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engineering data service

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23JP4

CHARACTERISTICS

GENERAL DATA

Focusing Method	Electrostatic
Deflection Method	Magnetic
Deflection Angles (Approx.)	
Horizontal	99 Degrees
Diagonal	110 Degrees
Vertical	82 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	0.45 ± 5% Ampere	
Maximum Heater Voltage Range[1]	5.8 - 7.0 Volts	
Heater Warm-up Time[2]	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[3]	2500 $\mu\mu$f	Max.
	2000 $\mu\mu$f	Min.

MECHANICAL DATA

Minimum Useful Screen Dimensions (Maximum Assured)	
Height	15¼ Inches
Width	19$^{5}/_{16}$ Inches
Diagonal	22$^{5}/_{16}$ Inches
Area	282 Sq. Inches
Neck Length	5⅜ Inches
Overall Length	15$^{7}/_{16}$ Inches
Bulb	J187A1 or Equiv.
Safety Plate	FP198A1 or Equiv.
Bulb Contact (Recessed Small Cavity Cap)	J1-21
Base	B6-214
Basing	7FA
Weight (Approx.)	32½ Pounds

RATINGS

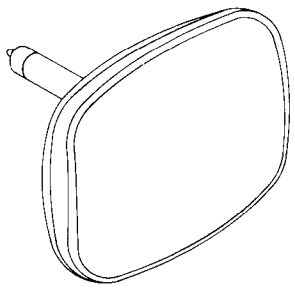
MAXIMUM RATINGS (Design Maximum Values)

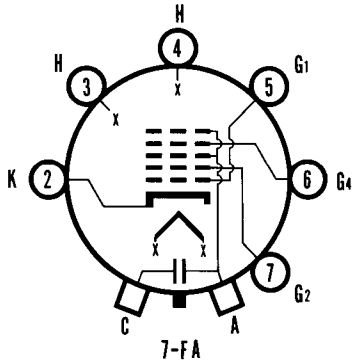
Cathode Drive Service[4]

Maximum Anode Voltage	22,000 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	70 Volts	dc
Minimum Grid No. 2 Voltage	44 Volts	dc
Cathode Voltage	100 Volts	dc
Peak Heater-Cathode Voltage		
Heater Negative with Respect to Cathode		
During Warm-up Period not to Exceed 15 Seconds	410 Volts	
After Equipment Warm-up Period	180 Volts	
Heater Positive with Respect to Cathode	180 Volts	

QUICK REFERENCE DATA

Television Picture Tube
23" Direct Viewed
Rectangular Glass Type
Spherical Faceplate
Bonded Shield
Gray Filter Glass
Aluminized Screen
Electrostatic Focus
110° Magnetic Deflection
No Ion Trap
External Conductive Coating
Low Grid No. 2 Voltage
6.3 Volt, 450 Ma Heater





7-FA

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TYPICAL OPERATING CONDITIONS (Cathode Drive Service)[4]

Anode Voltage	16,000 Volts	dc
Grid No. 4 Voltage for Focus[5 & 6]	250 Volts	dc
Grid No. 2 Voltage	50 Volts	dc
Grid No. 1 Voltage Required for Cutoff[7]	+35 to +50 Volts	dc

CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5 Megohms Max.

NOTES:

1. *Design-Maximum Values.*
2. *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.*
3. *External conductive coating must be grounded.*
4. *Unless otherwise specified, voltages are positive and measured with respect to Grid No. 1.*
5. *With the combined Grid No. 1 bias voltage and video signal voltage adjusted to give an anode current of 50 μa on a 19⁵⁄₁₆ x 15¼ pattern from an RCA 2F21 monoscope or equivalent.*
6. *Individual tubes will have satisfactory focus at some value between 0 and 500 volts.*
7. *Visual extinction of focused raster. Extinction of stationary focused spot will require that these values be about 5 volts more positive.*

