

MAGNETRON

JPT9-60

Frequency: 'X' band, tunable.
Power output: 60kW, pulsed.
Construction: Packaged, forced-air cooled.

PRELIMINARY DATA

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS—MICROWAVE DEVICES included in this volume of the handbook.

CHARACTERISTICS	Min.	Max.	
Frequency: Tunable over the range	8500	9600	Mc/s
Pulse voltage ($I_{\text{pulse}} = 14\text{A}$)		16	kV
R.F. pulse power output ($I_{\text{pulse}} = 14\text{A}$)	40		kW
Frequency pulling factor (v.s.w.r. = 1.5)		18	Mc/s
Frequency temperature coefficient		-0.25	Mc/s per °C
Input capacitance		6.0	pF

CATHODE

Indirectly heated

V_h	6.3	V
I_h	0.9 to 1.1	A

Heating time. The cathode must be heated for at least 2 minutes before the application of h.t. The heater voltage must be reduced immediately after the application of h.t. in accordance with the input-power/heater-voltage rating chart on page 8.

TYPICAL OPERATION

Heater voltage (running)	0	V
Pulse duration	1.0	μs
Pulse repetition frequency	1000	p/s
Duty cycle	0.001	
Pulse current	14	A
Pulse voltage	14	kV
Pulse input power	196	kW
R.F. pulse output power	63	kW
Mean input current	14	mA
Mean input power	196	W
Mean r.f. output power	63	W
Frequency pulling (v.s.w.r. = 1.5)	10	Mc/s

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OPERATING NOTES

Mechanical tuning is effected by a single control. At 25°C the tuning mechanism requires a minimum torque of 10 in. oz. (700 g.cm.), increasing to 32 in. oz. (2240 g.cm.) at extreme temperatures, applied to the worm shaft. Approximately 125 revolutions of the worm shaft are necessary to effect tuning through the complete frequency range. This corresponds to about 3.5 revolutions of the main tuning gear. (See outline drawing.)

The valve is provided with four magnetic shunts. (See outline drawing.) From examination of the performance charts the number required for a particular application may be determined. To remove shunts which are not required, grip the tabs firmly with suitable pliers and pull away from the valve.

COOLING

A flow of cooling air must be directed between the radiator fins, and on to cathode and heater seals, in order to keep the temperature below the permitted maximum.

LIMITING VALUES (absolute ratings)	Min.	Max.	
Pulse current	12.5	15.5	A
Pulse voltage		16.0	kV
Pulse duration	0.1	3.4	μs
Duty cycle		0.0011	
Pulse repetition frequency		6000	p/s
Mean input power		230	W
Rate of rise of voltage pulse		200	kV/μs
Load mismatch (v.s.w.r.)		1.5	
Temperature of anode block		150	°C

MOUNTING POSITION

Any

PRESSURISING

The mounting flange and the output waveguide flange are designed so that a pressure seal may be achieved up to a maximum pressure of 45 lb/in.² (3.1 kg/cm²).

PHYSICAL DATA

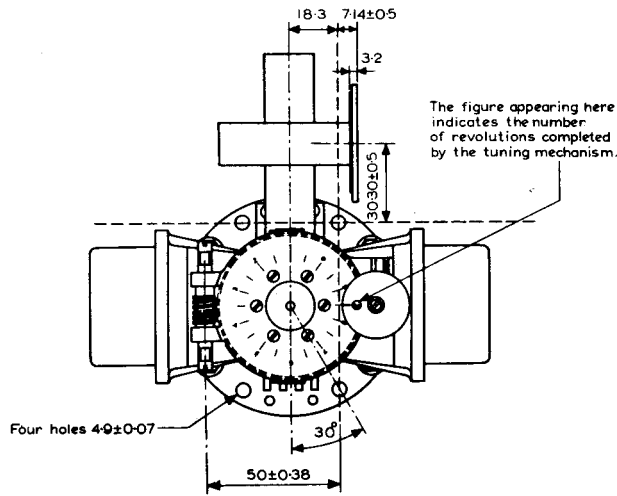
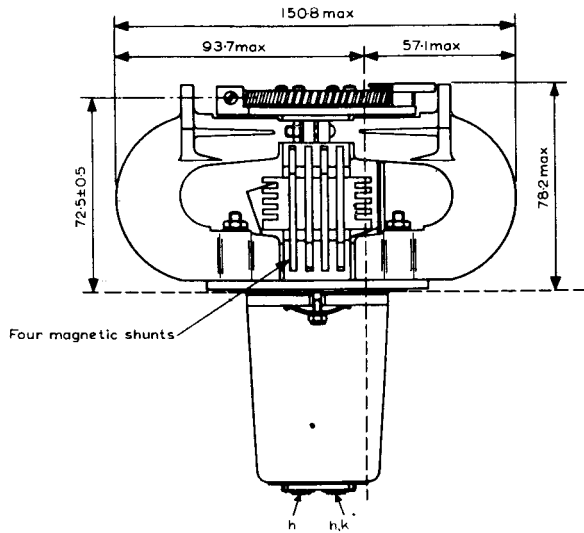
Weight of magnetron	{ 4.8	lb
	{ 2.2	kg
Weight of magnetron in carton	{ 13.9	lb
	{ 6.3	kg
Dimensions of storage carton	{ 12.5 × 13 × 13	in
	{ 318 × 330 × 330	mm



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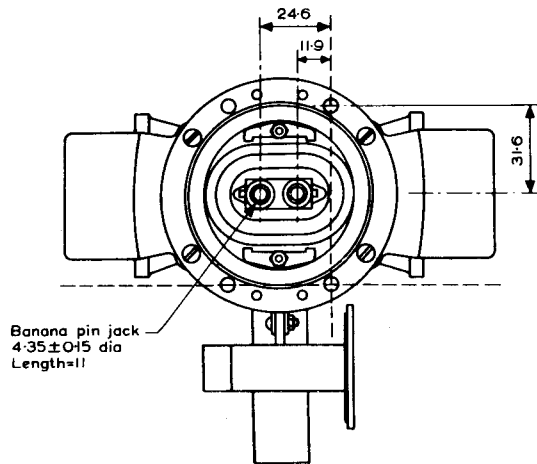
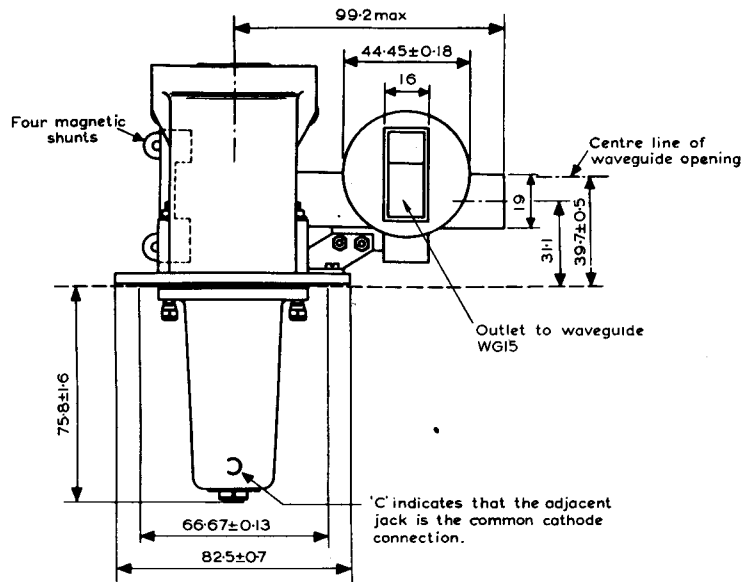
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All dimensions in mm

