

MINISTRY OF SUPPLY, R.R.E.

VALVE ELECTRONIC

CV 5035

Specification MOS/CV 5035 incorporating MIL-E-1/689B Issue 1 dated 24.4.58. To be read in conjunction with K.1006	<u>SECURITY</u>	
	<u>Specification</u>	<u>Valve</u>
	Unclassified	Unclassified

<u>TYPE OF VALVE</u> - Cathode ray tube (with P.D.A.)		<u>MARKING</u> See K1001/4 Add:- 5ADP1 Serial No. ...																															
<u>TYPE OF DEFLECTION</u> - Electrostatic Symmetrical		<u>BASE</u> B.S. 448 B.14A																															
<u>TYPE OF FOCUS</u> - Electrostatic		<u>CONNECTIONS</u> <table><tr><th>Pin</th><th>Electrode</th></tr><tr><td>1</td><td>h Heater</td></tr><tr><td>2</td><td>k Cathode</td></tr><tr><td>3</td><td>g Grid</td></tr><tr><td>4</td><td>internally connected</td></tr><tr><td>5</td><td>a2 Anode 2</td></tr><tr><td>6</td><td>no connection pin</td></tr><tr><td>7</td><td>y1 X1 plate</td></tr><tr><td>8</td><td>y2 X2 plate</td></tr><tr><td>9</td><td>a1 and a3 Anode 1 to 3</td></tr><tr><td>10</td><td>X2 plate</td></tr><tr><td>11</td><td>X1 plate</td></tr><tr><td>12</td><td>not connected</td></tr><tr><td>13</td><td>no connection pin</td></tr><tr><td>14</td><td>h Heater</td></tr></table>		Pin	Electrode	1	h Heater	2	k Cathode	3	g Grid	4	internally connected	5	a2 Anode 2	6	no connection pin	7	y1 X1 plate	8	y2 X2 plate	9	a1 and a3 Anode 1 to 3	10	X2 plate	11	X1 plate	12	not connected	13	no connection pin	14	h Heater
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<u>BULB</u> - Glass		<u>SIDE CONTACT</u> <u>DIMENSIONS</u> See drawing on page 4 <u>SIDE CONTACT</u> B.S. 448 - C.T. 7																															
<u>SCREEN</u> - GG4																																	
<u>PROTOTYPE</u> - 5ADP1																																	
<u>RATING</u> Heater Voltage (V) 6.3 Heater Current (A) 0.6 max. Va1 and Va3 (kV) 2.85 max. Va2 (kV) 1.1 max. Va4 (kV) 6.6																																	
<u>TYPICAL OPERATING CONDITIONS</u> Va 1 and 3 (kV) 1.5 Va 2 (kV) 0.45 Va 3 (kV) 3.0 Sensitivity, x plates (mm/V) 0.75 Sensitivity, y plates (mm/V) 0.93																																	
<u>NOTES</u>																																	

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MIL-E-1/689B
23 June 1955
SUPERSEDING
MIL-E-1/689A
18 October 1954

INDIVIDUAL MILITARY SPECIFICATION SHEET

ELECTRON TUBE, CATHODE RAY, ELECTROSTATIC DEFLECTION AND FOCUS

JAN-5ADP1, 5ADP2, 5ADP7

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

<u>Ratings:</u>	Type	Ef	Ecl	ed	Eb1	Eb2	Eb3	Rg	Zd	Eb3/Eb2	Ehk	Alt
<u>Absolute</u>	Phosphor	V	Vdc	Vdc	Vdc	Vdc	Vdc	Meg	Meg	Ratio	Vdc	
<u>Maximum:</u>	All	6.3	10%	0	550	1100	2850	6600	1.5	1.0	2.3	180 gnd.
<u>Minimum:</u>	P1	---	-200	---	---	---	1500	1500	---	---	---	---
	P2, P7	---	-200	---	---	---	1500	3000	---	---	---	---
<u>Test Cond:</u>	P1	6.3	Adjust		Focus	1500	3000	---	---	---	---	---
	P2, P7	6.3	Adjust		Focus	2000	4000	---	---	---	---	---

