

HIGH TRANSCONDUCTANCE RADAR DISPLAY TUBE TYPE 10AMP7

The 10AMP7 is a low drive cathode ray tube with low-voltage-electrostatic focus and magnetic deflection designed for service in radar display applications. An input signal of 3.5 to 5.5 volts having a bandwidth of 13 megacycles will drive the tube to full brightness (400 to 750 microamperes peak anode current). Other characteristics include round glass construction, relatively flat, neutral gray glass faceplate and a long-persistence P 7 screen.

ELECTRICAL:

Cathode.....	Coated Unipotential		
Heater:			
Voltage (ac or dc).....	6.3	Volts	
Current	0.6 \pm 10%	Ampere	
Direct Interelectrode Capacitances:			
Triode Unit:			
Grid to Cathode.....	4.5	μ f	
Grid to Plate (Note 1).....	2.3	μ f	
Grid to CRT Gun Grid 1.....	1.0	μ f	
CRT Gun Unit:			
Grid 2 (Note 1) to Grid 1.....	5.7	μ f	
Grid 2 (Note 1) to all electrodes except Grid 1....	6.0	μ f	
Grid 1 to all electrodes except Grid 2 (Note 1)....	3.9	μ f	
Input:			
Cathode Drive (Note 2).....	45	μ f	
Grid Drive (Note 2).....	50	μ f	
Output.....	8	μ f	
Screen:			
Phosphor.....	P7		
Fluorescence.....	Blue		
Phosphorescence.....	Greenish-Yellow		
Persistence.....	Long		
Focusing Method	Low-Voltage Electrostatic		
Deflection Method.....	Magnetic		
Deflection Angle.....	53°		

MECHANICAL:

Mounting Position	Any
Minimum Screen Diameter.....	9"
Faceplate:	
Configuration	Spherical
Glass.....	Neutral Gray
Transmittance.....	76%
Bulb Diameter.....	10-1/2" \pm 1/16"
Overall Length.....	16-9/16" \pm 3/8"
Anode Terminal	Recessed Small Cavity Cap (JEDEC J1-21)
Base.....	Small Shell Duodecal 7-Pin (JEDEC B7-223)
Net Weight.....	10 Pounds

MAXIMUM RATINGS:

Absolute Maximum Values

CRT Gun Unit:

Anode Voltage.....	12000	max.	Volts
Grid 4 (Focus) Voltage.....	1000	max.	Volts
Grid 2 & Triode Plate Voltage.....	350	max.	Volts
Grid 1 Voltage:			
Negative Bias Value.....	150	max.	Volts
Positive Bias Value.....	0	max.	Volts
Positive Peak Value.....	0	max.	Volts
Peak Heater-Cathode Voltage:			
Heater-Positive with respect to Cathode.....	180	max.	Volts
Heater Negative with respect to Cathode (Note 3).....	180	max.	Volts
Triode Unit:			
Grid Negative Bias.....	50	max.	Volts
Plate Dissipation (Note 1).....	3.5	max.	Watts
Average Cathode Current.....	25	max.	Ma.

LIMITING CIRCUIT VALUES:

CRT Gun Grid 1 Circuit Resistance.....	0.5	max.	Megohm
Triode Grid Circuit Resistance.....	50000	max.	Ohms

TYPICAL OPERATING CONDITIONS:

0 to 13 Mc. Bandpass (Note 4)

