INCH POUND
MIL-PRF-1/299F
6 September 1999
SUPERSEDING
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PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE , GAS SWITCHING
TYPE 5927

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: TR, bandpass, frequency range 3,100 to 3,500 MHz, incident power 825 kw.

ABSOLUTE RATINGS:

Parameter:	Incident power	Ii	Ebb	Du	Alt
Unit:	kw	μA dc	V dc	- - -	Ft
Maximum:	- - -	200	-700	0.001	10,000
Minimum:	100	- - -	-500	- - -	- - -

PHYSICAL CHARACTERISTICS:

Dimensions: See figure 1.
Mounting: 153-JAN, 268-JAN.
Mounting position: Any.

TEST CONDITIONS:

Frequency		
F	MHz	±
F1	3,100	0.1 %
F2	3,300	0.1 %
F3	3,425	0.1 %
F4	3,500	0.1 %

Parameter:	Incident power	Ii	tp1	tp2	F	Du
Unit:	kw	μA dc	μs	μs	- - -	- - -
Test condition 1:						
Maximum:	- - -	- - -	1.15	- - -	- - -	- - -
	50	- - -	1.00	- - -	F2	0.001
Minimum:	- - -	- - -	0.85	- - -	- - -	- - -
Test condition 2:						
Maximum:	220	- - -	1.15	0.60	- - -	- - -
	200	200	1.00	0.50	F2	0.001
Minimum:	180	- - -	0.85	0.40	- - -	- - -
Test condition 3:						
Maximum:	825	- - -	- - -	- - -	- - -	- - -
	750	200	- - -	- - -	F3	0.001
Minimum:	675	- - -	- - -	- - -	- - -	- - -

GENERAL:

Qualification - Required.

TABLE I. Testing and inspection.

Inspection	Method	Notes	Test	Conditions	Symbol	Limits Min	Limits Max	Units
Qualification inspection								
Degradation due to vibration	4021	---	---		---	---	---	---
Low-level VSWR	4473	2, 3	---	$\sigma' = 1.05$	σ	---	1.9	---
High-level VSWR	4474	4, 5	1		σ	---	1.15	---
Humidity	1011	---	---		---	---	---	---
Conformance inspection, part 1		1	---					
Ignitor ignition time	4401	6	---		t	---	5.0	sec
Ignitor voltage drop	4406	6	---	Ii = 200 µA dc	Eid	-250	-400	V dc
Spike leakage energy	4452	4	2		Ws	---	0.3	erg
Flat leakage power	4452	3	2		pf	---	50	mw
Low-level VSWR	4473	3	---	$\sigma' = 1.05$ (max) F1 and F4 F2	 σ σ	 --- ---	 1.60 1.40	 --- ---
Conformance inspection, part 2								
Dielectric material strain	4401	---	---		---	---	---	---
Insertion loss (fixed tuned)	4416	3	---	F = F2; Ii = 0	Li	---	0.7	dB
Ignitor interaction (insertion loss)	4421	6	---	F = F2; Ii = 200 µA dc	ΔLi	---	0.3	dB
Recovery time	4471	4, 8	3		t	---	15	µs
Bump	1036	7	---	Hammer angle, 25°	---	---	---	---
Conformance inspection, part 3								
Life test	---	4	3	Group D; Ii = 150 µA dc	t	500	---	hrs
Life-test end points:	---	---	---					
Recovery time	4471	4, 8	3		t	---	30	µs
Flat leakage power	4452	3	2		pf	---	50	mW
Spike leakage energy	4452	4	2		Ws	---	0.3	erg
Insertion loss (fixed tuned)	4416	3	---	F = F2; Ii = 0	Li	---	1.2	dB

See notes at end of Table I.

NOTES:

1. Unless otherwise specified, acceptance for all tests listed under conformance inspection, part I shall be based upon zero defect (c = 0) sampling plan in accordance with MIL-PRF-1, Table III, using an acceptance level of 1.0.

2. The input standing-wave ratio shall be measured at intervals of 30 MHz from F1 - 30 MHz to F4 + 30 MHz. At no frequency in this interval shall the voltage standing wave ratio be greater than the amount specified.

3. This test shall be performed using the flanges specified in Drawing 268-JAN.

4. This test shall be performed using the mount specified in Drawing 153-JAN.

5. With a load standing wave ratio of less than 1.05 the voltage standing ratio produced by the tube shall be less than the amount specified.

6. The ignitor power supply shall have an open circuit voltage of 600 V dc negative with respect to the tube body. The ignitor series resistance shall be 1.60 MΩ. The ignitor shall fire within the specified time after application of voltage.

