

CV 3879

SERVICES VALVE TEST LABORATORY

SPECIFICATION AD/CV.3879 incorporating MIL-E-1/887

ISSUE NO. 2 DATED 4.8.61.

To be read in conjunction with K.1006.

SECURITYSPECN.VALVE

Unclassified

Unclassified

TYPE OF VALVE Transmitting tetrodeCATHODE Directly heatedENVELOPE Glass, unmetallisedPROTOTYPE 4-400AMARKING

See K1001/4.

Additional marking 4-400A

BASE

BS.448/B5E.

RATINGS

NOTE

Nominal filament voltage	(V)	5	
Nominal filament current	(A)	14.1	
Max. anode voltage	(kV)	4	
Max. screen voltage	(V)	800	
Max. anode dissipation	(W)	400	A
Max. screen dissipation	(W)	35	A
Max. control grid dissipation	(W)	10	A
Max. Neg. control grid voltage	(V)	500	
Max. anode current	(mA)	350	
Inner amplification factor $u_{g1/g2}$		5.25	

CONNECTIONS

<u>Pin</u>	<u>Electrode</u>
1	Filament
2	Grid 2
3	Grid 1
4	Grid 2
5	Filament
T.C.	Anode

TOP CAP

See drawing page 3

DIMENSIONS

See drawing page 3

NOTES

- A. Forced air cooling is required as specified in Note 1 on page 2.

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MIL-E-1/887
25 July 1956
SUPERSEDED
JAN-4-400A
3 January 1952

INDIVIDUAL MILITARY SPECIFICATION SHEET

ELECTRON TUBE, TRANSMITTING TETRODE

JAN-4-400A

This specification sheet forms a part of the latest issue of Military Specification MIL-E-1.

F1=110Mc

<u>Ratings:</u> Absolute Maximum	Ef Vac	Eb Vdc	Ec1 Vdc	Ec2 Vdc	Ib mA _{dc}	Pp W	Pg1 W	Pg2 W	Altitude ft	Cooling Note 1
C Telep:	5.0±5%	3200	-500	600	275	270	10	35	10000	-----
C Teleq:	5.0±5%	4000	-500	600	350	400	10	35	10000	-----
AB Audio:	5.0±5%	4000	-500	800	350	400	10	35	10000	-----
Test Cond:	5.0	2500	Adjust	500	160	---	---	---	---	Note 2

**Cathode: Thoriated Tungsten Filament

**Base: Per Outline

*Height: 5-7/8 in. min, 6-3/8 in. max

*Diameter: 3-9/16 in. maximum

**Pin No.: 1 2 3 4 5 cap
Element: f g2 g1 g2 f a

**Cap: Per Outline; Note 3

**Envelope: Per Outline

The following tests shall be performed:

For miscellaneous requirements, see Paragraph 3.3, Inspection Instructions for Electron Tubes.

For Mechanical Requirements, See Paragraph 3.3, Inspection Instructions for Electron Tubes.												
Ref.	Test	Conditions	AQL(99)	Insp. Level or Code	Sym.	LIMITS						Units
						Min.	LAL	Bogie	UAL	Max.	ALD	
	<u>Qualification Approval Tests</u>											
3.1	Qualification Approval:	Required for JAN Marking	---	---								
---	Cathode:	Thoriated Tungsten Filament	---	---								
3.4.3	Base Connections:		---	---								
	<u>Measurements Acceptance Tests, Part 1: Note 4</u>											
4.5	Holding Period:	t=72 hours	---	---	---	---	---	---	---	---	---	
4.10.8	Filament Current:		0.65	II	If:	13.5	---	---	---	14.7	---	Aac
4.10.6.1	†Grid Current:		0.65	II	Ic1:	---	---	---	---	10	---	uAdc
4.10.6.6	Primary Control - Grid Emission:	Ef=6.0Vac; Ic1=200 mAdc; t=15; Plate and screen grid floating	0.65	II	Isg1:	---	---	---	---	-500	---	uAdc
4.10.6.6	Primary Screen - Grid Emission:	Ef=6.0Vac; Ic2=170 mAdc; Ec1=0Vdc; t=15; Plate floating	0.65	II	Isg2:	---	---	---	---	-500	---	uAdc
4.10.5.2	Grid Voltage:		0.65	II	Ec1:	-55	---	---	---	-80	---	Vdc
4.10.1.3	Peak Emission:	eb=ec1=ec2=2500v	0.65	II	Is:	7.0	---	---	---	---	---	a
4.9.1	Mechanical:		---	---	---	---	---	---	---	---	---	
	<u>Measurements Acceptance Tests, Part 2</u>											
4.9.19.1	Vibration:	No Voltages	6.5	1A	---	---	---	---	---	---	---	
4.9.19.3	Bump:	Angle=15°	6.5	1A	---	---	---	---	---	---	---	
4.9.19.4	Bump and Short:	Angle=5°	6.5	1A	---	---	---	---	---	---	---	

