

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

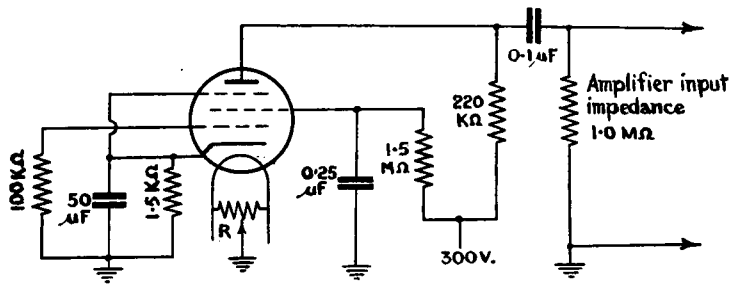
Specification MOSA/CV2135 Issue 4 Dated 12.11.54 To be read in conjunction with B.S.448, B.S.1409 & K.1001	<u>SECURITY</u>	
	<u>Specification</u>	<u>Valve</u>
	UNCLASSIFIED	UNCLASSIFIED

—————> Indicates a change

TYPE OF VALVE - Low Noise Low Microphony Amplifier Pentode			<u>MARKING</u>		
CATHODE - Indirectly Heated			See K.1001/4.		
ENVELOPE - Glass Unmetalised			<u>BASE</u>		
PROTOTYPE - VX.7055			B.S.448/B9A.		
<u>RATING</u>		Note	<u>CONNECTIONS</u>		
			Pin	Electrode	
Heater Voltage	(V) 6.3		1	NC	
Heater Current	(A) 0.15		2	g1	
Max. Anode Voltage	(V) 300	C	3	k	
Max. Anode Dissipation	(W) 0.75	C	4	h	
Anode Current	(mA) 2.1	A	5	h	
Max. Screen Voltage	(V) 125	C	6	s	
Max. Screen Dissipation	(W) 0.1	C	7	a	
Screen Current	(mA) 0.6	A	8	g2	
Mutual Conductance	(mA/V) 1.25	A		g3	
Inner Amplification Factor	20				
<u>CAPACITANCES (pF)</u>		B B B	<u>DIMENSIONS</u>		
C in (Nom.)	4.25		See B.S.448/B9A/2.1.		
C out (Nom.)	4.0		Size Ref. No. 2.		
Ca, g1 (Max.)	0.01		Dimensions (mm)	Min.	Max.
			A seated height	-	49.0
			C diameter	19.0	22.2
			D overall length	-	56.0
<u>NOTES</u>					
A. Measured at Va = 250; Vg2 = 100; Vg1 = -3.					
B. Measured without metal shield.					
C. Absolute maximum values.					

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

Test Conditions						Test	Limits		No. Tested	Note	
							Min.	Max.			
See K.1001/A.III						CAPACITANCES (pF)	C in	3.0	5.5	20	1
Links to H.P.	Links to L.P.	Links to E.			C out						
2	1,3,4,5,6,8,9,10	7,TC1,TC2			C out						
7	1,3,4,5,6,8,9,10	2,TC1,TC2			Ca, g1						
2	7	1,3,4,5,6,8,9,10,TC1,TC2				-	0.01	T.A.			
	Vh	Va	Vg3	Vg2	Vg1						
b	6.3	0	0	0	0	Ih (A)	.138	.162	100% or S		
c	6.3	250	0	100	-3	Ia (mA)	1.3	2.9	100%		
d	6.3	250	0	100	-3	Ig2 (mA)	0.2	1.0	100%		
e	6.3	250	0	100	-3	Reverse Ig1 (μA)	-	1.0	100%		
f	6.3	250	0	100	-3	gm (mA/V)	0.9	1.6	100% or S		
g	6.3	250	0	100	-3	ra (MΩ)	1.2	-	T.A.		
h	6.3	250	0	100	-8	Ia (Tail) (μA)	-	140	100%		
j	6.3	30	30	30	30	Emission (mA)	30	-	100%	2	
k	6.3	-	-	-	-	Hum (mV) R.M.S.	-	80	100%	3	
m	6.3	-	-	-	-	Hiss (mV) R.M.S.	-	20	20 per week	4	
n	6.3	-	-	-	-	A.F. Noise and Microphony	-	-	100%	5	



NOTES

1. Measured without a metal screen.
2. Test Voltages to be applied only for sufficient time to obtain steady running.
3. The valve shall be tested in a circuit as shown above.

