

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

SPECIFICATION M.O.S./CV.2299	<u>SECURITY</u>	
ISSUE 3 DATED 21.4.59	<u>SPECIFICATION</u>	<u>VALVE</u>
To be read in conjunction with K.1001, BS.448 and BS.1409.	Unclassified	Unclassified

→ Indicates a change

TYPE OF VALVE: Sub-miniature Pentode.			<u>MARKING</u>	
CATHODE: Directly Heated.			See K.1001/4.	
ENVELOPE: Glass, unmetallised.			CV No., T.A. letters, Factory and Date Code only required.	
PROTOTYPE: VX 8092				
<u>RATING</u> (All limiting values are absolute)			<u>BASE</u> BS.448/B8D/F.	
			<u>CONNECTIONS</u>	
			Pin	Electrode
Filament Voltage (Nom.) (V) 1.25			1	IC Internal Connection.
Filament Voltage (Max.) (V) 1.35			2	g1 Control grid.
Filament Current (mA) 200			3	NC No connection.
Max. Anode Voltage (V) 165			4	f- & g3 Filament negative + Suppressor grid.
Max. Screen Voltage (V) 165			5	F+ Filament positive.
Max. Anode Dissipation (W) 2.2			6	NC No connection.
Max. Screen Dissipation (W) 0.8			7	a Anode
Max. Cathode Current (mA) 27			8	g2 Screen grid.
Mutual Conductance (mA/V) 2.5			<u>DIMENSIONS</u>	
Max. Operating Frequency (approx.) (Mc/s) 200			BS.448/B8D/F/2.1. Size Ref.No.4.	
<u>CAPACITANCES (pF)</u>			Dimension	Min. Max.
Cout (nom.)	2.7	3.6	A (mm)	- 44.4
Cin (nom.)	3.9	3.9	B (mm)	- 10.16
Cag (max.)		0.15		
<u>NOTES</u>				
A. Measured at $V_a = V_{g2} = 100V$ ; $I_a = 15 \text{ mA}$ .				
B. Measured with close fitting metal screen.				

# C.V.2299

## TESTS

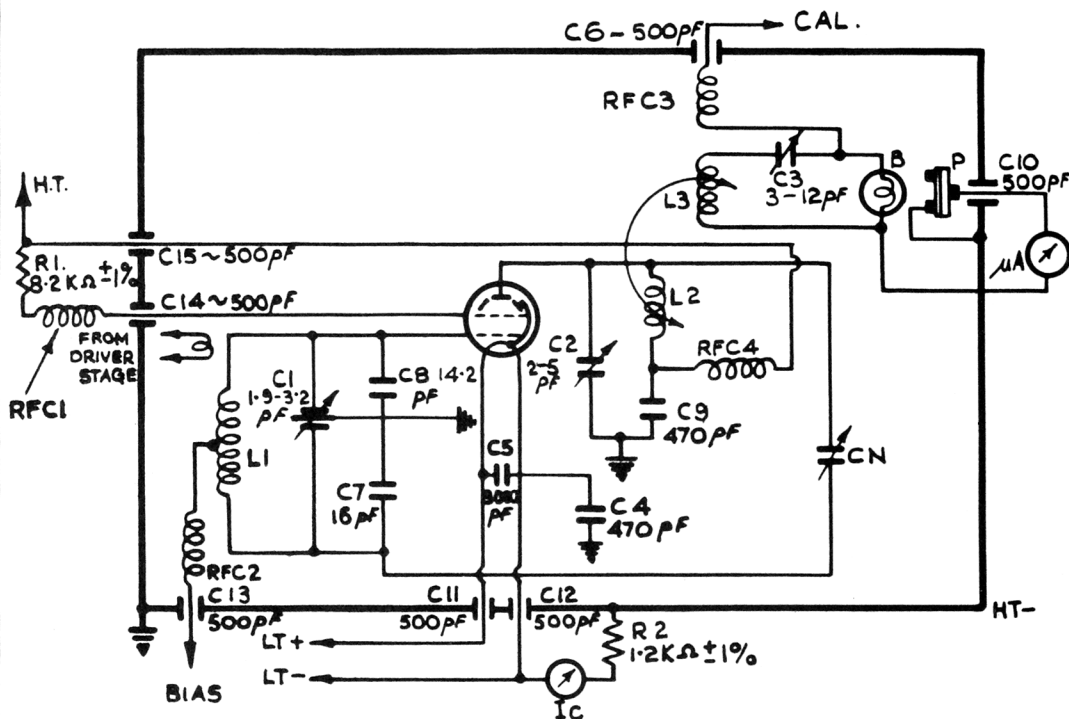
To be performed in addition to those applicable in K.1001.

