

4WP11 - 4WP16

Ultra-High Resolution  
Cathode Ray Tube

PHILCO CORPORATION - LANSDALE DIVISION

CATHODE RAY TUBE

DATA SHEET

Tentative

Description

The Philco type 4WP- is an ultra-high resolution cathode ray tube of the magnetic focus and magnetic deflection type. It features an ultra-high resolution spot which is essentially constant over a radius of 0.75 inch. The tube is capable of resolving 3500 lines per inch.

The optical quality, non-browning, flat faceplate, combined with an essentially blemish-free, metal backed screen, makes it suitable for photo-oscillographic applications. The high quality settled screen results in considerably more light output than other types of high resolution screens.

Electrical Data

|                                             |                  |
|---------------------------------------------|------------------|
| Focusing Method . . . . .                   | Magnetic         |
| Deflection Method . . . . .                 | Magnetic         |
| Deflection Angle, approximate . . . . .     | 46.5°            |
| Heater Voltage . . . . .                    | 6.3 Volts        |
| Heater Current . . . . .                    | 0.60 ±10% Ampere |
| Direct Interelectrode Capacitance (Maximum) |                  |
| Cathode to All Other Electrodes . . . . .   | 6.0uuf           |
| Grid #1 to All Other Electrodes . . . . .   | 6.0uuf           |

Optical Data

| Phosphor Number                           | P11          | P16           |
|-------------------------------------------|--------------|---------------|
| Fluorescent Color . . . . .               | Blue         | Bluish Purple |
| Phosphorescence . . . . .                 | Blue         | Bluish Purple |
| Persistence . . . . .                     | Medium Short | Very Short    |
| Faceplate                                 |              |               |
| Optical Quality, Flat, Gray, Non-browning |              |               |

## Mechanical Data

### Overall Dimensions

|                                          |                         |
|------------------------------------------|-------------------------|
| Length . . . . .                         | 12 $\pm$ 1/4 Inches     |
| Greatest Bulb Diameter . . . . .         | 3 3/4 $\pm$ 3/32 Inches |
| Minimum Useful Screen Diameter . . . . . | 2.8 Inches              |
| Base . . . . .                           | B5-57                   |
| Anode Contact . . . . .                  | J1-21                   |

## Maximum Ratings

|                                            |                    |
|--------------------------------------------|--------------------|
| Anode Voltage (Note #1) . . . . .          | 22,000 Volts DC    |
| Grid No. 1                                 |                    |
| Negative Bias Value . . . . .              | 100 Volts DC       |
| Positive Bias Value . . . . .              | 0 Volts            |
| Positive Peak Value . . . . .              | 0 Volts            |
| Heater-Cathode Voltage (Note #2) . . . . . | $\pm$ 180 Volts DC |
| Grid No. 1 Circuit Resistance. . . . .     | 1.0 megohm         |

## Typical Operating Conditions

|                                     |                  |
|-------------------------------------|------------------|
| Anode Voltage . . . . .             | 20,000 Volts     |
| Grid #1 Voltage (Note #3) . . . . . | -20 to -50 Volts |
| Line Width "A" (Note #4) . . . . .  | 0.0003 Inch      |
| Spot Size (Note #5) . . . . .       | 0.0007 Inch      |

## Notes

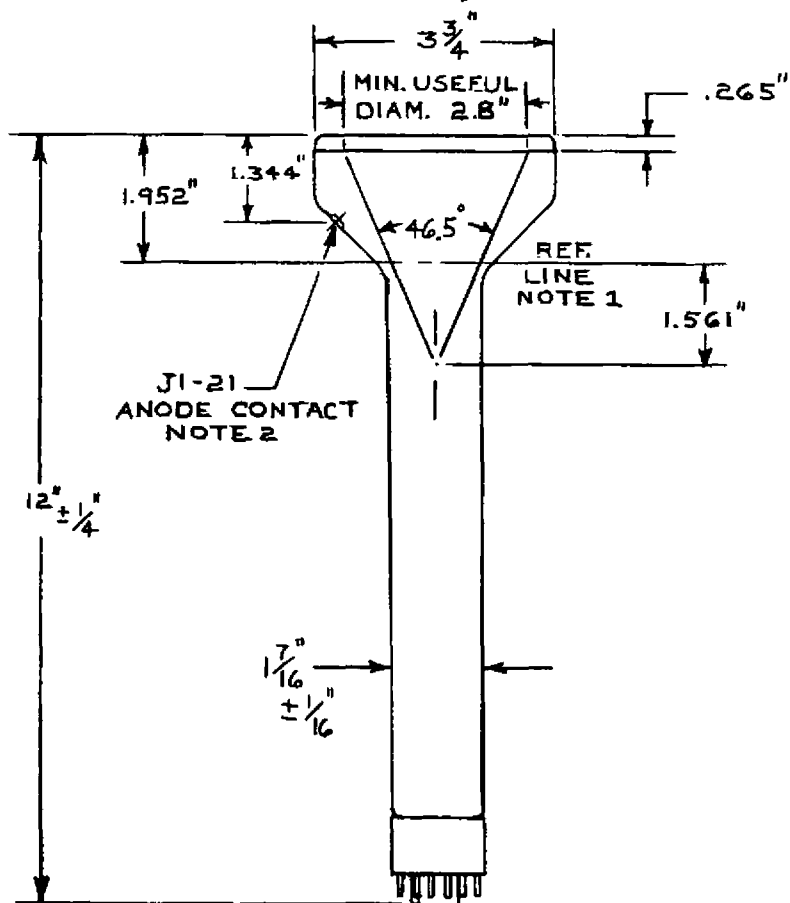
1. Anode and Grid #2 are connected together within the tube and are referred to herein as anode.
2. Cathode should be returned to one side or to the mid-tap of the heater transformer winding.
3. For visual extinction of the undeflected focused spot.
4. Measured with a 525 line pattern adjusted to 90% of minimum useful screen diameter at  $I_k = 1.0\text{ua}$ . The line width is the merged raster height divided by the number of lines (500) (measured in the center of tube face).
5. Measured to the half-brightness point at center of face with  $I_k = 1.0\text{ua}$ .

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Outline Drawing

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Base lug aligns  
with anode button

MECHANICAL NOTES

1. Reference line is determined by a 1.937"  $\pm$  .002" diameter ring gauge 2 inches long.
2. Anode button is aligned with base lug  $\pm$  10°.

**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.