



DESCRIPTION AND RATING

The 6JH8 is a miniature double-plate sheet-beam tube which incorporates a pair of balanced deflectors to direct the electron beam to either of the two plates and a control grid to vary the intensity of the beam. The resulting unique characteristics of this tube make it especially suited for service as a synchronous detector in color television receivers. In this application, relatively large, balanced output signals of both positive and negative polarities are developed which eliminate the need for phase-inversion functions in the matrix circuits. Other features of the 6JH8 synchronous detector circuit include low oscillator injection power requirements, freedom from the space-charge coupling effects which are present in dual-control pentodes and heptodes, linear output voltages, insensitiveness to variations in oscillator amplitude over a wide range, and a high ratio of plate to accelerator current. The 6JH8 is also suitable for service in the burst gate circuit of color TV receivers and a variety of other switching and gating applications.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*.....6.3 ± 0.6 Volts

Heater Current†.....0.3 Amperes

Direct Interelectrode Capacitances, approximate‡

Deflector-Number 1 to All.....4.8 pf

Deflector-Number 2 to All.....4.8 pf

Grid-Number 1 to All except Plates.....7.5 pf

Plate-Number 1 to All.....5.0 pf

Plate-Number 2 to All.....5.0 pf

Grid-Number 1 to Deflector-Number 1, maximum.....0.04 pf

Grid-Number 1 to Deflector-Number 2, maximum.....0.07 pf

Plate-Number 1 to Plate-Number 2.....0.4 pf

Deflector-Number 1 to Deflector-Number 2.....0.38 pf

MECHANICAL

Mounting Position—Any

Envelope—T-6½, Glass

Base—E9-1, Small Button 9-Pin

Outline Drawing—EIA 6-3

Maximum Diameter.....7⁄8 Inches

Maximum Over-all

Length.....2 5⁄8 Inches

Maximum Seated

Height.....2 3⁄8 Inches

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Plate Voltage, Each Plate.....330 Volts

Accelerator Voltage.....330 Volts

Peak Positive Deflector Voltage.....165 Volts

Peak Negative Deflector Voltage.....165 Volts

Positive DC Grid-Number 1 Voltage.....0 Volts

Plate Dissipation, Each Plate.....3.0 Watts

Accelerator Dissipation.....1.0 Watts

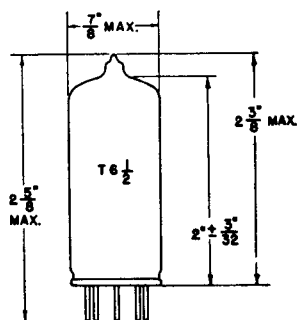
DC Cathode Current.....33 Milliampères

Grid-Number 1 Circuit Resistance

With Fixed Bias.....0.1 Megohm

With Cathode Bias.....0.25 Megohm

PHYSICAL DIMENSIONS



EIA 6-3

TERMINAL CONNECTIONS

Pin 1—Deflector Number 2

Pin 2—Deflector Number 1

Pin 3—Accelerator

Pin 4—Heater

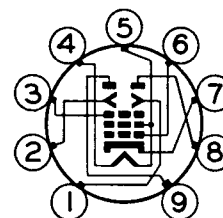
Pin 5—Heater, Internal Shield, and
Focus Electrodes§Pin 6—Grid Number 1 (Control
Grid)

Pin 7—Cathode

Pin 8—Plate Number 2

Pin 9—Plate Number 1

BASING DIAGRAM



EIA 9DP

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS WITH DEFLECTORS GROUNDED

Plate-Number 1 Voltage.....	250	Volts
Plate-Number 2, Connected to Plate-Number 1		
Accelerator Voltage.....	250	Volts
Deflector-Number 1 Voltage.....	0	Volts
Deflector-Number 2 Voltage.....	0	Volts
Cathode-Bias Resistor.....	220	Ohms

Total Plate Current.....	14	Milliamperes
Accelerator Current.....	1.5	Milliamperes
Grid-Number 1 Transconductance....	4400	Micromhos
Grid-Number 1 Voltage, approximate		
Ib (total) = 10 Microamperes.....	-13	Volts

