



## CATHODE-RAY TUBE

### TYPE 7AGP-

The DuMont Type 7AGP- is a 7 inch diameter electrostatic focus and deflection cathode-ray tube designed for presentation of displays with high degree of accuracy. This has been accomplished by using specially designed deflection plates and a linear acceleration system to prevent beam defocusing and pattern distortion.

A high level of quality for the faceplate and screen is maintained for faithful reproduction of the of the tube's superior mechanical and electrical features. To further aid the reproduced display, a grey glass is used for the faceplate to increase small area contrast range. Metal backing of the screen provides stable displays free from spurious charge effects and maximum light output.

A dimagnal ring collar base is used for saving space, for ease of connections and for obtaining maximum lead separation.

A wide variety of long persistence screens is available for applications requiring display retention. Other screens are available on request.

## GENERAL CHARACTERISTICS

### Electrical Data

Focusing Method  
Deflecting Method

Electrostatic  
Electrostatic

### Direct Interelectrode Capacitances, Approximate

Cathode to all	7.9	$\mu\text{f}$
Grid No. 1 to all	9.6	$\mu\text{f}$
D1 to D2	5.2	$\mu\text{f}$
D3 to D4	2.3	$\mu\text{f}$
D1 to all	11.0	$\mu\text{f}$
D2 to all	11.0	$\mu\text{f}$
D3 to all	5.9	$\mu\text{f}$
D4 to all	5.9	$\mu\text{f}$

### Optical Data

Phosphor Number	2	7	11	12	14	19	25
				Note 1		Note 1	
Fluorescent Color	Bl. Green	Bl. White	Blue	Orange	Purple	Orange	Orange
Phosphorescent Color	Green	Yellow	Blue	Orange	Orange	Orange	Orange
Persistence	Long	Long	Short	Long	Long	Very long	Very long

Screen Blemishes (Note 2)

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#### Optical Data (Cont'd)

Faceplate Light transmission at center, approximate	<b>67</b>	Percent
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#### Mechanical Data

Overall Length	18 7/8+1/8 -3/16	Inches
Greatest Diameter of Bulb	7 1/2 ± 3/16	Inches
Minimum Useful Screen Diameter	6 3/4	Inches

Bulb Number		
Base (22 Pin Dimagnal Collar Base)	Special	
Basing	Special	

Base Alignment D1D2 trace aligns with Collar Base Index Pin No. 1	± 10	Degrees
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Positive voltage on D1 deflects beam approximately toward Collar Base Pin No. 1

Positive voltage on D3 deflects beam approximately toward Collar Base Pin No. 18

Trace Alignment Angle between D3D4 and D1D2 traces	90 ± 1	Degrees
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#### RATINGS (Design Center Values)

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	0.6 ± 10%	Ampere
Accelerator Voltage	10,000	Max. Volts DC
Accelerator Input	6	Max. Watts
Focusing Electrode Voltage	3,500	Max. Volts DC
Grid No. 1 Voltage		
Negative Bias Value	300	Max. Volts DC
Positive Bias Value	0	Max. Volts DC
Positive Peak Value	0	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
Peak Voltage between Accelerator and any Deflection Electrode	2,000	Max. Volts

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CATHODE-RAY TUBETYPE 7AGP-TYPICAL OPERATING CONDITIONS

Accelerator Voltage	8,000	Volts
Focusing Electrode Voltage	2,000 to 2,950	Volts
Grid No. 1 Voltage (Note 3)	-105 to -175	Volts
Deflection Factors:		
D1 and D2	175 to 195	Volts DC per Inch
D3 and D4	170 to 186	Volts DC per Inch
Deflection Factor Uniformity (Note 4)	1%	Max.
Deflection Defocusing (Note 5)	1:1.5	Ratio
Pattern Distortion (Note 6)		
Modulation (Note 7)	22	Max. Volts DC
Modulation (Notes 1 & 8)	40	Max. Volts DC
Line Width "A" (Note 7) P19	.010	Max. Inches
Line Width "A" (Notes 1 & 8)	.016	Max. Inches
Focusing Electrode Current for any operating condition	-15 to +10	$\mu$ A
Spot Position (focused and undeflected) (Note 9)	15	mm sq.

