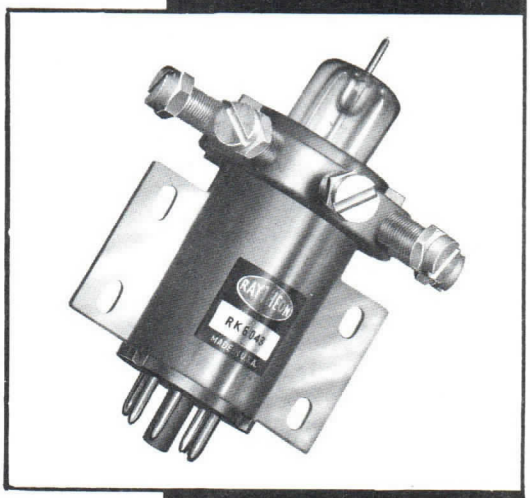
TYPE RK6043



VELOCITY VARIATION OSCILLATOR

GENERAL DESCRIPTION

The type RK6043 is an integral cavity reflex velocity variation oscillator designed for CW operation over the 2950 to 3275 Mc range with a minimum power output of 25 milliwatts.

GENERAL CHARACTERISTICS

ELECTRICAL

Heater Characteristics

Heater Voltage	6.3V ± 5%
Heater Current	0.66 A

Ratings — Absolute Maximum Values

Grid #1 Voltage	330 Vdc
Grid #2 and #3 Voltage	330 Vdc
Cathode Current	45 mAdc
Reflector Voltage	
Minimum Value	−25 Vdc
Maximum Value	−500 Vdc
Reflector Current	7 uAdc
Heater-Cathode Voltage	±100V

The values specified above are based on the absolute system and must not be exceeded under any service condition. Operation above these limiting values may affect tube life and serviceability adversely. It does not necessarily follow that combinations of absolute maximum ratings can be attained simultaneously.

Typical Operating Conditions

Frequency Range	2950-3225 Mc
Reflector Voltage Transit Mode	3¾
Grid #1 Voltage	300 Vdc
Grid #2 and #3 Voltage	300 Vdc
Cathode Current	30 mAdc
Reflector Voltage Range	−35 to −110 Vdc
Electronic Tuning Range Po/2	20 Mc
Average Power Output	40 mW

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MECHANICAL

Mounting Position	Any
Overall Dimensions	See Outline Dwg.
Envelope	Glass
Base	Intermediate Octal, 4 Pin
Pin Connections	See Outline Dwg.

DETAILED ELECTRICAL INFORMATION

REFLECTOR

The power supply furnishing the reflector potential must be insulated to withstand the total resonator and reflector voltage. The reflector must never be allowed to become more positive than −25 volts with respect to the cathode. If this precaution is not observed, damage to the tube may result. Where high reflector circuit impedances are used, it is advisable to shunt the high impedance of the power supply with a small diode.

CATHODE

In most applications, the metal cavity used with the RK6043 is operated at ground potential and the cathode will be negative with respect to ground by the amount of the resonator potential. The cathode may be connected to one side of the heater or the center tap of the heater transformer secondary. When the cathode and heater are connected together, connections to the cathode should be made directly to the cathode contact on the tube socket and never to a heater lead. When the cathode and heater are not tied together the heater cathode voltage should not exceed ±100V. In all cases where the resonator is operated at ground potential, the heater transformer must be insulated to withstand the maximum resonator voltage. To obtain maximum tube life, it is recommended that the heater be allowed to warm up for 30 seconds before other voltages are applied. Application of the beam potential must not precede the application of any of the other voltages.

