



TUBES

—PRODUCT INFORMATION—

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Compactron Beam Pentode

12JF5

FOR TV HORIZONTAL-DEFLECTION
AMPLIFIER APPLICATIONS

The 12JF5 is a compactron beam-power pentode primarily designed for use as the horizontal-deflection amplifier in color television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC *.....12.6 Volts

Heater Current •.....0.6±0.04 Amperes

Heater Warm-up Time, average ▲.....11 Seconds

Direct Interelectrode Capacitances, approximate ♦

Grid-Number 1 to Plate: (g1 to p).....0.55 pf

Input: g1 to (h+k+g2+b.p.).....15.6 pf

Output: p to (h+k+g2+b.p.).....6.4 pf

MECHANICAL

Mounting Position - Any

Envelope - T-12, Glass

Base - E12-74, Button 12-Pin

Top Cap - C1-1, Small

Outline Drawing - EIA 12-87

Maximum Diameter.....1.563 Inches

Minimum Diameter.....1.437 Inches

Maximum Over-all Length.....3.625 Inches

Maximum Seated Height.....3.250 Inches

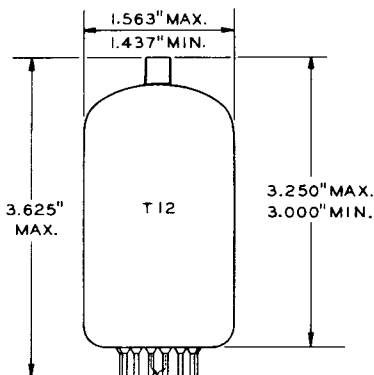
Minimum Seated Height.....3.000 Inches

MAXIMUM RATINGS

HORIZONTAL-DEFLECTION AMPLIFIER SERVICE § — DESIGN-MAXIMUM VALUES

DC Plate-Supply Voltage (Boost + DC Power Supply)	770	Volts
Peak Positive Pulse Plate Voltage	6500	Volts
Peak Negative Pulse Plate Voltage	0	Volts
Screen Voltage	220	Volts
Peak Negative Grid-Number 1 Voltage	330	Volts
Plate Dissipation •.....	17.5	Watts
Screen Dissipation	3.5	Watts
DC Cathode Current	175	Milliamperes
Peak Cathode Current	550	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.....	1.0	Megohms
Bulb Temperature at Hottest Point □	220	°C

PHYSICAL DIMENSIONS

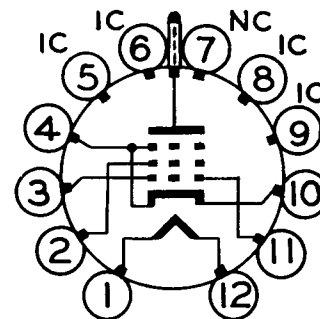


EIA 12-87

TERMINAL CONNECTIONS

- Pin 1 - Heater
- Pin 2 - Grid-Number 2 (Screen)
- Pin 3 - Grid-Number 1
- Pin 4 - Cathode and Beam Plates
- Pin 5 - Internal Connection - Do Not Use
- Pin 6 - Internal Connection - Do Not Use
- Pin 7 - No Connection
- Pin 8 - Internal Connection - Do Not Use
- Pin 9 - Internal Connection - Do Not Use
- Pin 10 - Cathode and Beam Plates
- Pin 11 - Grid-Number 1
- Pin 12 - Heater
- Cap - Plate

BASING DIAGRAM



EIA 12JH

MAXIMUM RATINGS (Cont'd)

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**

Plate Voltage	5000	60	250	Volts
Screen Voltage	150	150	150	Volts
Grid-Number 1 Voltage	---	0†	-22.5	Volts
Plate Resistance, approximate	---	---	18000	Ohms
Transconductance	---	---	7300	Micromhos
Plate Current	---	345	65	Milliamperes
Screen Current	---	27	1.8	Milliamperes
Grid-Number 1 Voltage, approximate I _b = 1.0 Milliamperes	-80	---	-42	Volts
Triode Amplification Factor‡	---	---	4.4	

MINIMUM RECOMMENDED GRID DRIVE

Peak Positive Pulse Plate Voltage	3500	5000	6000	Volts
Peak Negative Grid-Number 1 Voltage for E _{g2} = 150 Volts	-100	-118	-130	Volts
Peak Negative Grid-Number 1 Voltage for E _{g2} = 200 Volts	-120	-138	-150	Volts

