

February 25, 1958

## TELEVISION PICTURE TUBE TYPE 24ATP4

90° Deflection  
 Rectangular Glass  
 Magnetic Deflection  
 Cathode Drive Design

Electrostatic Focus  
 No Ion Trap  
 Aluminized

21-1/2" x 16-31/32" Picture  
 Spherical Faceplate  
 External Conductive Coating  
 Low G<sub>2</sub> (50 Volts)

### ELECTRICAL:

Cathode	Coated Unipotential
Heater:	
Voltage(ac or dc)	6.3 Volts
Current	0.6 Ampere
Warm-up Time	11.0 Seconds
Direct Interelectrode Capacitances:	
Grid 1 to all other Electrodes	6 uuf
Cathode to all other Electrodes	5 uuf
External Conductive Coating to Anode:	
Maximum	2500 uuf
Minimum	2000 uuf
Screen:	
Phosphor	Aluminized P4
Fluorescence	White
Persistence	Short
Focusing Method	Electrostatic
Deflection Method	Magnetic
Horizontal Angle, approx.	85°
Vertical Angle, approx.	68°
Diagonal Angle, approx.	90°
No Ion Trap Gun	No Magnet Required

### MECHANICAL:

Mounting Position	Any
Screen Dimensions:	
Height	16-31/32" Min.
Width	21-1/2" Min.
Diagonal	22-13/16" Min.
Faceplate Spherical Outer and Inner Surfaces	
Glass	Neutral Filter
Transmission	73 per cent
Bulb Dimensions:	
Height	18-7/16" ± 3/16"
Width	22-11/16" ± 3/16"
Diagonal	24" ± 3/16"
Overall Length	19-1/8" ± 3/8"
Anode Terminal	Recessed Small Cavity Cap (JETEC J1-21)
Base	Small Shell Duodecal 6-Pin (JETEC B6-63)
Bulb Number	J192A2

### MAXIMUM RATINGS, Cathode Drive Service:

Design Center Values		
Anode Voltage †	20000 max.	Volts
Grid 4 to Grid 1 Voltage:		
Positive Value	1000 max.	Volts
Negative Value	500 max.	Volts
Grid 2 to Grid 1 Voltage	68 max.	Volts
Cathode to Grid 1:		
Negative Bias Value	140 max.	Volts
Positive Bias Value	0 max.	Volts
Positive Peak Value	0 max.	Volts
Peak Heater-Cathode Voltage:		
Heater Positive with Respect to Cathode	180 max.	Volts
Heater Negative with Respect to Cathode#	180 max.	Volts

### TYPICAL OPERATING CONDITIONS, Cathode Drive Service:

Anode Voltage	14000	18000	Volts
Grid 2 to Grid 1 Voltage	50	50	Volts
Grid 4 to Grid 1 Voltage for Focus with anode Current of 200 uampers	-50 to 350	0 to 400	Volts
Cathode to Grid 1 Voltage for Visual Extinction of Focused Raster*	+32 to +47	+34 to +49	Volts

### LIMITING CIRCUIT VALUES:

Grid 1 Circuit Resistance	1.5 max.	Megohms
Grid 2 Circuit Resistance**	0.1 min.	Megohms
Grid 4 Circuit Resistance**	0.1 min.	Megohms

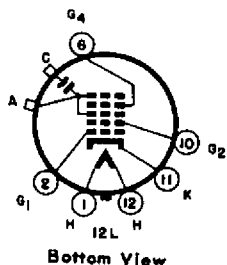
# A peak value of 410 volts design center maximum may be applied for not more than 15 seconds during equipment warm-up periods.

† Brilliance and definition decrease with decreasing anode voltage. In general, anode voltage should not be less than 12000 volts.

\* Raster size is 21-1/2" x 16-31/32".

\*\*Protective resistance in the G<sub>2</sub> and G<sub>4</sub> circuits is advisable to prevent damage to the tube.

