

INCH-POUND

MIL-PRF-1/1159E
17 January 2014
SUPERSEDING
MIL-PRF-1/1159D
17 April 2007

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, POWER

TYPE 705WA

Inactive for new design
after 30 April 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 MIL-PRF-1.

DESCRIPTION: Diode, high vacuum.

See figure 1.

Mounting position: Any.

Weight: 3.25 ounce nominal.

ABSOLUTE RATINGS:

Parameter:	Ef	epx	epy	ib	Io	Pp	tk
Unit:	V ac	kv	kv	ma	mA dc	W	sec
<u>Rectifier, half-wave</u>							
(A) Maximum:	5.25	30	---	400	100	60	---
Minimum:	4.75	---	---	---	---	---	20
(B) Maximum:	5.25	15	---	600	150	60	---
Minimum:	4.75	---	---	---	---	---	20
<u>Diode, surge limiting</u>							
Maximum:	5.5	30	10	---	---	75	---
Minimum:	---	---	---	---	---	---	20
<u>TEST CONDITIONS:</u>	5.0	30	---	400	---	---	20
		(see note 1)					

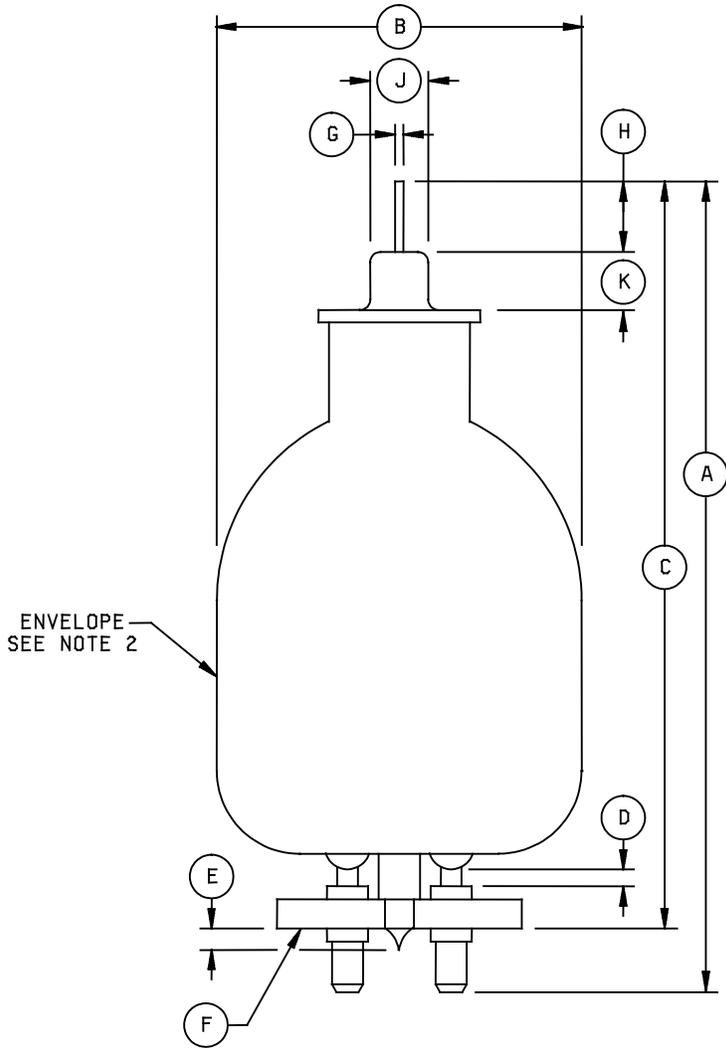
| GENERAL:

Qualification: Not required.

Holding period: t = 72 hours

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

Preheating: Prior to testing, all tubes shall be preheated under conditions not exceeding the maximum ratings for sufficient time to obtain stabilized values of electrical characteristics. Preheating may be done in the test set if desired by the manufacturer.



Pin connections	
Pin no.	Element
1	Filament
2	Filament center tap
3	Filament
4	No connection
Cap	Anode

Dimensions (see note 1)				
Ltr	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 2				
A	4.813	5.062	122.25	128.57
B	---	2.313	---	58.75
C	4.300	4.703	109.22	119.46
Conformance inspection, part 3 (periodic check)				
D	.015	.094	0.38	2.39
E	---	.125	---	3.18
F	Base: A4-52 (see note 3)			
G	.055	.060	1.40	1.52
H	.305	.445	7.75	11.30
J	.368	.382	9.35	9.70
K	.375	---	9.53	---

NOTES:

1. Metric equivalents (to the nearest .01 mm) are given for general information only and are based on 1 inch = 25.4 mm.
2. Allowable eccentricity of envelope with respect to centerline through base shall be .126 (3.20 mm) maximum. Conformance inspection, part 3 (periodic check) shall apply.
3. For pin alignment, use gauge GA4-6.

FIGURE 1. Outline drawing of electron tube type 705WA.

TABLE I. Requirements or tests.

Requirement or test	MIL-STD-1311 Method	Conditions	Symbol	Limits		Unit
				Min	Max	
<u>Conformance inspection, part 1</u>						
Visual and mechanical inspection criteria	---		---	---	---	---
Peak emission	1231	eb = 1,000 v (max)	is	750	---	ma
Anode current	1256	Eb = 300 V dc	lb	290	440	mA dc
Filament current	1301	See note 4	If	4.5	5.25	A
Operation of rectifiers	1353	t = 60 (see notes 5 and 7)	lo	100	---	mA dc
<u>Conformance inspection, part 2</u>						
Dimensions	---	See figure 1	---	---	---	---
Secureness of base, base insert, and cap	1101	20 inch-pound torque	---	---	---	---
High frequency vibration	1031	No voltages	---	---	---	---
Shock	1041	300 G (see note 6)	---	---	---	---
Post-shock end point	---	See note 3	---	---	---	---
<u>Conformance inspection, part 3</u>						
Life-test provisions	---	Group D, operation of rectifiers; T = 125°C; t = 500 hours (see note 2)	---	---	---	---
Life-test end points	---	Peak emission and failure to rectify.	is lo	500 100	---	ma mA dc
<u>Periodic check tests</u>						
Dimensions	---	See figure 1	---	---	---	---
Vibration fatigue test	1031	Ef = 5.0 V ac	---	---	---	---
Post-vibration fatigue test end point	---	See note 3.	---	---	---	---

See notes on next page.

TABLE I. Requirements and tests - Continued.

NOTES:

1. Apply 25 kv epx, then raise epx to 30 kv.
2. Use of heat-dissipating connectors is not permitted during life testing.
3. The end point for vibration fatigue and shock shall be the anode current test (see MIL-STD-1311, method 1256).
4. With 2.5 V ac applied to each half of the filament, each If value shall be within the limits specified herein.
5. No sparking or other irregular operation shall occur during the last 30 seconds of the 1-minute test.
6. Shock-test mounting fixture, as specified on Drawing 288-JAN, or equivalent, shall be used for clamping tube base.
7. This test to be performed at the conclusion of the holding period.

Referenced documents. In addition to MIL-PRF-1, this document references MIL-STD-1311 and Drawing 288-JAN.

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 5960-2013-045)

Review activities:

Army - CR4
Navy - AS, CG, MC, OS
Air Force - 19, 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/>.