For Accelerator Voltage not shown in the preceding table, the following can be used as a guide:

Focusing Electrode Voltage	25.0% to 36.9% of Accelerator Volts
Grid No. 1 Voltage	1.32% to 2.19% of Accelerator Volts
Deflection Factors:	
D1 and D2	21.9 to 24.4 Volts DC per Inch per Kilovolt of Accelerator
D3 and D4	21.3 to 23.2 Volts DC per Inch per Kilovolt of Accelerator

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5	Max. Megohms
Resistance in any Deflecting Electrode Circuit (Note 10)	5.0	Max. Megohms

NOTES

1. The P19 and P12 screens can be permanently damaged if the current density is permitted to rise too high. To prevent burning, minimum beam current densities should be employed.
2. No dead spot shall be permitted of diameter greater than one millimeter within the useful screen area; and in any two-inch circle within the useful screen area not more than one of diameter greater than 0.7 millimeter, and not more than four of diameter greater than 0.3 millimeter.



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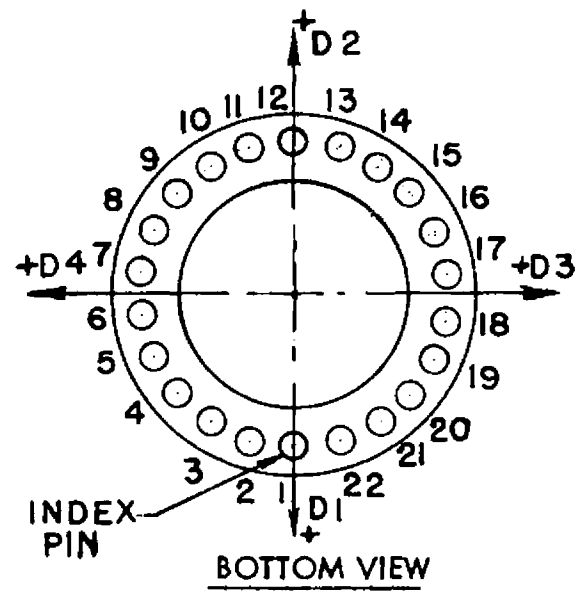
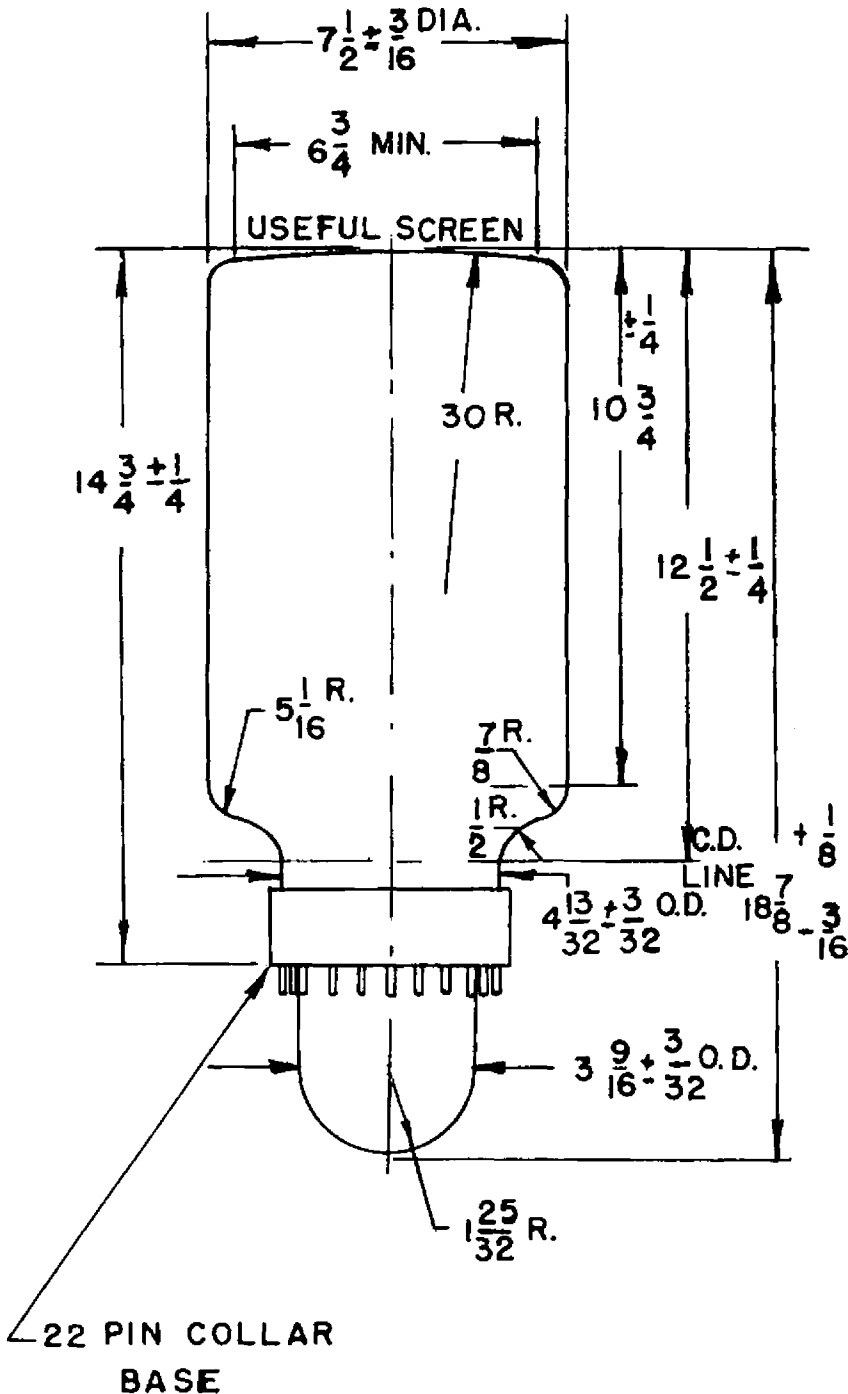
3. Visual extinction of undeflected focused spot.
4. As per MIL-E-1 specifications.
