VALVE ELECTRONIC

SERVICES VALVE TEST LABORATORY

CV 3879

SPECIFICATION AD/CV.3879 incorporating MIL-E-1/887 ISSUE NO. 2 DATED 4.8.61. To be read in conjunction with K.1006.	SECURITY SPECN. Unclassified VALVE Unclassified

TYPE OF VALVE: Transmitting tetrode	MARKING See K1001/4. Additional marking 4-400A
CATHODE: Directly heated	
ENVELOPE: Glass, unmetallised	BASE BS.448/B5E.
PROTOTYPE: 4-400A	

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 amplication factor ug1/g2		5.25	

CONNECTIONS

Pin	Electrode
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
SUPERSEDING
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

Ratings: Absolute Maximum	Ef Vac	Eb Vdc	Ec1 Vdc	Ec2 Vdc	Ib mAdc	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 Teleg:	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.

Ref.	Test	Conditions	AQL(%)	Insp. Level or Code	Sym.	LIMITS Min.	LAL	Bogie	UAL	Max.	ALD	Units
	Qualification Approval Tests											
3.1	Qualification Approval:	Required for JAN Marking	---	---								
---	Cathode:	Thoriated Tungsten Filament	---	---								
3.4.3	Base Connections:		---	---								
	Measurements Acceptance Tests, Part 1: Note 4											
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:		---	---	---	---	---	---	---	---	---	
	Measurements Acceptance Tests, Part 2											
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 Min.	LAL	Bogie	UAL	Max.	ALD	Units
	Measurements Acceptance Tests, Part 2 (Contd)											
4.10.11.1	Amplification Factor:	g1-g2; Ic2=70mAdc; Eb=0Vdc.	6.5	1A	Mu:	4.5	---	---	---	6.0	---	
4.10.2.2	Power Oscillation:	Ebb=3kVdc; Ib=350 mAdc; Pp=400W; Ec2=500Vdc; F=110Mc	6.5	1A	Po:	500	---	---	---	---	---	W
4.10.14	Capacitance:		6.5	1A	Cgp:	---	---	---	---	0.17	---	uuf
					Cin:	10.70	---	---	---	14.50	---	uuf
					Cout:	4.20	---	---	---	5.60	---	uuf

Ref.	Test	Conditions	AQL(%)	Insp. Level or Code	Allowable Defectives per Characteristic 1st Sample	Allowable Defectives per Characteristic Combined Samples	Sym.	Limits Min.	Limits Max.	Units
	Acceptance Life Tests.									
4.11	Life Test:	Group C; Power Oscillation	---	---	---	---	t:	500	---	hours
4.11.4	Life Test End Points:	Peak Emission	---	---	---	---	is:	5.6	---	a
		Primary Control-Grid Emission	---	---	---	---	Isg1:	---	-500	uAdc
		Primary Screen-Grid Emission	---	---	---	---	Isg2:	---	-500	uAdc
	Packaging Requirements									
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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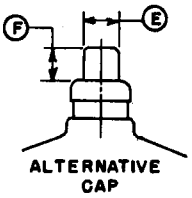
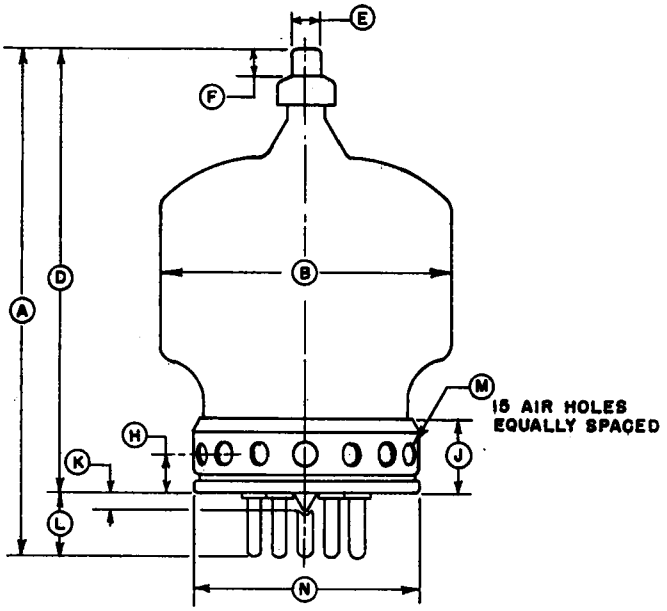
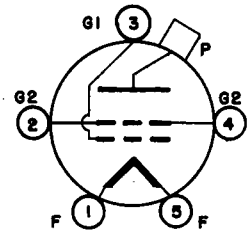
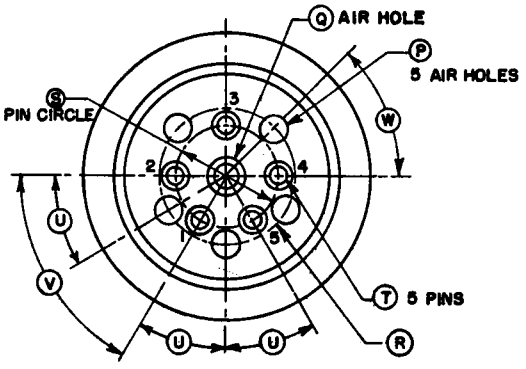


REF	DIMENSIONS	
	MIN	MAX
*A	5 7/8	6 3/8
*B		3 3/16 DIA
**D	5 1/8	5 5/8
**E	.350	.365
**F	21/64	
**H	7/16 NOM	
**J		31/32
**K		1/4, NOTE
**L	3/4 NOM	
**M	1/4 DIA NOM	
**N		2 1/4 DIA
**P	5/16 DIA NOM	
**Q	1/2 DIA NOM	
**R	1 5/8 DIA NOM	
**S	1 1/4 DIA, NOTE	
**T	.185	.191, NOTE
**U	30°, NOTE	
**V	60°, NOTE	
**W	45°	







BOTTOM VIEW

Note: Base pins (T) and tubulation (K) are so alined 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).