The output shall be fed to a calibrated wide band amplifier which contains a filter network accepting frequencies up to 340 c.p.s. The output measuring circuit shall be a voltage meter or another suitable device.

With the valve removed from the test socket a signal of 6.4 mV (rms) shall be applied at 50 c.p.s. to the anode terminal and the amplifier gain adjusted to give 100 mV output. The residual hum output of the amplifier shall be less than 1 mV.

During each test the hum balancing resistor R shall be adjusted for minimum hum.

4. The valve test circuit shall be as shown above except that the filter network shall accept frequencies up to 13 kc/s and its output measuring circuit shall consist of a thermal voltmeter.

With the valve removed from the test socket apply a signal of 6.4 mV (rms) at 400 c.p.s. to the anode terminal and adjust the amplifier to give 100 mV output. The residual noise output of the amplifier shall be less than 1.0 mV.

During the test the valve shall be heated with a direct current.

5. The valve test circuit shall be as shown above. The complete test equipment shall include - valve under test and its associated circuit - calibrated wide band amplifier 10 c/s to 250 kc/s. The output shall terminate in an agreed 12" diameter, 15 ohms loud speaker.

The amplifier and output stage shall be adjusted to give a gain of 24 dB. The valve shall be mounted on sponge rubber at a distance of 1 foot from the centre point of the speaker cone. Except for the valve and its mounting the speaker shall face free space.

During test the valve shall be tapped lightly and shall be rejected if audible extraneous noise or sustained regenerative feedback occur.

DATA SHEET

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Valve Electronic Type CV 2135

Typical Operating Conditions

Pentode Connected (g_3 connected to cathode)

Anode Voltage	100	250	volts
Screen Voltage	100	100	volts
Grid Voltage	-3	-3	volts
Cathode Bias Resistor	1100	1100	ohms
Anode Current	2.0	2.1	mA
Screen Current	0.7	0.6	mA
Anode Impedance	1.5	2.4	Megohm
Mutual Conductance	1.1	1.25	mA/V
Inner Amplification Factor	20	20	
Grid Voltage for 1/100th of i_m at $V_g = -3$	-8	-9	volts

Triode Connected (g_2 connected to anode and g_3 connected to cathode)

Anode Voltage	250	volts
Grid Voltage	-8	volts
Anode Current	6.5	mA
Mutual Conductance	1.72	mA/V
Anode Impedance	11600	ohms
Amplification Factor	20	

Resistance Capacity Coupled AF Amplifier

The following conditions yield an output with approximately 5% distortion.

