

## CHARACTERISTICS

### GENERAL DATA

Focusing Method . . . . .	Electrostatic
Deflection Method . . . . .	Magnetic
Deflection Angles (Approx.)	
Horizontal . . . . .	100 Degrees
Diagonal . . . . .	114 Degrees
Vertical . . . . .	83 Degrees
Phosphor . . . . .	Aluminized P4
Fluorescence . . . . .	White
Persistence . . . . .	Short to Medium
Faceplate . . . . .	Gray Filter Glass
Light Transmittance (Approx.) . . . . .	75 Percent

### ELECTRICAL DATA

	23AMP4	23ALP4	23MP4	
Heater Voltage . . . . .	6.3	6.3	6.3	Volts
Heater Current $\pm 5\%$ . . . . .	0.30	0.45	0.60	Ampere
Heater Warm-up Time <sup>1</sup> . . . . .	11	11	11	Seconds
Direct Interelectrode Capacitances (Approx.)				
Cathode to All Other Electrodes . . . . .			5	$\mu\mu\text{f}$
Grid No. 1 to All Other Electrodes . . . . .			6	$\mu\mu\text{f}$
External Conductive Coating to Anode <sup>2</sup> . . . . .			2500	$\mu\mu\text{f}$ Max.
			1700	$\mu\mu\text{f}$ Min.

### MECHANICAL DATA

Minimum Useful Screen Dimensions (Maximum Assured)	
Height . . . . .	15 Inches
Width . . . . .	19 $\frac{1}{8}$ Inches
Diagonal . . . . .	22-5/16 Inches
Minimum Useful Screen Area . . . . .	276 Sq. Inches
Neck Length . . . . .	5 $\frac{1}{8} \pm \frac{1}{8}$ Inches
Overall Length . . . . .	14 $\frac{3}{8} \pm \frac{5}{16}$ Inches
Bulb Contact (Recessed Small Cavity Cap)	J1-21
Bulb . . . . .	J187B1
Base . . . . .	B7-208
Basing . . . . .	8HR
Weight (Approx.) . . . . .	26 Pounds

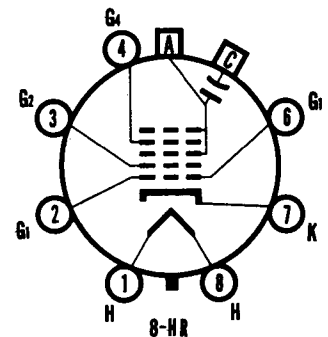
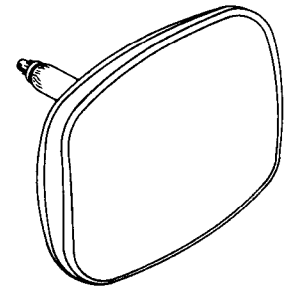
## RATINGS

### MAXIMUM RATINGS (Design Maximum Values)

<b>Grid Drive Service<sup>4</sup></b>		
Maximum Anode Voltage . . . . .	22,000 Volts	dc
Minimum Anode Voltage . . . . .	11,000 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 Seconds . . . . .	450 Volts	
After Equipment Warm-up Period . . . . .	200 Volts	
Heater Positive with Respect to Cathode . . . . .	200 Volts	

## QUICK REFERENCE DATA

- Television Picture Tube
- 23" Direct Viewed
- Rectangular Glass Type
- Spherical Faceplate
- Gray Filter Glass
- Aluminized Screen
- Electrostatic Focus
- 114° Magnetic Deflection
- 1 $\frac{1}{8}$ " Neck Diameter
- No Ion Trap
- External Conductive Coating



## SYLVANIA ELECTRONIC TUBES

A Division of  
Sylvania Electric Products Inc.

### PICTURE TUBE OPERATIONS SENECA FALLS, NEW YORK

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PAGE 1 OF 3

File Under  
TELEVISION PICTURE TUBES

**MAXIMUM RATINGS (Design Maximum Values) (Continued)**

<b>Cathode Drive Service<sup>3</sup></b>		
Maximum Anode Voltage . . . . .	22,000 Volts	dc
Minimum Anode Voltage . . . . .	11,000 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 . . . . .	300 Volts	dc
<b>Cathode Voltage</b>		
Positive Bias Value . . . . .	155 Volts	dc
Positive Peak Value . . . . .	220 Volts	
Negative Bias Value . . . . .	0 Volts	dc
Negative Peak Value . . . . .	2 Volts	
<b>Peak Heater-Cathode Voltage</b>		
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**

