

5ECP11  
5ECP16 - 5ECP24  
High Resolution  
Cathode Ray Tube

PHILCO CORPORATION - LANSDALE DIVISION

CATHODE RAY TUBE

DATA SHEET

Description

The Philco type 5ECP--is a high resolution cathode ray tube of the magnetic focus and magnetic deflection type originally designed for data recognition applications. This tube features a very small spot size which makes the tube capable of resolving 2000 lines per inch.

The tube also features an optical quality, non-browning, flat, faceplate. This combined with the blemish-free, metal backed screen, makes the tube ideal for flying spot scanner applications.

Electrical Data

Focusing Method . . . . .	Magnetic
Deflection Method . . . . .	Magnetic
Deflection Angle, Nominal . . . . .	50°
Heater Voltage . . . . .	6.3 Volts
Heater Current . . . . .	0.60 ±10% Ampere
Direct Interelectrode Capacitance (Maximum)	
Cathode to All Other Electrodes . . . . .	3.5uuf
Grid #1 to All Other Electrodes . . . . .	4.0uuf
External Coating Capacitance . . . . .	400 min. uuf
. . . . .	800 max. uuf

Optical Data

Phosphor Number	P11	P16	P24
Fluorescent Color . . . . .	Blue . .	.Bluish Purple. . .	Green
Phosphorescence . . . . .	Blue . .	.Bluish Purple. . .	Green
Persistence . . . . .	Medium Short .	.Very Short . . . .	Short

Faceplate  
Optical Quality, Flat, Non-browning

Mechanical Data

Overall Dimensions

Length . . . . .	17 $\pm\frac{1}{4}$ Inches
Diameter (Exclusive of Corona Shield) . . . . .	5 $\pm\frac{1}{8}$ Inches
Minimum Useful Screen Diameter . . . . .	$4\frac{1}{4}$ Inches
Bulb . . . . .	J40N1A
Bulb Contact . . . . .	J1-21
Base . . . . .	B5-57
Basing . . . . .	12G
Bulb Contact Aligns with Pin Position #3 $\pm 10\%$	

Maximum Ratings

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

Maximum Anode Voltage (Note #1) . . . . .	30,000 Volts DC
Minimum Anode Voltage (Note #6) . . . . .	20,000 Volts DC
Grid #1 Voltage	
Maximum Negative Value . . . . .	350 Volts DC
Maximum Positive Value . . . . .	0 Volts DC
Maximum Positive Peak Value . . . . .	2 Volts
Maximum Heater Voltage . . . . .	7.0 Volts
Minimum Heater Voltage . . . . .	5.0 Volts
Maximum Heater-Cathode Voltage (Note #2)	
Heater Negative with Respect to Cathode	
During Warm-up Period not to exceed 15 seconds . . . . .	410 Volts
After Warm-up Period . . . . .	180 Volts
Heater Positive with Respect to Cathode . . . . .	180 Volts
Grid #1 Circuit Resistance . . . . .	1.0 Megohm

Typical Operating Conditions (Grid Drive)

Anode Voltage . . . . .	27,000 Volts
Grid #1 Voltage (Note #3) . . . . .	-50 to -90 Volts
Resolution:	
Line Width "A" (Note #4) . . . . .	P11-P16                      P24
0.0005 Inch . . . . .	0.0007 Inch
Spot Size (Note #5) . . . . .	0.001 Inch . . . . .
0.001 Inch . . . . .	0.0015 Inch
Focus Coil Current (Note #7) . . . . .	200 Ma

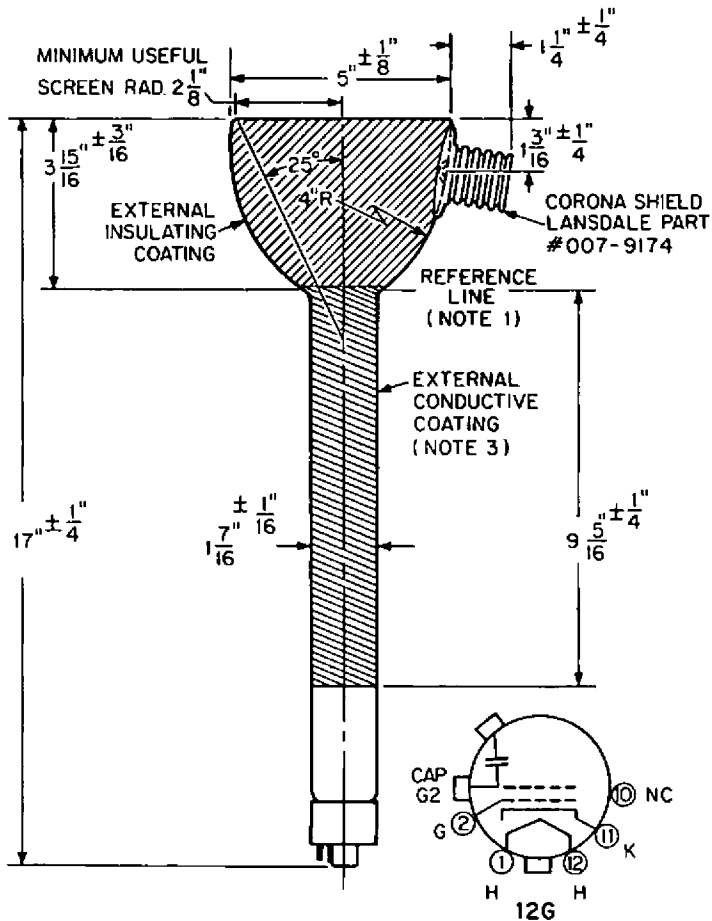
Notes

1. Anode and grid #2 are connected together within the tube and are referred to herein as anode.
2. Cathode should be returned to one side or the mid-tap of the heater transformer winding.
3. For visual extinction of the undeflected focused spot.
4. Measured with a 525 line pattern adjusted to 90% of minimum useful screen diameter at  $I_k = 20\mu a$ . The line width is the merged raster height divided by the number of lines (measured in the center of tube face).
5. Measured to the half-brightness point at center of face with  $I_k = 1.0\mu a$ .
6. Due to the effect of the limiting aperture, screen brightness is greatly affected by a reduction of anode voltage.
7. For standard JEDEC focus coil #106 or equivalent, with the combined grid #1 bias voltage and video signal voltage adjusted for 10 microamperes of cathode current.

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Outline Drawing  
5ECP—

High Resolution  
Cathode Ray Tube



MECHANICAL NOTES

1. The reference line is determined by reference line gauge JEDEC #112.
2. Anode contact aligns with vacant pin position #3  $\pm 10\%$ .
3. External conductive coating must be grounded.
4. A centering magnet should be used to center the beam within the aperture.

**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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