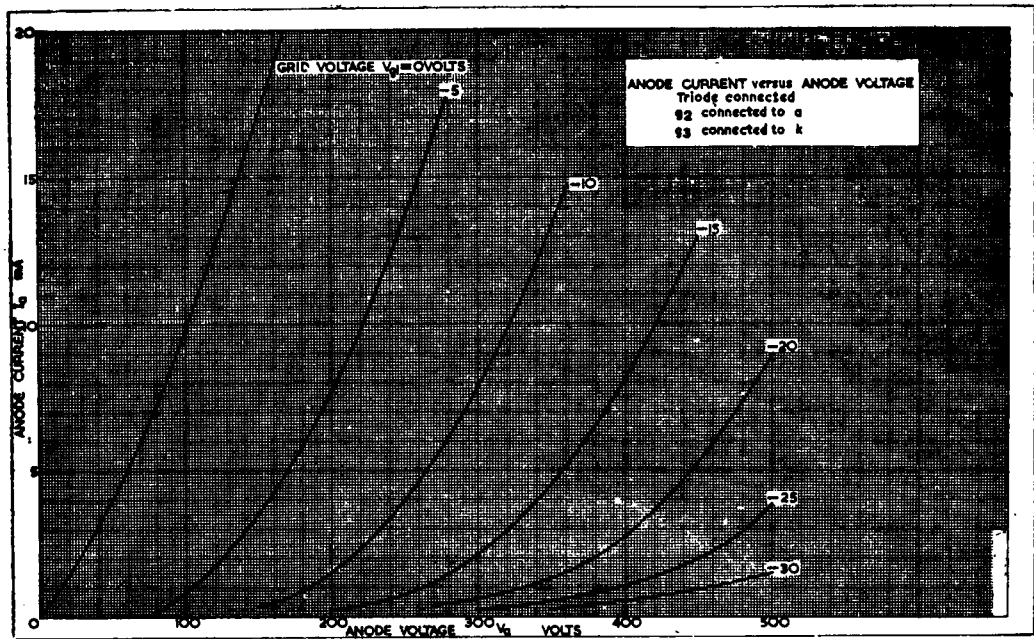
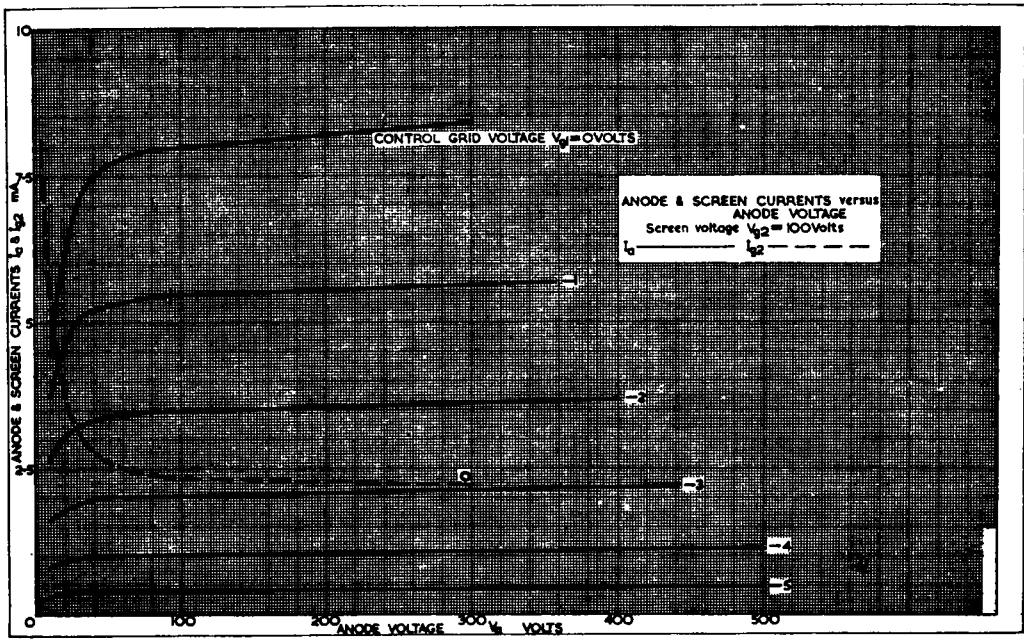
Anode Supply Voltage	100	300	volts
Anode Load Resistor	100 220 470	100 220 470	k Ω
Cathode Bias Resistor	1.3 3.3 5.6	0.56 1.5 2.2	k Ω
Series Screen Resistor	0.47 1.5 2.8	0.47 1.5 2.8	M Ω
Succeeding Stage Grid Resistor	1.0 1.0 1.0	1.0 1.0 1.0	M Ω
Peak Output Voltage	21 28 31	70 92 100	volts
Voltage Gain	65 80 140	104 124 185	volts

NOTE This valve has been designed to have low hum, noise and microphony. It is especially suitable for use as a first stage audio amplifier. It may also be used in RF applications up to at least 20 Mc/s.

