

19CKP4  
CATHODE RAY TUBE

|                             |                              |
|-----------------------------|------------------------------|
| 19 INCH, RECTANGULAR, GLASS | FACE PLATE -- SPHERICAL GRAY |
| FOCUS -- ELECTROSTATIC      | NON ION TRAP GUN             |
| DEFLECTION -- MAGNETIC      | ALUMINIZED SCREEN            |
| 114 DEGREE DEFLECTION       | EXTERNAL CONDUCTIVE COATING  |

LOW GRID NO. 2 VOLTAGE TYPE  
FOR CATHODE-DRIVE OPERATION

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-----DESCRIPTION AND RATING-----  
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The 19CKP4 is a 19 inch electrostatic-focus and magnetic deflection glass picture tube. Outstanding features include a short over-all length, a small neck diameter and a non ion trap gun designed for operation at a low Grid No. 2 voltage for use in cathode-drive circuits. The fluorescent screen is aluminized to increase light output and reduce undesirable screen charging. An external conductive coating is provided to serve as a filter capacitor when grounded.

ELECTRICAL DATA

|   |  |
|---|--|
| Focusing Method . . . . .                         | Electrostatic                          |
| Deflection Angle, Approximate                     |  |
| Horizontal. . . . .                               | 102 degrees                            |
| Vertical. . . . .                                 | 87 degrees                             |
| Diagonal . . . . .                                | 114 degrees                            |
| Direct Interelectrode Capacitance                 |  |
| Cathode to all other electrodes, approximate. . . | 5 $\mu$ f                              |
| Grid #1 to all other electrodes, approximate . .  | 6 $\mu$ f                              |
| External Conductive Coating to Anode. . . . .     | 1500 max. $\mu$ f<br>1000 min. $\mu$ f |
| Heater Current at 6.3 volts . . . . .             | 600 $\pm$ 30 ma.                       |
| Heater Warm Up Time. . . . .                      | 11 sec.                                |

OPTICAL DATA

|   |               |
|---|---------------|
| Phosphor Number                         | P4 Aluminized |
| Light Transmittance at Center (Approx.) | 78 Percent    |



MECHANICAL DATA

|  |                            |
|--|----------------------------|
| Overall Length . . . . .                         | 11 3/4 ± 1/4 inches        |
| Greatest Dimensions of Tube                      |                            |
| Diagonal . . . . .                               | 18 5/8 ± 1/8 inches        |
| Width . . . . .                                  | 16 13/32 ± 1/8 inches      |
| Height . . . . .                                 | 13 11/32 ± 1/8 inches      |
| Minimum Useful Screen Dimensions (Projected)     |                            |
| Diagonal . . . . .                               | 17 9/16 inches             |
| Horizontal Axis . . . . .                        | 15 1/8 inches              |
| Vertical Axis . . . . .                          | 12 inches                  |
| Area . . . . .                                   | 172 sq. inches             |
| Neck Length . . . . .                            | 4 1/2 ± 1/8 inches         |
| Bulb . . . . .                                   | J149-A1                    |
| Bulb Contact . . . . .                           | JEDEC No. J1-21            |
| Base . . . . .                                   | JEDEC No. B7-237 or B7-208 |
| Basing . . . . .                                 | 8HR                        |
| Bulb Contact Alignment                           |                            |
| Anode Contact Aligns with Pin No. 4 ± 30 degrees |                            |

RATINGS (Design Maximum System)

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

|   |                     |
|---|---------------------|
| Maximum Anode Voltage . . . . .                       | 22,000 volts        |
| Minimum Anode Voltage . . . . .                       | 15,000 volts        |
| Maximum Grid 4 (Focusing Electrode) voltage . . . . . | -500 to +1000 volts |
| Minimum Grid 2 Voltage . . . . .                      | 40 volts            |
| Maximum Grid 2 Voltage . . . . .                      | 100 volts           |
| Grid 1 Voltage  |                     |
| Maximum Negative Value . . . . .                      | 140 volts DC        |
| Maximum Negative Peak Value . . . . .                 | 200 volts           |
| Maximum Positive Value . . . . .                      | 0 volts DC          |
| Maximum Positive Peak Value . . . . .                 | 2 volts             |
| Maximum Heater Voltage . . . . .                      | 6.9 volts           |
| Minimum Heater Voltage . . . . .                      | 5.7 volts           |
| Maximum Heater-Cathode Voltage                        |                     |
| Heater negative with respect to cathode               |                     |
| During warm-up period not to exceed 15 sec. . . . .   | 410 volts           |
| After equipment warm-up period . . . . .              | 300 volts           |
| Heater positive with respect to cathode. . . . .      | 180 volts           |

