



6562

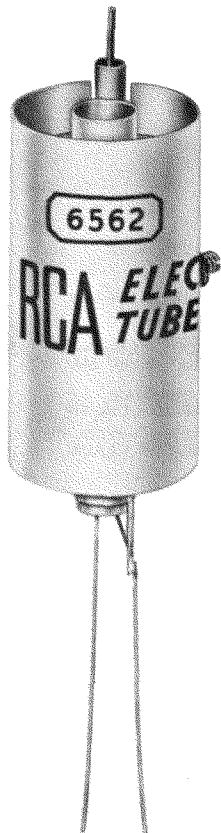
FIXED-TUNED OSCILLATOR TRIODE

"Pencil Type" With Integral Resonators

For Radiosonde Service at 1680 Mc

TENTATIVE DATA

RCA-6562 is a fixed-tuned, ultra-high frequency oscillator triode having a pencil-type construction and intended for transmitting service in radiosonde applications. It has two resonators which are integral with the tube. One of the resonators is fixed-tuned and connected between grid and cathode. The other, which is connected between grid and plate, is loop-coupled to a coaxial rf-output terminal and can be tuned to 1680 megacycles by means of a frequency-adjustment screw. The 6562 has a useful power output in the order of 600 milliwatts.



Actual Size

Features contributing to the usefulness of the 6562 in radiosonde oscillator applications are its high efficiency, small frequency drift, low battery drain, and small size. In addition, the 6562 has flexible heater leads which can be soldered or welded into the associated circuit. The cathode is externally connected to one of the heater leads to simplify circuit connections.

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage range* (AC or DC)	5.2 to 6.6	volts
Current with 6.0 volts on heater	0.160	ampere
Frequency (Approx.)	1680	Mc
Frequency Adjustment Range	$\pm 12^{**}$	Mc
RF Coaxial Output Terminal:		
Characteristic impedance (Approx.)	50	ohms

Mechanical:

Mounting Position	Any
Dimensions	See Dimensional Outline
Resonators (Two)	Integral Part of Tube

FIXED-TUNED OSCILLATOR SERVICE

Maximum Ratings, Absolute Values:

DC PLATE VOLTAGE	120 max.	volts
DC PLATE CURRENT	34 max.	ma
DC GRID CURRENT	8 max.	ma
PLATE INPUT	4 max.	watts
PLATE DISSIPATION	3.6 max.	watts
PEAK HEATER-CATHODE VOLTAGE	0 max.	volts
AMBIENT-TEMPERATURE RANGE	-55 to +75	$^{\circ}\text{C}$

Operating Frequency Drift:

Maximum Frequency Drift:

For heater voltage range of 5.2 to 6.6 volts, plate voltage range of 95 to 117 volts, and ambient-temperature range of $+22^{\circ}$ to -40°C . . . ± 4 to -1 Mc

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	Min.	Av.	Max.	
Heater Current	1	0.135	0.148	0.157	amp
Power Output	2, 4	—	600	—	mw
Power Output	3, 4	300	—	—	mw

Note 1: With 5.2 volts ac on heater.

Note 2: With ac heater voltage of 6.6 volts, dc plate voltage of 117 volts, frequency of 1680 megacycles per second and grid resistor chosen within the range of 1300 to 1800 ohms. The choice of grid resistor should be such that for any individual tube, the dc plate current must not exceed 34 milliamperes, and when this value of grid resistor is used in the test of Note 3, a minimum power output of 300 milliwatts is obtained.

Note 3: With ac heater voltage of 5.2 volts, dc plate voltage of 95 volts, frequency of 1680 megacycles per second, and grid resistor chosen within the range of 1300 to 1800 ohms. The choice of grid resistor to give a minimum power output of 300 milliwatts for any individual tube must be such that when this same resistor value is used in the test of Note 2 the dc plate current will not exceed 34 milliamperes.

Note 4: Measured with a coaxial-type load having an impedance of approximately 50 ohms and adjusted for a maximum voltage standing-wave ratio of 1.1.

* This range of heater voltage is for radiosonde applications in which the heater is supplied from batteries and in which the equipment design requirements of minimum size, light weight, and high efficiency are the primary considerations even though the average life expectancy of the 6562 in such service is only a few hours.

