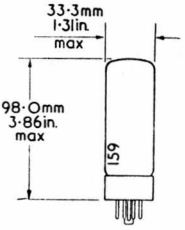
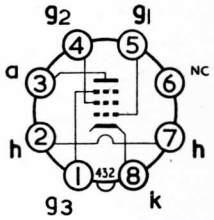


OUTPUT PENTODE



I.O. Base

GENERAL

This valve is a high slope output pentode designed for operation in A.C. operated or mobile equipment.

Heater Voltage	V_h	6·3	V
Heater Current	I_h	1·5	A

RATINGS

Maximum Anode Dissipation	$P_{a(max)}$	25	W
Maximum Screen Grid Dissipation	$P_{g2(max)}$	8	W
Maximum Anode Supply Voltage	$V_{a(b)max}$	2	kV
Maximum Anode Voltage	$V_{a(max)}$	800	V
Maximum Screen Grid Supply Voltage	$V_{g2(b)max}$	800	V
Maximum Screen Grid Voltage	$V_{g2(max)}$	500	V
Maximum Heater to Cathode Voltage	$V_{h-k(max)}$	100	V
Maximum Cathode Current	$I_{k(max)}$	150	mA
Maximum Grid 1 to Cathode Resistance	$R_{g1-k(max)}$	500	kΩ
Maximum Heater to Cathode Resistance	$R_{h-k(max)}$	20	kΩ

INTER-ELECTRODE CAPACITANCES

		*	
Output	c_{out}	8·4	pF
Input	c_{in}	15·2	pF
Anode to Grid 1	c_{a-g_1}	<1·0	pF
Grid 1 to Heater	c_{g_1-h}	<1·0	pF
Heater to Cathode	c_{h-k}	11	pF

* Measured in fully shielded socket without can.

CHARACTERISTICS

Anode Voltage	V_a	250	V
Screen Grid Voltage	V_{g_2}	250	V
Anode Current	I_a	100	mA
Screen Grid Current	I_{g_2}	15	mA
Control Grid Voltage	V_{g_1}	−12·2	V
Mutual Conductance	g_m	11	mA/V
Anode Resistance ($\delta v_a/\delta i_a$)	r_a	15	kΩ
Inner Amplification Factor	$\mu_{g_1-g_2}$	11	

OPERATION AS CLASS A SINGLE VALVE AMPLIFIER

Anode Voltage	V_a	250	300	V
Screen Grid Voltage	V_{g_2}	250	300	V
Suppressor Grid Voltage	V_{g_3}	0	0	V
Cathode Resistor	R_k	106	190	Ω
Anode Load Resistance	R_a	2	3·5	kΩ
Anode Current (Zero signal)	$I_{a(o)}$	100	83	mA
Screen Grid Current (Zero signal)	$I_{g_2(o)}$	15	13	mA
R.M.S. Input Voltage (for P_{out} = 50mW)	$V_{in(r.m.s.)}$ (P_{out} = 50mW)	500	450	mV
R.M.S. Input Voltage	$V_{in(r.m.s.)}$	8	8·2	V
Power Output	*P_{out}	11	11	W
Total Distortion	*D_{tot}	10	10	%

