



Twin Tetrode Type TT15

(RF AMPLIFIER)

General. The TT 15 has two beam-tetrode systems with indirectly heated oxide-coated cathodes. The valve is designed for use as a push-pull RF power amplifier for frequencies up to 160 Mc/s and, at reduced inputs, up to 250 Mc/s.

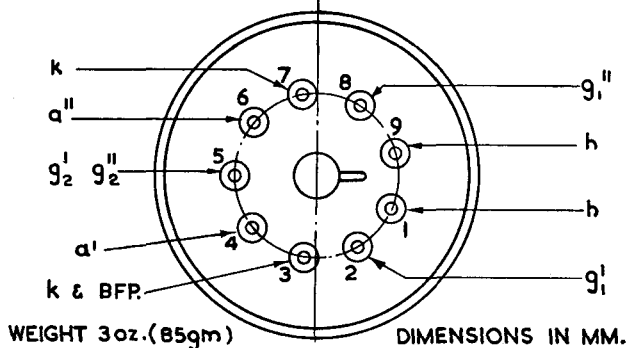
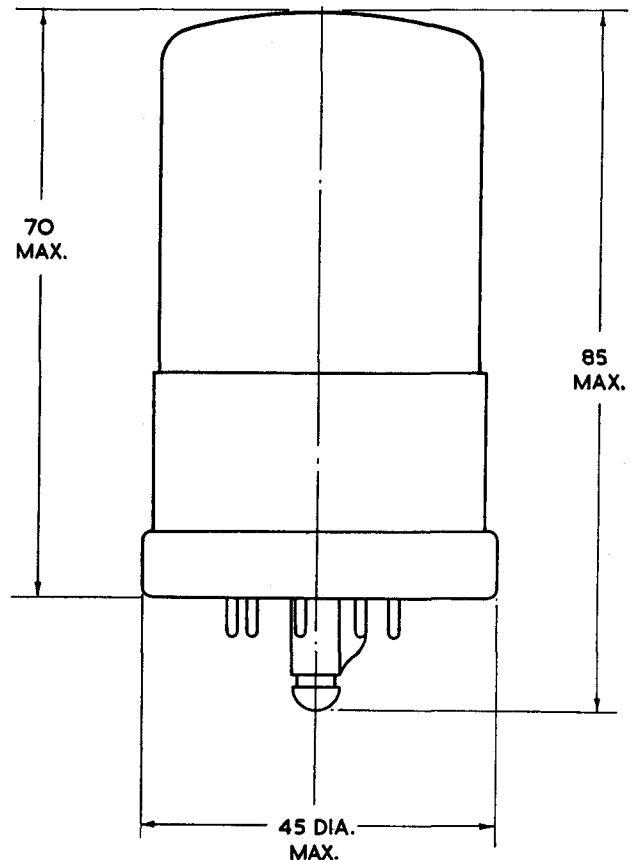
Cooling. The valve must have adequate ventilation. The temperature of the hottest part of the bulb must not exceed 250°C.

Mounting. The valve may be mounted in any position. A retaining device should always be fitted.

Screening. The metal skirt is connected to the centre spigot which should be earthed. No further screening is required.

APPROXIMATE DATA

V_h	6.3	V
I_h	1.6	A
V_a	400	V
V_{g1}	200	V
$I_{k(pk)(max)}$	2×0.4	A
$P_{a(max)}$	2×7.5	W
$P_{g2(max)}$	2×1.25	W
μ_{g1-g2}	taken at V_a 250 V, V_{g2} 135 V, I_a 30 mA	
r_a		
g_m		
C_{a-g1}		
C_{g1-all}		
C_{a-all}		
	6.5	
	100	kΩ
	3.9	mA/V
	0.043 pF (mean)	0.05 pF (max.)
	8.5 pF (mean)	9.0 pF (max.)
	9.3 pF (mean)	7.5 pF (max.)



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Typical Operation

(1) PUSH-PULL AUDIO AMPLIFIER. CLASS AB1

Values per valve (2 systems).

V_a	300	400	V
V_{g2}	175	175	V
V_{g1}	-21	-25	V
$V_{in(pk)}(g'_1 - g''_1)$	41	48	V
V_{out} (r.m.s.)	324	480	V
I_a (zero-sig.)	50	33	mA
I_a (max-sig.)	100	92	mA
I_{g2} (zero-sig.)	2.6	1.4	mA
I_{g2} (max-sig.)	13.9	11.8	mA
$R_{L(a-a'')}$	7	10	k Ω
D	2.25	4.2	%
P_{out}	16.8	22.7	W

Grid Resistor. The maximum permissible DC grid to cathode resistor for fixed bias applications is 0.1 M Ω .

