INCH-POUND

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PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, GAS SWITCHING
TYPE 1B58A

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 2,664 to 2,964 MHz, incident power 750 kW.

ABSOLUTE RATINGS:

Parameter:	Incident power	Ebb (open circuit)	Alt
Unit:	kW	V dc	ft
Maximum:	---	---	10,000
Minimum:	10	-700	---

PHYSICAL CHARACTERISTICS: See figure 1.

TEST CONDITIONS:

Parameter:	F	tp1	tp2	prr	Du	Incident power	Ii	Ri
Unit:	MHz	μs	μs	pps	---	kW	μA dc	MegΩ
Test condition 1:	F4 ±0.5%	1.0 ± 0.15	0.5 ± 0.15	1,000	---	200 ± 10	200	1.6
Test condition 2:	F4 ±0.5%	1.0	---	1,000	0.001	50	200	1.6
Test condition 3:	F4 ±0.5%	---	---	---	0.0008	750 ±10%	200	1.6

Test frequencies	
F	MHz tolerance ± 0.1%
1	2664
2	2689
3	2714
4	2802
5	2914
6	2939
7	2964

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

TABLE I. Testing and inspection.

Requirement or test	Method MIL-STD-1311	Test	Conditions	Symbol	Limits Min	Limits Max	Unit
Qualification inspection							
Degradation due to vibration	4021	---		---	---	---	---
High-level VSWR	4774	2	2/	---	---	1.15	---
Conformance inspection, part 1		---					
Ignitor ignition time	4401	---	Ebb = -600 V dc	t	---	5.0	sec
Ignitor voltage drop	4406	---	Ii = 200 μA dc	Eid	200	400	V dc
Spike-leakage energy	4452	1	2/	Ws	---	0.3	erg
Flat-leakage power	4452	1	2/	pF	---	40	mw
Temperature cycling (nonoperating)	1027	---	1 cycle	---	---	---	---
Low-level VSWR	4473	---	F1	---	---	1.65	---
			F2 to F3	---	---	1.2	---
			F3 to F5	---	---	1.3	---
			F5 to F6	---	---	1.2	---
			F7	---	---	1.65	---
			1/ 3/				
Conformance inspection, part 2							
Dielectric material strain	4101	---		---	---	---	---
Pressurizing	4003	---	50 lb_f/in^2 4/	---	---	---	---
Insertion loss (fixed tuned)	4416	---	F4; Ii = 0 1/	Li	---	0.3	dB
Ignitor interaction (insertion loss)	4421	---	Ii = 200 μA dc	Li	---	0.1	dB
Recovery time	4471	2	Ii = 200 μA dc 2/	t	---	10	μs
Insertion	---	---	5/	---	---	---	---

See footnotes at end of table.

TABLE I. Testing and inspection Continued.

Requirement or test	Method MIL-STD-1311	Test	Conditions	Symbol	Limits Min	Limits Max	Unit
Conformance inspection, part 3							
Life test	---	3	Group D; Ii = 150 to 200 μA dc 2/	t	500	---	hrs
Life test end points:	---						
Insertion loss (fixed tuned)	4416	---	F4; Ii = 0 1/	Li	---	1.0	dB
Spike-leakage energy	4452	1	2/	Ws	---	0.3	erg
Flat-leakage power	4452	1	2/	pf	---	40	mW
Recovery time	4471	3	2/	t	---	30	μs
Temperature cycling life-test end point	1027	---	Group C; 10 cycles	---	---	---	---

