

September 15, 1961

## TELEVISION PICTURE TUBE TYPE 23ASP4

92° Magnetic Deflection  
Rectangular Glass  
Aluminized Screen  
Gray Filter Glass

6.3 Volt, 600 Ma. Heater  
Electrostatic Focus  
Short Neck Length

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

### ELECTRICAL:

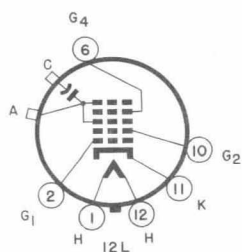
|                                            |                           |
|--------------------------------------------|---------------------------|
| Focusing Method                            | Low Voltage Electrostatic |
| Deflection Method                          | Magnetic                  |
| Deflection Angles (Approx.):               |                           |
| Horizontal                                 | 80 Degrees                |
| Vertical                                   | 65 Degrees                |
| Diagonal                                   | 92 Degrees                |
| Direct Interelectrode Capacitances:        |                           |
| Cathode to all other electrodes, (Approx.) | 5 $\mu\text{f}$           |
| Grid 1 to all other electrodes, (Approx.)  | 6 $\mu\text{f}$           |
| External Conductive Coating to Anode:      |                           |
| Maximum                                    | 2500 $\mu\text{f}$        |
| Minimum                                    | 1700 $\mu\text{f}$        |
| Heater Current at 6.3 volts                | 600 $\pm$ 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                                | 17 $\pm$ 3/8          | 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 $\pm$ 1/8      | Inches     |
| Minimum Useful Screen Dimensions (Projected): |                       |            |
| Diagonal                                      | 22-5/16               | Inches     |
| Horizontal                                    | 19-1/4                | Inches     |
| Vertical                                      | 15-1/8                | Inches     |
| Area                                          | 282                   | Sq. Inches |
| Neck Length                                   | 4-1/2 $\pm$ 3/16      | Inches     |
| Bulb                                          | J187C1                |            |
| Bulb Contact                                  | J1-21                 |            |
| Base                                          | B6-203                |            |
| Basing                                        | 12L                   |            |
| Weight                                        | 27                    | Pounds     |



### 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)              | 11000       | Volts |
| Maximum Grid 4 Voltage (Focusing Electrode) | +1200, -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.

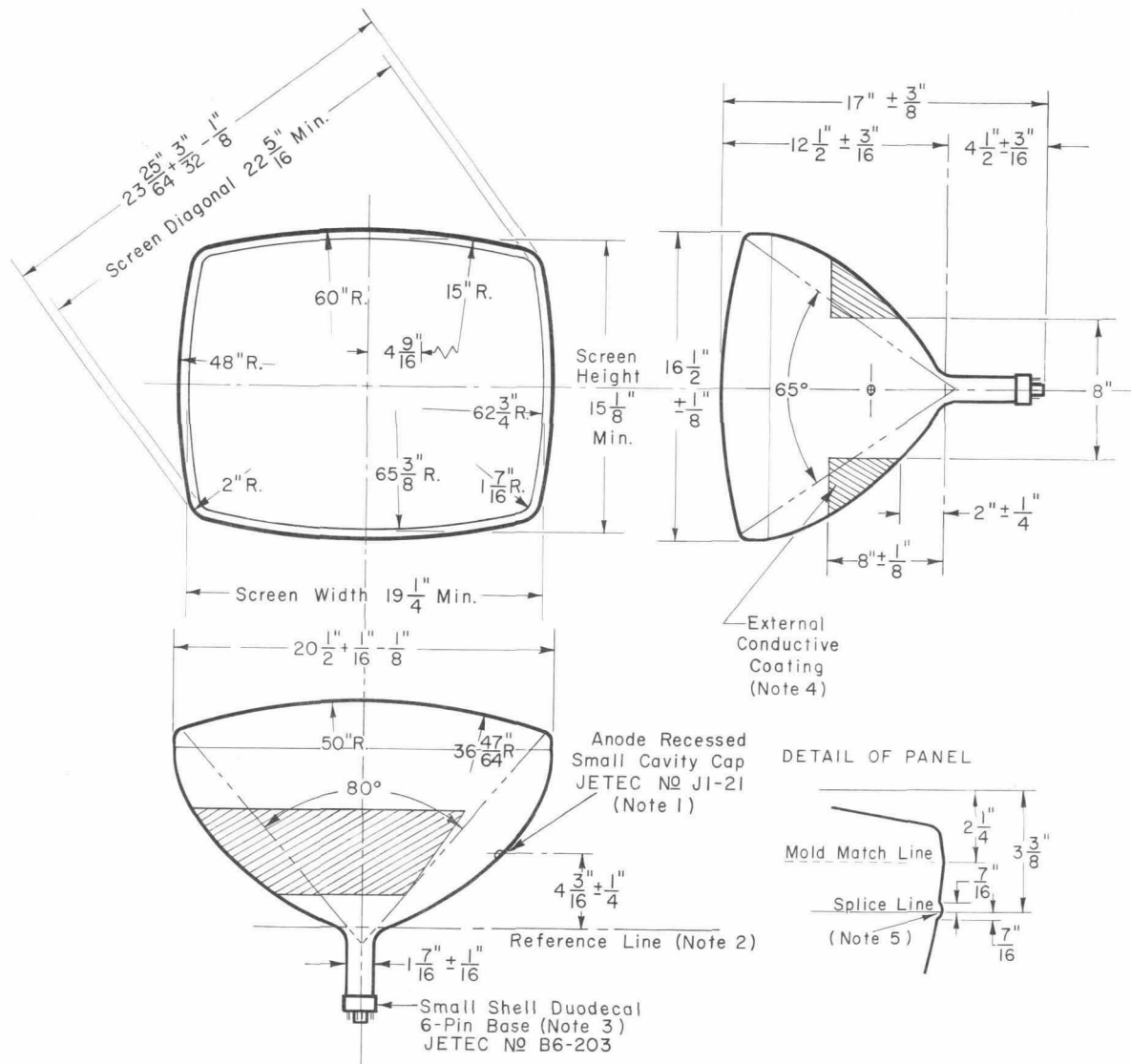
|                                     |          |          |
|-------------------------------------|----------|----------|
| Anode Voltage                       | 18000    | Volts DC |
| Grid 4 Voltage (Focusing Electrode) | 0 to 400 | Volts DC |
| Grid 2 Voltage (Note 3)             | 500      | Volts 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 12000 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: Base pin 6 aligns with major axis within 30° and is on same side as anode terminal.

NOTE 2: Yoke Reference Line is determined by plane C-C<sup>1</sup> of JEDEC Reference-Line Gauge No. 116 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 2-3/4" from Yoke Reference Line.

NOTE 3: 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 2-3/4".

NOTE 4: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 5: Splice-line seal bulge may protrude a maximum of 1/16" from dimension surface at any point around the seal.

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