



COMPACTRON DISSIMILAR DOUBLE PENTODE

DESCRIPTION AND RATING

The 11BQ11 is a compactron containing a remote-cutoff pentode (Section 1) and a sharp-cutoff pentode (Section 2). It is intended primarily for use in the intermediate-frequency amplifier stages of television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC* 11.2 Volts
 Heater Current† 0.45±0.03 Amperes
 Heater Warm-up Time, average§ 11 Seconds
 Direct Interelectrode Capacitances¶

Section 1

Grid-Number 1 to Plate:

(1g1 to 1p) 0.022 pf

Input: 1g1 to (1k + 1g2 + 1g3 + h + i.s.) 10 pf

Output: 1p to (1k + 1g2 + 1g3 + h + i.s.) 2.8 pf

Section 2

Grid-Number 1 to Plate:

(2g1 to 2p) 0.024 pf

Input: 2g1 to (2k + 2g2 + 2g3 + 1g3 + h + i.s.) 11 pf

Output: 2p to (2k + 2g2 + 2g3 + 1g3 + h + i.s.) 2.8 pf

Coupling

Plate to Plate: (1p to 2p),
 maximum 0.015 pf

Grid-Number 1, Section 1, to
 Plate, Section 2: (1g1 to
 2p), maximum 0.002 pf

Grid-Number 1, Section 2, to
 Plate, Section 1: (2g1 to
 1p), maximum 0.008 pf

Grid-Number 1, Section 1, to
 Grid-Number 1, Section 2:
 (1g1 to 2g1), maximum 0.002 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

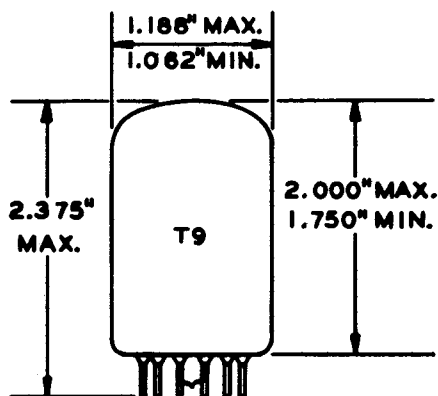
Minimum Diameter 1.062 Inches

Maximum Over-all Length 2.375 Inches

Maximum Seated Height 2.000 Inches

Minimum Seated Height 1.750 Inches

PHYSICAL DIMENSIONS

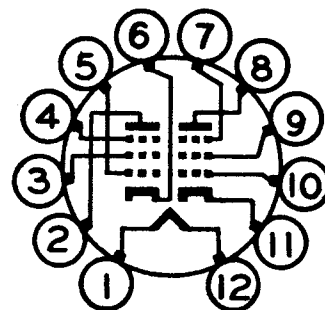


EIA 9-58

TERMINAL CONNECTIONS

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

BASING DIAGRAM



EIA 12DM

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****SECTION 1**

Plate Voltage	330	Volts
Suppressor Voltage	0	Volts
Screen-Supply Voltage	330	Volts
Screen Voltage - See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation	3.1	Watts
Screen Dissipation	0.65	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 Cathode Bias	1.0	Megohms

SECTION 2

Plate Voltage	330	Volts
Suppressor Voltage	0	Volts
Screen-Supply Voltage	330	Volts
Screen Voltage - See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation	3.1	Watts
Screen Dissipation	0.65	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 Cathode Bias	0.25	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****SECTION 1**

Plate Voltage	125	Volts
Suppressor, Connected to Cathode at Socket		
Screen Voltage	125	Volts
Cathode-Bias Resistor	56	Ohms
Plate Resistance, approximate	0.2	Megohms
Transconductance	10500	Micromhos
Plate Current	11	Milliamperes
Screen Current	3.5	Milliamperes
Grid-Number 1 Voltage, approximate		
Gm = 50 Micromhos	-15	Volts

CHARACTERISTICS AND TYPICAL OPERATION (Cont'd)

