

ABSOLUTE MAXIMUM RATINGS

These ratings cannot necessarily be used simultaneously and no individual ratings should be exceeded.

	Min	Max	Units
Magnetic field (note 4 and 5)	100	157.5	mT
	1000	1575	gauss
Heater voltage	8.0	10.0	V
Peak anode voltage	—	48	kV
Peak anode current	55	110	A
Average anode power input (note 2)	—	6	kW
Duty cycle	—	0.0015	
Pulse duration	—	4.5	μ s
Rate of rise of voltage pulse (note 6)	80	120	kV/ μ s
Output water temperature	—	50	°C
V.S.W.R. at the output coupler	—	1.5:1	—
Pressureing of waveguide (note 7)	—	3.1	kg/cm ²

TEST CONDITIONS AND LIMITS

The tube is tested to comply with the following electrical specification:

	Test Conditions 1	Test Conditions 2 (note 12)	Test Conditions 3 (note 12)	Units
Magnetic field (note 4 and 5)	155.0 $\pm$ 2.5	145.0 $\pm$ 2.5	145.0 $\pm$ 2.5	mT
	1550 $\pm$ 25	1450 $\pm$ 25	1450 $\pm$ 25	gauss
Heater voltage (operating)	0	0	3.5	V
Anode current (peak)	110	109	56	A
Duty cycle (note 2)	0.001	0.001	0.001	—
Pulse duration	4.5	4.5	4.5	μ s
V.S.W.R.	1.05	1.05	1.05	—
at the output coupler				
Rate of rise of voltage pulse (note 6)	120	105	85	kV/ μ s

<u>Limits</u>	Test Conditions 1		Test Conditions 2 (note 12)		Test Conditions 3 (note 12)		Units
	Min	Max	Min	Max	Min	Max	
Anode voltage (peak)	42	48	40	46	37	43	kV
Output power	2.8	—	2.6	—	1.6	—	kW
Frequency							
Lower end of tuning range	—	2993	—	2993	—	2993	MHz
Upper end of tuning range	3002	—	3002	—	3002	—	MHz
R.F. bandwidth at 1/4 power	—	2.5/tp	—	2.5/tp	—	2.5/tp	MHz
Stability (note 8)	—	0.5	—	0.5	—	0.5	%
Heater current (note 9)	8	10	8	10	8	10	A

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LIFE TEST**End of Life Performance(under Test Conditions)**

The tube is deemed to have reached end of life when it fails to satisfy the following:

Peak anode voltage	42 kV min.
Peak output power	2.3 MW min.
R.F. bandwidth at 1/4 power	3.5/tp MHz max.
Frequency	
Lower end of tuning range	2993 MHz max.
Upper end of tuning range	3002 MHz min.
Stability (note 8)	1% max.

NOTE:

1. Heater voltage must be reduced within 5 seconds after the application of high voltage according to the schedule shown on page 5.

The magnetron heater must be protected against arcing by the use of a minimum capacitance of 4000 pF shunted across the heater directly at the input terminals; in some cases a capacitance as high as 2 μ F may be necessary depending on the equipment design.

2. The various parameters are related by the following formula:

$$P_i = i_b \times e_{py} \times D_u$$

where P_i = mean input power in watts
 i_b = peak anode current in amperes
 e_{py} = peak anode voltage in volts
 D_u = duty cycle

3. The tuner mechanism is driven by means of three tapped holes in the tuner knob (see outline drawing) via a flexible drive. The torque required is 0.7 kg-cm minimum; the torque applied must not exceed 5.0 kg-cm.
4. The magnetron is designed for use with a separate permanent magnet or electromagnet. The north seeking pole of the magnet must be adjacent to the cathode terminal, marked C. The position of the magnet must be adjusted so that the axis of the field is in line with the axis of the anode and is at right angles to the H plane of the system wave guide.
5. Using a small Hall effect probe, the magnetic field measured at each pole face of the magnet must be within the following limits:
 - (1) At the center of the pole face and 38 mm from the surface, the field must be 155.0 ± 2.5 mT (1550 ± 25 gauss).
 - (2) At four or more points equispaced on a circle of 33 mm diameter concentric with the pole face and 6.35 mm from its surface, including a point nearest the back limb of the magnet, the field must be as follows. At all points the field must be between 9.0 and 27 mT (90 and 270 gauss) greater than the field measured at the center of the pole face; the variation between the point must not exceed 13 mT (130 gauss).

