SYLVANIA

engineering data service

SYLVANIA
5BHP1A
5BHP*

CHARACTERISTICS

GENERAL DATA

Focusing Method	Electrostatic
Deflection Method	Electrostatic
Phosphors	Aluminized

Types*	Fluorescence	Phosphorescence	Persistence
5BHP1	Green	—	Medium
5BHP2	Blue-Green	Green	Long
5BHP5	Blue	—	Very Short
5BHP7	Blue-White	Yellow	Long
5BHP11	Blue	—	Short
5BHP15	Blue-Green	—	Extremely Short

Faceplate	Clear

**In addition to the types shown, the 5BHPA- can be supplied with several other screen phosphors.*

ELECTRICAL DATA

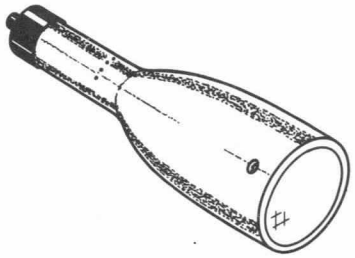
Heater Voltage	6.3 Volts
Heater Current	0.6 ± 10 % Amperes
Direct Interelectrode Capacitances (Approx.)	
Cathode to All Other Electrodes	4.6 pf
Grid No. 1 to All Other Electrodes	6.4 pf
D1 to D2	1.9 pf
D3 to D4	1.5 pf
D1 to All Other Electrodes Except D2	3.5 pf
D2 to All Other Electrodes Except D1	3.5 pf
D3 to All Other Electrodes Except D4	2.8 pf
D4 to All Other Electrodes Except D3	2.8 pf
Post Accelerator Helix Resistance	200 to 600 Megohms

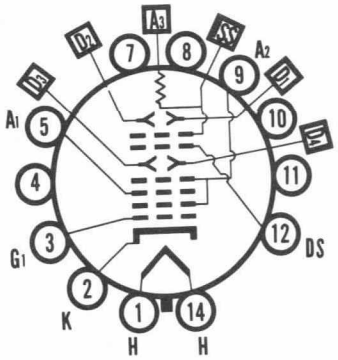
MECHANICAL DATA

Minimum Useful Screen Diameter	4 ½ Inches
Anode No. 3 Contact (Recessed Small Cavity Cap)	J1-21
Bulb (Modified)	J42K
Base (Medium Shell Diheptal 12-Pin)	B12-37
Basing	14AG
Base Alignment	
D3-D4 Trace Aligns with Pin No. 1	±10 Degrees
Positive Voltage on D1 Deflects Beam Approx. Toward Pin No. 4	
Positive Voltage on D3 Deflects Beam Approx. Toward Pin No. 1	
Angle Between Traces D1-D2 and D3-D4	90 ± 0.8 Degrees
Bulb Contact Alignment	
J1-21 Contact Aligns with D1-D2 Trace	±5 Degrees
J1-21 Contact on Same Side as Pin No. 4	

QUICK REFERENCE DATA

5" Direct Viewed
Flat Faceplate
Round Glass Type
Electrostatic Deflection
Electrostatic Focus
Helical Resistor Post
Deflection Acceleration
High Deflection Sensitivity
High Deflection Accuracy
Aluminized Screen





14-AG

SYLVANIA
ELECTRONIC TUBES

A Division of
Sylvania Electric Products Inc.

PICTURE TUBE
OPERATIONS

SENECA FALLS, NEW YORK

Prepared and Released By The
TECHNICAL PUBLICATIONS SECTION
EMPORIUM, PENNSYLVANIA

SEPTEMBER, 1963

File Under
SPECIAL AND GENERAL
PURPOSE CATHODE RAY TUBES

MAXIMUM RATINGS (Absolute Maximum Values)

Anode No. 2 Input	6 Watts	
Anode No. 3 Voltage	13,200 Volts	dc
Isolation Shield Voltage	2300 Volts	dc
Deflection Plate Shield Voltage	2300 Volts	dc
Anode No. 2 Voltage	2200 Volts	dc
Ratio of Anode No. 3 Voltage to Anode No. 2 Voltage	6 : 1 Maximum	
Anode No. 1 (Focus Electrode) Voltage	880 Volts	dc
Grid No. 1 Voltage		
Negative Bias Value	200 Volts	dc
Positive Bias Value	0 Volt	dc
Positive Peak Plate	2 Volts	
Peak Heater-Cathode Voltage		
Heater Negative with Respect to Cathode		
During Warm-up Period Not to Exceed 15 Seconds	200 Volts	
After Equipment Warm-up Period	180 Volts	
Heater Positive with Respect to Cathode	180 Volts	
Peak Voltage Between Anode No. 2 and Any Deflection Plate	550 Volts	

TYPICAL OPERATING CONDITIONS

Anode No. 3 Voltage[1]	10,000 Volts	dc
Isolation Shield Voltage[2]	1575 to 1700 Volts	dc
Deflection Plate Shield Voltage[3]	1575 to 1700 Volts	dc
Anode No. 2 Voltage[4]	1670 Volts	dc
Anode No. 1 Voltage for Focus	180 to 590 Volts	dc
Grid No. 1 Voltage Required for Cutoff[5]	−50 to −80 Volts	dc
Deflection Factors[6]		
Deflection Plates 1-2	70 to 85 Volts	dc/Inch
Deflection Plates 3-4	15 to 18.3 Volts	dc/Inch
Pattern Distortion at 100 % Useful Scan[7]	1.5 %	Max.
Undeflected Spot Position[8] (Deviation from Center)	5 mm.	Max.
Useful Scan		
D1-D2	10 cm.	
D3-D4	4 cm.	

