



Triode Type ACT14

HF AMPLIFIER AND OSCILLATOR

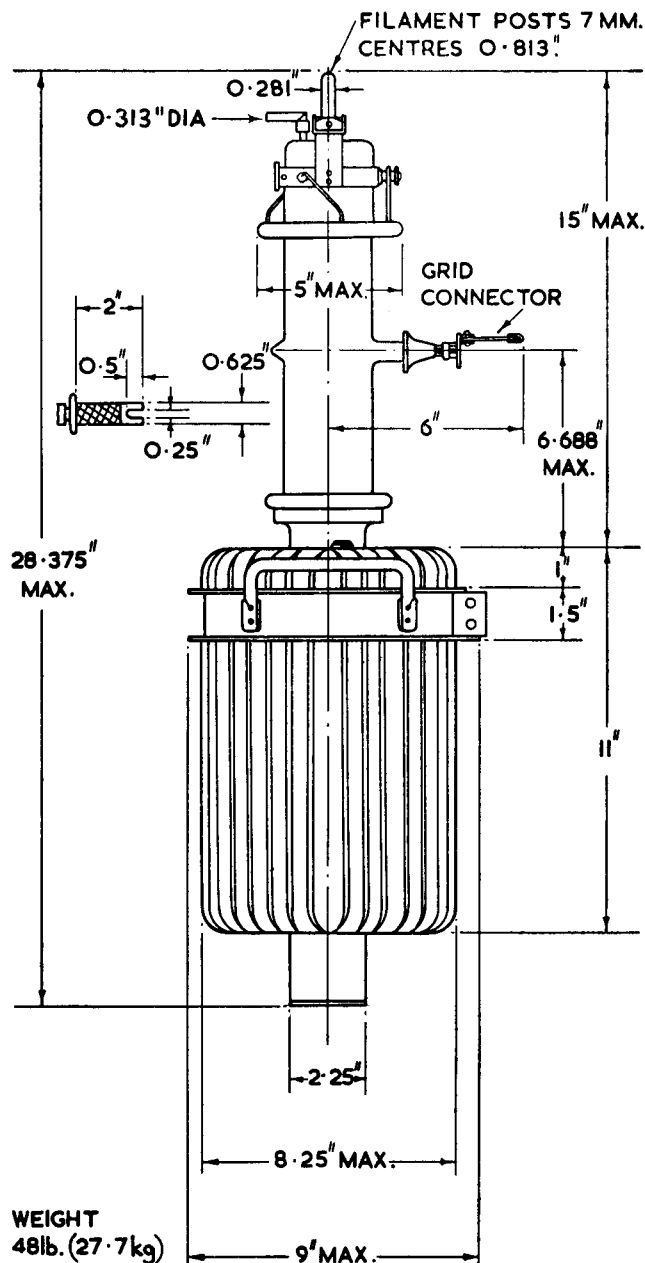
General. A forced-air cooled transmitting triode fitted with a tungsten filament.

Cooling. The anode requires cooling by air blast and the volume of air necessary is 600 cu. ft. per minute at a pressure equal to an 8-in. head of water. All cooling supplies must be started before the application of any voltage and the temperature of the air intake must not exceed 35°C (95°F).

Filament Starting. The cold resistance of the filament is approximately 0.021 Ω. The filament current must never exceed 105 A at any time during the switching-on period. If the valve is operated for periods greater than 15 minutes without anode voltage being applied, the filament voltage must be reduced to one-half its normal value during the standby period.

Mounting. The valve must be mounted with its axis vertical and the filament seals uppermost. Rigid connections must be made to the anode only.

Seasoning. Whenever a new valve is put into service, or when a valve has been idle for periods of approximately 2 months, it must be seasoned by operating for at least one hour at half the normal anode voltage and current. The anode voltage should then be increased slowly to the normal value.



MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

Head Office: Marconi House, Chelmsford, England. Telephone: Chelmsford 3221. Telegraphic Address: Expanse, Chelmsford

APPROXIMATE DATA

V_f	18-20	V
I_f	72	A
$V_{a(max)}$	12	kV
$P_{a(max)}$	10	kW
$P_{gl(max)}$	350	W
$I_{gl(pk)} (RF) (max)$	30	A
μ	$\left. \begin{array}{l} \text{taken at } V_a \text{ 10 kV} \\ \quad \quad V_{gl} \text{ 0 V} \end{array} \right\}$	45
r_a		5,000 Ω
g_m		9 mA/V
$f_{(max)}$		40 Mc/s
C_{a-gl}	31.8	pF
C_{a-k}	2.2	pF
C_{gl-k}	24.3	pF

Each valve is marked with the filament voltage to give 10 A emission at 90% saturation.

