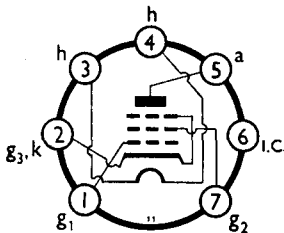




MINIATURE
OUTPUT PENTODE
6.3V INDIRECTLY HEATED

N78
NOVEMBER, 1953

BASE CONNECTIONS AND VALVE DIMENSIONS



View from underside
of base.

Base : B7G
Bulb : Tubular

Overall length : 64—70 mm.
Seated length : 58—64 mm.
Max. diameter : 19 mm.

RATING

Pentode Connection

V_h	6.3	V
I_h	0.64 approx.	A
v_{h-k} (pk)	150 max.	V
V_a	250 max.	V
V_{g2}	250 max.	V
P_a	9 max.	W
P_{g2}	3 max.	W
μ	420	
r_a	40	k Ω
g_m	10.5	mA/V

at $V_a = V_{g2} = 250$, $V_{g1} = -5$

Triode Connection

V_a, g_2	250 max.	V
P_a, g_2	12 max.	W
μ	24	
r_a	2.1	k Ω
g_m	11.4	mA/V

at $V_a, g_2 = 250$, $V_{g1} = -5$

CAPACITANCES (of cold unscreened valve)

C_{a-all} 10.5 pF C_{g1-all} 11.5 pF C_{a-g1} 0.3 pF

TYPICAL OPERATION

Single Valve, Class A, Pentode Connection

V_a	250	V
V_{g2}	250	V
V_{g1} (o)	-5 approx.	V
I_a (o)	35	mA
I_{g2} (o)	5.5	mA
R_k	120	Ω
v_{in} (pk)	5	V
R_L	7	k Ω
P_{out}	4	W
D	9.2	%

Push-pull, Class AB₁, Pentode Connection

Data per pair unless otherwise stated

V _a	220	250	350	V
V _{g2}	220	250	275	V
V _{g1} (o) approx.	−3.2	−5	−7.1	V
I _a (o)	82	70	46	mA
I _a (max. sig)	82	73	51	mA
I _{g2} (o)	13	11	6.5	mA
I _{g2} (max. sig)	16.5	16.5	20	mA
R _k (per valve)	68	120	270	Ω
v _{in} (pk) (g ₁ -g ₁)	7	11.2	20	V
R _L (a-a)	9	9	18	kΩ
P _{out}	5	9	12.6	W
D	3	4.6	4.8	%

Push-pull, Class AB₁. Triode Connection

Data per pair unless otherwise stated

V _{a, g2}	300	350	V
V _{g1} (o) approx.	−7.5	−9.5	V
I _{a, g1} (o)	67	57	mA
I _{a, g2} (max. sig)	73	64.5	mA
R _k (per valve)	220	330	Ω
v _{in} (pk) (g ₁ -g ₁)	15.5	21	V
R _L (a-a)	5	8	kΩ
P _{out}	4.4	6.3	W
D	1.5	1.6	%

R.F. Power Amplifier and Oscillator, Single Valve. Class C Telegraphy

Pentode Connection. (Unmodulated key-down conditions)

V _a	300	V
V _{g2}	150	V
V _{g1}	−25	V
I _a	65	mA
I _{g2}	14	mA
*I _{g1}	5	mA
R _L	1.65	kΩ
p _a	9	W
P _{out}	10.5	W

* Subject to wide variation.

Frequency Multiplier. Single Valve. Pentode Connection.

Key-down conditions.

f _{in}	20	50	20	Mc/s
f _{out}	40	100	60	Mc/s
V _a	350	260	270	V
V _{g2}	150	200	160	V
V _{g1}	−60	−100	−120	V
I _a	52	55	52	mA
I _{g2}	14	9	12	mA
*I _{g1}	3	5	6	mA
R _L	2.2	1.1	1.18	kΩ
p _a	9	9	9	W
P _{out}	9.2	5.3	5.1	W

* Subject to wide variation.

GRID RESISTOR

The maximum permissible D.C. resistance between control grid and cathode is limited to $0.27 \text{ M}\Omega \pm 20\%$ with auto-bias, and $0.1 \text{ M}\Omega$ with fixed bias.

SCREENING

No internal or external screening is fitted to the valve.

MOUNTING

Any position.

RETAINING

A retaining device should be used.

VENTILATION

Free air circulation round the bulb is preferable. If a retaining device in the form of a canister is used, the surfaces should be blackened. The temperature of the hottest part of the bulb must not exceed 250°C .

MICROPHONY

Although this is of a very low order, equipment should be designed to minimise microphony.

