Triode *Type ACT 29*

(HF POWER AMPLIFIER AND OSCILLATOR)

General. An air-cooled transmitting triode fitted with a thoriated tungsten filament, suitable for use at frequencies up to 80 Mc/s. It is designed for use in communications or RF heating equipments.

Cooling. The temperature measured on the outer surface of the radiator must not exceed 150°C.

When the anode dissipation exceeds 1,000 watts or the air circulation around the valve is restricted, forced air cooling is required in order to keep the anode radiator temperature within the specified maximum.

When the anode dissipation is 1,000 watts or less convection cooling is generally adequate providing there is at least 12 in. free clearance all round the valve and the air circulation is unrestricted.

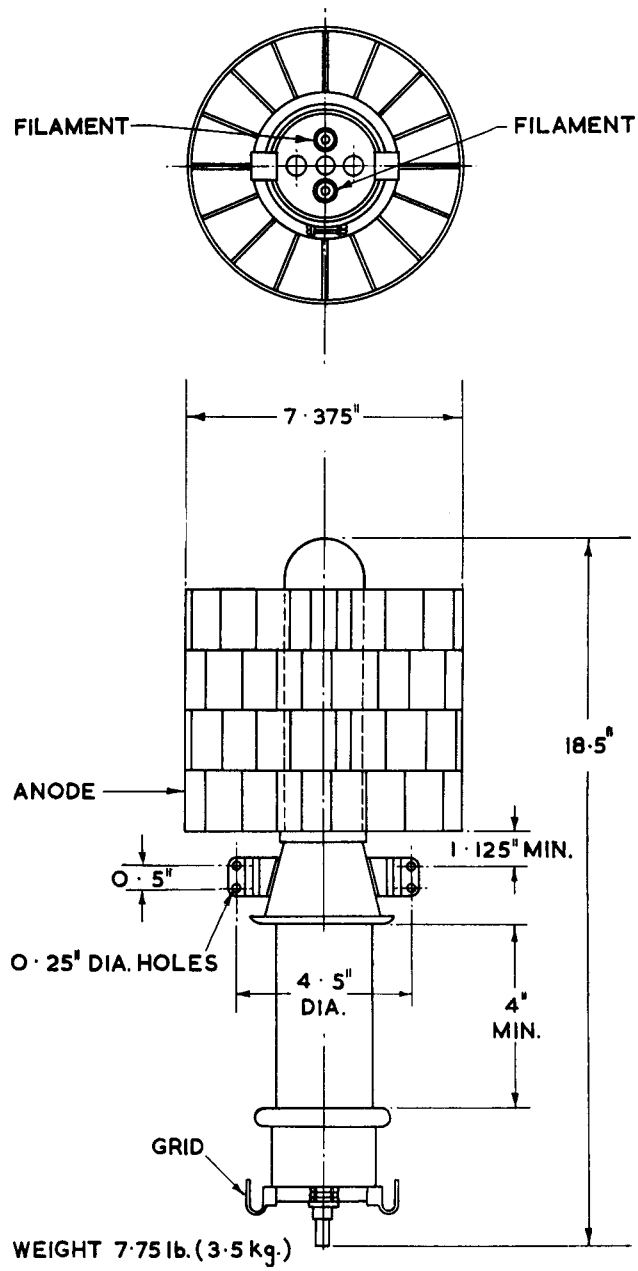
Mounting. The valve must be mounted vertically with the anode uppermost and may be conveniently supported by its radiator.

Storage. 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.

Whenever a new valve or a valve which has been idle for more than 2 months is put into service it should be conditioned by operating for 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 ohms should be connected into the anode supply lead, in order to limit the surge current in the event of a flashover inside the valve.

Standby Conditions with no anode current. If the valve is operated for periods greater than 15 minutes without anode current flowing the filament voltage should be reduced to one half the normal value during the standby period.

HT Switching. It is not permissible to apply directly 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.



MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

Chelmsford, Essex, England. Telephone: Chelmsford 3221. *Telex:* 1953. *Telegrams: Expanse Chelmsford Telex*

APPROXIMATE DATA

V_f		8·5	V
I_f		20	A
$V_{a(max)}$		10	kV
$p_{a(max)}$	(convection cooling)	1	kW
	(forced air cooling)	1·25	kW
$p_{g(max)}$		80	W
$I_{k\ pk(max)}$		5	A
$I_{g(rf)(max)}$		14	A
$f_{(max)}$	(at max. rating)	15	Mc/s
	(at reduced rating)	80	Mc/s
μ	taken at Va 5 kV, Ia 0·2 A	40	–
r_a		12,900	Ω
g_m		3·1	mA/V
c_{g-f}		23·2	pF
c_{a-f}		1·6	pF
c_{g-a}		15·9	pF

Operating Conditions

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

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

V_a		10	kV
V_g		–1000	V
p_a	(convection cooling)	1000	W
	(forced air cooling)	1250	W
p_{g1}		80	W

Typical operation

V_a	10	7·5	kV
V_{g1}	–460	–450	V
$v_{g1\ pk}$	810	900	V
I_a	500	600	mA
I_{g1} (a)	40	60	mA
Z_a	10,000	6,100	Ω
p_{dr} (a)	35	60	W
p_a	1000	1000	W
P_{out}	4	3·5	kW

(2) RF POWER AMPLIFIER. CLASS C ANODE MODULATED

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

V_a		8	kV
V_{g1}		–1000	V
p_a	(convection cooling)	650	W
	(forced air cooling)	825	W
p_{g1}		80	W
mod.		100	%

Typical operation

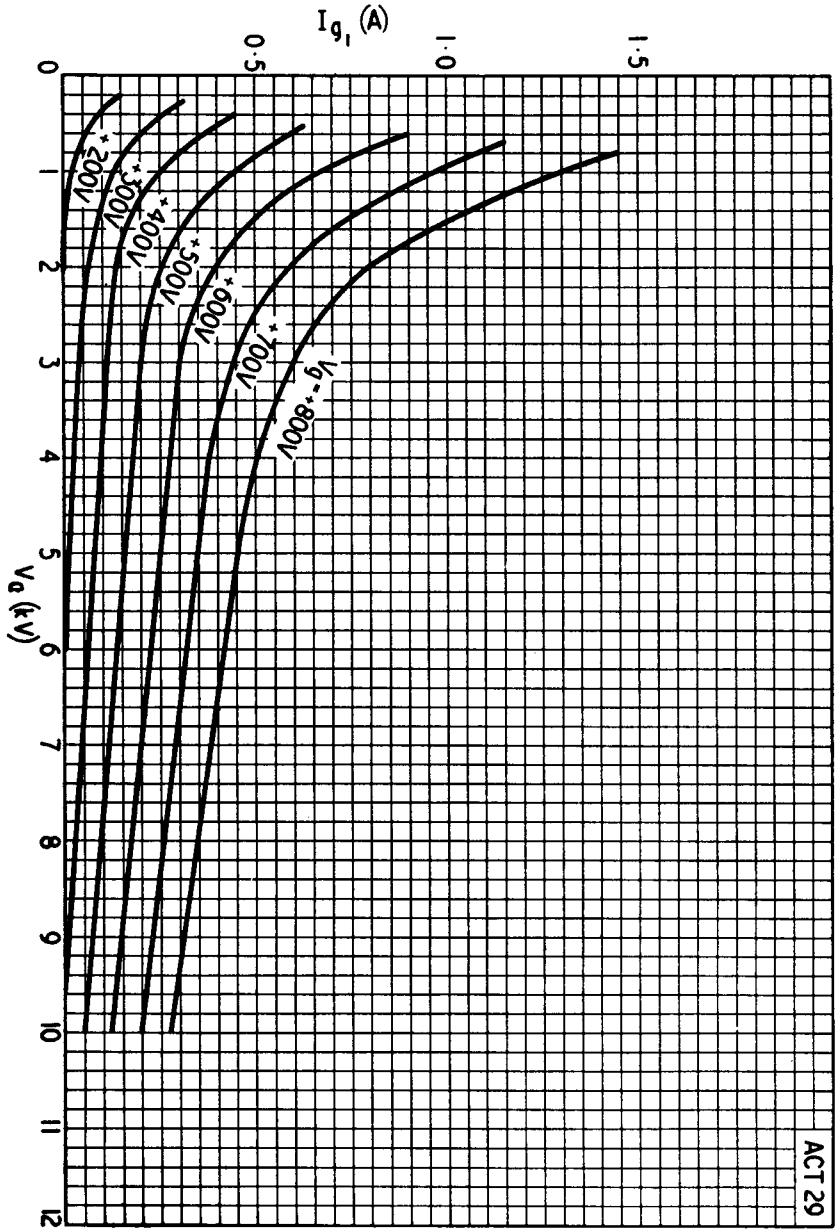
V_a	8	kV
V_{g1}	–470	V
$v_{g1\ pk}$	700	V
I_a	280	mA
I_{g1} (a)	20	mA
Z_a	13	kΩ
p_{dr} (a)	20	W
p_a	640	W
P_{out}	1·6	kW

