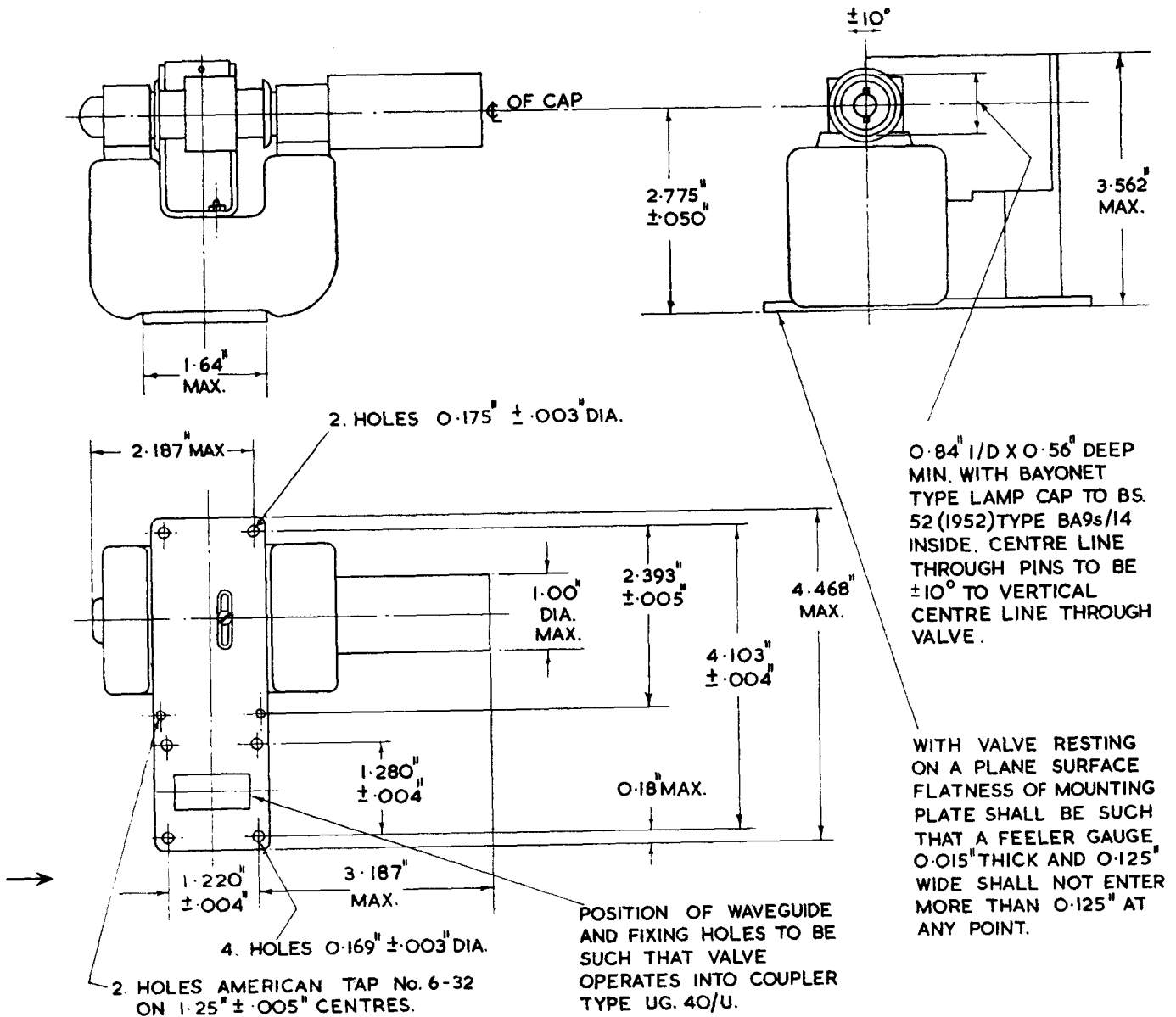


Magnetron Type M 503



MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

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

General. The M 503 is an air-cooled multi-resonator packaged magnetron, with a pre-plumbed waveguide output circuit. It has been designed for operation in the 3 cm band and is for use with systems using the standard American waveguide; the internal dimensions of which are 0.9×0.4 in.

Cold Impedance. The impedance of the valve at its operating frequency when not oscillating will be such as to give a standing wave ratio of at least 8:1 with a minimum distance of 16.5–22.5 mm from the flange towards the anode.