TYPICAL OPERATING CONDITIONS (Cathode Drive Service)

|  |                   |
|--|-------------------|
| Anode Voltage . . . . .                                    | 18,000 volts DC   |
| Grid #4 Voltage (Focusing Electrode, Notes 2 & 3). . . . . | 250 volts DC      |
| Grid #2 Voltage . . . . .                                  | 50 volts DC       |
| Cathode to Grid #1 Voltage (Note 1) . . . . .              | 31 to 49 volts DC |

MAXIMUM CIRCUIT VALUES

Maximum Grid #1 Circuit Resistance . . . . . 1.5 max. megohm  
Grid #2 Circuit Resistance . . . . . 0.1 min. megohm  
Focusing Electrode Circuit Resistance . . . . . 0.1 min. megohm

Protective resistance in Grid No. 2 and focusing electrical circuits is advisable to prevent damage to tube. If applicable, one resistor common to both circuits may be used.

NOTES:

1. Visual extinction of focused raster.
2. With the combined Grid #1 bias voltage and video-signal voltage adjusted to give an anode current of 150 microamperes on a 15 1/8 x 11 15/16" pattern from RCA 2F21 monoscope or equivalent.
3. Individual tubes will have satisfactory focus at some value between 0 and 500 volts.

# 19CKP4

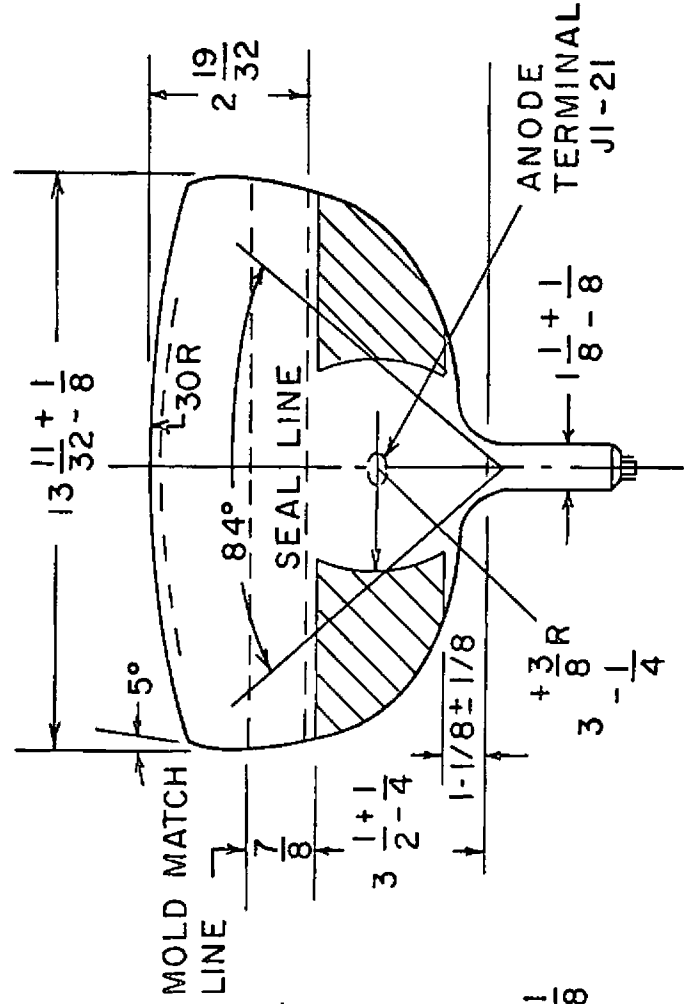
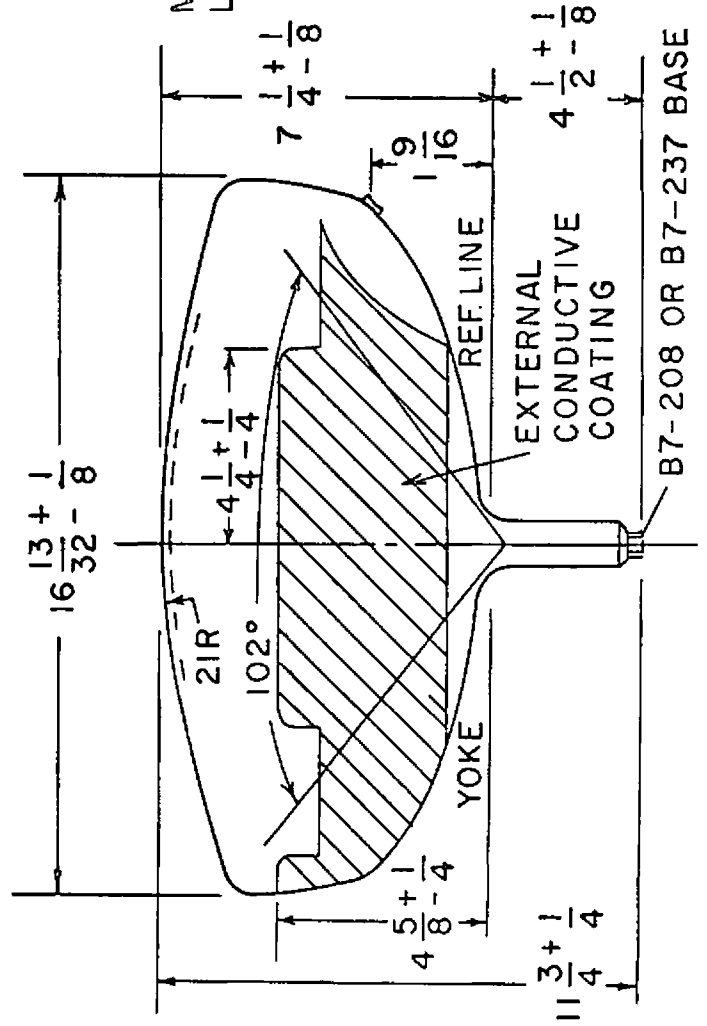
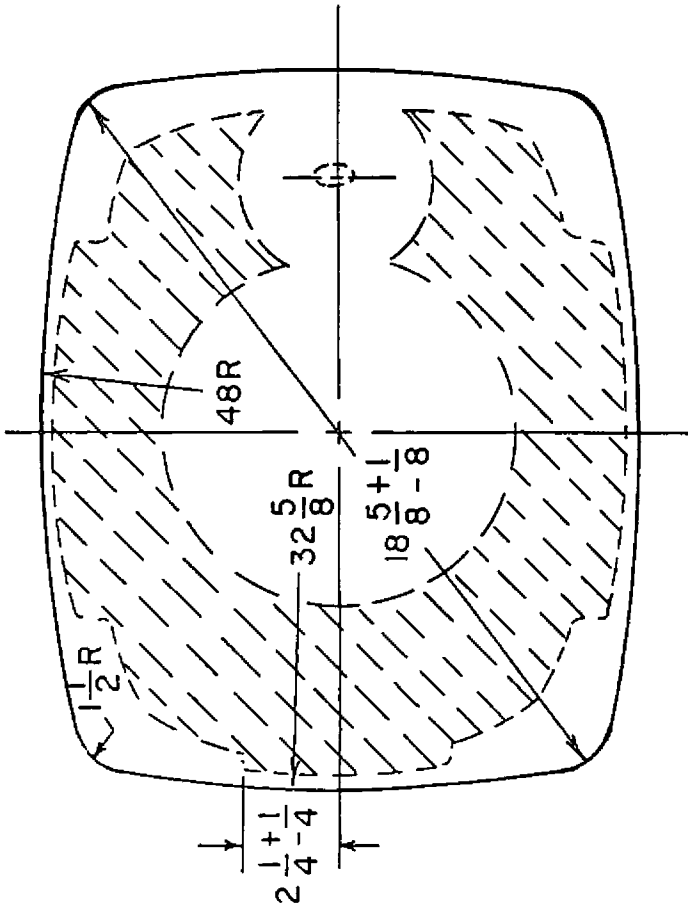
SCREEN DIMENSIONS

DIAGONAL — 17 9/16

WIDTH — 15 1/8

HEIGHT — 12

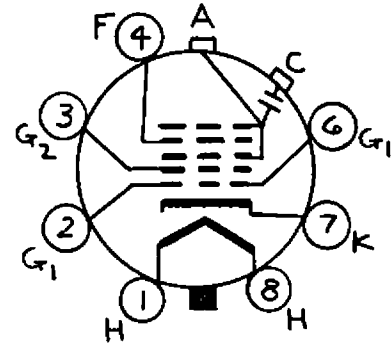
AREA — 172 SQ. IN.



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**Diagram Notes**

1. The reference line is determined by the intersection of the plane C-C of gage (EIA No. 126) with the glass funnel.
2. Deflection angle on the diagonal is  $114^{\circ}$ .
3. Anode terminal aligns with pin No. 4  $\pm 30$  degrees.
4. Use a non-rigidly mounted socket with flexible leads. Bottom circumference of base wafer will fall within 1-3/4 inch diameter circle concentric with the bulb axis.



BASING DIAGRAM  
8HR

CATHODE RAY TUBE DEPARTMENT

**GENERAL**  **ELECTRIC**

Syracuse, N. Y.