RAYTHEON

TECHNICAL INFORMATION SERVICE

Technical Information

CK1355P19A

CATHODE RAY TUBE

The type CK1355P19A is a 7 inch electrostatic focus and magnetic deflection cathode ray tube suitable for radar applications. A low voltage electrostatic focus lens is employed, designed to operate at or near cathode potential to afford substantially automatic focus, independent of accelerator voltage variations. In addition, the CK1355P19A employs a high resolution electron gun. The final A designates a metallized screen for greater light output, improved contrast, and to minimize charging effects.

The tube envelope was designed to meet the stringent requirements of "rotating yoke" applications. The mechanical tolerances are therefore controlled to a greater extent than those of a standard cathode-ray tube. A unique high voltage connector is used that permits quick disconnect and meets the requirements of high altitude operation with freedom from corona.

GENERAL DATA

Phosphor	#19
Fluorescence	Orange
Phosphorescence	Orange
Persistence	Long
Focusing Method	Electrostatic
Deflecting Method	Magnetic
Deflection Angle	50°

ELECTRICAL DATA

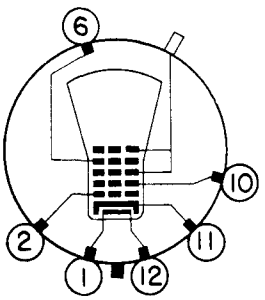
HEATER CHARACTERISTICS:	
Heater Voltage	6.3 ± 10% volts
Heater Current	0.6 amps.
Peak Heater-Cathode Voltage	
Heater Negative with respect to cathode	180 volts DC
Heater Positive with respect to cathode	180 volts DC
DIRECT INTERELECTRODE CAPACITANCES:	
Grid #1 to all other electrodes	8.5 $\mu\mu$fd max.
Cathode to all other electrodes	5 $\mu\mu$fd max.
DESIGN MAXIMUM RATINGS:	
Anode Voltage	10,000 volts DC
Grid #4 Voltage (Focusing Electrode)	−500 to +1000 volts DC
Grid #2 Voltage	700 volts DC
Grid #1 Voltage:	
Negative-Bias Value	180 volts DC
Positive-Bias Value *	0 volts DC
Positive-Peak Value	0 volts

MECHANICAL DATA

BASE ..... Small Shell Duodecal Six Pin

CAP ..... Special high altitude connector

BASING



BOTTOM VIEW

TERMINAL CONNECTIONS:

Pin 1	Heater
Pin 2	Grid #1
Pin 6	Grid #4 (focus)
Pin 10	Grid #2
Pin 11	Cathode
Pin 12	Heater
Cap	Anode

ELECTRICAL DATA (Cont'd)

CHARACTERISTICS AND TYPICAL OPERATIONS.

Heater Voltage	6.3 volts
Anode Voltage ■	7500 volts DC
Grid #4 Voltage (Focusing Electrode) ●	0 to 300 volts DC
Grid #2 Voltage	300 volts DC
Grid #1 Voltage □	−30 to −65 volts DC
Line Width ⊕	.010 inch max.
Spot Position (undeflected) †	.375 inch max.

MAXIMUM CIRCUIT VALUES:

Grid #1 Circuit Resistance	1.5 meg. max.
Grid #2 Circuit Resistance	0.1 meg. max.

NOTES.

* *The P19 phosphor is more easily damaged than other type phosphors if current densities are extremely high. To avoid burning of the phosphor, low current densities should be maintained.*

■ *Brilliance and definition decrease with decreasing anode voltage. In general, anode voltage should not be less than 5000 volts.*

♦ *Cathode should be returned to one side or to the mid-tap of the heater transformer winding.*

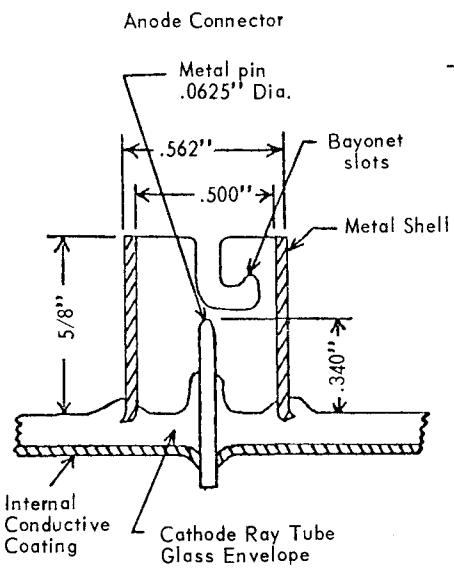
● *With grid #1 voltage adjusted to produce a collector current of 60 μA, with the pattern adjusted for best overall focus. Measured with a 525-line interlaced and synchronized pattern.*

