

July 1, 1962

## TELEVISION PICTURE TUBE TYPE 23DJP4

110° Magnetic Deflection  
Rectangular Glass  
Aluminized Screen  
Gray Filter Glass

6.3 Volt, 300 Ma. Heater  
Electrostatic Focus  
Anti-Glare Twin-Face Panel  
Integral Safety Glass

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

### ELECTRICAL

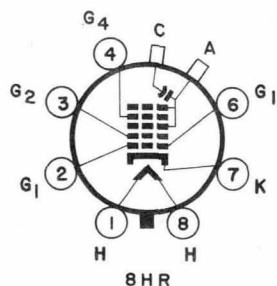
|                                                      |                           |
|------------------------------------------------------|---------------------------|
| Focusing Method . . . . .                            | Low Voltage Electrostatic |
| Deflection Method . . . . .                          | Magnetic                  |
| Deflection Angles (Approx.):                         |                           |
| Horizontal . . . . .                                 | 99 Degrees                |
| Vertical . . . . .                                   | 82 Degrees                |
| Diagonal . . . . .                                   | 110 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 . . . . .                | 300 $\pm$ 5% Ma.          |
| Heater Warm-up Time (Note 1) . . . . .               | 11 Seconds                |

### OPTICAL

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

### 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                                  |
| Anti-Glare Laminated Panel . . . . . | FP198B1                                 |
| Weight . . . . .                     | 31 lbs.                                 |
| 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 . . . . .             | 14-3/16" $\pm$ 3/8"                     |
| Neck Length . . . . .                | 4-1/8" $\pm$ 1/8"                       |
| Anode Terminal . . . . .             | Recessed Small Cavity Cap (JEDEC J1-21) |
| Base . . . . .                       | Small Button 7-Pin (JEDEC B7-208)       |
| Basing . . . . .                     | 8HR                                     |



### RATINGS

#### Design Maximum System

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

|                                                       |             |          |
|-------------------------------------------------------|-------------|----------|
| Maximum Anode Voltage . . . . .                       | 22000       | Volts    |
| Minimum Anode Voltage (Note 2) . . . . .              | 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.

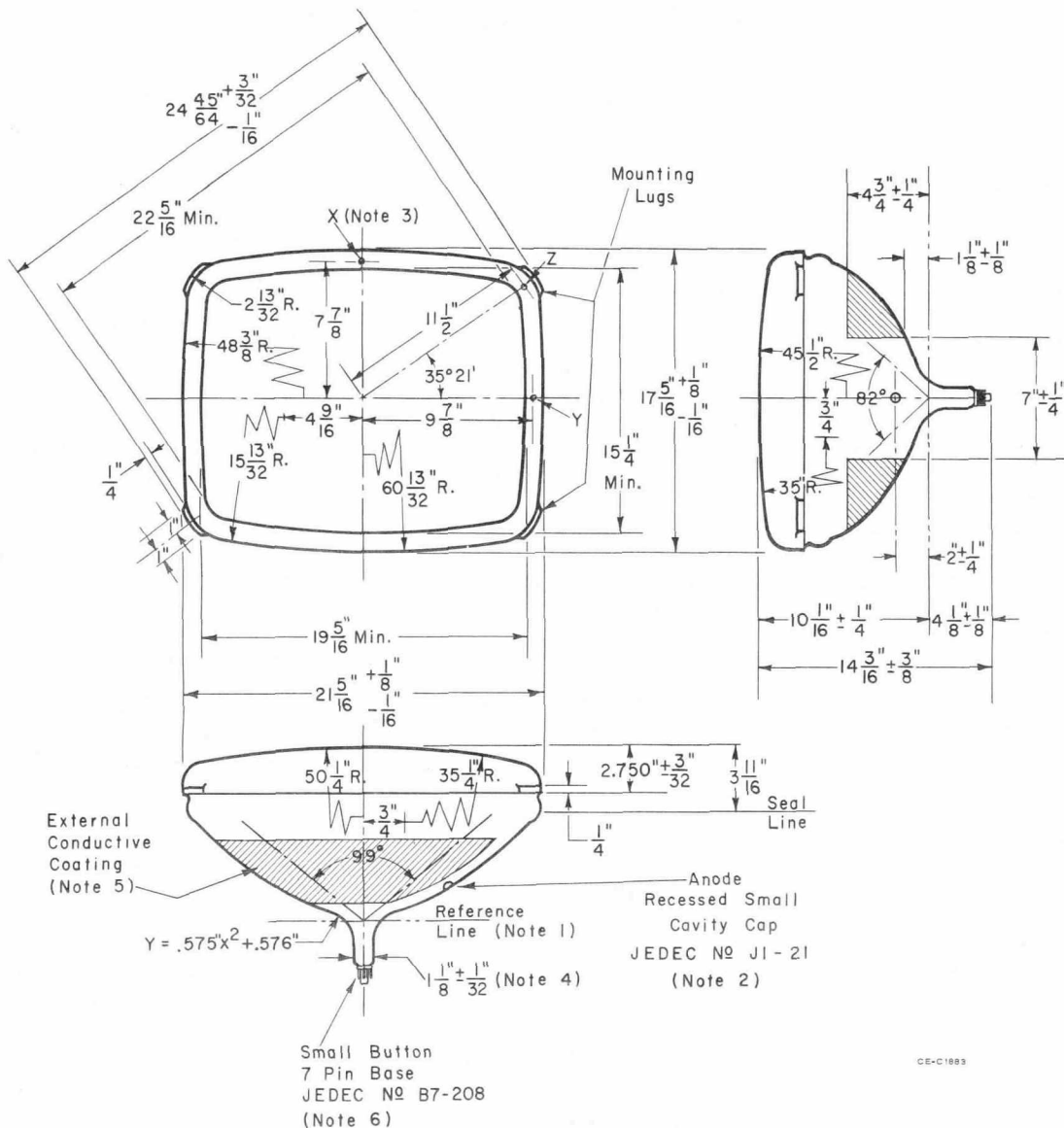
|                                               |          |          |
|-----------------------------------------------|----------|----------|
| Anode Voltage . . . . .                       | 16000    | Volts DC |
| Grid 4 Voltage (Focusing Electrode) . . . . . | 0 to 400 | Volts DC |
| Grid 2 Voltage (Note 3) . . . . .             | 400      | Volts DC |
| Cathode Voltage for Raster Cutoff . . . . .   | 36 to 78 | Volts DC |

### LIMITING CIRCUIT VALUES

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

### NOTES

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. In general, anode voltage should not be less than 12,000 volts.
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 G2 and G4 circuits is advisable to prevent damage to the tube.



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: Base pin 4 aligns with major axis within  $30^\circ$  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 =  $0.463 \pm 0.030$ ".

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

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".

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