

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:

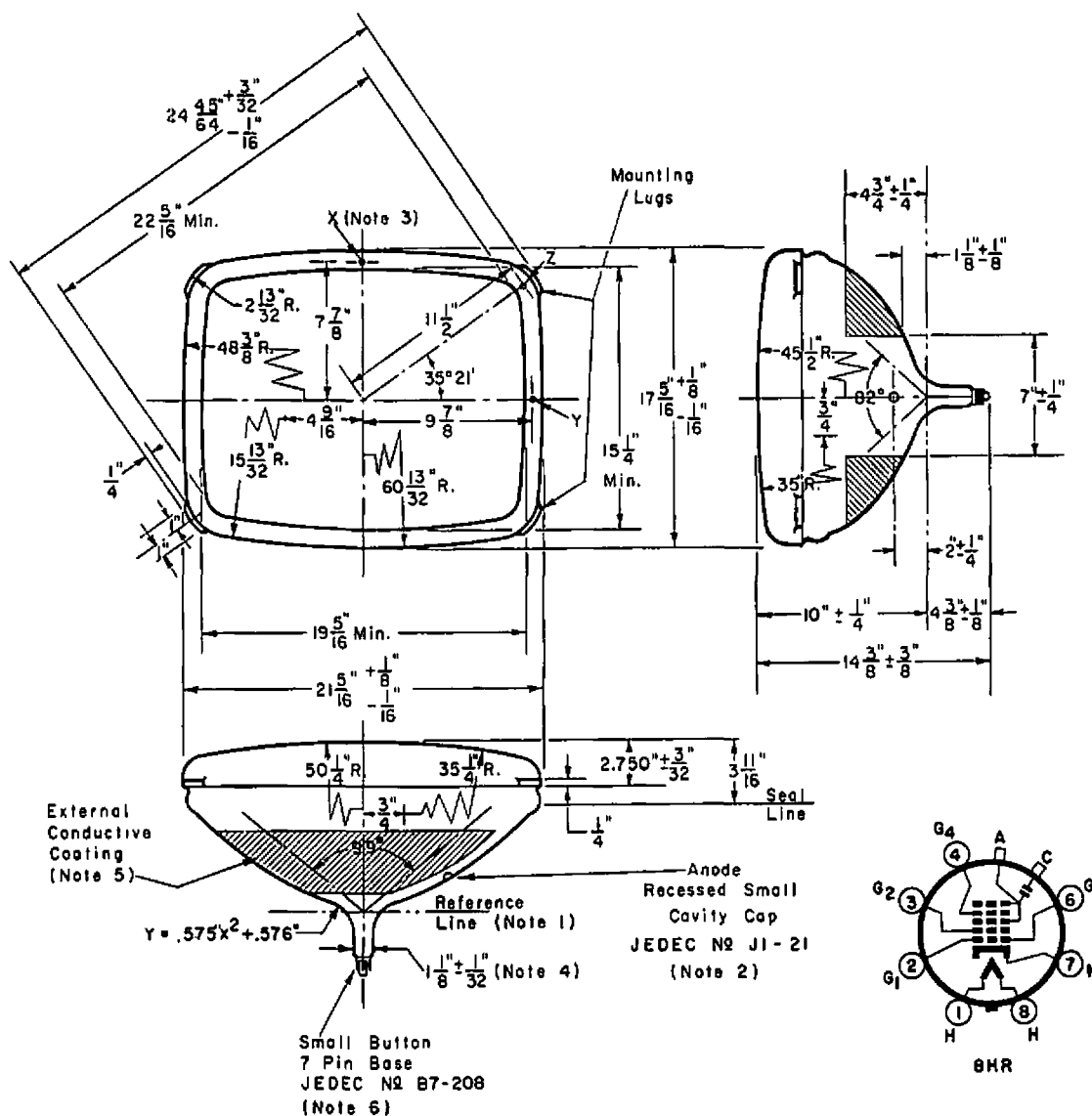
Grid 1 Circuit Resistance 1.5 max. Megohms
Grid 2 Circuit Resistance ▲ 10000 min. Ohms
Grid 4 Circuit Resistance ▲ 10000 min. Ohms

▲ 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 $2 \frac{1}{8}$ " 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 $1 \frac{3}{4}$ ".