

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS/CV3946

ISSUE 1 DATED 12th MAY 1959

AMENDMENT No. 1

Page A Under heading RATINGS AND CHARACTERISTICS

Amend: Heater current (A) 0.3
to read Heater current (A) 0.6

Page 1 Against Ref: 4.12.2.1 under Column heading "Conditions"

Amend: Light = 75 ft.L
to read Light = 7.0 ft.L

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February, 1960
N.16341D

MINISTRY OF SUPPLY - DLRD/RRE

VALVE ELECTRONIC CV3946

Specification MOS/CV3946 Issue 1 Dated 12th May, 1959 To be read in conjunction with K1006	<u>SECURITY</u>	
	<u>Specification</u>	<u>Valve</u>
	UNCLASSIFIED	UNCLASSIFIED

Indicates a change ←

TYPE OF VALVE - Cathode Ray Tube DEFLECTION - Electrostatic FOCUS - Electrostatic CATHODE - Indirectly Heated PROTOTYPE - 3WP1 SCREEN - GG5		<u>MARKING</u>	
		See K1001/4 Add 3WP1	
<u>RATINGS AND CHARACTERISTICS</u>		<u>BASE</u>	
All limiting values are absolute		BS448/B12A	
		<u>CONNECTIONS</u>	
		Pin	Electrode
Heater Voltage (V)	6.3	1	Heater h
Heater Current (A)	0.3	2	Grid g
Max Anode 1 + 3 Voltage (KV)	2.75	3	Cathode k
Min Anode 1 + 3 Voltage (KV)	1.0	4	Anode 1 al
Max Negative Grid Voltage (V)	200	5	Internally Connected IC
Max Heater-cathode Voltage (V)	+180	6	X Plate 1 X1
Max Altitude (ft)	30,000	7	X Plate 2 X2
<u>CAPACITANCE (pF)</u>		8	Anode 1 + 3 al + a3
		9	Y Plate 2 Y2
Cathode /All Ck/R	min max	10	Y Plate 1 Y1
Grid 1/All Gg1/R	- 5.7	11	Internally Connected IC
X1/X2 Cx1/x2(R)	- 8.7	12	Heater h
Y1/Y2 Cy1/y2(R)	- 3.3		
X1/All except X2 Cx1/R(x2)	- 2.2		
X2/All except X1 Cx2/R(x1)	- 7.2		
Y1/All except Y2 Cy1/R(y2)	- 7.2		
Y2/All except Y1 Cy2/R(y1)	- 4.8		
	- 4.8		
		<u>DIMENSIONS</u>	
		See drawing on page 3.	
<u>NOTES</u>			

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MIL-E-1/267B
 22 October 1957
 SUPERSEDING
 MIL-E-1/267A
 20 November 1953

INDIVIDUAL MILITARY SPECIFICATION SHEET

ELECTRON TUBE, CATHODE RAY, ELECTROSTATIC DEFLECTION AND FOCUS

JAN-3WP1

This specification sheet forms a part of the latest issue of Military Specification MIL-E-1.

Ratings:	Ef	Ecl	ed	Eb1	Eb2	Rg	Zd	Ehk	Alt.
Absolute	V	Vdc	vdc	Vdc	Vdc	Meg	Meg	Vdc	ft.
Maximum	6.3±10%	0	550	1100	2750	1.5	1.0	+180	30,000
Minimum	---	-200	---	---	1000	---	---	---	---

Test Cond.: 6.3 Adjust Focus 1500

Fluorescent Color: Per phosphor

**Persistence: Per phosphor

For miscellaneous requirements, see Par. 3.3, Inspection Instructions for Electron Tubes.