APPROXIMATE DATA

V_h (a)	6.3	V
I_h	0.5	A
f	9,345–9,405	Mc/s
$f_{pulling}$ (standing wave ratio 1.5:1 in all phases)	14	Mc/s
Rate of rise of voltage (max) (at 4.5 A peak)	60	kV/ μ s
Duty cycle (a)	0.001	
H_{int}	4,800	Oersteds
η_{min}	25	%

Typical Operation

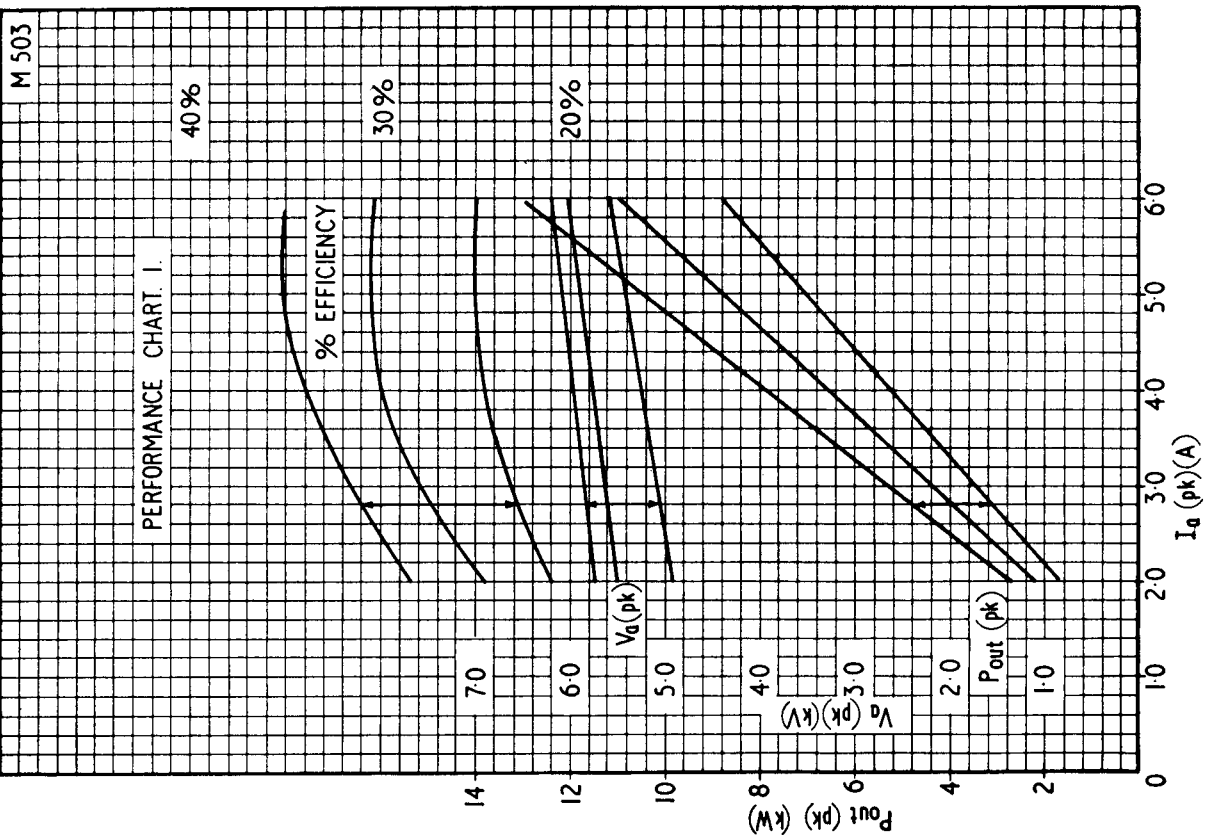
V_a pk	5.5	kV
I_a pk	5	A
t_p	1	0.1 μ s
PRF	1,000	1,000 pps
P_{out} (pk)	8	kW

NOTE

- (a) The heater voltage should be maintained at 6.3 V for at least 2 minutes before switching on the HT. For duty cycles greater than 0.001 the heater voltage should be reduced to 4.5 V after switching on the HT.

