

Carcinotron

CO 63



CO 63

4,800 to 9,600 MCs

WIDE ELECTRONIC TUNING BAND OSCILLATOR

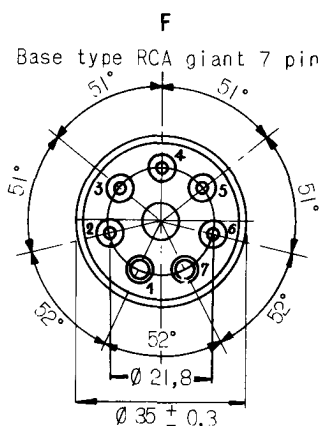
The "Carcinotron" CO 63 tube with integral magnet gives a power of about 15 to 150 mW between 4,800 and 9,600 Mc/s.

The frequency varies in a continuous manner as a function of anode 2 (line and collector) voltage without hysteresis or lack of oscillations.

The tetrode structure of the gun allows amplitude modulation or pulse operation by acting on the Wehnelt grid or anode voltage.

**TENTATIVE
DATA**

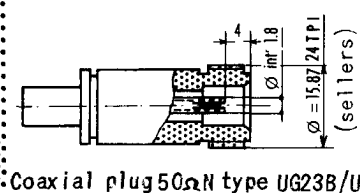
PIN ARRANGEMENT



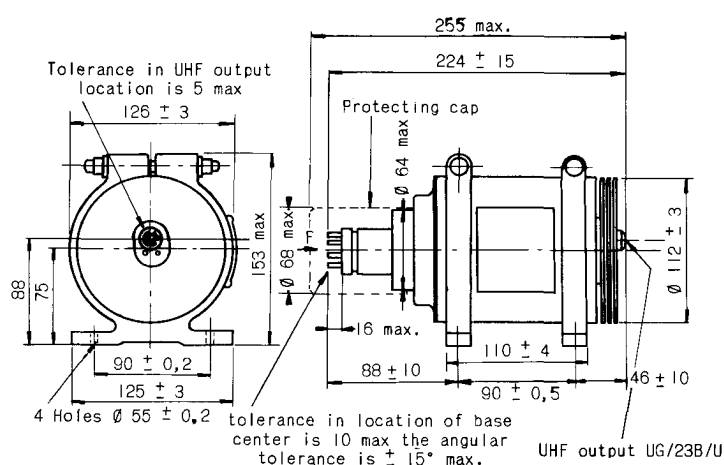
- 1.- Filament
- 2.- Cathode
- 3.- Anode 1
- 4.- Grid 1
- 5 } Anode 2
- 6 }
- 7.- Filament

Net weight : 5,150 kg

RF OUTPUT



LAYOUT



Dimensions in mm

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5904 D4 - 1/4 A

GENERAL CHARACTERISTICS

Oxide coated cathode indirectly heated		
Filament voltage (V)	6.3 $\pm$ 5%	
Filament current (A)	2.1	
Capacitances :		
Wehnelt grid to all electrodes (pF)	14	
Anode 1 to all electrodes (pF)	13	
Anode 2 to all electrodes (pF)	17	
Cathode to filament (pF)	7	
Blowed air cooling :		
Flow (cu. dm/sec)	10	
Pressure (g/sq. cm)	2.5	

MAXIMUM RATINGS

Anode voltage (V)	300
Anode 2 voltage (V)	1450
Anode 2 current (mA)	35
Wehnelt grid 1 bias (V)	0 to 20
Anode 2 dissipation (W)	42

TYPICAL OPERATION

Wehnelt grid 1 voltage (V)	0
Anode 2 voltage (V)	170 to 1400
Anode 2 current (mA)	10 to 30
Anode 1 voltage (V)	50 to 250
Anode 1 current (mA)	0 to 10
Output power (mW) :	
at 5,000 Mc/s	15
at 7,500 Mc/s	60
at 9,500 Mc/s	100

MOUNTING AND HANDLING NOTES

The valve may be permanently damaged if precautions are not observed to ensure that the field of its associated focusing magnet is preserved.

Chances of accidental damage will be minimized by complying with the following directions :

- 1- Keep the valve in its packing until it is to be used.
- 2- Before unpacking read carefully the notes written on the inner face of the case cover.

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- 3- The valve may be operated in any position, but maintain minimum clearance 15 cm (6 inches) between the magnet and magnetic material; this clearance should be 20 cm (8 inches) as concerns field generating devices (carcinotrons, transformers, choke, etc ...).

Avoid using magnetic tools for fastening operations (screwdrivers, spanners ...)

- 4- Never modify the position of the valve with respect to its focusing device.

OPERATING NOTES

STARTING

First start the valve air cooling (the air flow must be directed on the radiating fins associated with anode 2).

Apply in succession :

- heater voltage and wait for 90 seconds,
- grid 1 voltage,
- anode 2 voltage,
- anode 1 voltage.

Follow inverted order to stop the tube.

For initial setting up, apply moderate voltages for instance :

Vg1 0 volt

Va2 400 volts

Val voltage shown on the serial number plate or in the test label minus 20 volts and check that the operation is correct before applying normal voltages.

CATHODE HEATER

It is advisable to use a power supply with sufficient inner resistance (or external) in order to limit the filament starting current to 2.5 its normal value. The filament cold resistance is about one seventh of its resistance under running conditions.

It is advisable to feed the filament with direct current (filtered rectified alternating current or battery) in order to avoid hum or spurious modulation.

INSULATION

By structure anode 2 (delay line and collector) is connected to the valve outer casing and to pins 5 and 6 of the base. The casing being usually earthed the cathode and heater are at a negative voltage which may reach 1500 volts.

LOAD

Oscillating frequency is not quite independent of the load. Therefore, to benefit of all carcinotron's advantages it is suitable to comply with some load conditions.

- S. W. R. lower than 2 in the whole operating range,
- connecting line between valve and load as short as possible or decoupling near the UHF output.

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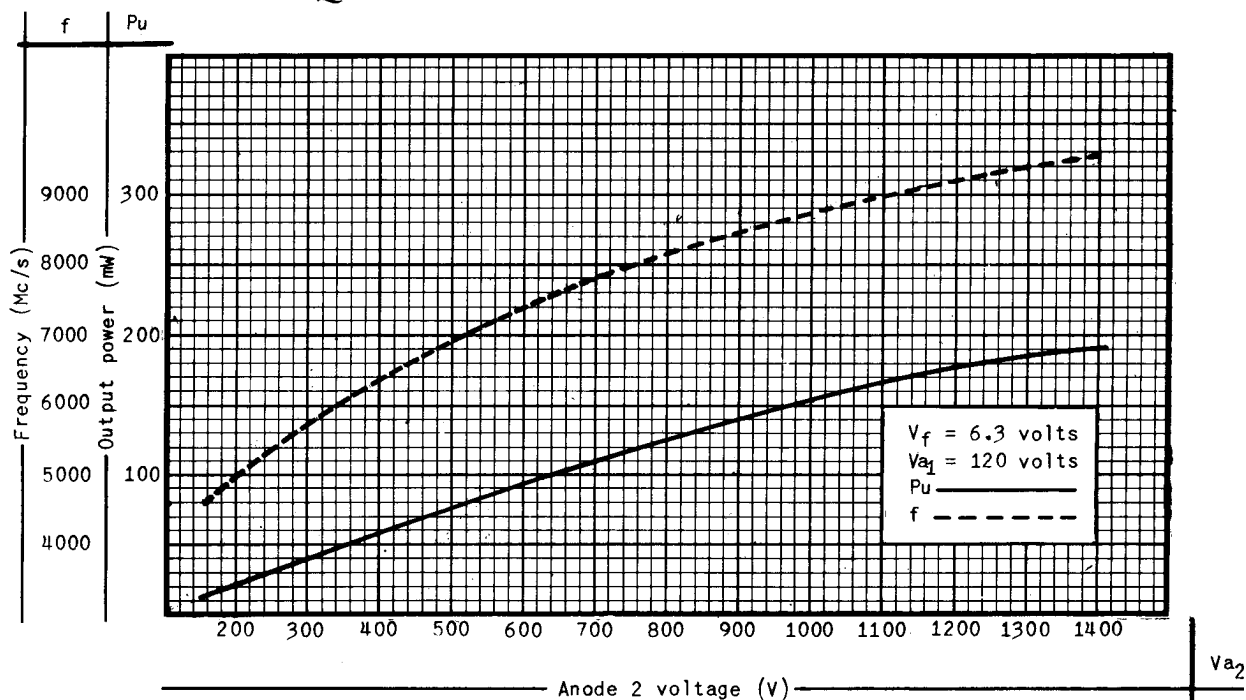
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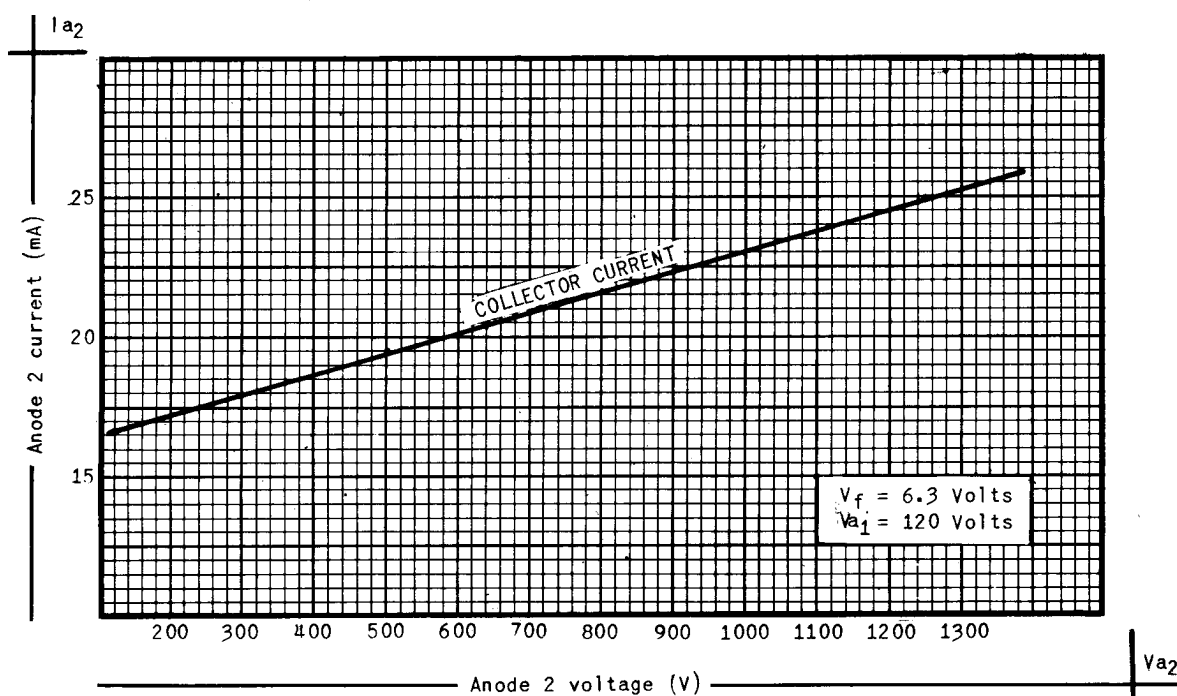
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CHARACTERISTIC CURVES

POWER AND FREQUENCY AS A FUNCTION OF ANODE 2 VOLTAGE



ANODE 2 CURRENT AS A FUNCTION OF ANODE 2 VOLTAGE



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Carcinotron

CO 63 A

CO 63 A

4,800 to 9,600 Mc/s

The Carcinotron CO 63 A is an improved type of the CO 63.

Both tubes are interchangeable by adding an intermediate connector to the RF output.

The tube CO 63 A gives the following advantages :

- reduction of FM and AM spurious modulations.
- vibration proof. All tubes are tested up to 10 g.
- reduction of sensitivity to external magnetic fields.

GENERAL CHARACTERISTICS

Outline and pin arrangement :

See verso.

Net weight: 14 lbs

- Frequency range : Identical to CO 63.
- Average power : 7 to 250 mW.
- RF output : Type 50 ohms N UG 21/U.
An intermediate connector type 50 Ω UG 57 B/U may be supplied on request.
This intermediate connector enables to use the same connecting device as for the former type.
- Spurious frequency modulation noise (measured with a spectrum analyser) :
 - Signal to noise ratio is higher than 40 dB (The modulation frequency can be observed between 50 kc/s and 10 Mc/s).
- Spurious amplitude modulation noise (measured between 0.1 and 30 Mc/s beyond the carrier) :
 - Signal to noise ratio will be higher than 130 dB/cycle.

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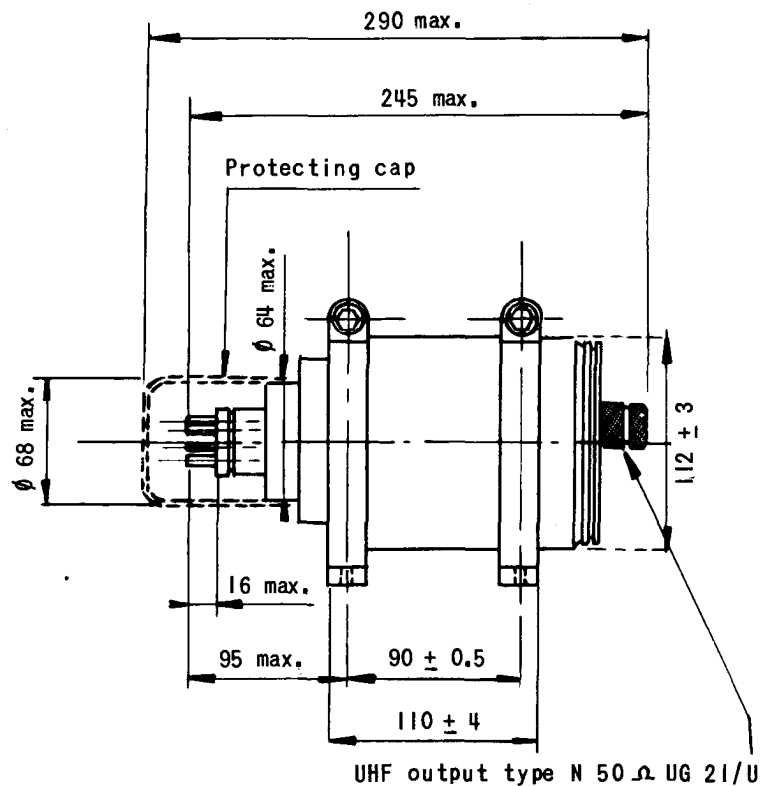
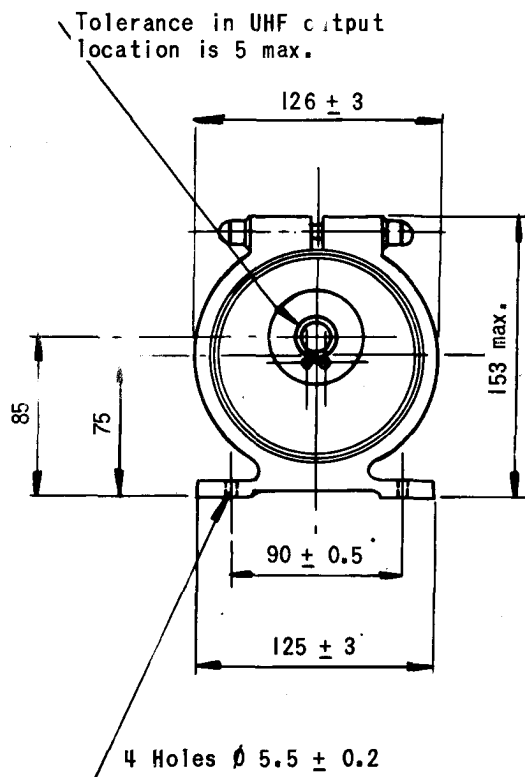
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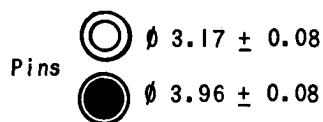
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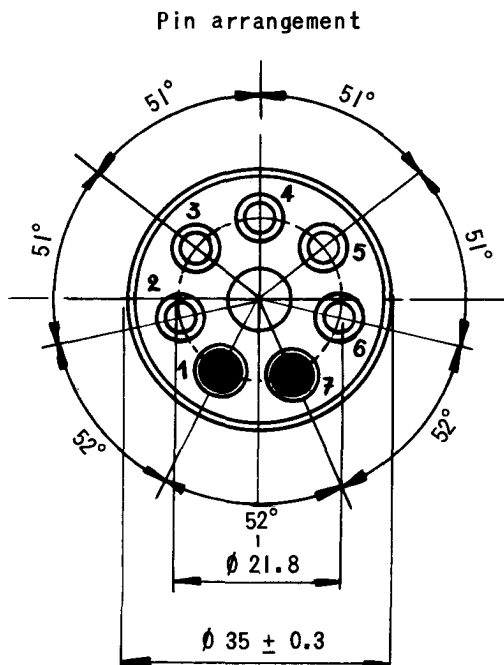
- 1- Filament
- 2- Cathode
- 3- Anode 1
- 4- Grid 1
- 5- Anode 2
- 6- Anode 2
- 7- Filament



Positioning plugs error
= 0.2

Net Weight: 14 lbs about

Dimensions in mm.



The angular tolerance of
the base is $\pm 15^\circ$ max.

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