21CZP4

CATHODE-RAY TUBE

21-INCH, RECTANGULAR, GLASS — 19-1/16 BY 15-1/16-INCH PICTURE SIZE

FOCUS - ELECTROSTATIC — FACEPLATE - SPHERICAL, GRAY

DEFLECTION - MAGNETIC — ION-TRAP GUN

110-DEGREE DEFLECTION ANGLE — EXTERNAL CONDUCTIVE COATING

ALUMINIZED SCREEN

DESCRIPITION AND RATING

The 21CZP4 is an electrostatic-focus and magnetic-deflection, direct-view all-glass picture tube. Features of this tube include a short over-all length, a small neck diameter, and an aluminized screen to increase light output. An external conductive coating serves as a filter capacitor when grounded.

GENERAL

ELECTRICAL

Heater Voltage	6.3	Volts
Heater Current	0.60 ± 10%	Amperes
Heater Warm-up Time *	11	Seconds
Focusing Method - Electrostatic		
Deflecting Method - Magnetic		
Deflection Angle, approximate		
Diagonal	110	Degrees
Horizontal	105	Degrees
Vertical	87	Degrees
Direct Interelectrode Capacitances, approximate		
Cathode to All Other Electrodes	5	µµf
Grid-No. 1 to All Other Electrodes	6	µµf
External Conductive Coating to Anode		
Maximum	2500	µµf
Minimum	2000	µµf

OPTICAL

Phosphor Number - P4, Sulfide
Fluorescent Color - White
Phosphorescent Color - White
Persistence - Short

Faceplate - Gray

Light Transmission at Center, approximate	76	Percent

MECHANICAL

Overall Length	14 11/16 ± 5/16	Inches
Greatest Bulb Dimensions		
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		
Diagonal	20 1/4	Inches
Width	19 1/16	Inches
Height	15 1/16	Inches
Area	262	Square Inches
Neck Length	5 7/16 + 3/16 − 1/8	Inches

Bulb Contact - Recessed Small-cavity Cap, JETEC No. J1-21
Base - Small-button Eightar, 7-Pin, JETEC No. B7-183
Basing Designation - 8HR
Bulb Contact Alignment
Anode Contact Aligns with Pin No. 4 Position ± 30 Degrees

Mounting Position - Any		
Net Weight, approximate	22	Pounds

MAXIMUM RATINGS

DESIGN-CENTER VALUES †

Anode Voltage ‡	18,000 Max	Volts DC
Focusing-Electrode Voltage	-500 to +1000 Max	Volts DC
Grid-No. 2 Voltage	500 Max	Volts DC
Grid-No. 1 Voltage		
Negative-Bias Value	140 Max	Volts DC
Positive-Bias Value	0 Max	Volts DC
Positive-Peak Value	2 Max	Volts
Negative-Peak Value	200 Max	Volts
Peak Heater-Cathode Voltage		
Heater Negative with Respect to Cathode		
During Warm-up Period not to Exceed 15 Seconds	410 Max	Volts
After Equipment Warm-up Period	180 Max	Volts
Heater Positive with Respect to Cathode	180 Max	Volts

TYPICAL OPERATING CONDITIONS

Anode Voltage §	17,000	Volts DC
Focusing-Electrode Voltage for Focus	0 to 500	Volts DC
Focusing-Electrode Current	-15 to +25	Microamperes DC
Grid-No. 2 Voltage	300	Volts DC
Grid-No. 1 Voltage π	-28 to -72	Volts DC
Ion-Trap Field Intensity △, minimum	37	Gausses

MAXIMUM CIRCUIT VALUES

Grid-No. 1 Circuit Resistance	1.5 Max Megohms
Grid-No. 2 Circuit Resistance	0.1 Min Megohms
Focusing-Electrode Circuit Resistance	0.1 Min Megohms

Protective resistance in the grid-No. 2 and focusing-electrode circuits is advisable to prevent damage to the tube. If applicable, one resistor common to both circuits may be used.

* Heater warm-up time is the time required for the voltage across the heater terminals to increase to 5.0 volts in the JETEC test circuit, with E = 25 volts and R = 31.5 ohms.

† The maximum ratings provide a ten-percent safety factor in accordance with the standard design center system of rating cathode-ray tubes. The tube will withstand the combined effects of variations in line voltage and components provided the maximum design center values are not exceeded by more than ten percent.

‡ Anode, grid-No. 3, and grid-No. 5 which are connected together within the tube are referred to herein as anode.

If this tube is operated at voltages in excess of 16,000 volts, x-ray radiation shielding may be necessary to avert possible danger of personal injury from prolonged exposure at close range. The protective face-viewing window of apparatus using tubes of this type may provide such a safeguard. If the radiation measured in contact with this window does not exceed 6.25 milliroentgens per hour, the window will normally provide adequate protection.

§ Brightness and focus quality decrease with decreasing anode voltage. In general, the anode voltage should not be less than 15,000 volts.

π For visual extinction of focused raster.

Δ For a Heppner PM ion-trap magnet or equivalent located in optimum position and rotated to give maximum brightness.

