

## MAGNETRON

Frequency: 'X' band, fixed.  
 Power output: 80kW, pulsed.  
 Construction: Packaged, forced-air cooled.

# JP9-80 JP9-80A

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS—MICROWAVE DEVICES which precede this section of the handbook.

### CHARACTERISTICS

	Min.	Max.	
Frequency			
Fixed within the band JP9-80	9.345 to 9.405		Gc/s
JP9-80A	9.210 to 9.270		Gc/s
Pulse voltage ( $I_{\text{pulse}} = 15\text{A}$ )	14	16	kV
R.F. pulse output power ( $I_{\text{pulse}} = 15\text{A}$ )	70	—	kW
Frequency pulling factor (v.s.w.r. = 1.5)	—	13	Mc/s
Frequency pushing factor	—	500	kc/s per A
Frequency temperature coefficient	—	-250	kc/s per °C
Position of phase of sink from face of mounting plate towards load	0.26 to 0.4		$\lambda_g$
Input capacitance	—	14	pF

### CATHODE

Indirectly heated			
$V_h$		12.6	V
$I_h$		2.2	A ←
$I_{h(\text{surge})}$ max.		10	A
$r_h$ (cold)		0.65	$\Omega$ ←

**Heating time.** At ambient temperatures above 0°C the cathode must be heated for at least 3 minutes before the application of h.t. Below this temperature the heating time must be increased to at least 4 minutes.

It is necessary to reduce the heater voltage immediately after the application of h.t. in accordance with the input power-heater voltage rating chart on page C2.

### TYPICAL OPERATION

	0.0008	0.001	0.001	
Duty cycle				
Heater voltage (running)	8.5	7.8	7.8	V
Pulse duration	0.4	1.0	5.0	$\mu\text{s}$
Pulse repetition frequency	2000	1000	200	p/s
Pulse current	15	15	15	A
Pulse voltage	15	15	15	kV
Pulse input power	225	225	225	kW
R.F. pulse output power	80	80	80	kW
Mean input current	12	15	15	mA
Mean input power	180	225	225	W
Mean r.f. output power	64	80	80	W
Frequency pulling (v.s.w.r. = 1.5)	12	12	12	Mc/s
Rate of rise of pulse voltage	140	125	85	kV/ $\mu\text{s}$

### COOLING

It is necessary to direct a flow of cooling air between the radiator fins, and on the cathode and heater seals, in order to keep the temperature below the permitted maximum.

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### LIMITING VALUES (absolute ratings)

	<i>Min.</i>	<i>Max.</i>	
Pulse current	12	15	A
Pulse voltage	13.5	16	kV
Pulse duration	—	5.0	μs
Duty cycle	—	0.001	
Mean input power	—	240	W
Rate of rise of voltage pulse	70	160	kV/μs
Load mismatch (v.s.w.r.)	—	1.5	
Temperature of anode block	-55	150	°C
Temperature of cathode and heater seals	—	175	°C