These values assume that a stabilised power supply of very low impedance is used.

(2) PUSH-PULL RF POWER AMPLIFIER.

CLASS C TELEGRAPHY

(Unmodulated, key-down conditions.)

Values per valve (2 systems).

f	20	20	Mc/s
V_a	300	400	V
V_{g2}	175	175	V
V_{g1}	-50	-50	V
$V_{in(pk)}(g'_1 - g''_1)$	110	110	V
I_a	120	100	mA

I_{g2}	14	11	mA
I_{g1} (a)	2.5	2.5	mA
R_{g1}	20	20	k Ω
P_a	12	14.4	W
P_{g2}	2.5	1.9	W
P_{dr} (a)	0.3	0.3	W
P_{out}	24	25.6	W

(3) PUSH-PULL RF AMPLIFIER

(Permissible modulation 100%, carrier conditions.)

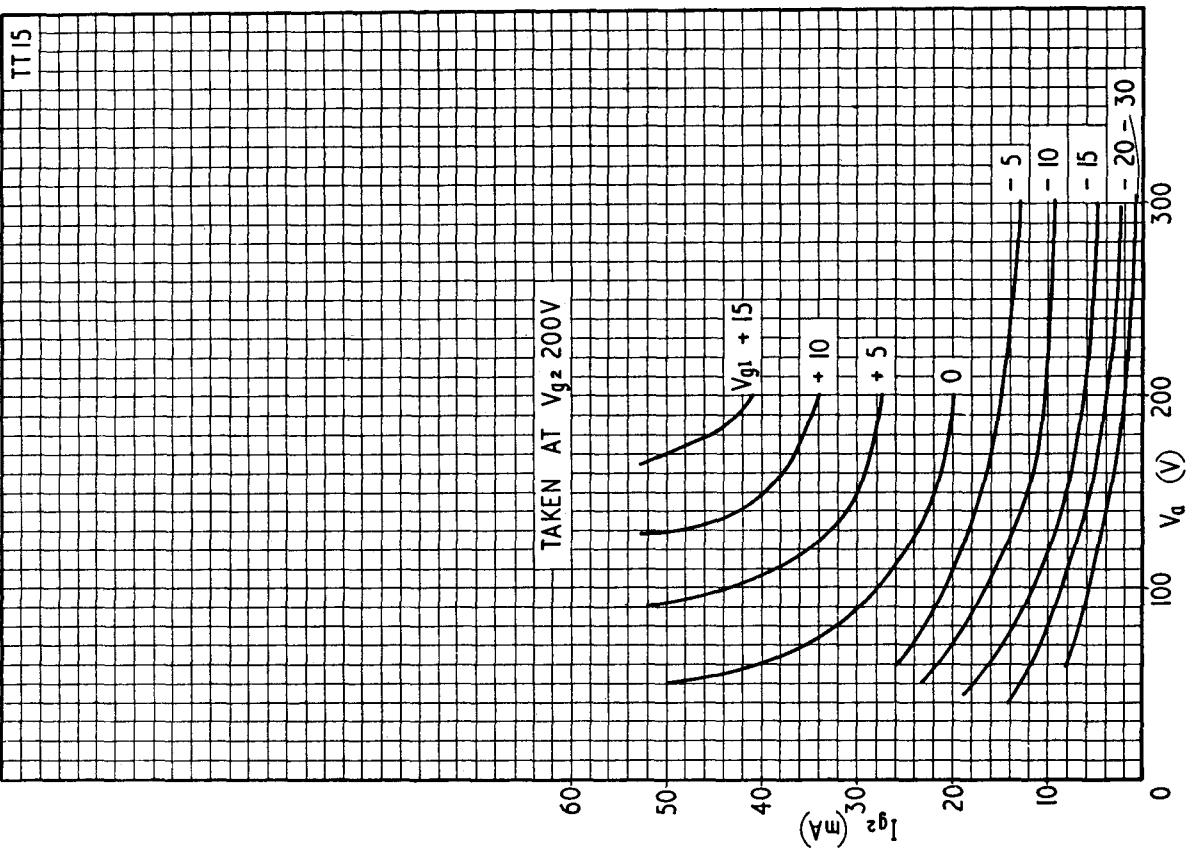
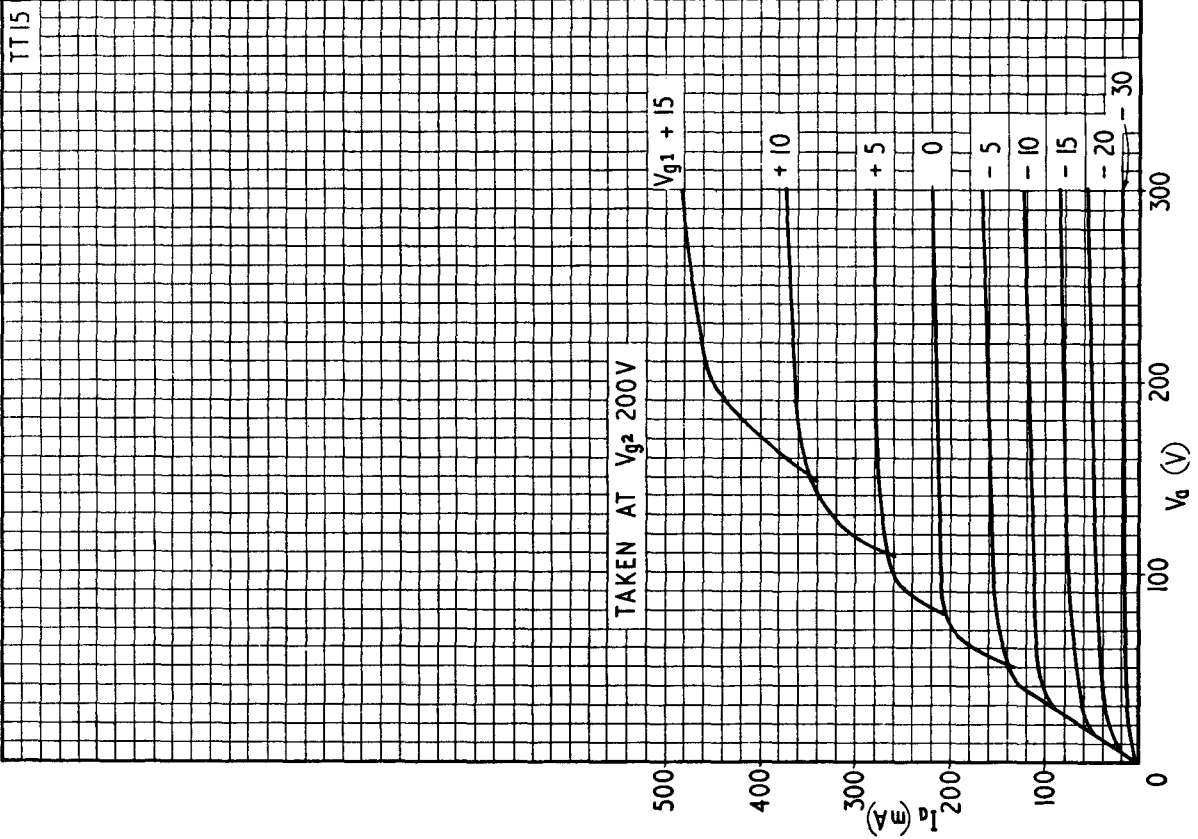
Values per valve (2 systems).