TEST CONDITIONS: Unless otherwise stated.								
Vf = 1.25V. Va = 100V. Vg2 = 100V. Vg1 = -9V.								
K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits		Units
						Min.	Max.	
	<u>GROUP A</u>							
	Filament Current		-	100%	If	180	220	mA
	Reverse Grid Current.	Note 1.	-	100%	-I <sub>g1</sub>	-	1.0	μA
	Anode Current		-	100%	I <sub>a</sub>	10.5	20.5	mA
	Screen Current		-	100%	I <sub>g2</sub>	2.3	5.4	mA
	Mutual Conductance		-	100%	g <sub>m</sub>	1.9	3.1	mA/V
	Anode Current Tail	Vg1 = -25V. Note 1.4	-	100%	I <sub>a</sub> tail	-	450	μA
	<u>GROUP B</u>							
	Power Output (1)	Vf = 1.0V. Vht = 150V. Note 2.	4.0	I	P <sub>out</sub>	1000	-	mW
A.III	<u>GROUP C</u>							
	Power Output	Vht = 180V. Note 3.	6.5	IB	P <sub>out</sub>	1100	-	mW
	Capacitance	To be measured on an R.F. Bridge at a frequency of 1Mc/s. Valve mounted in a fully shielded socket with a close fitting metal screen.	6.5	IC	C <sub>out</sub> C <sub>in</sub> C <sub>ag</sub>	3.5 3.2 3.3-5	4.3 4.0 0.15	pF pF pF
NOTES								
1. 100 kΩ protective resistance in series with the micro-ammeter.								
2. To be tested in a 50 Mc/s oscillator circuit. The coupling to be adjusted to give I <sub>k</sub> = 25mA on an average valve with Vf = 1.25 V. (A suitable circuit is shown on page 3.)								
3. To be tested in a 200 Mc/s Amplifier circuit. The drive to be adjusted to give I <sub>k</sub> = 25mA after having tuned C1 and C2 to give maximum output power. (A suitable circuit is shown on page 4.)								
4 With an anode supply voltage of 100 volts applied through a 100 kΩ protective resistance to the anode.								



1. L1 = 6 turns 12 S.W.G. tinned copper wire.  
Internal diameter 30mm. length 27mm.  
H.T. tap approximately  $\frac{1}{3}$  along coil from grid end ( $1\frac{1}{2}$  turns)
2. L2 = 2 turns 12 S.W.G. tinned copper wire.  
Internal diameter 30mm.
3. RFC 1,2,3. = 138 turns 36 S.W.G. enamelled copper wire.  
Internal diameter 6 mm. Length 30 mm.
4. RFC 4 = 40 turns 20 S.W.G. enamelled copper wire.  
Internal diameter 17.5 mm. Length 30 mm.
5. B = 6V. 6 watt, P = Photocell.

### 50 Mc/s OSCILLATOR CIRCUIT DIAGRAM.



### NOTES

1. L1 = 1 turn 16 S.W.G. tinned copper wire.  
Internal diameter 10 mm.
2. L2 = 2 turns 16 S.W.G. polished copper wire.  
Internal diameter 10 mm.
3. L3 = 1 turn 12 S.W.G. polished copper wire.  
Internal diameter 15 mm.
4. CN = A short length of wire from the grid circuit running near the anode connection & bent nearer or further away from it to vary the capacity.
5. RFC1 - 4 = 30 turns 23 S.W.G. enamelled copper wire, close wound. Internal diameter 1/4".
6. B = 8V · 45A    P = Photocell.

200 MC/S AMPLIFIER CIRCUIT DIAGRAM.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS/CV.2299

ISSUE 3 DATED 21.4.59

AMENDMENT NO.1

Page 2. Tests GROUP A

Anode Current Tail

In column headed "Test Conditions"

Amend "Note 1" to "Note 4".

In section headed "NOTES" insert new note as follows:-

4. With an anode supply voltage of 100 volts applied through a 100k $\Omega$  protective resistance to the anode.

July, 1960

N.33383/D

Royal Aircraft Establishment.

✓ AAS  
13/60

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV2299 ISSUE 3, DATED 21.4.59

AMENDMENT NO.2

Page 1. RATINGS CAPACITANCES

- (a) Amend. C out. (nom.) value of 3.6 pFs to read 3.9 pF.
- (b) Amend. C in (nom.) value of 3.9 pFs to read 3.6 pF.

Page 2. Group C. Capacitance

Amend the limits for "C out" and "C in" as follows:-

- (a) C out. min. 3.5 max. 4.3.
- (b) C in. min. 3.2 max. 4.0.

N.57274/D

Director,  
Royal Aircraft Establishment.

13.11.61  
JS.