BOMAC LABORATORIES INC.
Salem Road
Beverly, Massachusetts

OPERATING INSTRUCTIONS

BL-212 MAGNETRON

Description:

The BL-212 is a miniature C-band beacon magnetron tunable from 5400 to 5900 Mc with a minimum peak power output of 100 watts.

Precautions:

1. Permanent magnet - maintain at least two (2) inches between magnet and magnetic materials. (iron, steel, tools, plates, etc.).

2. Proper grounding is essential for satisfactory performance. A low impedance connection between the equipment and the tube may be made by mounting at the tuner end.

3. When tuning, the mechanism should operate freely. Avoid forcing at either end of the tuning range. See tuning instructions.

4. Absolute Maximum Ratings:

Heater Voltage	5.0 ± 10%	volts
Peak Anode Current	1.2	amps
Peak Anode Voltage	1.5	Kv
Duty Cycle	.002	---
Pulse Width	2.0	usec
Pulse Repetition Rate	4000	pps
Rate of Rise of Voltage	10	kv/usec
Body Temperature	100	°C
VSWR	1.5:1	(max.)

Maximum ratings do not necessarily apply simultaneously.

Installation:

1. Mounting: The tube should be oriented such that the requirements of shock, vibration, and accelleration are met. It may be mounted by the (3) tapped holes on each end or preferably clamped around the full length of the 1.260 in. diameter of the magnet section.

2. Input Connections: The heater and cathode are internally connected. The black lead is common to the heater and cathode. The red lead is the other heater connection.

3. Output Connection: The output is designed for coupling to a standard UG-699/U coaxial connector (50 ohms).

4. Cooling: The tube will operate normally at ambient temperatures between -60 to 90°C. The body temperature should not exceed 100°C.

5. Application of Voltages: Heater voltage should be applied for approximately 30 seconds before application of high voltages. Pulse power may then be applied to the cathode. Proper measurement of the voltage and current pulses is very important. Operation should be monitored by the current. Do not set pulse voltages. The peak current may be varied from 0.6 to 1.0 amperes with little change in the pulse voltage. The current pulse may be viewed across a suitable resistor located in the ground circuit of the magnetron. The pulse width is determined at the 50% amplitude level. The average current may be measured by using 0 to 2 mAdc meter properly located. The voltage may be viewed by a capacity divider. The rate of rise of voltage is determined between 20 and 85% of the smooth peak value of the pulse voltage.

6. Tuning: See Tuner Adjustment - page 3.

Typical Operation:

Heater Voltage	5.0	volts
Heater Current	0.50	amps
Peak Anode Current	0.8	amps
Peak Anode Voltage	1.3	kv
Duty Cycle	.002	--
Pulse Width	1.0	usec
Power Output	100	watts (min.)

Additional information for design purposes is available from Bomac Laboratories Application Engineering Department.

Tuner Adjustment and Output Connection:

1. Release locking set screws as shown in Fig. 1. Make sure the end set screw is not loosened as it holds the Tuner Bearing.

2. With the tube in position shown, clockwise rotation of the Tuning Screw decreases frequency. Approximately 2-1/2 turns of the Tuning Screw will cover the entire frequency range.

3. The two Locking Set Screws should be tightened evenly and alternately so that the opposing forces acting on the tuning shaft will be equal. The locking procedure is necessary when the tube is to be used under extreme conditions of shock and vibration. Caution: Avoid forcing the Tuning Screw.

4. Mating SM connector is to be screwed on tightly so that mating internal parts are bottomed properly to prevent frequency sensitivity under vibration conditions.

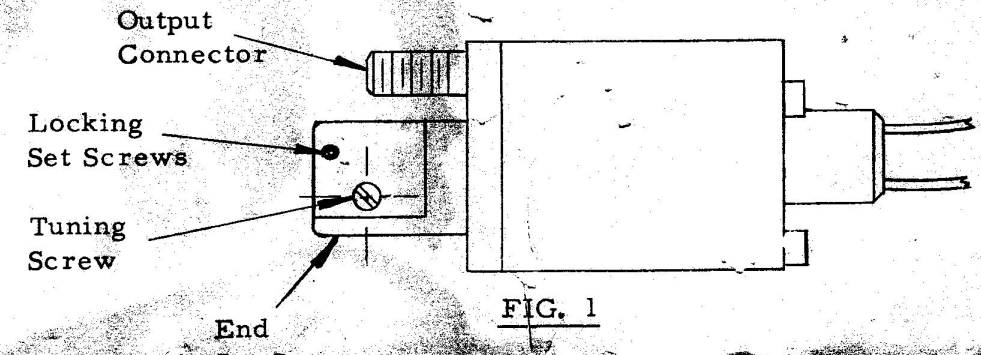

FIG. 1

O. P. 212
1-15-59 - fw