

PHILCO[®]

CATHODE RAY TUBE

DATA SHEET

TENTATIVE

19BUP4

TELEVISION

PICTURE

TUBE

DESCRIPTION

The 19BUP4 is a 19"—114° direct view, rectangular glass, cathode ray tube employing both electrostatic focus and magnetic deflection for television applications. The heater-cathode package is designed to operate at less than 1/4 watt with the heater rated at 2.2 volts and 102 milliamperes. With this low power requirement rating, the picture tube reaches an acceptable brightness level at only a fraction of the time required of conventional picture tubes. Other design features include a straight electron gun requiring no ion trap, metal backed screen for improved contrast and light output, a neck terminated in a hard lead stem and an indexing lug adapted to a short base. It has a relatively flat envelope, compound radius faceplate, a special internal contouring in the deflection yoke region to obtain 114° deflection with 110° components.

ELECTRICAL DATA

Focusing Method	Electrostatic
Deflecting Method	Magnetic
Deflection Angle, approximate	
Horizontal	102 Degrees
Vertical	85 Degrees
Diagonal	114 Degrees
Direct Interelectrode Capacitance, approximate	
Cathode to All	1.2 $\mu\mu\text{f}$
Grid #1 to All	5.5 $\mu\mu\text{f}$
External Coating Capacitance	1300 Min. $\mu\mu\text{f}$ 1700 Max. $\mu\mu\text{f}$
Heater Voltage	2.2 \pm 10% Volts
Heater Current at 2.2 Volts	102 Ma.

MECHANICAL DATA

Overall Length	11 ⁵ / ₈ \pm 3/ ₁₆ Inches
Neck Length	4 ³ / ₈ \pm 1/ ₈ Inches
Greatest Dimension of Bulb	
Diagonal	18 ⁵ / ₈ \pm 1/ ₈ Inches
Width	16 ¹³ / ₃₂ \pm 1/ ₈ Inches
Height	13 ¹¹ / ₃₂ \pm 1/ ₈ Inches
Minimum Useful Screen Dimensions	172 Sq. Inches (maximum assured dimensions)
Diagonal	17 ⁹ / ₁₆ Inches
Width	15 ¹ / ₈ Inches
Height	12 Inches
Bulb	J149A1
Base	B7-208
Basing	.8HR
Anode Contact	J1-21
Anode Contact Aligns with Pin # 4 \pm 30°	

OPTICAL DATA

Phosphor Number	Aluminized P4
Fluorescent Color	White
Persistence	Medium Short
Faceplate	
Light Transmission at Center, approximate	78 Percent

CATHODE DRIVE SERVICE

Voltag es are positive with respect to Grid # 1 unless indicated otherwise.

MAXIMUM RATINGS (Absolute Maximum Values)

Anode Voltage (Note 1)	18,750 Max. Volts DC
Grid #4 Voltage	-200 Min. to +500 Max. Volts DC
Grid #2 Voltage	250 Max. Volts DC
Cathode Voltage	
Positive-Bias Value	154 Max. Volts DC
Positive-Peak Value	220 Max. Volts
Negative-Bias Value	0 Max. Volts DC
Negative-Peak Value	2 Max. Volts
Peak-Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	
During Warm-up Period not to Exceed	
15 Seconds	450 Max. Volts
After Equipment Warm-up Period	200 Max. Volts
Heater Positive with Respect to Cathode	200 Max. Volts

19BUP4

TYPICAL OPERATING CONDITIONS

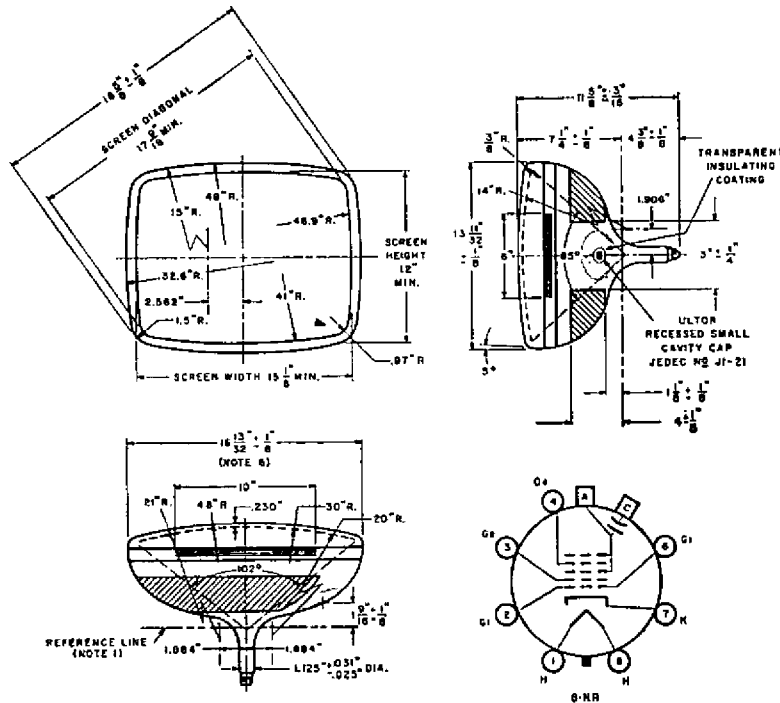
Anode Voltage	14,000 Volts DC
Grid #4 Voltage for Focus	0 to 400 Volts DC
Grid #2 Voltage	100 Volts DC
Grid #1 Voltage	0 Volts DC
Cathode Voltage (Note 2)	+45 to +60 Volts DC

MAXIMUM CIRCUIT VALUES

Grid #1 Circuit Resistance 1.5 Max. Megs.

NOTES

1. Anode, Grid #3 and Grid #5 are connected together within the tube and are referred to herein as anode.
2. For visual extinction of the focused raster. For cutoff of the undeflected focus spot, the absolute value of the bias between cathode and grid will increase by about 3 volts.



MECHANICAL NOTES

1. The reference line is determined by reference line gauge JEDEC #126.
2. The area around the button is covered with an insulating coating.
3. Socket for this base should not be rigidly mounted; it should have flexible leads and be allowed to move freely. The design of the socket should be such that the circuit wiring cannot impress lateral strains through the socket contacts on the base pins. Bottom circumference of the base wafer will fall within a circle concentric with bulb axis and having a diameter of $1\frac{3}{4}$ inches.

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 anode voltages higher than 16,000 volts

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