ELECTRONICS

6FM7

COMPACTRON DISSIMILAR DOUBLE TRIODE

FOR TV VERTICAL-DEFLECTION OSCILLATOR AND AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6FM7 is a compactron dissimilar double triode designed for use as a combined vertical-deflection oscillator and amplifier in television receivers. Section one, a high-mu triode, is intended for service as an oscillator; Section two, a low-mu, high-perveance triode, for service as an amplifier.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings
Heater Voltage, AC or DC* . . . 6.3±0.6 Volts
Heater Current† . . . . . 1.05 Amperes
Direct Interelectrode Capacitances, approximate‡

	Section 1	Section 2	
Grid to Plate: (g to p)	4.0	7.0	pf
Input: g to (h + k) . .	2.4	7.0	pf
Output: p to (h + k). .	0.4	1.1	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
Maximum Over-all Length. . . . 2.375 Inches
Maximum Seated Height . . . . 2.000 Inches

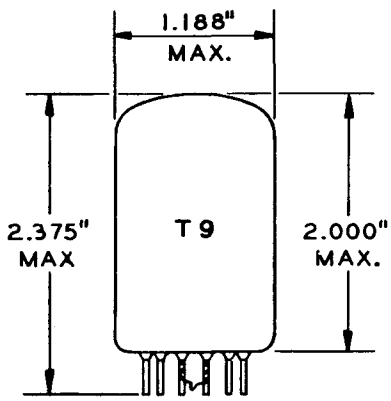
MAXIMUM RATINGS

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.

PHYSICAL DIMENSIONS

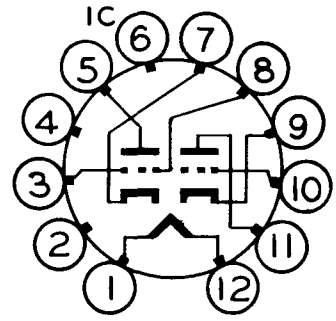


EIA 9-58

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - No Connection
Pin 3 - Grid (Section 2)
Pin 4 - No Connection
Pin 5 - Plate (Section 2)
Pin 6 - Internal Connection - Do Not Use
Pin 7 - Cathode (Section 2)
Pin 8 - Grid (Section 2)
Pin 9 - Cathode (Section 1)
Pin 10 - Grid (Section 1)
Pin 11 - Plate (Section 1)
Pin 12 - Heater

BASING DIAGRAM



EIA 12EJ

MAXIMUM RATINGS (Cont'd)

DESIGN-MAXIMUM VALUES

	Vertical Oscillator Service (Section 1)§	Vertical Deflection Amplifier (Section 2)§	
DC Plate Voltage	350	550	Volts
Peak Positive Pulse Plate Voltage	---	1500	Volts
Peak Negative Grid Voltage	400	250	Volts
Plate Dissipation	1.0	10¶	Watts
DC Cathode Current	---	50	Milliamperes
Peak Cathode Current	---	175	Milliamperes
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
Grid Circuit Resistance			
With Fixed Bias	1.0	1.0	Megohms
With Cathode Bias	2.2	2.2	Megohms

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

	Section 1 (Oscillator)	Section 2 (Amplifier)		
Plate Voltage	250	60	175	Volts
Grid Voltage	-3.0	0#	-25	Volts
Amplification Factor	66	---	5.5	
Plate Resistance, approximate	30000	---	920	Ohms
Transconductance	2200	---	6000	Micromhos
Plate Current	2.0	95	40	Milliamperes
Grid Voltage, approximate Ib = 20 Microamperes	-5.3	---	---	Volts
Grid Voltage, approximate Ib = 200 Microamperes	---	---	-45	Volts

NOTES

* 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.

‡ Without external shield.

§ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

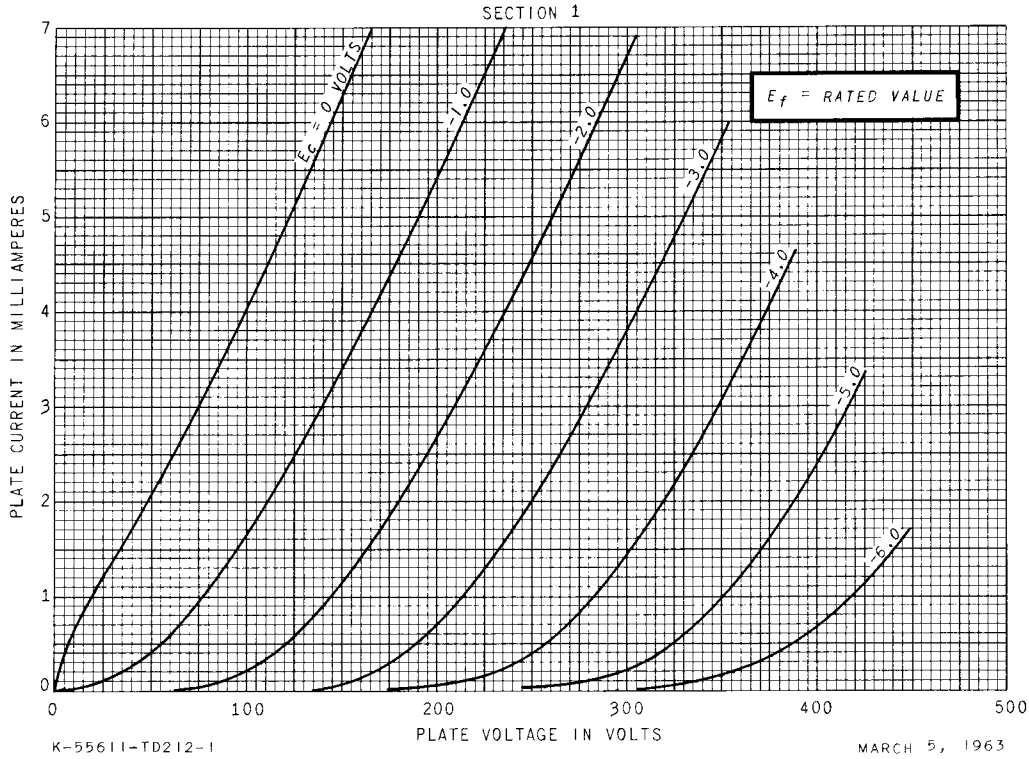
¶ In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

\# Applied for short interval (two seconds maximum) so as not to damage tube.

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.

