JA

P.G. Durham

Note 1 Type 1B24A

Dimensions: Per attached Outlined dated, 5-13-64

Ratings:	Min.	Max.
Open Circuit Ignitor Voltage	-750	-1000 Vdc
Ignitor Current	100	200 μAdc
Altitude	---	10,000 ft.

Recommended Ignitor Operating Current 150 μAdc (Note 2)

Pack in sealed water-vapor-proof bag. If opaque bag is used the tube type number shall be stamped thereon.

Ref.	Test	Conditions		Min.	Max.
3.1	Qualification Approval:	Required for JAN Marking			
4.9.18.1.8	Carton Drop:	(d) Package Group 1; Carton Size J			
4.5	Holding Period:	t=168 hours			
4.9.6	*Glass Strain:				
------	*Vibration(1):	Note 3			
------	*Vibration(2):	Note 4			
4.18.1	Ignitor Ignition Time:	Ebb=-800Vdc; R =2.3±1%Meg	t : ---		5.0sec.
4.18.4.1	Insertion Loss(1):	F1 = 8490±0.1%Mc	Li : ---		2.0 db
4.18.4.1	*Insertion Loss(2):	F= 9000±0.1%Mc.	Li : ---		2.0 db
		F2=9375±0.1%	Li : ---		2.0 db
		F3=9600±0.1%Mc.	Li : ---		2.0 db
4.18.4.1	**Insertion Loss(3):	F=8600±0.1Mc. to F= 9500±0.1%Mc. Note 5	Li : ---		2.0 db
4.18.5.1	Ignitor Interaction:	Iz=100μAdc	ΔLi : ---		0.2 db

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Including drawing of Tube Outline.

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Ref.	Test	Conditions	Min.	Max.
4.18.6	Tuning Range:	Note 6	F : 8490	9600Mc.
4.18.2	Ignitor Voltage Drop:	Iz=100μAdc	Ez : 325	450Vdc
4.18.3	*Ignitor Oscillation:	------	Iz : ---	60μAdc
4.18.8	*Ignitor Current Temperature Drift:	Iz=80μAdc	ΔIz : ---	30%
4.18.9	Leakage Power:	po=10kw; tp=0.5μs; prr=1000; F= 9375±0.5%Mc; Iz=100μAdc	p : ---	30 mw
4.18.13.1	*Loaded Q:	F1; F3	QL : 160	350
4.18.13.1	**Loaded Q:	F= 8600±0.1%Mc. to F= 9500±0.1%Mc.; Note 8	QL : 160	350
4.18.14.1	**Frequency Temperature Effect:	F=F2; Note 7	ΔF : ---	-20Mc
4.18.15.1	*Recovery Time:	po=10kw; tp=0.5μs; Iz=100μAdc; F2=9375±0.1%Mc	t : ---	4.0μs
4.18.16	*Pressure Operation:	45lbs. p.s.i. abs.	---	---
4.18.17.1	Temperature Cycle:			
4.18.17.2	Temperature Cycle Life:	Group B	Cycles: 10	---
4.11	Life Test:	po=30 kw(Min.) tp=1.0μs; prr=1000; Notes 9, 10	t : 500	---hrs.

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Ref.	Test	Conditions	Min.	Max.
4.11.4	Life Test End Point:	Leakage Power; Insertion Loss; Ignitor Interaction; Ignitor Voltage Drop; Vibration (2)	p :--- Li :--- ΔLi :--- Ez :---	30 mw 2.0 db 0.5 db 650Vdc

Note 1: References and notations are from Military Specifications, Electron Tubes, MIL-E-1C, 3 October 1955.

Note 2: The recommended ignitor operating current is for a tube with an average ignitor voltage drop. The following formula should be used to determine the value of the required series resistance.

$$\text{Series Resistance(Ri)} = \frac{Ebb-Ei}{150} \text{ (megohms)}$$

where Ri = Total series resistance
Ebb = Open circuit supply voltage
Ei = Average (center) ignitor voltage drop
At least 0.5 megohms of the total should be located as close as possible to the ignitor top cap to prevent oscillation.

Note 3: Tune to 9375±1% then vibrate in direction of ignitor axis per paragraph 4.9.19.2 for 12 hours at 2.0 G with an amplitude of motion of 0.040 inches. After this, the tuning shall not have changed more than 3 Mc. from its initial value and the tube shall satisfy all other electrical tests of this specification.

Note 4: Tube shall be vibrated in a plane perpendicular to the ignitor axis and there shall be no evidence of shorting between the ignitor and adjacent cone.