Electronic Components Division

GENERAL ELECTRIC COMPANY

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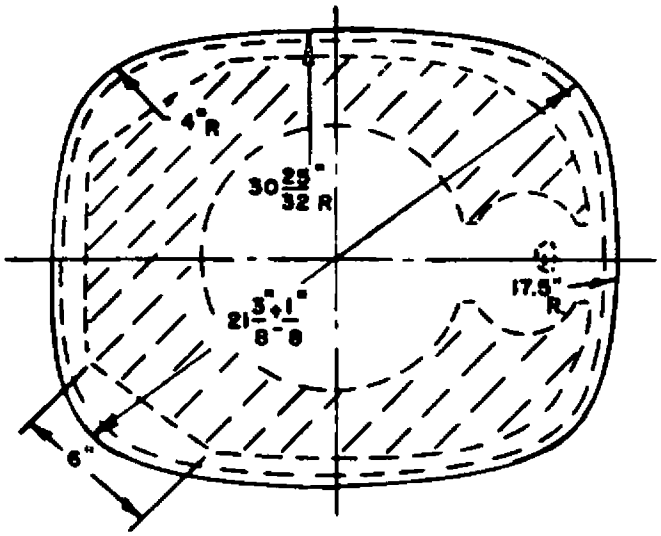
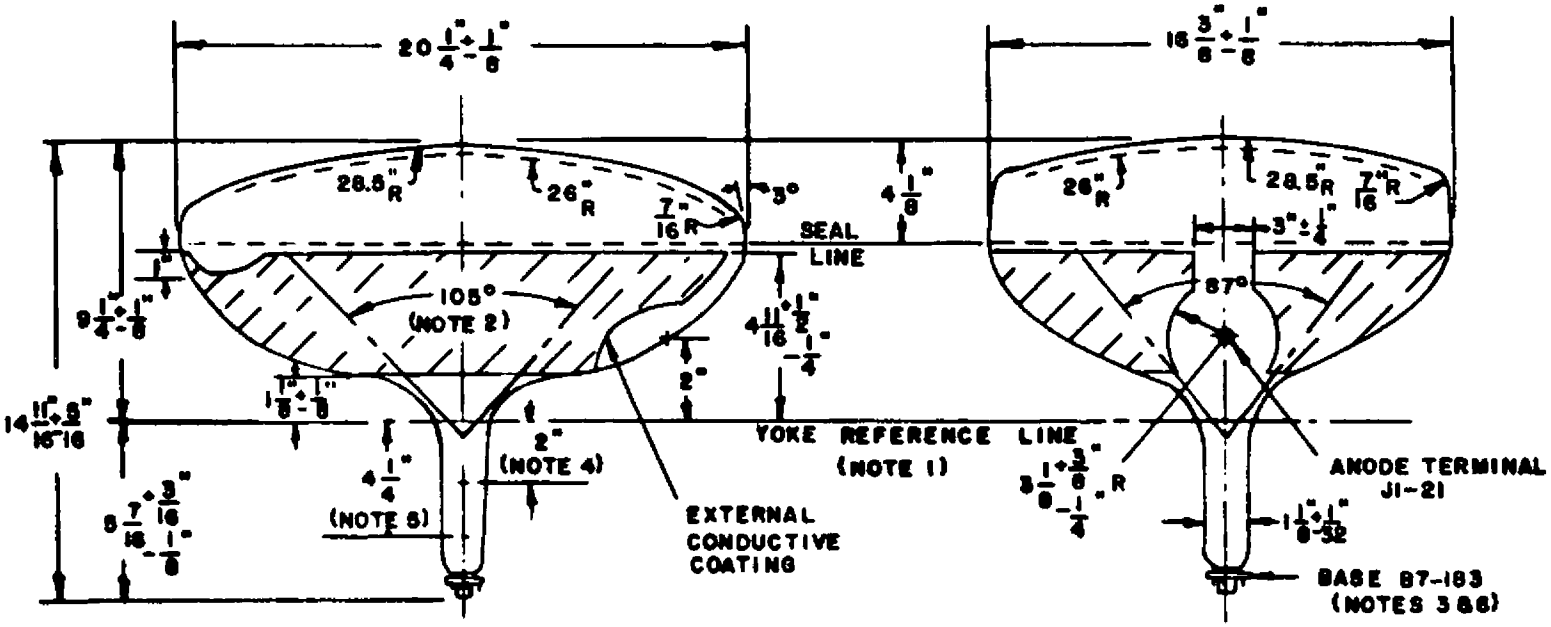


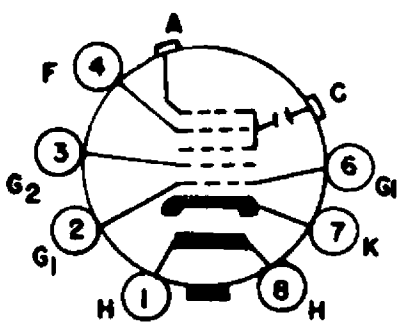
SCREEN DIMENSIONS

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



NOTES:-

1. REFERENCE LINE IS DETERMINED BY THE PLANE OF THE UPPER EDGE OF THE SHOULDER OF THE REFERENCE LINE GAGE (RETMA NO. 126) WHEN THE GAGE IS RESTING ON THE CONE.
2. DEFLECTION ANGLE ON DIAGONAL IS 110°.
3. ANODE TERMINAL ALIGNS WITH PIN NO. 4 ± 30 DEGREES.
4. RECOMMENDED POSITION OF CENTERING MAGNET, IF USED.
5. APPROXIMATE POSITION OF ION-TRAP MAGNET.
6. USE A NON-RIGIDLY MOUNTED SOCKET WITH FLEXIBLE LEADS. BOTTOM CIRCUMFERENCE OF BASE SHELL WILL FALL WITHIN 1-3/4 INCHES DIA. CIRCLE CONCENTRIC WITH BULB AXIS.



BASING DIAGRAM
8HR