**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---**

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: .5 µf
  - Grid #1 to all other electrodes: .6 µf
  - External Conductive Coating to Anode: 1500 max. µf
  - 1000 min. µf

- Heater Current at 6.3 volts: 450 ± 23 ma.
- Heater Warm Up Time: 11 sec.

**OPTICAL DATA**

- Phosphor Number: E4 Aluminized
- Light Transmittance at Center Approx.: 47 percent

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**CATHODE RAY TUBE DEPARTMENT**

**GENERAL ELECTRIC**

**Syracuse, N. Y.**

from JEDEC release #4667, April 13, 1964
MECHANICAL DATA

Overall Length ......... 11 3/4 ± 1/4 inches
Greatest Dimensions of Tube
  Diagonal ............. 18 3/4 ± 1/8 inches
  Width ............... 16 17/32 ± 1/8 inches
  Height .............. 13 19/32 ± 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 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 ± 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 2R21 monoscope or equivalent.
Diagram Notes

1. The reference line is determined by the intersection of the plane C-C of gage (MIA No. 126) with the glass funnel.

2. Deflection angle on the diagonal is $114^\circ$.

3. Anode terminal aligns with pin No. 4 ± 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.