

19ECP4  
CATHODE RAY TUBE

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

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-----DESCRIPTION AND RATING-----  
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The 19ECP4 is a 19-inch rectangular glass picture tube employing banded type implosion protection. Outstanding features include a non-ion-trap gun, a 450 ma. heater and a small neck diameter. The fluorescent screen is aluminized to increase light output and reduce undesirable screen charging. An external conductive coating serves as a filter capacitor when grounded and contributes to the reduction of sweep induced radiation.

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 $\mu$ pf |                    |
| Grid #1 to all other electrodes, approximate. .6 $\mu$ pf |                    |
| External Conductive Coating to Anode . . . .              | 1500 max. $\mu$ pf |
|                                                           | 1000 min. $\mu$ pf |
| Heater Current at 6.3 volts . . . . .                     | 450 $\pm$ 23 ma.   |
| Heater Warm Up Time . . . . .                             | 11 sec.            |

OPTICAL DATA

|                                               |               |
|-----------------------------------------------|---------------|
| Phosphor Number . . . . .                     | P4 Aluminized |
| Light Transmittance at Center Approx. . . . . | 47 percent    |

CATHODE RAY TUBE DEPARTMENT

**GENERAL  ELECTRIC**

Syracuse, N. Y.

MECHANICAL DATA

|                                                      |                            |
|------------------------------------------------------|----------------------------|
| Overall Length . . . . .                             | 11 3/4 $\pm$ 1/4 inches    |
| Greatest Dimensions of Tube                          |                            |
| Diagonal . . . . .                                   | 18 3/4 $\pm$ 1/8 inches    |
| Width . . . . .                                      | 16 17/32 $\pm$ 1/8 inches  |
| Height . . . . .                                     | 13 19/32 $\pm$ 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 $\pm$ 1/8 inches     |
| Bulb . . . . .                                       | J149 F1                    |
| Bulb Contact . . . . .                               | JETEC No. J1-21            |
| Base . . . . .                                       | JETEC No. B7-237 or B7-208 |
| Basing . . . . .                                     | 8 HR                       |
| Bulb Contact Alignment                               |                            |
| Anode Contact Aligns with Pin No. 4 $\pm$ 30 degrees |                            |

RATINGS (Design Maximum System)

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

|                                                      |                     |
|------------------------------------------------------|---------------------|
| Maximum Anode Voltage . . . . .                      | 20,000 volts        |
| Minimum Anode Voltage . . . . .                      | 13,000 volts        |
| Maximum Grid 4 (Focusing Electrode) Voltage. . . . . | -500 to +1000 volts |
| Minimum Grid 2 Voltage . . . . .                     | 100 volts           |
| Maximum Grid 2 Voltage . . . . .                     | 250 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 . . . . .             | 180 volts           |
| Heater positive with respect to cathode . . . . .    | 180 volts           |

TYPICAL OPERATING CONDITIONS (Cathode Drive Service)

|                                                          |                       |
|----------------------------------------------------------|-----------------------|
| Anode Voltage . . . . .                                  | 16,000 volts DC       |
| Grid #4 Voltage (Focusing Electrode, Notes 2 ) . . . . . | -250 to +150 volts DC |
| Grid #2 Voltage . . . . .                                | 150 volts DC          |
| Cathode to Grid #1 Voltage (Note 1) . . . . .            | 36 to 54 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.

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## SCREEN DIMENSIONS

DIAGONAL \_\_\_\_\_ 17-9/16  
WIDTH \_\_\_\_\_ 15-1/8  
HEIGHT \_\_\_\_\_ 12  
AREA \_\_\_\_\_ 172 SQ.

