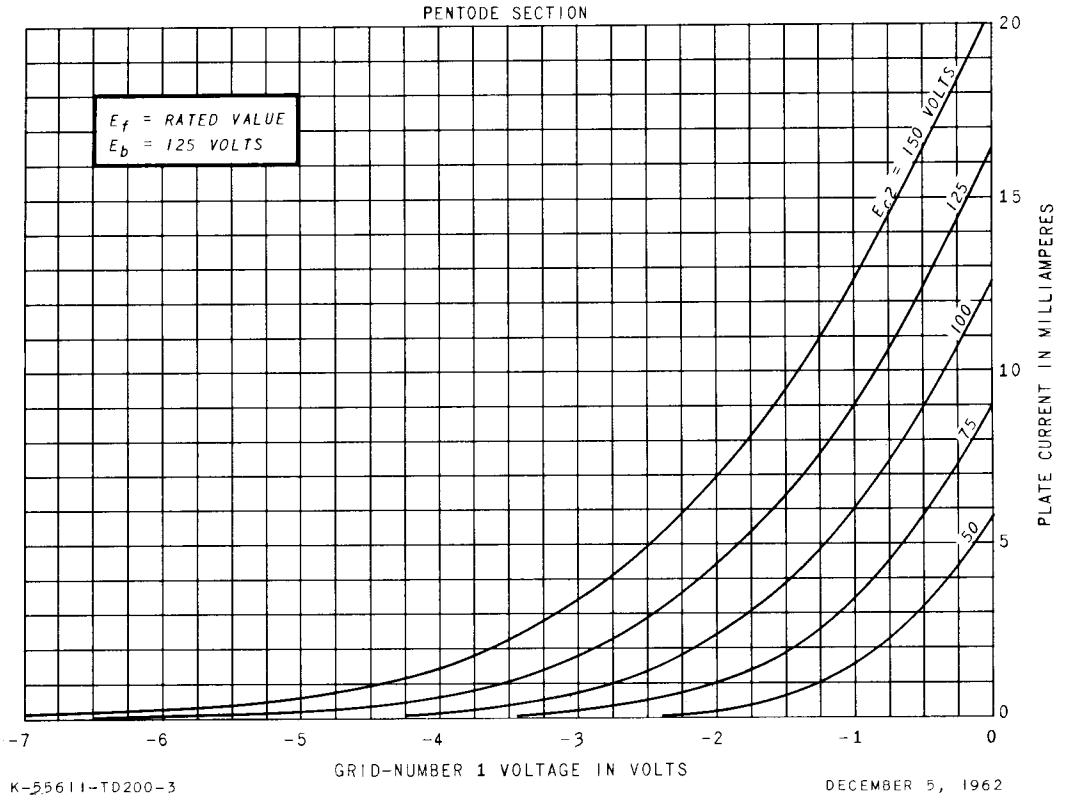
SCREEN RATING CHART



AVERAGE PLATE CHARACTERISTICS



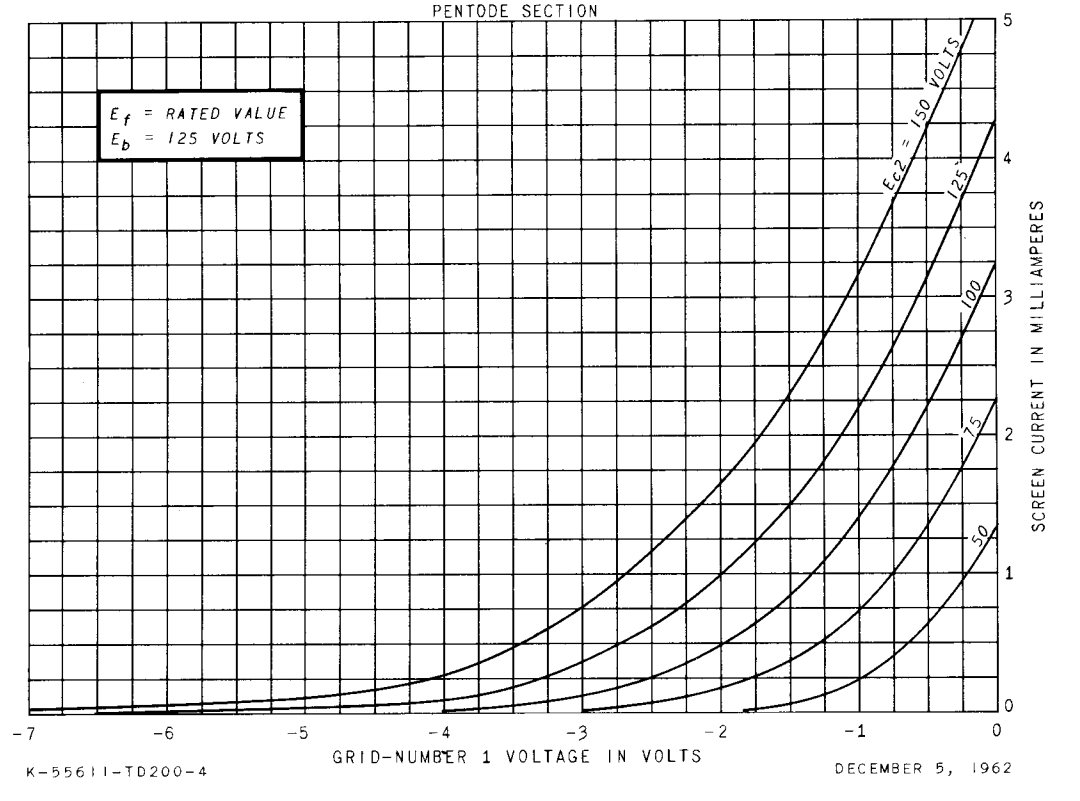
AVERAGE TRANSFER CHARACTERISTICS



