Triode *Type CAT 26*

(HP POWER AMPLIFIER OR OSCILLATOR)

General. A triode with a water cooled anode and fitted with a thoriated tungsten filament, this valve is suitable for use as a high frequency amplifier at frequencies up to 40 Mc/s. It is designed for use in communications or RF heating equipments.

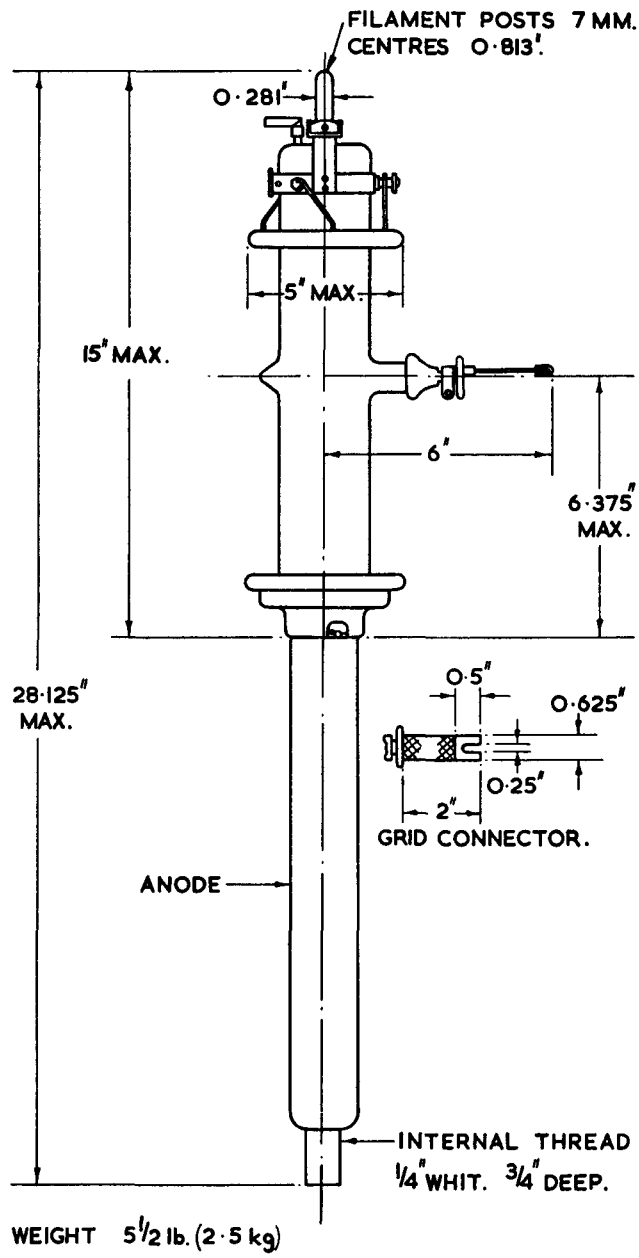
Cooling. The anode forms part of the valve envelope and is designed for cooling by water circulated in direct contact with the anode. The rated flow must not be less than 3 gallons per minute. The temperature of the cooling water at the outlet must not be greater than 150°F (65°C), and the temperature of all seals must not exceed 284°F (140°C). All cooling supplies must be started before the application of any supply voltage.

Filament Starting. The cold resistance of the filament is 0·021 Ω. The filament current must never exceed 80 A even instantaneously. It is recommended that a resistance of 0·128 Ω be placed in series with the filament and the normal filament voltage applied. After 30 seconds the series resistance should be cut out. When the filament supply is obtained from a transformer, it may be more convenient to place a resistance in the transformer primary, in which case the value given above should be multiplied by the square of the transformer ratio.

Mounting. The valve must be supported by its water jacket which should be capable of adjustment so that the axis of the valve is vertical. Rigid connections should be made to the anode only.

It is essential that the connections to the grid shall be sufficiently flexible to allow for the expansion of the valve without imposing mechanical strain on the glasswork.

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



MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

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

for at least 1 hour at half the normal anode voltage and current. The anode voltage should then be increased slowly to the normal value. During this process a resistance of at least 25 Ω should be connected into the anode supply lead, in order to limit the surge current in the event of a flashover inside the valve.

It is recommended that a valve in storage should be run under operating conditions for at least 2 hours in each period of 6 months.

Standby conditions with no anode current. If the valve is operated for periods of greater than 15 minutes duration without anode current flowing, the filament voltage should be reduced to one half the normal value during the standby period. This may be achieved by switching in the starting resistance.