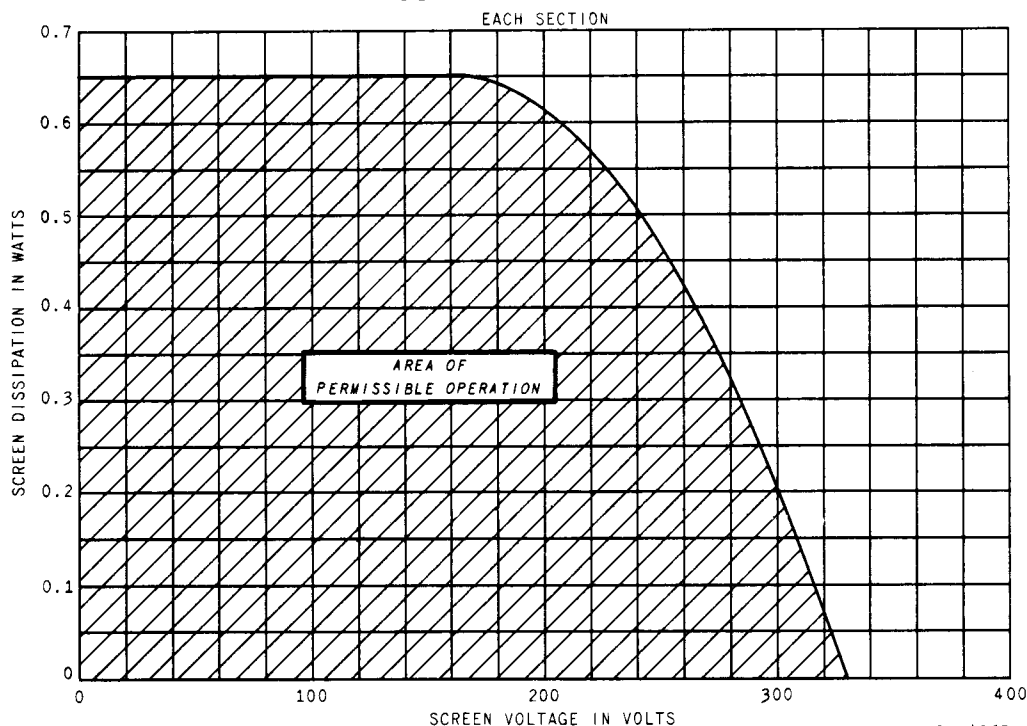
SECTION 2

Plate Voltage.	125	Volts
Suppressor, Connected to Cathode at Socket		
Screen Voltage	125	Volts
Cathode-Bias Resistor	56	Ohms
Plate Resistance, approximate	0.2	Megohms
Transconductance.	13000	Micromhos
Plate Current.	11	Milliamperes
Screen Current	3.8	Milliamperes
Grid-Number 1 Voltage, approximate		
Ib = 20 Microamperes	-3	Volts

