

# PHILCO CORPORATION

16BVP4

A SUBSIDIARY OF *Ford Motor Company*

Television Picture Tube

LANSDALE DIVISION

## CATHODE RAY TUBE

### DATA SHEET

#### Description

The 16BVP4 is a 16" - 114° direct view rectangular Cathode Ray Tube employing banded implosion protection. The tube incorporates an aluminized screen, non ion trap gun and is designed to operate with electrostatic focus and magnetic deflection.

The electron gun provides an exceptionally small spot size resulting in sharp picture resolution. The tube base is short and provides straight through leads oriented by an indexing lug.

#### Electrical Data

Focusing Method . . . . .	Electrostatic
Deflection Method . . . . .	Magnetic
Deflection Angles (approximate)	
Horizontal . . . . .	102 Degrees
Vertical . . . . .	85 Degrees
Diagonal . . . . .	114 Degrees
Direct Interelectrode Capacitances	
Cathode to All (approximate) . . . . .	4 uuf
Grid #1 to All (approximate) . . . . .	5 uuf
External Coating Capacitance (Note 1) . . . . .	1050 Min. uuf 1450 Max. uuf
Resistance between external conductive coating and implosion protection hardware . . . . .	50 Megohms Min.
Heater Current at 6.3 Volts . . . . .	.450 <sup>+5%</sup> ma
Heater Warm-up Time (Note 2) . . . . .	11 Seconds
Electron Gun	
Ion Trap . . . . .	None
Focus Lens . . . . .	Unipotential

#### Optical Data

Phosphor Number . . . . .	Aluminized P4
Light Transmission at Center (approximate) . . . . .	54 Percent
Antireflection Treatment . . . . .	None

Mechanical Data

Overall Length . . . . .	10.413+ .242-.180	Inches
Neck Length . . . . .	4.219 ±.0625	Inches
Greatest Dimensions of Tube		
Diagonal . . . . .	15.841	Inches
Width. . . . .	13.960	Inches
Height . . . . .	11.312	Inches
Minimum Useful Screen Dimensions (Projected)		
Diagonal . . . . .	14.875	Inches
Horizontal Axis. . . . .	12.938	Inches
Vertical Axis. . . . .	10.250	Inches
Area . . . . .	125 Sq.	Inches
Implosion Protection . . . . .	Banded Tube	
Bulb . . . . .	J125B1	
Bulb Contact . . . . .	J1-21	
Base . . . . .	B7-208	
Basing . . . . .	8HR	
Bulb Contact Aligns with Pin #4	±30°	

Minimum and Maximum Ratings (Design Maximum System)

Unless otherwise specified, voltage values are positive and measured with respect to cathode.

Anode Voltage (Note 3) . . . . .	( 20,000 Max. Volts DC ( 11,000 Min. Volts DC
Grid No. 4 (Focusing Electrode) Voltage	
Positive Value . . . . .	1100 Max. Volts DC
Negative Value . . . . .	550 Min. Volts DC
Grid No. 2 Voltage . . . . .	( 550 Max. Volts DC ( 250 Min. Volts DC
Grid No. 1 Voltage	
Maximum Negative Value . . . . .	154 Max. Volts DC
Maximum Negative Peak Value. . . . .	220 Max. Volts
Maximum Positive Value . . . . .	0 Max. Volts DC
Maximum Positive Peak Value. . . . .	2 Max. Volts
Heater Voltage . . . . .	( 6.9 Max. Volts ( 5.7 Min. Volts
Maximum 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 . . . . .	300 Max. Volts
Heater Positive with Respect to Cathode. . . . .	300 Max. Volts

Typical Operating Conditions

Grid Drive Service

Unless otherwise specified, all voltage values are positive with respect to cathode.

Grid Drive Service (Cont'd.)

Anode Voltage . . . . .	15,000 Volts DC
Grid No. 4 Voltage for Focus (Notes 4 & 5) . . . . .	0 Volts DC
Grid No. 2 Voltage. . . . .	300 Volts DC
Grid No. 1 Voltage (Note 6) . . . . .	-43 to -70 Volts

Maximum Circuit Values

Grid No. 1 Circuit Resistance . . . . .	1.5 Max. Megohms
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Cathode Drive Service

Unless otherwise specified, all voltage values are positive with respect to Grid No. 1.

