

September 15, 1961

TELEVISION PICTURE TUBE TYPE 23BDP4

92° Magnetic Deflection
Rectangular Glass
Aluminized Screen
Gray Filter Glass

6.3 Volt, 600 Ma. Heater
Electrostatic Focus
Anti-Glare Twin-Face Panel
Integral Safety Glass

External Conductive Coating
Spherical Faceplate
No Ion Trap
15-1/4" x 19-5/16" Screen Size

ELECTRICAL:

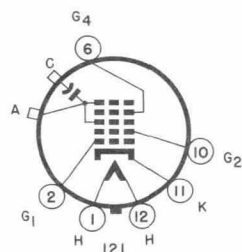
Focusing Method	Low Voltage Electrostatic
Deflection Method	Magnetic
Deflection Angles (Approx.):	
Horizontal	80 Degrees
Vertical	65 Degrees
Diagonal	92 Degrees
Direct Interelectrode Capacitances:	
Cathode to all other electrodes, (Approx.)	5 $\mu\mu\text{f}$
Grid 1 to all other electrodes, (Approx.)	6 $\mu\mu\text{f}$
External Conductive Coating to Anode:	
Maximum	2500 $\mu\mu\text{f}$
Minimum	2000 $\mu\mu\text{f}$
Heater Current at 6.3 volts	600 $\pm$ 5% Ma.
Heater Warm-up Time [⊕]	11 Seconds

OPTICAL:

Phosphor Number	Aluminized P4
Light Transmittance at Center, Approximate	40 Percent

MECHANICAL:

Overall Length	18-5/16 $\pm$ 7/16	Inches
Greatest Dimensions of Tube:		
Diagonal	24-45/64 + 3/32 - 1/16	Inches
Width	21-5/16 $\pm$ 1/8	Inches
Height	17-13/32 + 3/32 - 1/8	Inches
Minimum Useful Screen Dimensions (Projected):		
Diagonal	22-5/16	Inches
Horizontal	19-5/16	Inches
Vertical	15-1/4	Inches
Area	282	Sq. Inches
Neck Length	5-1/2 $\pm$ 3/16	Inches
Bulb	J187D1	
Anti-Glare Laminated Panel	FP198B1	
Bulb Contact	J1-21	
Base	B6-203	
Basing	12L	
Weight	34-1/2	Pounds



RATINGS:

Design Maximum System

Unless Otherwise Specified, Voltage Values are Positive with Respect to Grid 1.

Maximum Anode Voltage	22000	Volts
Minimum Anode Voltage [▲]	12000	Volts
Maximum Grid 4 Voltage (Focusing Electrode)	+1100, -550	Volts
Maximum Grid 2 Voltage	700	Volts
Cathode Voltage:		
Maximum Negative Value	0	Volts DC
Maximum Negative Peak Value	2	Volts
Maximum Positive Value	154	Volts DC
Maximum Positive Peak Value	220	Volts

Maximum 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:

CATHODE DRIVE SERVICE:

Unless Otherwise Specified, All Voltage Values are Positive with Respect to Grid 1.

Anode Voltage	16000	Volts DC
Grid 4 Voltage (Focusing Electrode)	0 to 400	Volts DC
Grid 2 Voltage [□]	500	Volts DC
Cathode Voltage for raster cutoff	45 to 95	Volts DC

LIMITING CIRCUIT VALUES:

Maximum Grid 1 Circuit Resistance	1.5	Megohms
Minimum Grids 2 & 4 Circuit Resistance [†]	10000	Ohms

