7BH
CATHODE RAY TUBE

5-1/2 - SQUARE, GLASS

FOCUS - ELECTROSTATIC

DEFLECTION - ELECTROSTATIC

FACE PLATE - SPHERICAL, CLEAR

SPIRAL ACCELERATOR

DUAL BEAM

ALUMINIZED

DESCRIPTION AND RATING

The General Electric Type 7BH is a 5-1/2 inch square, two beam, electrostatic deflection and focus cathode ray tube having improved deflection sensitivity and display accuracy. The deflection electrode and acceleration electrode connections are brought out through a collar base to minimize lead inductance and capacity.

The screen is aluminized for greater light output and to minimize screen charging effects.

GENERAL

ELECTRICAL*

Focusing Method - Electrostatic
Deflecting Method - Electrostatic

Direct Interelectrode Capacitances, Approx.

Cathode to All	5.0 μμf
Grid No. 1 to All	6.0 μμf
D1 to D2	3.0 μμf
D3 to D4	3.0 μμf
D1 to All	10.5 μμf
D2 to All	10.5 μμf
D3 to All	10.5 μμf
D4 to All	10.5 μμf

OPTICAL

Phosphor Number	1	2	7	11
Fluorescent Color	Green	Blue-Green	Blue-White	Blue
Phosphorescent Color	-	Green	Yellow	-
Persistence	Medium	Long	Long	Short

Faceplate - Sperical, Clear

from JEDEC release #3294, May 29, 1961

MECHANICAL

Over-all Length . . . . . 19-5/8 ± 1/4 Inches
Greatest Bulb Dimensions
Diagonal . . . . . 6-29/32 Inches
Width and Height . . . . . 5-1/2 ± 1/16 Inches
Minimum Useful Screen Dimensions (along tube axis) . . . . . 4-1/2 Inches
Bulb Contact J1-22
Collar A14-93
Base B12-37
Basing . . . . . Special
Collar and Base Alignment
Collar Pin No. 1 and Base Key
each aligns with the D3D4 trace . . . . . ± 10 Degrees

Positive Voltage on D1 deflects the beam approximately toward Base Pin No. 4
Positive Voltage on D3 deflects the beam approximately toward Base Key

Bulb Contact Alignment:
Bulb Contact aligns with D3D4 trace . . . . . ± 10 Degrees
Bulb Contact is on same side as the Base Key
Trace Alignment:
D1D2 trace aligns with D3D4 trace . . . . . 90 ± 1 Degrees
Corresponding traces of each gun align within . . . . . 1 Degree
D1D2 trace aligns with bulb wall within . . . . . 2 Degrees

MAXIMUM RATINGS
(Absolute Maximum Values)

Heater Voltage . . . . . 6.3 Volts
Heater Current at 6.3 Volts. . . . . 0.6 ± 10% Ampere
Post Accelerator Voltage . . . . . 10,000 Max. Volts DC
Accelerator Voltage. . . . . 5,000 Max. Volts DC
Accelerator Input . . . . . 6 Max. Watts
Ratio Post Accelerator Voltage to Accelerator
Voltage . . . . . 3 Max.

Focusing Electrode Voltage . . . . . 3,000 Max. Volts DC
Grid No. 1 Voltage
Negative Bias Value . . . . . 200 Max. Volts DC
Positive Bias Value . . . . . 0 Max. Volts DC
Positive Peak Value . . . . . 0 Max. Volts

Peak Heater to Cathode Voltage
Heater negative with respect to cathode. . . . . 180 Max. Volts
Heater positive with respect to cathode. . . . . 180 Max. Volts

Peak Voltage between Accelerator and any
Deflection Electrode . . . . . 750 Max. Volts

TYPICAL OPERATING CONDITIONS
Post Accelerator Voltage . . . . . 7500 Volts
Accelerator Voltage . . . . . .2300 Volts
Focusing Electrode Voltage. . . . . .460 to 775 Volts

Grid No. 1 Voltage# . . . . . .-45 to -80 Volts
Modulation ##. . . . . 16 Volts Max.
Line Width "A"## . . . . . .50 MM Max.

