

INCH-POUND

MIL-PRF-1/1005E
w/AMENDMENT 1
12 February 2018
SUPERSEDING
MIL-PRF-1/1005E
3 February 2012

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, CATHODE RAY
TYPE 10WP7A *

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: Magnetic deflection and electrostatic focus, aluminized screen.

DIMENSIONS AND PIN CONNECTIONS: See figure 1.

ABSOLUTE RATINGS:

Parameter:	Ef	Ec1	Ec2	Eb1	Eb2	Rg	Ehk	Alt
Unit:	V	V dc	V dc	V dc	V dc	MegΩ	V dc	ft
Maximum:	6.9	0, -200	600	900	13,200	<u>1</u> /	±180	80,000
Minimum:	5.7	---	---	-450	7,000	---	---	---
Test conditions:	6.3	Adjust	300	Focus	10,000	---	---	---

See footnotes at end of table I.

GENERAL:

Qualification: Required.

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

* Replaces tube types 10WP7 and MIS 12750.



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TABLE I. Testing and inspection.

Inspection	Method MIL-STD-1311	Notes	Conditions	Symbol	Limits		Unit
					Min	Max	
<u>Qualification inspection</u>							
Base material insulating quality	1216	---	Zone 5 (min)	---	---	---	---
Cathode illumination	5216	---		---	---	---	---
Barometric pressure, reduced	1002	---	21 mmHg	---	---	---	---
Pressure (implosion)	1141	---		---	---	---	---
Direct-interelectrode capacitance	1331	---	k to all g1 to all	Ck Cg1	---	8.0 10.0	pF pF
Vibration (cathode-ray tubes)	5111	---		Width	---	2.0	mm
Shock	5115	---		---	---	---	---
<u>Conformance inspection, part 1</u>							
Bulb, screen, and faceplate quality	5106	---		---	---	---	---
Voltage breakdown	5201	---		---	---	---	---
Voltage breakdown (magnetic deflection)	5201	---		---	---	---	---
Modulation	5223	---	lb2 = 100 μ A dc	Δ Ec1	---	32	V dc
Spot position (magnetic deflection)	5231	---		---	---	0.5	inch
Face tilt	5101	---		---	---	---	---
Grid cutoff voltage	5241	---		Ec1	-33	-77	V dc
Grid No. 1 leakage current	5251	---		---	---	---	---
Anode No. 1 leakage current	5251	---		---	---	---	---
Zero-bias anode current (magnetic deflection)	5236	---		---	---	---	---
Gas ratio	5206	---		Gr	---	0.25	---
Neck straightness	5101	2/		---	---	---	---
Focusing electrode voltage	---	<u>3/</u>	lb2 = 100 μ A dc	Ec1	0	600	V dc
Line width A (magnetic deflection)	5226	<u>3/</u>	lb2 = 100 μ A dc	Width	---	0.55	mm

See footnotes at end of table.

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TABLE I. Testing and inspection - Continued.

Inspection	Method MIL-STD-1311	Notes	Conditions	Symbol	Limits		Unit
					Min	Max	
<u>Conformance inspection part 2</u>							
Secureness of base, cap, or insert	1101	---		---	---	---	---
Heater current	1301	---		If	540	660	mA
Heater-cathode leakage current	5251	---		---	---	---	---
Screens	5221	---		---	---	---	---
Stray emissions	5216	---	Eb2 = 13,200 V dc; Ec2 = 600 V dc; Eb1 = 0	---	---	---	---
Electrode currents (Grid No. 2)	5201	---	Ec1 = 0	Ic2	-15	+15	μA dc
Grid No. 2 leakage current	5251	---		---	---	---	---
Neck and bulb alignment	5101	---		---	---	---	---
Side terminal and base alignment	5101	---	Pin No. 3	---	---	---	---
Base pin solder depth	1111	---		---	---	---	---
Permanence of marking	1105	---		---	---	---	---
<u>Conformance inspection part 3</u>							
Life test	---	---	Group C; t = 500 hours (min); Eb2 = 13,200 V dc; Ec2 = 600 V dc; Eb1 = focus; Ib2 = 60 μA dc	---	---	---	---
Life-test end ponts:	---						
Modulation	5223	---	Ib2 = 100 μA dc	ΔEc1	---	32	V dc
Line width A	5226	---	Ib2 = 100 μA dc	Width	---	0.55	mm
Heater-cathode leakage current	5251	---		---	---	---	---
Grid No. 1 leakage current	5251	---		---	---	---	---
Grid No. 2 leakage current	5251	---		---	---	---	---
Anode No. 1 leakage current	5251	---		---	---	---	---
Stray light emission (conventional types)	5216	---		---	---	---	---

- 1/ When Ec2 is greater than 330 V dc, Rg1 shall not exceed 0.5 MegΩ. When Ec2 is less than 330 V dc, Rg1 shall not exceed 1.5 MegΩ.
- 2/ The neck and base straightness shall be determined by the insertion of the tube neck in a cylinder 5 inches (127.00 mm) long and 1.500 +.003, -.000 inches (38.10 +0.08, -0.00 mm) inside diameter. This cylinder should move freely between the reference line and the base of the assembled tube.
- 3/ The raster shall overscan the tube face. The centerline of the raster shall be adjusted for best focus.