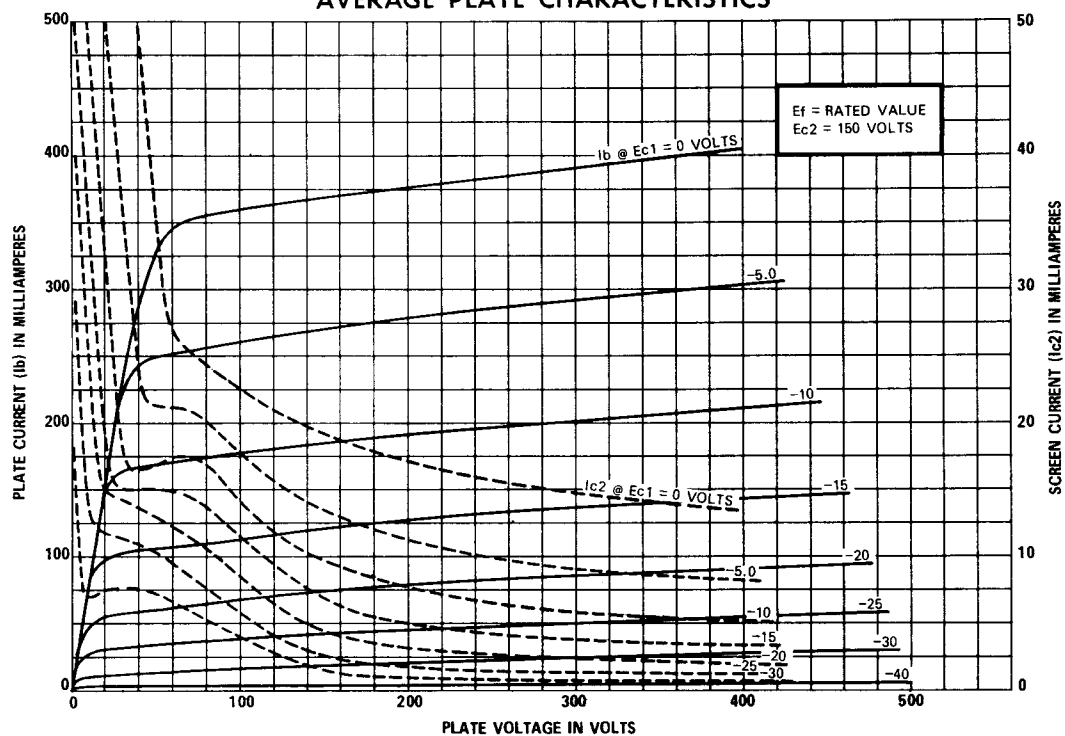
NOTES

- * Heater voltage for a bogey tube at I_f = 0.6 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.
- § 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.

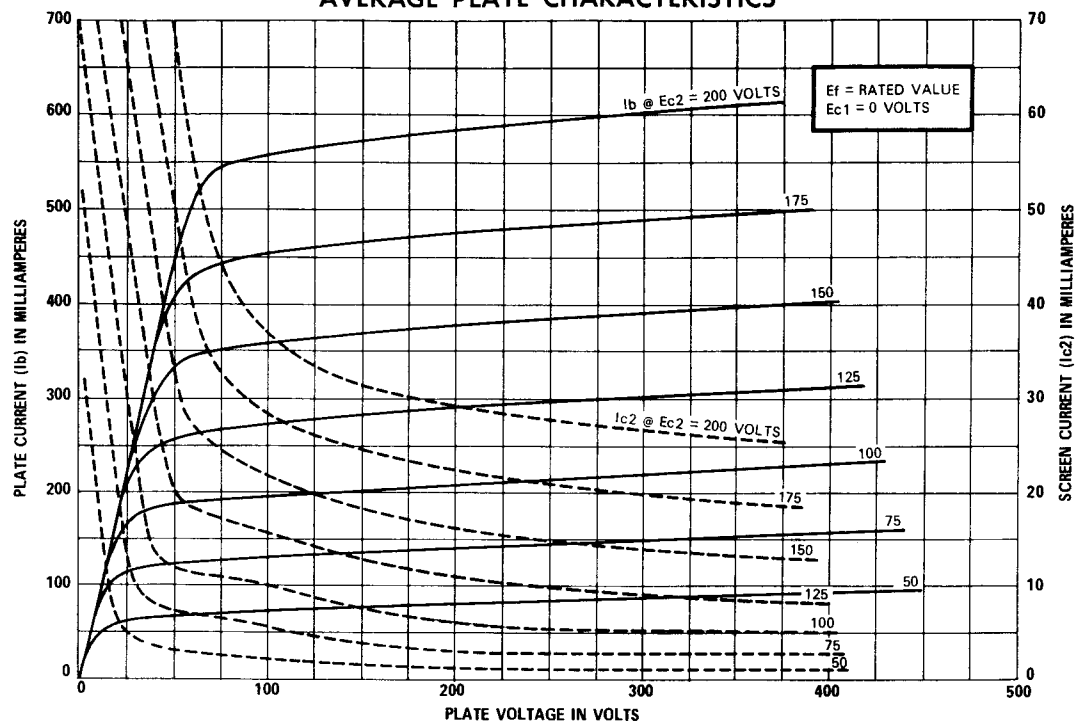
- ⊕ In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.
- Measured with an infrared thermometer, Ircon Model 700 BC or equivalent, at an ambient temperature of 40° C.
- † Applied for short interval (two seconds maximum) so as not to damage tube.
- ‡ Triode connection (screen tied to plate) with E_b = E_{c2} = 150 volts, and E_{c1} = -22.5 volts.

