

MINISTRY OF SUPPLY (S.R.D.E.)

VALVE ELECTRONIC

CV484

Specification MOS/CV 484 incorporating MIL-E-1/326 Issue 1 dated 10.5.56. To be read in conjunction with K1006				<u>SECURITY</u> <u>Specification</u> <u>Valve</u> Unclassified Unclassified		
<u>TYPE OF VALVE:-</u> Power amplifier pentode <u>CATHODE:-</u> Directly heated <u>ENVELOPE:-</u> Glass-unmetallised <u>PROTOTYPE:-</u> 3S4				<u>MARKING</u> See K1001/4 Add:- 3S4		
				<u>BASE</u> BS 448/B7G (miniature button 7 pin)		
<u>RATING</u>				<u>CONNECTIONS</u>		
				Note		
				Pin Electrode		
Filament voltage (series)	(V)	2.8		1	-f	Note C
Filament current (series)	(mA)	50		2	p	
Filament voltage (parallel)	(V)	1.4		3	g1	
Filament current (parallel)	(mA)	100		4	g2	
Max. anode voltage	(V)	100	A	5	g3, f _{ct}	Note C
Max. screen voltage	(V)	75	A	6	p	
Mutual conductance	(mA/V)	1.5	B	7	+f	
Anode impedance (approx.)	(mΩ)	0.1	B			
Anode current	(mA)	7.4	B			
Screen current	(mA)	1.4	B			
Max. cathode current	(mA)	13.0	A			
<u>NOTES</u> A. Absolute maximum or minimum values B. Measured at $V_a = 90$, $V_{g2} = 67.5$, $V_{g1} = -7$ C. Pin 1 is -f for $V_f = 2.8V$. Pin 5 is -f for $V_f = 1.4V$ when Pins 1 and 7 are +f				<u>DIMENSIONS (Inches)</u> See B.S.448/B7G/2.1 size ref. No. 2		
				Dimension Min. Max.		
				seated height - 17/8		
				diameter 5/8 3/4		
				overall length - 25/32		
				<u>MOUNTING POSITION</u> ANY		

TESTS

Additional to those specified in the attached MIL-E-1/326 specification.

Ref.	Test	Conditions	Min.	Max.
a.	L.F. microphony	V_{g1} -9. See Note 5.	-	60mV.P/P

NOTES

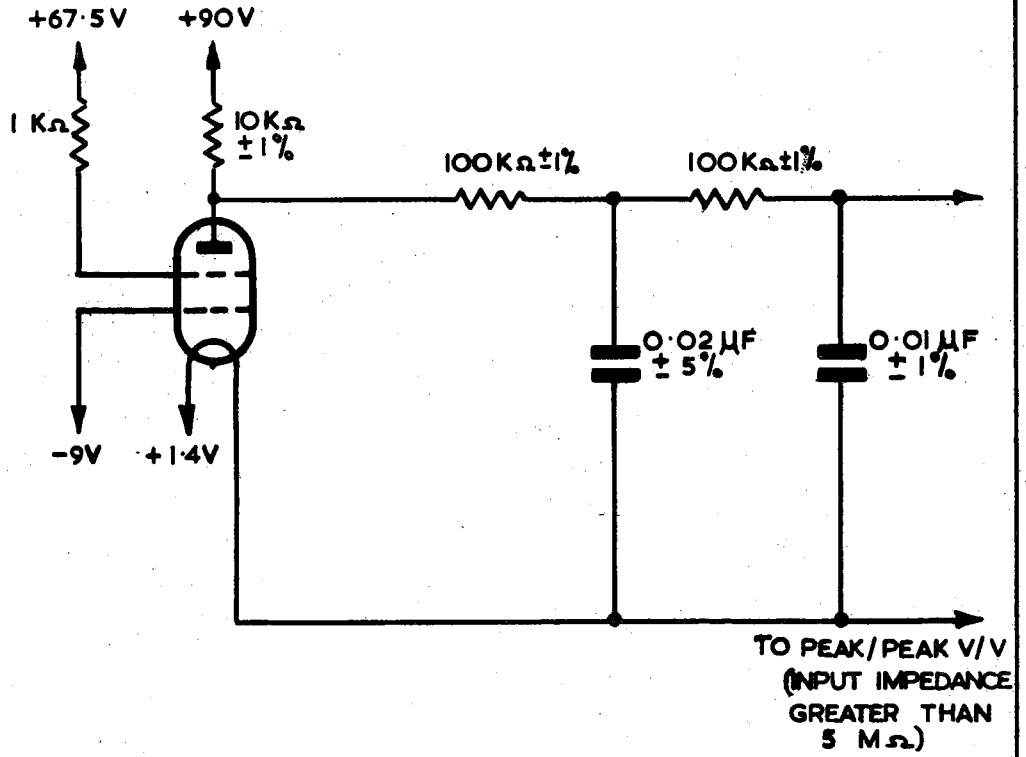
General Note Test code "b" shall apply.

5. The valve is to be tested for freedom from low frequency microphony when operating in the circuit shown on page C and mounted on a vibrating table.