### MOUNTING POSITION

Any

**PRESSURISING** The valve can be operated in the pressure range 500 to 2050 mm of mercury

### PHYSICAL DATA

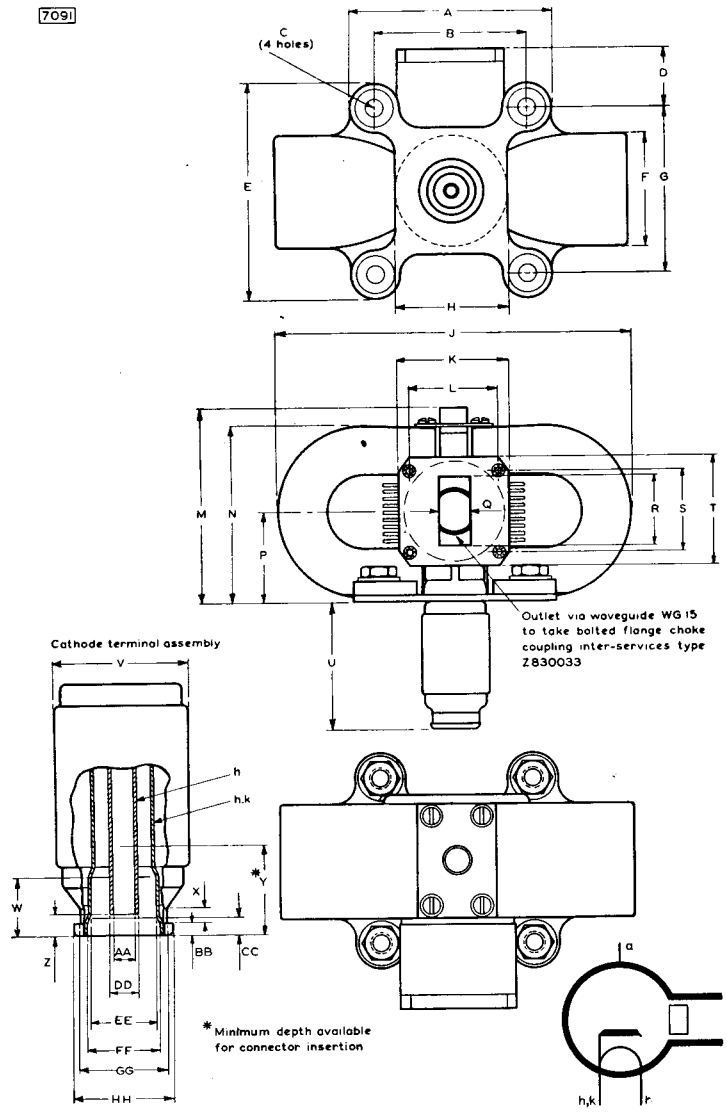
Weight of magnetron	{ 5 lb 14 oz 2.7 kg
Weight of magnetron in carton	{ 14 lb 10 oz 6.7 kg
Dimensions of storage carton	{ 7.5 × 8.7 × 10 in. 191 × 223 × 254 mm

### DIMENSIONS

	<i>Inches</i>	<i>Millimetres</i>		<i>Inches</i>	<i>Millimetres</i>		
A	3.437	87.3	max.	S	1.352 ± 0.004	34.34 ± 0.1	
B	2.531 ± 0.010	64.29 ± 0.25		T	1.831	46.5	
C	0.281 ± 0.005	7.14 ± 0.12		U	2.156 ± 0.061	54.75 ± 1.55	
D	1.016 ± 0.024	25.8 ± 0.6		V	1.126	28.6	
E	3.622	92	max.	W	0.520	13.2	min.
F	1.937	49.2	max.	X	0.125	3.17	
G	2.781 ± 0.010	70.64 ± 0.25		Y	0.752	19.1	min.
H	1.874	47.6	min.	Z	0.156 ± 0.030	3.95 ± 0.75	
J	5.937	150.8	max.	AA	0.169 ± 0.005	4.29 ± 0.12	
K	1.831	46.5		BB	0.126 ± 0.008	3.2 ± 0.2	
L	1.474 ± 0.004	37.44 ± 0.1		CC	0.201	5.1	max. ←
M	3.154	80.1	max.	DD	0.250 ± 0.014	6.35 ± 0.35	
N	2.843	72.2	max.	EE	0.539 ± 0.006	13.68 ± 0.16	
P	1.406 ± 0.020	35.71 ± 0.5		FF	0.610	15.5	
Q	0.497	12.62		GG	0.748	19	
R	1.122	28.5		HH	0.831 ± 0.006	21.12 ± 0.16	



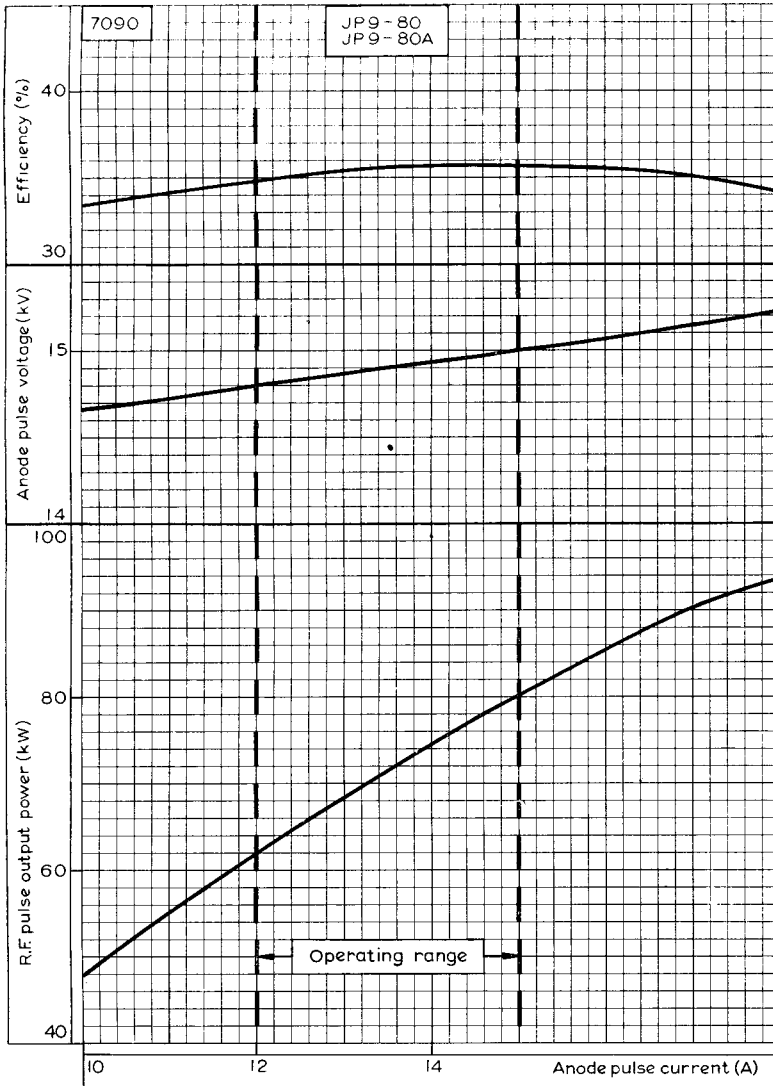
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The anode is terminated at the base plate.