Fluorescent Color: Per phosphor

**Persistence: Per phosphor P1 (P2, Note 1)

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

<u>Ref.</u>	<u>Test</u>	<u>Type Phosphor</u>	<u>Conditions</u>	<u>Min.</u>	<u>Max.</u>
3.1	Qualification Approval:	All	Required for JAN Marking		
4.9.2.1	Dimensions:	All			
4.6.1	Preheating:	All			
4.5	Holding Period:	All			
4.9.18.1.2	Carton Drop:		(i) Package Group 4; Carton Size C		
4.10.8	*Heater Current:	All		If: 540	660 mA
4.12.1.1	*Anode No. 1 Current:	All	Ecl=0	Ib1: -15	10 uAdc
4.12.1.1	*Cathode Current:	P1 P2, P7	Light=15 ft.L. Ib3=50uAdc	Ik: --- Ik: ---	1000 uAdc 1000 uAdc
4.12.1.2	Voltage Breakdown:	All			
4.12.1.3	Voltage Breakdown:	All			
4.12.2.1	† Gas "Cross":	P1 P2, P7	Light=15 ft.L. Ib3=50uAdc		
4.12.3.1	*Alinement, Base:	All	ID2, Pin No. 5		
4.12.3.2	*Alinement, Side Terminal	All	ID2		
4.12.3.7	*Angle Between Traces:	All		89	91 deg.
4.12.3.4	**Alinement, Neck & Bulb:	All		Diam: ---	2.25 in.
4.12.3.5	*Alinement, Neck & Base:	All			
4.12.4.1	**Cathode Illumination:	All			
4.12.4.2	*Stray Emission:	All	Eb2=2850Vdc; Eb3=6600Vdc		
4.12.5.1	Blemishes:	All			

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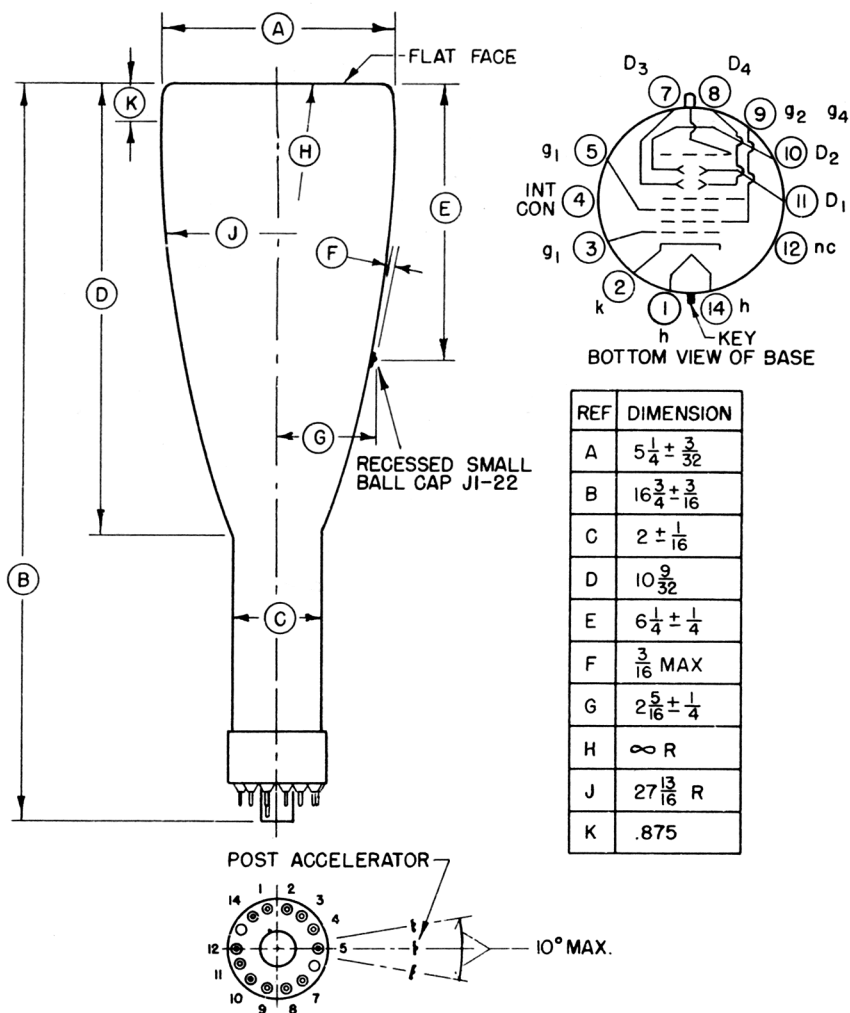
Ref.	Test	Type Phosphor	Conditions		Min.	Max.	
4.12.5.2	† Light Output:	P1		Light:	15	—	ft.L.
4.12.5.3	*Modulation:	P1	Light=15 ft.L.	Δ Ec:	—	45	Vdc
4.12.5.3	Modulation:	P2, P7	Ib3=50uAde	Δ Ec:	—	55	Vdc
4.12.5.4	*Screen:	P7	Note 2				
4.12.6.1	*Line Width "A":	P1 P2, P7	Light=15 ft.L. Ib3=50uAde	Width:	—	0.75	mm
				Width:	—	0.8	mm
4.12.6.1	*Line Width "B":	P1 P2, P7	Light=15 ft.L.; Note 4 Ib3=50uAde	Width:	—	0.80	mm
				Width:	—	0.90	mm
4.12.7.2	Spot Position:	All			—	16	mm
4.12.7.3	Spot Displacement:	All		Displ:	—	10	mm
4.12.9	Grid Cutoff Voltage:	P1 P2, P7		Eco:	-34	-56	Vdc
				Eco:	-45	-75	Vdc
4.12.10.1	*Focusing Voltage:	P1 P2, P7		Eb1:	345	515	Vdc
				Eb1:	460	690	Vdc
4.12.10.2	**Focusing Voltage:	P1 P2, P7		Eb1:	300	515	Vdc
				Eb1:	400	690	Vdc
4.12.11	*Deflection Factor:	P1 P2, P7	1D2 1D2	DF:	40	50	Vdc/in.
				DF:	54	66	Vdc/in.
4.12.11	*Deflection Factor:	P1 P2, P7	3D4 3D4	DF:	30.5	37.5	Vdc/in.
				DF:	40.5	50	Vdc/in. ←
4.12.11	**Deflection Factor:	P1 P2, P7	1D2;Eb2=Eb3=1500Vdc 1D2;Eb2=Eb3=2000Vdc	DF:	32.5	39.5	Vdc/in. ←
				DF:	43	53	Vdc/in.
4.12.11	**Deflection Factor:	P1 P2, P7	3D4;Eb2=Eb3=1500Vdc 3D4;Eb2=Eb3=2000Vdc	DF:	24.5	30.5	Vdc/in. ←
				DF:	32.5	40.5	Vdc/in. ←
4.12.12	**Deflection Factor Uniformity:	All			—	2	%
4.12.13.1	*Heater-Cathode Leakage:	All					
4.12.13.2	Grid No. 1 Leakage:	All					
4.12.13.5	Anode No. 2 Leakage:	All					
4.10.14	**Capacitance:	All	G1 to all K to all D1 to D2 D3 to D4 D1 to all except D2 D2 to all except D1 D3 to all except D4 D4 to all except D3	C: C: C: C: C: C: C:	— — — — — — —	7.9 5.8 3.1 1.3 6.1 6.1 5.0 5.0	uuf uuf uuf uuf uuf uuf uuf
4.9.11	**Pressure:	All	45 lb/sq.in.				
4.9.19.8	**Vibration:	All		Width:	—	1	mm
4.11.2	Life Test:	All	Group C; Eb2=2850Vdc; Eb3=6600Vdc Light=15 ft.L. Ib3=30uAde	t:	500	—	hrs.