f	20	Mc/s
V_a	325	V
V_{g2}	200	V
V_{g1}	-60	V
$V_{in(pk)}(g'_1 - g''_1)$	130	V
I_a	90	mA
I_{g2}	12.5	mA
I_{g1} (a)	2.5	mA
R_{g2}	10	k Ω
$Z_{to mod}$	3,130	Ω
P_a	10	W
P_{g2}	2.5	W
P_{dr} (a)	0.35	W
$P_{audio mod.}$	17	W
P_{out}	19.2	W

Greater anode inputs in the carrier conditions may be permissible if the mean modulation depth is very low. The anode dissipation must not exceed 15 W under modulation conditions.

NOTE

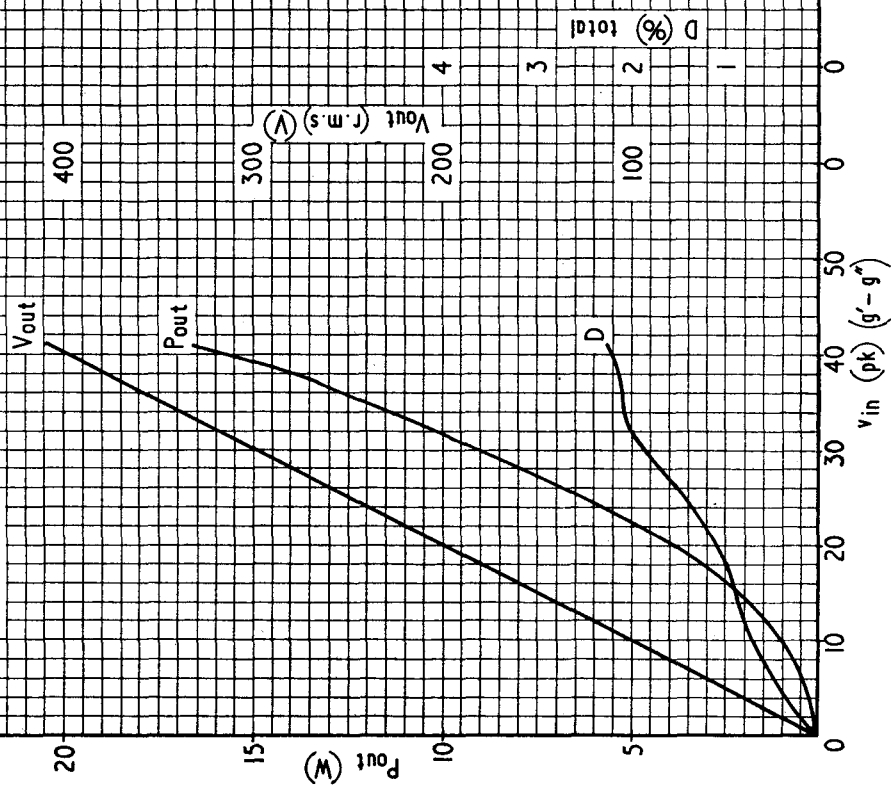
(a) Subject to wide variations. The figures are approximate only.



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CLASS A.B.I. OPERATION

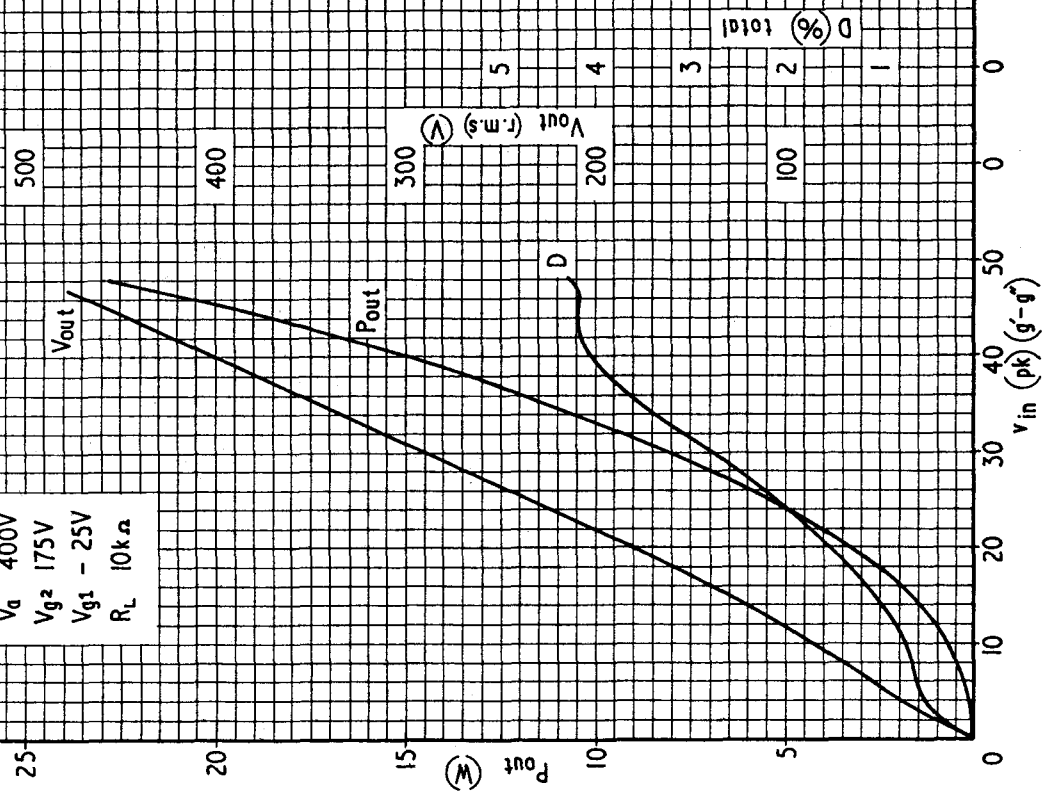
V_a 300V
 V_{g2} 175V
 V_{g1} -21V
 R_L 7k Ω

