

CHARACTERISTICS

GENERAL DATA

Focusing Method	Electrostatic
Deflection Method	Magnetic
Deflection Angles (Approx.)*	
Horizontal	76 Degrees
Diagonal	87 Degrees
Vertical	62 Degrees
Phosphor	Aluminized P4
Fluorescence	White
Persistence	Short to Medium
Faceplate	Bonded Shield
(Gray Filter Glass Safety Plate Laminated Directly to Face of Tube)	
Light Transmittance of Faceplate Assembly (Approx.)	40 Percent

ELECTRICAL DATA

Heater Voltage	6.3 Volts
Heater Current	$0.60 \pm 5\%$ Ampere
Heater Warm-up Time ¹	11 Seconds
Direct Interelectrode Capacitances (Approx.)	
Cathode to All Other Electrodes	5 μf
Grid No. 1 to All Other Electrodes	6 μf
External Conductive Coating to Anode ²	2500 μf Max. 2000 μf Min.

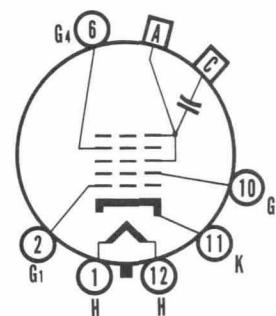
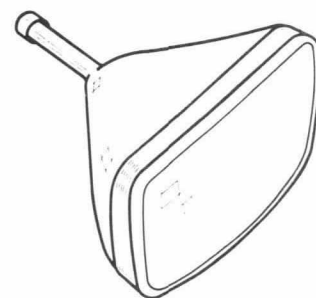
MECHANICAL DATA

Minimum Useful Screen Dimensions (Maximum Assured)	
Height	15 $\frac{1}{4}$ Inches
Width	19 $\frac{5}{16}$ Inches
Diagonal	22 $\frac{5}{16}$ Inches
Area	282 Sq. Inches
Neck Length	5 $\frac{1}{2} \pm \frac{3}{16}$ Inches
Overall Length	19 $\frac{11}{32} \pm \frac{7}{16}$ Inches
Bulb	C187 Exp. No. 2
Safety Plate	FP198A or Equiv.
Bulb Contact (Recessed Small Cavity Cap)	J1-21
Base	B6-63
Basing	12L
Weight (Approx.)	35 Pounds

*Diagonal Deflection Angle is equal to that of earlier registered 21" tubes generally known as 90° types. Horizontal and vertical deflection angles are less.

QUICK REFERENCE DATA

Television Picture Tube
23" Direct Viewed
Rectangular Glass Type
Spherical Faceplate
Bonded Shield
Gray Filter Glass
Aluminized Screen
Electrostatic Focus
90° Magnetic Deflection
No Ion Trap
External Conductive Coating



12-L

SYLVANIA ELECTRONIC TUBES

A Division of
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PAGE 1 OF 3

File Under
TELEVISION PICTURE TUBES

RATINGS

MAXIMUM RATINGS (Design Maximum Values) Grid Drive Service

	23TP4	23ACP4	
Maximum Anode Voltage	22,000	18,000 Volts	dc
Minimum Anode Voltage	12,000	8,000 Volts	dc
Grid No. 4 Voltage (Focusing Electrode)		-550 to +1100 Volts	dc
Grid No. 2 Voltage		550 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	

TYPICAL OPERATING CONDITIONS (Grid Drive Service)

Anode Voltage	16,000 Volts	dc
Grid No. 4 Voltage for Focus	0 to +400 Volts	dc
Grid No. 2 Voltage	300 Volts	dc
Grid No. 1 Voltage Required for Cutoff ³	-35 to -72 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 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. 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.

Technical drawing of a parabolic antenna assembly, showing front, side, and bottom views with detailed dimensions and labels.

Front View (Top Left):

- Labels: MOUNTING TABS, EXTERNAL CONDUCTIVE COATING, X (NOTE-3), Z, Y, A, A', USEFUL SCREEN AREA.
- Dimensions: $24\frac{45}{64}$ $\pm\frac{3}{16}$, $\frac{1}{4}$, $2\frac{13}{32}$ R, $48\frac{3}{8}$ R, $7\frac{7}{8}$, $11\frac{1}{2}$, $22\frac{1}{8}$ MIN., $35^{\circ}21'$, $9\frac{7}{8}$, $15\frac{13}{32}$ R, $4\frac{3}{16}$, $60\frac{13}{32}$ R, $19\frac{5}{8}$ MIN., $21\frac{5}{16} \pm \frac{1}{16}$.

Side View (Top Right):

- Labels: REF. LINE.
- Dimensions: $8\frac{1}{8} \pm \frac{1}{4}$, $\frac{5}{8} \pm \frac{1}{4}$, $3\frac{3}{4}$ R, $12\frac{1}{2}$, $48\frac{1}{2}$ R, $17\frac{3}{8}$ $\pm\frac{1}{16}$, $15\frac{1}{4}$ MIN., 62° , 35 R, $1\frac{1}{4}$, $4\frac{1}{8}$, $13\frac{27}{32} \pm \frac{1}{4}$, $5\frac{1}{2}$ $\pm\frac{3}{16}$, $19\frac{11}{32} \pm \frac{7}{16}$.

Bottom View (Bottom Left):

- Labels: EDGE OF SHIELD, SEAL LINE, J1-21, REFERENCE LINE (NOTE-1).
- Dimensions: $3\frac{3}{4}$ R, $50\frac{1}{4}$ R, $3\frac{3}{4}$, $35\frac{1}{4}$ R, $2\frac{3}{4}$ $\pm\frac{3}{16}$, $3\frac{1}{16}$, $4\frac{1}{4}$, 76° , 45° , $2\frac{1}{8}$ R, $17\frac{1}{8} \pm \frac{1}{16}$.

Bottom View of Base (Bottom Right):

- Label: BOTTOM VIEW OF BASE (NOTE-2).
- Dimensions: CENTERLINE-A-A', 1, 2, 12, 11, 10, 6, 8.

Other Labels:

- 86-63 (bottom left corner).

1. Reference line is determined by plane C-C' of JEDEC No. 116 Reference Line Gauge, when the gauge is seated against the bulb.
2. Base Pin No. 6 aligns with horizontal centerline (A-A') within 30° and is on same side as anode contact, J1-21.
3. 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: .758" Nom.
 - Plane of X to plane of Y = .463" $\pm$.030".
 - Plane of X to plane of Z = .970" $\pm$.030".