Note 5: The insertion loss shall be measured at intervals of 100Mc from 8600±0.1Mc. to 9500±0.1%Mc. At these intervals the loss shall be within the limits specified.

Note 6: The tube shall cover a minimum tuning range of from less than 8490Mc to more than 9600Mc. No tube shall require less than 5 complete turns of the tuning screw to cover this range. The tuning screw shall be cycled from stop to stop before electrical tests are performed.

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Note 7: The frequency drift shall be measured with no adjustment of the tuning mechanism.

Note 8: The loaded Q shall be measured at intervals of 100Mc from 8600±0.1% Mc. to 9500±0.1%Mc. At these frequencies the loaded Q shall be within the limits specified.

Note 9: The magnetron shall be operated at a frequency 9375±1% megacycles, and the tube under test shall be tuned to resonance at 9375±0.2% megacycles. Open circuit ignitor voltage -800 Vdc, series resistor 2.3 megohms±1%.

Note 10: The ignitor current shall not be adjusted during life test. Life test end point shall be measured using a fixed voltage and resistor.

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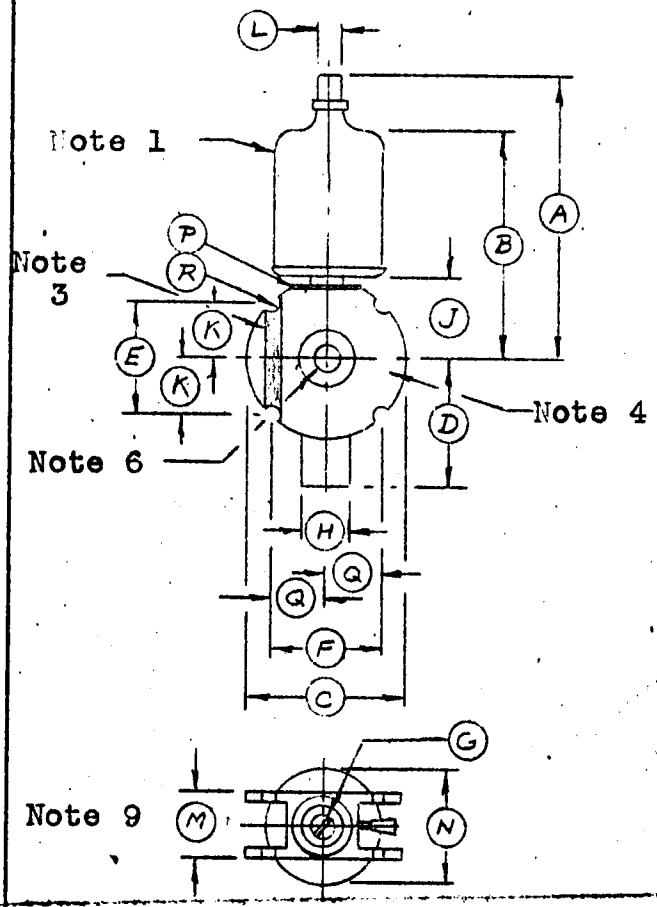

Ref.	Dimension
A*	3 1/4 Max.
B**	2 7/8 Max.
C*	1.760 Max. Dia.
D*	1 27/64 Max.
E**	1.280±.005
F**	1.220±.005
G	3/64±1/64 Slot
H*	.530±.003
J*	15/16 Min.
K	.640±.003
L*	.250±.005
M	.612±.003
N*	1 3/16 Max.
P	9/16 Flat
Q	.610±.003
R	.090±.004 Rad.
	(4) Slots

Note 1:- Reservoir shall be glass or approved equivalent.
2:- Maximum projection of reservoir lies within a cylinder of 1-1/4 dia. with axis co-linear with tube axis.
**3:- A force of 200 lbs. shall be applied to the face of the tube within the area indicated by shading. Dimension M shall not permanently change by more than .001.
4:- Body face to be cadmium plated .0003 minimum or made entirely of monel or equivalent.
5:- Solder fillets permissible on peripheral surface near seal-off tip and electrode terminal. Slots must be free of solder.
6:- No part of iris assembly shall extend beyond the body surface.
7:- Net weight 4-1/2 oz.
8:- Exhaust tubulation not to extend beyond periphery.
9:- Applies for area between periphery of this section of tube and concentric circle of 5/16 radius.
10:- Dimensions without tolerances are for information and are not required for inspection purposes.

SPECIFICATION SHEET

OUTLINE

1B24A, BL-51

BOMAC LABORATORIES INC.
SALEM ROAD
BEVERLY, MASSACHUSETTS

5-13-64 clr

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