AVERAGE PLATE CHARACTERISTICS

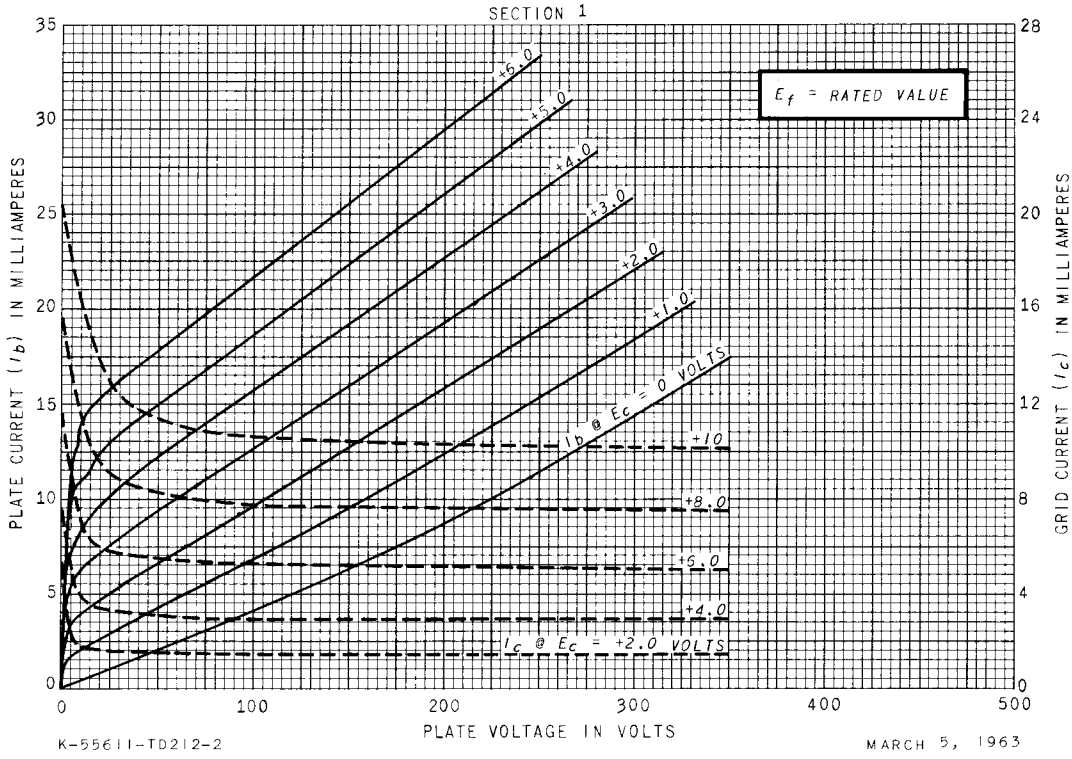
SECTION 1



K-55611-TD212-1 MARCH 5, 1963

AVERAGE PLATE CHARACTERISTICS

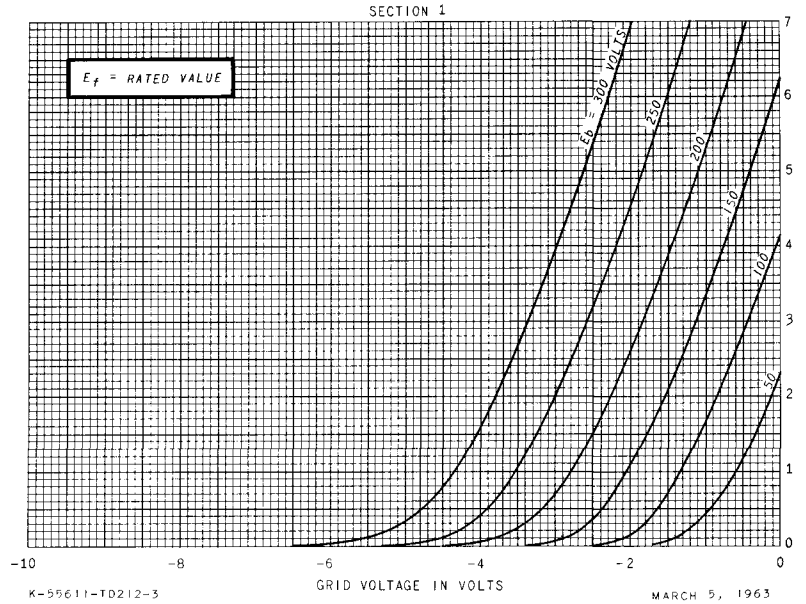
SECTION 1



K-55611-TD212-2 MARCH 5, 1963

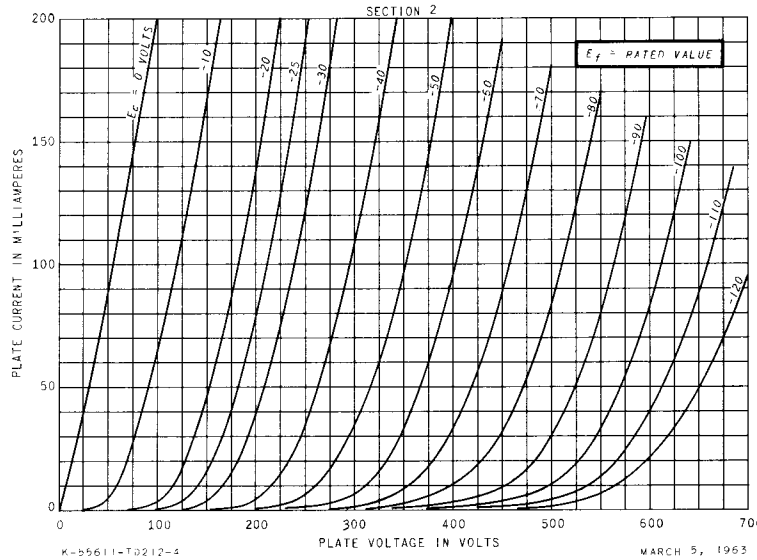
AVERAGE TRANSFER CHARACTERISTICS

SECTION 1



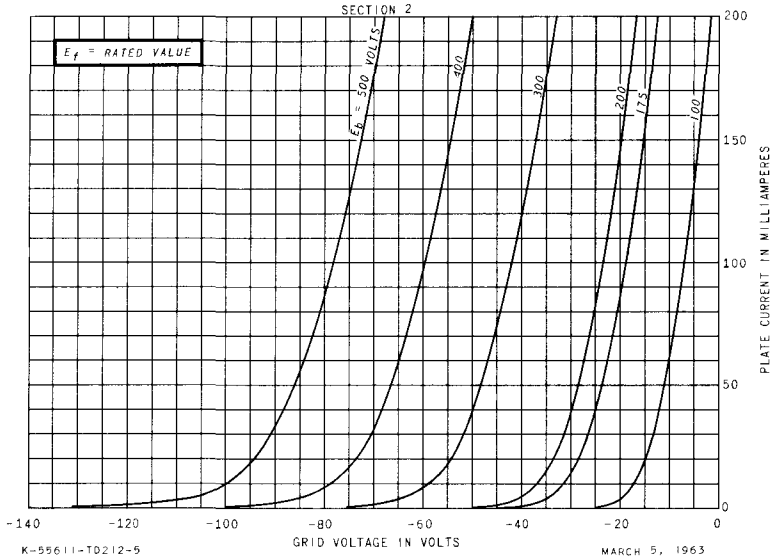
AVERAGE PLATE CHARACTERISTICS

SECTION 2



AVERAGE TRANSFER CHARACTERISTICS

SECTION 2



RECEIVING TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky