

# Carcinotron



## CO 63



### CO 63

### 4,800 to 9,600 MCs

### WIDE ELECTRONIC TUNNING BAND OSCILLATOR

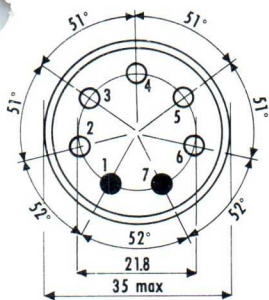
The "Carcinotron" CO 63 tube with integral magnet gives a power of about 15 to 150 mW between 4,800 and 9,600 Mc/s.

The frequency varies in a continuous manner as a function of line voltage without hysteresis or lack of oscillations. The frequency variation due to the pulling is very low.

The tetrode structure of the gun allows amplitude modulation or pulse operation by acting on the Wehnelt grid or anode voltage. Frequency modulation, by variation of the line voltage, requires a very weak power control.

TENTATIVE DATA

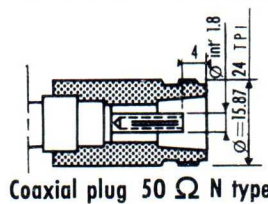
#### PIN ARRANGEMENT



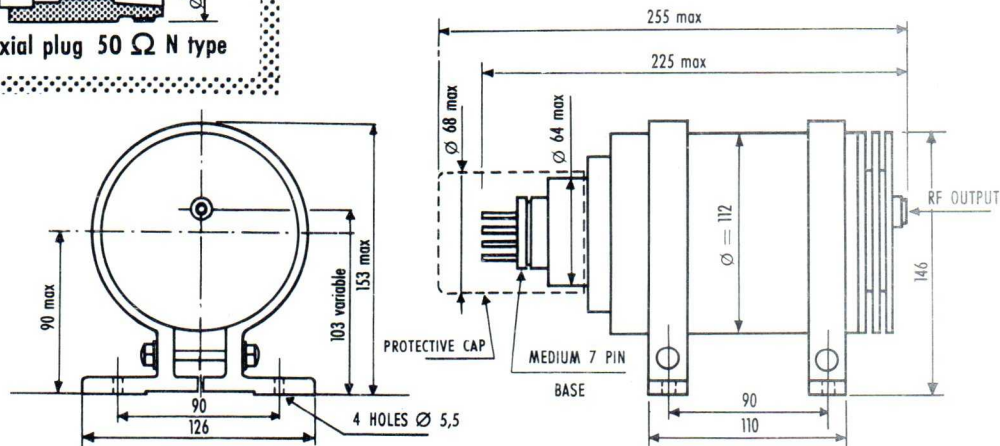
- 1 Filament
- 2 Cathode
- 3 Anode
- 4 Grid
- 5 Line
- 6 Collector
- 7 Filament

Net Weight : 5 kg.

#### RF OUTPUT



#### LAYOUT



DIMENSIONS IN MM

## COMPAGNIE GÉNÉRALE DE T.S.F.

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## GENERAL CHARACTERISTICS

Oxide coated cathode indirectly heated	
Filament voltage (V) . . . . .	6.3 ± 5%
Filament current (A). . . . .	2.1
Capacitances :	
Wehnelt grid to all electrodes (pF) . . . . .	14
Anode to all electrodes (pF) .. . . .	13
Line 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
Line voltage (V) . . . . .	1450
Line current (mA) . . . . .	35
Wehnelt grid bias (V) . . . . .	0 to 20
Collector line dissipation (W) . . . . .	42

## TYPICAL OPERATION

Wehnelt grid voltage (V) . . . . .	0
Line and collector voltage (V) . . . . .	170 to 1400
Line and collector current (mA) . . . . .	10 to 30
Anode voltage (V) . . . . .	50 to 250
Anode current (mA) . . . . .	0 to 10
Output power (mW) :	
at 5,000 Mc/s . . . . .	≥ 15
at 6,000 Mc/s . . . . .	≥ 30
at 7,800 Mc/s . . . . .	≥ 60
at 8,000 Mc/s . . . . .	≥ 80
at 9,000 Mc/s . . . . .	≥ 100
at 10,000 Mc/s . . . . .	≥ 150

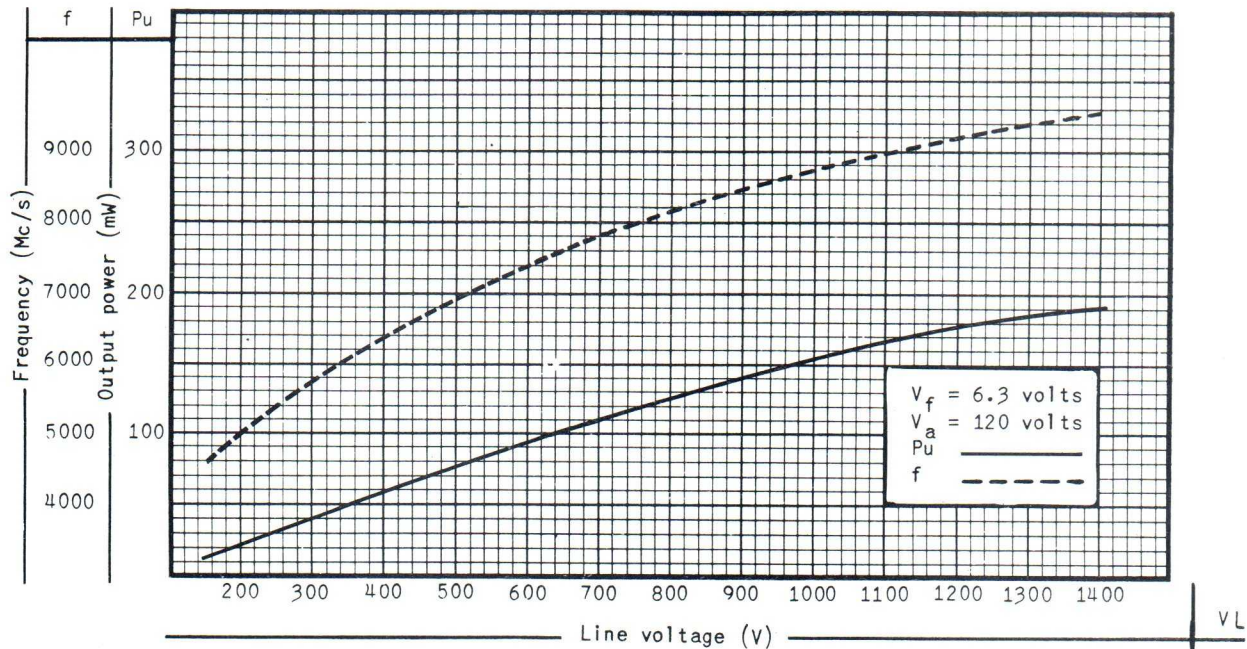
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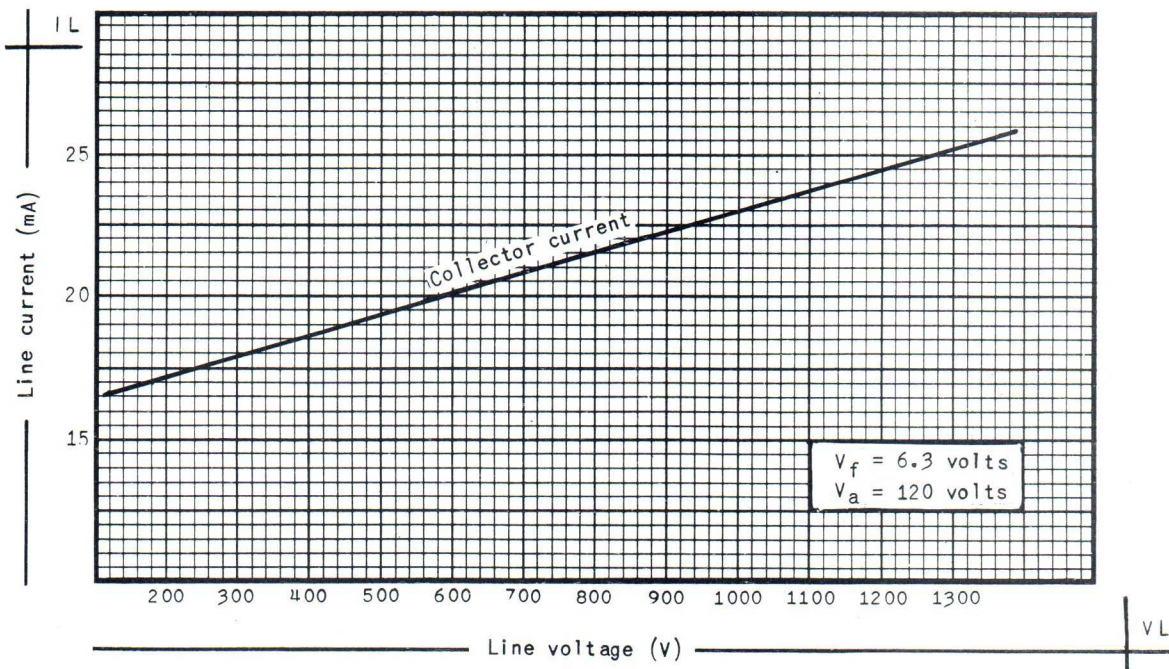
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# CHARACTERISTIC CURVES

POWER AND FREQUENCY AS A FUNCTION OF LINE VOLTAGE



LINE CURRENT AS A FUNCTION OF LINE VOLTAGE



# OPERATING DIRECTIONS

## **SETTING UP**

First start up the tube cooling blower, then apply heater voltage for two minutes before applying the high voltages in the following order :

- Wehnelt grid voltage
- Line voltage
- Anode voltage

Follow inverted order to stop the tube.

For initial adjustment, apply moderate voltages, for example :  $V_l = 400$  V and  $V_a = 150$ , and ascertain that operation is correct before establishing normal service.

NOTA : By structure, the external housing is electrically connected to the line and to the collector available at the pins 5 and 6 of the base.

## **INSULATION**

The tube body being grounded, the cathode and filament reach a negative voltage of about 1500 V.

## **FILAMENT HEATING**

It will often be of interest to feed the filament with direct current (by rectifier or even battery) in order to reduce hum or spurious frequency modulation.

## **LOADING**

Although oscillation frequency is independent from the load (no pulling), it is advisable to take benefit of all advantages, of the "Carcinotron" employed as frequency modulated oscillator, that the load fulfils certain conditions as :

- a)- Standing wave ratio (measured on coaxial outlet) inferior to 2 in the modulation band.
- b)- Tube-load connection line as short as possible, in order to prevent distortions by phase modulation, which are proportional to line electric length multiplied by modulation frequency, and which could become important when the latter is high.

## **MISCELLANEOUS**

When storing or putting the tube into operation, indispensable precautions should be taken to prevent damage of magnetic field. For that, ferro-magnetic materials (as frames, screwdrivers, keys, etc...) should not approach the carcinotron less than 10 centimeters. In case of devices producing magnetic fields (transformers, permanent magnets, etc...) this distance should be 15 centimeters. All dismantling operations which might modify the mechanical adjustment of the system and hence the performance of the tube should be avoided.

**COMPAGNIE GÉNÉRALE DE T.S.F.**

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