



**ELECTRONIC
INNOVATIONS**
IN ACTION

TUBES

—PRODUCT INFORMATION—

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17AB10

Compactron Pentode — Gated-Beam Discriminator

The 17AB10 is a compactron containing a gated-beam discriminator and a beam pentode. The gated-beam discriminator is suitable for FM and TV limiter and discriminator applications, and the beam pentode for audio power output service.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC* 16.8 Volts

Heater Current† 0.45±0.03 Amperes

Heater Warm-up Time, Average§ 11 Seconds

Direct Interelectrode Capacitances¶

Gated-Beam Discriminator Section

Grid-Number 1 to Grid-Number 3 0.01 pf

Grid-Number 1 to All 4.4 pf

Grid-Number 3 to All 3.2 pf

Pentode Section

Grid-Number 1 to Plate 0.22 pf

Input 12 pf

Output 7.5 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

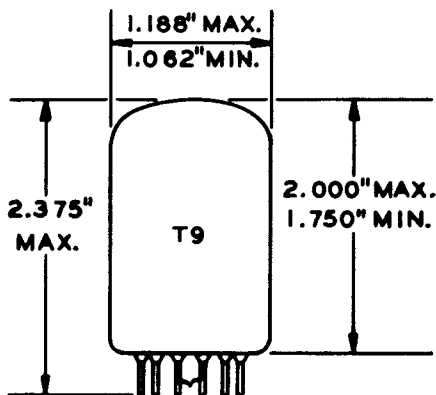
Minimum Diameter 1.062 Inches

Maximum Over-all Length 2.375 Inches

Maximum Seated Height 2.000 Inches

Minimum Seated Height 1.750 Inches

PHYSICAL DIMENSIONS

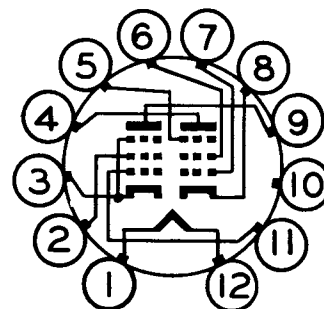


EIA 9-58

TERMINAL CONNECTIONS

- Pin 1 - Heater
- Pin 2 - Pentode Grid Number 2 (Screen)
- Pin 3 - Pentode Cathode and Beam Plates
- Pin 4 - Gated-Beam Discriminator Plate
- Pin 5 - Gated-Beam Discriminator Grid Number 3 (Quadrature)
- Pin 6 - Gated-Beam Discriminator Grid Number 2 (Accelerator)
- Pin 7 - Gated-Beam Discriminator Grid Number 1
- Pin 8 - Gated-Beam Discriminator Cathode and Internal Shields
- Pin 9 - Pentode Plate
- Pin 10 - No Connection
- Pin 11 - Pentode Grid Number 1
- Pin 12 - Heater

BASING DIAGRAM



EIA 12BT

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

Gated-Beam Discriminator Section

Plate-Supply Voltage	330	Volts
Accelerator-Supply Voltage	330	Volts
Peak Positive Grid-Number 1 Voltage	60	Volts
DC Cathode Current	13	Milliamperes
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

Pentode Section

Plate Voltage.	165	Volts
Screen Voltage	150	Volts
Plate Dissipation	6.5	Watts
Screen Dissipation	1.8	Watts
DC Cathode Current	65	Milliamperes
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	0.25	Megohms
With Cathode Bias	0.5	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

Gated-Beam Discriminator Section

Plate Voltage.	135	135	135	Volts
Accelerator Voltage.	75	---	---	Volts
Accelerator-Supply Voltage	---	280	280	Volts
Accelerator Resistor	---	33000	33000	Ohms
Grid-Number 1 Voltage	0	0	0	Volts
Grid-Number 3 Voltage	+4.0	+4.0	0	Volts
Plate Current.	---	5.0	---	Milliamperes
Accelerator Current.	4.5	---	---	Milliamperes
Grid-Number 1 Transconductance	---	---	360	Micromhos
Grid-Number 3 Transconductance	---	---	700	Micromhos
Grid-Number 1 Voltage, approximate				
Ib = 20 Microamperes	---	---	-4	Volts
Grid-Number 3 Voltage, approximate				
Ib = 20 Microamperes	---	---	-4	Volts