Typical Operation

(1) HF POWER AMPLIFIER AND OSCILLATOR. CLASS C TELEGRAPHY

(Unmodulated, one valve, key down conditions)

V_a	12.0	10.0	8.0	kV
I_a	2.6	2.5	2.4	A
V_{gl}	-375	-460	-290	V
$I_{gl} (a)$	140	130	250	mA
$V_{gl(pk)}$	1,375	1,460	1,290	V
$P_{dr} (a)$	200	200	320	W
Z_a	2,300	1,860	1,630	Ω
P_a	9.7	8.3	6.2	kW
P_{out}	21.5	16.7	13.0	kW

(2) HF POWER AMPLIFIER. CLASS C

(Anode modulated, one valve, carrier conditions, permissible modulation 100%)

V_a	10.0	7.5	kV
I_a	1.05	1.0	A
V_{gl}	-685	-575	V
$I_{gl} (a)$	25	26	mA
$V_{gl(pk)}$	1,145	1,035	V
$P_{dr} (a)$	40	30	W
Z_a	4,480	3,160	Ω
P_a	2.2	2.0	kW
P_{out}	8.3	5.5	kW

(3) HF POWER AMPLIFIER.

CLASS B TELEPHONY

(One valve, carrier conditions, permissible modulation 100%)