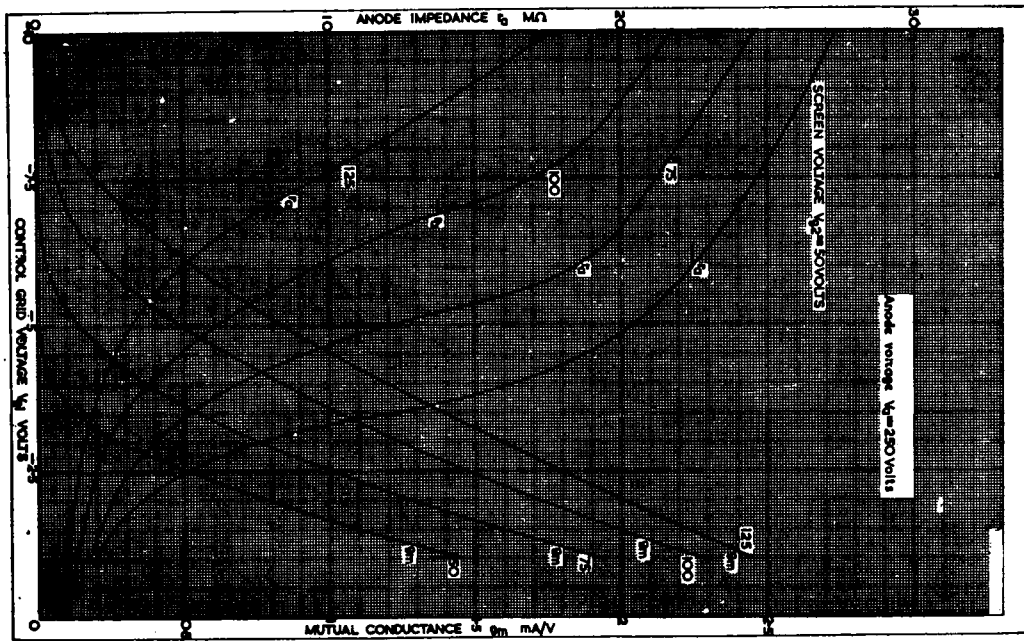
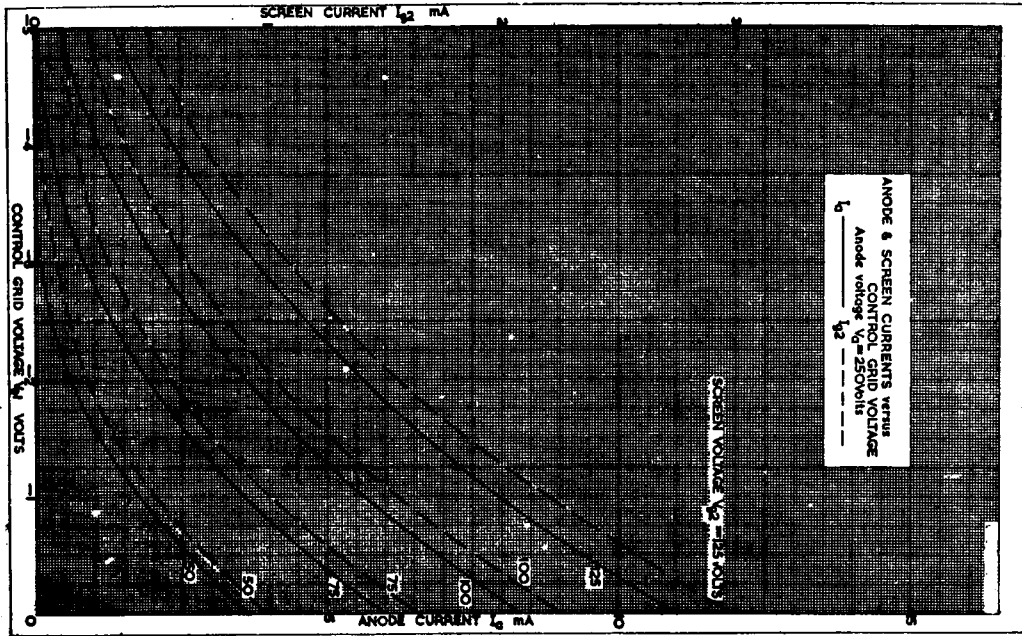
Mounting Position - Any.

2.5477.R.