Deflection Factors:
D1 and D2 . . . . . 60 to 83 Volts DC/Inch
D3 and D4 . . . . . 48 to 70 Volts DC/Inch

Pattern Distortion** . . . . . 3% Max.
Tracking Error ⊓. . . . . 2% Max.
Interaction Factor ◇ . . . . . 14×10^{-6} In./Volt DC Max.
Spot Position (Undeflected) ◇◇. . . . . Within a 10-mm square
Focusing Electrode Current for any operating
condition . . . . . -15 to +10 Microamperes
Anode No. 3 Current ψ . . . . . 30 Max. Microamperes

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance . . . . . 1.5 Max. Megohms
Resistance in any Deflecting-Electrode Circuit ⊓ . . . . . 1.0 Max. Megohms

NOTES

*Values are for each unit unless otherwise stated.

#Visual extinction of the focused, undeflected spot.

##For a beam current of 2 μADC., measured in accordance with MIL-E-1 specifications.

**The edges of a raster pattern whose mean dimensions are 75% of the useful screen width, will not deviate from the mean dimension by more than the specified amount.

ΠWhen one-inch vertical (3D4) traces are superimposed at the center of the tube and deflected horizontally ± 2 inches by voltages proportional to the relative deflection factors, horizontal separation of corresponding points on the lines shall nowhere be greater than 2% of the deflection.

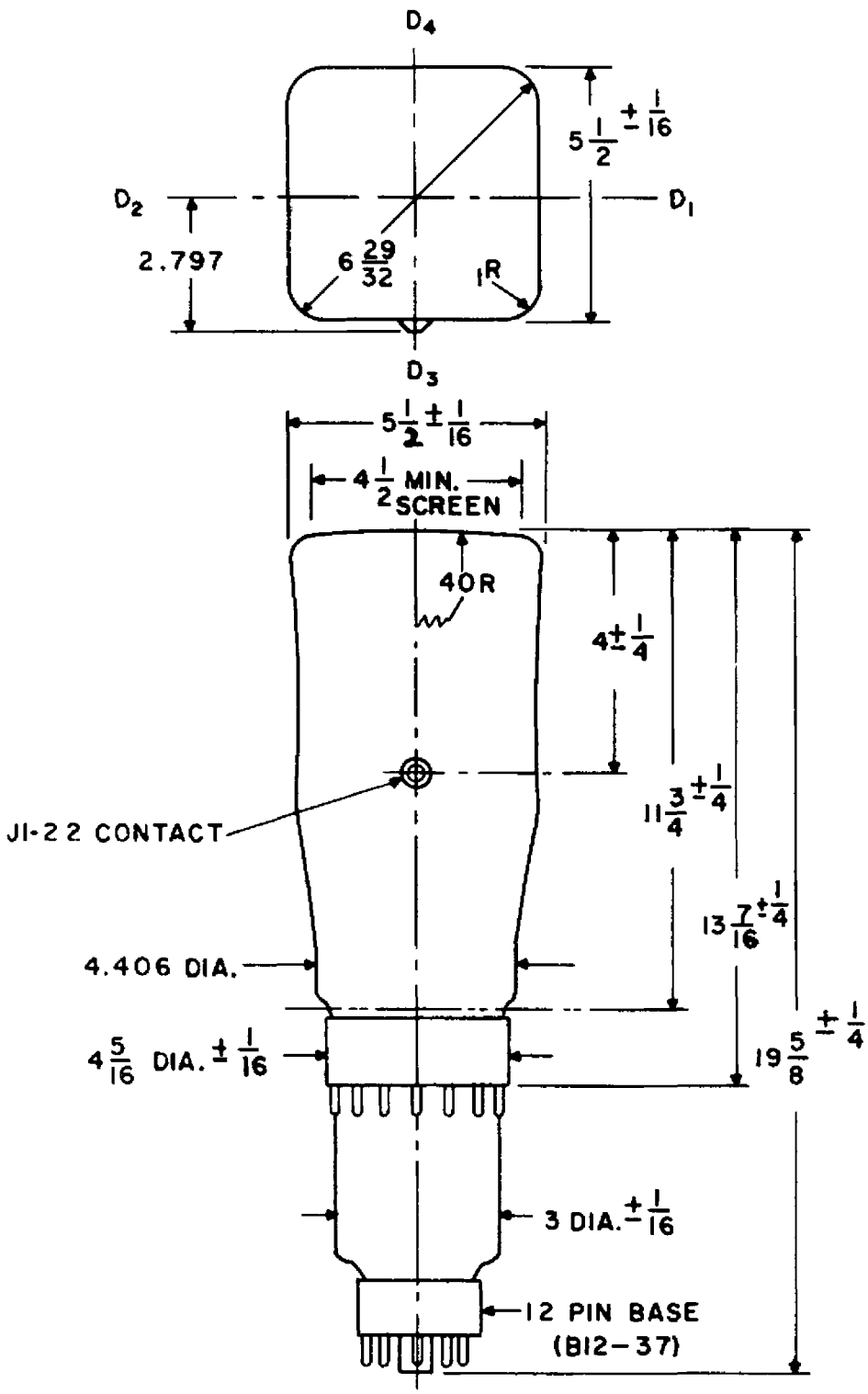
◇The deflection of one beam when balanced DC voltages are applied to the deflection-electrodes of the other beam will not be greater than the indicated value.

