

October 1, 1961

TELEVISION PICTURE TUBE TYPE 23MP4A

114° Magnetic Deflection
Rectangular Glass
Aluminized Screen
Gray Filter Glass

6.3 Volt, 600 Ma. Heater
Electrostatic Focus

External Conductive Coating
Spherical Faceplate
No Ion Trap
15-1/8" × 19-1/4" Screen Size

ELECTRICAL:

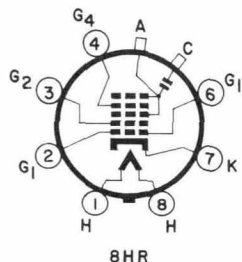
Focusing Method	Low Voltage Electrostatic
Deflection Method	Magnetic
Deflection Angles (Approx.):	
Horizontal	102 Degrees
Vertical	84 Degrees
Diagonal	114 Degrees
Direct Interelectrode Capacitances:	
Cathode to all other electrodes, (Approx.)	5 $\mu\mu\text{f}$
Grid 1 to all other electrodes, (Approx.)	6 $\mu\mu\text{f}$
External Conductive Coating to Anode:	
Maximum	2500 $\mu\mu\text{f}$
Minimum	1700 $\mu\mu\text{f}$
Heater Current at 6.3 Volts	600 + 5% Ma.
Heater Warm-up Time (Note 1)	11 Seconds

OPTICAL:

Phosphor Number	Aluminized P4
Light Transmittance at Center, Approximate	78 Percent

MECHANICAL:

Overall Length	14-3/8 ± 5/16	Inches
Greatest Dimensions of Tube:		
Diagonal	23-25/64 + 3/32 - 1/8	Inches
Width	20-1/2 + 1/16 - 1/8	Inches
Height	16-1/2 ± 1/8	Inches
Minimum Useful Screen Dimensions (Projected):		
Diagonal	22-5/16	Inches
Horizontal Axis	19-1/4	Inches
Vertical Axis	15-1/8	Inches
Area	282 Sq. Inches	
Neck Length	5-1/8 ± 1/8	Inches
Bulb	J187B1	
Bulb Contact	J1-21	
Base	B7-208	
Basing	8HR	
Weight	24 Lbs.	



RATINGS:

Design Maximum System

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

Maximum Anode Voltage	23500	Volts
Minimum Anode Voltage (Note 2)	11000	Volts
Maximum Grid 4 Voltage (Focusing Electrode)	+1250, -400	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.