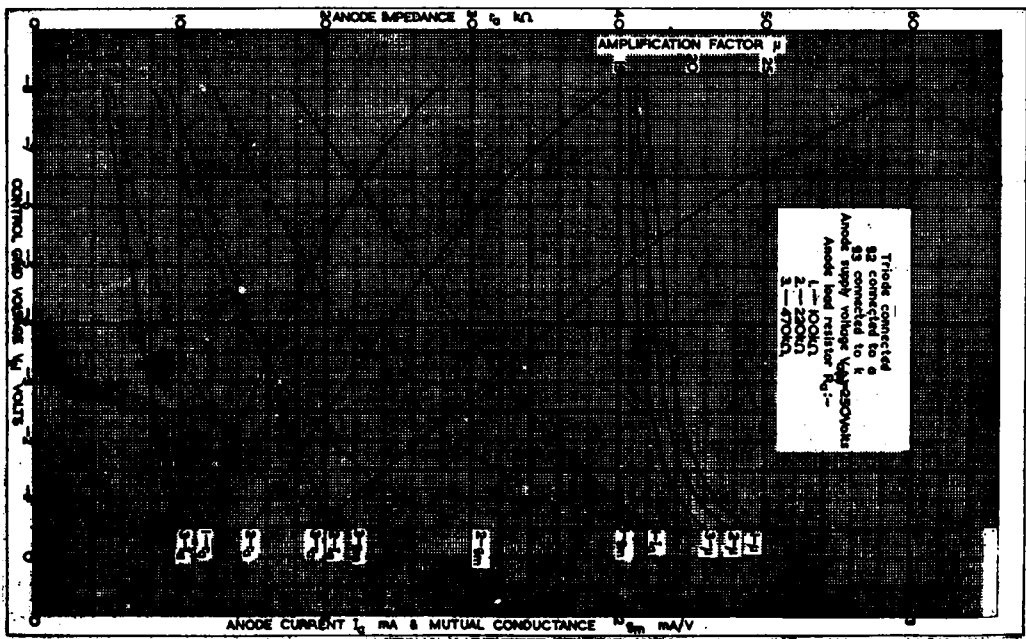
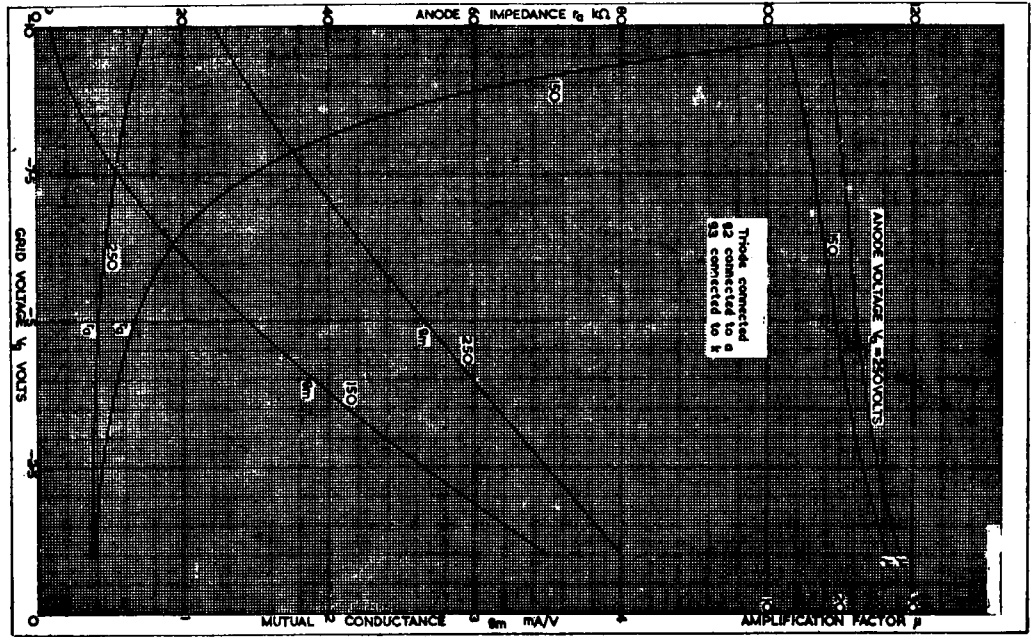
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