<b>Grid Drive Service<sup>4</sup></b>		
Anode Voltage . . . . .	18,000 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 <sup>5</sup> . . . . .	-46 to -94 Volts	dc
<b>Cathode Drive Service<sup>3</sup></b>		
Anode Voltage . . . . .	18,000 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 <sup>5</sup> . . . . .	42 to 78 Volts	dc

**CIRCUIT VALUES**

Grid No 1 Circuit Resistance . . . . .	1.5 Megohms Max.
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**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 three (3) times rated heater voltage divided by rated heater current.
2. External conductive coating must be grounded.
3. Voltages are positive with respect to Grid No. 1 unless indicated otherwise.
4. Voltages are positive with respect to Cathode unless indicated otherwise.
5. Visual extinction of focused raster. For cutoff of the undeflected 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.*

OUTLINE

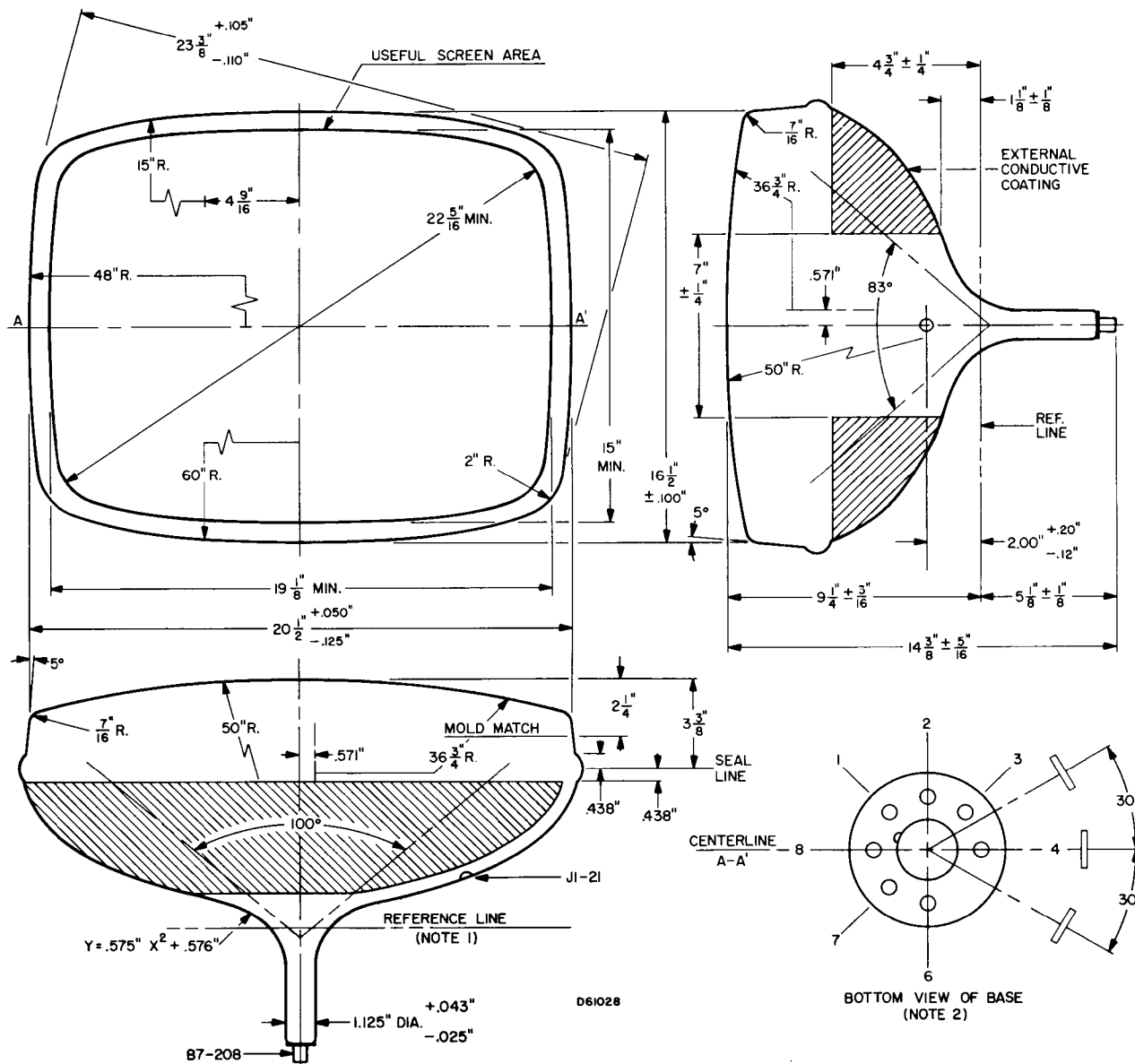


DIAGRAM NOTES:

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  $30^\circ$  and is on same side as anode contact, J1-21.