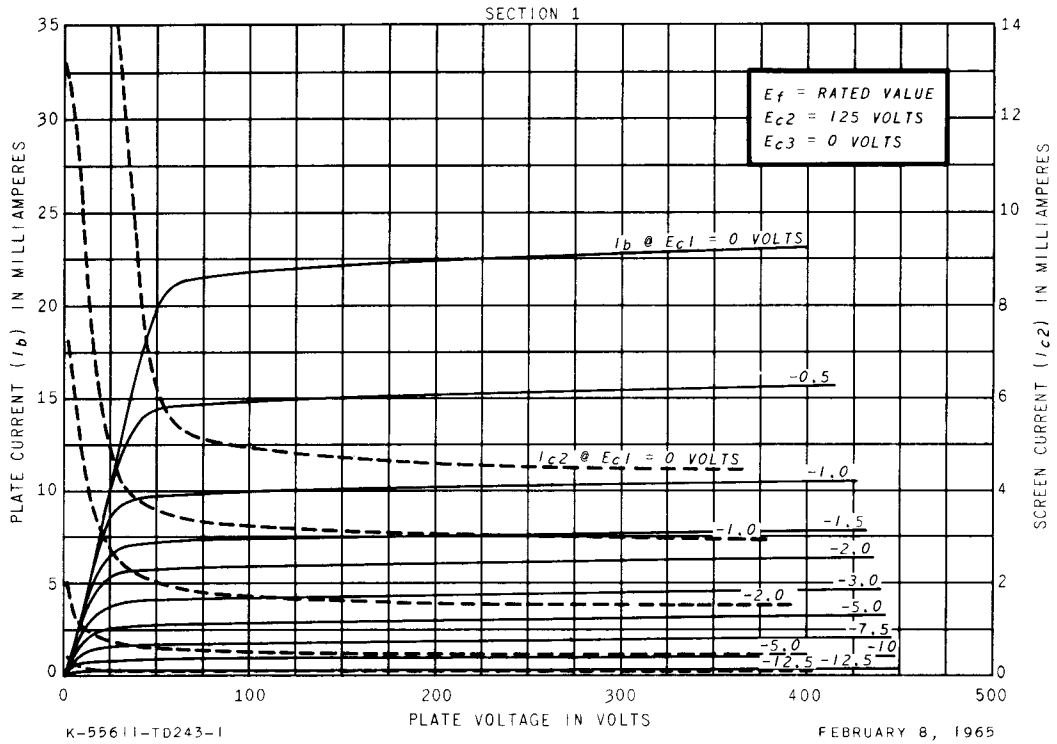
NOTES

- * 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.
- ¶ With external shield (EIA 309) connected to cathode of section under test.