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

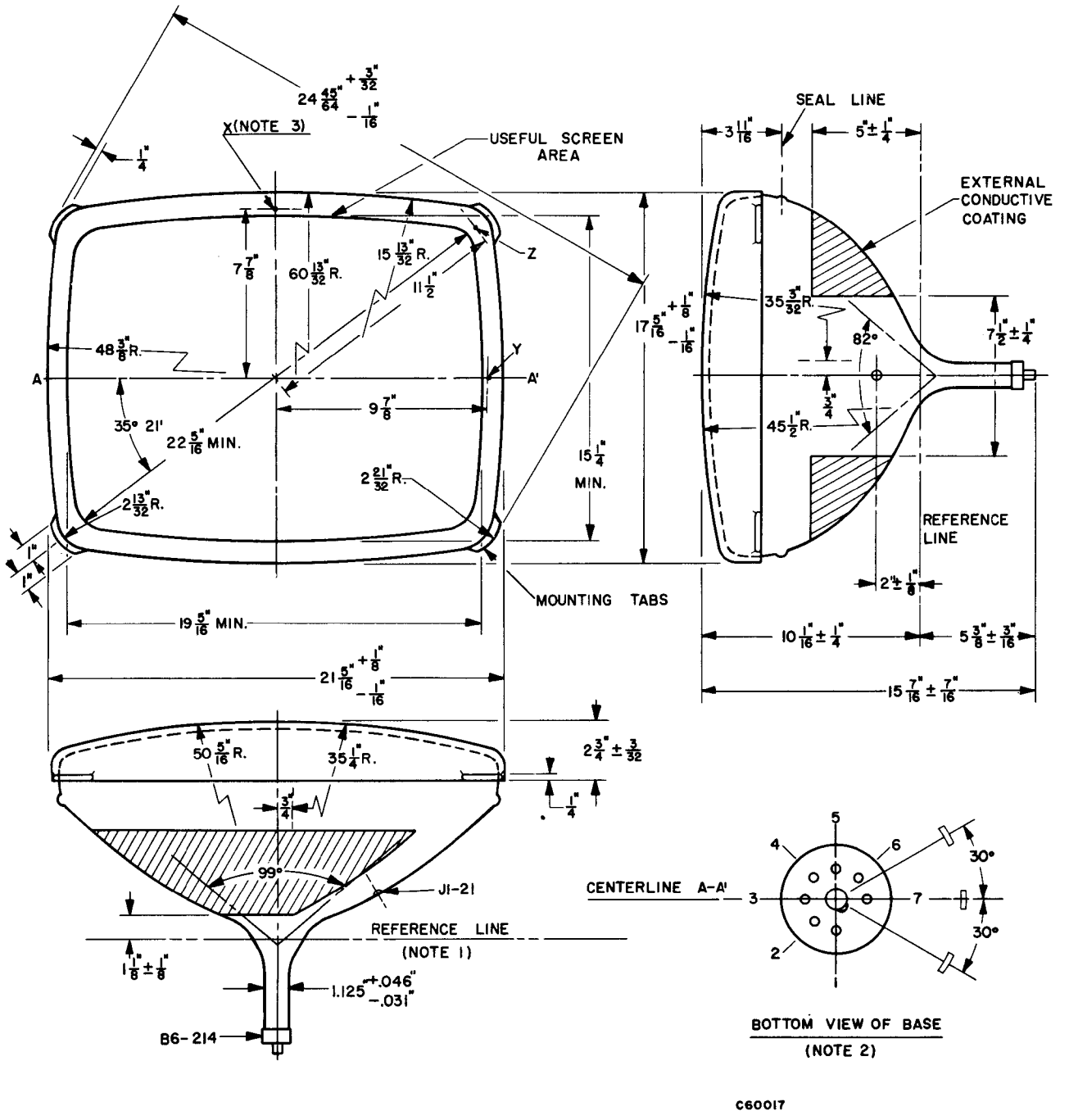

DIAGRAM NOTES:

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. 7 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".