NOTE

Specification CV.3990 Issue 1A. This specification consists of Sheets A & B enclosed herewith together with pages 1 & 2 of Issue 1 which must be retained.

T.V.C.

N.40606

VALVE ELECTRONIC **CV.3990**

MINISTRY OF AVIATION, D.L.R.D./R.A.E.

SPECIFICATION M.O.A./CV.3990 incorporating MIL-E-1/338B ISSUE 1A DATED 2.7.62 To be read in conjunction with K1006, K1001, BS.448 and BS.1409	SECURITY	
	SPECIFICATION	VALVE
	Unclassified	Unclassified

TYPE OF VALVE:	Beam Power Amplifier	
CATHODE:	Indirectly heated	
ENVELOPE:	Glass	
PROTOTYPE:	2E26	

MARKING

See K1001/4

BASE

K1006/B8-26. Small wafer octal 8-pin with sleeve, Phenolic.

RATINGS

(All limiting values are absolute)

Heater Voltage	(V)	6.3
Heater Current	(A)	0.8
Max. Operating Screen Voltage	(V)	200
Max. Anode Dissipation	(W)	10
Max. Screen Dissipation	(W)	2.5
Max. Heater-Cathode Voltage	(V)	100
Class AB2 Audio		
Max. Anode Voltage	(V)	400
Max. Cathode Current	(mA)	75
Max. Anode Dissipation	(W)	10
Max. Screen Dissipation	(W)	2.5
Max. Anode Input	(W)	30
Class C. Telephony (Anode Modulation)		
Max. Anode Voltage	(V)	400
Max. Cathode Current	(mA)	60
Max. Anode Dissipation	(W)	6.7
Max. Screen Dissipation	(W)	1.7
Max. Negative Grid Voltage	(V)	175
Max. Grid Current	(mA)	3.5
Max. Anode Input	(W)	20
Class C. Telegraphy		
Max. Anode Voltage	(V)	500
Max. Cathode Current	(mA)	75
Max. Anode Dissipation	(W)	10
Max. Screen Dissipation	(W)	2.5
Max. Negative Grid Voltage	(V)	175
Max. Grid Current	(mA)	3.5
Max. Anode Input	(W)	30
CAPACITANCES (Without screen)		
C in (nom.)	(pF)	13
C out (nom.)	(pF)	7
C ag (max.)	(pF)	7.2

CONNECTIONS

1	Cathode and Suppressor	k and g3
2	Heater	h
3	Screen grid	g2
4	Cathode and Suppressor	k and g3
5	Control grid	g1
6	Cathode and Suppressor	k and g3
7	Heater	h
8	Base sleeve	
T.C. Anode		a

DIMENSIONS

See drawing on page B

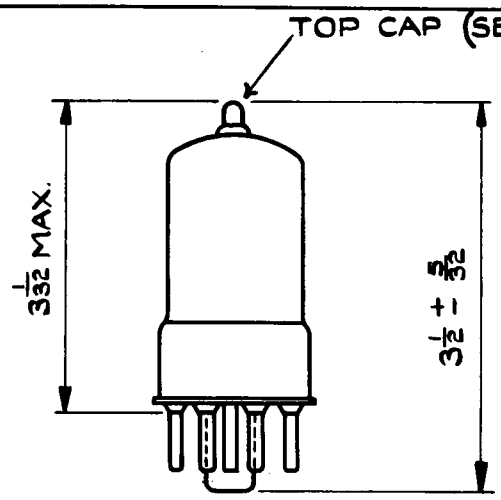
TOP CAP

See drawing on page B

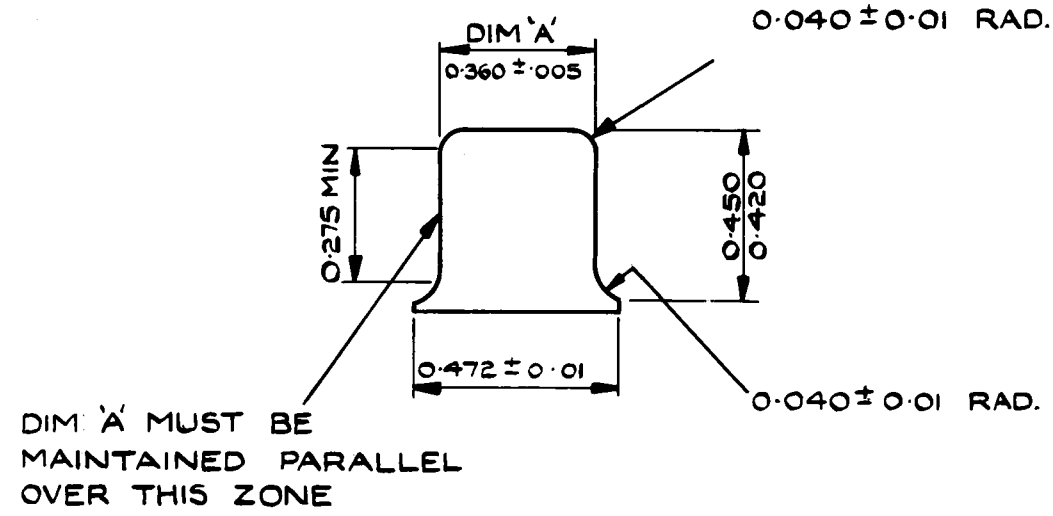
The Joint Services Catalogue Number is:-

5960-99-000-3990

(40606)



VALVE OUTLINE



TOP CAP.

