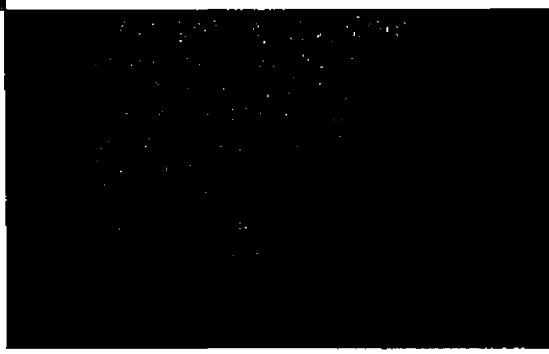
PHILCO®

CATHODE RAY TUBE DATA SHEET

TENTATIVE

19BMP4 TELEVISION PICTURE TUBE



DESCRIPTION

The 19BMP4 is a directly viewed, rectangular glass picture tube. The tube is electrically identical to the 19BLP4.

It incorporates a short improved electron gun requiring no ion trap magnet and which also improves edge focus quality. The tube is externally coated and features the new short integral glass button base having straight thru leads and an indexing lug.

ELECTRICAL DATA

Focusing Method ..... Electrostatic
Deflecting Method ..... Magnetic
Deflection Angle, approximate
- Horizontal ..... 102 Degrees
- Vertical ..... 86 Degrees
- Diagonal ..... 114 Degrees

Direct Interelectrode Capacitance, approximate
- Cathode to All ..... 4 $\mu\mu$f
- Grid #1 to All ..... 5 $\mu\mu$f

External Coating Capacitance ..... 1300 Min. $\mu\mu$f, 1700 Max. $\mu\mu$f
Heater Voltage ..... 6.3 Volts
Heater Current at 2.68 Volts ..... 0.600 ± .030 Amperes
Heater Warm-up Time (Note 1) ..... 11 Seconds

OPTICAL DATA

Phosphor Number ..... Aluminized P4
- Fluorescent Color ..... White
- Persistence ..... Medium Short

Faceplate (Bonded Shield) FP159A2
- Light Transmission at Center, approximate .... 44 Percent

MECHANICAL DATA

Overall Length ..... $11\frac{9}{16} \pm \frac{1}{4}$ Inches
Neck Length ..... $4\frac{1}{16} \pm \frac{1}{16}$ Inches
Greatest Dimensions of Bulb
- Diagonal ..... 19.856 ± .094 Inches
- Width ..... 17.264 ± .094 Inches
- Height ..... 14.090 ± .094 Inches

Minimum Useful Screen Dimensions ..... 172 Sq. Inches (maximum assured dimensions)
- Diagonal ..... $17\frac{3}{4}$ Inches
- Width ..... $15\frac{5}{16}$ Inches
- Height ..... $12\frac{1}{16}$ Inches

Bulb J149-C1
Base B7-208
Basing 8HR
Anode Contact J1-21
Anode Contact Aligns with Pin #4 ± 30°

GRID DRIVE SERVICE

Voltages are positive with respect to cathode unless indicated otherwise.

MAXIMUM RATINGS (Design Maximum Values)

Anode Voltage (Note 2) ..... 20,000 Max. Volts DC
Grid #4 Voltage .... −550 Min. to +1100 Max. Volts DC
Grid #2 Voltage ..... 200 Min. to 550 Max. Volts DC
Grid #1 Voltage
- Negative-Bias Value ..... 154 Max. Volts DC
- Negative-Peak Value ..... 220 Max. Volts
- Positive-Bias Value ..... 0 Max. Volts DC
- Positive-Peak Value ..... 2 Max. Volts

Peak-Heater-Cathode Voltage
- Heater Negative with Respect to Cathode
  - During Warm-up Period not to Exceed 15 Seconds ..... 450 Max. Volts
  - After Equipment Warm-up Period .... 200 Max. Volts
- Heater Positive with Respect to Cathode.. 200 Max. Volts

TYPICAL OPERATING CONDITIONS

Anode Voltage ..... 16,000 Volts DC
Grid #4 Voltage for Focus ..... 0 to +400 Volts DC
Grid #2 Voltage ..... 400 Volts DC
Grid #1 Voltage (Note 3) ..... −36 to −94 Volts DC

MAXIMUM CIRCUIT VALUES

Grid #1 Circuit Resistance ..... 1.5 Max. Megs.