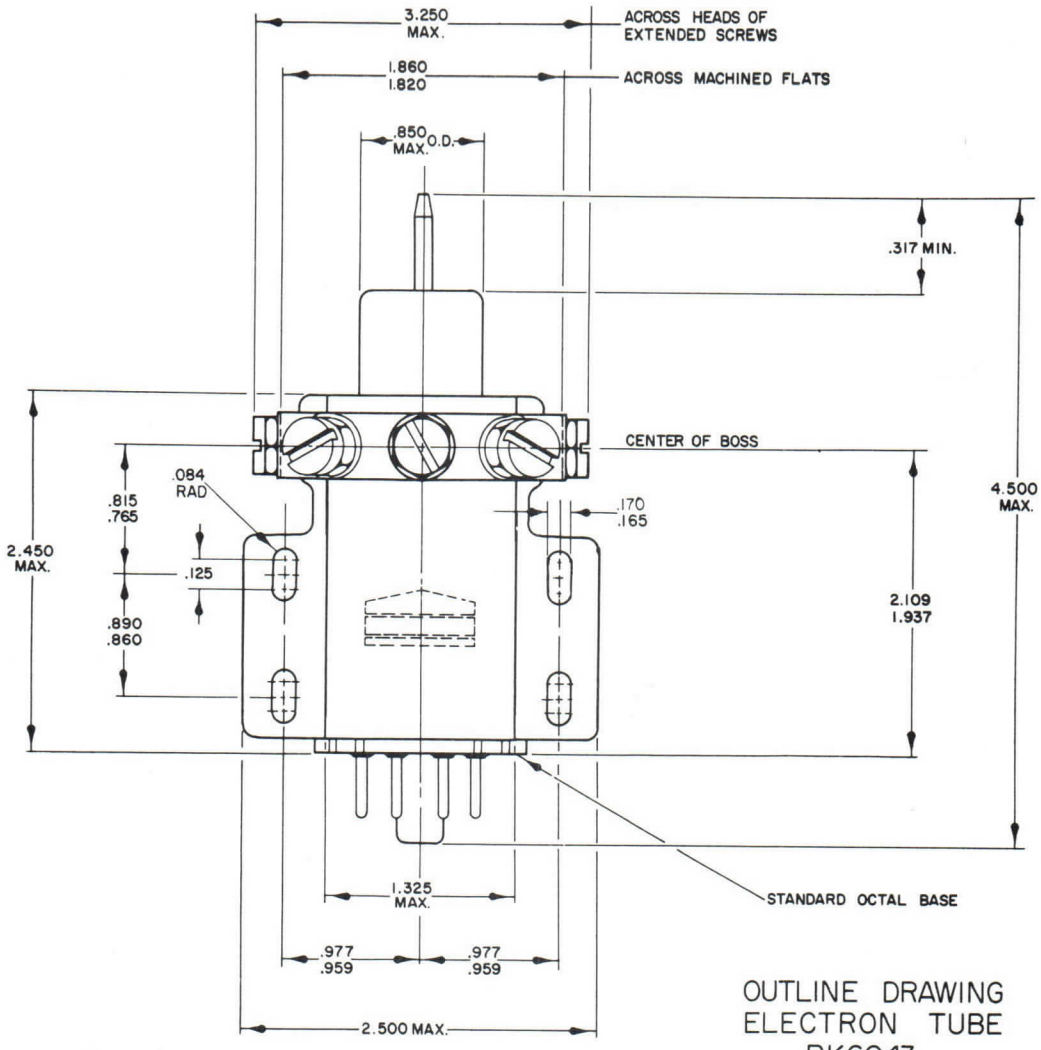
ELECTRONIC TUNING

Vernier adjustment of the frequency of the RK6043 is accomplished by varying the reflector voltage. If the mechanical tuning mechanism and the reflector voltage are mutually adjusted to yield a maximum power output at a given frequency, and if then the reflector voltage is varied above and below the value for maximum power such that the power output is reduced to one half, the frequency change between the half power values is defined as the electronic tuning range. The range of electronic tuning and the linearity of its variation with reflector voltage is a function of the type of load and coupling used. Maximum electronic tuning range will be achieved with operation into a resistive load. Operation into a highly reactive load may be attended by excessive hysteresis, and nonlinear variation of frequency with reflector voltage.

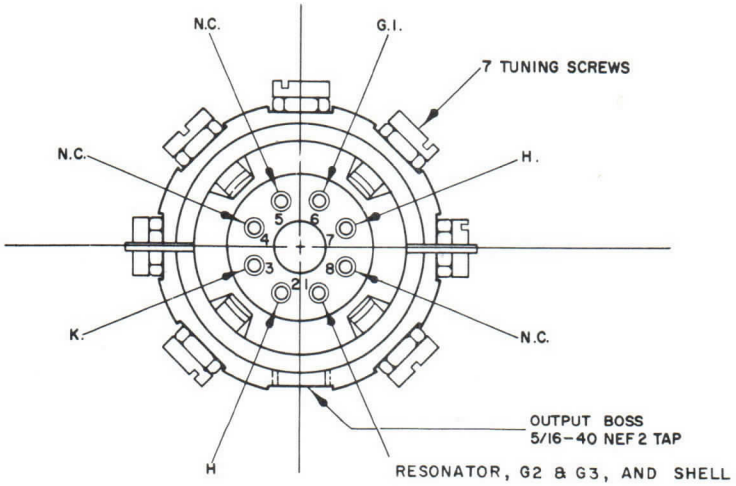
FREQUENCY STABILITY

The regulation of the voltages applied to the reflector and resonator will be reflected directly in the stability of the output frequency, hence the regulation of these supplies must be commensurate with the stability requirements of the application.

VELOCITY VARIATION OSCILLATOR



OUTLINE DRAWING
ELECTRON TUBE
RK6043



BOTTOM VIEW

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