

INCH-POUND

MIL-PRF-1/1428H
 16 September 2016
 SUPERSEDING
 MIL-PRF-1/1428G
 16 July 2004

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, THYRATRON
 TYPE 7621

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: Triode, hydrogen, ceramic-metal.
 See figure 1.
 Mounting position: Any.
 Weight: 2 ounces (56.7 grams) nominal.

ABSOLUTE RATINGS:

Parameter:	Ef	epy	epx	Ebb	Ip	egy	ib	lb	tk
Unit:	V ac	kv	kv	V dc	A ac	v	a	mA dc	sec
Maximum:	6.8	8 <u>1</u> /	8 <u>2</u> /	---	2	---	90	100	---
Minimum:	5.8	---	5% epy	300	---	175	---	---	90
Test conditions:	5.8	8	---	---	---	130	---	---	90

ABSOLUTE RATINGS:

Parameter:	Pb	TA	dik/dt	pr	Cooling	tj	Ecc
Unit:	---	°C	a/μs	---	---	μs	V dc
Maximum:	2.7 x 10 ⁹	+125	1,000	---	---	0.010	---
Minimum:	---	-65	---	---	---	---	0
Test conditions:	---	Ambient	---	4,000	---	---	0

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.

AMSC N/A

FSC 5960



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TABLE I. Testing and inspection.

Inspection	Method MIL-STD-1311	Condition	Symbol	Limits		Unit
				Min	Max	
<u>Conformance inspection, part 1</u>						
Instantaneous starting	3267	Ef = 6.8 V ac <u>5/ 6/</u>	---	---	---	---
Operation	3246	t = 300 <u>5/</u>	---	---	---	---
Heater current	3241	Ef = 6.3 V ac	If	2.2	3.5	A ac
Pulse emission (method A)	3251	ik = 90 a (min); <u>7/</u> pr = 60 ± 10% tp = 5.0 μs ± 10% tr = 0.5 μs (max)	egk	---	200	v
DC anode voltage for conduction	3247		Ebb	---	200	V dc
<u>Conformance inspection, part 2</u>						
Anode delay time	3256	Operation; t = 30	tad	---	0.4	μs
Anode delay time drift	3256	Anode delay time <u>8/</u>	Δtad	---	0.15	μs
Time jitter	3261	Operation	tj	---	0.01	μs
<u>Conformance inspection, part 3</u>						
Life test	---	t = 200 hours <u>5/ 9/</u>	---	---	---	---
Life test end points	---		---	---	---	---
Operation	3246	egy = 140 v (max)	---	---	---	---
DC anode voltage for conduction	3247		Ebb	---	250	V dc
Anode delay time	3256	egy = 140 v (max)	tad	---	0.5	μs
Operation at elevated ambient temperature	3246	t = 5 hours; <u>5/ 11/ 12/</u> TA = 90°C Ef = 6.8 V ac	egy	---	175	v
Variable-frequency vibration	1031	No voltage applied <u>10/ 12/</u>	---	---	---	---
Shock, specified pulse	1042	Test condition D <u>12/</u>	---	---	---	---
Shock and vibration end points:	---		---	---	---	---
Operation	3246		egy	---	175	v
DC anode voltage for conduction	3247		Ebb	---	250	v
Time Jitter	3261		tj	---	0.01	μs

See footnotes at end of table.

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TABLE I. Testing and inspection - continued.

- 1/ Instantaneous starting permissible. The maximum permissible epy is 8.0 kv and shall not be attained in less than 0.04 seconds.
- 2/ In pulsed operation, the peak inverse voltage, exclusive of a spike of 0.05 μ s maximum duration, shall not exceed 2.5 kv during the first 25 μ s following the anode pulse.
- 3/ The driver pulse, measured at the tube socket with the thyatron grid disconnected shall have the following characteristics: egy = 175 v (min), tr = 0.25 μ s (max); grid pulse duration tp = 1.0 μ s (min). Impedance of drive circuit = 1,200 ohms (max).
- 4/ Forced-air cooling directed on the anode or envelope is permissible, depending upon operating conditions.
- 5/ The circuit constants shall be chosen under resonant charging conditions so that epy = 8.0 kv; ib = 90 a (min); dik/dt = 1,000 a/ μ s (min); tp = 0.12 \pm 0.012 μ s; prr = 4,000 (min). Grid pulse as measured at tube socket with thyatron grid disconnected shall have the following characteristics: tr = 0.25 μ s (max), tp = 1.0 μ s (max), internal impedance of driver: 1,200 ohms (min).
- 6/ The tube shall operate satisfactorily on push button starting within three attempts when the anode voltage (epy) is applied to the tube under test in such a manner as to rise from 0 to 8.0 kv minimum within 0.03 second. Any tube failing to start within three attempts shall be considered a failure.
- 7/ The voltage between grid and cathode shall be measured not more than 2.5 μ s after the beginning of the current pulse.
- 8/ During the interval between 30 and 90 seconds of the anode delay time test, the (Δ tad) relative to the tad value observed on the anode delay time test shall not exceed the specified value.
- 9/ During every 50 \pm 8 hour period, the life test shall be shut off for 60 minutes (min) and then tested for life-test end points.
- 10/ There shall be no pronounced resonance in the range specified in MIL-STD-1311, method 1031.
- 11/ The tube shall operate satisfactorily at the ambient temperature specified herein at operation test conditions for a total of 5 consecutive hours. This test shall be performed on a minimum of four tubes on an annual basis.
- 12/ This test shall be performed during the initial production and once each succeeding 12-calendar months in which there is production. In the event of failure, the test will be made as part of conformance inspection, part 2. The "12-calendar month" sampling plan shall be reinstated after three consecutive samples have been accepted.

