

The HF TRANSFORMER Experiment

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See the latest update 07-01-01 : [HF Transformer - Part 2](#)



INTRODUCTION

There are two ways of travelling waves (HF; longitudinal waves) propagation in coax cable. Open and closed circuit propagation. In the first case we have max. current on the 0.25 wave length, which is analogy of the serial connection of L-C circuit. In the second case we have min. current on the 0.25 wave length, which is analogy of the parallell connection of L-C circuit.

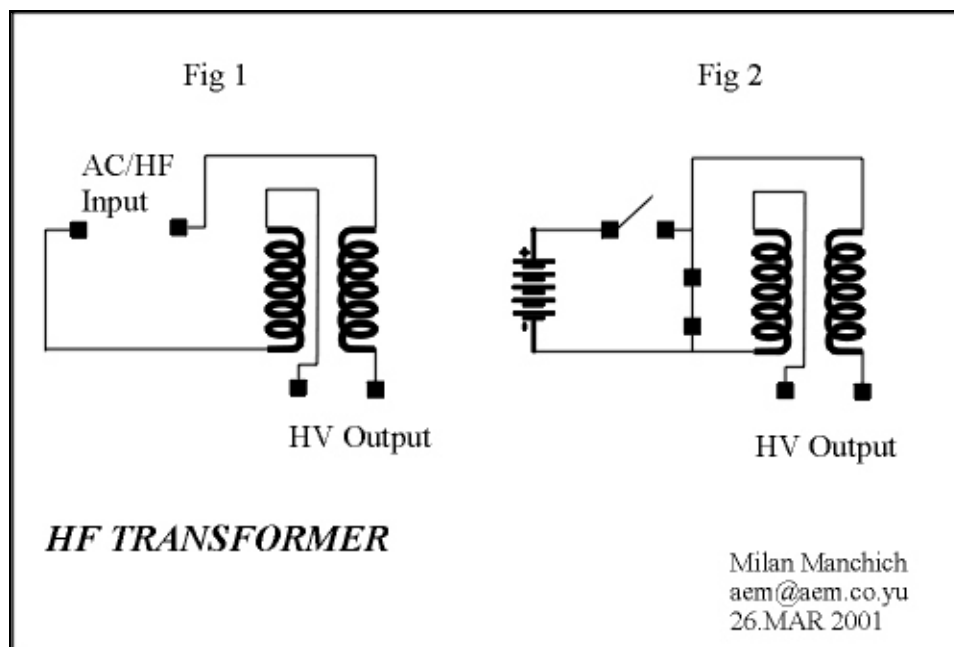
This was the base of my HF Transformer.

DESIGN

For this transformer we can use ordinary bifilar coil or flat ,spiral bifilar coil, like Tesla did and presented in his patent [No.512 340](#).

The Only difference is that we are not using common terminal of coils. We will treat the coils like a capacitor.

We can use AC/HF input or DC pulses . See pictures below :



According to the pictures above, we have two free terminals.

Fisrt step is to find resonant frequency for this coil/capacitor When we found resonant frequency we have max. current from power source.

But we have high voltage on the free terminals. Value of voltage and current depends of L-C parameters. When we make short connection between the free terminals we will notice current drop from the power source. This is a second case of longitudinal waves propagation with min. current. There is no point using just this coil like a transformer. But if we add a capacitor for collecting high voltage we can notice several strange and interesting effects which I will describe in more details...

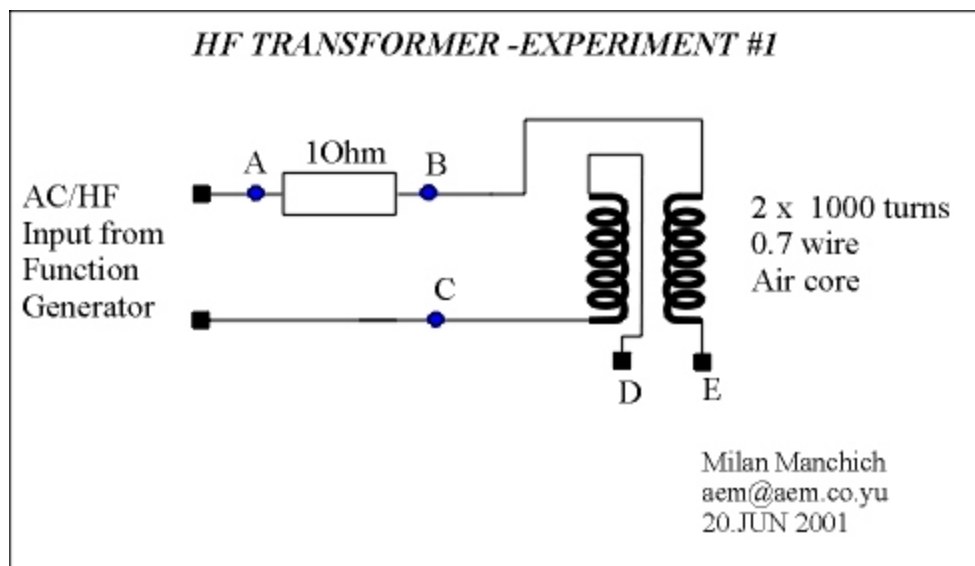
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June 21, 2001

