The 19CYP4 is a 19"-114⁰ cathode ray tube. This tube has a 3 5/8" neck length, electrostatic focus, magnetic deflection, and metal backed screen. A straight gun which requires no ion trap and a .600 milliamperc, 6.3 volt filament.

**ELECTRICAL DATA**

- **Focusing Method**: Electrostatic
- **Deflection Angles, Approximate**
  - Horizontal: 102 degrees
  - Vertical: 85 degrees
  - Diagonal: 114 degrees
- **Direct Interelectrode Capacitances**
  - Cathode to all other electrodes, approx.: 5 uuf
  - Grid #1 to all other electrodes, approx.: 6 uuf
  - External Conductive Coating to Anode: 1,500 max. uuf
    1,000 min. uuf
- **Heater Current at 6.3 volts**: 600 ± 30 ma
- **Heater Warm-up Time**: 11 Seconds

**OPTICAL DATA**

- **Phosphor Number JEDEC Designation, Indicate if aluminized**: P4-Aluminized
- **Light Transmittance at Center, Approximate**: 78%

**MECHANICAL DATA**

- **Overall Length**: 10 7/8 ± 1/4 Inches
- **Greatest Diameter of Tube**: 18 5/8 ± 1/8 Inches
- **Greatest Dimensions of Tube**
  - Diagonal: 16 13/32 ± 1/8 Inches
  - Height: 13 11/32 ± 1/8 Inches
- **Minimum Useful Screen Diameter (Projected)**: 17 9/16 Inches
- **Minimum Useful Screen Dimensions (Projected)**
  - Diagonal: 15 1/8 Inches
  - Area: 12 Inches²
  - Neck Length: 172 Sq. Inches
  - Neck Diameter: 3 5/8 ± 1/8 Inches
- **Bulb EIA designation or equivalent (including shield designation)**: J-149-A1
- **Bulb Contact**: JEDEC Designation J1-21
- **Base**: JEDEC Designation B7-208
- **Basing**: JEDEC Designation 8HR
MECHANICAL DATA (Cont'd)

Bulb Contact Alignment
J1-21 contact aligns with pin position #4 ±30 degrees

RATINGS (Design Maximum System)

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

Maximum Anode Voltage 23,000 Volts
Minimum Anode Voltage 15,000 Volts

Maximum Grid #4 (Focusing Electrode) Voltage +1000 -500
Maximum Grid #2 Voltage 550 Volts
Minimum Grid #2 Voltage 200 Volts
Grid #1 Voltage
  Maximum Negative Value 154 Volts DC
  Maximum Negative Peak Value 220 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 seconds 450 Volts
  After equipment warm-up period 200 Volts
  Heater positive with respect to cathode 200 Volts

TYPICAL OPERATING CONDITIONS

GRID DRIVE SERVICE

Unless otherwise specified all voltage values are positive with respect to cathode.

Anode Voltage 20,000 Volts DC
Grid #4 Voltage (Focusing Electrode) (Notes 2 & 3)
  Grid #2 Voltage 0 to +400 Volts DC
  Grid #1 Voltage (Note 1) 400 Volts DC
  -36 to -94 Volts DC

MAXIMUM CIRCUIT VALUES

Maximum Grid #1 Circuit Resistance 1.5 Megohms

GRAPHS AND DRAWINGS

Tube Outline with essential dimensions and tolerances.

Pin Connections

Pin 1 - Heater
Pin 2 - Grid No. 1
Pin 3 - Grid No. 2
Pin 4 - Grid No. 4
Pin 6 - Grid No. 1
Pin 7 - Cathode
Pin 8 - Heater
REINFORCING RIBS

SCREEN WIDTH 15 1/8 MIN.

SCREEN HEIGHT 12 MIN.

16 13/32 - 8 (NOTE 6)

102°

10

21R.

20R.

18.8 - 8

18.8 - 8

1/16 - 8

.97R.

.920

X AXIS

Y = 575X^2 + X

TRANSPARENT INSULATING COATING (NOTE 5)

SMALL BUTTON NEOEIGHTAR 7 PIN BASE ARRANGEMENT 1 JEDEC # B7 208 (NOTE 3)

EXTERNAL CONDUCTIVE COATING (NOTE 4)

ULTOR Recessed small cavity cap JEDEC J1 21 (NOTE 1)

CL G3

G4 4

G2 3

G1 2

1 K

8 8HP

H

PIN 1: HEATER
PIN 2: GRID NO.
PIN 3: GRID NO.
PIN 4: GRID NO.
PIN 6: GRID NO.
PIN 7: CATHODE
PIN 8: HEATER CAP: ULTOR (GRID No.3 GRID No.5. COLLECTOR)
C: EXTERNAL CONDUCTIVE COATING

DRAWN BY A.L. PRIBYL
SCALE 1-14-63
EFFECTIVE DRAWING NO.
DISTRIBUTION 19CYP4
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 100 microamperes on a 15 1/8" X 12" pattern from RCA 2F21 Monoscope or equivalent.

3. Individual tubes will have satisfactory focus at some value between 0 and +400 volts.

NOTES FOR DIMENSIONAL OUTLINE

1. The plane through the tube axis and pin No. 4 may vary from the plane through the tube axis and ultor terminal by angular tolerance (measured about the tube axis) of ±30°. Ultor terminal is on same side as Pin No. 4.

2. With tube neck inserted through flared end of reference-line gauge JEDEC No. G-126 and with tube seated in gauge, the reference line is determined by the intersection of the Plane CC' of the gauge with the glass funnel.

3. Socket for this base should not be rigidly mounted; it should have flexible leads and be allowed to move freely. The design of the socket should be such that the circuit wiring cannot impress lateral strains through the socket contacts on the base pins. Bottom circumference of base wafer will fall within a circle concentric with bulb axis and having a diameter of 1 3/4".

4. External conductive coating must be grounded.

5. To clean this area, wipe only with soft dry lint-less cloth.

6. Measured at the mold-match line.

OPERATING CONSIDERATIONS

Shatter-Proof Cover Over the Tube Face:

Following conventional picture-tube practice, it is recommended that the cabinet be provided with a shatter-proof, glass cover over the face of the 19CYP4 to protect it from being struck accidentally and to protect against possible damage resulting from tube implosion under some abnormal condition. This safety cover can also provide x-ray protection when required.