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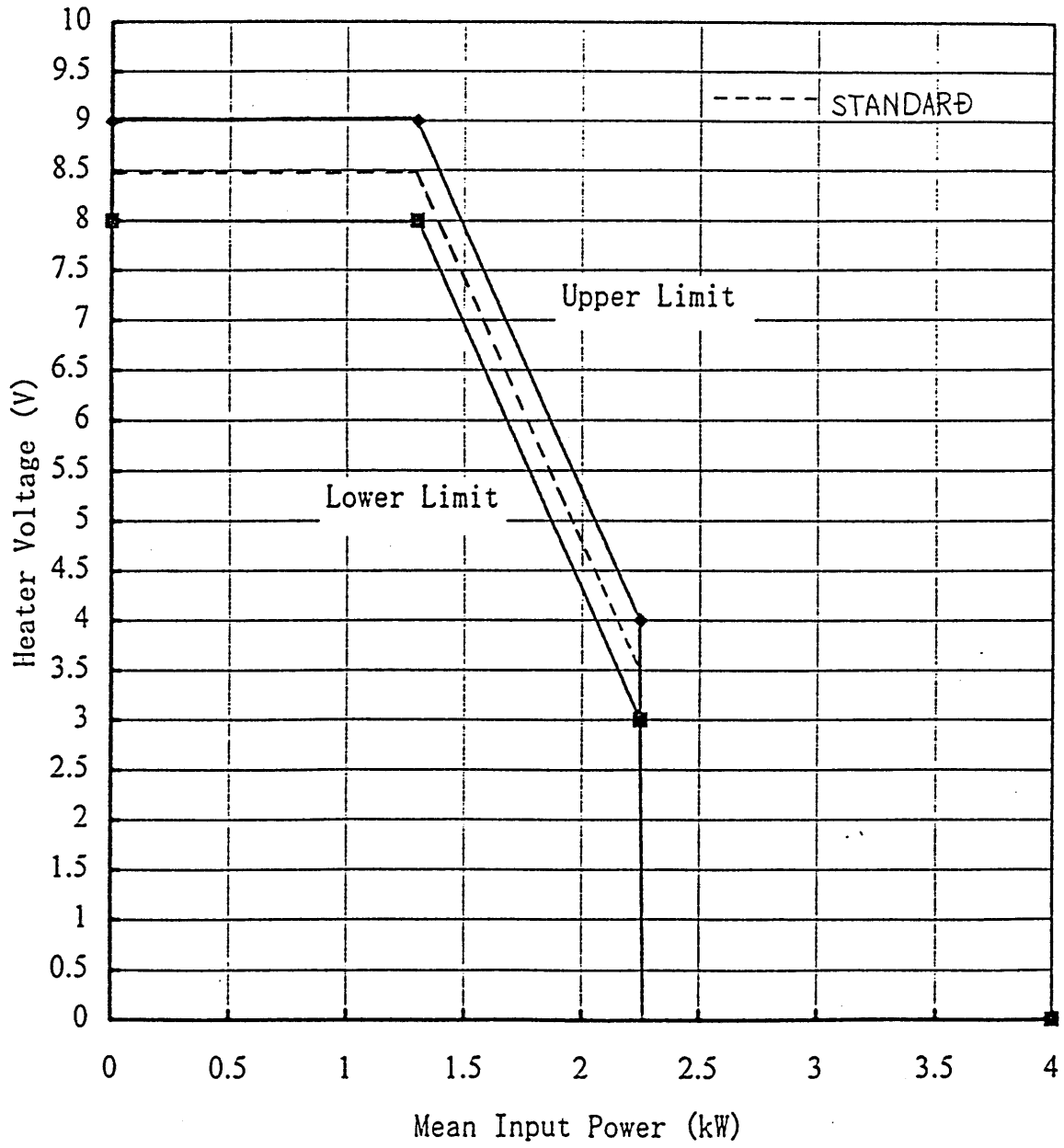
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6. Defined as steepest tangent to leading edge of voltage pulse above 80% amplitude. Any capacitance in viewing system must not exceed 6.0pF.
7. At the maximum pressure of 3.1 kg/cm² gauge the maximum leakage will be such that with an enclosed volume of 1 liter the pressure will not drop by more than 70 kPa in 7 days.
8. With the tube operating into a V.S.W.R. of 1.5:1 phased to give maximum instability. Pulses are defined as missing when the r.f. energy level is less than 70% of the normal energy level in a 0.5% frequency range. Missing pulses are expressed as a percentage of the number of input pulses applied during the period of observation after a period of 10 minutes.
9. Measured with heater voltage of 8.5 V and no anode input power.
10. The maximum variation of mean output power when the magnetron is rotated through 360° around any axis of the magnetron will not be greater than 4%.
11. The maximum variation of frequency when the magnetron is rotated through 360° around any axis of the magnetron will not be greater than 0.7 MHz.
12. This magnetron has been improved the stable oscillation at the dual energy mode system operation.
The dual energy system required the plural output power oscillation without magnetic field changes. This magnetron acceptable to be additionally inspected the oscillation stability at the each customer's output power conditions, after discussed the operating condition with our customers.
Of course, for the single energy mode system, this magnetron also conventionally stable oscillate each operating condition. And then, inspection at the dual operation conditions will be omitted.