AVERAGE PLATE CHARACTERISTICS



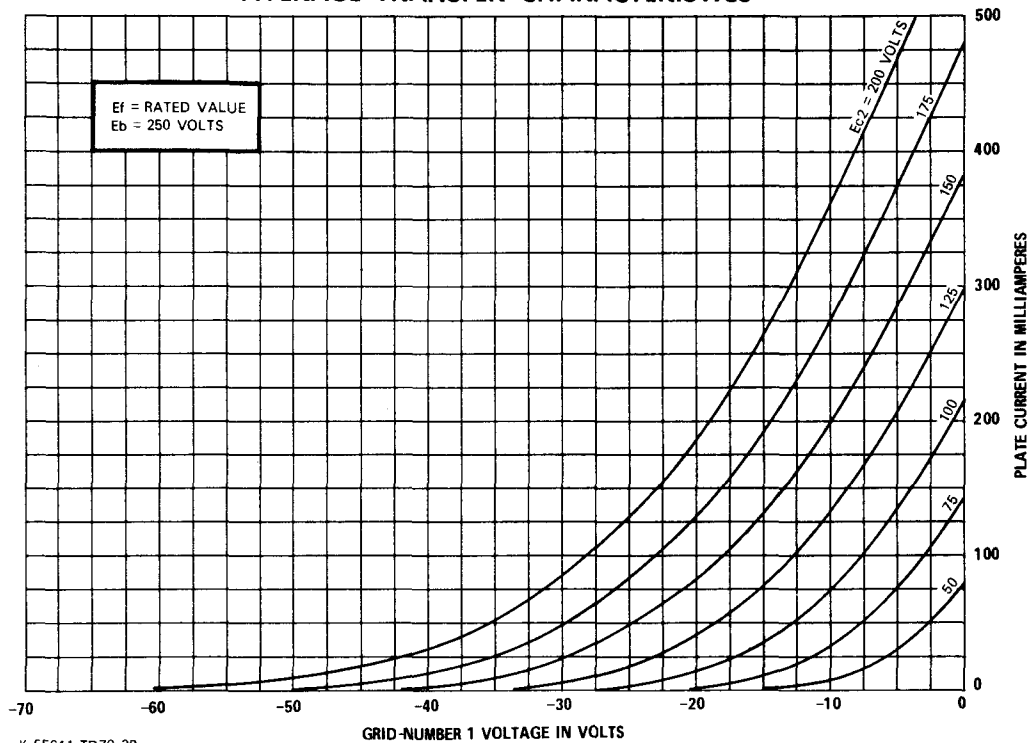
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AVERAGE PLATE CHARACTERISTICS