K-55611-TD200-3

DECEMBER 5, 1962

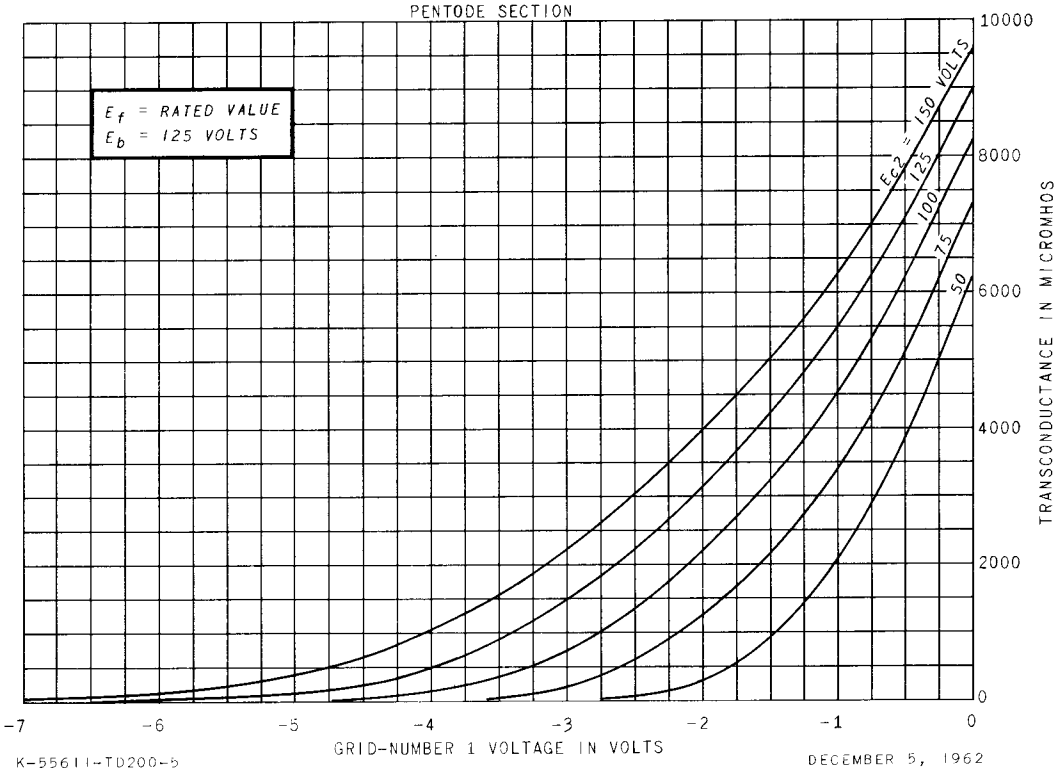
AVERAGE TRANSFER CHARACTERISTICS



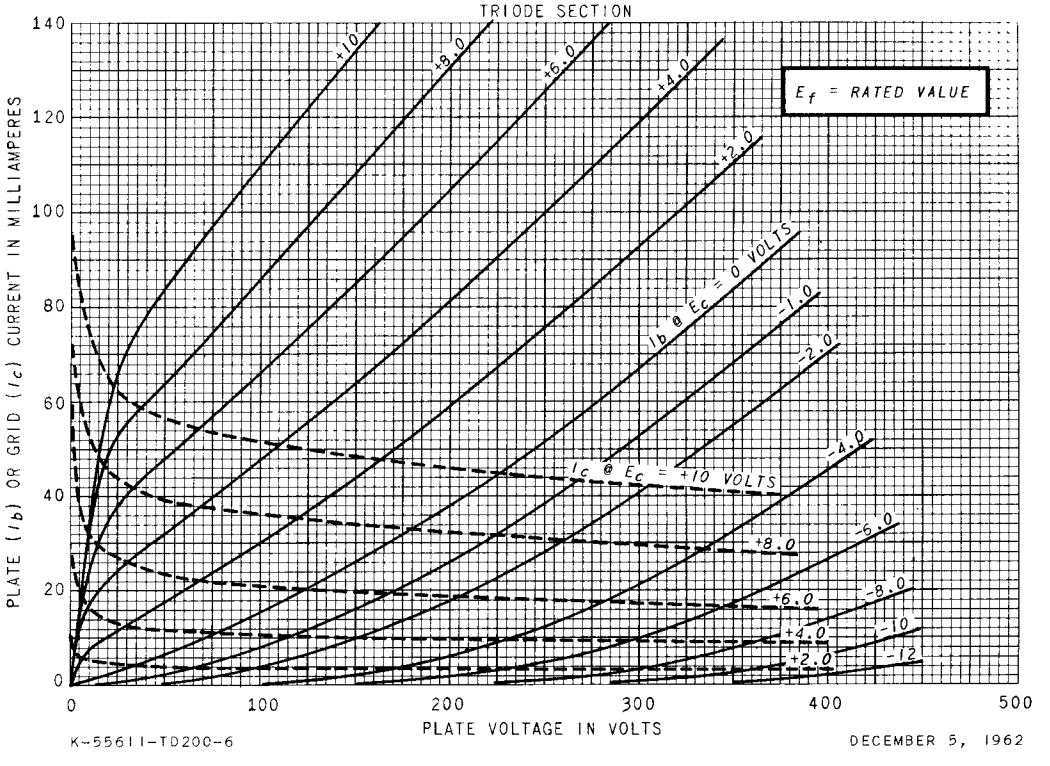
K-55611-TD200-4

DECEMBER 5, 1962

AVERAGE TRANSFER CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS



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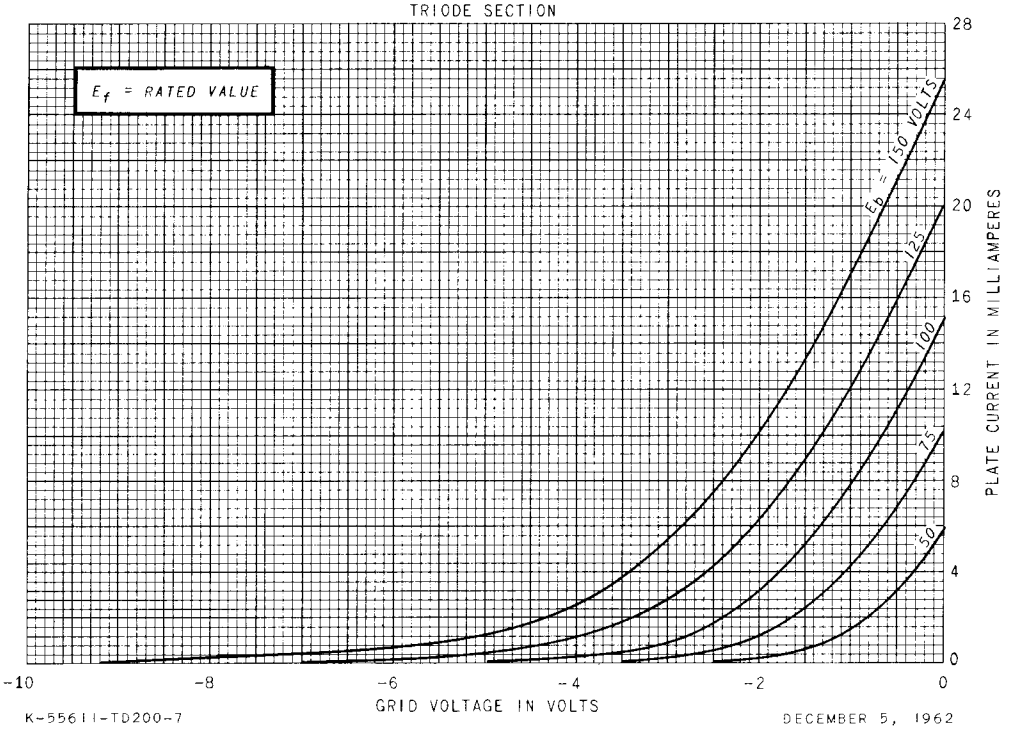
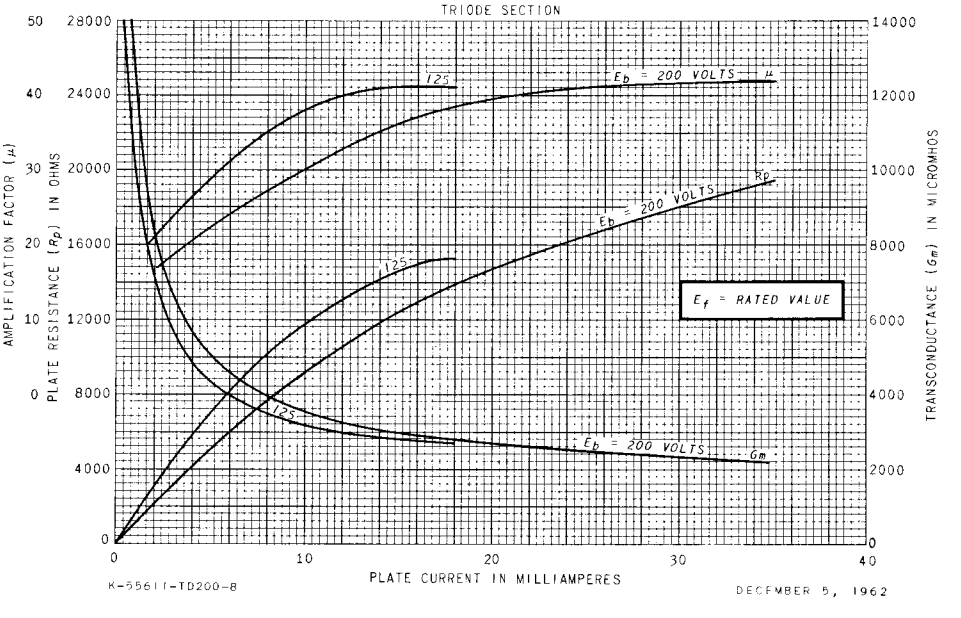


AVERAGE CHARACTERISTICS



RECEIVING TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky