

NATIONAL VIDEO CORPORATION

CATHODE RAY TUBE TYPE 21FP4C

Rel 1231 21FP4C

The type 21FP4C is a low voltage electrostatic focus and magnetic deflection, direct view picture tube for television applications. It has an all glass, rectangular bulb. The faceplate has a cylindrical contour, and is made of gray glass. The electron gun is designed to be used with an external ion-trap magnet. The tube has a metal backed screen to increase light output and an outer conductive coating which serves as a high voltage filter capacitor when grounded.

GENERAL CHARACTERISTICS

Electrical Data

Heater Voltage	6.3	Volts
Heater Current	0.6 $\pm$ 10%	Ampere
Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Deflection Angle (Approx.) Horizontal	65	Degrees
Diagonal	70	Degrees
Face Plate Light Transmission (Neutral Density Filter)	71%	Approx.
Phosphor	No. 4	
Fluorescence	White	
Persistence	Medium	
Direct Inter-electrode Capacitances (Approx.)		
Cathode to all other electrodes	5	uuf
Grid No. 1 to all other electrodes	6	uuf
External Conductive Coating to Anode	750	Max. uuf
	500	Min. uuf

MECHANICAL DATA

Overall Length	23 $\pm$ 3/8	Inches
Greatest Dimensions of Bulb:		
Diagonal	21-3/16 $\pm$ 3/16	Inches
Width	20-1/4 $\pm$ 3/16	Inches
Height	15-9/16 $\pm$ 3/16	Inches
Screen Size	19-1/8 x 13 -7/8	Inches
Bulb Contact	J1-21	
Base	E6-63	
Basing	12L	
J1-21 Contact aligns with pin position 6	$\pm$ 30	Degrees

MAXIMUM RATINGS Design Center Values

Anode Voltage ¹	18,000	Max. Volts D.C.
Grid No. 4 Voltage	-500 to + 1,000	Max. Volts D.C.
Grid No. 2 Voltage	500	Max. Volts D.C.
Grid No. 1 Voltage		
Negative Bias Value	125	Max. Volts D.C.
Positive Bias Value	0	Max. Volts D.C.
Positive Peak Value	2	Max. Volts

Peak Heater-Cathode Voltage

Heater negative with respect to cathode

during warm-up period not to exceed 15 seconds

410 Max. Volts D.C.

After equipment warm-up

180 Max. Volts D.C.

Heater positive with respect to cathode

180 Max. Volts D.C.

TYPICAL OPERATING CONDITIONS

Anode Voltage

14,000 Volts D.C.

Grid No. 4 Voltage²-56 to $\pm$ 310 Volts D.C.

Grid No. 2 Voltage .

300 Volts D.C.

Grid No. 1 Voltage³

-28 to -72 Volts D.C.

Ion-Trap Magnet Current ⁴ (Approx.)

75 Ma. D.C.

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance

1.5 Max. Megohms

NOTES

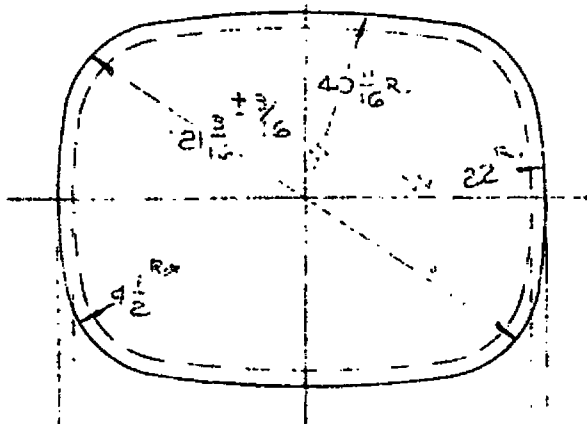
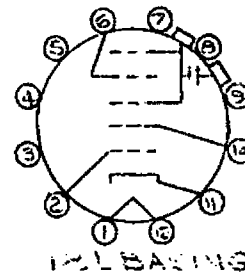
¹Because the rating of the tube permits anode voltages as high as 19.8 kilovolts (absolute maximum), shielding of X-radiation from the tube may be necessary. This precaution should be observed when the anode is operated in excess of 16 kilovolts.

²With the combined grid 1 bias and video signal voltage adjusted to produce an anode current of 100 ua on a 17 x 12-3/4 inch picture adjusted for best overall focus. For other anode voltages, the focus voltage will be from -0.4 to $\pm$ 2.2% of the anode voltage.

³Visual extinction of focused raster. Visual extinction of undeflected, focused spot is in general 5 volts more negative.

⁴For JETEC #111 single-field ion-trap magnet at optimum position.

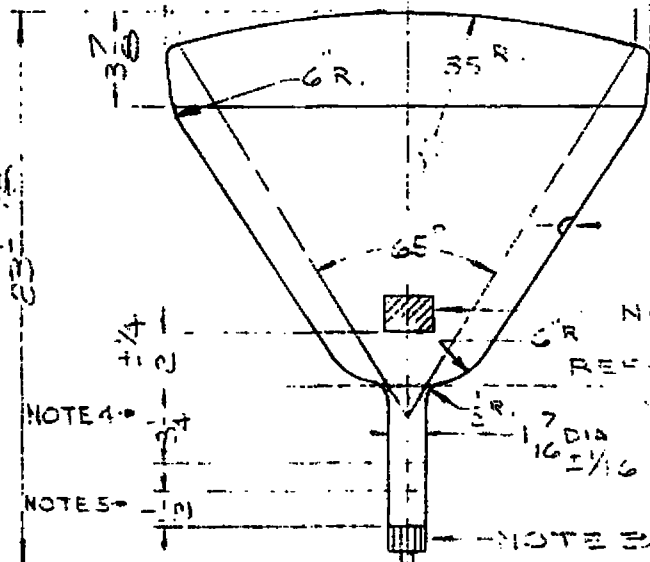
21FP4C



PIN 1-HEATER
PIN 2-GRID #1
PIN 6-GRID #4
PIN 10-GRID #2
PIN 11-CATHODE
PIN 12-HEATER
CAP-GRID #3
GRID #5, COLLECTOR

SCREEN WIDTH

SCREEN HEIGHT



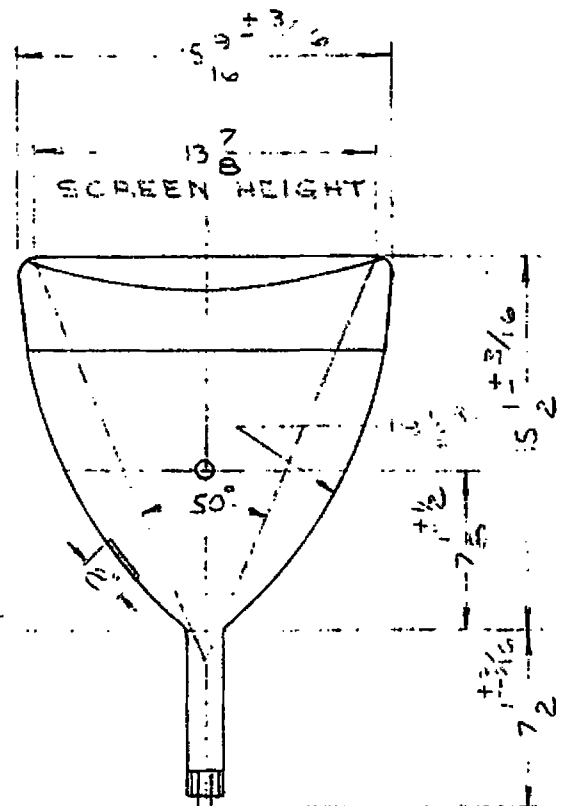
NOTE 1

NOTE 2

NOTE 3

NOTE 4

NOTE 5



NATIONAL VIDEO CORP.

CHICAGO 32, ILLINOIS

DRAWN BY	SCALE	EFFECTIVE	SUPERSEDED	9.1.21FP4C.1
F.TOMS	1"=8"	6-30-52	ORIGINAL	DISTRIBUTION
				A, B, C, D, E, F, G, H

NOTES

- NOTE 1: The plane through the tube axis and vacant pin position 6 aligns with the anode contact $\pm 30^\circ$.
- NOTE 2: Reference line is determined by the plane where the standard JETEC reference line gauge #110 will stop against the bulb.
- NOTE 3: Socket for this base should not be rigidly mounted. It should have flexible leads and be free to move.
- NOTE 4: Location of deflection yoke and centering device must be within this space.
- NOTE 5: Keep this space clear for ion-trap magnet.
- NOTE 6: Configuration of outer conductive coating optional, but must contain the 2 x 2 inch contact area as shown on drawing.