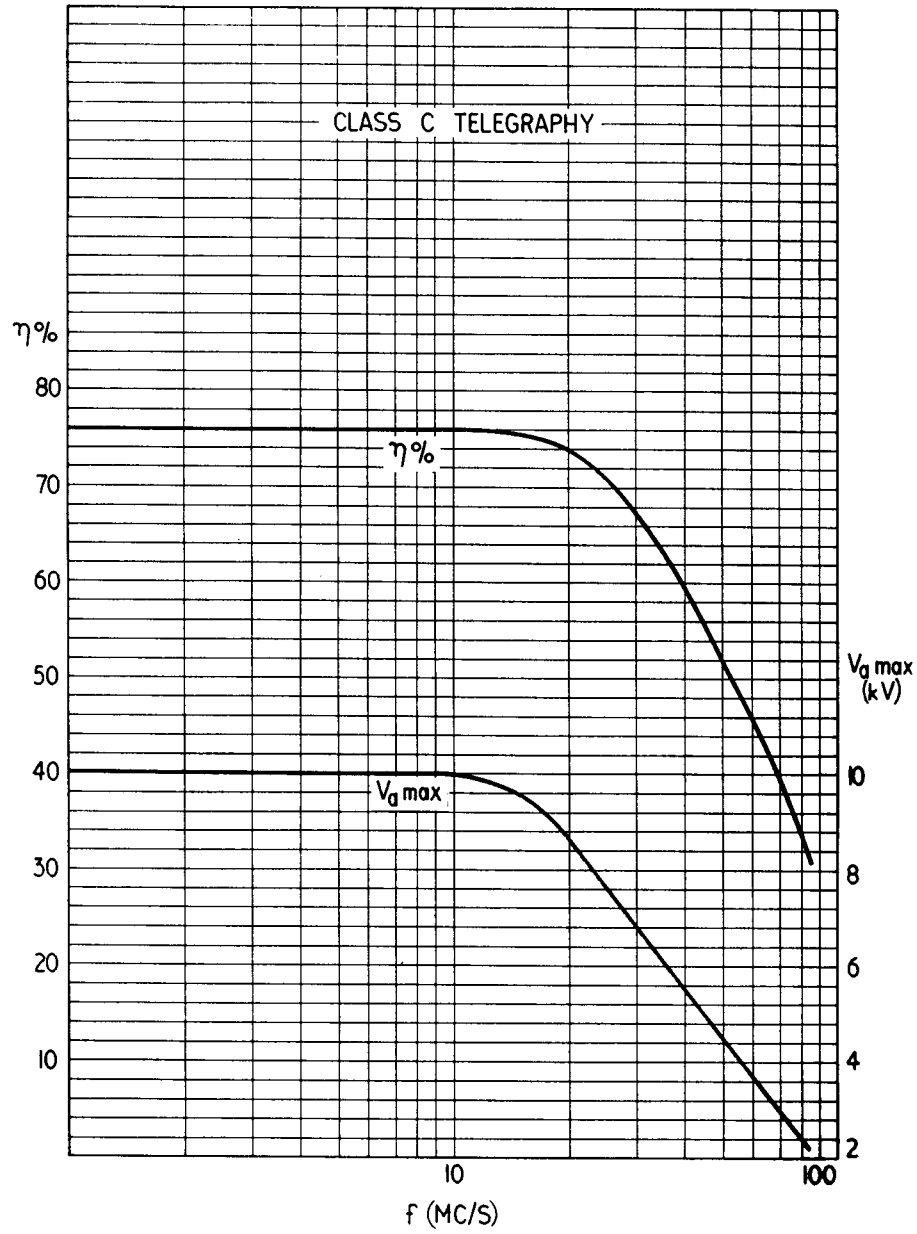
NOTE

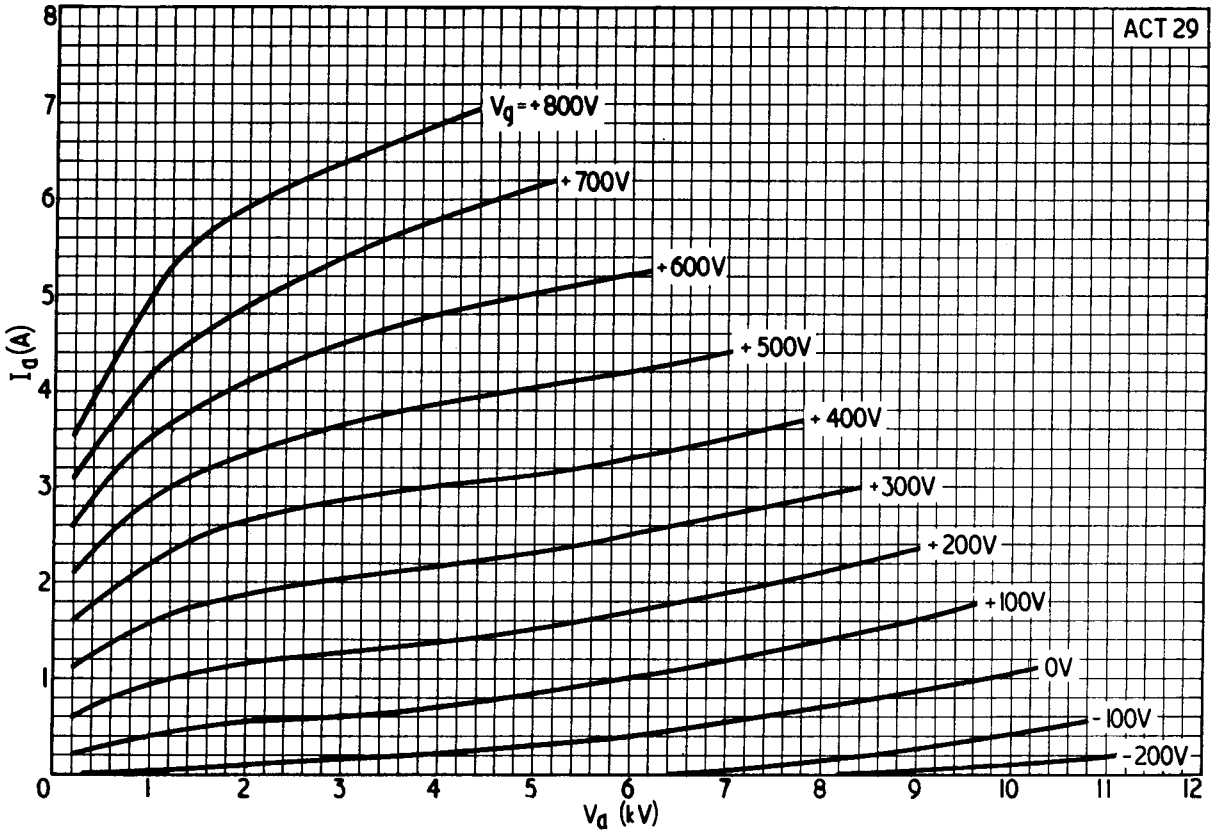
The figures quoted are only applicable when operating at frequencies up to 15 Mc/s. At higher frequencies the anode voltage must be reduced to the following table:

f (Mc/s)	15	25	50	80
$\%V_{a(max)}$	100	75	45	25

(*a*) Subject to wide variation.


I_{g_1} (A)
0·5
1·0
1·5
V_a (kV)
V_g=+2000V
+3000V
+4000V
+5000V
+6000V
+7000V
V_g=+8000V
ACT 29


CLASS C TELEGRAPHY
η%
80
70
60
50
40
30
20
10
V_g max (kV)
10
8
6
4
2
V_g max
10
100
f (MC/S)



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