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23 June 1955

<u>Ref.</u>	<u>Test</u>	<u>Type Phosphor</u>	<u>Conditions</u>	<u>Min.</u>	<u>Max.</u>
4.11.4	Life Test End Point:	P1	Light=11 ft.L. Line Width "A" Line Width "B" Modulation	Width: --- Width: --- Δ Ec: ---	.75 mm .85 mm 45 Vdc
		P2, P7	Ib3=37.5uAdc Line Width "A" Line Width "B" Modulation	Width: --- Width: --- Δ Ec: ---	.8 mm .9 mm 55 Vdc
4.9.5.1	*Torque:	All			
---	Total Scan:	P1	Focused Trace; Light=15 ft.L;Note 5	4 1/4	--- in.
		P2, P7	Focused Trace; Ib3=50uAdc;Note 5	4 1/4	--- in.
---	Pattern Distortion:	All	Note 3		
Note 1:	Persistence is specified as the cbl value as measured for P7 screens (Radiation Laboratory Report No. 62-7, pp. 24, 25, dated 14 May 1943) at a Q of 20, corrected for an area of 50 sq. cm. to make the readings obtained comparable with the cbl value for P7 screens under the standard reference conditions. The cbl value shall not be less than 370 cb.				
Note 2:	See Final Report of Naval Material Laboratory on Lab. Project 5032-11.2, Part 1, 26 June 1952; Primary Replica Standard for P7 Screens.				
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, 3.075 inches on a side, no point on these pattern sides will lie within an inscribed square, 2.925 inches on a side.				
Note 4:	Measure Line Width "B" at a distance from the center of the screen equal to 1/3 of the maximum bulb diameter. The applied astigmatism voltage shall be equal to zero volts.				
Note 5:	2 1/8 inches scan from tube face centers to extinction points of focused trace.				
Note 6:	Reference specification shall be of the issue in effect on the date of invitation for bid.				

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- Note 1: The minimum useful screen diameter shall not be less than 2-1/4 inches.
- Note 2: The bulb shall be type J42K.
- Note 3: The base shall be a medium shell diheptal 12-pin (B12-37) base.

SPECIFICATION MOS/CV5035

ISSUE 1 dated 24.4.58

AMENDMENT No. 1

Page A

Under the heading "CONNECTIONS"
amend to read:-

<u>Pin</u>	<u>Electrode</u>	
1	Heater	h
2	Cathode	k
3	Grid	g
4	Internally connected	IC
5	Anode 2	A2
6	No Pin	NP
7	Y1 Plate	y1
8	y2 Plate	y2
9	Anode 1 & 3	a1 & a3
10	x2 Plate	x2
11	x1 Plate	x1
12	Not connected	NC
13	No Pin	NP
14	Heater	h
Side Contact	Anode 4	a4

March, 1960. R.R.E. Malvern.

N.16394/D.

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NAB
9/60