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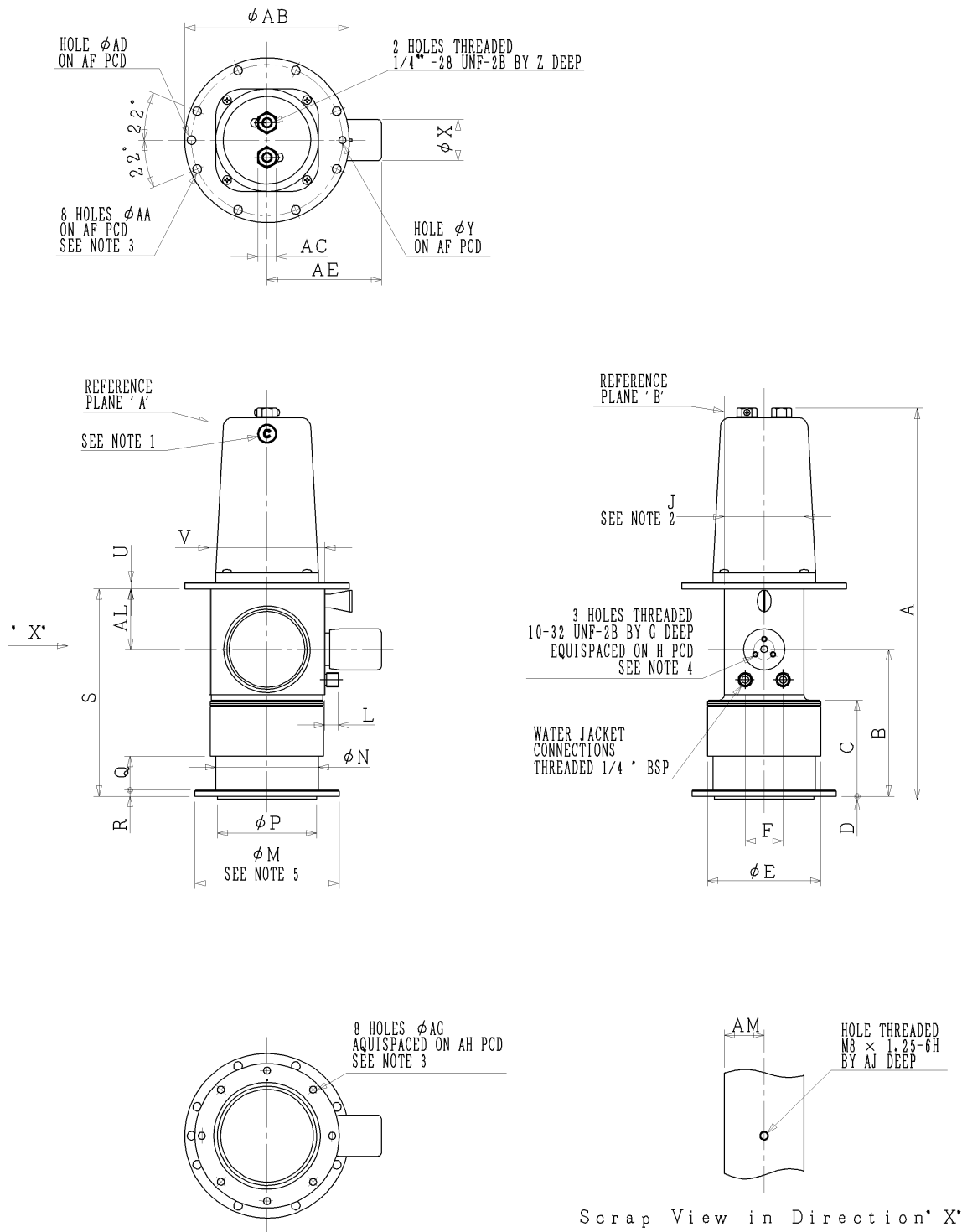
HEATER VOLTAGE REDUCTION SCHEDULE