AVERAGE DEFLECTOR CHARACTERISTICS

Plate-Number 1 Voltage.....	250	Volts
Plate-Number 2 Voltage.....	250	Volts
Accelerator Voltage.....	250	Volts
Cathode-Bias Resistor.....	220	Ohms
Deflector Switching Voltage,		
maximum¶.....	20	Volts
Deflector-Bias Voltage for Minimum		
Deflector Switching Voltage¶.....	-14	Volts
Voltage Difference between Deflectors for		
Ib1 = Ib2, approximate.....	0	Volts

Plate-Number 1 Current, maximum		
Ed1 = -15 Volts, Ed2 = +15 Volts...0.7		Milliamperes
Plate-Number 2 Current, maximum		
Ed1 = +15 Volts, Ed2 = -15 Volts...0.7		Milliamperes
Deflector-Number 1 Current, maximum		
Ed1 = +25 Volts, Ed2 = -25 Volts...0.1		Milliamperes
Deflector-Number 2 Current, maximum		
Ed1 = -25 Volts, Ed2 = +25 Volts...0.1		Milliamperes

* 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.

§ Pin 5 should be connected directly to ground.

¶ Deflector switching voltage is defined as the total voltage change on either deflector with an equal and opposite change on the other deflector required to switch the plate current from one plate to the other.

Note: The 6JH8 should be so located in the equipment that it is not subjected to stray magnetic fields.

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.

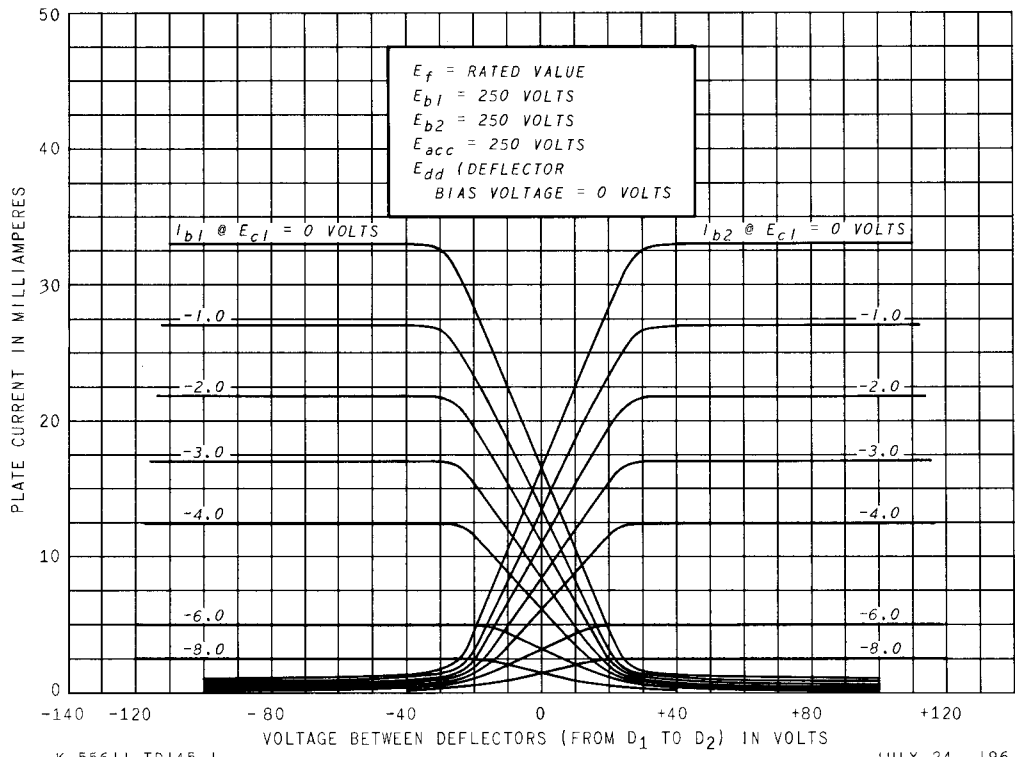
The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

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.