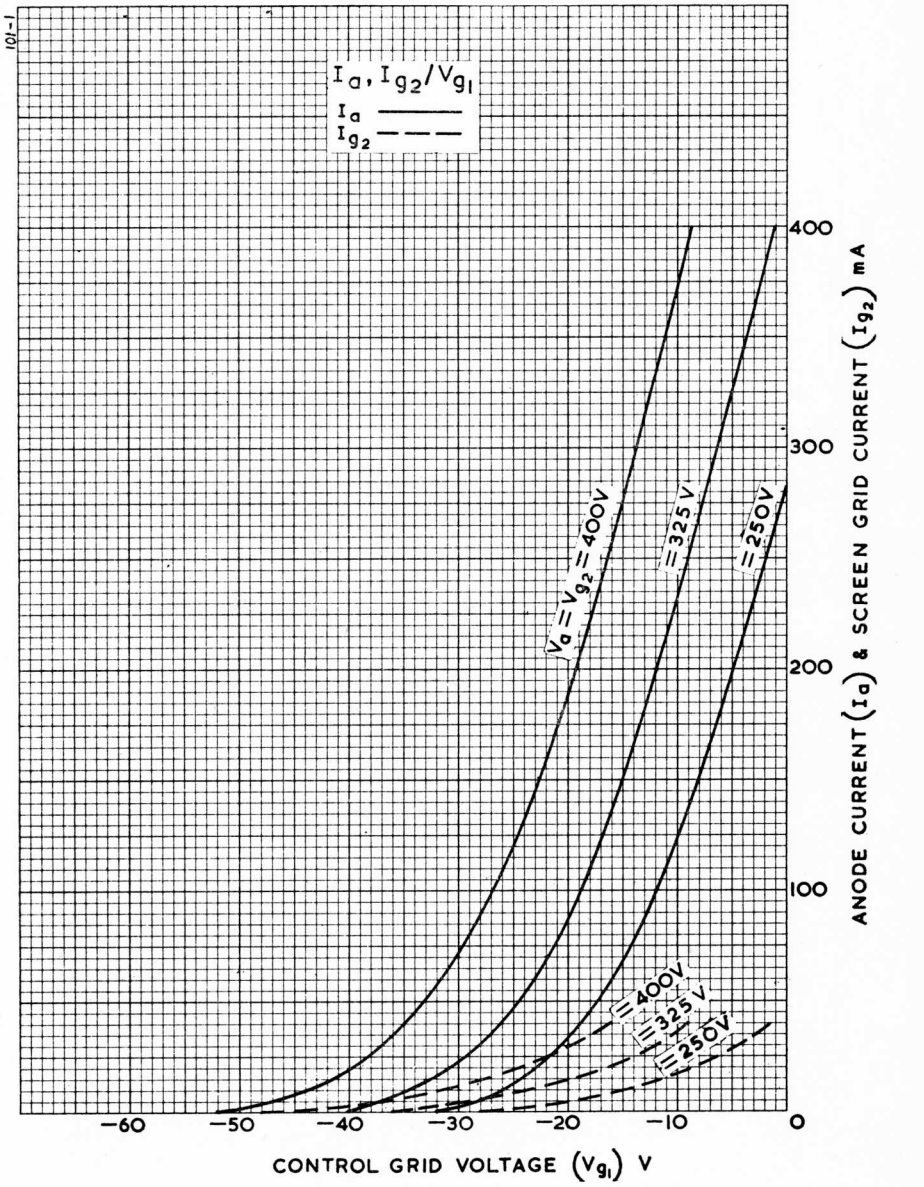
PUSH PULL OPERATION FOR TWO VALVES

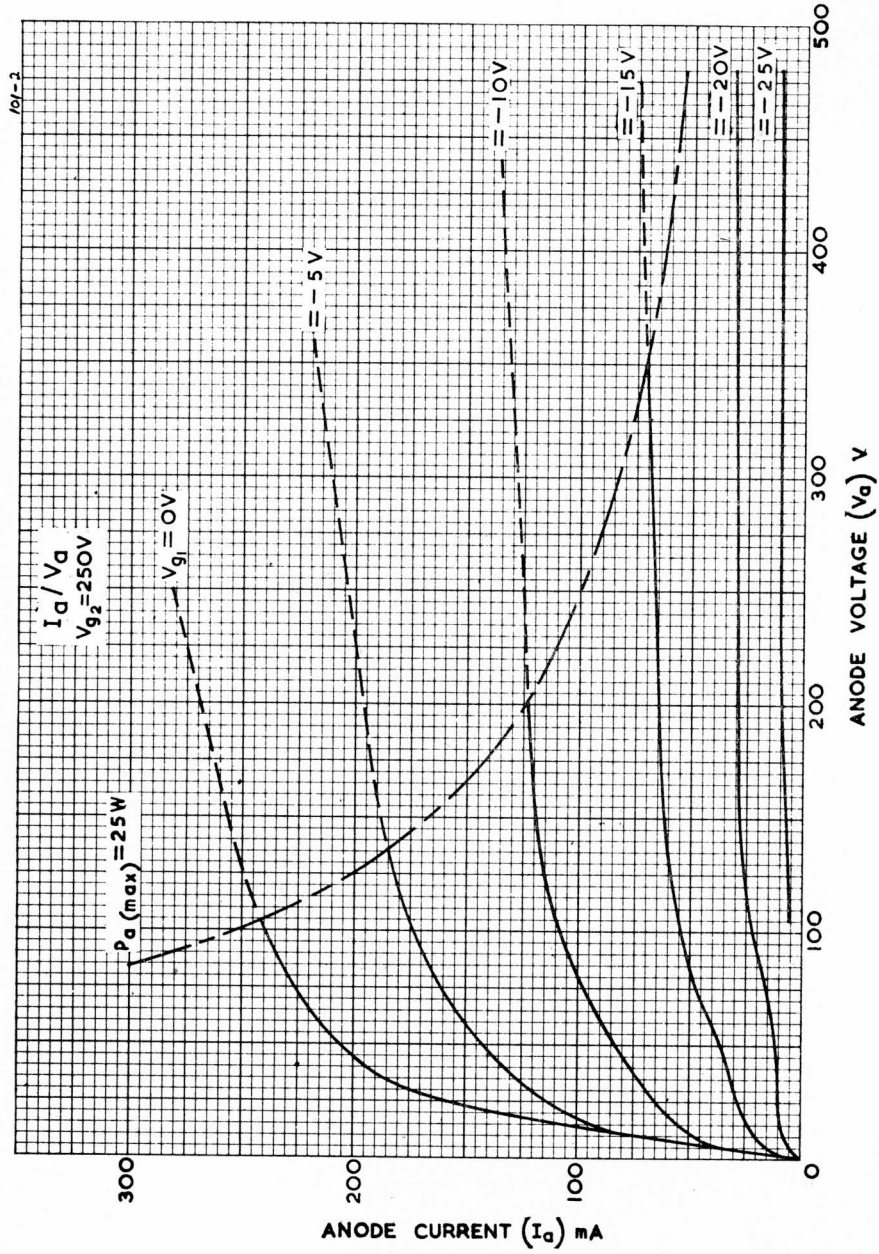
(Fixed Bias)

Supply Voltage	V_b	375	400	V
Suppressor Grid Voltage	V_{g_3}	0	0	V
Screen Grid Resistor	R_{g_2}	600†	800†	Ω
Control Grid Voltage	V_{g_1}	–33	–36	V
Anode Load Resistance	R_{a-a}	3·5	3·5	kΩ
Total Anode Current (Zero signal)	$I_{a(o)tot}$	60	60	mA
Total Screen Grid Current (Zero signal)	$I_{g_2(o)tot}$	9·4	9	mA
R.M.S. Input Voltage	$V_{in(g_1-g_1)r.m.s.}$	46·7	50	V
Power Output	P_{out}	48	54	W
Total Distortion	D_{tot}	2·8	1·6	%
Total Anode Current (Maximum Signal)	$I_{a(max.sig.)tot}$	215	221	mA
Total Screen Grid Current (Maximum Signal)	$I_{g_2(max.sig.)tot}$	47	46	mA

* Under Speech and Music conditions.

† Screen-grid resistor common to both valves.


101-1
$I_a, I_{g_2}/V_{g_1}$
I_a
I_{g_2}
$V_a = V_{g_2} = 400V$
$= 325\ V$
$= 250V$
$= 400V$
$= 325\ V$
$= 250V$
400
300
200
100
0
−60
−50
−40
−30
−20
−10
ANODE CURRENT (I_a) & SCREEN GRID CURRENT (I_{g_2}) mA
CONTROL GRID VOLTAGE (V_{g_1}) V


101-2
I_a / V_a
V_{g_2}=250V
P_a (max)=25W
V_{g_1}=0V
=-5V
=-10V
=-15V
=-20V
=-25V
ANODE CURRENT (I_a) mA
ANODE VOLTAGE (V_a) V
0
100
200
300
400
500