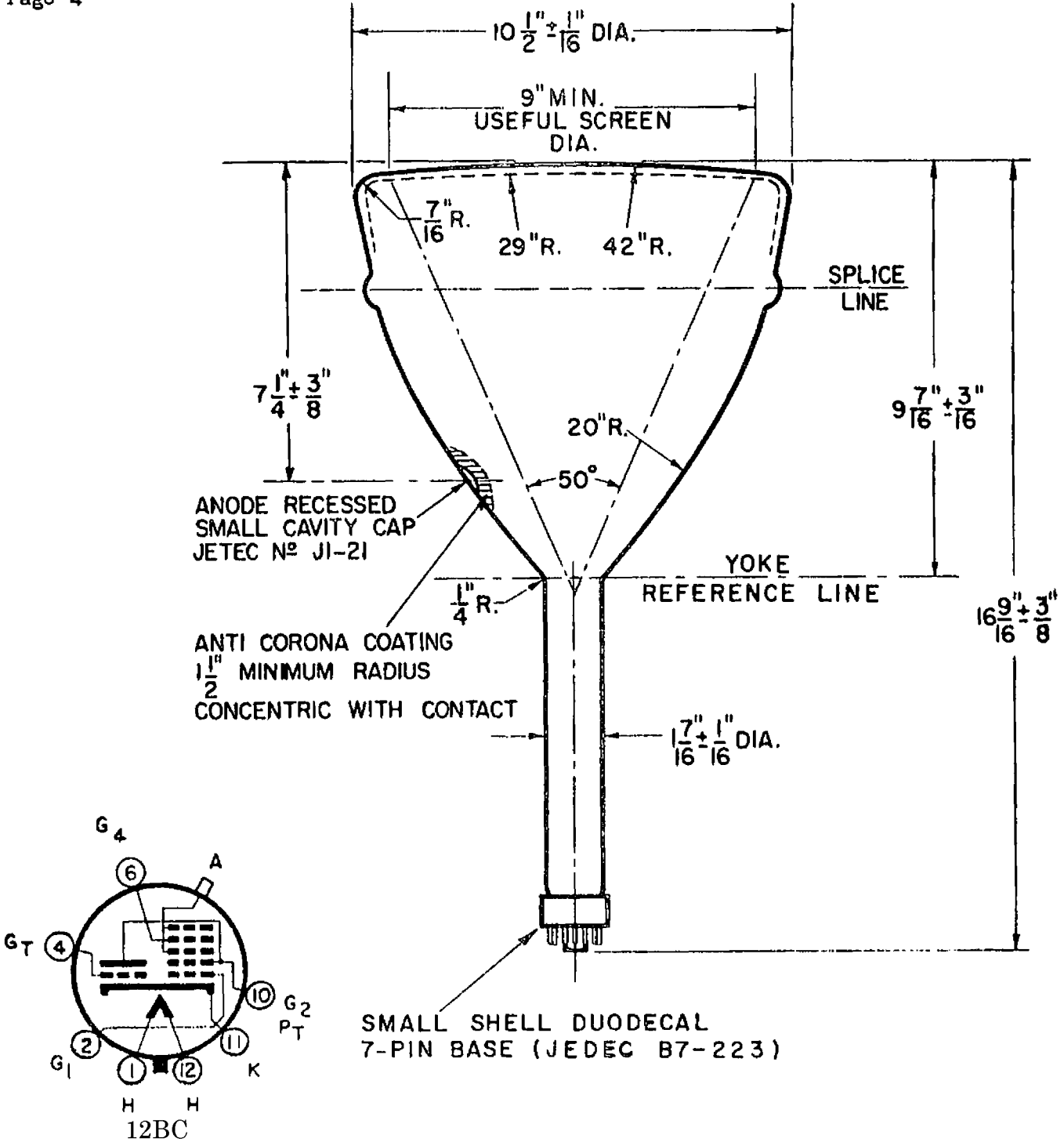
CRT Gun Unit:

Anode Voltage.....	10000	Volts
Grid 4 (Focus) Voltage (Notes 5 & 6).....	0 to 600	Volts
Grid 2 & Triode Plate Supply Voltage, Ebb (Note 1)	300	Volts
Grid 2 & Triode Plate Voltage, Ebo (Notes 6 & 7)...	160	Volts
Grid 1 Supply Voltage, Eccl (Note 2).....	-200 to -250	Volts
Grid 1 Voltage for Spot Cut-off, Eco (Note 8)	-25 to -40	Volts

Triode Unit:

Grid Bias Voltage (Notes 6 & 9).....	-6.5	Volts
Amplification Factor.....	20	
Plate Resistance (Note 10).....	1540	Ohms
Transconductance (Note 10).....	13000	μmhos
Plate Current (Note 10).....	20	Ma.
Plate Load Resistor.....	6800	Ohms
Gain (Approx.).....	15	
Spot Position (Note 11).....	18	mm

1. Triode plate and CRT Gun Grid 2 are connected internally.
2. Obtained for a value of voltage coupling coefficient k_c between triode plate and control grid equal to 0.5.
3. A peak value of 410 volts design center maximum may be applied for not more than 15 seconds during equipment warm-up periods.
4. A typical line width of .015" may be expected with an anode current of 100 microamperes.
5. Measured at 100 microamperes anode current.
6. Voltage measured with respect to cathode.
7. E_{b0} is the quiescent plate voltage at zero signal input (20 mA plate current).
8. Voltage difference between cathode and control grid pins required to cut off the cathode ray beam when the gun is operating at the quiescent plate voltage level E_{b0} .
9. For best performance adjust the triode grid bias for 20 mA plate current at zero signal input.
10. At indicated quiescent plate voltage E_{b0} operating point.
11. The center of the undeflected, unfocused spot will fall within a circle having an 18 mm radius concentric with the center of the tube face.



NOTES:

1. Reference line is determined by upper edge of RETMA Gage No. 112 when resting on cone of tube.
2. Radial tolerance of alignment of anode terminal with 3 is ± 10 degrees.

Caution: Do not handle tube by part of bulb having anti-corona coating.