

CV10488
CV10489

Ministry of Technology - DLRD/RRE.

Specification Mintech./CV10488 and CV10489 Issue 1. Dated September 1967 To be read in conjunction with K1001.	<u>SECURITY</u> <table border="1"> <tr> <td><u>Specification</u></td><td><u>Valve</u></td></tr> <tr> <td>Unclassified</td><td>Unclassified</td></tr> </table>	<u>Specification</u>	<u>Valve</u>	Unclassified	Unclassified
<u>Specification</u>	<u>Valve</u>				
Unclassified	Unclassified				

Type of Valve : Cathode Ray Tube with P.D.A. Deflection : Electrostatic Symmetrical Focus : Electrostatic Bulb : Glass. Internally spiralised Screen : CV10488 {BY8 CV10489 {GG5 Prototype : {SE5EM7 {SE5EM31			<u>MARKING</u> See K1001/4 <u>BASE</u> B1 2F																																																													
<u>RATINGS AND CHARACTERISTICS</u> Absolute, non simultaneous and not for Inspection purposes. (Note A).			<u>CONNECTIONS</u> <u>Basepins</u> <table><tr><td>1</td><td>Grid</td></tr><tr><td>2</td><td>Cathode</td></tr><tr><td>3</td><td>Heater</td></tr><tr><td>4</td><td>Heater</td></tr><tr><td>5</td><td>Anode 2</td></tr><tr><td>6</td><td>Internal connection</td></tr><tr><td>7</td><td>Anode 1</td></tr><tr><td>8</td><td>Anode modulator</td></tr><tr><td>9</td><td>Anode 3</td></tr><tr><td>10</td><td>Internal connection</td></tr><tr><td>11</td><td>Internal connection</td></tr><tr><td>12</td><td>Internal connection</td></tr></table> <u>Sidepins</u> <table><tr><td>1</td><td>X₂ Deflector plate</td></tr><tr><td>2</td><td>X₁ Deflector plate</td></tr><tr><td>3</td><td>Interplate shield</td></tr><tr><td>4</td><td>Y₁ Deflector plate</td></tr><tr><td>5</td><td>Y₂ Deflector plate</td></tr></table> <u>DIMENSIONS</u> See page 5.		1	Grid	2	Cathode	3	Heater	4	Heater	5	Anode 2	6	Internal connection	7	Anode 1	8	Anode modulator	9	Anode 3	10	Internal connection	11	Internal connection	12	Internal connection	1	X ₂ Deflector plate	2	X ₁ Deflector plate	3	Interplate shield	4	Y ₁ Deflector plate	5	Y ₂ Deflector plate																										
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<u>Typical operation conditions</u> <table><tr><td>Anode 1 voltage</td><td>(V)</td><td>.850</td></tr><tr><td>Anode 2 voltage</td><td>(V)</td><td>0 - 150</td></tr><tr><td>Anode 3 voltage</td><td>(V)</td><td>850-50</td></tr><tr><td>Anode 4 voltage</td><td>(V)</td><td>10</td></tr><tr><td>X sensitivity</td><td>(V/cm)</td><td>14</td></tr><tr><td>Y sensitivity</td><td>(V/cm)</td><td>5.4</td></tr><tr><td>Available scan</td><td>(cms)</td><td>10 x 6</td></tr></table>			Anode 1 voltage	(V)	.850	Anode 2 voltage	(V)	0 - 150	Anode 3 voltage	(V)	850-50	Anode 4 voltage	(V)	10	X sensitivity	(V/cm)	14	Y sensitivity	(V/cm)	5.4	Available scan	(cms)	10 x 6																																									
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<u>NOTES</u> A. All voltages with respect to cathode. B. NATO Stock Numbers:- CV10488 - 5960-99-037-5351 CV10489 - 5960-99-037-5352																																																																

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TESTS

To be performed in addition to those stated in K1001

Test Conditions: Unless otherwise stated

Vh	Val	Vm	Va3	Mean Def. Plate potential	Interplate Shield potential	Va2	Va4	-Vg
(V)	(kV)	(kV)		(kV)	(kV)		(kV)	
6.3	.85	.85	Optimum Astig	.85	Optimum geometry	Optimum focus	10.0	Adjust