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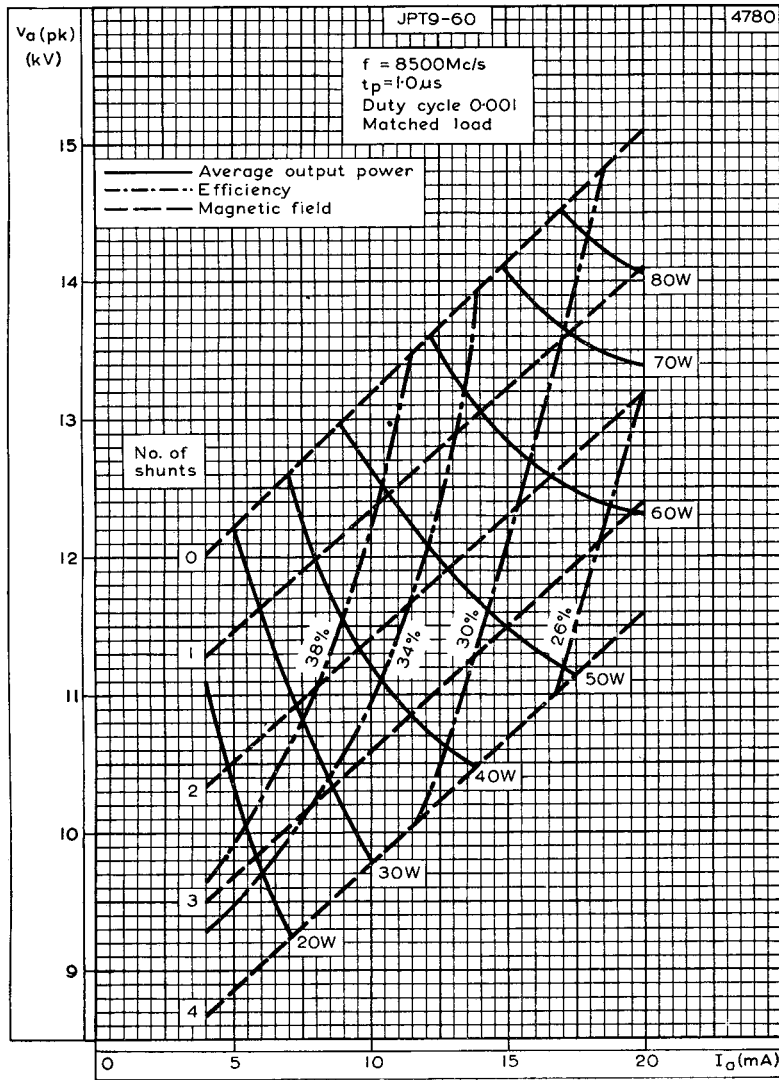
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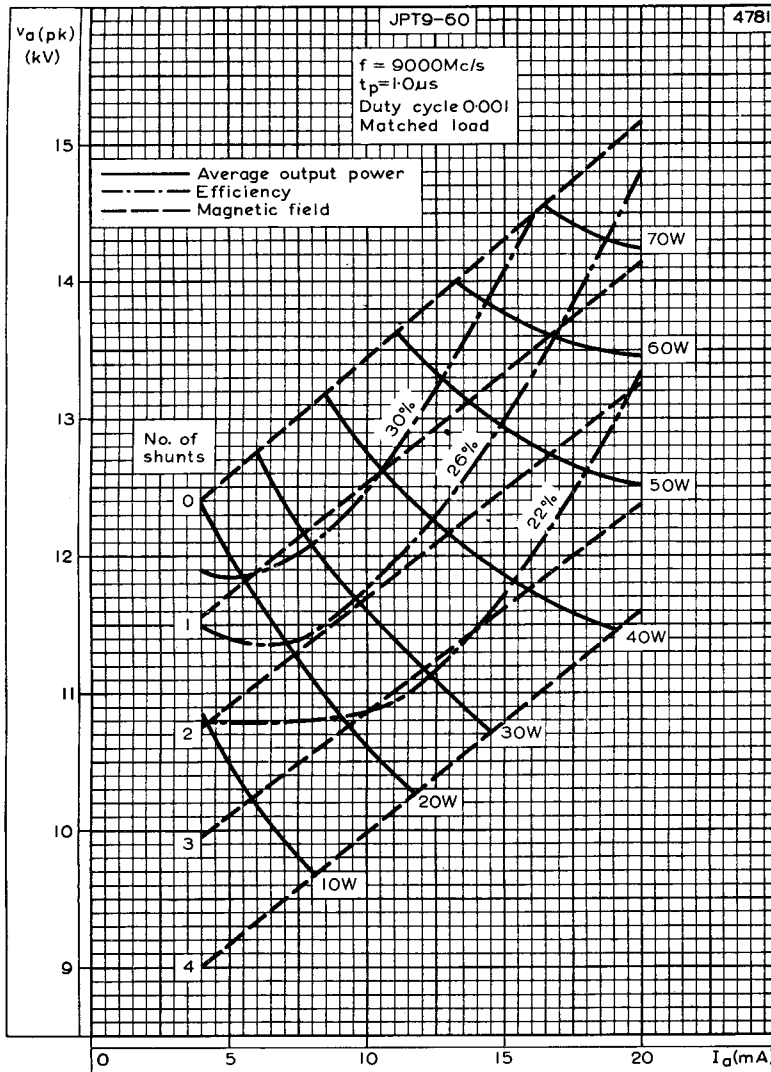
PERFORMANCE CHART ($f = 8500\text{Mc/s}$)



