

21FMP4

21 INCH, RECTANGULAR, GLASS	19-1/16 BY 15-1/16 INCH PICTURE SIZE
FOCUS-----ELECTROSTATIC	FACEPLATE-----SPHERICAL, GRAY
DEFLECTION-----MAGNETIC	NON ION-TRAP GUN
110 DEGREE DEFLECTION ANGLE	ALUMINIZED SCREEN
LOW GRID NO. 2 VOLTAGE TYPE FOR CATHODE DRIVE OPERATION	EXTERNAL CONDUCTIVE COATING

**-DESCRIPTION AND RATING-**

The 21FMP4 is a 21 inch electrostatic-focus and magnetic deflection glass picture tube. Outstanding features include a short over-all length, a small neck diameter and a non ion-trap gun designed to be operated at a low Grid No. 2 voltage for cathode drive. The fluorescent screen is aluminized to increase light output and reduce undesirable screen charging. An external conductive coating is provided to serve as a filter capacitor when grounded.

## ELECTRICAL DATA

Focusing Method . . . . .	Electrostatic
Deflection Angles, Approximate	
Horizontal. . . . .	105 degrees
Vertical. . . . .	87 degrees
Diagonal. . . . .	110 degrees
Direct Interelectrode Capacitances	
Cathode to all other electrodes, approximate . . .	5 $\mu$ uf
Grid #1 to all other electrodes, approximate. . .	6 $\mu$ uf
External Conductive Coating to Anode. . . . .	2500 max. $\mu$ uf 2000 min. $\mu$ uf
Heater Current at 6.3 volts . . . . .	600 $\pm$ 30 ma
Heater Warm-up Time . . . . .	11 seconds

## OPTICAL DATA

## CATHODE RAY TUBE DEPARTMENT

# GENERAL ELECTRIC

Syracuse, N. Y.

MECHANICAL DATA

Overall Length . . . . .	14 3/8 ± 5/16 inches
Greatest Dimensions of Tube	
Diagonal . . . . .	21 3/8 ± 1/8 inches
Width . . . . .	20 1/4 ± 1/8 inches
Height . . . . .	16 3/8 ± 1/8 inches
Minimum Useful Screen Dimensions (Projected)	
Diagonal . . . . .	20 1/4 inches
Horizontal Axis . . . . .	19 1/16 inches
Vertical Axis . . . . .	15 1/16 inches
Area . . . . .	262 sq. inches
Neck Length . . . . .	5 1/8 ± 3/16 inches
Bulb . . . . .	J171G1
Bulb Contact . . . . .	J1-21
Basing . . . . .	B7-237 or B7-208
Bulb Contact Alignment . . . . .	8HR
Anode Contact aligns with pin position No. 4	

RATINGS (Design Maximum System)

Unless otherwise specified, voltage values are positive and measured with respect to cathode.

Maximum Anode Voltage. . . . .	22,000 volts
Minimum Anode Voltage . . . . .	15,000 volts
Maximum Grid #4 (Focusing Electrode) Voltage. . .	-500 to +1000 volts
Maximum Grid #2 Voltage . . . . .	100 volts
Minimum Grid #2 Voltage . . . . .	40 volts
Grid #1 Voltage	
Maximum Negative Value . . . . .	140 volts DC
Maximum Negative Peak Value. . . . .	200 volts
Maximum Positive Value. . . . .	0 volts DC
Maximum Positive Peak Value . . . . .	2 volts
Maximum Heater Voltage . . . . .	6.9 volts
Minimum Heater Voltage . . . . .	5.7 volts
Maximum Heater-Cathode Voltage	
Heater negative with respect to cathode	
During warm-up period not to exceed 15 sec. . .	410 volts
After equipment warm-up period . . . . .	180 volts
Heater positive with respect to cathode . . . . .	180 volts

TYPICAL OPERATING CONDITIONS (Cathode Drive Service)

Unless otherwise specified, all voltage values are positive with respect to Grid #1.

Anode Voltage . . . . .	18,000 volts
Grid #4 Voltage (Focusing Electrode, Notes 2 & 3). .	250 volts DC
Grid #2 Voltage . . . . .	50 volts DC
Cathode Voltage (Note 1)	31 to 49 volts DC

MAXIMUM CIRCUIT VALUES

Maximum Grid #1 Circuit Resistance	1.5 max. megohm
Grid #2 Circuit Resistance	0.1 min. megohm
Focusing Electrode Circuit Resistance	0.1 min. megohm

NOTES:

1. Visual extinction of focused raster.
2. With the combined Grid #1 bias voltage and video-signal voltage adjusted to give an anode current of 150 microamperes on a 19 1/4 X 15 1/4" pattern from RCA 2F21 Monoscope or equivalent.
3. Individual tubes will have satisfactory focus at some value between 0 and 500 volts.