CHARACTERISTICS AND TYPICAL OPERATION (Cont'd)

CLASS A₁ AMPLIFIER

Pentode Section

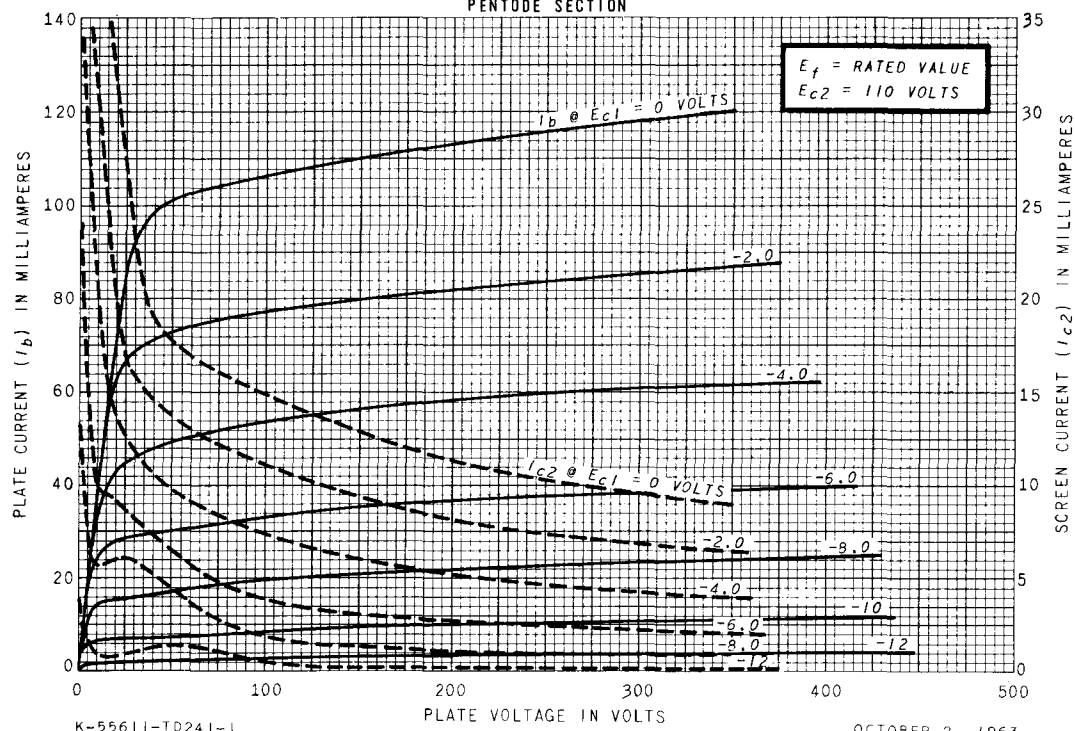
Plate Voltage	145	Volts
Screen Voltage	110	Volts
Grid-Number 1 Voltage	-6.0	Volts
Peak AF Grid-Number 1 Voltage	6.0	Volts
Plate Resistance, approximate	30000	Ohms
Transconductance	8600	Micromhos
Zero-Signal Plate Current	36	Milliamperes
Maximum-Signal Plate Current	40	Milliamperes
Zero-Signal Screen Current	3.0	Milliamperes
Maximum-Signal Screen Current	9.0	Milliamperes
Load Resistance	3000	Ohms
Total Harmonic Distortion, approximate	10	Percent
Maximum-Signal Power Output	2.4	Watts

NOTES

- * Heater voltage for a bogey tube at $I_f = 0.45$ 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.

