CHARACTERISTICS

GENERAL DATA

- Focusing Method: Electrostatic
- Deflection Method: Magnetic
- Deflection Angles (Approx.)
  - Horizontal: 101 Degrees
  - Diagonal: 114 Degrees
  - Vertical: 86 Degrees
- Phosphor: Aluminized P4
- Fluorescence: White
- Persistence: Medium Short
- Faceplate: Bonded Shield
- (Gray Filter Glass Safety Plate Laminated Directly to Face of Tube)
- Light Transmittance (Approx.): 60 Percent
- Type 19DAP4 has External Surface of Safety Plate Treated to Reduce Specular Reflection

ELECTRICAL DATA

- Heater Voltage: 6.3 Volts
- Heater Current: 0.45 ± 5 % Ampere
- Heater Warm-up Time\(^1\): 11 Seconds
- Direct Inter-electrode Capacitances (Approx.)
  - Cathode to All Other Electrodes: 5 pf
  - Grid No. 1 to All Other Electrodes: 6 pf
  - External Conductive Coating to Anode\(^2\): 1500 pf Max. 1000 pf Min.

MECHANICAL DATA

- Minimum Useful Screen Dimensions (Maximum Assured)
  - Height: 123\(\frac{1}{2}\) Inches
  - Width: 15\(\frac{3}{4}\) Inches
  - Diagonal: 175\(\frac{1}{2}\) Inches
- Minimum Useful Screen Area: 172 Sq. Inches
- Neck Length: 4\(\frac{1}{8}\) ± \(\frac{3}{8}\) Inches
- Overall Length: 11\(\frac{3}{8}\) ± \(\frac{3}{8}\) Inches
- Bulb: J149C
- Safety Plate: 19CZP4—\(\frac{3}{8}\)" Gray Glass
  - 19DAP4—Same, Anti-Reflection Treated
- Bulb Contact (Recessed Small Cavity Cap): J1-21
- Base: B7-208
- Basing: 8HR
- Weight (Approx.): 15 \(\frac{1}{2}\) Pounds

RATINGS

MAXIMUM RATINGS (Design Maximum Values)

- Grid Drive Service\(^3\)
  - Maximum Anode Voltage: 23,000 Volts dc
  - Minimum Anode Voltage: 15,000 Volts dc
  - Grid No. 4 Voltage (Focusing Electrode): -550 to +1100 Volts dc
  - Maximum Grid No. 2 Voltage: 550 Volts dc
  - Minimum Grid No. 2 Voltage: 200 Volts dc
  - Grid No. 1 Voltage
    - Negative Bias Value: 155 Volts dc
    - Negative Peak Value: 220 Volts
    - Positive Bias Value: 0 Volts dc
    - Positive Peak Value: 2 Volts
- Peak Heater-Cathode Voltage
  - Heater Negative with Respect to Cathode
    - During Warm-up Period Not to Exceed 15 Secs.: 450 Volts
    - After Equipment Warm-up Period: 200 Volts
  - Heater Positive with Respect to Cathode: 200 Volts

SYLVANIA

ELECTRONIC TUBES

A Division of Sylvania Electric Products Inc.

PICTURE TUBE OPERATIONS

SENeca FALLS, NEW YORK

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FILE UNDER
TELEVISION PICTURE TUBES
MAXIMUM RATINGS (Design Maximum Values) (Continued)

Cathode Drive Service

Maximum Anode Voltage ........................................... 23,000 Volts dc
Minimum Anode Voltage ........................................... 15,000 Volts dc
Grid No. 4 Voltage (Focusing Electrode) ...................... -400 to +1250 Volts dc
Maximum Grid No. 2 Voltage ..................................... 700 Volts dc
Minimum Grid No. 2 Voltage ..................................... 350 Volts dc
Cathode Voltage
  Positive Bias Value ........................................... 155 Volts dc
  Positive Peak Value .......................................... 220 Volts dc
  Negative Bias Value ......................................... 0 Volts dc
  Negative Peak Value ......................................... 2 Volts dc
Peak 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

Anode Voltage ...................................................... 20,000 Volts dc
Grid No. 4 Voltage for Focus .................................. 0 to 400 Volts dc
Grid No. 2 Voltage ................................................ 400 Volts dc
Grid No. 1 Voltage Required for Cutoff\(^5\) .................. -46 to -94 Volts dc

Cathode Drive Service

Anode Voltage ...................................................... 20,000 Volts dc
Grid No. 4 Voltage for Focus .................................. 0 to 400 Volts dc
Grid No. 2 Voltage ................................................ 400 Volts dc
Cathode Voltage Required for Cutoff\(^5\) ..................... 42 to 78 Volts dc

CIRCUIT VALUES

Grid No. 1 Circuit Resistance .................................. 1.5 Megohms Max.

NOTES:

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times the rated heater voltage divided by the rated heater current.
2. External conductive coating must be grounded.
3. Voltages are positive with respect to cathode unless indicated otherwise.
4. Voltages are positive with respect to Grid No. 1 unless indicated otherwise.
5. Visual extinction of focused raster. For cutoff of the undeflected focused spot, the absolute value of the bias between cathode and grid will increase by about 5 volts.

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 higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.
DIAGRAM NOTES:
1. Reference Line is determined by plane C-C' of JEDEC No. 126 Reference Line Gauge when the gauge is seated against the bulb.
2. Base pin No. 4 aligns with horizontal centerline (A-A') within 30° and is on same side as anode contact (J1-21).