INCH-POUND

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SUPERSEDING
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PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, THYRATRON
TYPE 6130

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
See figure 1
Mounting position: Any
Weight: 3-ounces (85 grams) nominal

ABSOLUTE RATINGS:

Parameter:	Ef	epy	epx	Ebb	Ec	egx	egy	ib
Unit:	V ac	kv	kv	V dc	V dc	v	v	a
Maximum:	6.6	3.0	3.0	---	---	200	---	35
Minimum:	5.7	--- (Note 1)	--- (Note 2)	800	---	---	--- (Note 3)	---
Test conditions:	6.3	3.0	---	---	0	---	130	---

ABSOLUTE RATINGS:

Parameter:	Ib	tk	dik/dt	Pb	TA	prr	Barometric pressure, reduced
Unit:	mA dc	sec	a/μs	---	°C	pps	mm Hg
Maximum:	45	---	750	0.3×10^9	90	---	87.0
Minimum:	---	120	---	---	-50	---	---
Test conditions:	---	120	---	---	---	2,800	---

GENERAL:

Qualification – Not required

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

TABLE I. Group A inspection.

Inspection	MIL-STD-1311 Method	Note	Conditions	Symbol	Limits Min	Limits Max	Unit
Conformance inspection, part 1							
Heater current	3241	---		If	2.0	2.5	Aac
Instantaneous starting	3267	5, 7	epy = 3,000 v (min)	---	---	---	---
DC anode voltage for conduction	3247	8		Ebb	---	300	Vdc
Operation (1)	3246	5, 9, 10	epy = 4,000 v (min)	egy	---	130	v
Pulse emission (method A)	3251	---	ik = 35 a (min) prr = 60 ± 10% tp = 5.0 μs ± 10% tr = 0.5 μs (max); specified time interval = 2.5 μs	egk	---	150	v
Conformance inspection, part 2							
Shock, Specified Pulse	1042	---		---	---	---	---
Anode delay time	3256	5, 9	Operation (1); t = 120 seconds	tad	---	0.6	μs
Anode delay time drift	3256	11	Anode delay time	Δtad	---	0.15	μs
Time jitter	3261	5	epy = 1,500 v (max)	tj	---	0.02	μs
Operation (2)	3246	5, 6	t = 5.0 minutes	egy	---	130	v
Conformance inspection, part 3							
Life test		5	Group B; t = 500 hours; t = 96 hours "on" and one hour "off" (tube mounted horizontally)	---	----	---	---
Life-test end points:							
Operation (1)	3246	---		egy	----	140	v
DC anode voltage for conduction	3247	---		Ebb	---	750	V dc
Time jitter	3261	---		tj	---	0.04	μs
Low-frequency vibration	1031	4, 12	No voltages; F = 12 to 50 Hz	---	---	---	---
High-frequency vibration	1031	4, 12	t = 30 seconds (min)	---	---	---	---
Operation at elevated temperature	3246	5, 12	t = 5.0 hours; TA = 90°C	egy	----	130	v
Operation (3)	3246	5, 6, 12	t = 5.0 hours	egy	---	130	v

See footnotes at end of table.

NOTES:

1/ For instantaneous starting applications where anode voltage is applied instantaneously, the power supply filter design shall be such that the maximum permissible epy is 3,000 v and shall not be attained in less than 0.04 second.

2/ In pulsed operation, the peak inverse voltage, exclusive of a spike of 0.05 μs maximum duration, shall not exceed 1,500 volts during the first 25 μs after the pulse.

3/ Driver pulse, measured at tube socket with thyratron grid disconnected; egy = 175 v (min), time of rise = 0.5 μs (max), grid pulse duration = 2.0 μs (min). Impedance of drive circuits = 1,500 ohms (max).

4/ There shall be no pronounced resonance in the specified range.

5/ The circuit constants shall be chosen so that at epy = 3.0 kv under resonant charging conditions, dik/dt = 750 a μs (min), ib = 35 a, tp = 0.5 μs ± 10 percent, prr = 3,000. The grid pulse characteristics shall be tp = 2.0 μs (max), tr = 0.5 μs (min), driver impedance = 1,500 ohms (min).

6/ The tube shall operate satisfactorily in an evacuated chamber in which the pressure does not exceed 70 mmHg.

7/ 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 3,000 v within 0.03 second. The filter in the rectifier shall be designed so that epy reaches at least 1,500 v within 0.015 second.

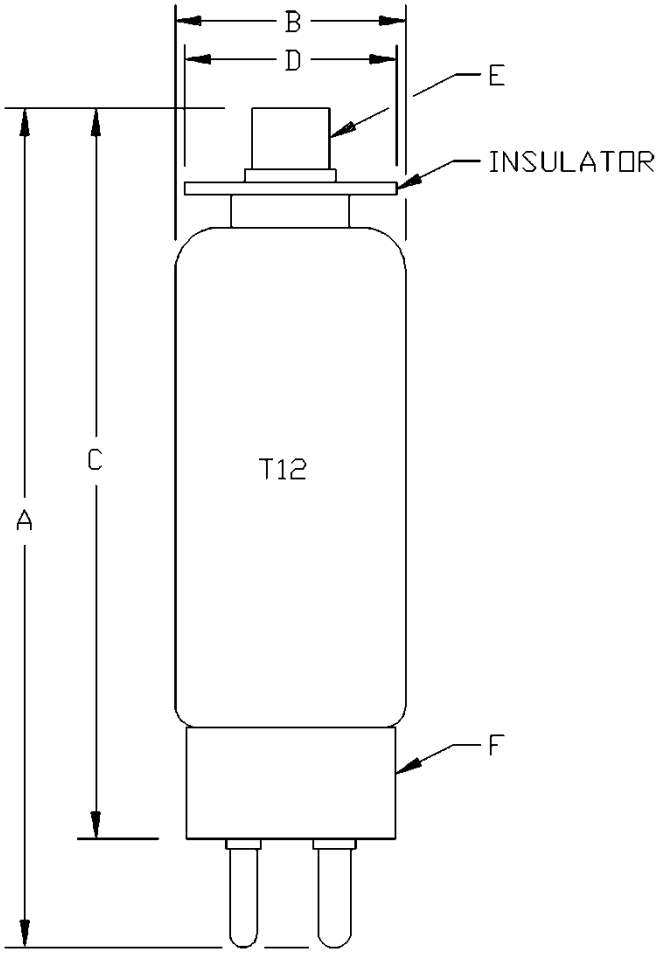
8/ This test shall be conducted within 60 seconds after the operation (1) test.

9/ The tube shall operate continuously for 5 minutes without evidence of arc-back or anode heating.

10/ This test is to be the first test performed at the conclusion of the holding period.

11/ During the interval between 2 minutes and 7 minutes of the anode delay time test, the change in anode delay time (Δtad) relative to the tad value observed on the anode delay time test shall not exceed the specified value.

12/ This test shall be performed according to the life testing schedule given in MIL-PRF-1 paragraph 4.3.8.



Pin connections	
Pin No.	Element
1	h
2	k
3	g
4	h, k
cap	a

Dimensions				
Ltr	Minimum		Maximum	
	Inches	mm	Inches	mm
Conformance inspection, part 2				
A	---	---	5.188	131.78
B	---	---	1.563	39.70
C	4.188	106.38	4.563	115.90
Conformance inspection, part 3 (see note)				
D	---	---	1.469	(37.31)
E	Cap: C1-1 (EIA)			
F	Base: A4-9 (EIA)			

FIGURE 1. Outline drawing of electron tube type 6130.

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

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DLA - CC

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Review activities:
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