CATHODE DRIVE SERVICE

Voltages are positive with respect to Grid #1 unless indicated otherwise.

MAXIMUM RATINGS (Absolute Maximum Values)

Anode Voltage (Note 2) ..... 20,000 Max. Volts DC
Grid #4 Voltage .... −400 Min. to +1250 Max. Volts DC
Grid #2 Voltage ..... 350 Min. to 700 Max. Volts DC
Cathode Voltage
- Positive-Bias Value ..... 154 Max. Volts DC
- Positive-Peak Value ..... 220 Max. Volts
- Negative-Bias Value ..... 0 Max. Volts DC
- Negative-Peak Value ..... 2 Max. Volts

Peak-Heater-Cathode Voltage
- Heater Negative with Respect to Cathode
  - During Warm-up Period not to Exceed 15 Seconds ..... 450 Max. Volts
  - After Equipment Warm-up Period .... 200 Max. Volts
- Heater Positive with Respect to Cathode.. 200 Max. Volts

from JEDEC release #3336, July 10, 1961

Form No. L191—Apr. 61

19BMP4

TYPICAL OPERATING CONDITIONS

Anode Voltage ..... 16,000 Volts DC
Grid #4 Voltage for Focus ..... 0 to 400 Volts DC
Grid #2 Voltage ..... 400 Volts DC
Grid #1 Voltage ..... 0 Volts DC
Cathode Voltage (Note #3) ..... +36 to +78 Volts DC

MAXIMUM CIRCUIT VALUES

Grid #1 Circuit Resistance ..... 1.5 Max. Megs.

NOTES

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.
2. Anode, Grid #3 and Grid #5 are connected together within the tube and are referred to herein as anode.
3. For visual extinction of the focused raster. For cutoff of the undeflected focus spot, the absolute value of the bias between cathode and grid will increase by about 5 volts.

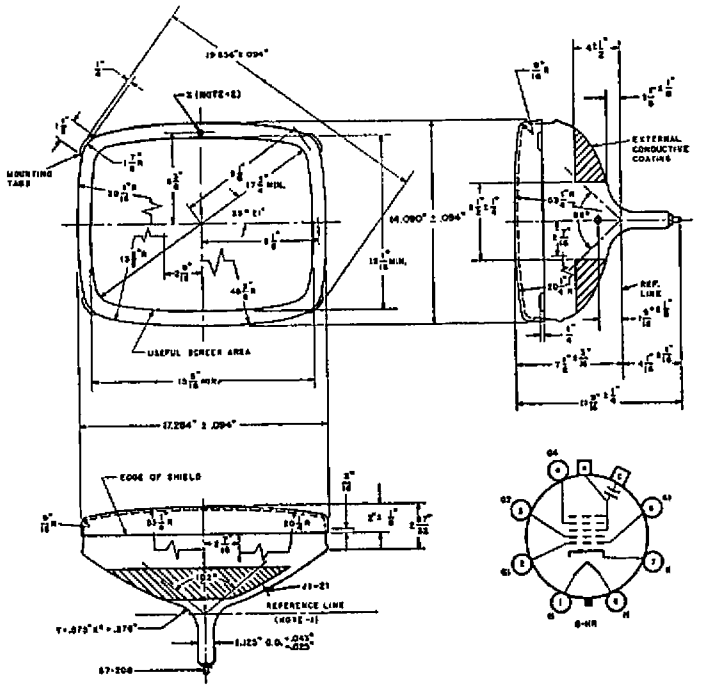


DIAGRAM NOTES:

1. Reference line is determined by plane C-C' of JEDEC #126 Reference Line Gauge, when the gauge is seated against the bulb.
2. Planes perpendicular to tube axis and passing through points X, Y and Z are located as follows:

   Plane tangent to crown of face to plane of X: 0.500" Nom.
   Plane of X to plane of Y = .429" ± .030".
   Plane of X to plane of Z = .749" ± .030".

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.

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