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HF TRANSFORMER : 1st serie of experiments

BASIC CIRCUIT

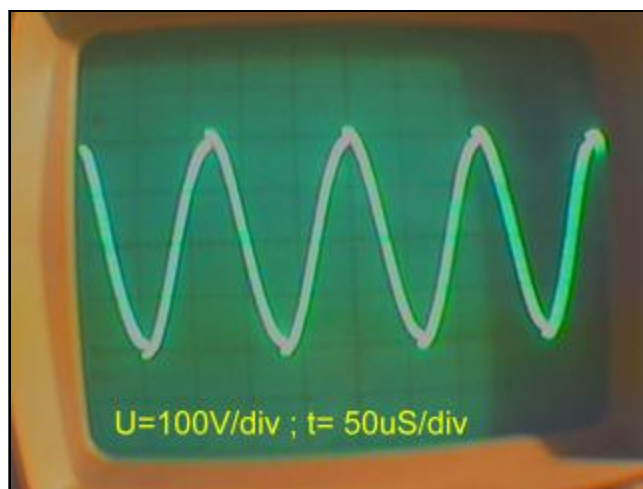


COIL :

- **2 X 1000 TURNS**
- **WIRE=0,7 mm diameter**
- **DIMENSIONS: diameter 50 mm, Height 55 mm**

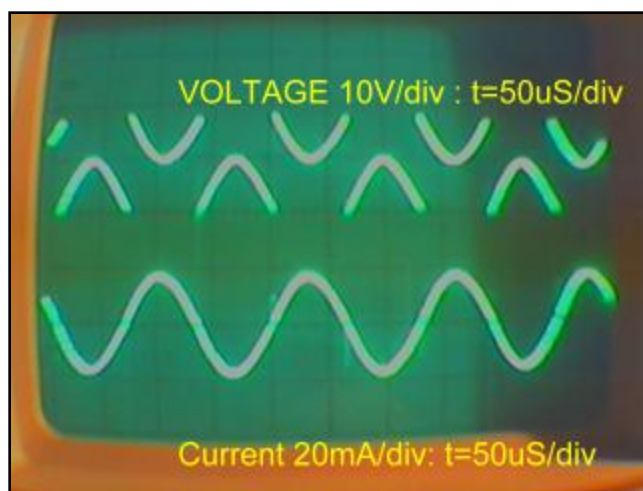
EQUIPMENTS :

- **SCOPE: HAMEG HM 305**
- **FUNCTION GENERATOR : FG1617 (10 V OUTPUT AMPLITUDE)**
- **RESONANT FREQUENCY: 7.831 kHz**
- **VOLTAGE BETWEEN FREE TERMINALS "D" AND "E" : 200 V**



BELOW : CURRENT "A"-"B", VOLTAGE "B"-"C"

Please notice how voltage curve looks like. It is similar what Ron Cole has with Bedini motor voltage output.

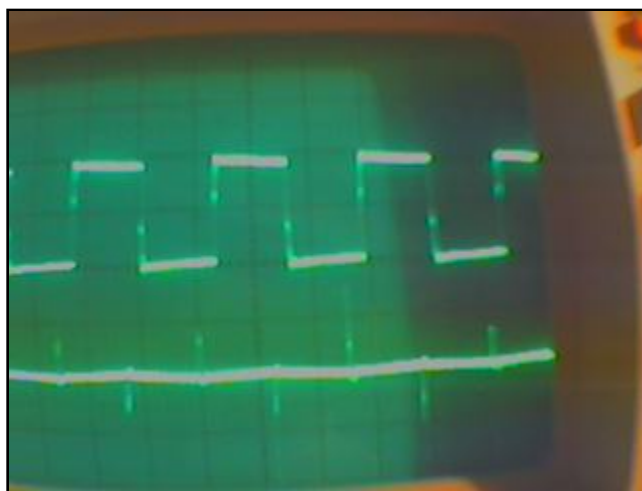


Below : SHORT CONNECTED TERMINALS "D" AND "E"

VOLTAGE 10V/div

CURRENT 20mA/div

T=50 microS/div



You can notice very clear, that current drops to the minimum value. The Voltage transformed to the initial wave form.

Now we can connect bridge rectifier on the free terminals and collecting capacitor. The Capacitor will charge to 200 V.

The Current will start like shown current for short connected terminals D and E, because the empty capacitor works like short connection during the first connected moment. While the charge is rising in the same time the current will rise to the maximum.

When we have a fully charged capacitor , the current and the voltage look as the picture showies above with maximum current.

Whit this circuit I can charge 470 microF/375 V capacitor for 65 seconds.

After this I can discharge the capacitor by 230V/60W bulb.

The time of charging starts very quickly up to 70V, then it slows down to 150 V, after it goes faster to the end.

If we connect the resistor (from 10k- 68 k) in seria with collecting capacitor, then charging speed is constant and about 10 seconds less is needed.

We can this explane so that the resistor helps to have constantly maximum current (see the statement from the previous page).

The next experiments will be with different coils and power source.

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See the : [HF Transformer - Part 2](#)

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