

INCH-POUND

MIL-PRF-1/267G
20 May 2014
SUPERSEDING
MIL-PRF-1/267F
20 March 2007

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, CATHODE RAY

TYPES 3WP1 AND 3WP2

Inactive for new design
after 7 March 1997

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the electron tube described herein
shall consist of this document and the latest issue of MIL-PRF-1.

DESCRIPTION: Electrostatic deflection and focus.

PIN CONNECTIONS AND DIMENSIONS: See figure 1.

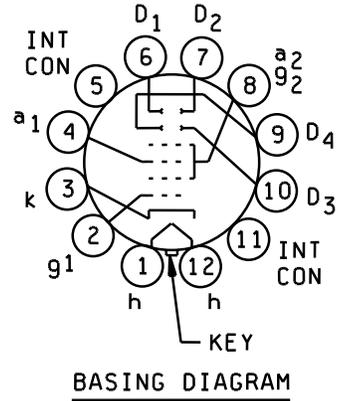
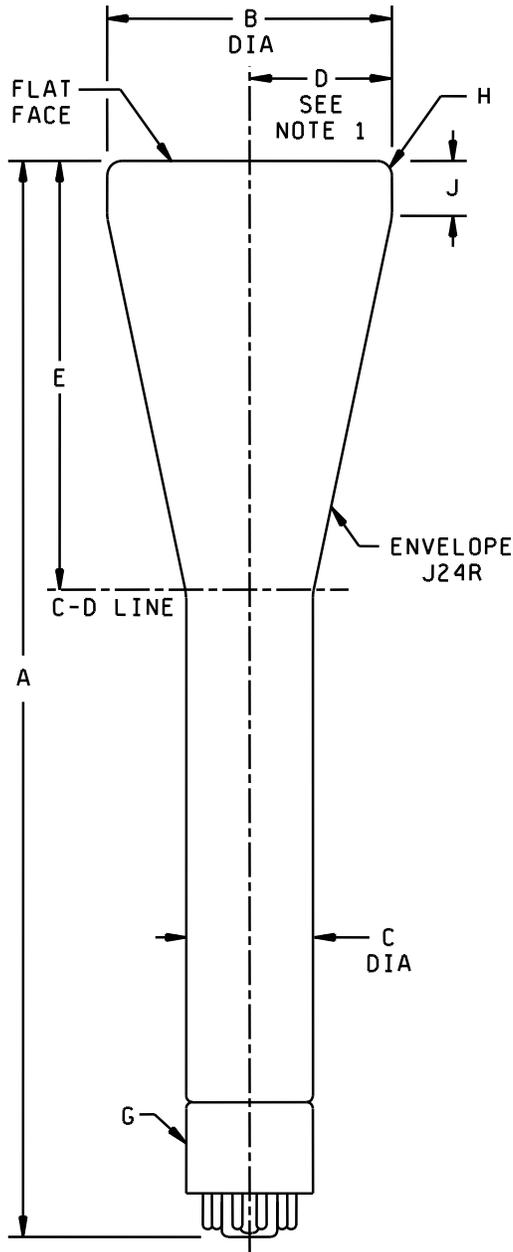
ABSOLUTE RATINGS:

Parameter:	Ef	Ec1	ed	Eb1	Eb2	Rg	Zd	Ehk	Alt
Unit:	V	V dc	V dc	V dc	V dc	Meg Ω	Meg Ω	V dc	ft
Maximum:	6.9	0, -200	550	1,100	2,750	1.5	1.0	± 180	30,000
Minimum:	5.7	---	---	---	1,000	---	---	---	---
Test conditions:	6.3	Adjust	---	Focus	1,500	---	---	---	---

GENERAL:

Qualification - Required.

This specification sheet uses accept on zero defect sampling in accordance with MIL-PRF-1, table III.



Ltr	Minimum		Maximum	
	inch	mm	inch	mm
Qualification inspection				
B	2.938	74.63	3.063	77.80
G	Base: B12-43 or B10-75			
Conformance inspection, part 2				
A	11.375	288.93	11.625	295.28
C	1.313	33.35	1.438	36.53
D	1.375	34.93	---	---
Reference dimensions (see note 2)				
E	4.563	111.90		
H	0.063	1.60		
J	0.563	14.30		

NOTES:

- Useful screen radius.
- Reference dimensions are for information only and are not required for inspection purposes.

FIGURE 1. Outline drawing of electron tube types 3WP1 and 3WP2.

TABLE I. Testing and Inspection.

Requirement or test	MIL-STD-1311 Method	Type	Conditions	Symbol	Limits		Unit
					Min	Max	
<u>Qualification inspection</u>							
Base material insulating quality	1216	Both	Zone 5, or higher	---	---	---	---
Pressure (implosion)	1141	Both		---	---	---	---
Barometric pressure, reduced	1002	Both	225 mmHg	---	---	---	---
Vibration	5111	Both		Width	---	1	mm
Direct-interelectrode capacitance	1331	Both	g1 to all	Cg1	---	8.7	pF
			k to all	Ck	---	5.7	pF
			D1 to D2	C1D2	---	3.3	pF
			D3 to D4	C3D4	---	2.0	pF
			D1 to all, except D2	CD1	---	7.2	pF
			D2 to all, except D1	CD2	---	7.2	pF
			D3 to all, except D4	CD3	---	4.8	pF
D4 to all, except D3	CD4	---	4.8	pF			
Neck and bulb alignment (electrostatic types)	5101	Both		Dia.	---	1.63	Inch
Cathode illumination	5216	Both		---	---	---	---
Deflection-factor uniformity	5248	Both		---	---	2	%
<u>Conformance inspection, part 1</u>							
Bulb, screen, and faceplate quality	5106	Both		---	---	---	---
Voltage breakdown	5201	Both		---	---	---	---
Voltage breakdown, (electrostatic types)	5201	Both		---	---	---	---
Gas "cross"	5206	P1	Light = 7 fL (see note 1)	---	---	---	---
Gas "cross"	5206	P2	Light = 2 fL (see note 1)	---	---	---	---
Light output	5221	P1	See note 1	Light	7	---	fL
Light output	5221	P2	See note 1	Light	2	---	fL
Spot position (electrostatic deflection)	5231	Both		---	---	10	mm
Spot displacement (leakage)	5231	Both		Displ	---	7	mm
Grid cutoff voltage	5241	Both		Eco	-45	-75	V dc
Grid No. 1 leakage current	5251	Both		---	---	---	---
Anode No. 2 leakage current	5251	Both		---	---	---	---

See notes at end of table.

TABLE I. Testing and Inspection - Continued.

Requirement or test	MIL-STD-1311 method	Type	Conditions	Symbol	Limits		Unit
					Min	Max	
<u>Conformance inspection, part 1</u> – Continued							
Useful scan	---	Both	Measured from tube face center; Focused trace 1D2 scan 3D4 scan	---	2.50	---	Inch
					2.25	---	Inch
Pattern distortion	5103	Both	See note 2	---	---	---	---
<u>Conformance inspection, part 2</u>							
Heater current	1301	Both		If	540	660	mA
Electrode current (cathode)	5201	P1	Light = 7 fL	Ik	---	1,000	μ A dc
Electrode current (cathode)	5201	P2	Light = 2 fL	Ik	---	1,000	μ A dc
Electrode current (anode No. 1)	5201	Both	Ec1 = 0	Ib1	-15	10	μ A dc
Base alignment (electrostatic types)	5101	Both	+1D2; pin No. 3	---	---	---	---
Neck and base alignment (electrostatic types)	5101	Both		---	---	---	---
Angle between traces	5101	Both		---	89	91	Degrees
Stray light emission (conventional types)	5216	Both	Eb2 = 2,750 V dc	---	---	---	---
Modulation	5223	P1	Light = 7 fL	Δ Ec	---	50	V dc
Modulation	5223	P2	Light = 2 fL	Δ Ec	---	45	V dc
Line width A (electrostatic deflection)	5226	P1	Light = 7 fL	Width	---	0.65	mm
Line width A (electrostatic deflection)	5226	P2	Light = 2 fL	Width	---	0.65	mm
Line width B (electrostatic deflection)	5226	P1	Light = 7 fL	Width	---	0.75	mm
Line width B (electrostatic deflection)	5226	P2	Light = 2 fL	Width	---	0.75	mm
Focusing voltage at modulation condition	5246	Both		Eb1	247	465	V dc
Deflection factor	5248	Both	1D2	DF	62	76	V dc/in.
Deflection factor	5248	Both	3D4	DF	43	52	V dc/in.

See notes at end of table.

TABLE I. Testing and Inspection - Continued.

Requirement or test	MIL-STD-1311 method	Type	Conditions	Symbol	Limits		Unit
					Min	Max	
<u>Conformance inspection, part 2</u> - Continued							
Heater-cathode leakage current	5251	Both		---	---	---	---
Base pin solder depth	1111	Both		---	---	---	---
Secureness of base, cap, or insert	1101	Both		---	---	---	---
Permanence of marking	1105	Both		---	---	---	---
<u>Conformance inspection, part 3</u>							
Life-test	---	Both	Group C; t = 500 hours minimum; Eb2 = 2,750 V dc	---	---	---	---
		P1	Light = 7 fL	---	---	---	---
		P2	Light = 2 fL	---	---	---	---
Life-test end points	---	Both	Line width A	Width	---	0.65	mm
			Line width B	Width	---	0.75	mm
			Heater-cathode leakage current	---	---	---	---
			Grid No. 1 leakage current	---	---	---	---
			Grid No. 2 leakage current	---	---	---	---
			Anode No. 1 leakage current	---	---	---	---
			Stray light emission	---	---	---	---
		P1	Light = 4.5 fL	---	---	---	---
			Modulation	ΔE_c	---	50	V dc
		P2	Light = 1.5 fL	---	---	---	---
	Modulation	ΔE_c	---	45	V dc		

NOTES:

1. This test to be performed at the conclusion of the holding period.
2. With a raster pattern adjusted so that its widest point just touches the sides of a 2.05-inch (52.07 mm) square, no point on the raster sides shall be within an inscribed 1.95-inch (49.53 mm) square.

Referenced documents. In addition to MIL-PRF-1, this specification sheet references MIL-STD-1311.

The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:
Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 5960-2014-002)

Review activities:
Army - AR, MI
Navy - AS, CG, MC
Air Force - 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>.