SYLVANIA

engineering data service

SYLVANIA
23XP4
23YP4
23BDP4
23BTP4

CHARACTERISTICS

GENERAL DATA

Focusing Method	Electrostatic
Deflection Method	Magnetic
Deflection Angles (Approx.)	
Horizontal	81 Degrees
Diagonal	92 Degrees
Vertical	66 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

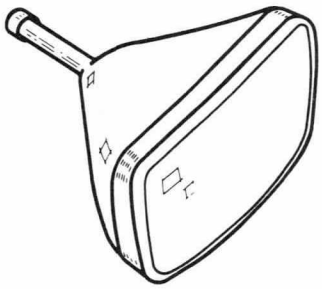
Heater Voltage	6.3 Volts	
Heater Current	0.60 ± 5 % Ampere	
Heater Warm-up Time[1]	11 Seconds	
Direct Interelectrode Capacitances (Approx.)		
Cathode to All Other Electrodes	5 $\mu\mu f$	
Grid No. 1 to All Other Electrodes	6 $\mu\mu f$	
External Conductive Coating to Anode[2]	2500 $\mu\mu f$	Max.
	2000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

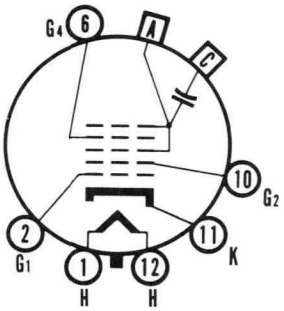
MECHANICAL DATA

Minimum Useful Screen Dimensions (Maximum Assured)	
Height	15 ¼ Inches
Width	19 5/16 Inches
Diagonal	22 5/16 Inches
Area	282 Sq. Inches
Neck Length	5 ½ ± 3/16 Inches
Overall Length	18 5/16 ± 7/16 Inches
Bulb	J187D or J187G
Safety Plate	
23BTP4, 23XP4, 23YP4	FP198A
23BDP4	FP198B
Bulb Contact (Recessed Small Cavity Cap)	J1-21
Base	B6-203
Basing	12L
Weight (Approx.)	34 ½ Pounds

QUICK REFERENCE DATA

Television Picture Tubes
23XP4: Low Voltage
23BDP4, 23BTP4, 23YP4: High Voltage
23″ Direct Viewed
Rectangular Glass Types
Spherical Faceplate
Bonded Shield
Gray Filter Glass
Aluminized Screen
Electrostatic Focus
92° Magnetic Deflection
No Ion Trap
External Conductive Coating
23BDP4: Anti-Reflection Treated





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SYLVANIA
ELECTRONIC TUBES

A Division of
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PICTURE TUBE
OPERATIONS

SENECA FALLS, NEW YORK

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RATINGS

MAXIMUM RATINGS (Design Maximum Values) Grid Drive Service

	23BDP4	23BTP4	23XP4	23YP4	
Maximum Anode Voltage	22,000	25,000	18,000	22,000 Volts	dc
Minimum Anode Voltage	12,000	15,000	8,000	12,000 Volts	dc
Grid No. 4 Voltage (Focusing Electrode)			−550 to +1100 Volts		dc
Grid No. 2 Voltage	700			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

	23BDP4 Cathode Drive Service[4]	23BTP4, 23XP4, 23YP4 Grid Drive Service	
Anode Voltage	16,000	16,000 Volts	dc
Grid No. 4 Voltage for Focus	0 to 400	0 to +400 Volts	dc
Grid No. 2 Voltage	500	300 Volts	dc
Grid No. 1 Voltage Required for Cutoff[3]		−35 to −72 Volts	dc
Cathode Voltage required for Cutoff[3]	45 to 95	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. *Visual extinction of focused raster. Extinction of stationary focused spot will require that these values be increased about 5 volts.*
4. *Voltages shown are positive with respect to Grid No. 1.*

