

March 1, 1962

TELEVISION PICTURE TUBE TYPE 23CQP4

114° Magnetic Deflection
Rectangular Glass
Aluminized Screen
Gray Filter Glass

Electrostatic Focus
Short Neck Length

External Conductive Coating
Spherical Faceplate
No Ion Trap
19-1/4" x 15-3/16" Screen Size

ELECTRICAL:

Focusing Method	Electrostatic
Deflection Angles (Approx.):	
Horizontal	102 Degrees
Vertical	84 Degrees
Diagonal	114 Degrees
Direct Interelectrode Capacitances:	
Cathode to all other electrodes, approximate	5 $\mu\mu\text{f}$
Grid #1 to all other electrodes, approximate	6 $\mu\mu\text{f}$
External Conductive Coating to Anode	2500 max. $\mu\mu\text{f}$
	2000 min. $\mu\mu\text{f}$
Heater Current at 6.3 volts	450 $\pm$ 5% Ma.
Heater Warm-up Time $\oplus$	11 Seconds

OPTICAL

Phosphor Number	Aluminized P4
Light Transmittance at Center, (Approx.)	78 Percent

MECHANICAL:

Overall Length	13-5/8 $\pm$ 5/16 Inches
Greatest Dimensions of Tube:	
Diagonal	23-25/64 $\pm$ 3/32 - 1/8 Inches
Width	20-1/2 $\pm$ 1/16 - 1/8 Inches
Height	16-1/2 $\pm$ 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	4-3/8 $\pm$ 1/8 Inches
Bulb Contact	J1-21
Base	B7-208
Basing	8HR
Weight	24 Lbs.

RATINGS

Design Maximum System

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

Maximum Anode Voltage	23500 Volts
Minimum Anode Voltage	12,000 Volts
Maximum Grid 4 Voltage	+1100 -550 Volts
Maximum Grid 2 Voltage	700 Volts
Minimum Grid 2 Voltage	200 Volts

Cathode Voltage:

Maximum Negative Bias Value	0 Volts
Maximum Negative Peak Value	2 Volts
Maximum Positive Bias Value	154 Volts
Maximum Positive Peak Value	220 Volts
Maximum Heater Voltage	6.93 Volts
Minimum Heater Voltage	5.67 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	17,000 Volts DC
Grid 4 Voltage (Focusing Electrode) $\square$	250 Volts DC
Grid 2 Voltage	500 Volts DC
Cathode Voltage for raster cutoff.	45 to 95 Volts DC

LIMITING CIRCUIT VALUES

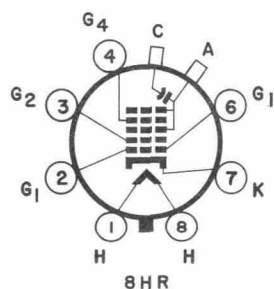
Maximum Grid #1 Circuit Resistance	1.5 Megohms
Minimum Grids 2 & 4 Circuit Resistance $\blacksquare$	10000 Ohms

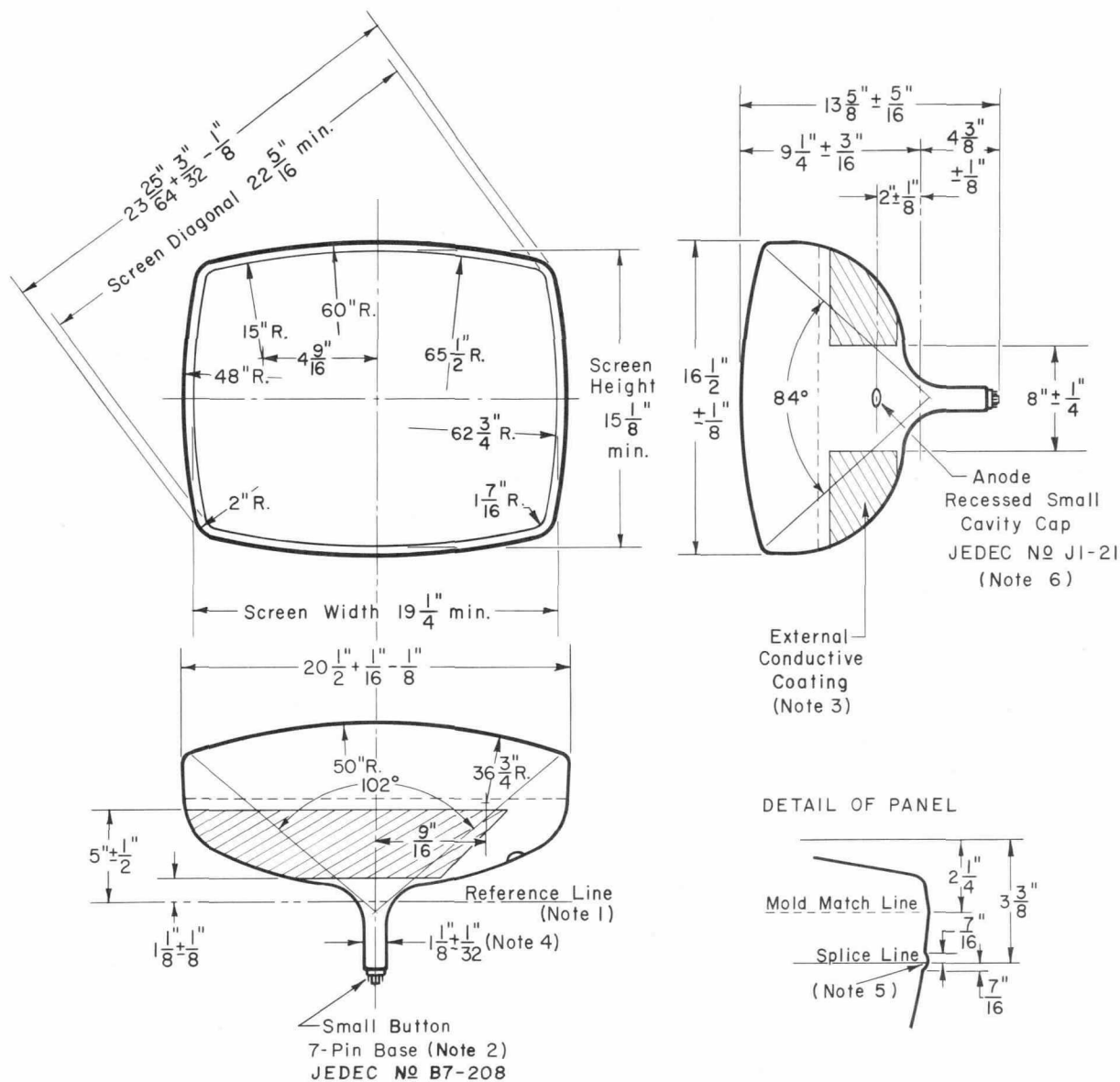
$\square$ With the combined grid 1 bias voltage and video-signal voltage adjusted to give an anode current of 150 microamperes on a 15-3/16" x 19-1/4" pattern from type 2F21 Monoscope or equivalent. Individual tubes will have satisfactory focus at some value between 0 and 400 volts.

$\blacksquare$ Protective resistance in the grid 2 and grid 4 (focus electrode) circuit is advisable to prevent damage.

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

$\oplus$ 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.





NOTE 1: Yoke Reference Line is determined by plane surface of flared end 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 2-1/8" 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 1-3/4" 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: Splice-line seal bulge may protrude a maximum of 1/16" from dimension surface at any point around the seal.

NOTE 6: Anode terminal alignment with pin 4 has angular tolerance about tube axis of $\pm 30^\circ$.