Anode Voltage . . . . .	15,000 Volts DC
Grid No. 4 Voltage for Focus (Notes 4 & 5) . . . . .	0 Volts DC
Grid No. 2 Voltage. . . . .	300 Volts DC
Cathode Voltage (Note 6) . . . . .	+38 to +59 Volts DC

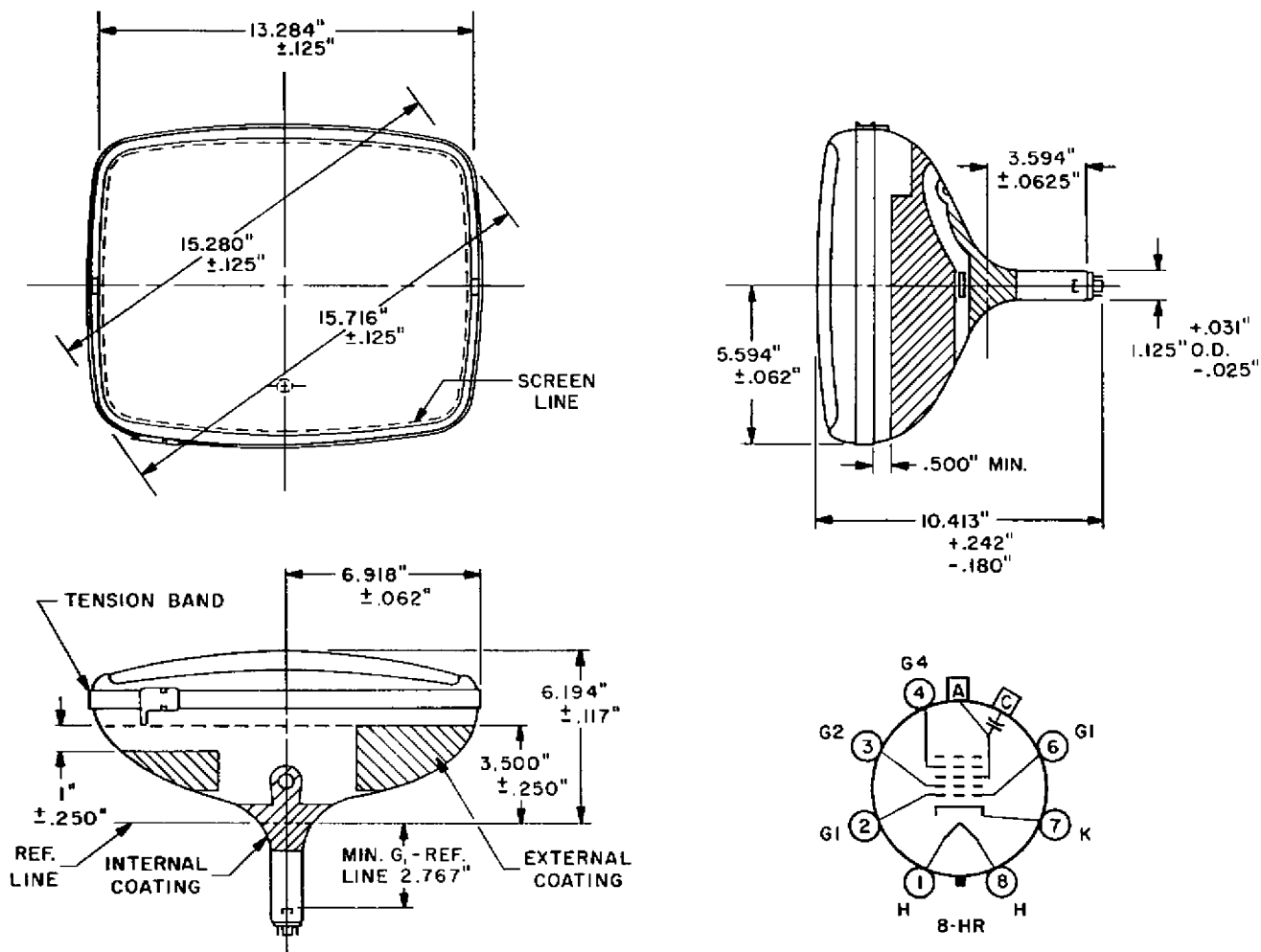
Maximum Circuit Values

Grid No. 1 Circuit Resistance . . . . .	1.5 Max. Megohms
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Notes

1. Measured with implosion protection hardware connected to external coating.
2. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.
3. Anode, Grid No. 3 and Grid No. 5 are connected together within the tube and are referred to herein as anode.
4. With the combined Grid No. 1 bias voltage and video-signal voltage adjusted to give an anode current of 200 microamperes on a 10" by 12" pattern from RCA 2F21 monoscope or equivalent.
5. Individual tubes will have satisfactory focus at some value between -200 and +200 volts.
6. For visual extinction of the focused raster. For cutoff of undeflected focus spot, the absolute value of the bias between cathode and grid will increase by about 5 volts.

OUTLINE DRAWING  
16BVP4  
Television Picture Tube



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  $1 \frac{3}{4}''$ .

**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.