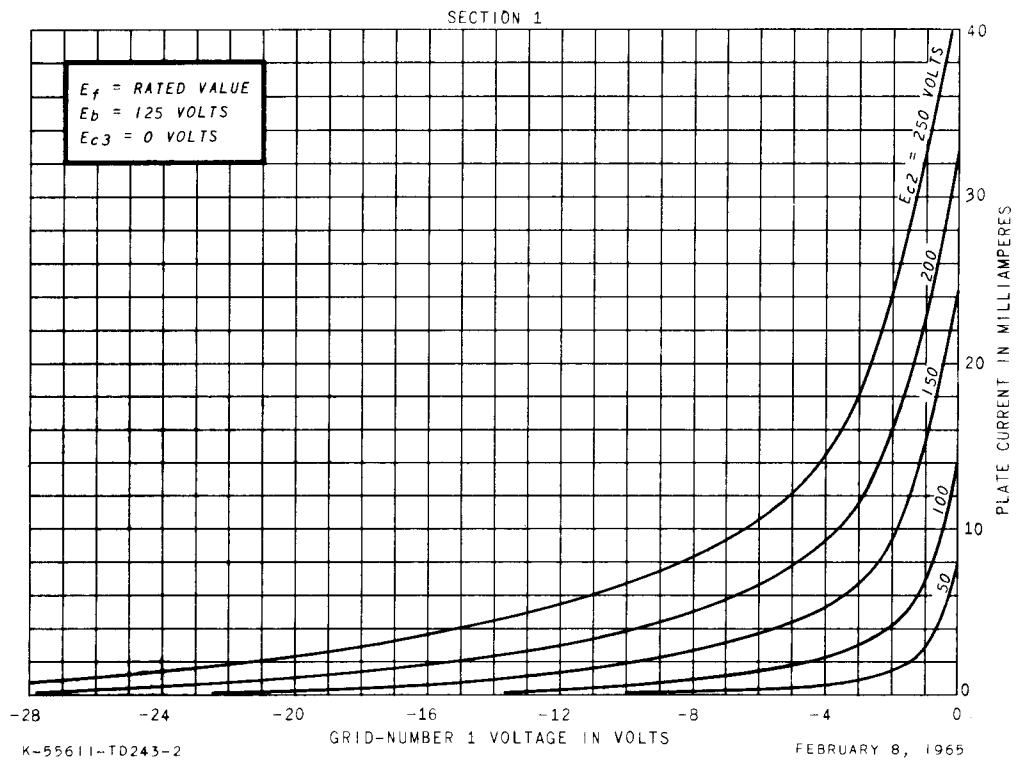
SCREEN RATING CHART



AVERAGE PLATE CHARACTERISTICS

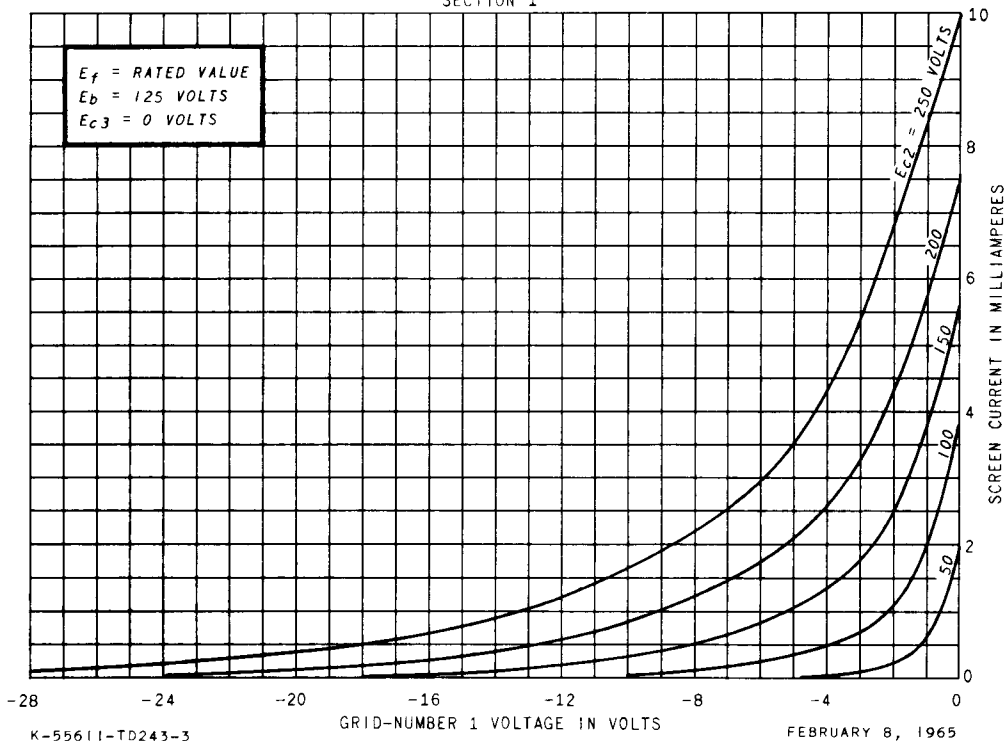


AVERAGE TRANSFER CHARACTERISTICS