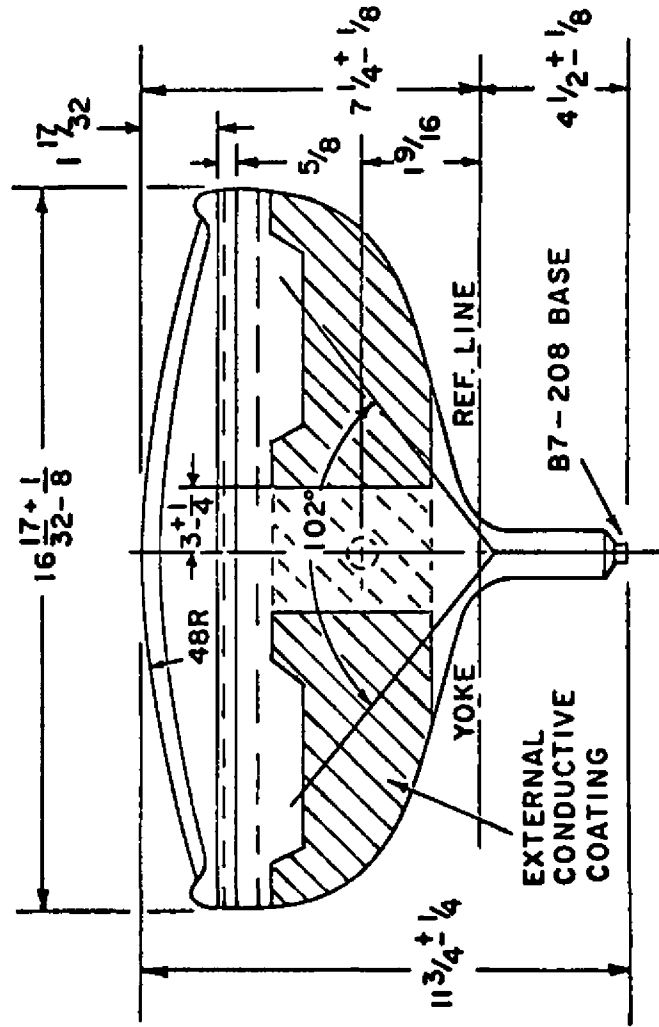
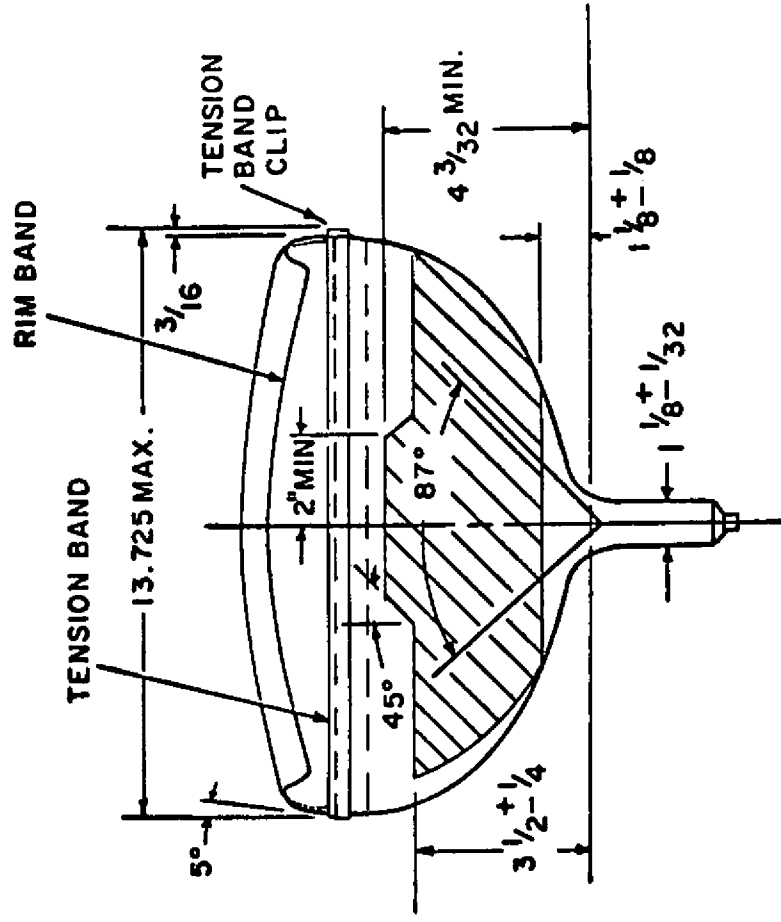
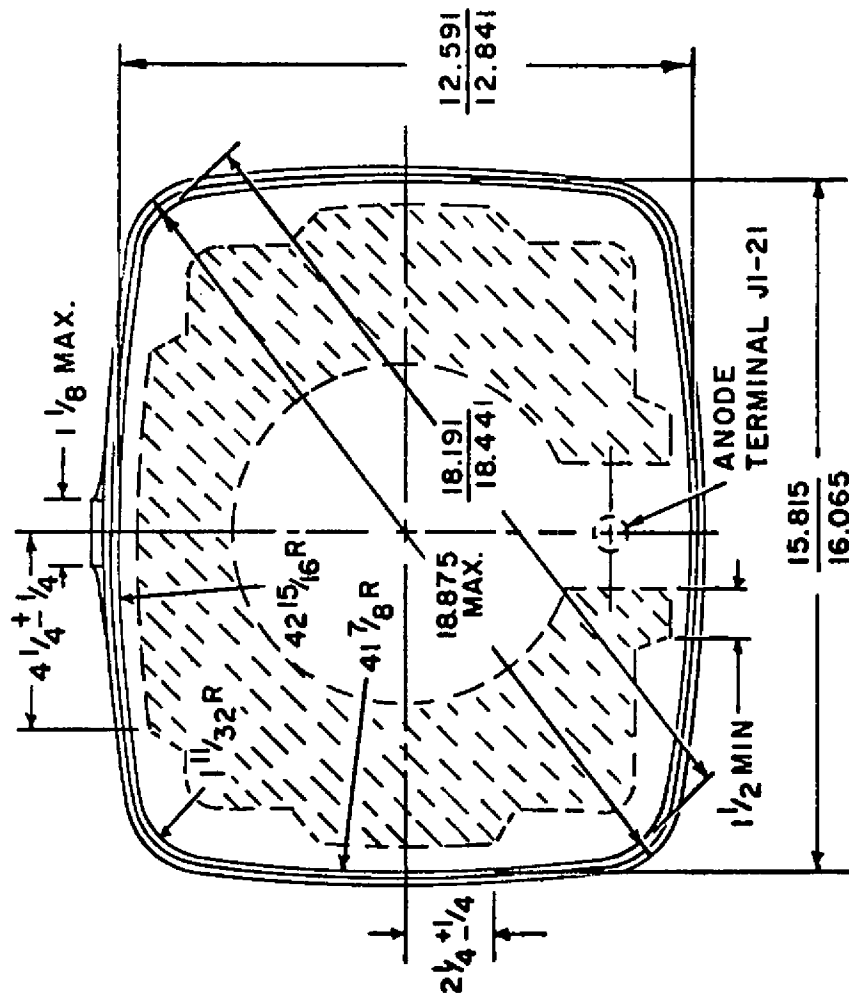
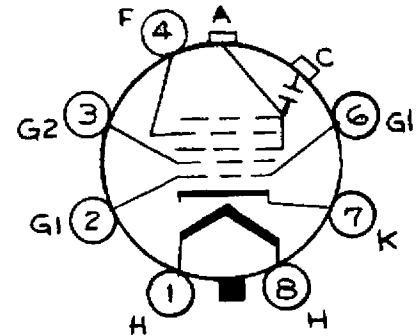


Diagram Notes

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