

## CHARACTERISTICS

### GENERAL DATA

|                                         |                             |
|-----------------------------------------|-----------------------------|
| Focusing Method . . . . .               | Tri-Potential Electrostatic |
| Deflection Method . . . . .             | Magnetic                    |
| Deflection Angles (Approx.) . . . . .   |                             |
| Horizontal . . . . .                    | 102 Degrees                 |
| Diagonal . . . . .                      | 114 Degrees                 |
| Vertical . . . . .                      | 85 Degrees                  |
| Phosphor . . . . .                      | Aluminized P4               |
| Fluorescence . . . . .                  | White                       |
| Persistence . . . . .                   | Short to Medium             |
| Faceplate . . . . .                     | Gray Filter Glass           |
| Light Transmittance (Approx.) . . . . . | 78 Percent                  |

### ELECTRICAL DATA

|                                                             | 19ANP4   | 19YP4    |          |
|-------------------------------------------------------------|----------|----------|----------|
| Heater Voltage . . . . .                                    | 6.3      | 6.3      | Volts    |
| Heater Current . . . . .                                    | 0.450±5% | 0.600±5% | Ampere   |
| Heater Warm-up Time <sup>1</sup> . . . . .                  |          | 11       | Seconds  |
| Direct Interelectrode Capacitances (Approx.)                |          |          |          |
| Cathode to All Other Electrodes . . . . .                   |          | 5        | μmf      |
| Grid No. 1 to All Other Electrodes . . . . .                |          | 6        | μmf      |
| External Conductive Coating to Anode <sup>2</sup> . . . . . |          | 1500     | μmf Max. |
|                                                             |          | 1000     | μmf Min. |

### MECHANICAL DATA

|                                                    |                |            |
|----------------------------------------------------|----------------|------------|
| Minimum Useful Screen Dimensions (Maximum Assured) | 15 1/8 x 12    | Inches     |
| Minimum Useful Screen Area . . . . .               | 172            | Sq. Inches |
| Neck Length . . . . .                              | .39 1/16 ± 1/8 | Inches     |
| Overall Length . . . . .                           | 10 13/16 ± 1/4 | Inches     |
| Bulb . . . . .                                     | J149A1         |            |
| Bulb Contact (Recessed Small Cavity Cap) . . . . . | J1-21          |            |
| Base . . . . .                                     | B7-208         |            |
| Basing . . . . .                                   | 8JR            |            |
| Weight (Approx.) . . . . .                         | 14             | Pounds     |

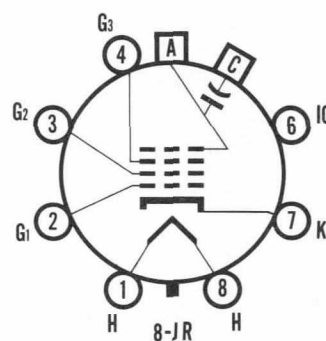
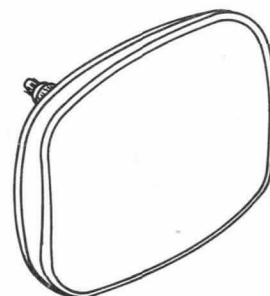
## RATINGS

### MAXIMUM RATINGS (Design Maximum Values)

|                                                   |              |          |
|---------------------------------------------------|--------------|----------|
| Grid Drive Service                                |              |          |
| Maximum Anode Voltage . . . . .                   | 20,000       | Volts dc |
| Minimum Anode Voltage . . . . .                   | 11,000       | Volts dc |
| Grid No. 3 Voltage (Focusing Electrode) . . . . . | -350 to +700 | Volts dc |
| Maximum Grid No. 2 Voltage . . . . .              | 600          | Volts dc |
| Minimum Grid No. 2 Voltage . . . . .              | 300          | Volts dc |
| Grid No. 1 Voltage                                |              |          |
| Negative Bias Value . . . . .                     | 155          | Volts dc |
| Negative Peak Value . . . . .                     | 220          | Volts dc |
| Positive Bias Value . . . . .                     | 0            | Volts dc |
| Positive 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    |

## QUICK REFERENCE DATA

Television Picture Tube  
19" Direct Viewed  
Rectangular Glass Type  
Spherical Faceplate  
Gray Filter Glass  
Aluminized Screen  
Tri-Potential  
Electrostatic Focus  
114° Magnetic Deflection  
1 1/8" Neck Diameter  
No Ion Trap  
External Conductive Coating  
Short Neck  
19ANP4: 450 Ma Heater



## 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 . . . . .                   | 20,000 Volts       | dc |
| Minimum Anode Voltage . . . . .                   | 11,000 Volts       | dc |
| Grid No. 3 Voltage (Focusing Electrode) . . . . . | -200 to +850 Volts | dc |
| Maximum Grid No. 2 Voltage . . . . .              | 750 Volts          | dc |
| Minimum Grid No. 2 Voltage . . . . .              | 450 Volts          | dc |