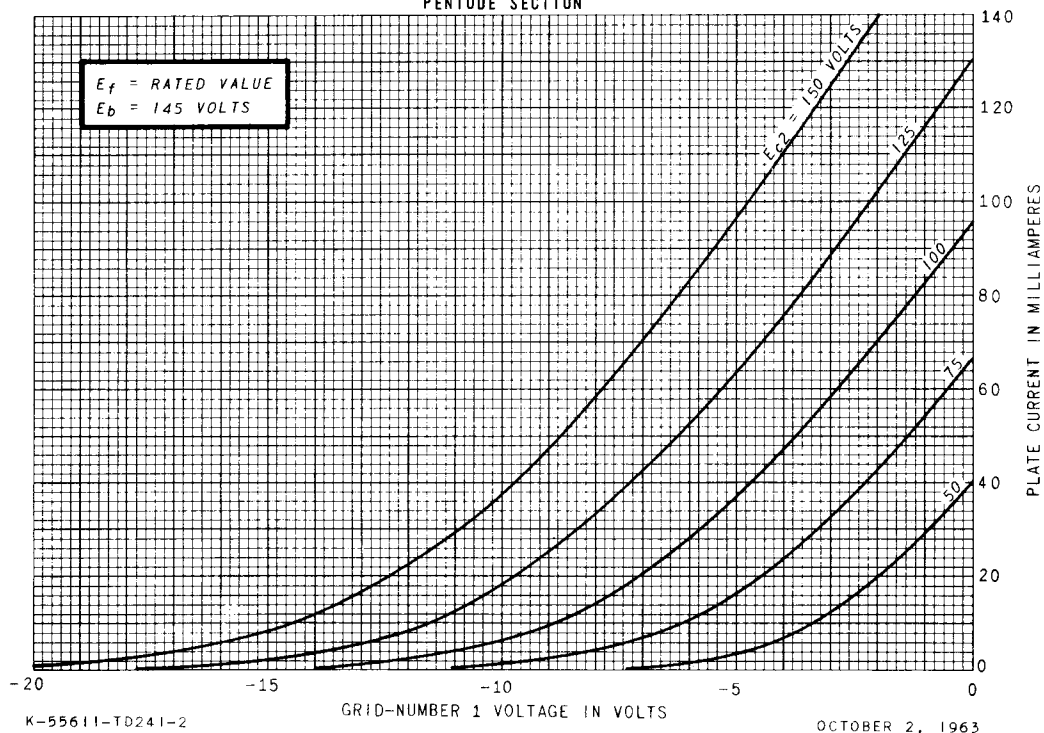
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



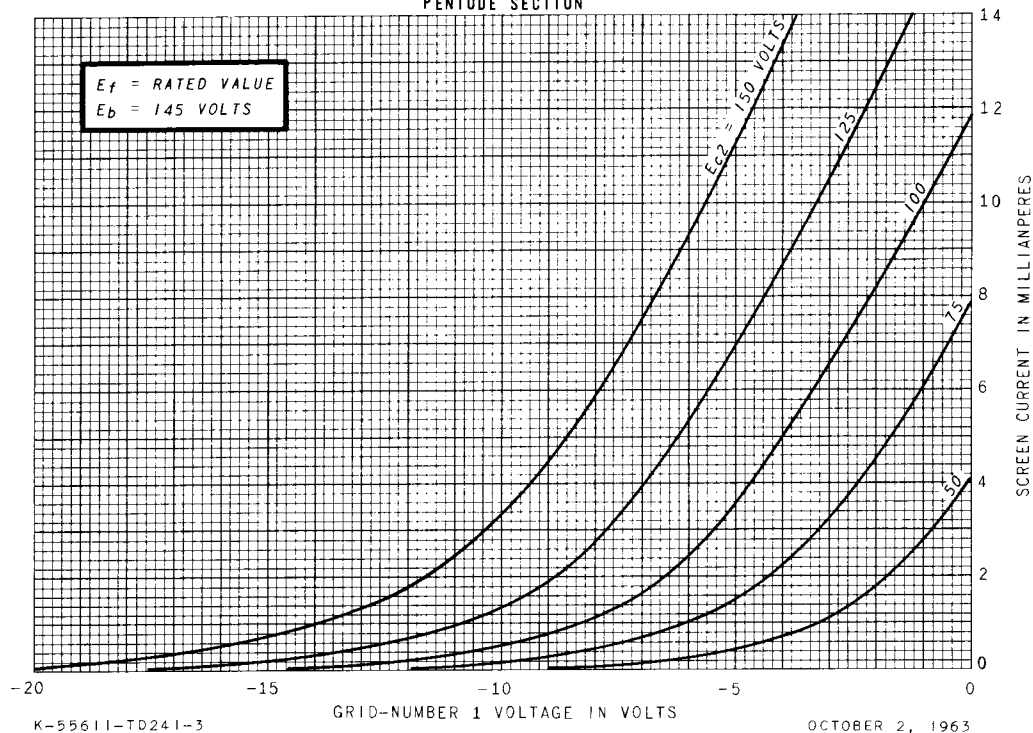
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



