

### TELEVISION PICTURE TUBE TYPE 21EMP4

110° Magnetic Deflection  
 Rectangular Glass  
 Aluminized  
 Neutral Gray Glass

4-3/16" Neck Length

External Conductive Coating  
 Spherical Faceplate  
 No Ion Trap  
 19-1/16" x 15-1/16" Picture

#### ELECTRICAL:

Cathode . . . . .	Coated Unipotential
Heater:	
Voltage (ac or dc) . . . . .	6.3 Volts
Current . . . . .	0.60 Ampere
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 P-4
Fluorescence . . . . .	White
Persistence . . . . .	Short
Focusing Method . . . . .	Low Voltage Electrostatic
Deflection Method . . . . .	Magnetic
Horizontal Angle . . . . .	105°
Vertical Angle . . . . .	87°
Diagonal Angle . . . . .	110°
No Ion Trap . . . . .	No Magnet Required

#### MECHANICAL:

Mounting Position . . . . .	Any
Screen Dimensions: Minimum	
Height . . . . .	15-1/16"
Width . . . . .	19-1/16"
Diagonal . . . . .	20-1/4"
Area . . . . .	262 sq. Inches
Faceplate . . . . .	Spherical
Glass . . . . .	Neutral Gray
Transmission . . . . .	74%
Bulb Dimensions:	Bulb No. J171H1 or Equiv.
Height . . . . .	16-3/8" ± 1/8"
Width . . . . .	20-1/4" ± 1/8"
Diagonal . . . . .	21-3/8" ± 1/8"
Overall Length . . . . .	13-3/16" ± 5/16"
Neck Length . . . . .	4-3/16" ± 1/8"
Anode Terminal . . . . .	JETEC J1-21
Base . . . . .	JETEC B7-208
Basing . . . . .	8HR
Net Weight . . . . .	23 Pounds

#### MAXIMUM RATINGS:

Design Center Values	
Anode Voltage . . . . .	18000▲ max. Volts
Grid 4 Voltage:	
Positive Value . . . . .	1000 max. Volts
Negative Value . . . . .	500 max. Volts
Grid 2 Voltage . . . . .	500 max. Volts
Grid 1 Voltage:	
Positive Bias Value . . . . .	0 max. Volts
Positive Peak Value . . . . .	0 max. Volts
Negative Bias Value . . . . .	140 max. Volts
Negative Peak Value . . . . .	200 max. Volts
Peak Heater-Cathode Voltage:	
Heater Negative with respect to Cathode #. . . . .	180 max. Volts
Heater Positive with respect to Cathode #. . . . .	180 max. Volts

#### TYPICAL OPERATING CONDITIONS:

Anode Voltage▲ . . . . .	16000 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 4 Resistance to Voltage Source■ . . . . .	10000 min. Ohms
Grid 2 Resistance to Voltage Source■ . . . . .	10000 min. Ohms
Grid 1 Circuit Resistance . . . . .	1.5 max. Megohms

◆ Operation with anode voltage or anode to grid 1 voltage less than 11000 volts is not recommended.

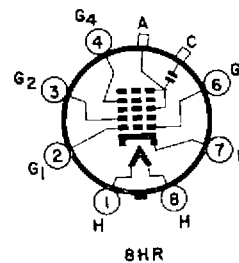
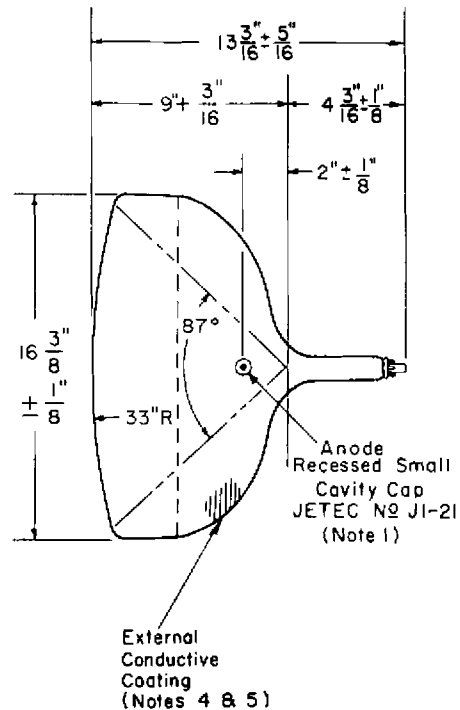
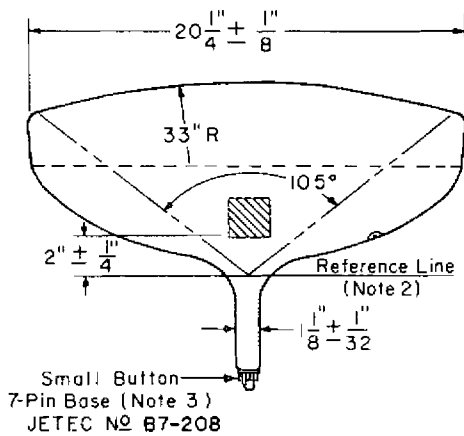
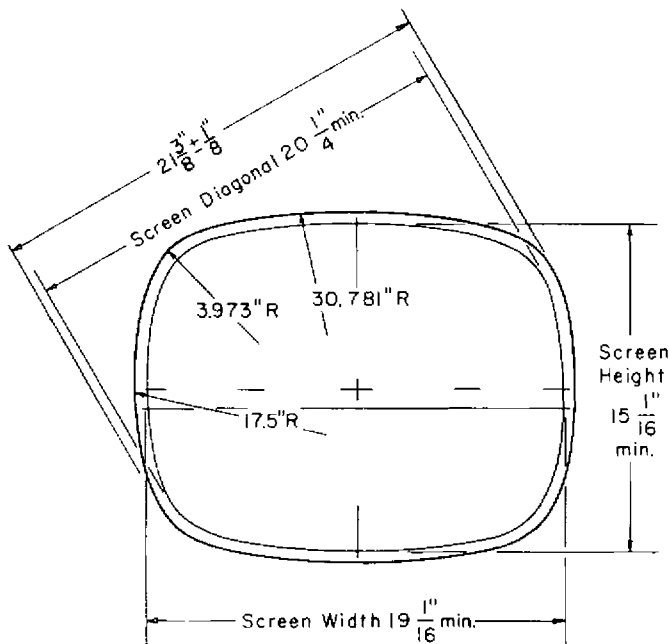
■ It is recommended that Grid 2 be operated at a voltage greater than 300 volts since resolution is affected at lower voltages.

■ Protective resistance in the grid 4 and grid 2 circuits is advisable to prevent damage to the tube. If applicable, one resistor common to both circuits may be used.

▲ Inasmuch as the tube rating permits operation at voltages as high as 19.8 kilovolts (absolute value), shielding of the tube for x-ray radiation may be needed when operating conditions involve voltages in excess of 16 kilovolts.

# During 15 second warmup period this value may be 410 max. volts.

Note: 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.



CE-C1415

NOTE 1: The plane through the tube axis and base pin 4 may vary from the plane through the tube axis and the anode terminal by an angular tolerance of  $\pm 30^\circ$ . The anode terminal is on the same side of the tube as pin 4.

NOTE 2: 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.

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  $1\frac{3}{4}$ ".

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

NOTE 5: Contact area of external conductive coating  $2$ " min.  $\times$   $2$ " min. located  $2\frac{1}{8} \pm \frac{1}{4}$ " from Reference Line  $90^\circ$  counterclockwise from anode button as viewed from base end of tube.