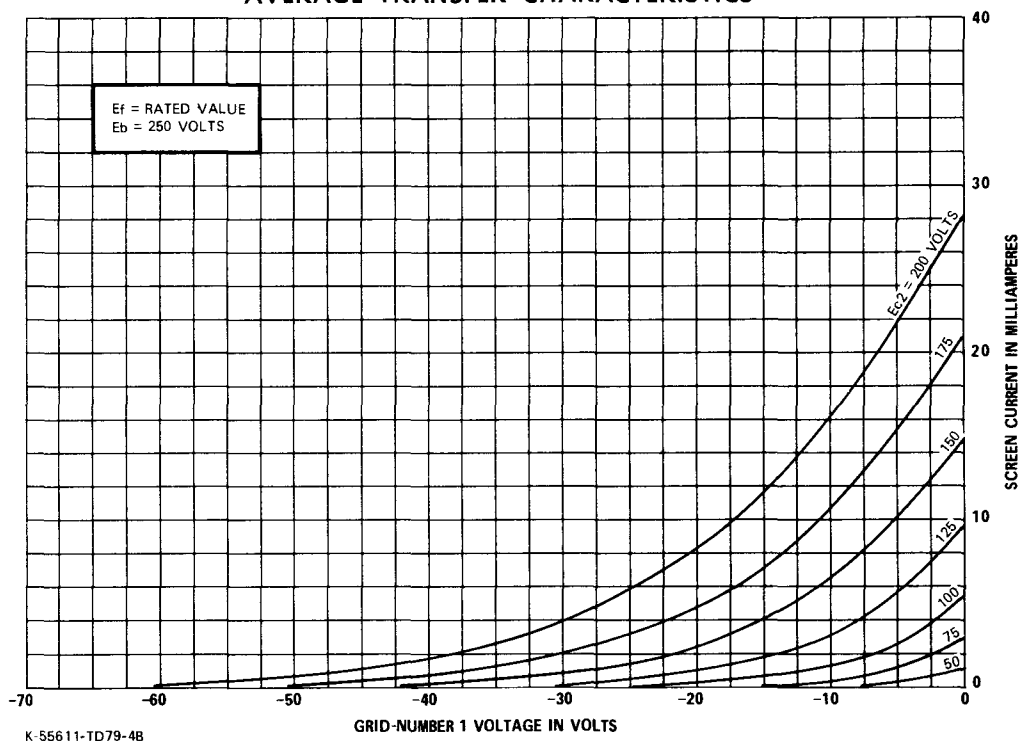


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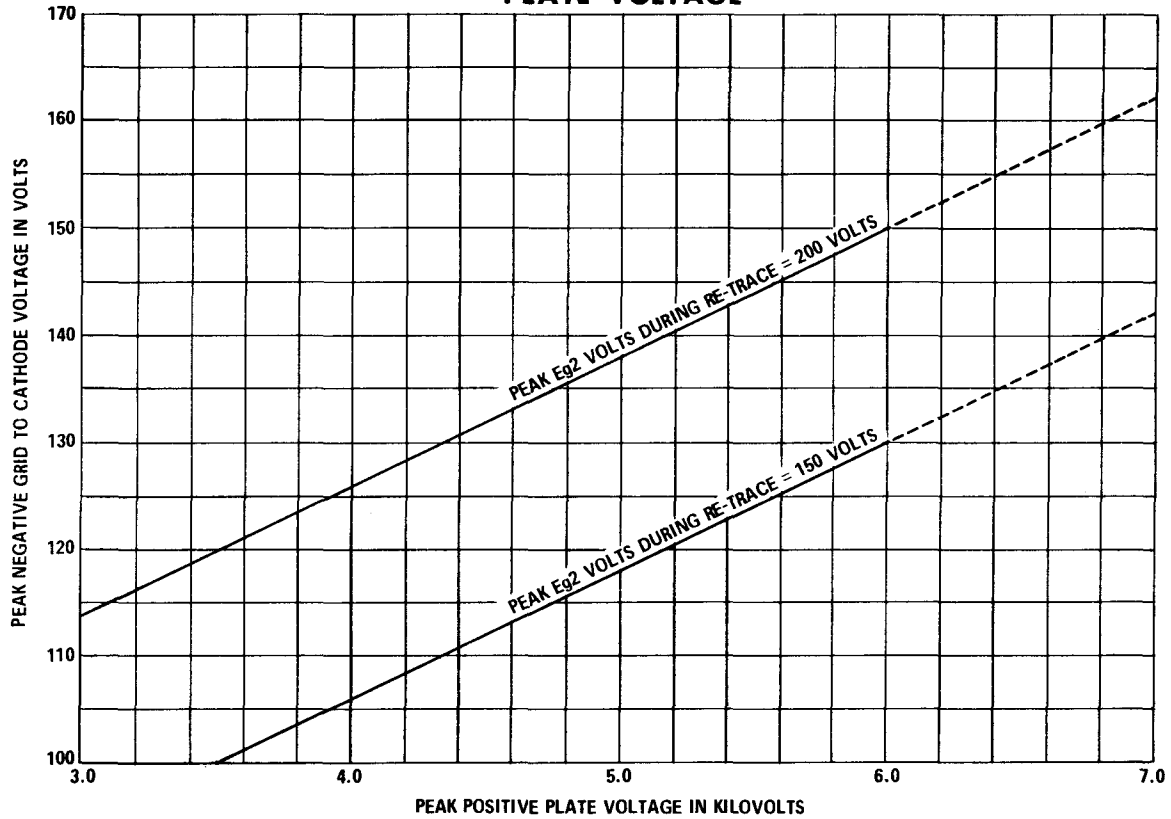
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



**RECOMMENDED MINIMUM PEAK NEGATIVE
GRID VOLTAGE vs PEAK POSITIVE PULSE
PLATE VOLTAGE**



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GENERAL  **ELECTRIC**