HT Switching. It is not permissible to apply directly an HT voltage in excess of 7 kV. When the valve is to be operated at a higher voltage the HT should be gradually increased from a low value.

APPROXIMATE DATA

V_f		10·5	V
I_f		57	A
$V_{a(max)}$		12	kV
$p_{a(max)}$		12	kW
$p_{g1(max)}$		700	W
$I_{k\ pk\ (max)}$		15	A
$I_{g1\ rf\ (max)}$		30	A
$f_{(max)}$	at full ratings	15	Mc/s
	at reduced ratings	40	Mc/s
μ	taken at V_a 10 kV, I_a 1A	45	–
r_a		4750	Ω
g_m		9·5	mA/V
c_{g1-f}		25	pF
c_{a-f}		2·2	pF
c_{g1-a}		30	pF

Operating Conditions

The figures quoted are only applicable when operating at frequencies up to 15 Mc/s. At higher frequencies the anode voltage must be reduced according to the following table.

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

(1) HF POWER AMPLIFIER AND OSCILLATOR, CLASS C TELEGRAPHY AND FM TELEPHONY

(*Unmodulated key-down conditions, per valve.*)
Maximum permissible conditions.

V_a	12	kV
V_{g1}	–1500	V
p_a	12	kW
p_{g1}	700	W

Typical Operation

V_a		12	8	kV
V_{g1}		–840	–750	V
$v_{g1(pk)}$		1840	1750	V
I_a		3	2·9	A
I_{g1}	(a)	0·46	0·55	A
Z_a		1900	1300	Ω
p_{dr}	(a)	900	960	W
p_a		10	7	kW
P_{out}		26	16·2	kW

(2) HF POWER AMPLIFIER, CLASS C ANODE MODULATED

(*Carrier conditions per valve.*)
Maximum permissible conditions.

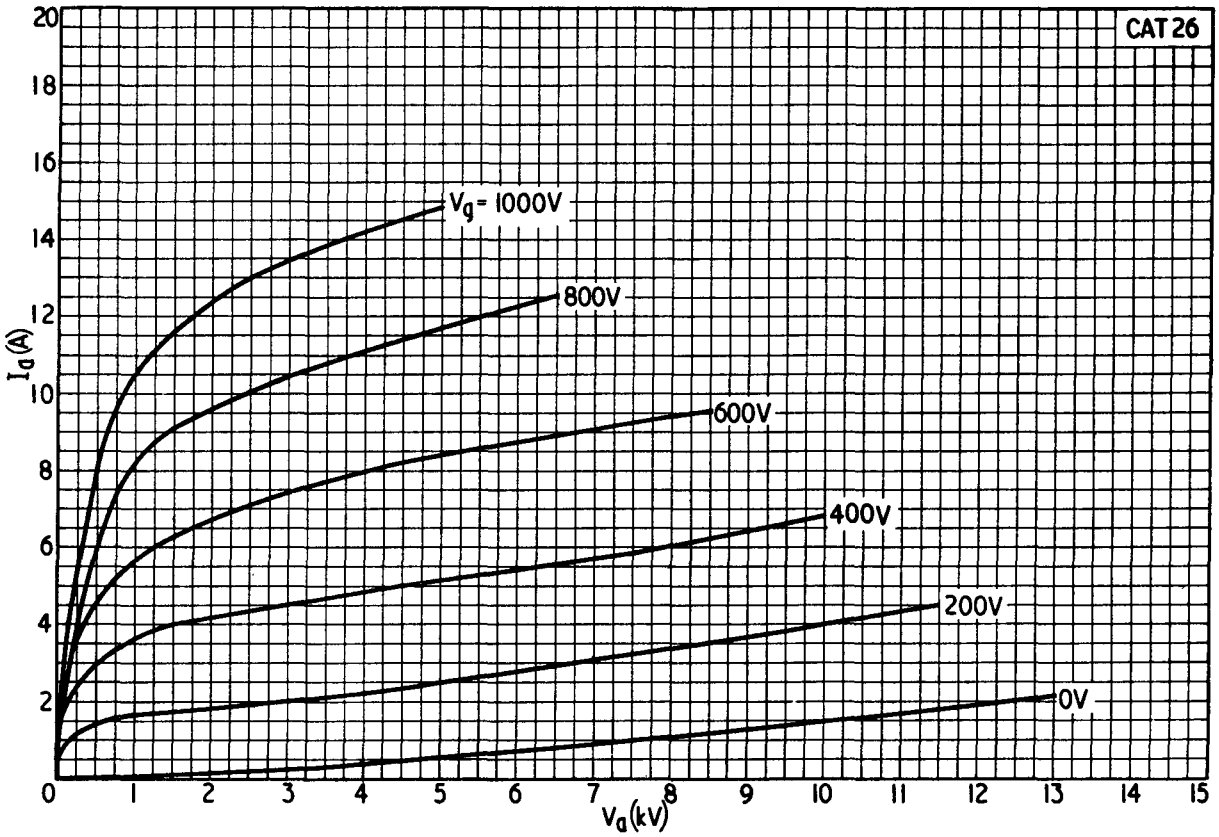
V_a	10	kV
V_{g1}	–1500	V
p_a	8	kW
p_{g1}	700	W
Mod.	100	%

