RCA-19DQP4 is a black-and-white pan-o-ply picture tube which eliminates the need for either an integral protective window or a separate safety-glass window and its companion dust seal in the receiver. Thereby internal reflections are reduced; consequently, picture contrast is improved. Integral implosion protection in the pan-o-ply picture tube is provided by means of a formed rim band and a welded tension band around the periphery of the tube panel. The 19DQP4 is a rectangular glass picture tube having an aluminized screen with nearly straight sides and slightly rounded corners.

Features of the 19DQP4 include:
- Pan-O-Ply — Integral Implosion Protection
- 114° Magnetic Deflection
- Low-Voltage Electrostatic Focus
- Aluminized Screen
- Electron Gun Requiring No Ion-Trap Magnet
- 11.625" Max. Overall Length
- 4.125" Neck Length
- 12.000" x 15.187" Screen
- 5.3 Volt/450 Ma Heater
- 23 kv Max. Anode Voltage

GENERAL DATA

Electrical:
- Focusing Method: Electrostatic
- Deflection Method: Magnetic
- Deflection Angles (Approx.):
  - Diagonal: 114°
  - Horizontal: 102°
  - Vertical: 85°
- Direct Interelectrode Capacitances:
  - Cathode to all other electrodes: 5 pf
  - Grid No. 1 to all other electrodes: 6 pf
  - External conductive coating to anode: 1500 max. pf
  - 1000 min. pf
- Heater Current at 6.3 volts: 450 ± 20 ma
- Heater Warm-Up Time (Average): 11 seconds
- Heater warm-up time is defined as the time required in the test circuit shown in Fig. 1 for the voltage (E) across the heater terminals to increase from zero to 0.8 of rated heater voltage.
- Electron Gun: Type Requiring No Ion-Trap Magnet

Optical:
- Phosphor: P4 — Sulfide Type, Aluminized
- Faceplate: Filterglass
- Light Transmission at Center (Approx.): 49%

Mechanical:
- Weight (Approx.): 15 lbs

Tube Dimensions:
- Overall length: 11.375" ± 0.250"
- Neck length: 4.125" ± 0.125"
- Diagonal: 18.732" ± 0.100"
- Greatest width: 16.514" ± 0.100"
- Greatest height: 13.473" ± 0.100"

Minimum Screen Dimensions (Projected):
- Diagonal: 17.562"
- Greatest width: 15.187"
- Greatest height: 12.000"

Area: 172 sq. in.

Bulb Designation: J149 F1

Cap Designation: Recessed Small Cavity (JEDEC No. J1-21)

Base Designation: Small-Button Neoeight 7-Pin, Arrangement 1 (JEDEC No. B7-208)

Basing Designation: B8R

Pin 1: Heater
Pin 2: Grid No. 1
Pin 3: Grid No. 2
Pin 4: Grid No. 3
Pin 5: Grid No. 4
Pin 6: Grid No. 1
Pin 7: Cathode
Pin 8: Heater

Cap: Anode (Grid No. 3, Grid No. 5, Screen, Collector)
C: External Conductive Coating

BOTTOM VIEW
Maximum and Minimum Ratings, Design-Maximum Values:

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

- **Anode Voltage**
  - 23,000 max. volts
  - 11,000 min. volts

- **Grid-No.4 Voltage**
  - Positive value: 1100 max. volts
  - Negative value: 550 max. volts

- **Grid-No.2 Voltage**
  - 550 max. volts
  - 200 min. volts

- **Grid-No.1 Voltage**
  - Negative peak value: 220 max. volts
  - Negative bias value: 155 max. volts
  - Positive bias value: 0 max. volts
  - Positive peak value: 2 max. volts

- **Heater Voltage**
  - 6.9 max. volts
  - 5.7 min. volts

Peak Heater-Cathode Voltage:

Heater negative with respect to cathode:
- During equipment warm-up period not exceeding 15 seconds: 450 max. volts
- After equipment warm-up period: 300 max. volts

Heater positive with respect to cathode:
- Combined AC & DC Voltage: 200 max. volts
- DC Component: 100 max. volts

Typical Operating Conditions for Cathode-Drive Service:

Unless otherwise specified, voltage values are positive with respect to grid No.1

- **Anode Voltage**: 16,000 volts
- **Grid-No.4 Voltage**
  - 200 volts
- **Grid-No.2 Voltage**: 300 volts

- **Cathode Voltage for visual extinction of focused raster (See Fig.2)**: 28 to 62 volts
- **Field Strength of required adjustable Centering Magnet**
  - 0 to 8 gauss

**Maximum Circuit Value**:

- **Grid-No.1 Circuit Resistance**: 1.5 max. megohms

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**Operating Considerations**

*X-Radiation Warning.* When operated at anode voltages up to 16 kilovolts, this picture tube does not produce any harmful X-radiation. However, the tube is rated at voltages as high as 23 kilovolts (design-maximum value), so shielding of the tube for X-radiation may be needed to protect against possible injury from prolonged exposure at close range. When the operating conditions involve voltages in excess of 16 kilovolts.

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**TEST CIRCUIT FOR DETERMINING HEATER WARM-UP TIME**

![Test Circuit Diagram](image)

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RASTER CUTOFF CHART
For Cathode-Drive Service

Fig. 2

BULB-CONTOUR DIMENSIONS

PLANE A THROUGH G ARE NORMAL TO THE TUBE AXIS AND AT FIXED LOCATIONS FROM THE Y AXIS. THESE COORDINATES DESCRIBE THE BODIE BULB EXTERNAL CONTOUR IN PLANES THROUGH THE TUBE AXIS AND THE RESPECTIVE FACEPLATE AXES.
DIMENSIONAL OUTLINE


NOTE 3: SOCKET FOR THIS BASE SHOULD NOT BE RIGIDLY MOUNTED; IT SHOULD HAVE FLEXIBLE LEADS AND BE ALLOWED TO MOVE FREELY. BOTTOM CIRCUMFERENCE OF BASE WAFER WILL FALL WITHIN A CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING A DIAMETER OF 1-3/4".

NOTE 4: EXTERNAL CONDUCTIVE COATING AND IMPLOSION PROTECTION HARDWARE MUST BE GROUNDED.

NOTE 5: TO CLEAN THIS AREA, WIPE ONLY WITH SOFT DRY LINTLESS CLOTH.

NOTE 6: MEASURED FROM THE TENSION BAND.

NOTE 7: BULGE AT SPLICE-LINE SEAL MAY INCREASE THE INDICATED MAXIMUM VALUE FOR ENVELOPE WIDTH, DIAGONAL, AND HEIGHT BY NOT MORE THAN 1/16".

DETAIL OF PANEL
(Diagonal View)

DIMENSIONS IN INCHES