

PHILCO CORPORATION

23GWP4

A SUBSIDIARY OF *Ford Motor Company*

Television Picture Tube

LANSDALE DIVISION

CATHODE RAY TUBE

DATA SHEET

Description

The 23GWP4 is a 23" - 110° direct view rectangular Cathode Ray Tube employing banded implosion protection. The tube incorporates internal shielding, an aluminized screen, non ion trap gun and is designed to operate with electrostatic focus and magnetic deflection.

This is a "HiGm" tube designed to operate in cathode drive service under low G2 voltage conditions. 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	99 Degrees
Vertical	82 Degrees
Diagonal	110 Degrees
Direct Interelectrode Capacitances	
Cathode to All (approximate)	4 uuf
Grid #1 to All (approximate)	5 uuf
External Coating Capacitance (Note 1)	2000 Min. uuf 2500 Max. uuf
Resistance between external conductive coating and implosion protection hardware50 Megohms Min.
Heater Current at 6.3 Volts	450 ±5% 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)	42 Percent
Antireflection Treatment	none

Mechanical Data

Overall Length	14.375 ±.406 Inches
Neck Length.	4.625 ±.250 Inches
Greatest Dimensions of Tube	
Diagonal	23.640 Inches
Width.	21.255 Inches
Height	16.750 Inches
Minimum Useful Screen Dimensions (Projected)	
Diagonal	22.312 Inches
Horizontal Axis.	19.250 Inches
Vertical Axis.	15.125 Inches
Area	282 Sq. Inches
Implosion Protection	Banded Tube
Bulb	J187K1
Bulb Contact	J1-21
Base	B7-208
Basing	8HR
Bulb Contact Aligns with Pin #8 ±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).	(22,000 Max. Volts DC (11,000 Min. Volts DC
Grid No. 4 (Focusing Electrode) Voltage	
Positive Value	+1250 Max. Volts DC
Negative Value	-400 Min. Volts DC
Grid No. 2 Voltage	(80 Max. Volts DC (40 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

Cathode Drive Service

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

Anode Voltage 18,000 Volts DC
Grid No. 4 Voltage for Focus (Notes 4 & 5) 150 Volts DC
Grid No. 2 Voltage. 50 Volts DC
Cathode Voltage (Note 6) +33 to +45 Volts DC

Maximum Circuit Values

Grid No. 1 Circuit Resistance 1.5 Max. Megohms

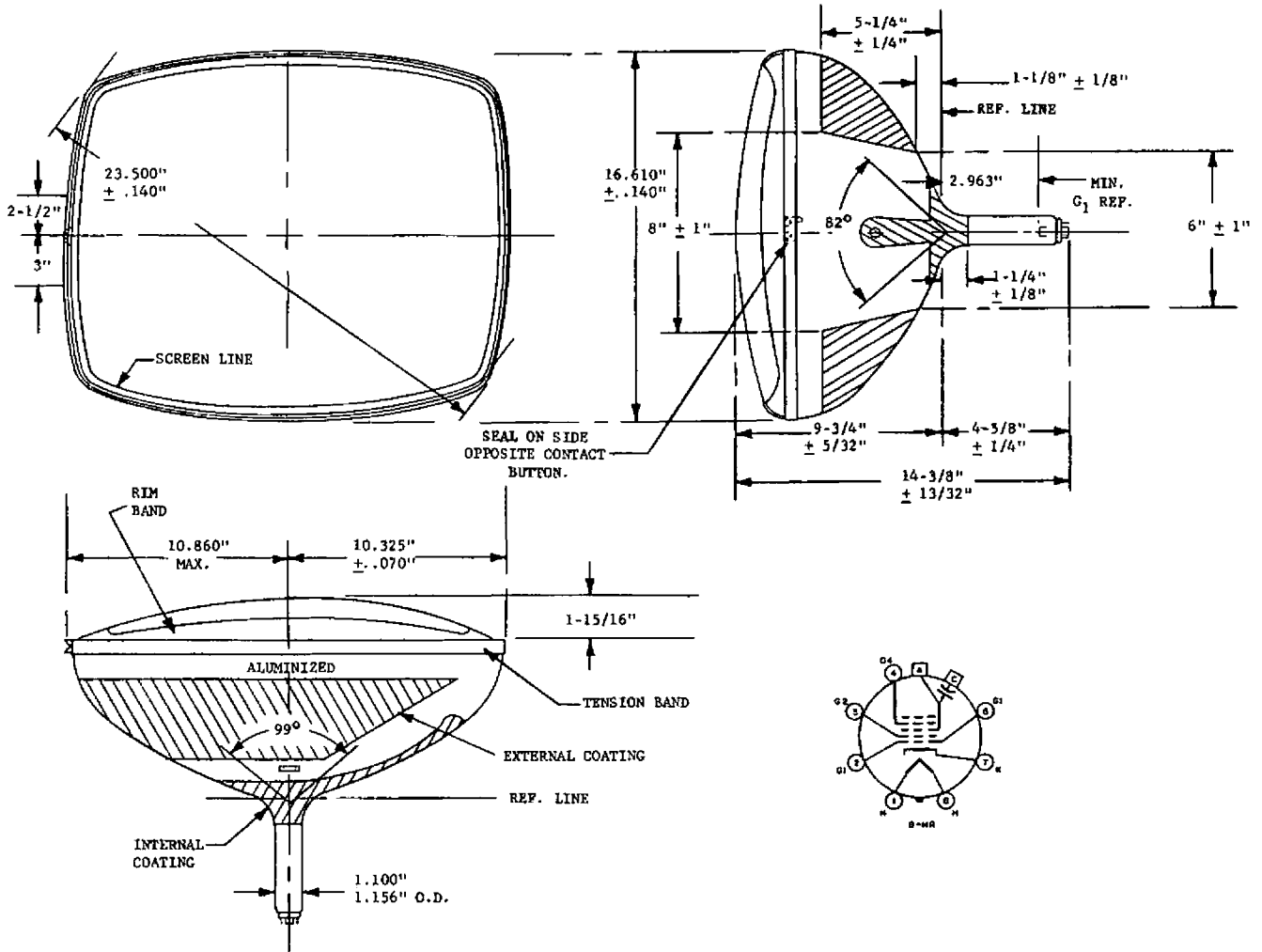
Notes

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 15" by 19" pattern from RCA 2F21 monoscope or equivalent.
5. Individual tubes will have satisfactory focus at some value between -50 and +350 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 4 volts.

OUTLINE DRAWING

23GWP4

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 $1\text{ }3/4''$.

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.

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