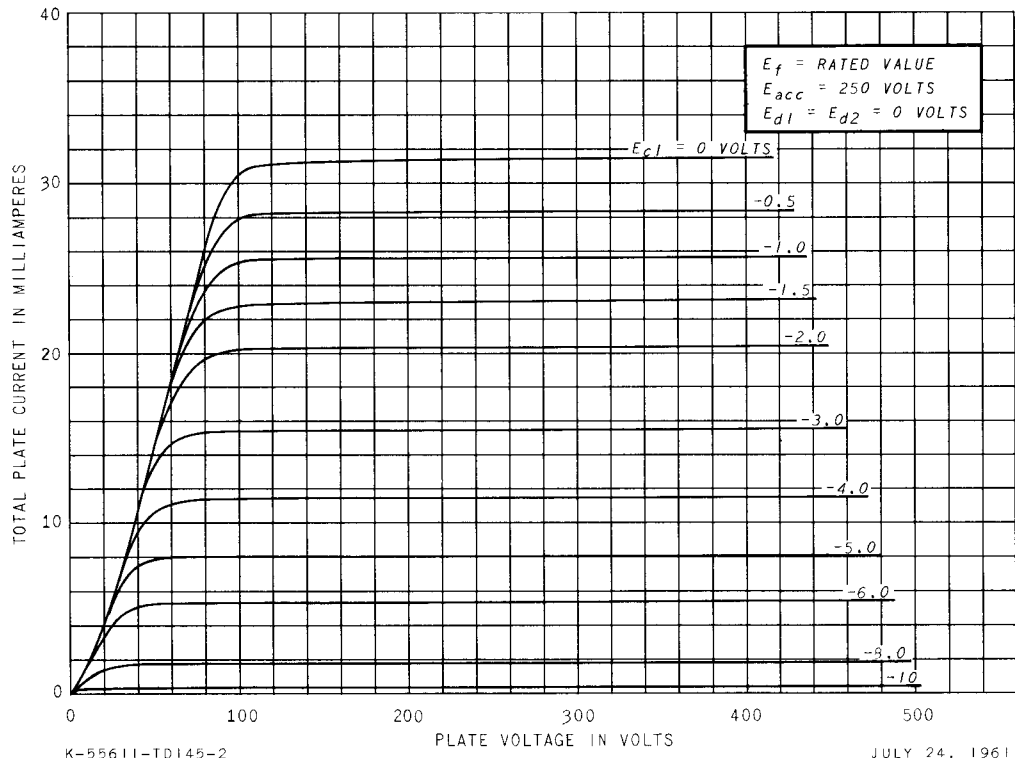
The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or

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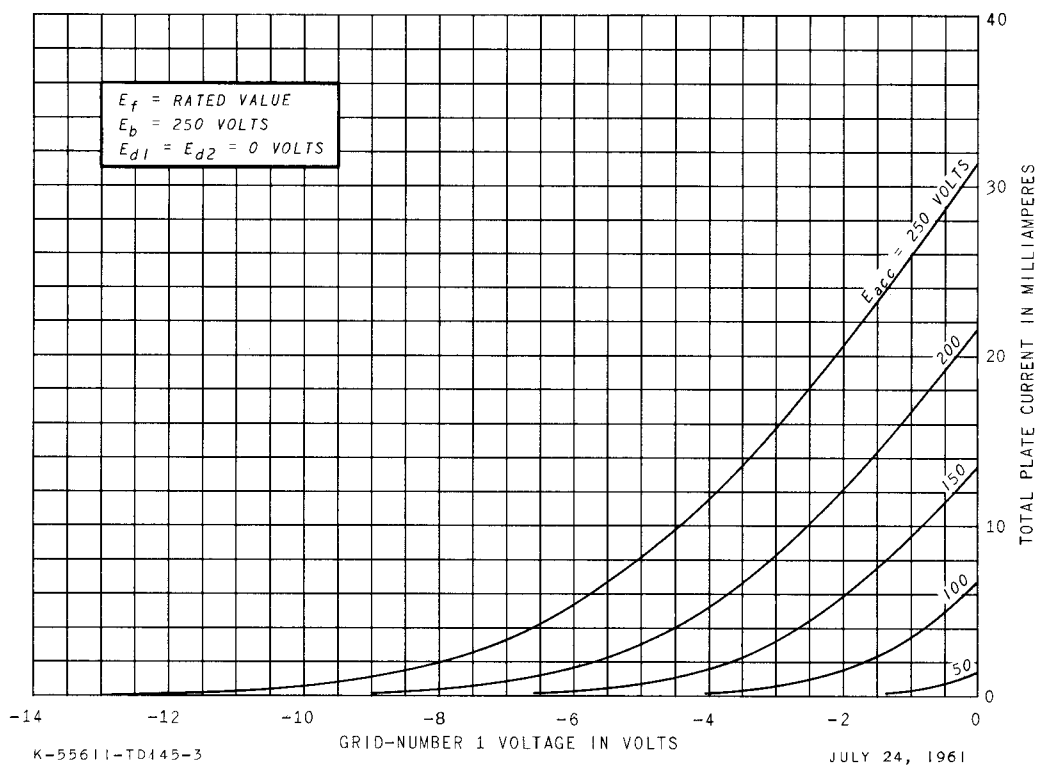
AVERAGE TRANSFER CHARACTERISTICS