K1001 Ref.5A	Test	Test Conditions	AQL	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
3.1	General Inspection	No Voltages See drawing		100%				
3.2	Loose particles			100%				
4.1.1	Insulation			100%				
4.1.2	Grid insulation	Vgk - 100V						
	Leakage current			100%	I _{kg}	-	10	μA
4.1.3	Heater cathode	V _{hk} = ± 100V		100%	I _{hk}	-	50	μA
	Leakage current			100%	I _h	.27	.33	A
4.2.1	Maximum Voltage			100%				
	Flashover							
4.2.2	Stray Emission			100%				
4.3	Negative grid cut off voltage (V _{co})			100%	Vg	35	55	V
	Modulator cut off	I _b = 15μA		100%		800	-	V
	Zero bias emission	Vg = 0 Record I _k . Calculate $\frac{I_k}{V_{co} \cdot \frac{1}{2}}$		100%		3	-	
4.3	Negative grid voltage (V ₁)	Adjust Vg for beam current of 10μA		100%		Record		

TESTS (Cont'd)

K1001 Ref. 5A	Test	Test Conditions	AQL	Insp. Level	Symbol	LIMITS		Units
						Min.	Max.	
4.3 (Cont'd)	Grid drive ($V_{co}-V_1$)					-	27	V
	Spiral current	Vg adjusted for cut off		100%	Is	-	150	μA
	Gas cross	Ib = 15 μA 8 x 5 cm. 10kHz x 50Hz raster.		100%			None	
5.1	Light intensity	Ib = 10 μA 6 x 4 cm 10kHz x 50 Hz raster. View through Ilford 41 or 43 filter as appro- priate, or equivalent. Light intensity shall increase uniformly with Vg.		100%	CV10488 CV10489	33 125	- -	ft/L ft/L
5.7.1	X Focus	Ib = 5 μA 25 line vertical raster 1250 Hz x 50 Hz 6 cms x 10 cms						
	Line width at centre			100%			.6	mm
	Line width at ± 46 mm from geometric centre.			100%			1.0	mm
	Anode 2 voltage					0	150	V
	Anode 3 voltage					800	900	
6.1	Deflection							
	Sensitivity							
	X plates			100%		15.5		V/cm
	Y plates			100%		5.9		V/cm
	Y linearity	(1) 2 horizontal lines 1 cm either side of geom centre, at low intensity. Measure separation. (2) Shift lines to ± 3 cms. of geometric centre.		100%		1.95	2.05	cm
							Lines to be visible.	

K1001 Ref. 5A	Test	Test Conditions	AQL	Insp. Level	Symbol	Limits		Units
						Min.	Max.	
6.2.1	Raster distortion	A nominally rectangular raster shall fit between a 10 x 6 cm and a 10.2 x 6.2 cm rectangle.		100%				
	IPS potential					800	900	V
6.2.2	Angle between X and Y axes			100%		89°	91°	
6.3	Useful screen area							
	X direction			100%		10	—	cm
	Y direction			100%		6	—	cm
6.4.1	Spot position			100%		—	5	mm
	Modulator bright point	Defocussed un-deflected spot of low intensity. Adjust Vm for bright spot Measure Vm				84.2	85.8	V
	Screen Blemishes, stones, bubbles screen defects.	Defocussed raster covering useful screen area at convenient intensity.						
	Max. size of blemish.						.5	mm
	No. of blemishes between .2 - .5mm.						8	
4.6	Inter-electrode capacitance	No voltages	6.5%	IC				µµF
	Cathode/all				Ck-all		6	"
	Grid/all				Cg-all		7	"
	X ₁ X ₂				CX ₁ X ₂		2.0	"
	Y ₁ Y ₂				CY ₁ Y ₂		1.8	"
	X ₁ /all except X ₂						5.5	"
	X ₂ /all " X ₁						5.5	"
	Y ₁ /all " Y ₂						4.0	"
	Y ₂ /all " Y ₁						4.0	"
7.2	Resistance to External pressure	No voltages		Q.A.				

