

21ESP4

CATHODE RAY TUBE

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
LIGHTWEIGHT BULB	EXTERNAL CONDUCTIVE COATING

=====DESCRIPTION AND RATING=====

The 21ESP4 is a 21 inch electrostatic-focus and magnetic deflection glass lightweight picture tube. Outstanding features include a short over-all length, a small neck diameter and a non ion-trap gun. 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.

GENERAL

ELECTRICAL

Heater Voltage.....	6.3 Volts
Heater Current.....	0.60 $\pm$ 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 uuf
Grid No. 1 to All Other Electrodes.....	6 uuf
External Conductive Coating to Anode	
Maximum.....	2500 uuf
Minimum.....	2000 uuf

CATHODE RAY TUBE DEPARTMENT

GENERAL  ELECTRIC

Syracuse, N. Y.

OPTICAL

Phosphor Number - P₄, Sulfide
 Fluorescent Color - White
 Phosphorescent Color - White
 Persistence - Short
 Faceplate - Gray
 Light Transmission at Center, Approximate.....76 Percent

MECHANICAL

Over-all Length.....13-3/16 + 5/16 Inches
 Neck Length.....3-15/16 + 3/16 -1/8 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

Bulb Designation J171G1
 Bulb Contact - Recessed Small-cavity Cap, JEDEC No. J1-21
 Base - Small button Eightar, 6 pin, JEDEC No. B6-212
 Basing Designation - 8JS
 Bulb Contact Alignment
 Anode Contact Aligns with Pin No. 4 ± 30 Degrees.

Mounting Position - Any
 Net Weight, Approximate.....20 Pounds

MAXIMUM RATINGS

DESIGN - CENTER VALUES /

Anode Voltage.....18,000 Max. Volts D.C.
 Focusing-Electrode Voltage.....-500 to +1000 Max. Volts D.C.
 Grid No. 2 Voltage.....750 Max. Volts D.C.
 Grid No. 1 Voltage
 Negative-Bias Value.....140 Max. Volts D.C.
 Positive-Bias Value.....0 Max. Volts D.C.
 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 ^S	17,000	Volts D.C.
Focusing-Electrode Voltage for Focus.....	0 to 500	Volts D.C.
Focusing-Electrode Current.....	-15 to +25	Microamperes D.C.
Grid No. 2 Voltage.....	450	Volts D.C.
Grid No. 1 Voltage ^T	-28 to -72	Volts D.C.

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.

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

^TFor visual extinction of focused raster.

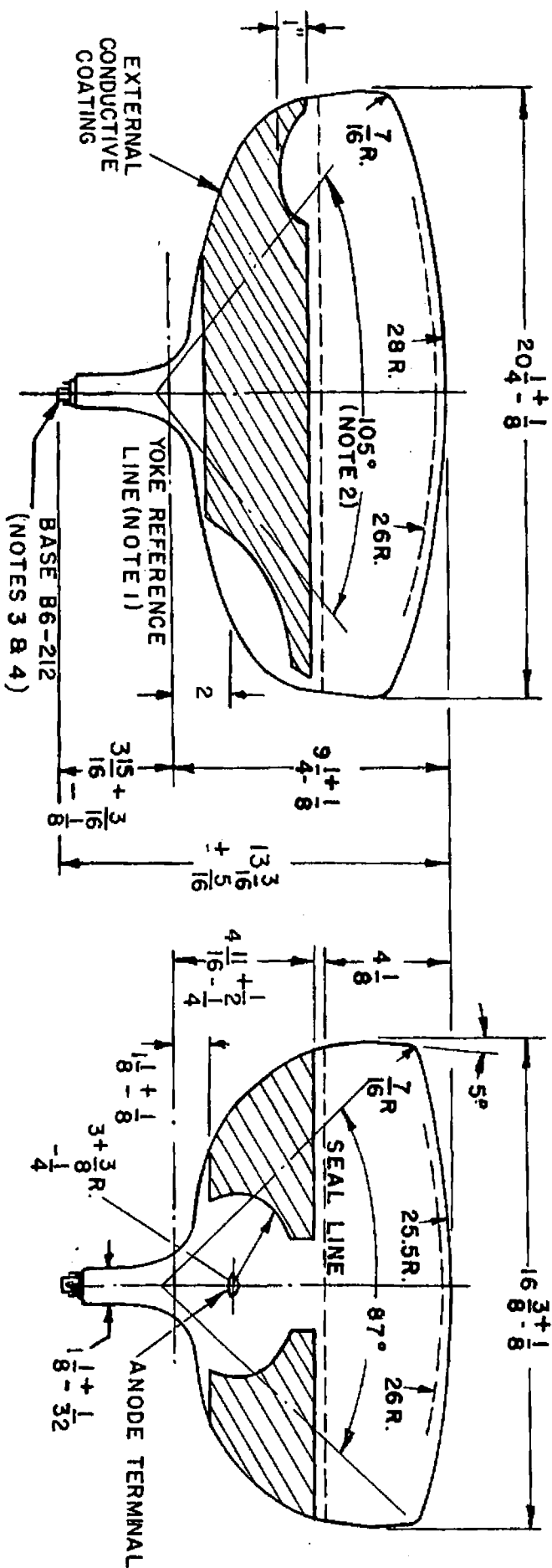
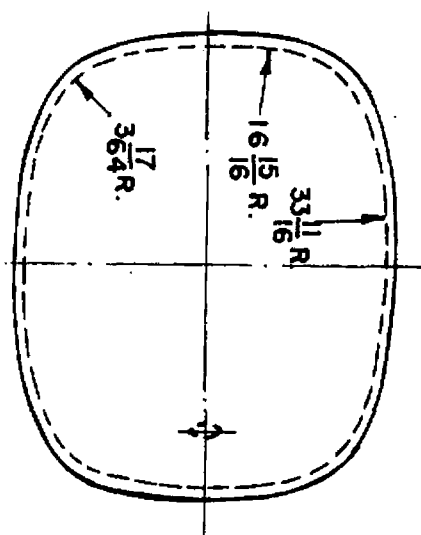
DIAGONAL 20 1/4