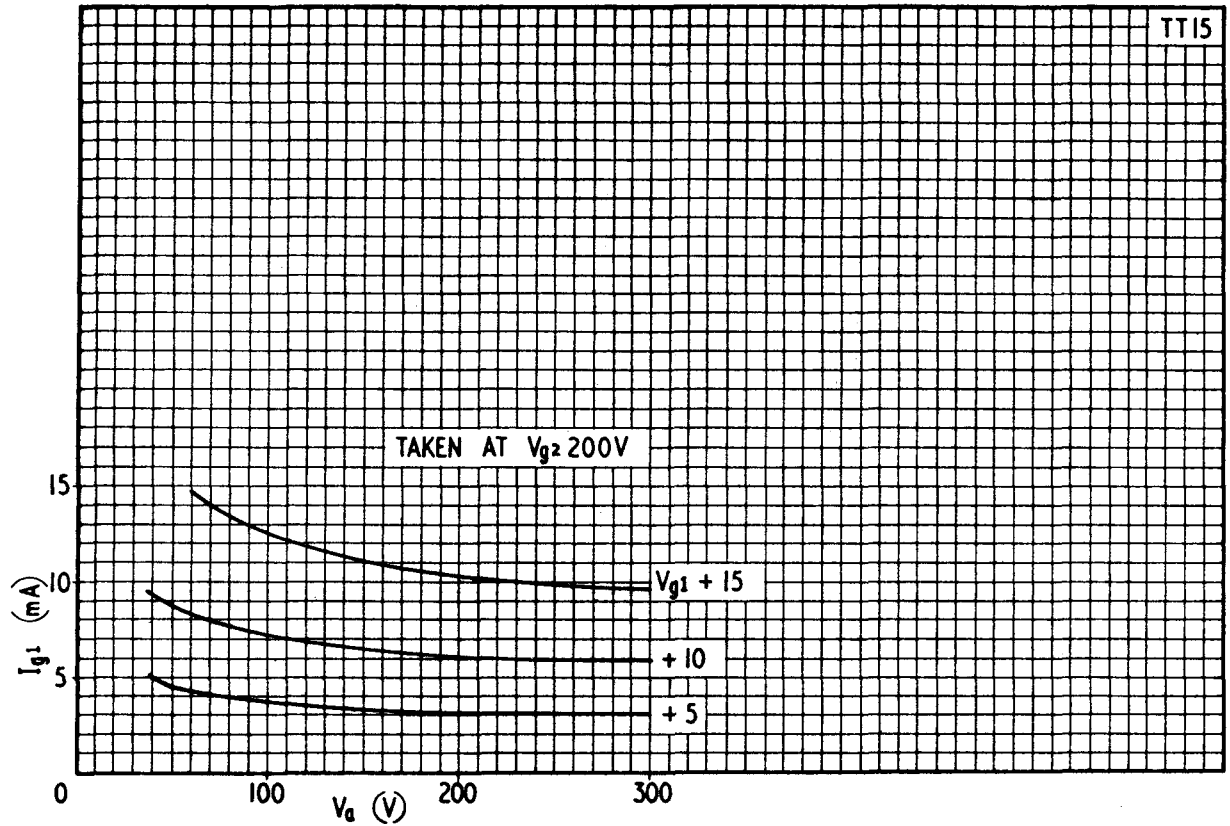
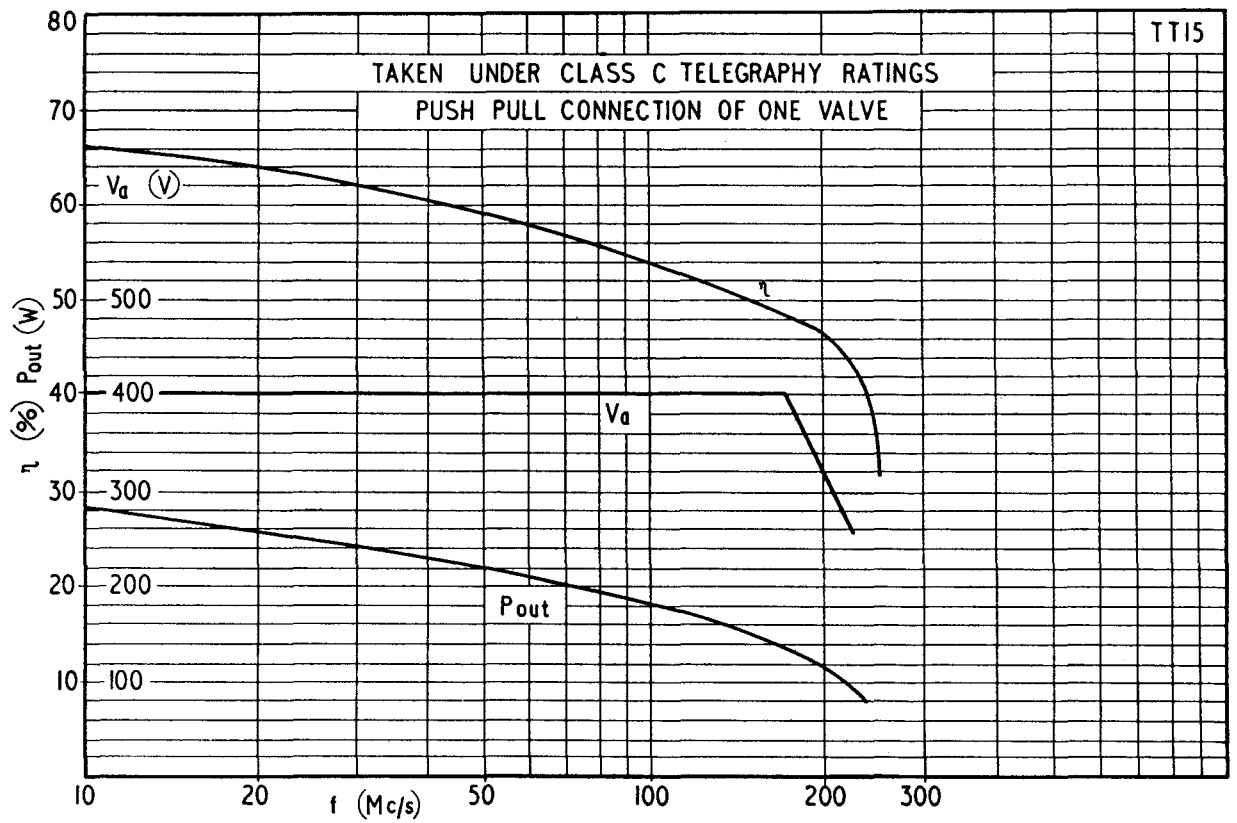