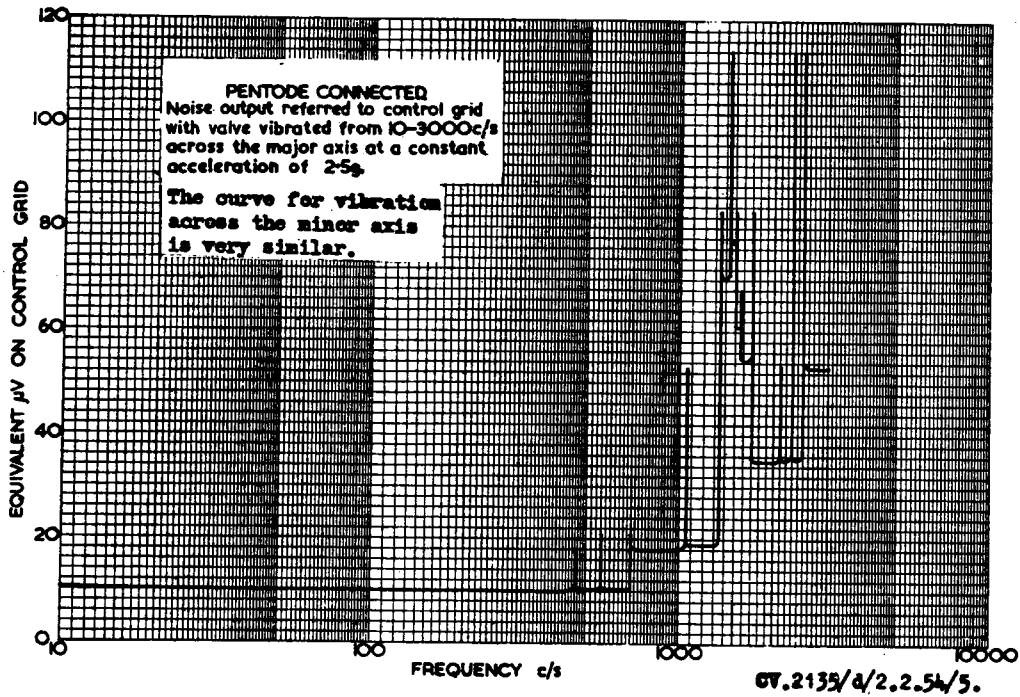
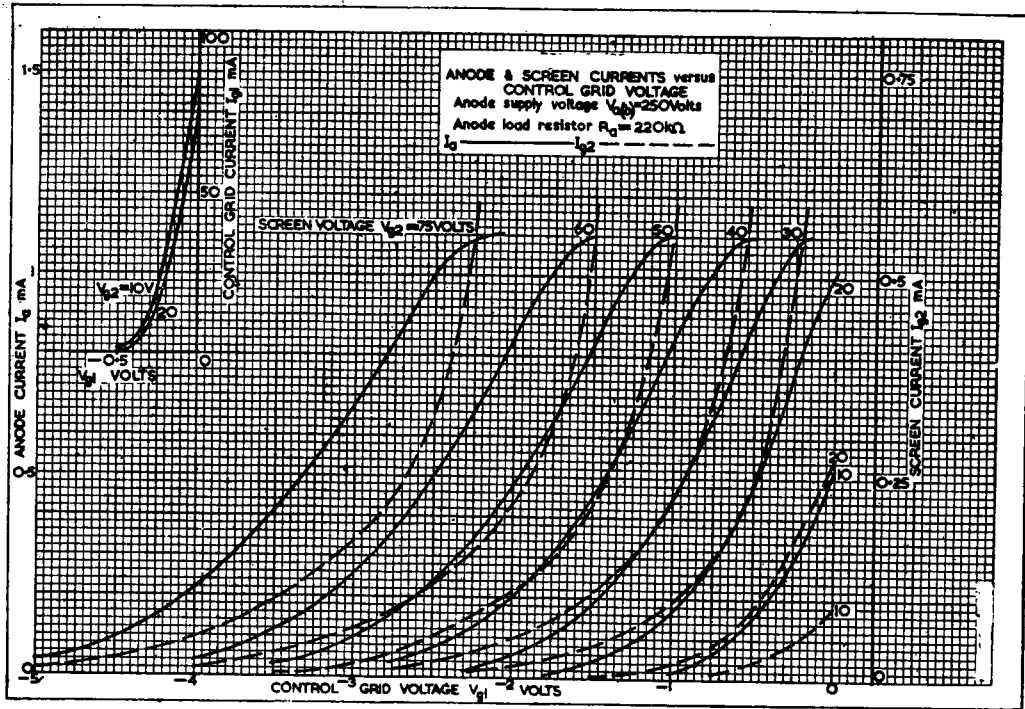
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