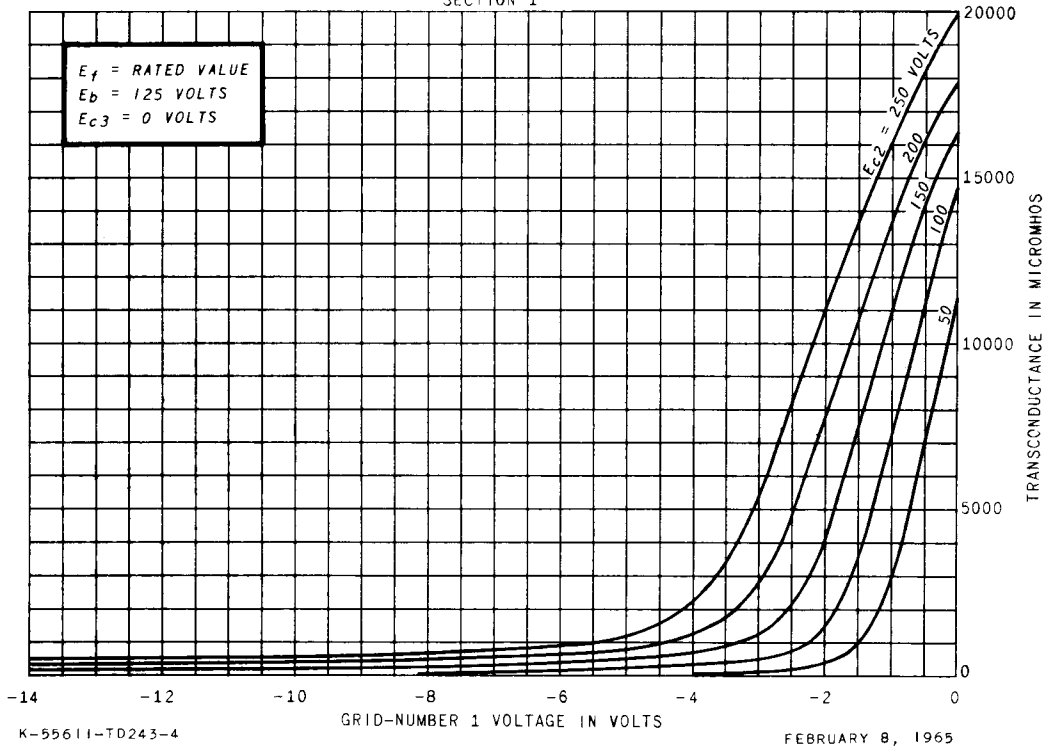
AVERAGE TRANSFER CHARACTERISTICS

SECTION 1



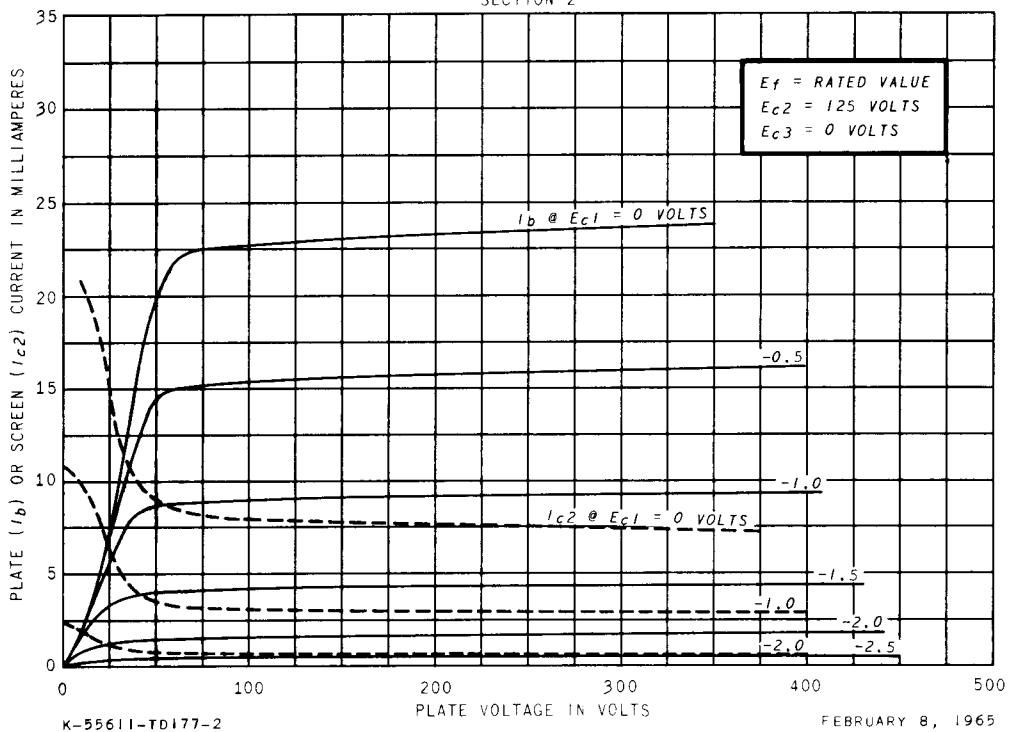
AVERAGE TRANSFER CHARACTERISTICS

SECTION 1