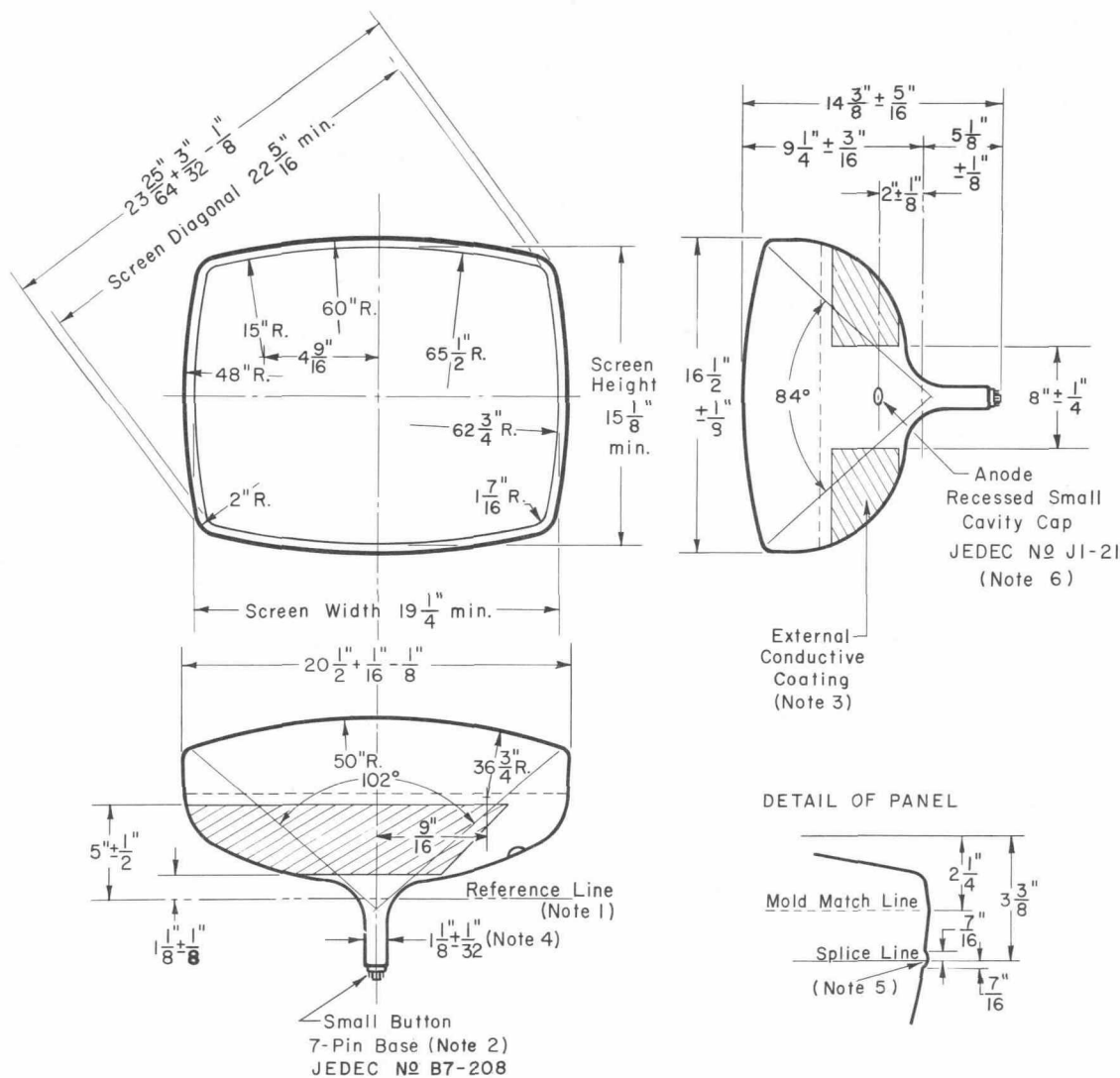
Anode Voltage	20000	Volts DC
Grid 4 Voltage (Focusing Electrode)	0 to 400	Volts DC
Grid 2 Voltage (Note 3)	500	Volts DC
Cathode Voltage for raster cutoff	45 to 95	Volts DC

LIMITING CIRCUIT VALUES:

Maximum Grid 1 Circuit Resistance	1.5	Megohms
Minimum Grids 2 & 4 Circuit Resistance (Note 4)	10000	Ohms

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 3 times rated heater voltage divided by rated heater current.
2. Brilliance and definition decrease with decreasing anode voltage. Operation with anode voltage less than 11000 volts is not recommended.
3. It is recommended that not less than 300 volts on grid 2 be used, as resolution is affected at lower voltages.
4. 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.



NOTE 1: Yoke Reference Line is determined by plane C-C¹ of JEDEC Reference-Line Gauge No. 126 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 $2\frac{1}{8}''$ from Yoke Reference Line.

NOTE 2: Lateral strains on the base pins must be avoided. The socket should have flexible leads permitting free movement. The perimeter of the base wafer will be inside a $1\frac{3}{4}''$ diameter circle concentric with tube axis.

NOTE 3: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 4: Neck diameter may be a maximum of $1.168''$ at the splice.

NOTE 5: Anode terminal alignment with pin 4 has angular tolerance about tube axis of $\pm 30^\circ$.

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