7. Anvil in accordance with Drawing 188-JAN. An equivalent test employing MIL-STD-202, method 213 may be used provided G level and pulse duration of shock pulse level are equivalent to that obtained using MIL-STD-1311, method 1036 with hammer angle of 25°

8. The recovery time shall be measured after 30 minutes of operation under the conditions specified.

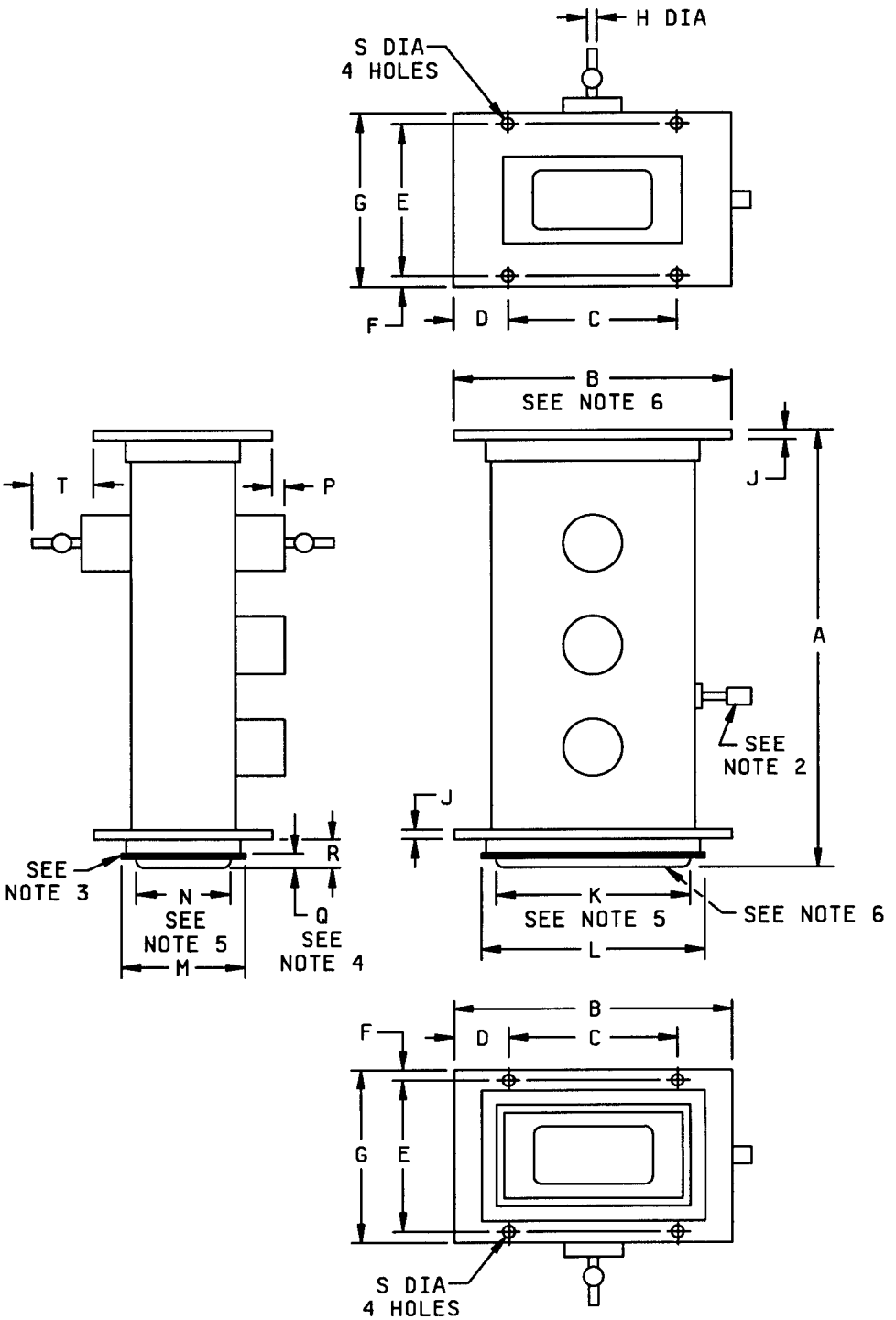

FIGURE 1. Outline drawing of electron tube type 5927.

See notes at end of Figure I.

Dimensions				
Ltr	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 1 (see note 1)				
A	4.828	4.888	122.63	124.16
K		3.008		76.40
P		.187		4.76
Q	.165	.195	4.19	4.95
R	.347	.377	8.81	9.58
T		.812		20.64
Conformance inspection, part 2				
C	2.490	2.510	63.25	63.75
E	2.240	2.260	56.90	57.40
L	3.203	3.233	81.36	81.85
M	1.703	1.733	43.26	44.02
N		1.508		38.30
Reference dimensions				
B	4.125		104.78	
D	.812		20.64	
F	.187		4.76	
G	2.625		66.68	
H	.250		6.35	
J	.125		3.18	
S	.218		5.56	

NOTES:

1. Unless other wise specified, acceptance for all tests listed under conformance inspection, part I, shall be based upon zero defect (c = 0) sampling plan in accordance with MIL-PRF-1, Table III, using an acceptance level of 1.0.

2. Exhaust tube shall not extend beyond flange more than 0.25 (6.35 mm) inch.

3. Gasket in accordance with Drawing 189 JAN. Gasket to be securely attached.

4. Dimension Q shall be measured prior to the attachment of the gasket to the tube.

5. Edges may be rounded.

6. Nickel plating or Rhodium flash over silver plating optional. If nickel plating is required, it is recommended that it be used only when other platings cannot meet performance requirements. Surface plating shall meet and enable the Gas Switching tube to meet all interface and performance requirements.

FIGURE 1. Outline drawing of electron tube type 5927 - Continued.

CONCLUDING MATERIAL

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

Reviewing activities:
Army - AR
Navy - AS, CG, MC, OS
Air Force - 99

Preparing activity:
DLA - CC

(Project 5960-3450)