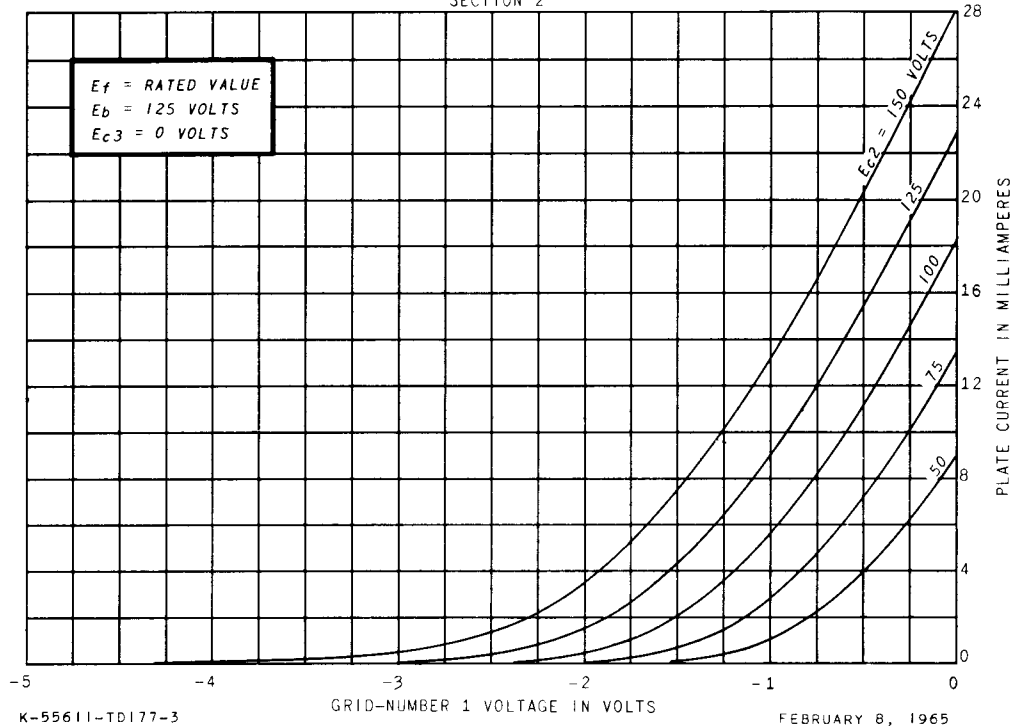
AVERAGE PLATE CHARACTERISTICS

SECTION 2



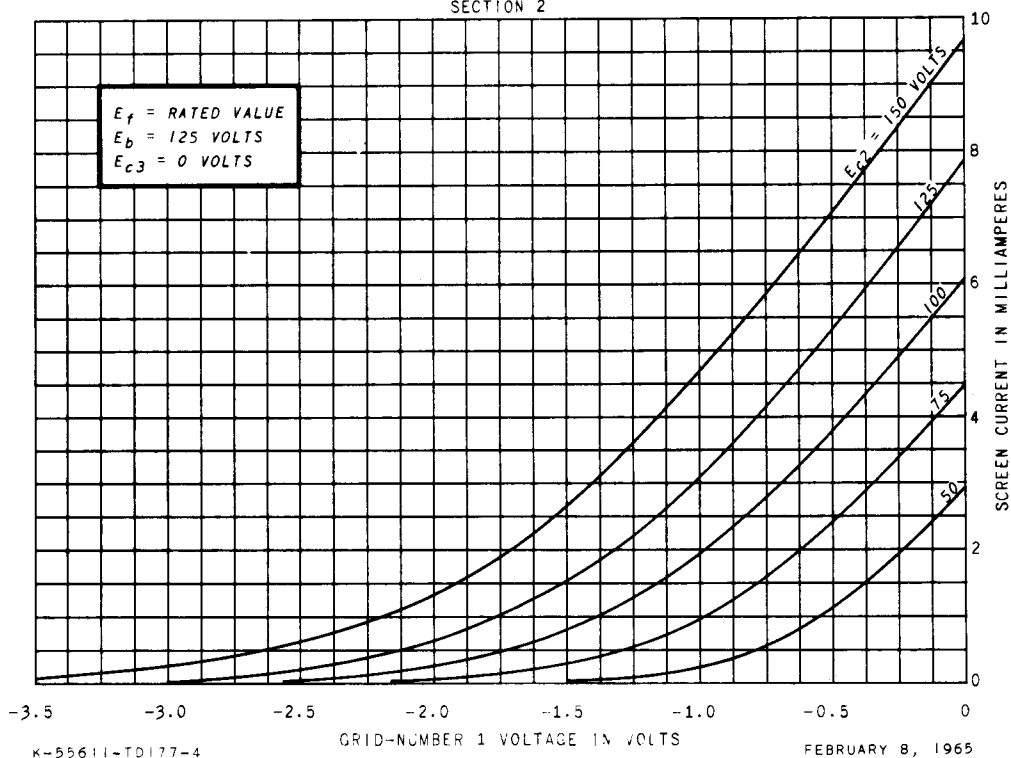
AVERAGE TRANSFER CHARACTERISTICS

SECTION 2