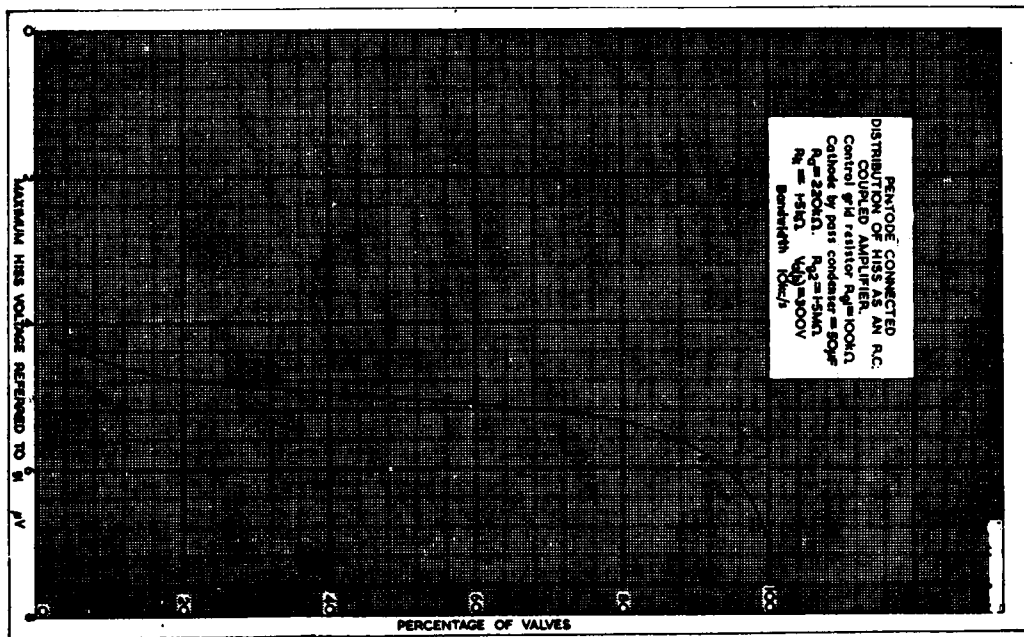
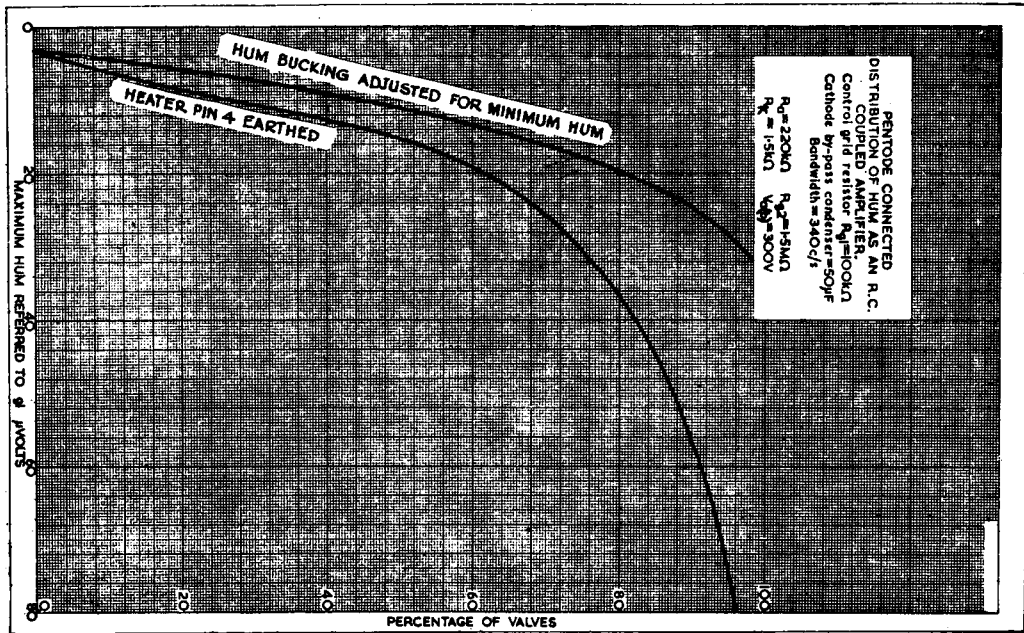


CV.2135/a/2.2.54/3.



CV.2135/4/2.2.54/4.





CV.2135/a/2.2.54/6.