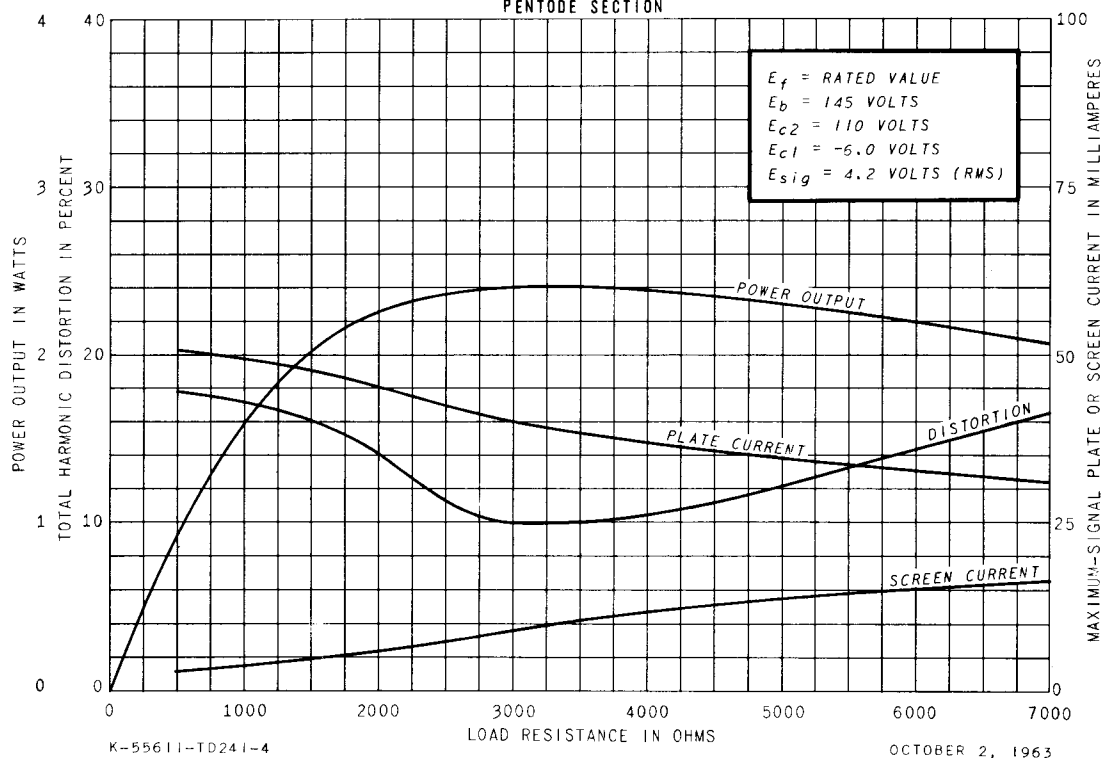
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