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

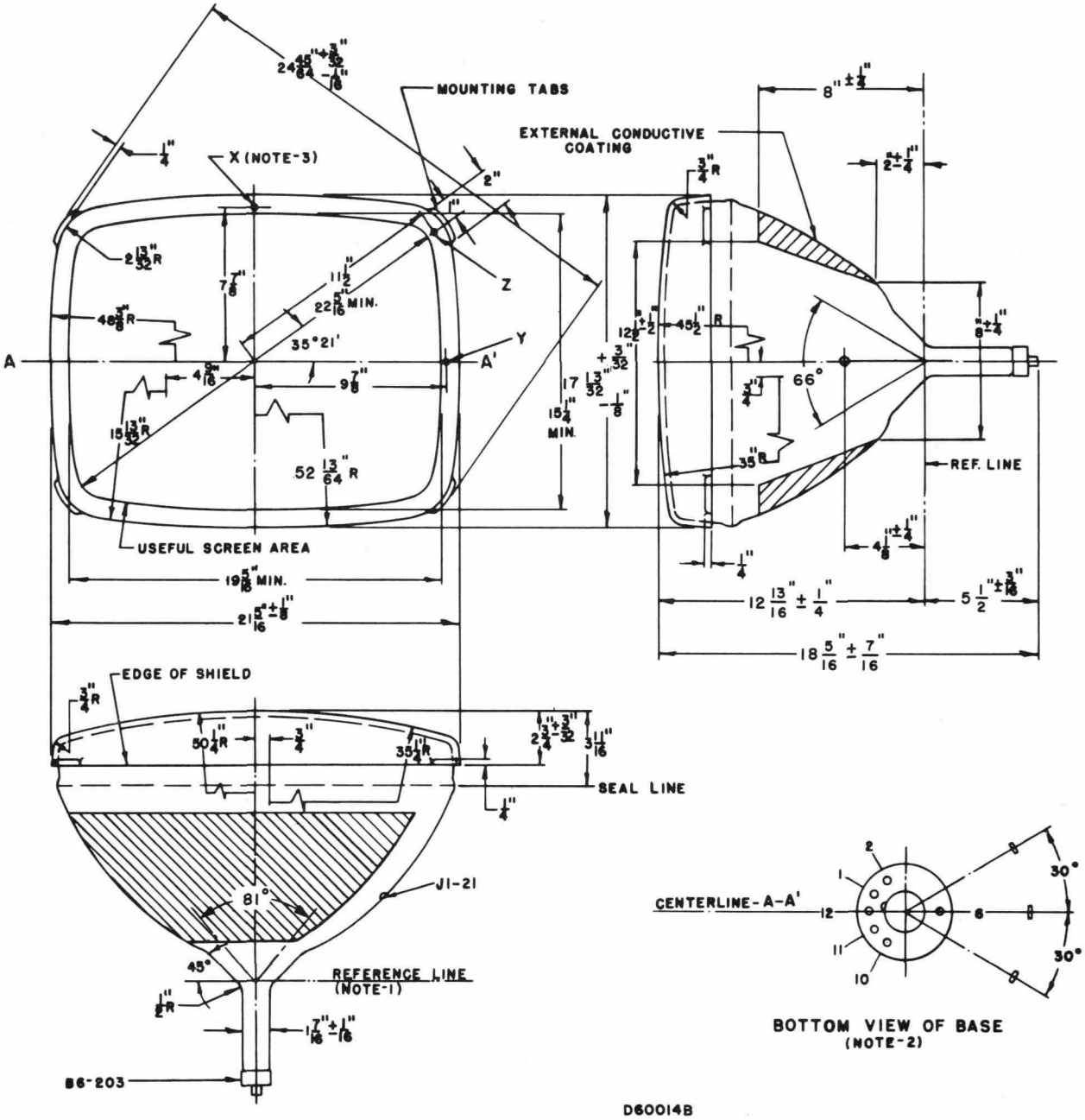

DIAGRAM NOTES:

1. *Reference line is determined by plane C-C′ of JEDEC No. 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″ ± .030″.
   Plane of X to plane of Z = .970″ ± .030″.