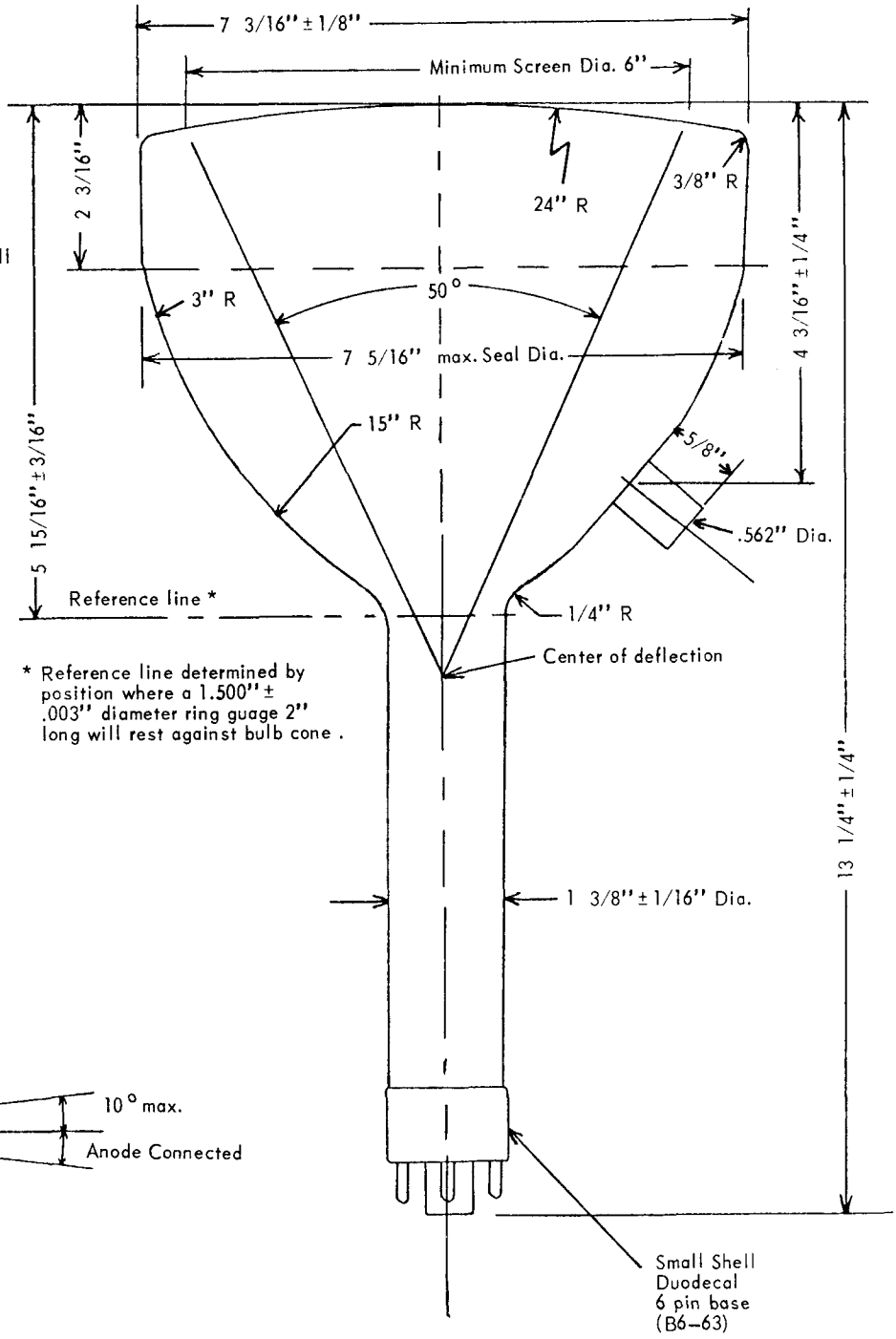
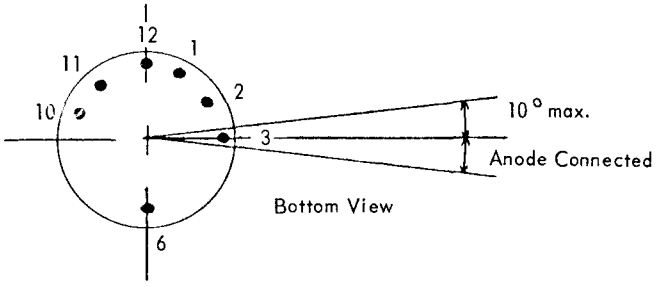
□ *Visual extinction of focused undeflected spot.*

⊕ *Measured with a merging 525-line interlaced and synchronized pattern at Ib = 60 μa.*

† *The center of the undeflected, focused spot will fall within a circle of 3/8" radius concentric with the center of the tube face, with tube shielded.*

CATHODE RAY TUBE





* Reference line determined by position where a 1.500" ± .003" diameter ring guage 2" long will rest against bulb cone .