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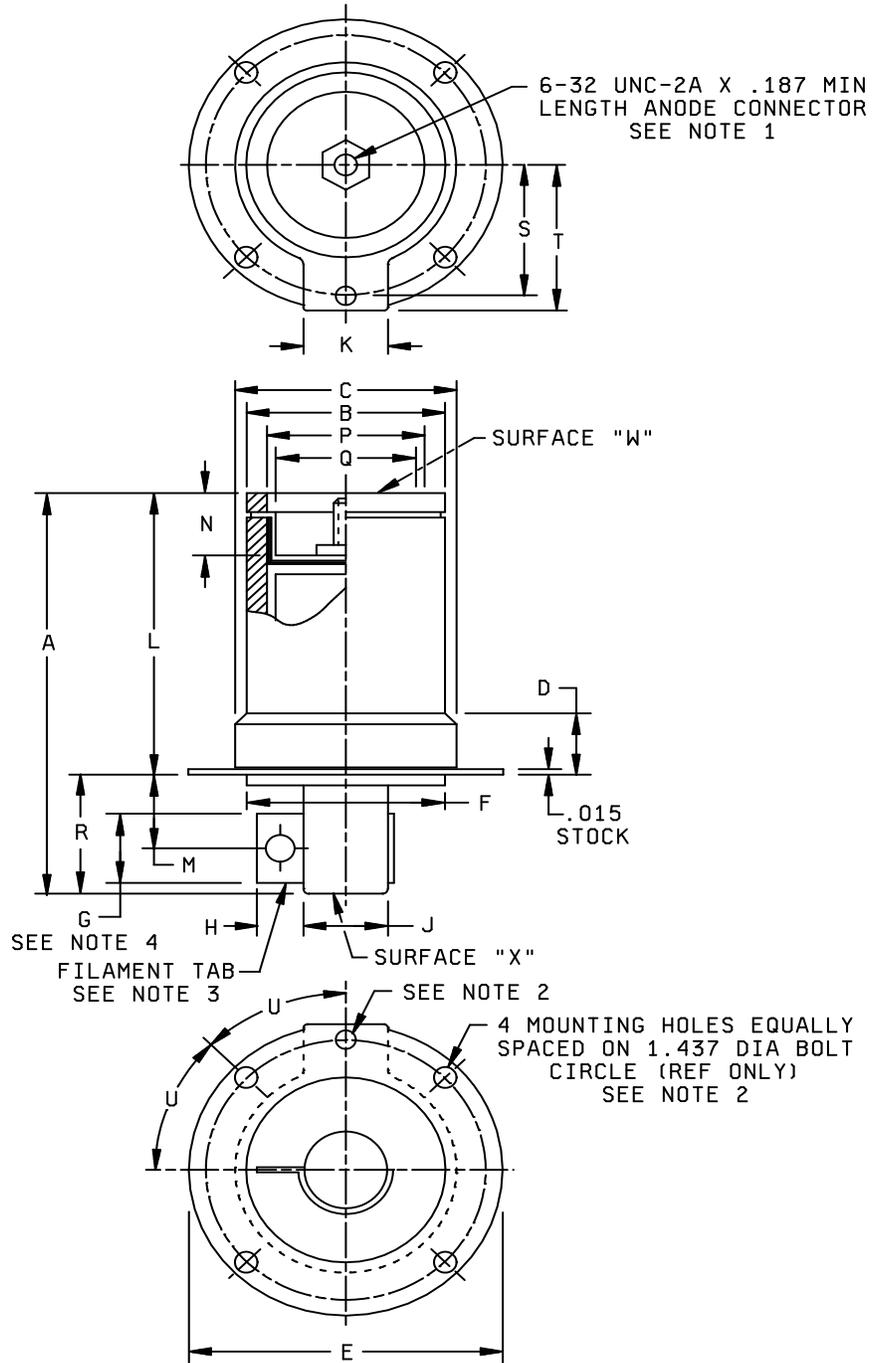


FIGURE 1. Outline dimensions of electron tube type 7621.

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Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 2				
A	---	2.355	---	59.82
B	.985 DIA	1.015 DIA	25.02 DIA	25.78 DIA
C	---	1.150 DIA	---	29.21 DIA
D	.295	.340	7.49	8.64
E	1.579 DIA	1.639 DIA	40.11 DIA	41.63 DIA
F		1.015 DIA		25.78 DIA
G	---	.500	---	12.70
H	---	.438	---	11.13
J	---	.469 DIA	---	11.91 DIA
K	.250	.500	6.35	12.70
L	1.500	1.600	38.10	40.64
M	.335	.585	8.51	14.86
N	.250	.360	6.35	9.14
P	.785	.815	19.94	20.70
Q	.650 DIA	.710 DIA	16.51 DIA	18.03 DIA
R	---	.700	---	17.78
Reference dimensions				
S	.670		17.02	
T	.795		20.19	
U	45°			

NOTES:

1. Anode connector shall not extend above surface "W".
2. All mounting holes, including grid and filament tab holes, shall clear No. 4 screws, (.120 inch (3.05 mm) diameter holes).
3. Wrap of filament tab on protector cap optional, right or left side.
4. Tab edge shall not extend beyond surface "X".
5. Grid and filament tabs shall not interfere with cathode flange mounting holes.

FIGURE 1. Outline dimensions of electron tube type 7621 - Continued.

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

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Custodians:

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

Preparing activity:

DLA – CC

(Project 5960-2016-032)

Review activities:

Navy - AS, CG, MC, OS

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/>.