ALL DIMENSIONS IN INS.

CV3990/1A/2

CV 3990

MIL-E-1/338B
14 May 1956
SUPERSEDING
MIL-E-1/338A
3 May 1954

INDIVIDUAL MILITARY SPECIFICATION SHEET

ELECTRON TUBE, TRANSMITTING, BEAM POWER AMPLIFIER

JAN-2E26

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

F1=125Mc
F2=175Mc

Ratings : Absolute Maximum :	Ef V	Eb Vdc	Ec1 Vdc	Ec2 Vdc	Ib mAdc	Ic1 mAdc	Pp W	Pg2 W	Pi W	Ehk V	Modulation	Alt ft
A. Audio :	6.3±10%	300	---	200	---	---	10	2.5	---	100	---	10,000
AB2 Audio :	6.3±10%	400	---	200	75	---	10	2.5	30	100	---	10,000
C Telep :	6.3±10%	400	-175	200	60	3.5	6.7	1.7	20	100	Plate	10,000
C Teleg :	6.3±10%	500	-175	200	75	3.5	10	2.5	30	100	---	10,000
Test Cond :	6.3	---	---	---	---	---	---	---	---	---	---	---

**Cathode : Coated Unipotential
**Base : Small-Wafer Octal 8-Pin with Sleeve, B8-26, Phenolic

*Height: 3-11/32 in. min.; 3-21/32 in. max.
**Diameter: 1-5/16 in. maximum

**Pin No.: 1 2 3 4 5 6 7 8 Cap
Element: k, g3 int. sd | h | g2 | k, g3 int. sd | g1 | k, g3 int. sd | h | Base sleeve | p

**Cap: Small, C1-1

**Envelope: T-9

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:	Coated Unipotential	---	---								
3.4.3	Base Connections:		---	---								
4.10.2.2	Power Oscillation (2):	Eb=400Vdc;Vary Ec2;Ec1=-50Vdc;Ic1=2mAdc;Ib=75mAdc; F=125Mc;Rg1=25000			Po:	16	---	---	---	---	---	W
	Measurements Acceptance Tests, Part 1:Note 1											
4.10.6.1	†Grid Current:	Eb=500Vdc;Ec2=200 Vdc;Ec1/Ib=20mAdc	0.65	II	Ic1:	---	---	---	---	-3.0	---	uAdc
4.10.4.1	Plate Current:	Eb=200Vdc;Ec2=135 Vdc;Ec1=-10Vdc	0.65	II	Ib:	23	---	---	---	47	---	mAdc
4.10.4.3	Screen-Grid Current:	Eb=200Vdc;Ec2=135Vdc; Ec1=-10Vdc	0.65	II	Ic2:	---	---	---	---	4	---	mAdc
4.10.1.1	†Emission:	Eb=Ec1=Ec2=25Vdc	0.65	II	Is:	130	---	---	---	---	---	mAdc
4.9.1	Mechanical:											
	Measurements Acceptance Tests, Part 2											
4.9.19.1	Vibration:	Eb=250Vdc;Ec2=200 Vdc;Ec1/Ib=10mAdc; Rp=2000	6.5	IA	Ep:	---	---	---	---	500	---	mVac
4.10.8	Heater Current:		6.5	IA	If:	740	---	---	---	860	---	mA
4.10.15	Heater-Cathode Leakage:		6.5	IA	Ihk:	---	---	---	---	50	---	uAdc
4.10.2.2	Power Oscillation(1):	Eb=500Vdc;Ec2=200Vdc; Ib=60mAdc;Ic1=2mAdc; Rg1=15,000;F=15Mc	6.5	IA	Po:	18	---	---	---	---	---	W

CV3990

Ref.	Test	Conditions	AQL(%)	Insp. Level or Code	Sym.	LIMITS Min.	LAL	Bogie	UAL	Max.	ALD	Units
	Measurements Acceptance Tests, Part 2 (contd)											
4.10.3.4	Transmitting Tube Noise:	Eb=250Vdc;Ec2=125 Vdc;Ec1/Ib=2mAdc	---	---	---	---	---	---	---	---	---	---
4.10.14	Capacitance:	No Shield; Note 2	6.5	IA	Cgp:	---	---	---	---	0.2	---	uuf
		No Shield; Note 2			Cin:	10.8	---	---	---	15.2	---	uuf
		No Shield; Note 2			Cout:	5.4	---	---	---	8.6	---	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;Eb=500Vdc;Ec2= 200Vdc;Ec1/Ib=20mAdc					t:	500	---	hours
4.11.4	Life Test End Point:	Emission					Is:	100	---	mAdc
	Packaging Requirements									
4.9.18.1.7	Container Drop:	(d) Package Group 1; Container Size E								

Note 1: 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 2: Base Sleeve tied to cathode.

Note 3: Reference specification shall be of the issue in effect on the date of invitation for bid.