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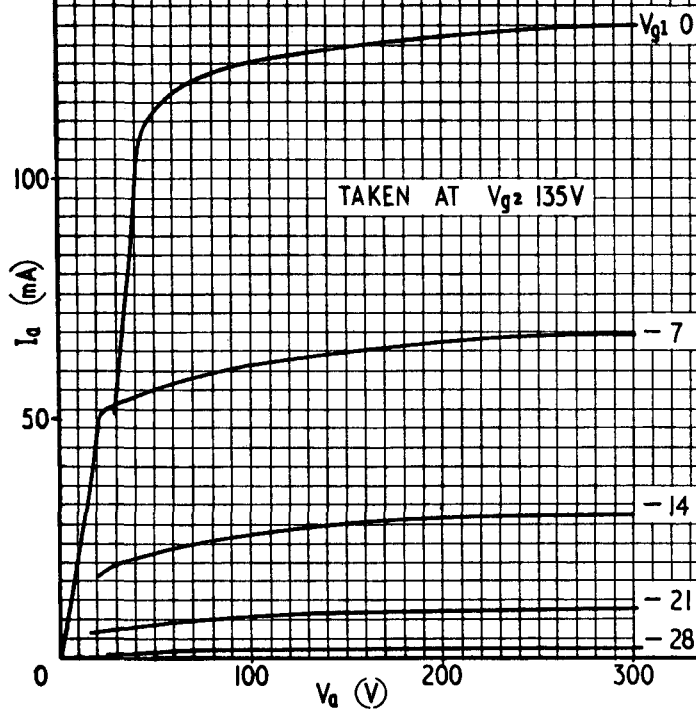
CLASS A.B.I. OPERATION

V_a 400V
 V_{g2} 175V
 V_{g1} -25V
 R_L 10k Ω





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