** As supplied, tubes are adjusted to 1680 ± 4 megacycles.

INSTALLATION and APPLICATION

The maximum ratings shown in the tabulated data are limiting values above which the serviceability of the 6562 may be impaired from the viewpoint of life and satisfactory performance. Therefore, in order not to exceed these absolute ratings, the equipment designer has the responsi-



bility of determining an average design value for each rating below the absolute value of that rating by an amount such that the absolute values will never be exceeded under any usual conditions of supply-voltage variation, load variation, or manufacturing variation in the equipment itself.

The *flexible heater leads* of the 6562 are usually soldered to the circuit elements. Soldering of these connections should not be made closer than 3/4" from the end of the tube (excluding cathode tab). If this precaution is not followed, the heat of the soldering operation may crack the glass seals of the leads and damage the tube. Under no circumstances should any of the electrodes be soldered to the circuit elements. Connections to the electrodes should be made by spring contact only.

The 6562 should be supported by a suitable clamp around the metal shell either above or below the frequency-adjustment screw. It is essential, however, that the pressure exerted on the shell by the clamp be held to a minimum because excessive pressure can distort the resonators and result in a change in frequency.

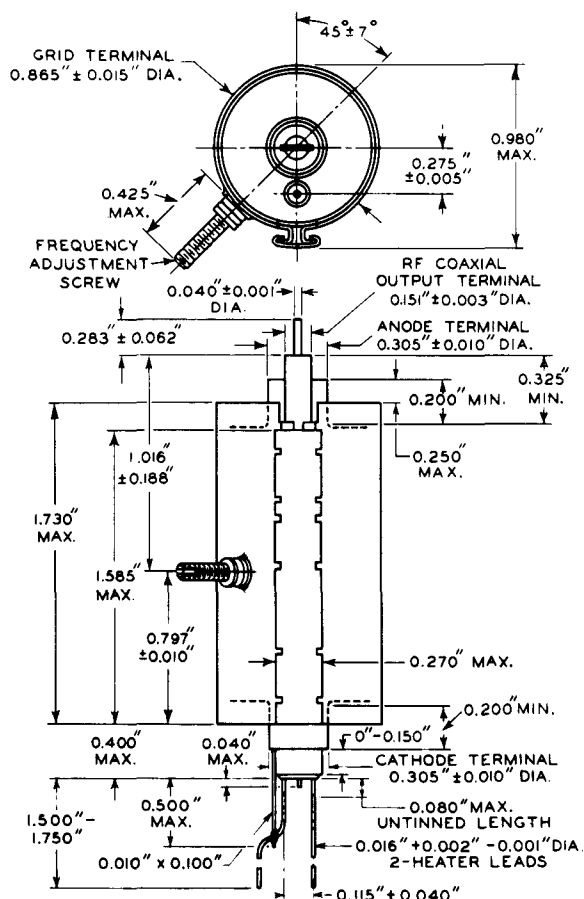
The *plate connection* should have a flexible lead which will accommodate variation in the relative positions of the plate terminals in individual tubes.

The 6562 may be mechanically tuned by adjustment of the frequency-adjustment screw located on the metal shell of the tube. A clockwise rotation of the frequency-adjustment screw will decrease the frequency, while a counter-clockwise rotation will increase the frequency. The range of adjustment provided by the screw is ± 12 megacycles.

REFERENCE

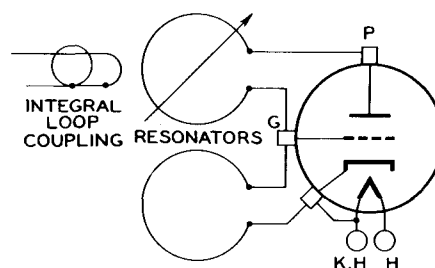
M.W. Bell, "Production Testing of UHF Radiosonde Tube Type 5794," *Electronics*, November 1953, pp.254 to 266.

DIMENSIONAL OUTLINE



92CM-8747

TERMINAL CONNECTIONS



H: HEATER
K: CATHODE
G: GRID
P: PLATE

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