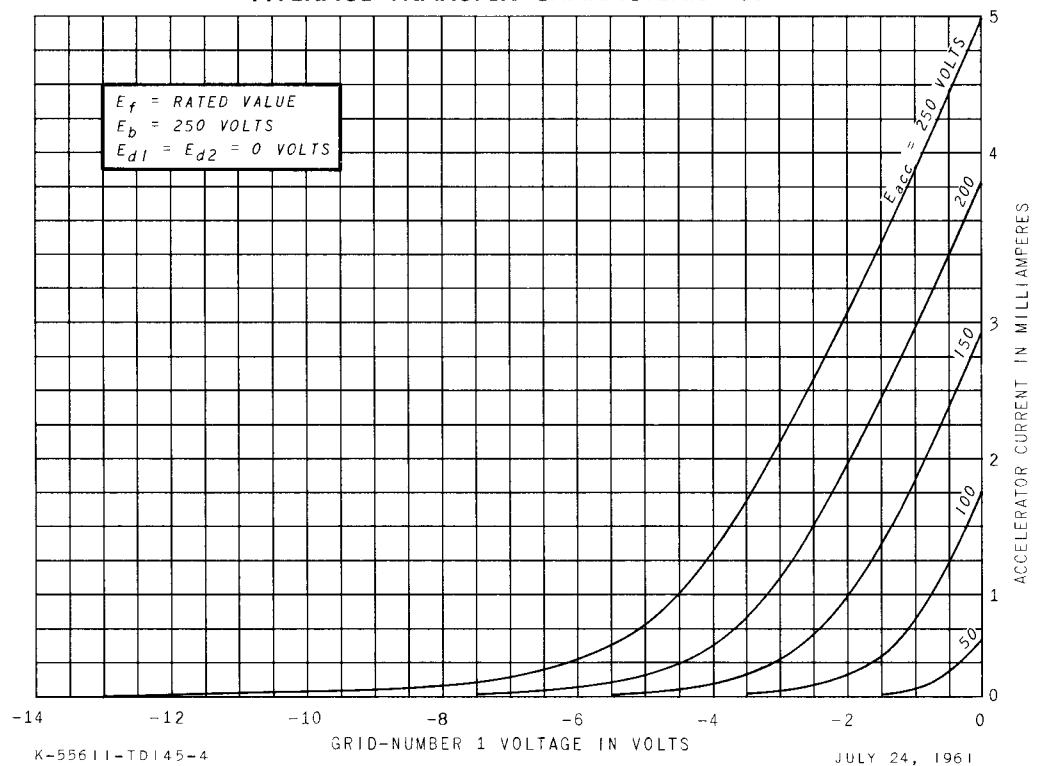
AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



RECEIVING TUBE DEPARTMENT



Owensboro, Kentucky