5. The ratio of the line width of a 6 inch long trace, adjusted for best center focus, to the line width measured on the faceplate axis when the trace is deflected perpendicularly  $\pm 3$  inches from the face center by a balanced DC voltage will not be greater than the specified value.
6. The center dimension of a 4 1/2 by 4 1/2 inch raster pattern, centered with respect to the tube face, measured in the D3D4 deflection direction shall not differ from the dimensions of the sides in the D3 D4 deflection direction by more than .025 of an inch. The same dimensions in the D1D2 deflection direction shall not differ by more than .040 of an inch.
7. For an Ib3 of 2  $\mu$ ADC measured in accordance with MIL-E-1 specifications.
8. For an Ib3 of 25  $\mu$ ADC measured in accordance with MIL-E-1 specifications.
9. Connect free deflecting electrodes to accelerator.
10. It is recommended that the deflecting electrode circuit resistances be approximately equal.

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## CATHODE - RAY TUBE TYPE 7AGP-



PIN NO.	ELEMENT
1	ACCELERATOR
3	DEFLECTOR D1
5	DEFLECTOR D2
9	FOCUSING ELECTRODE
11	CATHODE
12	GRID NO.1
14	HEATER
15	HEATER
19	DEFLECTOR D3
21	DEFLECTOR D4

**NOTE** INDEX PIN TO ALIGN WITH  $D_1 D_2$  TRACE  $\pm 10^\circ$

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4-8-57 *W.B.*