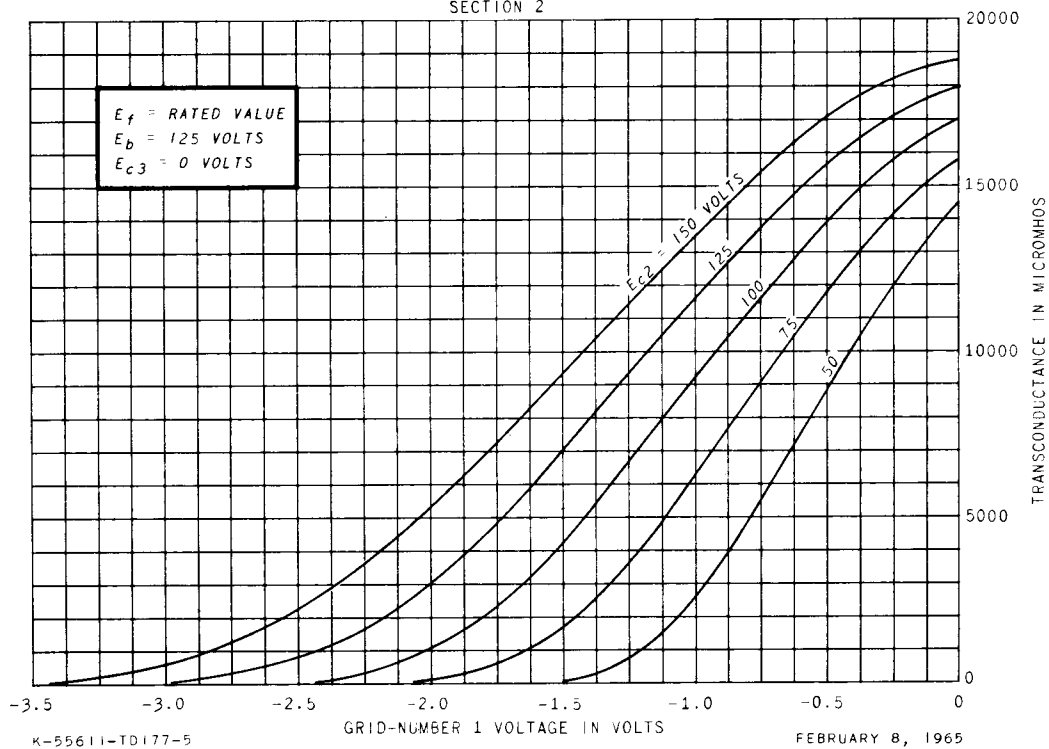
AVERAGE TRANSFER CHARACTERISTICS

SECTION 2



AVERAGE TRANSFER CHARACTERISTICS

SECTION 2



TUBE DEPARTMENT
GENERAL  **ELECTRIC**
Owensboro, Kentucky