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Ref.	Test	Conditions	AQL(%)	Insp. Level or Code	Sym.	LIMITS						Units
						Min.	LAL	Bogle	UAL	Max.	ALD	
<u>Measurements Acceptance Tests, Part 2 (Contd)</u>												
4.10.11.1	Amplification Factor:	g1-g2; Ic2=70mAdc; Eb=0Vdc.	8.5	1A	Mu :	4.5	---	---	---	6.0	---	W
4.10.2.2	Power Oscillation:	Ebb=3kVdc; Ib=350 mAdc; Pp=400W; Ec2=500Vdc; F=110Mc	8.5	1A	Po :	500	---	---	---	---	---	
4.10.14	Capacitance:		8.5	1A	Cgp : Cin : Cout :	--- 10.70 4.20	---	---	---	0.17 14.50 5.80	---	
Ref.	Test	Conditions	AQL(%)	Insp. Level or Code	Allowable Defectives per Characteristic		Sym.	Limits		Units		
					1st Sample	Combined Samples		Min.	Max.			
<u>Acceptance Life Tests.</u>												
4.11	Life Test:	Group C; Power Oscillation	---	---	---	---	t :	500	---	hours		
4.11.4	Life Test End Points:	Peak Emission	---	---	---	---	is :	5.8	---	a		
		Primary Control-Grid Emission	---	---	---	---	Isq1 :	---	-500	uAdc		
		Primary Screen-Grid Emission	---	---	---	---	Isq2 :	---	-500	uAdc		
<u>Packaging Requirements</u>												
4.9.18.1.7	Container Drop:	(d) Package Group 1; Container Size T										

Note 1: Forced-air cooling must be provided for the base-pin and anode-lead seals. This air should be applied simultaneously with filament power, using the 259-JAN socket or equivalent. A minimum air flow of 14 cu-ft/minute shall be used. The pressure drop as measured in the socket at this flow equals 0.25 inches of water. The air requirements stated above are based on operation at sea level and an ambient temperature of 20°C. Operation at high altitude or at high temperatures requires a greater volume of air flow.

Note 2: Forced-air cooling of the anode and base seals to an extent not to exceed the minimum values specified in Note 1 is permitted.

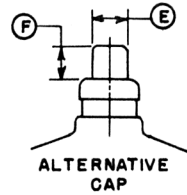
Note 3: It is recommended that a heat-radiating type of connector be used on the plate terminal in all RF applications.

Note 4: The AQL for the combined defectives for attributes in Measurements Acceptance Tests, Part 1, excluding Mechanical, shall be one percent. A tube having one or more defects shall be counted as one defective. MIL-STD-105, Inspection Level II, shall apply.

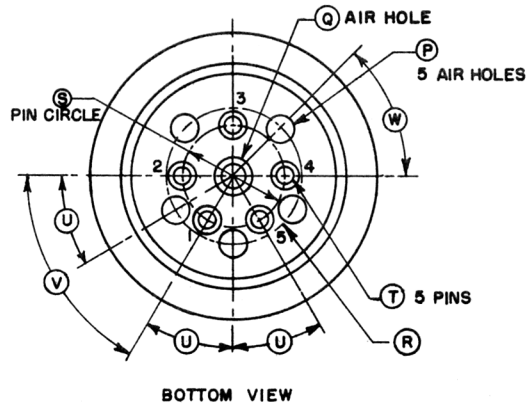
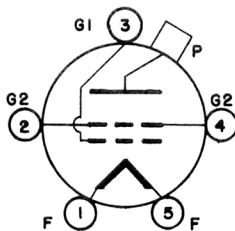
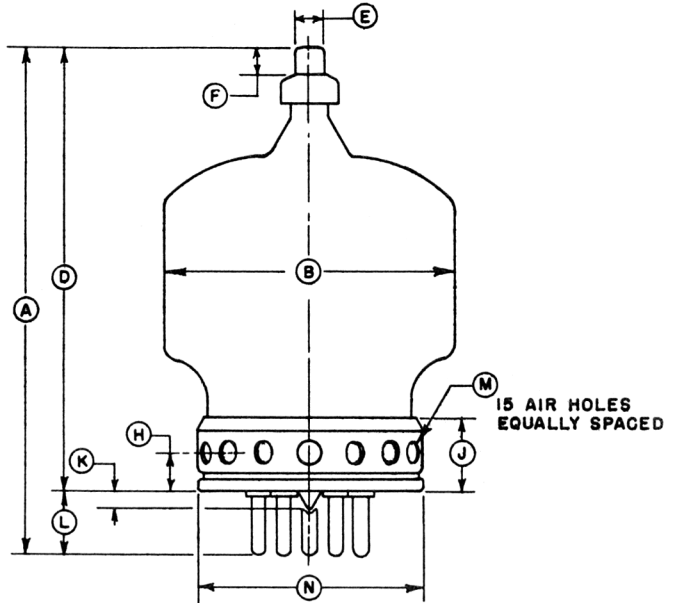
Note 5: Reference specification shall be of the issue in effect on the date of invitation for bid.

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REF	DIMENSIONS	
	MIN	MAX
*A	$5\frac{7}{8}$	$6\frac{3}{8}$
*B		$3\frac{9}{16}$ DIA
**D	$5\frac{1}{8}$	$5\frac{5}{8}$
**E	.350	.365
**F	$2\frac{1}{4}$	
**H		$\frac{7}{16}$ NOM
**J		$\frac{31}{32}$
**K		$\frac{1}{4}$, NOTE
**L		$\frac{3}{4}$ NOM
**M		$\frac{1}{4}$ DIA NOM
**N		$2\frac{3}{4}$ DIA
**P		$\frac{5}{16}$ DIA NOM
**Q		$\frac{1}{2}$ DIA NOM
**R		$1\frac{1}{8}$ DIA NOM
**S		$1\frac{1}{4}$ DIA, NOTE
**T	.185	.191, NOTE
**U		30°, NOTE
**V		60°, NOTE
**W		45°



Note: Base pins (T) and tubulation (K) are so aligned that they can be freely inserted in a gage 1/4 thick with hole diameters of .204 and .500 respectively located on the true centers by the given dimensions (S) (U) (V)