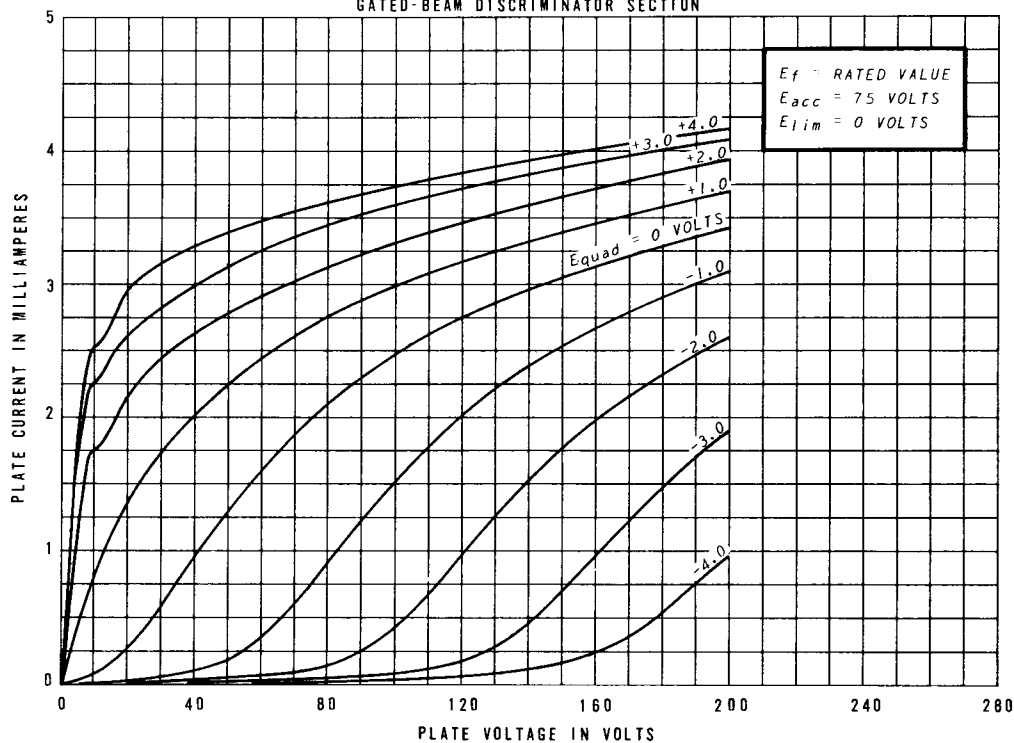
OPERATION CHARACTERISTICS

PENTODE SECTION



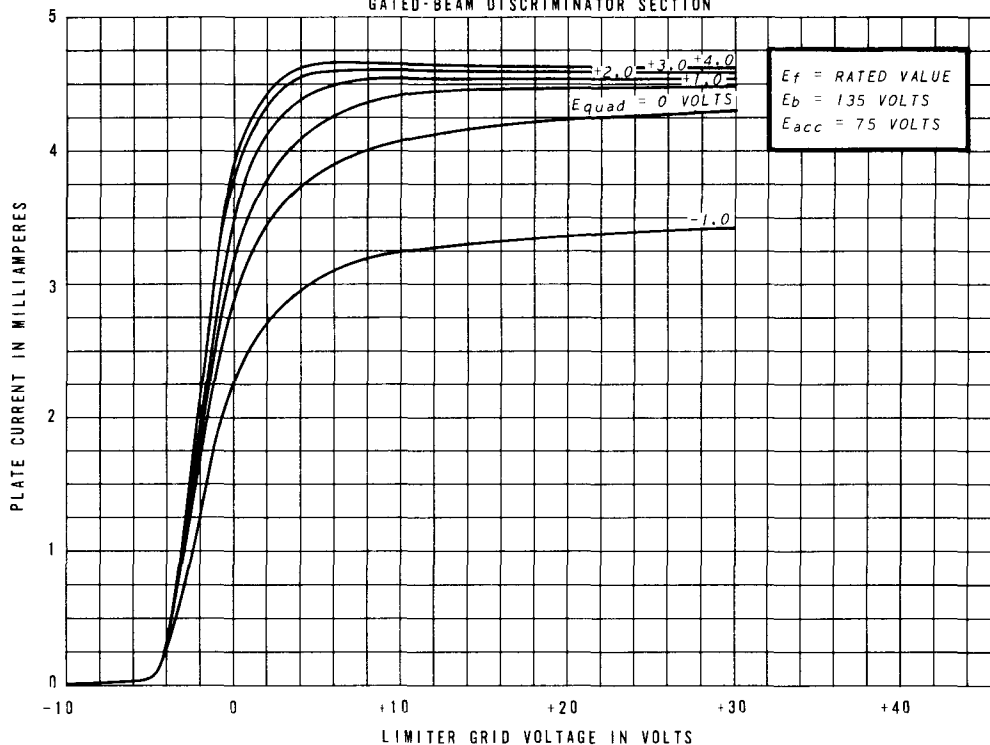
AVERAGE PLATE CHARACTERISTICS

GATED-BEAM DISCRIMINATOR SECTION



AVERAGE TRANSFER CHARACTERISTICS