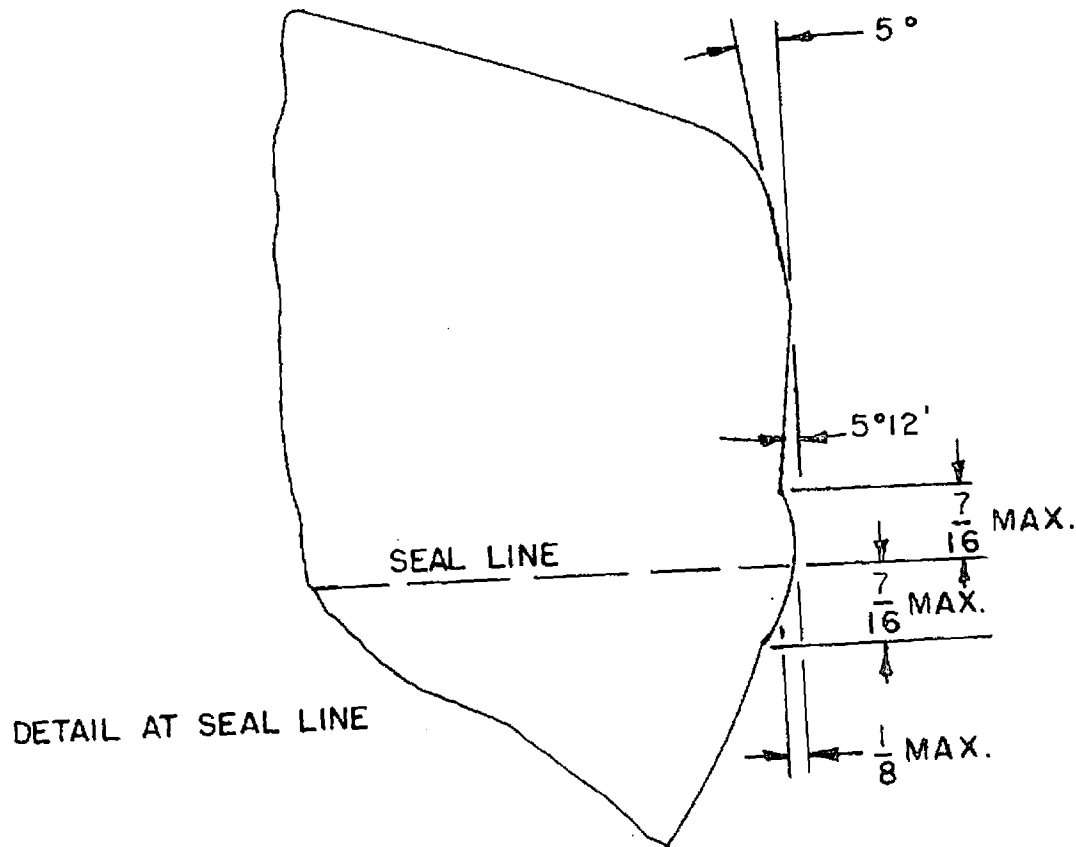
20 1/4

WIDTH 19 1/16

HEIGHT 15 1/16

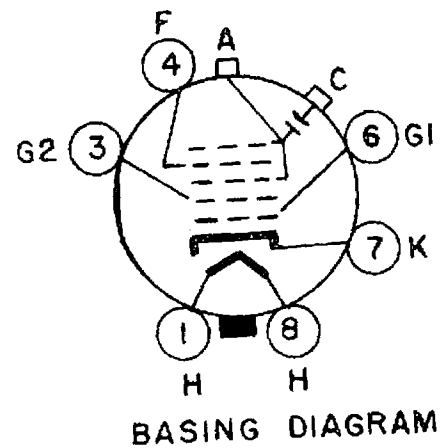
AREA 262 SQ.IN.





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°
3. ANODE TERMINAL ALIGNS WITH PIN NO.4 ± 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.



8JS