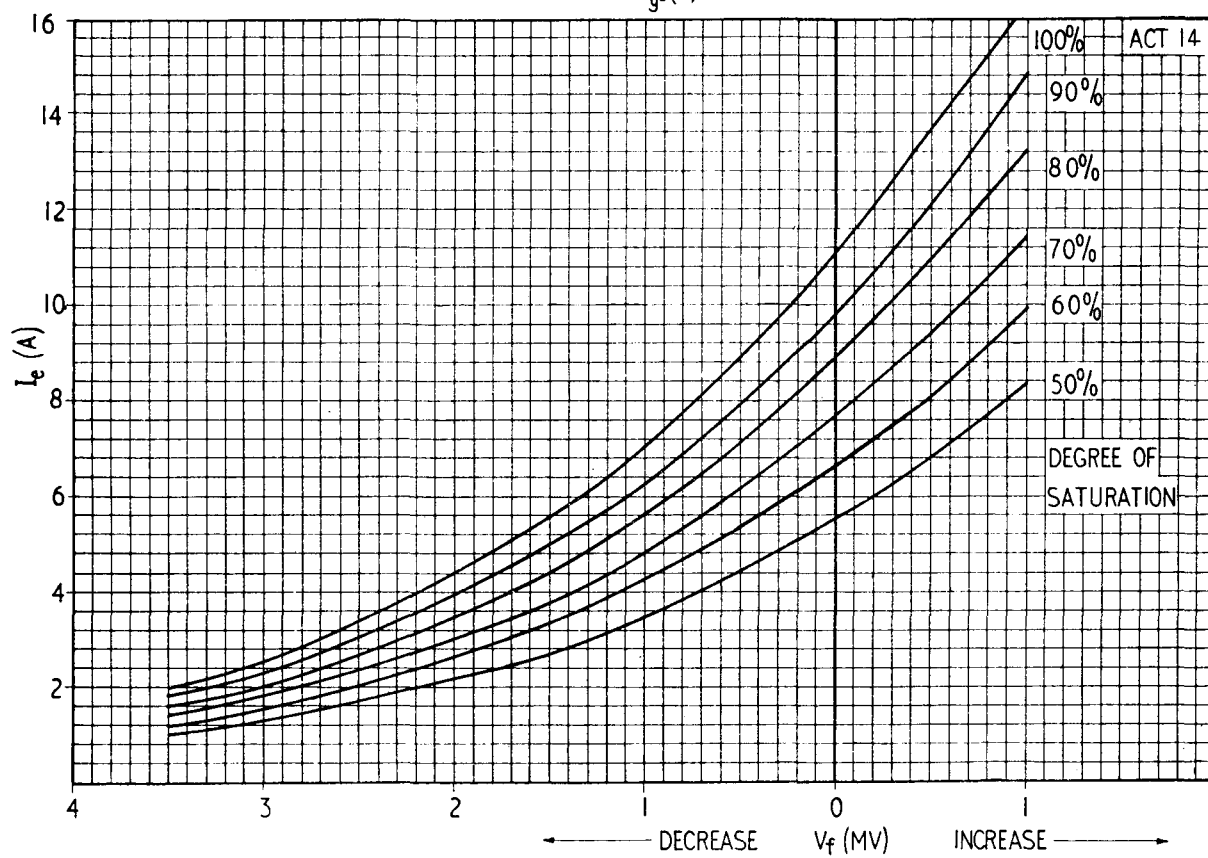
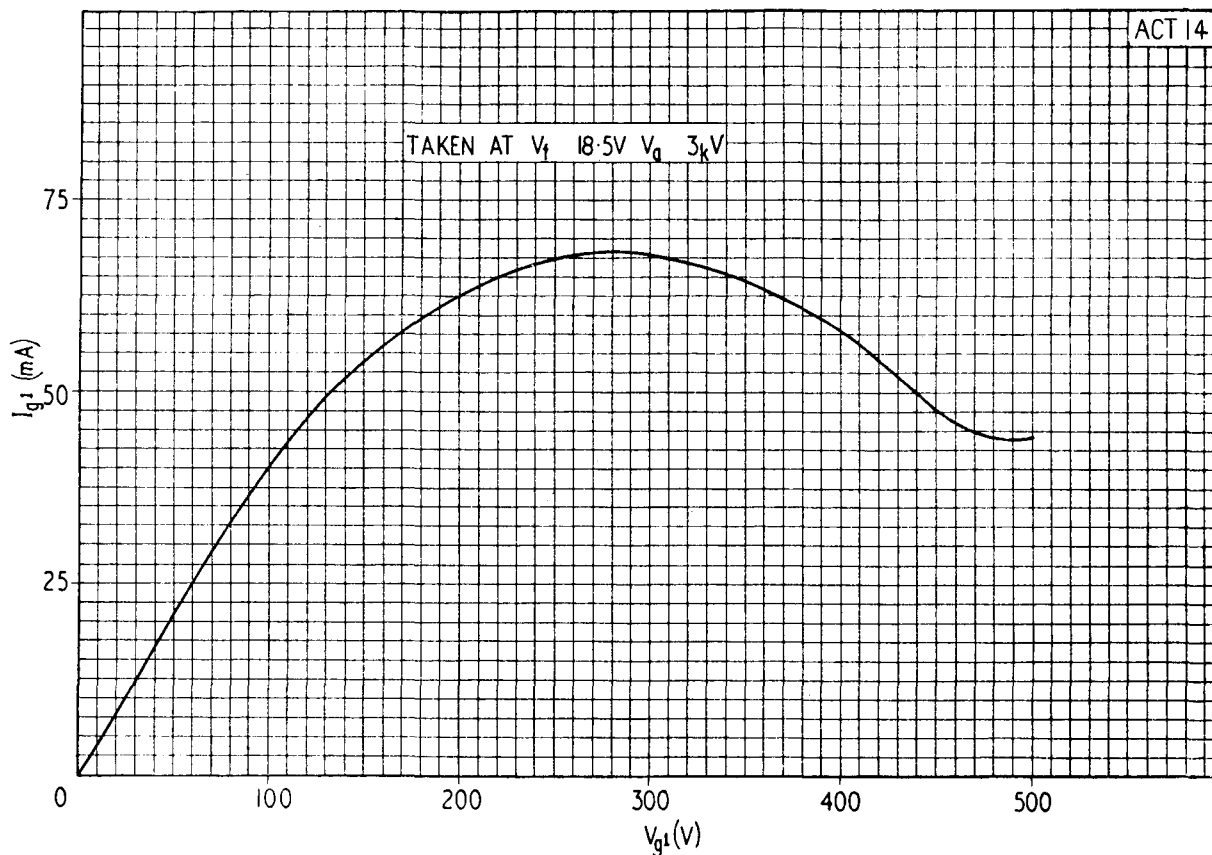
V_a	12.0	10.0	kV
I_a	1.2	1.2	A
V_{gl}	-270	-220	V
$V_{gl(pk)}$	510	490	V
$P_{dr} (a) (b)$	20	20	W
Z_a	2,530	2,000	Ω
P_a	10.0	8.5	kW
P_{out}	4.4	3.5	kW