**Cathode Voltage**

|                               |           |    |
|-------------------------------|-----------|----|
| Positive Bias Value . . . . . | 155 Volts | dc |
| Positive Peak Value . . . . . | 220 Volts |    |
| 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 . . . . .                                       | 16,000 Volts     | dc |
| Grid No. 3 Voltage for Focus . . . . .                        | 0 to 400 Volts   | dc |
| Grid No. 2 Voltage . . . . .                                  | 500 Volts        | dc |
| Grid No. 1 Voltage Required for Cutoff <sup>3</sup> . . . . . | -43 to -78 Volts | dc |

**Cathode Drive Service**

|                                               |                |
|-----------------------------------------------|----------------|
| Anode Voltage . . . . .                       | 16,000 Volts   |
| Grid No. 3 Voltage for Focus . . . . .        | 0 to 400 Volts |
| Grid No. 2 Voltage . . . . .                  | 500 Volts      |
| Grid No. 1 Voltage . . . . .                  | 0 Volts        |
| Cathode Voltage Required for Cutoff . . . . . | 41 to 69 Volts |

**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 its rated value 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 rated heater voltage divided by rated heater current.
2. External conductive coating must be grounded.
3. Visual extinction of focused raster. Extinction of stationary focused spot will require that these values be about 5 volts more negative.

**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.

## OUTLINE

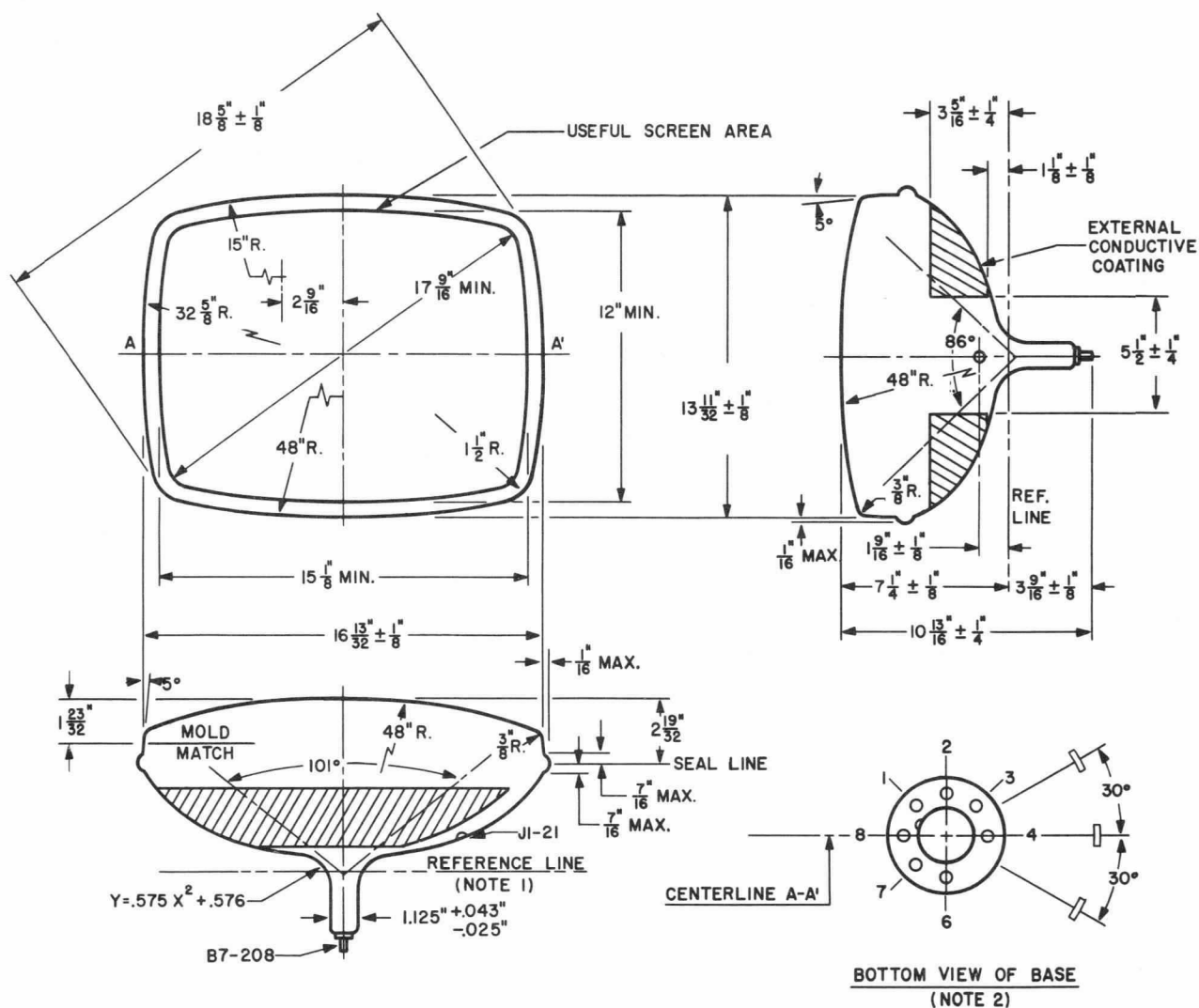


**DIAGRAM NOTES:**

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.