

October 15, 1959

TWIN PANEL TELEVISION PICTURE TUBE TYPE 23BP4

110° Magnetic Deflection
Rectangular Glass
Aluminized
Gray Filter Glass

Twin Face Panel, Integral Safety Glass
Electrostatic Focus
Extremely Short Neck Length

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

GENERAL:

Deflection Method	Magnetic
Focusing Method	Electrostatic
Deflection Angles (approx.)	
Diagonal	110°
Horizontal	99°
Vertical	82°
Screen	
Phosphor	Aluminized P4
Fluorescence	White
Persistence	Short
Faceplate	Spherical Gray Filter Glass
Laminated Panel	FP198A1
Light Transmission (approx.)	40%
Weight	31 Pounds

ELECTRICAL:

Heater	
Voltage	6.3 Volts
Current	0.6 Ampere
Warm-up Time□	11 Seconds
Direct Interelectrode Capacitances:	
Grid 1 to all other electrodes	6 μμf
Cathode to all other electrodes	5 μμf
External Conductive Coating	
Maximum	2500 μμf
Minimum	2000 μμf

MECHANICAL:

Mounting Position	Any
Screen Dimensions	
Screen Area	282 sq. in. Min.
Height	15-1/4" Min.
Width	19-5/16" Min.
Diagonal	22-5/16" Min.
Bulb Dimensions	
Bulb	J187A1
Height	17-5/16" + 1/8" - 1/16"
Width	21-5/16" + 1/8" - 1/16"
Diagonal	24-45/64" + 3/32" - 1/16"
Overall Length	14-7/16" ± 3/8"
Neck Length	4-3/8" ± 1/8"
Anode Terminal	Recessed Small Cavity Cap (JEDEC J1-21)
Base	Small Button 7-Pin (JEDEC B7-208)
Basing	8HR

MAXIMUM RATINGS:

Design Center Values

Anode Voltage▲	20000 max. Volts
Grid 4 Voltage	
Positive Value	1000 max. Volts
Negative Value	500 max. Volts
Grid 2 Voltage	500 max. Volts
Grid 1 Voltage	
Negative Peak Value	200 max. Volts
Negative Bias Value	140 max. Volts
Positive Bias Value	0 max. Volts
Positive Peak Value	0 max. Volts
Peak Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	
During Warm-up Period of 15 Sec. Max.	410 max. Volts
After Equipment Warm-up Period	180 max. Volts
Heater Positive with Respect to Cathode	180 max. Volts

TYPICAL GRID DRIVE OPERATING CONDITIONS:

Anode Voltage	14000 Volts
Grid 4 Voltage	0 to + 400 Volts
Grid 2 Voltage⊕	450 Volts
Grid 1 Voltage for Raster Cutoff	-45 to -105 Volts

LIMITING CIRCUIT VALUES:

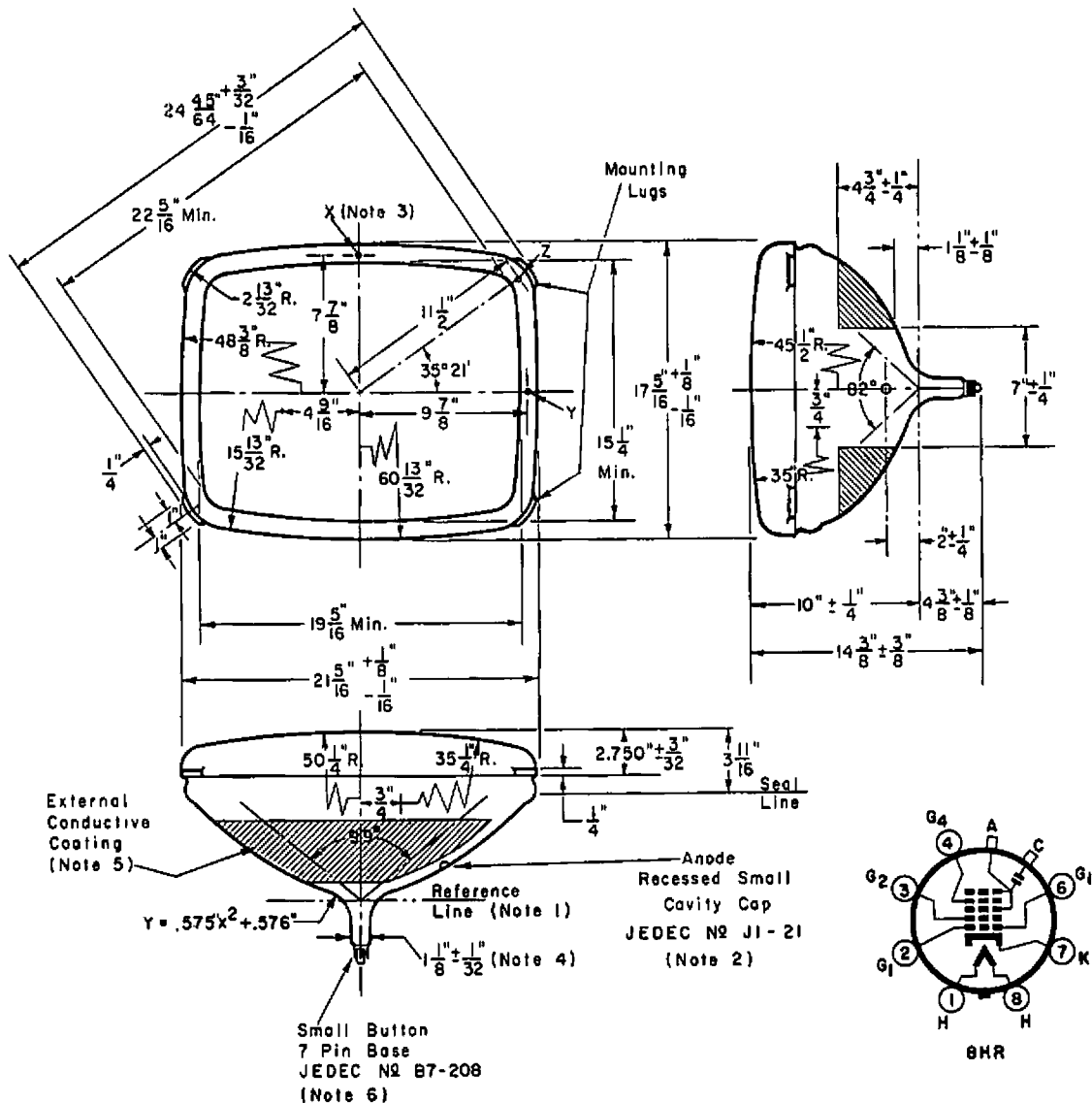
Grid 1 Circuit Resistance	1.5 max. Megohms
Grid 2 Circuit Resistance▲	10000 min. Ohms
Grid 4 Circuit Resistance▲	10000 min. Ohms

▲ Brilliance and definition decrease with decreasing anode voltage. In general, anode voltage should not be less than 12,000 volts.

▲ Protective resistance in the G2 and G4 circuits is advisable to prevent damage to the tube.

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

□ 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: With the tube neck inserted through the flared end of Reference Line Gauge JETEC No. 126 and with the tube seated in the gauge, the reference line is determined by the intersection of the plane face of the flared end of the gauge with the tube funnel. With a minimum neck length tube, the PM centering magnet (0 to 8 gauss) should extend no more than 2-1/8" from the yoke reference line.

NOTE 2: Base pin 4 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 ± 0.030 ".

Plane of X to plane of Z = 0.970 ± 0.030 ".

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

NOTE 5: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 6: 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 1-3/4".