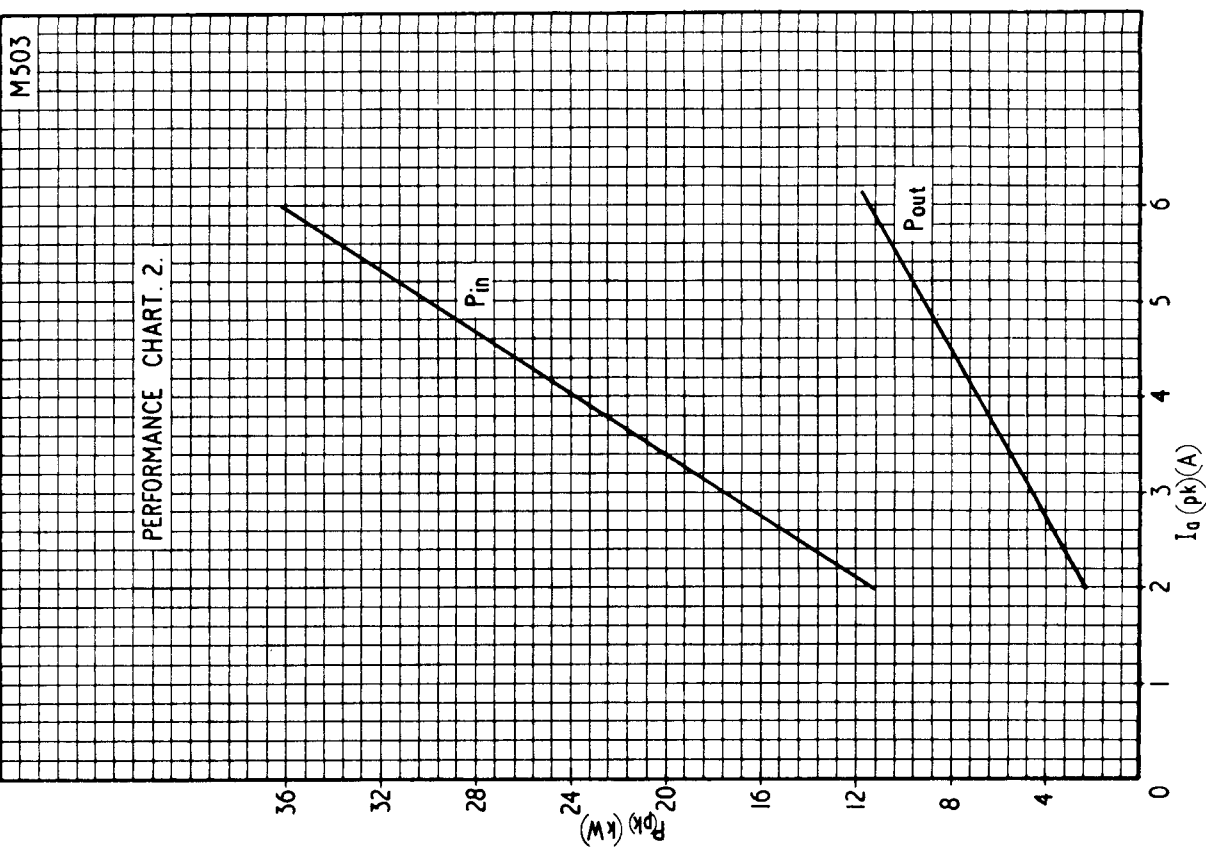
M 503

PERFORMANCE CHART. I.



M 503

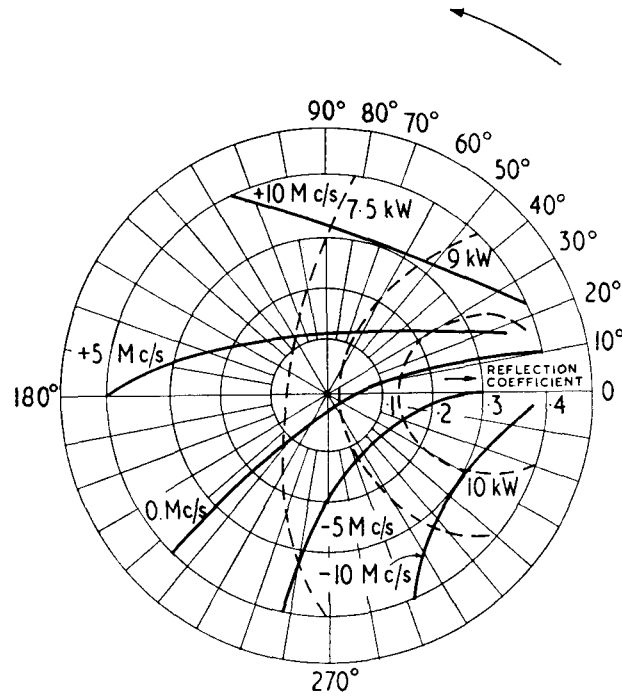
PERFORMANCE CHART. 2.



M 503

TAKEN AT 5A PULLING
FIGURE 14 Mc/s.

$\theta - 360^\circ L/\lambda_g$ AWAY
FROM VALVE.



—— FREQUENCY DEVIATION Mc/s
 ---- PEAK POWER IN kW
 L = DISTANCE OF SW MINIMUM
 FROM OUTPUT FLANGE.