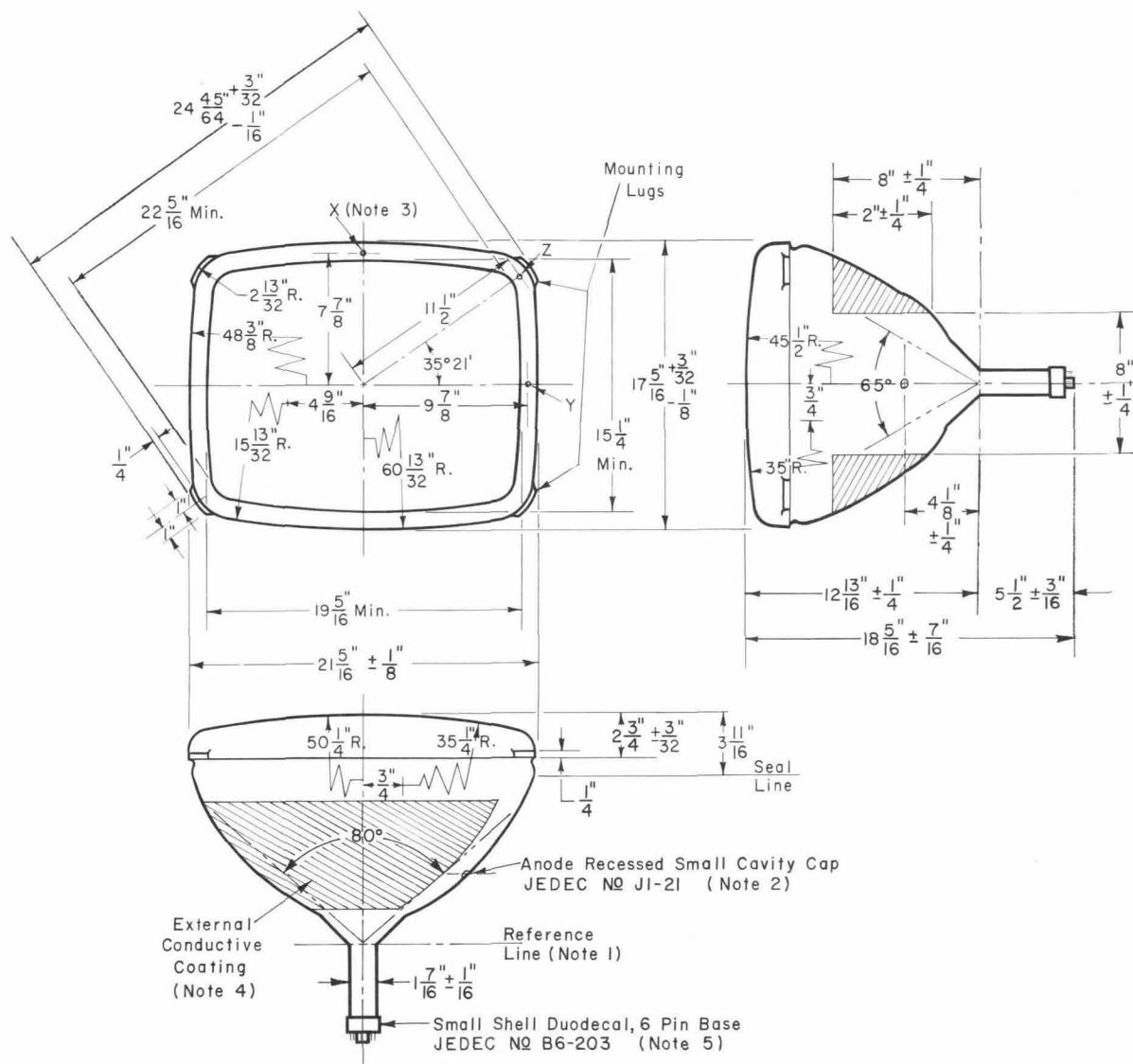
[⊕] Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.

[▲] Brilliance and definition decrease with decreasing anode voltage. Operation with anode voltage less than 12000 volts is not recommended.

[†] Protective resistance in the grid 2 and grid 4 (focus electrode) circuits is advisable to prevent damage to the tube.

X-RAY WARNING: Operation with voltages in excess of 16KV may require shielding to limit radiation of very soft x-rays.

[□] It is recommended that not less than 300 volts on Grid 2 be used, as resolution is affected at lower voltages.



NOTE 1: Yoke Reference Line is determined by plane C-C' of JEDEC Reference-Line Gauge No. 116 when seated on funnel of tube. With a minimum neck length tube, the PM centering magnet (0 to 8 gauss) should extend no more than 2-3/4" from Yoke Reference Line.

NOTE 2: Base pin 6 aligns with major axis within 30° and is on same side as anode terminal.

NOTE 3: Planes perpendicular to the axis and passing through points X, Y and Z are determined as follows:

Plane tangent to crown of face, to plane of X = 0.758° nom.

Plane of X to plane of Y = $0.463 \pm 0.030^\circ$.

Plane of X to plane of Z = $0.970 \pm 0.030^\circ$.

NOTE 4: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 5: The socket should not be mounted rigidly, but should be allowed to move freely and have flexible leads. The associated wiring should not impress lateral strains on the base pins. The bottom circumference of the base wafer will lie within a circle concentric with the bulb axis and having a diameter of 2-3/4".

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