Ref.	Test	Conditions	Min.	Max.
3.1	Qualification Approval:	Required for JAN Marking		
4.9.2.1	Dimensions:			
4.6.1	Preheating:			
4.5	Holding Period:			
4.9.18.1.2	Container Drop:	(i) Package Group 4; Carton Size P		
4.10.8	*Heater Current:		If: 540	660 mA
4.12.1.1	*Anode No. 1 Current:	Ecl=0	Ibl: -15	10 uAde
4.12.1.1	*Cathode Current:	Light=7 ft.L.	Ik: ---	1000 uAde
4.12.1.2	Voltage Breakdown:			
4.12.1.3	Voltage Breakdown:			
4.12.2.1	† Gas "Cross":	Light=75 ft.L.		
4.9.12.1	**Low-pressure Voltage Breakdown:	Note 4		
4.12.3.1	*Base Alinement:	+1D2, Pin No. 3		
4.12.3.7	*Angle Between Traces:		89	91 Degrees
4.12.3.4	**Alinement, Neck and Bulb:		Diam.: ---	1.63 Inches
4.12.3.5	*Alinement, Base and Neck:			
4.12.4.1	**Cathode Illumination:			
4.12.4.2	*Stray Emission:	Eb2=2750Vdc		
4.12.5.1	Blemishes:			
4.12.5.2	† Light Output:		Light: 7	ft.L.
4.12.5.3	*Modulation:	Light=7 ft.L.	Δ Ec: ---	50 Vdc

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Ref.	Test	Conditions	Min.	Max.
4.12.6.1	*Line Width "A":	Light=7 ft.L	Width: ---	.65 mm
4.12.6.1	*Line Width "B":	Light=7 ft.L.	Width: ---	.75 mm
4.12.7.2	Spot Position:		---	10 mm
4.12.7.3	Spot Displacement:		Displ.: ---	7 mm
4.12.9	Grid Cutoff Voltage:		Eco: -45	-75 Vdc
4.12.10.2	*Focusing Voltage:		Ebl: 247	465 Vdc
4.12.11	*Deflection Factor:	1D2	DF: 62	76 Vdc/in.
4.12.11	*Deflection Factor:	3D4	DF: 43	52 Vdc/in.
4.12.12	**Deflection Factor Uniformity:		---	2%
4.12.13.1	*Heater-cathode Leakage:			
4.12.13.2	Grid No. 1 Leakage:			
4.12.13.5	Anode No. 2 Leakage:			
4.10.14	**Capacitances:	g1 to all	C: ---	8.7 uuf
		k to all	C: ---	5.7 uuf
		D1 to D2	C: ---	3.3 uuf
		D3 to D4	C: ---	2.0 uuf
		D1 to all except D2	C: ---	7.2 uuf
		D2 to all except D1	C: ---	7.2 uuf
		D3 to all except D4	C: ---	4.8 uuf
		D4 to all except D3	C: ---	4.8 uuf
4.9.11	**Pressure:			
4.9.19.8	**Vibration:		Width: ---	1 mm
4.11.1.2	Life Test:	Group D; Light=7 ft.L Eb2=2750Vdc	t: 500	--- hrs
4.11.4	Life Test End Point:	Light=5½ ft.L.		
	Line Width "A"		Width: ---	.65 mm
	Line Width "B"		Width: ---	.75 mm
	Modulation		Δ Ec: ---	50 Vdc
4.9.5	Torque:			
- - -	Useful Scan:	Focused Trace; Note 2		
		1D2 Scan	2.50	--- in.
		3D4 Scan	2.25	--- in.
- - -	Pattern Distortion:	Note 3		

Note 1: The construction of this tube shall be of the "zero Ibl" type and must be approved by a Service Laboratory prior to shipment of tubes. The following information and materials are to be forwarded with the four samples when application for qualification approval is made:
 (1) The gun drawing with significant dimensions
 (2) A sample of the gun to be used in manufacture of the tubes

