

MINISTRY OF SUPPLY- D.L.R.D.(A)/R.A.E.

Specification MOSA/2795 Issue 2 Dated 23.9.53 To be read in conjunction with K.1001	<u>SECURITY</u>	
	<u>Specification</u> UNCLASSIFIED	<u>Valve</u> UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE - H.F. Pentode				<u>MARKING</u> See K.1001/4		
CATHODE - Directly heated				<u>BASE</u> B.7.G		
ENVELOPE - Glass, unmetallized						
PROTOTYPE - CV.1758 (selected)						
<u>RATINGS</u>			Note	<u>CONNECTIONS</u>		
				Pin	Electrode	
Filament Voltage	(V)	1.4		1	Filament (-)ve, G3, Sh	
Filament Current	(mA)	50		2	Anode	
Max. Anode Voltage	(V)	120		3	Screen Grid	
Max. Screen Voltage	(V)	100		4	No Connection	
Mutual Conductance	(mA/V)	1.03	A	5	Filament (-)ve, G3, Sh	
Anode Current	(mA)	4.5	A	6	Control Grid	
Anode Impedance (approx.)	(mΩ)	0.17	A	7	Filament (+)ve	
Screen Current	(mA)	2.0	A			
Max. Cathode Current	(mA)	6.5		<u>DIMENSIONS</u> See K.1001/A1/D4		
<u>CAPACITANCES (pF)</u>				Dimension	Min.	Max.
Cag (max.)		0.01	B	A mm	-	54.01
Cae		7.5	B	B mm	-	19.05
Cge		3.6	B	L mm	-	47.75
				F mm	34.04	42.16
<u>NOTES</u>						
A. Measured at $V_a = V_{g2} = 90V$, $V_{g1} = 0$.						
B. Measured with a close fitting shield connected to negative end of filament.						

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

Test Conditions					Test	Limits		No. Tested	Note				
						Min.	Max.						
See K.1001/A111					<u>Capacitances (pF)</u>								
Links to H.P.	Links to L.P.	Links to E.											
-	-	-		Cag						-	0.01	T.A.	1
2	1,3,4,5,7	6,8,9,10 TC.1, TC.2		Cae						5.3	9.7	6 per week	
6	1,3,4,5,7	2,8,9,10 TC.1, TC.2		Cge	2.9	4.3	6 per week						
	Vf	Va	Vg2	Vg1									
b	1.4	-	-	-	If (mA)	45	56	100%					
c	1.4	90	90	-1.0	Reverse Ig1 (μA)	-	1.0	100%					
d	1.4	90	90	0	Ig2 (mA)	1.0	3.0	100%					
e	1.4	90	90	0	Ia (mA)	2.9	6.1	100%					
f	1.4	90	90	-10	Ia tail (μA)	-	20	100%					
g	1.4	90	90	0	gm (mA/V)	0.76	1.29	100%					
h	1.1	90	90	0	gm (mA/V)	0.69	-	100%					
j					Microphony (mW)		3.2	100%	2				

NOTES

- Cag will be measured on the Western Electric Capacitance Bridge at 465 kc/s. Details of the bridge may be obtained from the Type Approving Authority, who will test pre-production valves in this apparatus if the manufacturer so desires.
 - Va = Vg2 = 135V D.C.; Ra = 1.0MΩ, Rg1 = 1.5MΩ, Rg2 = 4.7MΩ (by-passed with 0.1 μF capacitor to negative Filament).
- The above specified conditions shall be applied to the valve under test, the tests should be performed in an acoustic chamber constructed to drawing 182 JAN with an RCA victor dynamic speaker MI-6234, or an approved equivalent make.

NOTES (Contd.)

The anode of the valve under test shall be coupled through an 0.1 μ F capacitor to an audio amplifier having approximately 100,000 Ω input resistance and a response characteristic between 60 and 5,000 c/s, flat within ± 2 db of the 400 cycle response, with a resistor load substituted for the speaker. The power amplifier shall be capable of delivering 5 watts with less than 10% distortion. (Set amplifier gain for 50 mW output with an applied signal voltage of 200 mV A.C.)

The speaker shall be coupled to the output of the amplifier so as to present rated load to the amplifier. A VU type meter with an attenuator shall be bridged across a suitable tap on the output of the amplifier. The VU meter may have the dial calibrated in electrical or arbitrary units, the attenuator must be designed to retain the ballistic characteristics specified for the VU meter. The calibrated points used for setting the amplifier gain and as rejection points shall be determined for each test set on the basis of the power in the resistor load only. At 400 cycles and 50 milliwatts the resistor shall have been adjusted to the same impedance as the voice coil for which it is substituted.

The amplifier gain will be adjusted (without the valve in the "test" socket) to give the specified output with the specified calibration voltage at 400 cycles applied to the anode terminal of the valve "test" socket. The calibrating voltage will be removed and the valve under test inserted. When operating under the above conditions no "objectionable noise" or microphonism shall be evident either with the valve at rest or when it is tapped. Objectionable noise or microphonism shall be defined as:

- (a) Background noise, sustained microphonics, or oscillations over 2 seconds in duration having greater than $\frac{1}{2}$ milliwatt output power level.
- (b) Clicks or scratchy noises of any sort.