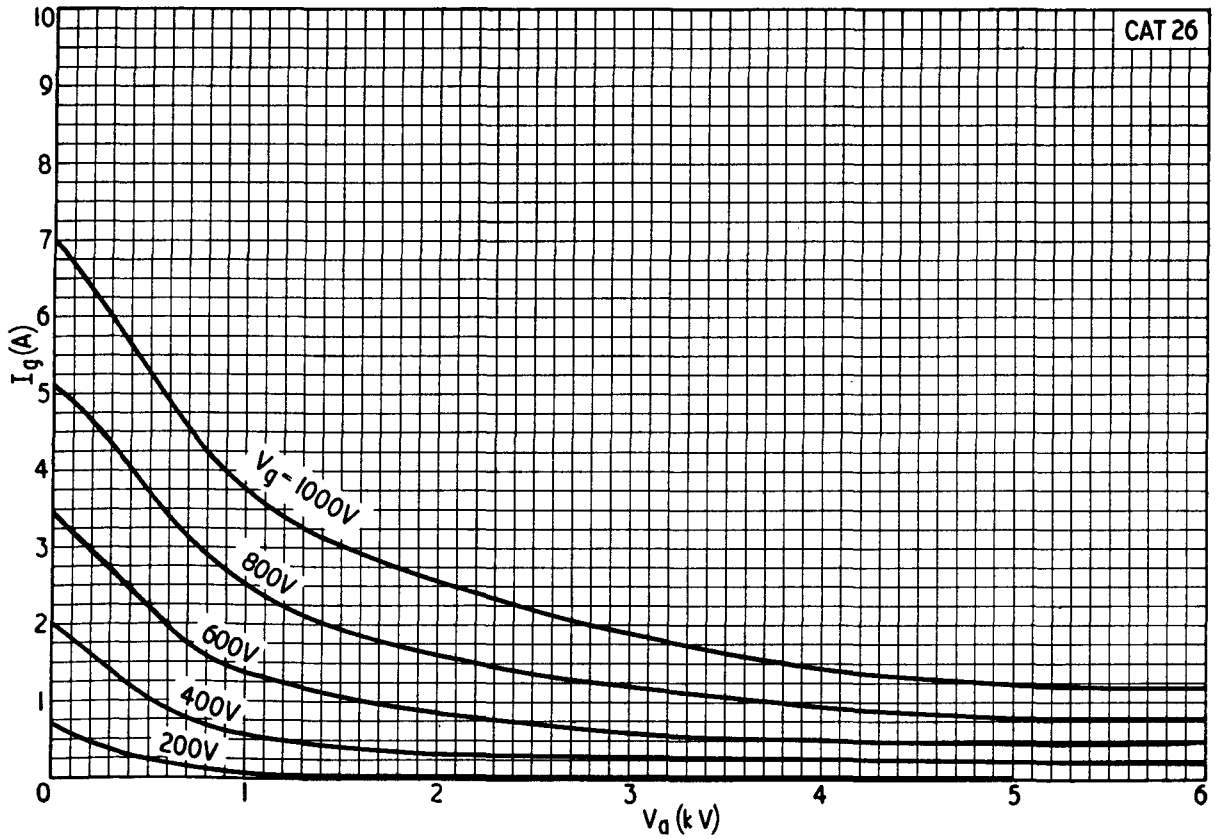
Typical Operation

V_a		10	7·5	kV
V_{g1}		–700	–580	V
$v_{g1(pk)}$		1400	1340	V
I_a		1·9	1·9	A
I_{g1}	(a)	0·22	0·34	V
Z_a		2400	1750	Ω
p_{dr}	(a)	350	500	W
p_a		5·5	4·25	kW
P_{out}		13·5	10	kW

NOTE

(a) subject to wide variation.


CAT 26
I_a (A)
V_a (kV)
V_g = 1000V
800V
600V
400V
200V
0V


CAT 26
I_g (A)
V_a (kV)
V_g = 1000V
800V
600V
400V
200V



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