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OUTLINE



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OUTLINE DIMENSIONS (All dimensions without Limits are nominal.)

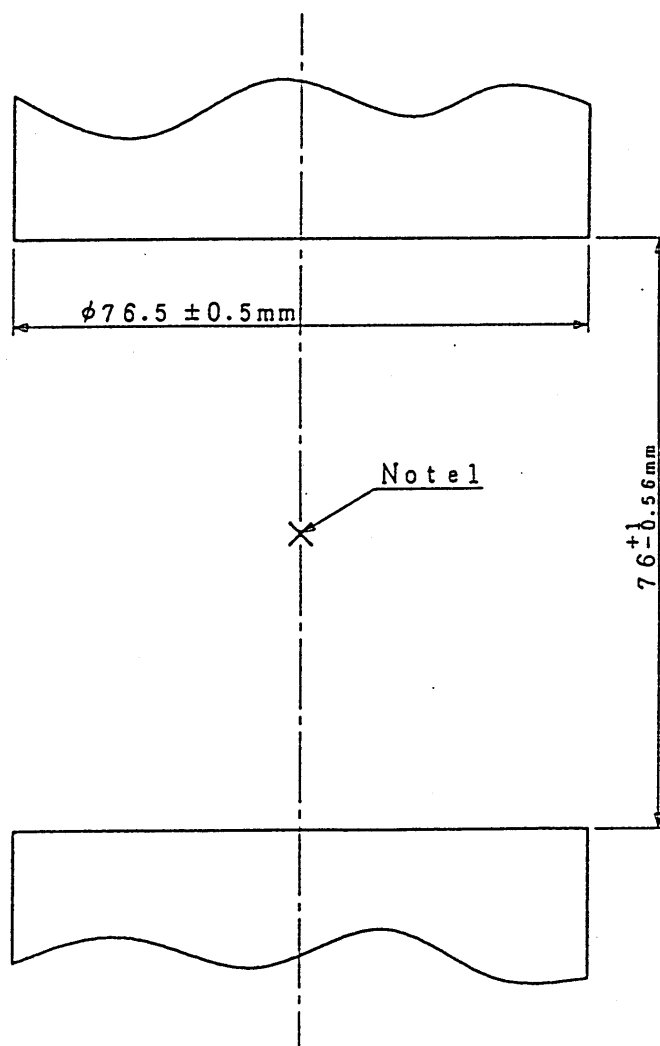
Ref	Millimeters
A	362.4 $\pm$ 1.35
B	136.09 $\pm$ 0.25
C	89.05
D	3.20
E	104.90
F	35.00
G	7.00
H	19.00 $\pm$ 0.20
J	73.82 $\pm$ 0.20
L	12.50 $\pm$ 0.30
M	133.50
N	94.85
P	91.82
Q	31.40
R	5.55
S	191.85
U	6.35 $\pm$ 0.10
V	107.00
X	38.10 $\pm$ 0.10
Y	6.40 $\pm$ 0.05
Z	6.0 min.
AA	8.00
AB	152.25
AC	17.00
AD	8.00 $\pm$ 0.05
AE	106.00
AF	139.70
AG	6.40
AH	120.65
AJ	15.0 min.
AL	55.96 $\pm$ 0.16
AM	36.91 $\pm$ 0.16