◇◇With the free deflecting electrodes connected to the accelerator, and the tube shielded against external influences, the undeflected, focused spot will fall within a 10-mm square centered with respect to the tube face center.

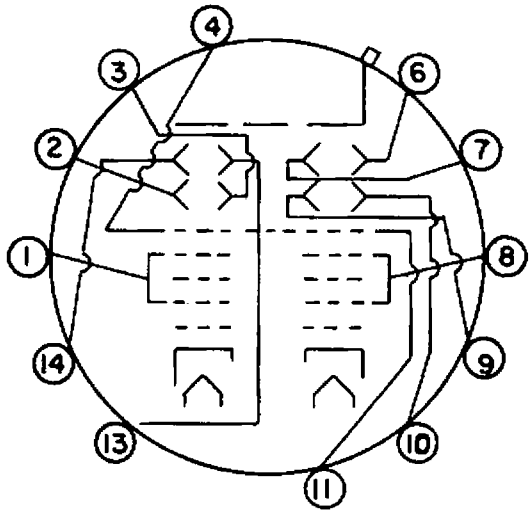
ΠIt is recommended that the deflecting-electrode circuit resistances be approximately equal. Higher resistance values up to 5.0 megohms may be used for low beam current operation.

ΨWhen the tube is cut off (no beam current), the post accelerator anode (A_3) will draw 30 μAdc maximum.

Electronic Components Division
Cathode Ray Tube Department
Electronics Park - Syracuse, New York



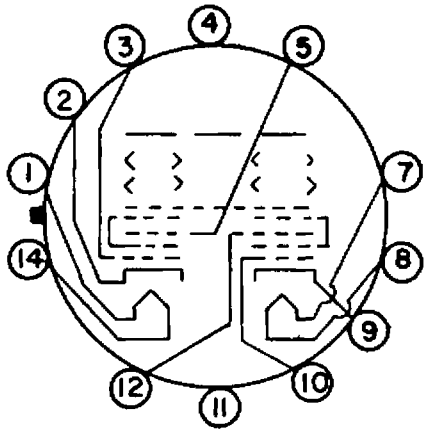
1. COLLAR PINS 4 & 11 (SHIELD) ARE COMMON TO BOTH BEAMS.
2. JI-22 CONTACT, COLLAR PIN 1 AND BASE KEY EACH ALIGN WITH D_3-D_4 TRACE ± 10.



BASING DIAGRAM – COLLAR CONNECTIONS

	PIN NO.	CONNECTION
BEAM "A"	1.	ACCELERATOR
	2.	DEFLECTOR D3
	3	DEFLECTOR D4
	4	SHIELD
	13	DEFLECTOR D2
	14	DEFLECTOR D1

	PIN NO.	CONNECTION
BEAM "B"	6	DEFLECTOR D1
	7	DEFLECTOR D2
	8	ACCELERATOR
	9	DEFLECTOR D4
	10	DEFLECTOR D3
	11	SHIELD



BASING DIAGRAM – BASE CONNECTIONS

	PIN NO.	CONNECTION
BEAM A	1	HEATER
	2	CATHODE
	3	GRID NO 1
	4	INTERNAL CONNECTION
	5	FOCUS ELECTRODE
	14	HEATER

	PIN NO.	CONNECTION
BEAM B	7	HEATER
	8	HEATER
	9	CATHODE
	10	GRID NO 1
	11	INTERNAL CONNECTION
	12	FOCUS ELECTRODE