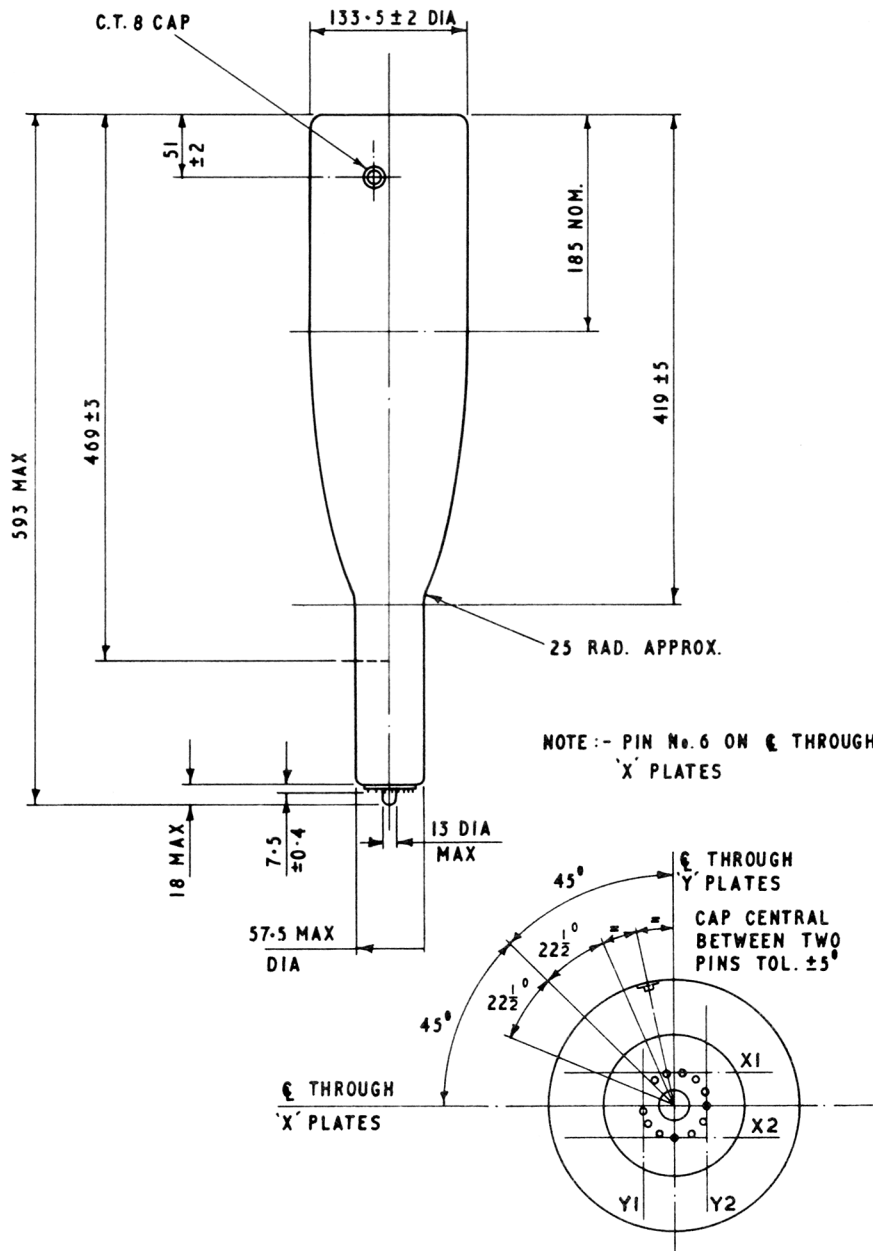
K1001 Ref.5A	Test	Test Conditions	AQL	Insp. Level	Symbol	Limits		Units
						Min	Max	
	Life	Voltages as for initial test conditions. Ib = 15μA. Raster size = 10 cms. x 6 cms..		Note 1				
	End Point (500 hours)	Ik = 500μA			Ib	7.5		μA
	Holding Period (7 days)			100%				
	Gas Cross	Ib = 15μA 8 x 5 cm., 10kHz x 50Hz raster.					None	

NOTES

1. The inspection level shall be based on the production quantities as follows:-

For orders of less than 51, at least one tube shall be life tested. For orders greater than 51, the production shall be divided into batches of 50, and at least one tube from each shall be life tested. The batch corresponding to the tube undergoing life test shall not be released until the life test has completed 80% of the required life. At the option of the manufacturer and at his expense any number of additional tubes may be life tested, in which case the average of the lives of the tubes shall exceed 80% of the required life before the batch is released. Life test is considered satisfactory when an accumulated total of 500 hours per sample is reached.

OUTLINE DRAWING



ALL DIMENSIONS IN MILLIMETRES