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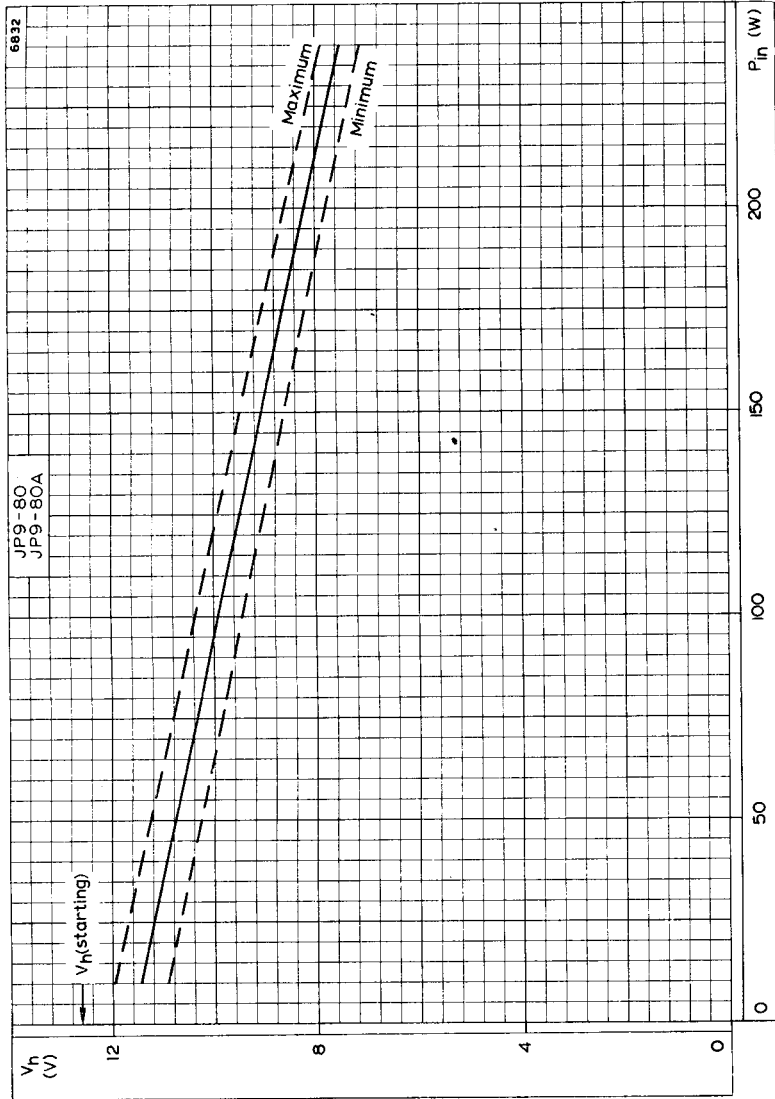


R.F. PULSE OUTPUT POWER, ANODE PULSE VOLTAGE AND EFFICIENCY  
PLOTTED AGAINST ANODE PULSE CURRENT



# JP9-80 JP9-80A

MAGNETRON



REDUCTION OF HEATER VOLTAGE PLOTTED AGAINST INPUT POWER