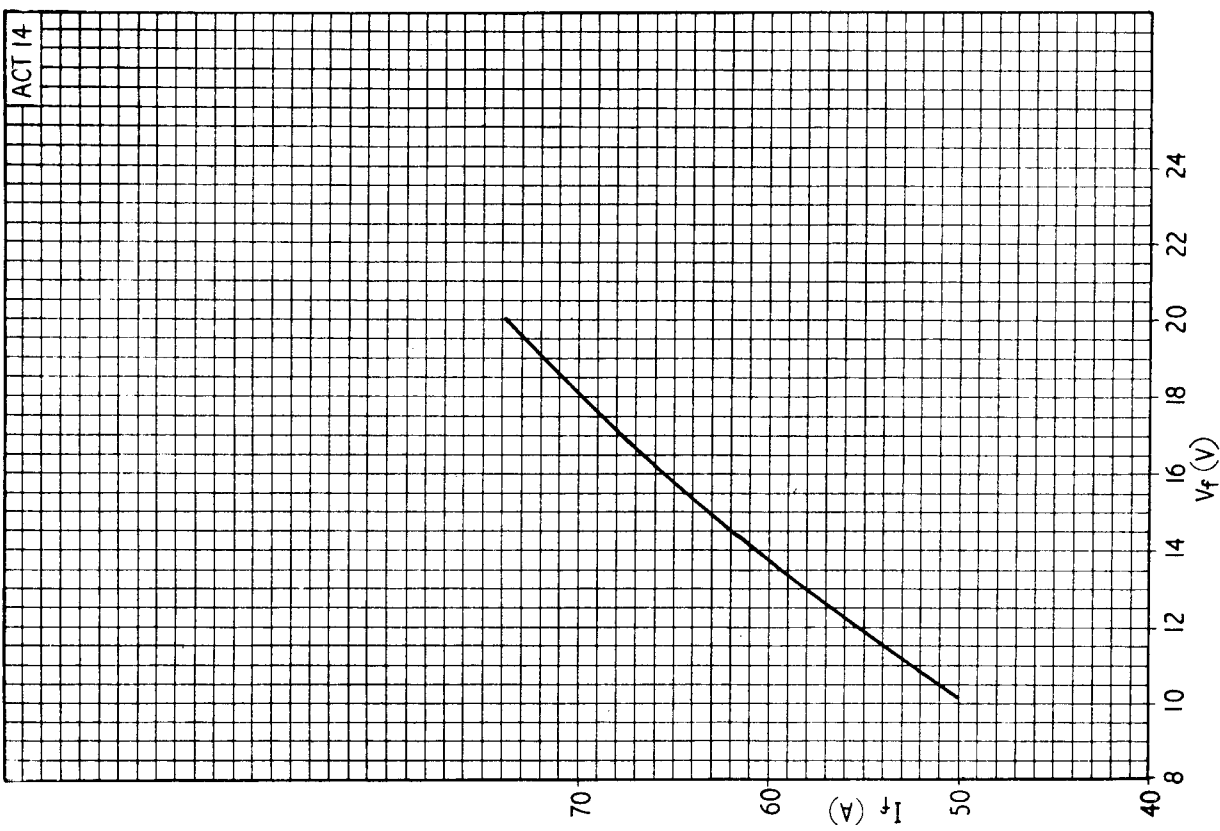
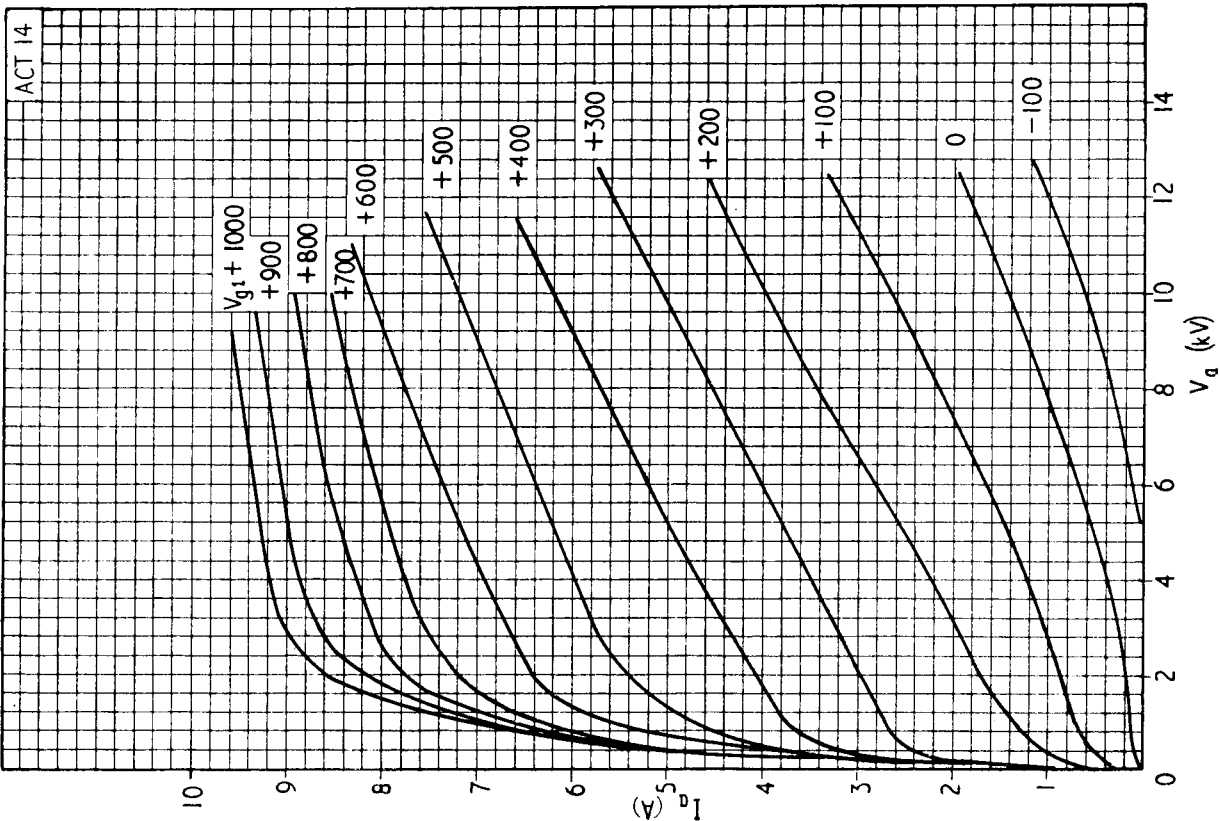
The figures quoted above are only applicable when operating at frequencies of up to 15 Mc/s. Above this the anode voltage must be reduced to the following percentages of the maximum:

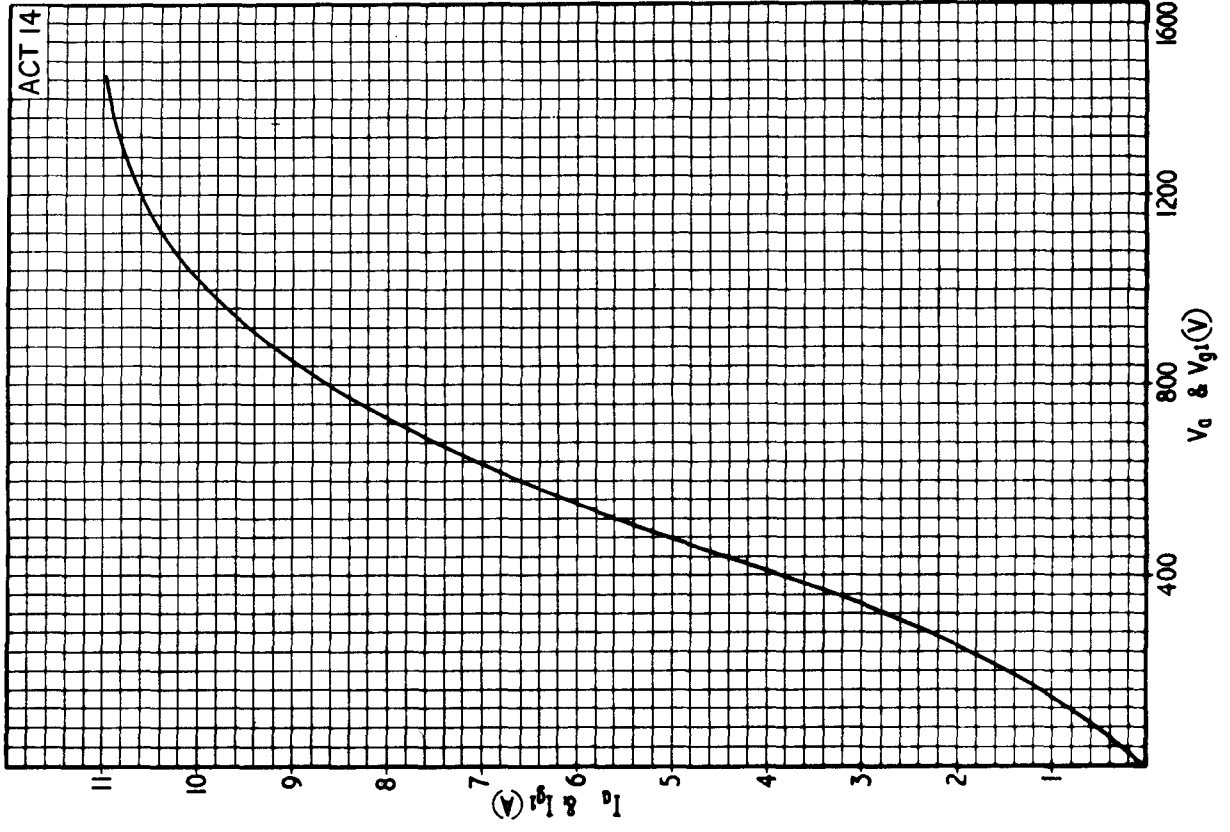
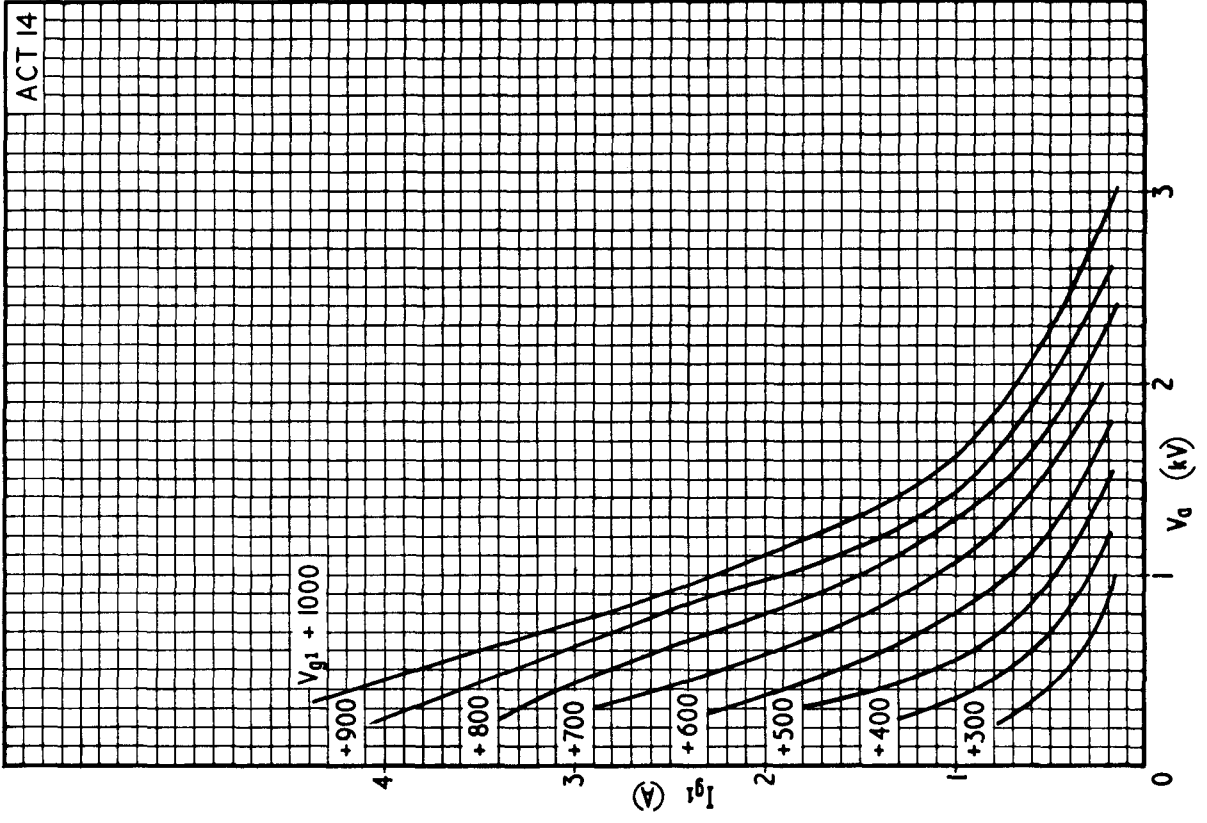
f (Mc/s)	15	20	25	40
% $V_{a(max)}$	100	85	65	35

NOTES

- (a) Subject to wide variation. The figures are approximate only.
 (b) At crest of audio cycle with 100% modulation.









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