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# 2IFMP4

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**SCREEN DIMENSIONS**

DIAGONAL	20 1/4
WIDTH	19 1/16
HEIGHT	15 1/16
AREA	262 SQ. IN

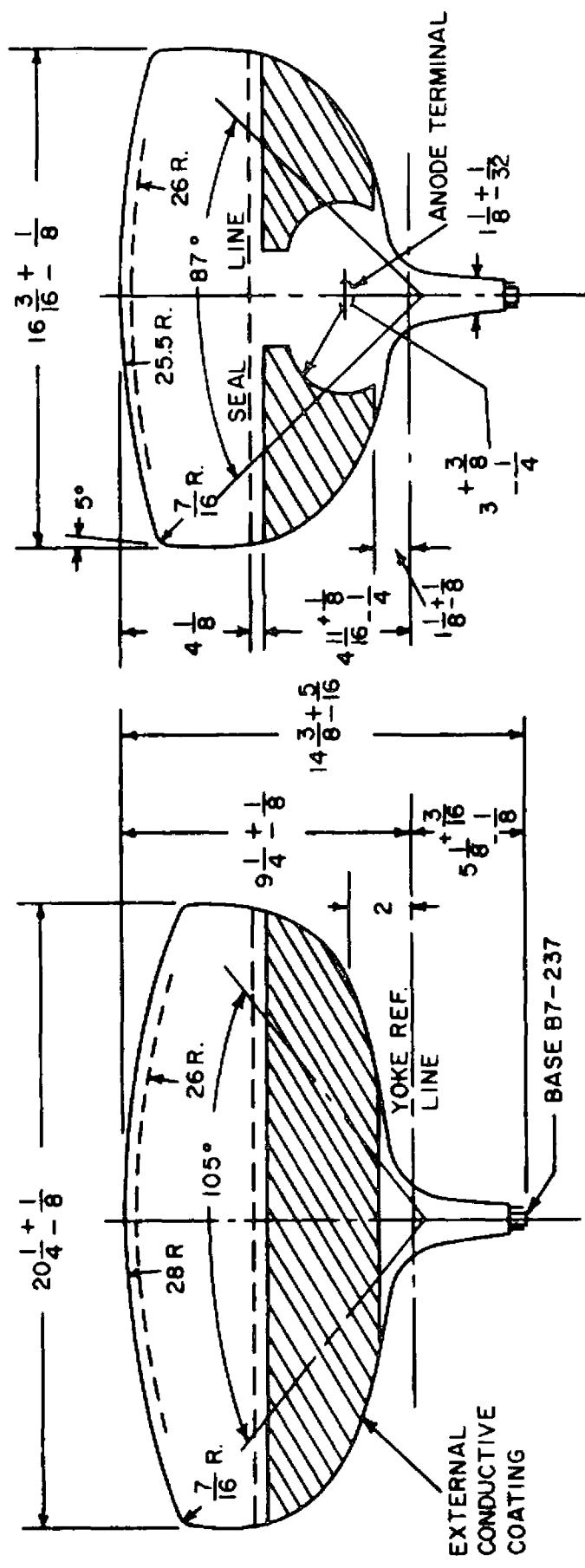
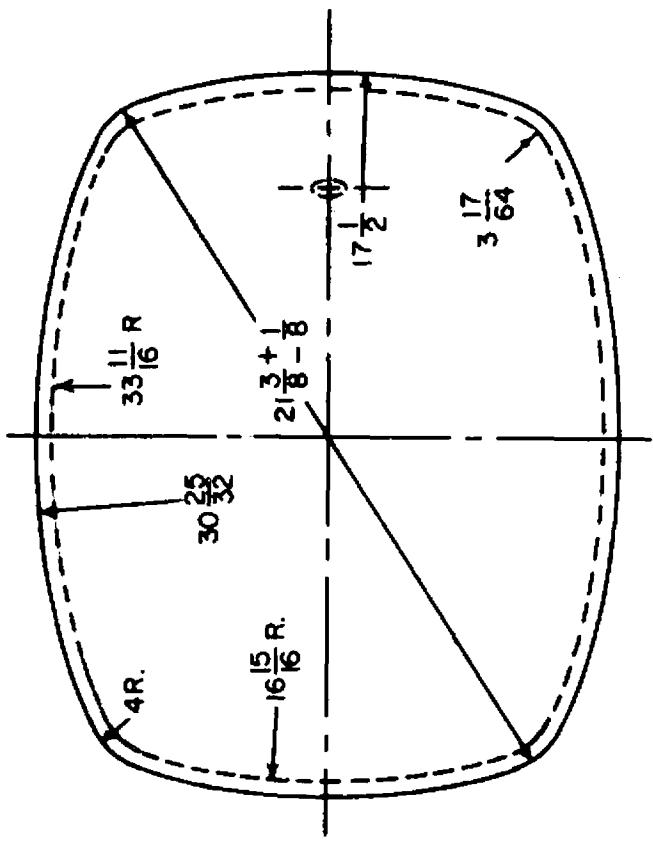
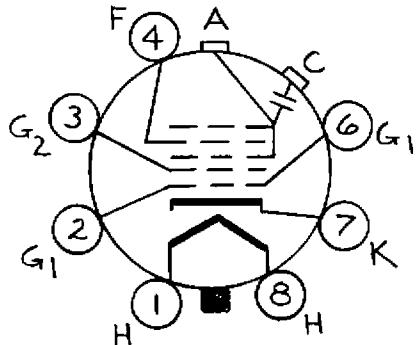


Diagram Notes

1. The reference line is determined by the intersection of the plane C-C of gage (EIA No. 126) with the glass funnel.
2. Deflection angle on the diagonal is  $110^{\circ}$ .
3. Anode terminal aligns with pin No. 4  $\pm 30$  degrees.
4. Use a non-rigidly mounted socket with flexible leads. Bottom circumference of base wafer will fall within 1-3/4 inch diameter circle concentric with the bulb axis.



BASING DIAGRAM  
8HR

CATHODE RAY TUBE DEPARTMENT  
GENERAL ELECTRIC COMPANY  
SYRACUSE, NEW YORK