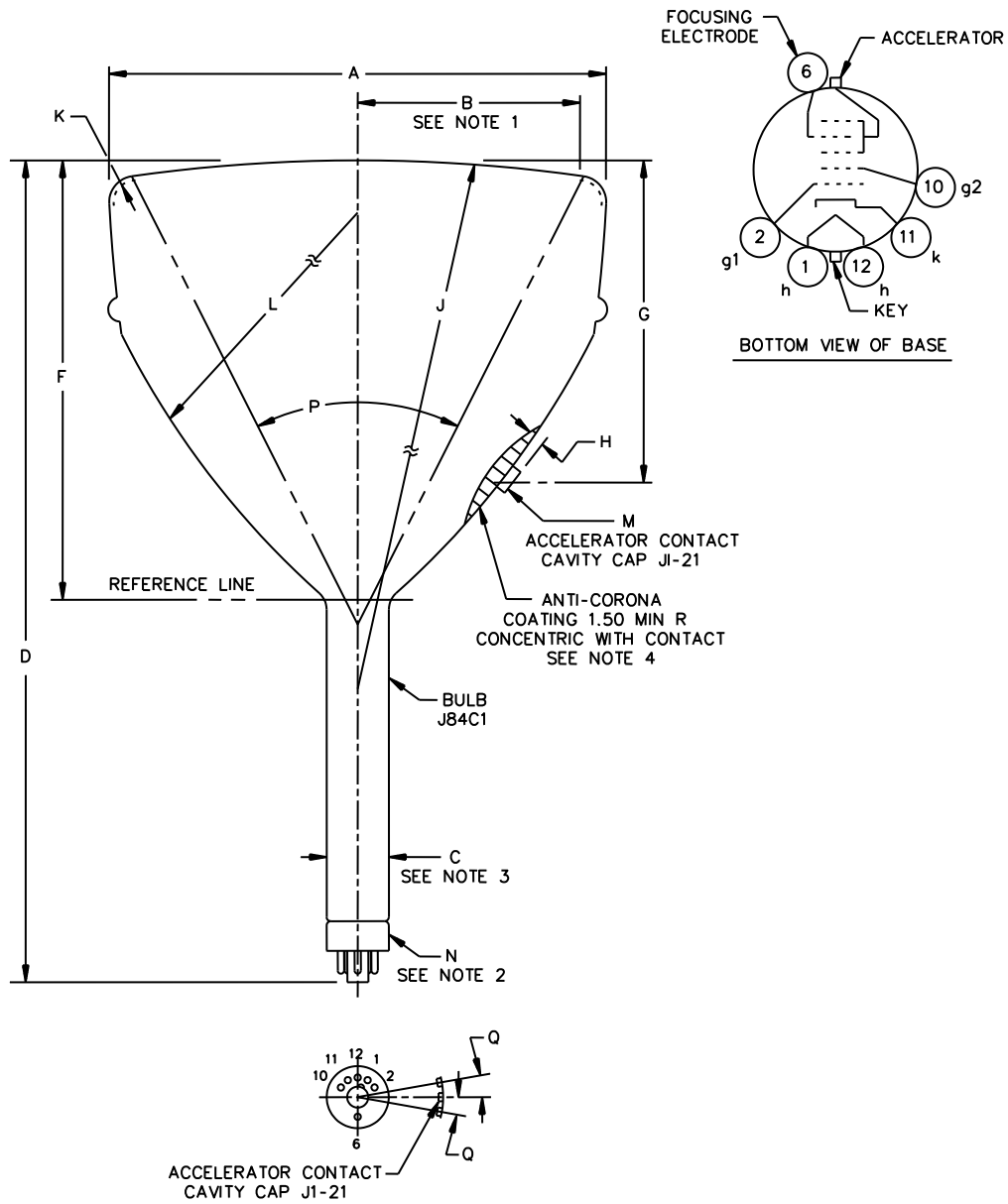


FIGURE 1. Outline drawing of electron tube type 10WP7A.

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Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Qualification inspection				
M	Bulb contact: J1-21			
N	Base: B6-63			
Conformance inspection, part 2				
A	10.380	10.620	263.65	269.75
B	4.500	---	114.30	---
C	1.380	1.500	35.05	38.10
D	16.560	17.310	420.62	439.67
F	9.250	9.620	234.95	244.35
G	6.880	7.620	174.75	193.55
H	---	.190	---	4.83
Reference dimensions (see note 5)				
J	42.000		1066.80	
K	.380		9.65	
L	20.000		508.00	

NOTES:

1. The minimum useful screen radius.
2. The base shall be a small shell duodecal 6-pin, B6-63.
3. Dimension C applies to entire length of neck below the reference line. The reference line is determined by the point where a gauge 1.500 $\pm$.003 inch (38.10 $\pm$ 0.08 mm) inside diameter and 2 inches in length will stop against the bulb body.
4. Do not handle tube by the part of the bulb having the anti-corona coating.
5. Reference dimensions are for information only and are not required for inspection purposes.

FIGURE 1. Outline drawing of electron tube type 10WP7A - Continued.

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

The margins of this specification sheet are marked with vertical lines to indicate modifications generated by this amendment. 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.

Custodians:

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

Preparing activity:

DLA - CC

Project (5960-2018-008)

Review activities:

Army - MI
Navy - AS, CG, MC, OS, SH

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>.