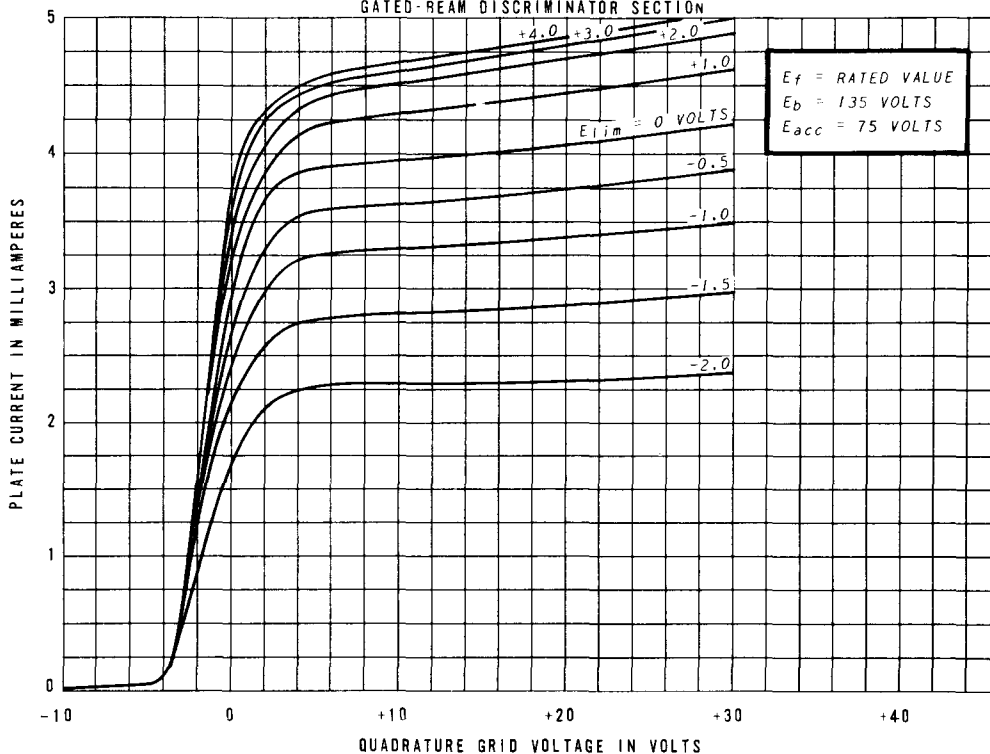
GATED-BEAM DISCRIMINATOR SECTION



AUGUST 24, 1965

AVERAGE TRANSFER CHARACTERISTICS

GATED-BEAM DISCRIMINATOR SECTION



AUGUST 24, 1965

TUBE DEPARTMENT

GENERAL  ELECTRIC

Owensboro, Kentucky