VALVE ELECTRONIC

CV 2963

SERVICES VALVE TEST LABORATORY ←

SPECIFICATION AD/CV.2963 incorporating MIL-E-1/776. ← ISSUE NO. 2 DATED 4.8.61. To be read in conjunction with K.1006. ←	SECURITY SPECN. Unclassified	 VALVE Unclassified

Indicates a change ←

TYPE OF VALVE Transmitting tetrode.

CATHODE Directly heated.

ENVELOPE Glass, unmetallised.

PROTOTYPE 4D21.

MARKING

See K.1001/4.

Additional marking 4D-21.

BASE

BS.448/B5E.

RATINGS

			NOTE
Nominal filament voltage	(V)	5	
Nominal filament current	(A)	6.5	
Max. Anode voltage	(kV)	3	
Max. screen voltage	(V)	600	
Max. anode dissipation	(W)	125	A
Max. screen dissipation	(W)	20	A
Max. control grid dissipation	(W)	5	A
Max. neg. control grid voltage	(V)	500	
Max. anode current	(mA)	225	
Inner amplification factor	$\mu g1/g2$	5.85	←

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 may be required as specified in Note 1 on page 2.

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INDIVIDUAL MILITARY SPECIFICATION SHEET

ELECTRON TUBE, TETRODE, TRANSMITTING, TYPE

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

F1=120Mc (Note 1)

Ratings: Absolute Maximum:	Ef Vac	Eb Vdc	Ec1 Vdc	Ec2 Vdc	Ib mAdc	Pg1 W	Pg2 W	Pp W	Alt ft
C Telep:	5.0±5%	2500	-500	400	225	5	16	85	10,000
C Teleg:	5.0±5%	3000	-500	400	225	5	20	125	10,000
AB Audio:	5.0±5%	3000	-500	600	225	5	20	125	10,000
Test Cond.:	5.0	2500	Adjust	500	50	---	---	---	---

*Height: 5-3/16 in. minimum; 5-11/16 in. maximum *Diameter: 2-13/16 in. maximum
**Dimensions: Per Outline
**Cathode: Thoriated Tungsten Filament
**Pin Connections: Per Outline **Envelope: Per Outline

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

Ref.	Test	Conditions		Min.	Max.	
3.1	Qualification Approval:	Required for JAN Marking				
4.5	Holding Period	t=72 hrs				
4.9.18.1.7	Carton Drop:	(d) Package Group 1; Carton Size P				
4.9.19.1	*Vibration:	No Voltages				
4.9.19.3	*Bump:	Angle=25°				
4.9.19.4	*Bump and Short:	Angle=10°				
4.10.8	Filament Current:		If:	6.0	7.0	A
4.10.6.1	†Grid Current:		Ic1:	---	-10	uAdc
4.10.6.6	Primary Control-Grid Emission:	Ef=6.0Vac;Ic1=170mAdc; t=15;Note 2	Isg1:	---	500	uAdc
4.10.6.6	Primary Screen-Grid Emission:	Ef=6.0Vac;Ic2=75mAdc; Ec1=0Vdc;t=15;Note 3	Isg2:	---	500	uAdc
4.10.11.1	*Amplification Factor:	g1 to g2;Ec2=300Vdc;Ic2 =60mAdc;Plate floating	Mu:	5.2	6.5	
4.10.5.2	Grid Voltage:		Ec1:	-63	-80	Vdc
4.10.1.3	Peak Emission:	eb=ec1=ec2=2500v	is:	4.0	---	a
4.10.2.2	*Power Oscillation(1):	Eb=3000Vdc;Ec2=350Vdc; Ib=100mAdc;Rg1=15,000; F=15Mc	Po: Ic2:	175 15	--- 50	W mAdc
4.10.2.2	**Power Oscillation(2):	Eb=3000Vdc;Ec2=350Vdc; Ib=100mAdc;Rg1=15,000; F=120Mc	Po:	175	---	W

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Ref.	Test	Conditions		Min.	Max.	
4.10.14	*Capacitance:		Cgp;	---	0.07	uuf
			Cin:	9.2	12.4	uuf
			Cout:	2.5	3.5	uuf
---	Grid Current:	Eb=Ec2=400Vdc;ec1=100v; Note 4	Ic1:	---	50	ma
4.11	Life Test:	Group C;Power Osc.(1)	t:	500	---	hrs
4.11.4	Life Test End Point:	Peak Emission	is:	3.0	---	a
		Primary Control-Grid Emission	Isg1:	---	500	uAdc
		Primary Screen-Grid Emission	Isg2:	---	500	uAdc
		Grid Current	Ic1:	---	-10	uAdc

Note 1: Forced cooling of envelope by small fan or blower required above 30Mc. Forced cooling of seals at base required when freee circulation through base is prevented by shielding or other obstructions.

Note 2: Plate and screen grid floating.

Note 3: Plate floating.

Note 4: Grid current must increase continuously when ec1 is increased uniformly from 0 to 100v.

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

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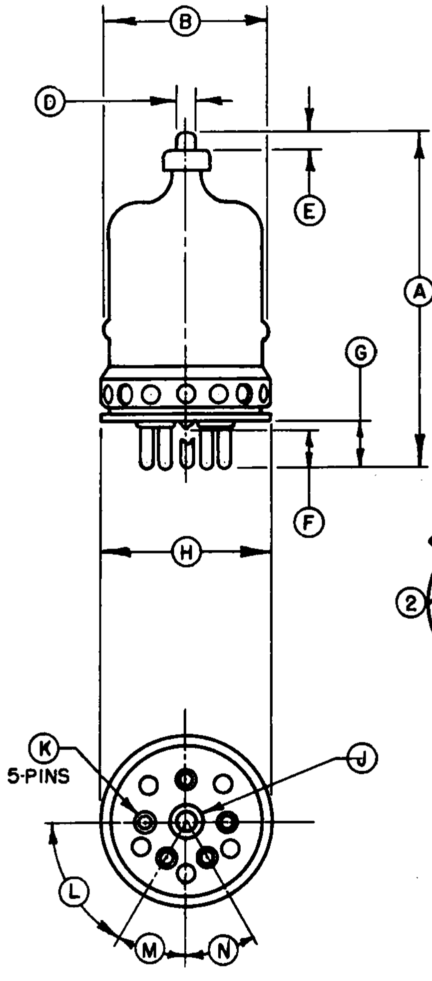
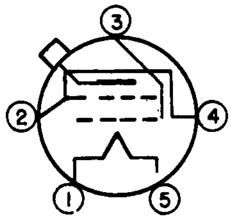
REF	DIMENSIONS
*A	$5\frac{7}{16} \pm \frac{1}{4}$
*B	$2\frac{13}{16}$ MAX O.D.
**D	$.360^{+.005}_{-.010}$ DIA.
**E	$\frac{21}{64}$ MIN
**F	$\frac{1}{2}$ MIN
**G	$\frac{3}{4}$
**H	$2\frac{23}{32}$ DIA
**J	$1\frac{1}{4}$ DIA
**K	.188 ± .003 DIA
**L	60°
**M	30°
**N	30°



BOTTOM VIEW.



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