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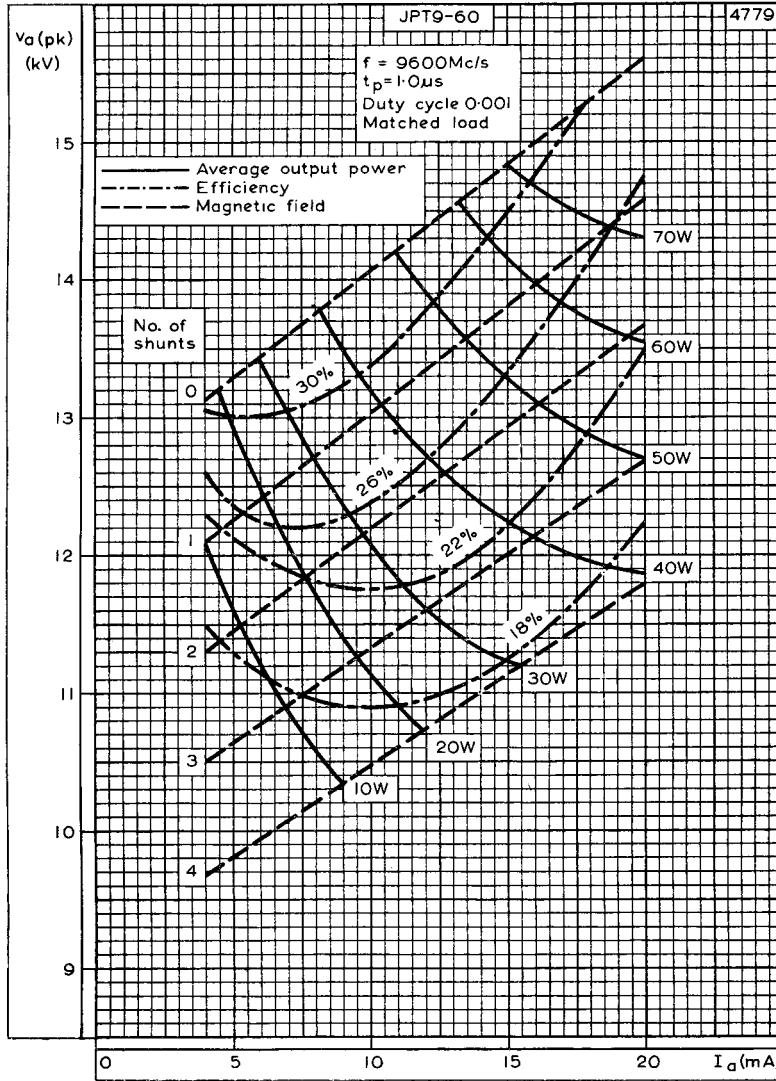
PERFORMANCE CHART ($f = 9000\text{Mc/s}$)



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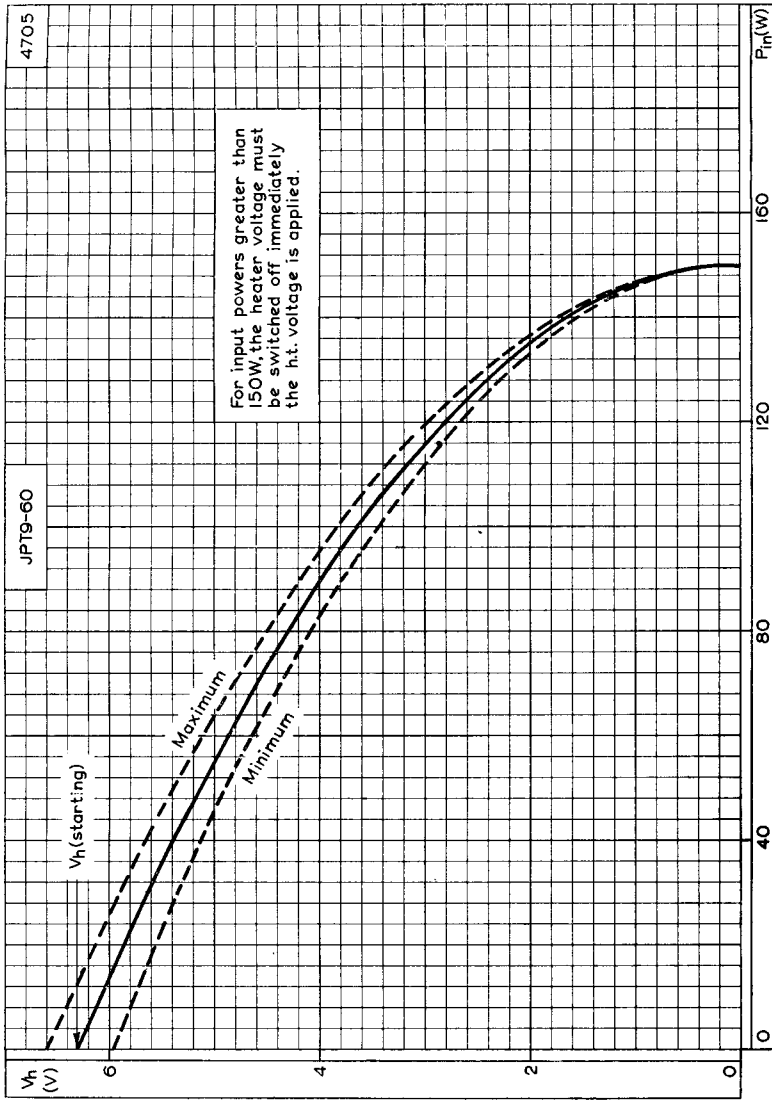
PERFORMANCE CHART ($f = 9600 \text{ Mc/s}$)



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HEATER VOLTAGE PLOTTED AGAINST MEAN INPUT POWER