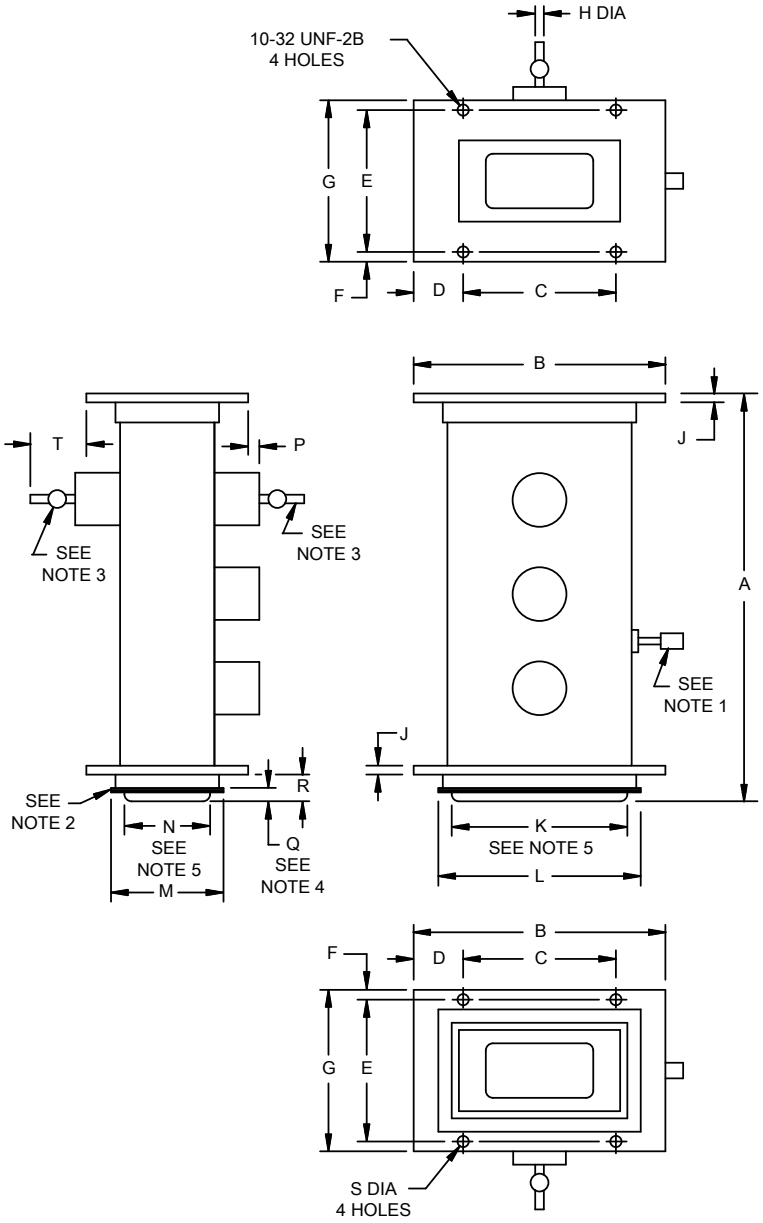
1/ This test shall be performed using the flanges specified in Drawing 268-JAN.

2/ This test shall be performed using the mount specified in Drawing 153-JAN or equivalent.

3/ A swept frequency method of measurement may be used instead of measurement at fixed frequencies.

4/ The tube shall be mounted in accordance with Drawing 208-JAN, and the complete assembly cycled once from -55°C to +100°C. After the temperature has again reached room temperature, the pressure shall not have changed more than one-quarter of a pound/in^2 as indicated by a gauge permanently connected into the system.

5/ The tube shall be capable of being inserted and removed from the mount specified in Drawing 153-JAN or equivalent a minimum of 15 times with no deterioration in the tube's electrical characteristics.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 1				
A	6.580	6.640	167.13	168.66
K	---	3.008	---	76.40
P	---	.190	---	4.83
Q	.165	.195	4.19	4.95
R	.347	.377	8.81	9.58
T	---	.810	---	20.57
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	82.12
M	1.703	1.733	43.26	44.02
N	---	1.508	---	38.30
Reference dimensions				
B	4.12		104.65	
D	.81		20.57	
F	.19		4.83	
G	2.62		66.55	
H	.25		6.35	
J	.12		3.05	
S	.22		5.59	

NOTES:
1. Exhaust tube shall not extend beyond flange; more than .25 inch (6.35 mm).
2. Gasket in accordance with Drawing 189-JAN: Gasket to be securely attached.
3. Ignitor electrode may be mounted in either of positions shown.
4. Dimension Q shall be measured prior to the attachment of the gasket to the tube.
5. The edges of the input window plate shall have either a radius of .020 inches (.51 mm) minimum or a 45° chamfer of .020 inch (.51 mm) minimum.
6. Mount either series or shunt mount may be used. If series mount is used, mount shall be in accordance with Drawing 153-JAN or equivalent.

FIGURE 1. Outline drawing of electron tube type 1B58A.

Referenced documents. In addition to MIL-PRF-1, this document references the following:

MIL-STD-1311
Drawing 153-JAN
Drawing 189-JAN
Drawing 208-JAN
Drawing 268-JAN

NOTE: To obtain copies of JAN drawings please send a request via email to TubesAmps@dla.mil.

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 5960-2016-012)

Review activities:
Navy - AS, CG, MC, OS, SH

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