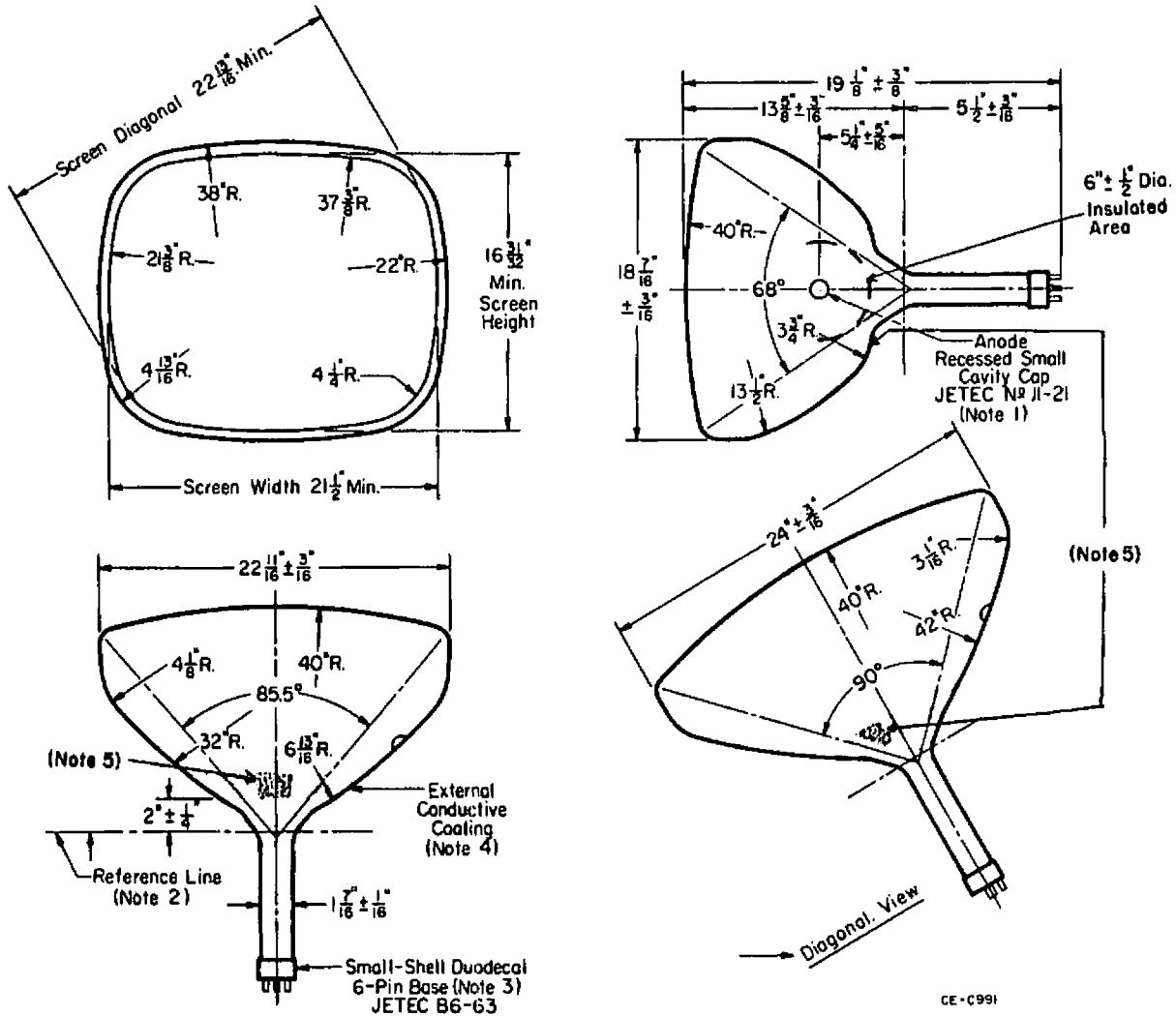
Inasmuch as the tube rating permits operation at voltages as high as 22 kilovolts (absolute value), shielding of the tube for x-ray radiation may be needed whenever the operating conditions involve voltage in excess of 16 kilovolts.



A - Grids 3 & 5, Collector.  
 C - External Conductive Coating

Cathode Ray Tube Section

OUTLINE DRAWING



CE-C991

NOTE 1: The plane through the tube axis and the base pin No. 6 may vary from the plane through the tube axis and the bulb terminal by an angular tolerance of  $\pm 30^\circ$  measured about the tube axis. The bulb terminal is on the same side of the tube as pin No. 6.

NOTE 2: With the tube neck inserted through the flared end of REFERENCE-Line Gauge (JETEC No. 116) and with the tube seated in the gauge, the reference line is determined by the intersection of the plane cc' (face of the flared end) of the gauge with the glass funnel.

NOTE 3: The socket should not be mounted rigidly but it should be allowed to move freely and it should have flexible leads. The bottom circumference of the base shell will lie within a circle concentric with the bulb axis and having a diameter of  $2\frac{3}{4}''$ .

NOTE 4: External conductive coating must be grounded.

NOTE 5: Contact area of external conductive coating  $2''$  min. x  $2''$  min. located  $2'' \pm \frac{1}{4}''$  from Reference Line  $90^\circ$  counterclockwise from anode button as viewed from base end of tube.