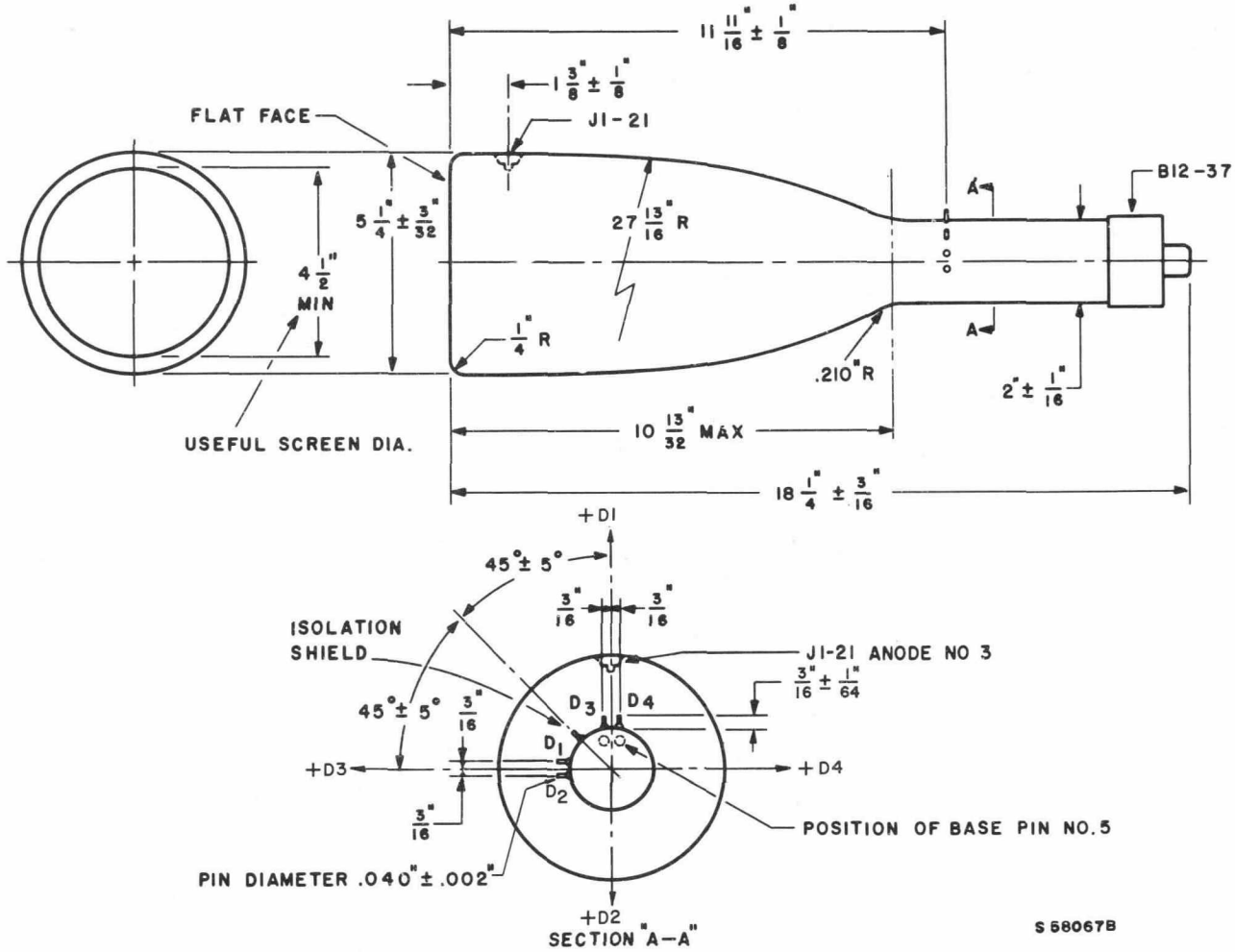
CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5 Megohms Max.

NOTES:

1. *It is recommended that the Anode No. 3 voltage be no less than 6,000 volts for suitable light output.*
2. *The isolation shield and the lower end of the post accelerator helix are connected together within the tube. With the proper potential on this electrode combination, barrel and pin-cushion distortions are minimized.*
3. *Adjustment of deflection plate shield voltage provides improved linearity of D3-D4 deflection by controlling the edge effect of D3-D4 plate field. In many applications Pin No. 12 may be connected externally to the isolation shield.*
4. *Under the typical operating conditions listed the Anode No. 2 voltage is made variable from 1575 volts to 1850 volts to provide for astigmatism control. In order to maintain proper astigmatism adjustment as total cathode current is varied, it is recommended that the resistance in the Anode No. 2 circuit be limited to 12,500 ohms.*
5. *Visual extinction of undeflected focused spot.*
6. *If use is made of the full deflection capabilities of the tube, the deflection plates will intercept part of the electron beam near the edge of the scan; hence a low impedance deflection plate drive is desirable.*
7. *With a 4 x 10 cm rectangular raster centered on the face of the tube, the raster edges will not deviate from straight parallel lines by more than 1 mm total on the left and right edges, nor by more than 0.5 mm total at the top and bottom.*
8. *Connect deflection plates to Anode No. 2.*

WARNING:

X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.

OUTLINE