EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

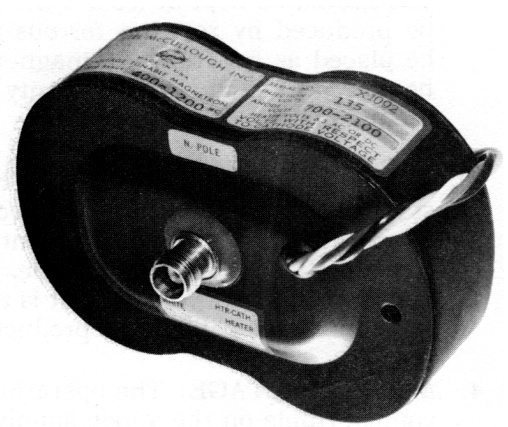
X-1153-C

LOW NOISE VOLTAGE TUNABLE MAGNETRON

Frequency 0.6 - 1.2 Gc

Minimum Output Power 20 mW

TYPICAL PERFORMANCE



ELECTRICAL

Frequency Range	0.6-1.2 Gc
Anode Voltage	1000-2000 V
Cathode Current	2-4 mA
Typical Output Power	30-50 mW
Anode FM Sensitivity	.66 Mc/V
Injection Anode Voltage	100 V
Injection Anode Current	0.02 mA
Heater Voltage (AC)	6.3 V
Heater Current (AC)	0.8 A
Load Impedance	50 ohms
Service	cw
Noise	—85 db (See Note 5)
VSWR (max)	2:1

*MAXIMUM RATINGS

Anode Voltage	2300 V
Cathode	10 mA
Injection Anode Voltage	+300 V
Injection Anode Current	1 mA

*Damage to the tube may occur if maximum ratings are exceeded.

MECHANICAL

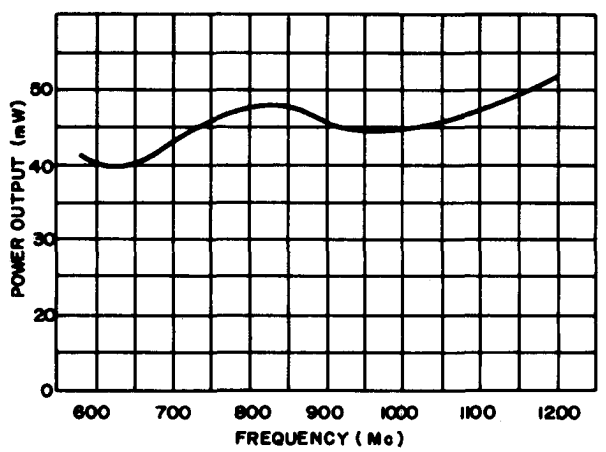
Operating Position	Any
Cooling	Conduction
Electrical Connection	Flexible Leads
RF Output Coupling	Type TNC Jack (See Outline Drawing)
Weight	3.5 Pounds

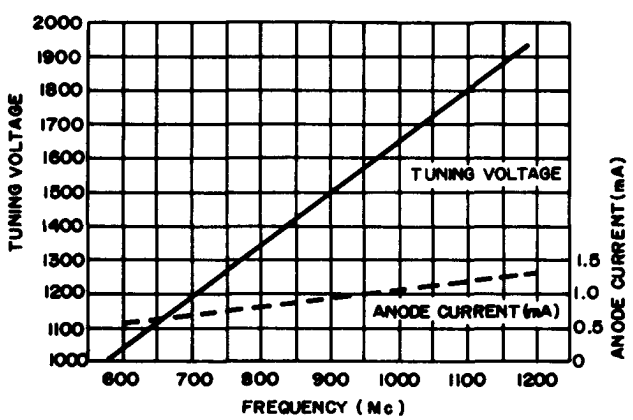
ENVIRONMENTAL

Vibration	10G-(to 2 kc)
Shock	100G-(11 ms)
Altitude	70,000 ft.

OUTLINE DIMENSIONS

Height	3.1 inches
Width	2.5 inches
Length	4.6 inches





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APPLICATION NOTES

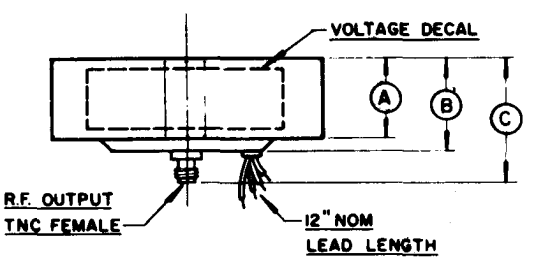
1. COOLING: To insure optimum tube performance the magnet temperature should be maintained below 70°C.

2. PROXIMITY OF FERROUS MATERIALS: To minimize variations in performance, ferrous materials should be kept at least 6 inches from the magnetron package. Modulation of the tube may be produced by rotating ferrous materials and such parts as fans, shafts and couplings should be placed as far from the magnetron package as possible. Transformers and chokes should not be placed in such close proximity to the tube that their stray magnetic fields will interfere with the magnetron operation.

3. TEMPERATURE STABILITY: The permanent magnet for the X-1153-C has been temperature stabilized to minimize frequency changes caused by variations in the ambient temperature. This temperature/frequency coefficient for the X-1153-C package is typically .008% of the operating frequency per degree Centigrade. Thus, for an operating frequency of 700 megacycles, the temperature/frequency coefficient is typically 56 kilocycles per degree Centigrade. A positive change in temperature will always produce a positive change in frequency.

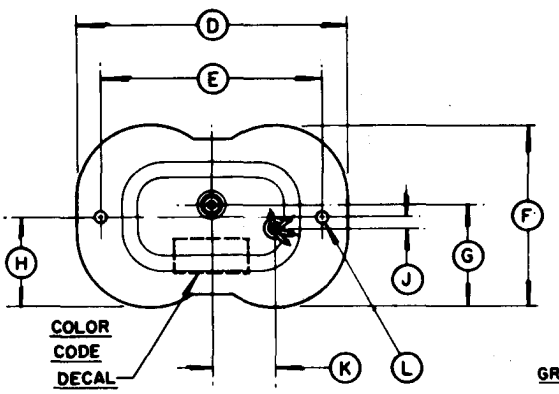
4. ANODE VOLTAGE: The operating frequency is a function of the anode voltage; therefore, any voltage ripple on the anode supply will appear as frequency modulation on the RF output signal.

5. NOISE: Noise power, in db below carrier, is measured using a 60 Mc I_f which has a bandpass of 2 Mc. Both sidebands are included in the measurement. (This measuring technique is one of many methods available. Other methods will be entertained.)



DIMENSIONS IN INCHES

DIMENSIONAL DATA			
REF	MIN.	MAX.	NOM.
A			1.375
B			1.562
C			2.312
D		4.515	
E	3.640	3.671	
F		3.031	
G			1.656
H			1.500
J			.375
K			1.062
L			.187 D.



CONNECTIONS
GROUND - GREEN
HEATER - WHITE
HEATER CATHODE - BLACK
INJECTION ANODE - YELLOW