

INCH-POUND

MIL-PRF-1/193E
16 June 2003
SUPERSEDING
MIL-PRF-1/193D
29 May 1998

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, RECEIVING
TYPES 0C3A AND 0C3W

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: Voltage regulator

Outline:	
0C3A	9-7 (EIA)
0C3W	See figure 1
Base:	
0C3A	B6-8
0C3W	See figure 1
Envelope	T9
Cathode	Glow discharge

Base connections:						
Pin No.	1	2	3	5	7	8
Element	nc	k	7 (Note 1)	a	3 (Note 1)	nc

ABSOLUTE-MAXIMUM RATINGS:

Parameter:	Ebb	Starting voltage	Operating voltage	Operating current	Alt
Unit:	V dc	V dc	V dc	mA dc	ft
Maximum:	---	---	105 (approx)	40	10,000
Minimum:	---	133	---	5	---
Test Conditions:	300	---	---	---	---
				(Note 2)	

GENERAL:

Qualification - Required

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Table I. Testing and Inspection.

Inspection	Method	Notes	Conditions	Acceptance Level (see note 9)	Symbol	Limits Min	Limits Max	Unit
<u>Conformance inspection, part 1</u>								
Ionization voltage (1) (with illumination)	3347	3, 4	Rp/lb = 5 to 40 mA dc	0.65	Ez	---	127	V dc
Voltage drop (1)	3337	-	Rp/lb = 40 mA dc	0.65	Eb	---	112	V dc
Voltage drop (3)	3337	-	Rp/lb = 5 mA dc	0.65	Eb	105	---	V dc
Regulation (1)	3335	-	Eb(1) - Eb(3)	0.65	---	---	4.0	V dc
Noise and oscillation (oscillation test)	3278	-	Esig = 100 mV ac; R ℓ = 500 ohms; Ebb/lb = 5 to 40 mA dc	0.65	---	---	---	---
Noise and oscillation (noise test)	3278	-	Ebb/lb = 40 mA dc; R ℓ = 500 ohms	0.65	Δ Eb	---	15.0	mV ac
Short and discontinuity detection	1201	-		0.4	---	---	---	---
<u>Conformance inspection, part 2</u>								
Low-frequency vibration	1031	-	No voltage applied	---	---	---	---	---
Shock (Type 0C3W)	1041	-	900 G	15	---	---	---	---
Shock-test end point (Type 0C3W):	---	-		---	---	---	---	---
Ionization voltage (1)	3347	-		---	Ez	---	133	V dc
Voltage drop (2)	3337	-		---	Eb	---	113	V dc
Voltage drop (3)	3337	-		---	Eb	103	---	V dc
Regulation (1)	3335	-		---	---	---	4.0	V dc
Regulation (2)	3335	-		---	---	---	2.5	V dc
Voltage drop (2)	3337	-	Rp/lb = 30 mA dc	---	Eb	---	111	V dc
Regulation (2)	3335	-	Eb(2) - Eb(3)	---	---	---	2.0	V dc
Leakage current	3305	-	Eb = 50 V dc	---	Llb	---	10.0	μ A dc
Secureness of base, cap, or insert	1101	-		---	---	---	---	---
Base pin solder depth	1111	5		---	---	---	---	---
Permanence of marking	1105	-		---	---	---	---	---

See notes at end of Table I.

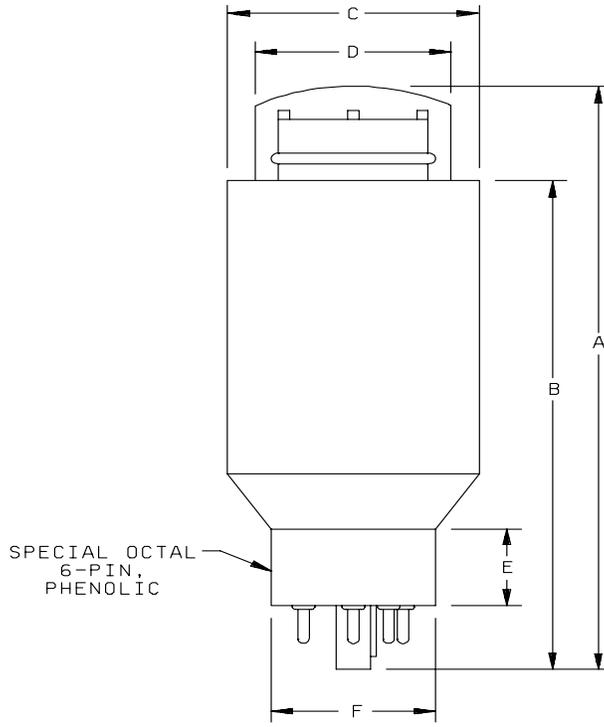
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Table I. Testing and Inspection. -Continued

Inspection	Method	Notes	Conditions	Symbol	Limits Min	Limits Max	Unit
<u>Conformance inspection, part 3</u>							
Life test	---	-	Group A; Rp/lb = 30 mA dc	---	---	---	---
Life-test end points (500 hours):	---						
Ionization voltage (1)	3347	-		Ez	---	133	V dc
Voltage drop (2)	3337	-		Eb	---	113	V dc
Voltage drop (3)	3337	-		Eb	103	---	V dc
Regulation (1)	3335	6		---	---	4.0	V dc
Regulation (2)	3335	-		---	---	2.5	V dc
Variable-frequency vibration (Type 0C3W)	1031	7	No voltages applied	---	---	---	---
Ionization voltage (2) (total darkness)	3347	7, 8	Rp/lb = 5 to 40 mA dc	Ez	---	210	V dc

NOTES:

1. Pins 3 and 7 tied internally.
2. Fixed resistors may be used and Ebb varied to give desired current.
3. Test to be conducted with the tube exposed to light intensity of 5 to 50 footcandles.
4. This test to be performed at the conclusion of the holding period.
5. This test applies for flexible leads as well as for rigid leads.
6. The tube shall have reached the end of its life with regard to regulation (1) when that regulation first exceeds the value of 4.0 volts.
7. This test shall be performed during the initial production and once each succeeding 12-calendar months in which there is production. An accept on zero defect sampling plan shall be used, with a sample of three tubes with an acceptance number of zero. In the event of failure, the test will be made as a part of conformance inspection, part 3, with an acceptance level of 6.5 (see note 9). The regular "12-calendar month" sampling plan shall be reinstated after three consecutive samples have been accepted.
8. Test to be conducted with the tube under test enclosed in a light tight enclosure composed of a non-conducting material. Measurements to be performed after the test specimen is held in the enclosure for 24 hours. The tube shall fire within 15 seconds.
9. This specification sheet uses accept on zero defect sampling plan in accordance with MIL-PRF-1, table III.



Dimensions in inches with metric equivalents (mm) in parentheses		
Ltr	Minimum	Maximum
Conformance inspection, part 3 (See note 7)		
A	---	4.13 (104.90)
B	---	3.403 (86.44)
C	---	1.57 (39.88)
D	---	1.32 (33.53)
E	0.843 (21.41) Nom	
F	1.136 (28.85)	1.176 (29.87)

FIGURE I. Outline drawing of electron tube type OC3W.

Custodians:
 Army - CR
 Navy - EC
 Air Force - 11
 DLA - CC

Preparing activity:
 DLA - CC
 (Project 5960-3671)

Review activities:
 Army - AR, MI
 Navy - AS, CG, MC, OS
 Air Force - 19, 99