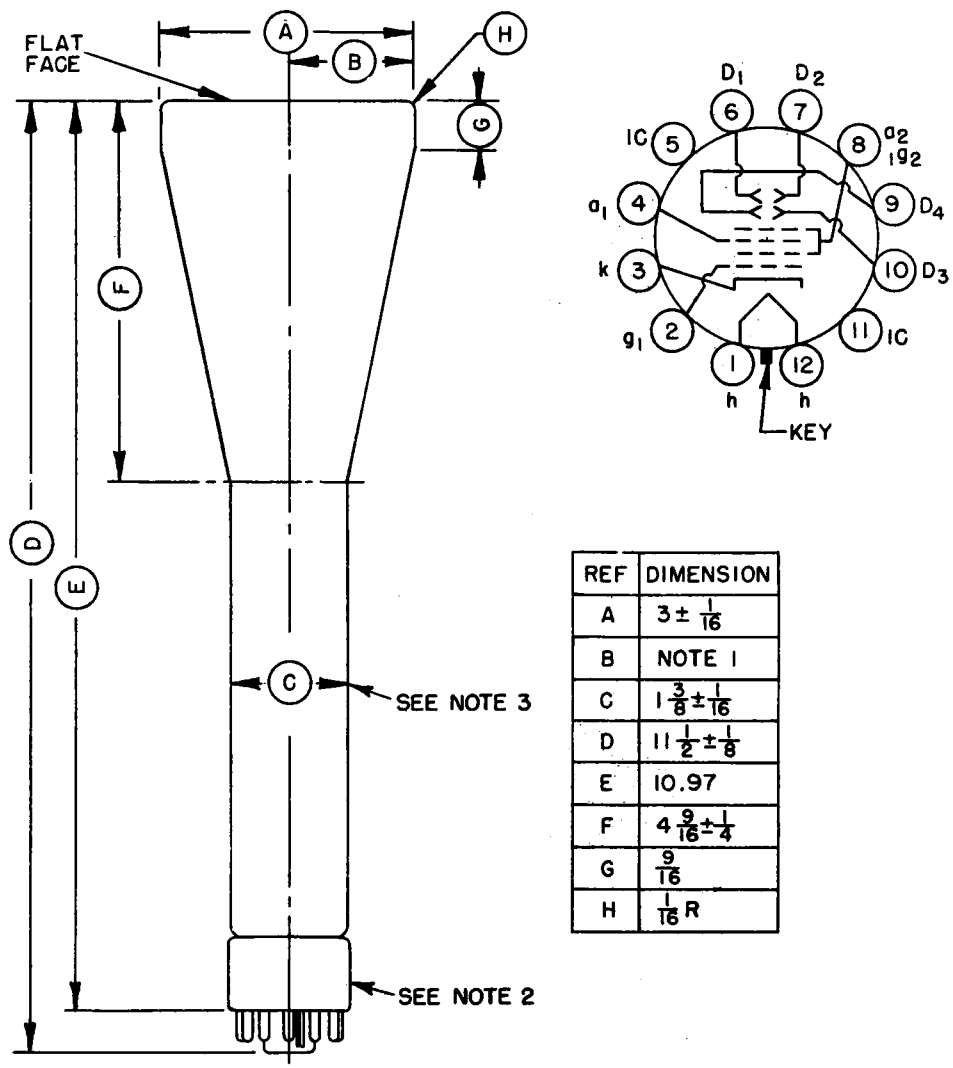
Note 2: 1D2 Scan ± 1.25 in. minimum from tube face center. 3D4 Scan ± 1.125 in. minimum from tube face center.

Note 3: With a raster pattern the size of which is adjusted so that the widest points of the pattern just touch the sides of a square, 2.050 inches on a side, no point on these pattern sides will lie within an inscribed square, 1.950 inches on a side.

Note 4: The test is made with maximum voltage applied to the base pins and/or deflection electrodes only and pressure of 30,000 feet (225 mmHg). Connections should be made in a manner that does not degrade the tube's electrical voltage breakdown characteristics. Satisfactory operation is the absence of arc-over and corona.

Note 5: Reference specification shall be of the issue in effect on date of invitation for bid.

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- Note 1: The minimum useful screen radius shall not be less than 1-3/8 inches.
- Note 2: The base shall be a small shell duodecal 12-pin (B12-43).
- Note 3: The bulb shall be a 624R type.
- Note 4: All dimensions are in inches.