



Excellence in Electronics

**TYPE
RK 7578**

GENERAL DESCRIPTION

The RK7578 is a mechanically tunable pulsed-type magnetron oscillator delivering a minimum peak power output of 800-1200 watts. It is capable of being tuned to any frequency within the 5400 to 5900 Mc range.

The RK7578 is small (1.75" dia. x 3.5") lightweight (14 ounces) and has been designed primarily for missile beacon transponder applications where extreme environmental conditions are encountered. The RK7578 is capable of sustaining shock acceleration of 100G and vibrational acceleration during operation of 15G at frequencies up to 2000 cycles per second.

GENERAL PRECAUTIONS

The precautions to be observed during the application of the RK7578 magnetron are the same as for any oscillator of this type. Experience has indicated that the areas where application problems frequently arise include the magnetron voltage pulse shape — particularly its rate of rise, the load VSWR, and anode current regulation. It is recommended that the Applications Engineering Department be consulted regarding the details of any contemplated equipment design utilizing the RK7578.



**PULSED-TYPE
MAGNETRON
OSCILLATOR**

GENERAL CHARACTERISTICS

ELECTRICAL

Heater Voltage — Preheat and Operate	4.5 to 5.5-Volts
Heater Current	1.75 Ampere at 5.0 Volts
Minimum Preheat Time	30 Seconds
Temperature Coefficient	±0.1 Mc/°C Maximum
Operational Altitude	70,000 Feet Maximum
Operational Vibration Frequency Deviation at 15G, 20 to 2000 cps	1.5Mc Peak to Peak Maximum
Frequency Shift Due to Shock 100G, 1 Millisecond	1 Mc Maximum
Frequency Shift Due to 100G Acceleration	1 Mc Maximum

Typical Operation

Pulse Duration	0.25 to 0.75 Microseconds
Duty Cycle000025 to .002
Peak Anode Current	2.0 Amperes
Peak Anode Voltage	2.8 Kilovolts
Peak Power Output	800-1200 Watts
Voltage Rise Time (20 to 85%)	0.11 us

MICROWAVE AND POWER TUBE DIVISION

RAYTHEON COMPANY

FOUNDRY AVE., WALTHAM 54, MASS.

from JEDEC release #3471, Oct. 30, 1961

Printed in U.S.A.



DETAILED MECHANICAL INFORMATION

MOUNTING

The tube may be mounted in any position and must be supported by a suitably designed holder made of non-ferrous material which will utilize the diameter of the tube for support. Magnetic material should be mounted within 2 inches of the tube.

INPUT CONNECTIONS

Two flexible leads approximately 5 inches long provide connections for heater voltage and pulse voltage. One lead is black, the other red. The red lead is the common heater-cathode to which negative high voltage should be connected. A "ground" lug on the body of the tube provides for positive high voltage connection.

R.F. OUTPUT COUPLING

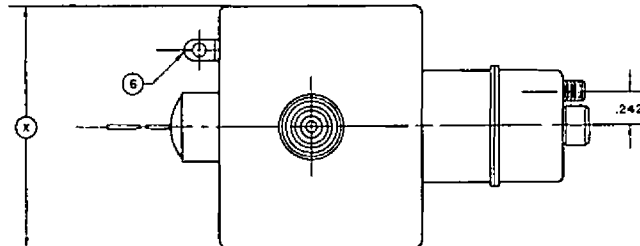
Mates with TNC coaxial Fitting or TNC to 3/4" x 1 1/2" or 1" x 2" O.D. Waveguide Transition.

TUNER

The tuning mechanism is actuated by a screw-driver adjustable shaft. A set screw is provided to lock the shaft in position prior to the subsection of the tube to environmental conditions. Care should be taken not to mechanically tune the tube beyond the extremes of its normal operating range, 5400 to 5900 Mc.

DIMENSIONS

Figure 1 is the mechanical outline drawing.



RK 7578
ELECTRON TUBE
OUTLINE DRAWING

NOTES

1. NON-MAGNETIC TOOLS MUST BE USED WHEN INSPECTING THIS TUBE
2. THIS PLANE PASSES THROUGH THE AXIS OF DIAMETER "X" AND TUNER LOCK 90° FROM OUTPUT AS SHOWN
3. THIS DIMENSION APPLIES TO THE CENTER OF DIAMETER "X"
4. PITCH DIAMETER MUST ACCEPT CLASS 2 "GO" GAGE ONLY
5. MAJOR DIAMETER MUST NOT BE LESS THAN .4275
6. ANODE TEMPERATURE TO BE MEASURED AT THIS POINT
7. RED LEAD IS COMMON CATHODE HEATER CONNECTION
8. GROUND BRACKET TO BE 90° FROM OUTPUT AS SHOWN
9. OUTPUT TO MATE WITH A TNC TYPE GABLE CONNECTOR
10. THIS DIMENSION APPLIES FOR LENGTH "D" IN THE APPROXIMATE AREA SHOWN (NOT A DIAMETER)
11. THIS DIMENSION APPLIES IN THE APPROXIMATE AREA SHOWN

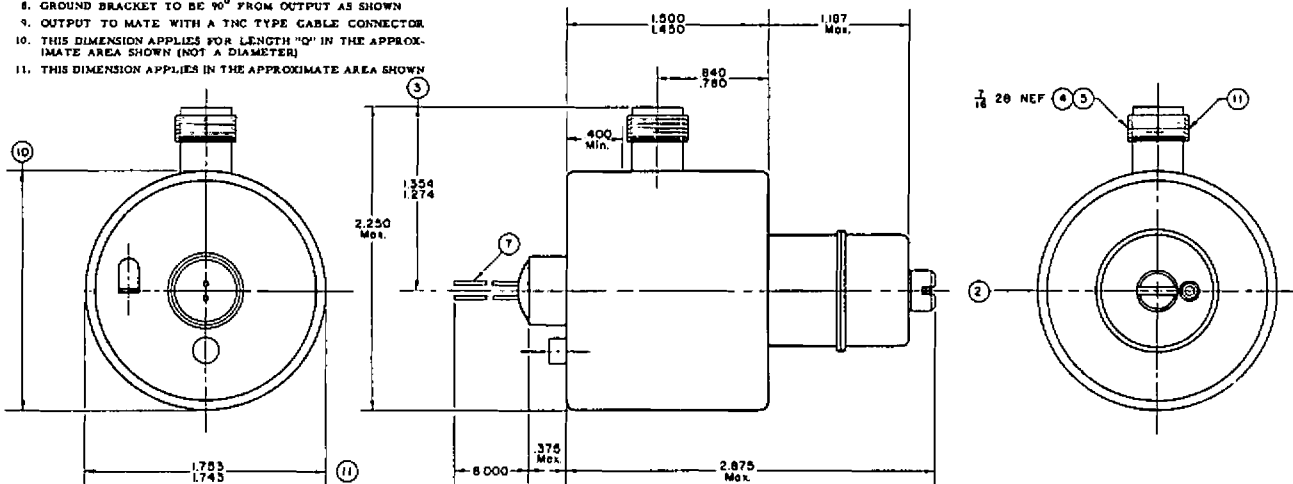


Figure 1

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