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POLE PIECE

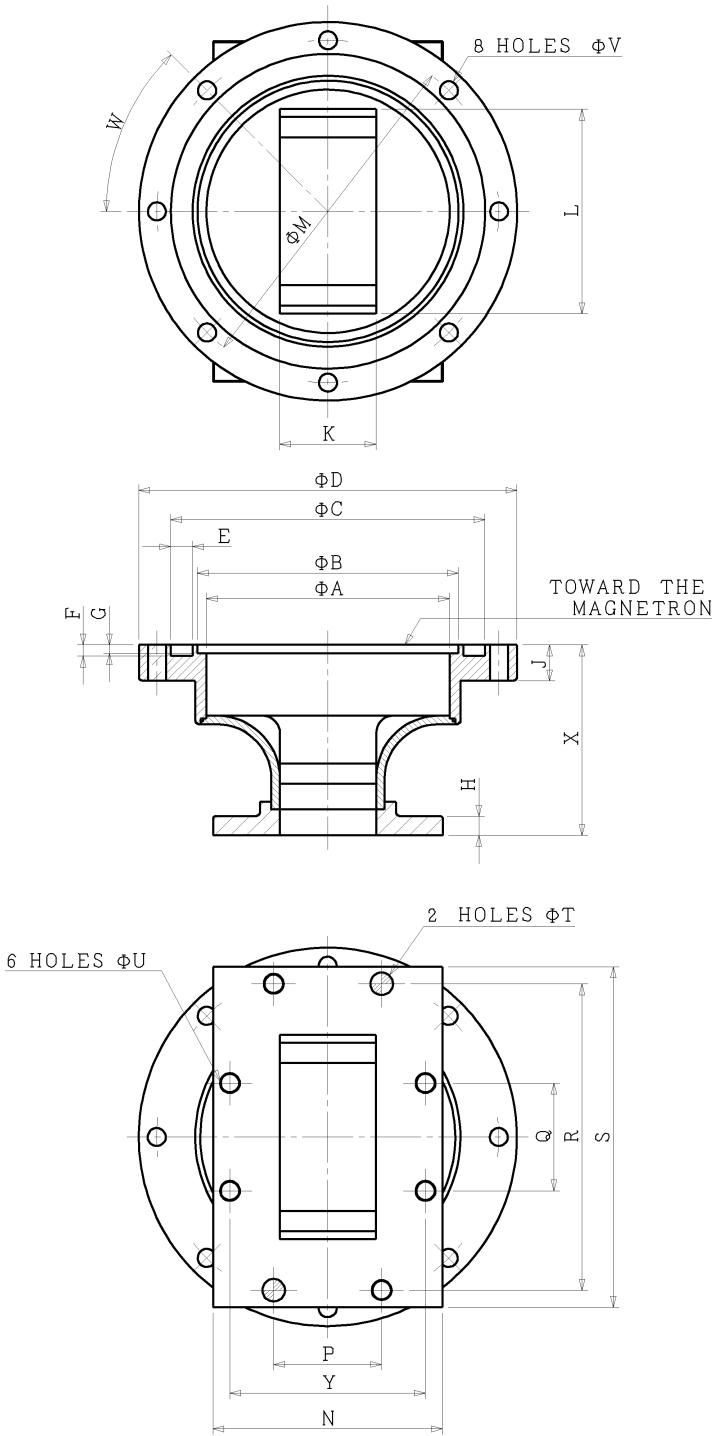
NOTE1: Magnetic field shall be 155.0 ± 2.5 mT at this point.



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TRANSITION SECTION : NJC1301F



Ref	Millimetres
A	85.8
B	92.1 ^{+0.12} _{+0.02}
C	110.9±0.1
D	133.4
E	7.7±0.1
F	3.9±0.05
G	3.05 ⁰ _{-0.07}
H	6.73±0.13
J	12.7
K	34±0.13
L	72.1±0.13
M	120.7±0.1
N	81
P	38.1±0.05
Q	38±0.1
R	108±0.05
S	120
T	7.95 ^{+0.05} ₀
U	6.5
V	6.35±0.13
W	45°
X	67.13±0.13
Y	69±0.1

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