The vibrating table will be fed from the output of a full wave bridge rectifier. The rectifier shall be fed with a fixed frequency of 50 c/s, driving the table at 0.5g peak acceleration, and a frequency variable from 50 c/s to 180 c/s, also driving the table at 0.5g peak acceleration over this range, the oscillators being separately calibrated. The variable frequency oscillator shall sweep at a rate of 5 c.p.s./sec. $\pm 10\%$.

Each valve shall be swept up and down in frequency, and the largest peak to peak voltage in each case noted. The lowest of these two values will be the accepted one.

LOW FREQUENCY MICROPHONY TEST.



Generic Types:
Test Code:
(General Note)

JAN-1S4, 3S4
a b

Ratings:	Test Code	Ef Vdc	Eb Vdc	Ec1 Vdc	Ec2 Vdc	Ik mAdc	Alt ft
Absolute Maximum:	a	1.4 or 1.5%	100	—	75	11	10,000
	b	1.4 or 2.8 or 1.5%	100	—	75	13 Note	110,000
Test Cond.:	a,b	1.4	90	-7	67.5	—	—

a,b *Height: 2-1/8 in. max. *Diameter: 3/4 in. max. **Envelope: T-51/2 (6-2)

a,b **Base: Miniature Button 7-Pin, E7-1

a,b	**Pin No.:	1	2	3	4	5	6	7	**Cathode:
a	Element:	-f	p	g1	g2	-f	p	f	Coated Filament
b	Element:	-f	p	g1	g2	g3	g3	p	f
						fct			

(1/para) (1/para)

Ref.	Test	Test Code	Conditions	Min.	Max.
3.1	Qualification Approval:	a,b	Required for JAN Marking		
4.9.18.1.1	Carton Drop:	a,b	(d) Package Group 1; Carton Size B		
4.9.19.1	*Vibration:	a,b	Rpm2000	E _p : —	300 mVac
4.10.6	*Filament Current:	a,b		I _f : 88	112 mAdc
4.10.6.1	† Grid Current:	a,b		I _{c1} : 0	-1.0 uAdc
4.10.4.1	Plate Current:	a,b		I _b : 5.1	9.7 mAdc
4.10.4.3	*Screen Grid Current:	a,b		I _{c2} : 0.85	2.1 mAdc
4.10.9	*Transconductance:	a,b		S _m : 1300	1850 umhos
4.10.16.1	*Power Output (1):	a,b	E _f =5.0Vac; R _p =8000	P _o : 210	— mW
4.10.16.1	† Power Output (2):	a	E _f =1.1Vdc; E _s =5.0Vac R _p =8000	P _o : 140	— mW
4.10.16.1	† Power Output (2):	b	E _f =1.1Vdc; E _s =5.0Vac; R _p =8000; Note 2	P _o : 55	— mW
4.10.3.3	AF Noise & Micro-phonism:	a,b	Note 3	EB: —	18 mV
4.11	Life Test:	a,b	Group A; E _f =1.4Vac or Vdc with equivalent E _{c1}	t: 500	— hrs
4.11.4	Life Test End Point:	a,b	Power Output (1) or Transconductance	P _o : 135 S _m : 1020	— mW — umhos

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CUSTODIANS:
 Army—Signal Corps
 Navy—Bureau of Ships
 Air Force
 PROCUREMENT SPECIFICATION
 MIL-E-1

SPECIFICATION SHEET

POWER AMPLIFIER PENTODE, RECEIVING
1S4 (3S4)

MIL-E-1/326

SHEET 1 of 2

APPROVED 14 AUG 1953 REVISED

CV484

Generic Types:
Test Code:
(General Note)

JAN-134, 3S4
a b

General Note: It will be noted that immediately below each of the type numbers is a letter of the alphabet. It will also be noted that adjacent to requirements, i.e. ratings, test conditions, etc., that a letter or a number of letters appear. This is done so that it is possible to identify immediately those tests that are applicable to a given type or to several types.

Note 1: Applications using this tube type with only half the filament energized are not recommended.

Note 2: Single filament operation with pin 1 open. Repeat with pin 7 open.

Note 3: Ebb=Ecc2=135Vdc; Ecl=0; Rg1=3.3Meg; Rp=0.27Meg; Rg2=2Meg (by passed with 0.5 uf capacitor to -f). Remove tube and adjust gain of amplifier for 50mw output with Esig=3.00Vac.

Note 4: Reference specification shall be of the issue in effect on the date of invitation for bid.

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility, nor any obligation, and the fact that the Government may have furnished, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded as an authorization in any manner limiting the holder or any other person of corporation, or conveying any right of publication in manufacturing, use, or sale any patented invention that may in any way be related thereto.

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CUSTODIANS:
Army-Signal Corps
Navy-Bureau of Ships
Air Force
PROCUREMENT SPECIFICATION
MIL-E-1

SPECIFICATION SHEET

POWER AMPLIFIER PENTODE, RECEIVING
1S4 (3S4)

MIL-E-1/326
SHEET 2 OF 2

Other interest: Army - CHOT * Navy - ANCMGOS