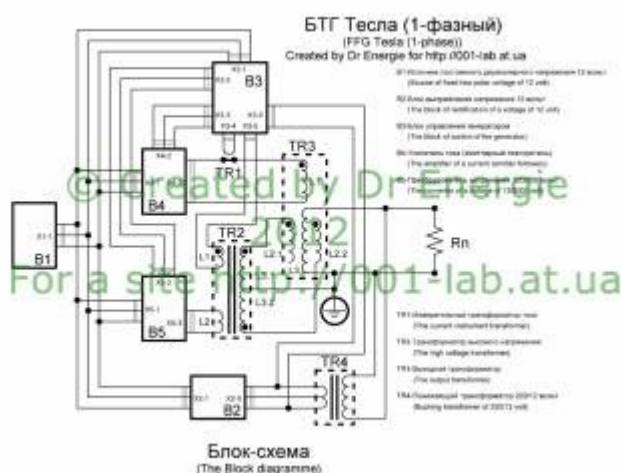


One of these days has received the letter from the person under anybody Dr Energie. He has written, that wishes to lay out on my site the circuit without the fuel oscillator, named it FFG Tesla (1-phase).



(The description of blocks applied in the given adjustment):

electrolytic filter capacitors of the big capacity also are applied.)

**B3 (Block B3):**

(It is the most responsible block, he watches work of all device. In this block are: a master oscillator of an industrial frequency of 50 (60) hertz, the circuit of tracking a current of the oscillator of a current (B4), the circuit of tracking presence of a high voltage of the corresponding oscillator (B5), the circuit of the control and output voltage regulation on transformer TR3 output, indication of a condition of all device.)

**B4 (Block B4):**

(The block is represented by the amplifier of a current executed under the circuit of an emitter follower. The given block works on the low-impedance winding L1 of an output transformer TR3.)

**B5 (Block B5):**

(The block represents the converter of a low voltage of 12 volt in a high voltage of 3000 volt. It is executed under the emitter follower circuit. The given block works on the low-impedance winding L2 of output transformer TR2.)

**(Transformer TR1):**

(The transformer represents a usual measuring transformer of a current, the parity of windings 1:100 is wound on usual transformer iron. It is possible to replace with the measuring shunt.)

**TR2 (Transformer TR2):**

(The boosting transformer about 12 volt on 3000 volt. Dimensional power of 10-30 watt. It is wound on usual transformer iron, for convenience it is better to take the core armored tape. Windings for reliability are wound on opposite cores, as on an output transformer of a line scan of the TV set. The high-voltage winding is better for winding on the partitioned skeleton, as in some neon transformers. A parity of turns L1:L2:L3.1:L3.2 1:1:250:250.)

**TR3 (Transformer TR3):**

(It is a key element in this device, so to say heart of all system. While I can tell only one, in it the core is not applied, is not present what artful windings. He also cannot be calculated as the usual classical transformer. Details about it in the corresponding description of the given transformer.)

**TR4 (Transformer TR4):**

(The usual lowering transformer about 220 volt on 12 volt with a midpoint. Power of the transformer of 40-60 watt. It is possible to apply the ready lowering transformer on 50 (60) hertz which has two output windings on 12 volt.)

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### **B1 (Block B1):**

(It even the block to name difficult. In it two accumulators on 12 volt in capacity of 7 amperes of hours. Two diodes carry out protective function, turn out accumulators from the device after its start-up. As the mechanical cutout is provided.)

БТГ Тесла (1-фазный)  
(FFG Tesla 11-phase)  
Created by Dr Energie for <http://001-lab.at.ua>



Блок В1  
(Block B1)  
Временное устройство для подключения к сети 12 вольт  
(Temporary device for connection to 12 volt network)

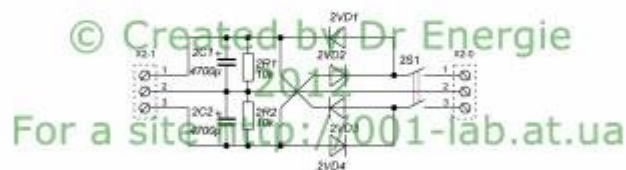
001-Lab

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### **B2 (Block B2):**

(This block represents the usual full-wave rectifier executed on a bridge circuit. On a rectifier output there are two filtering capacitors of the big capacity. Capacitors are bypassed by resistors for their discharge when installation is switched off. Because of a small voltage on a rectifier output, nearby 14 volt, necessities for them are not present, therefore resistors can to be put.)

БТГ Тесла (1-фазный)  
(FFG Tesla 11-phase)  
Created by Dr.Energie for <http://001-lab.at.ua>



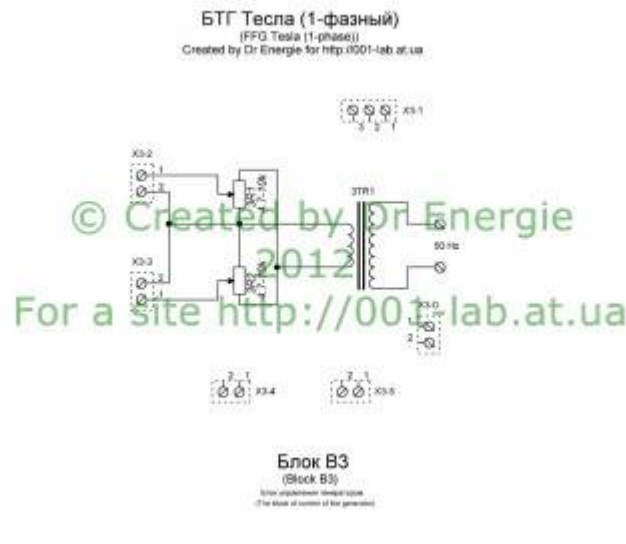
Блок В2  
(Block B2)  
Блок для стабилизации напряжения (11 фаз)  
(The block of stabilization of a voltage of 11 phase)

001-Lab.com

### **B3 (Block B3):**

(The given block on the circuit is drawn in the simplified kind, but there is enough that the device worked. In it there are circuits of the control and output voltage stabilisation, and as no control of work of other blocks. The transformer 3TR1 the network lowering transformer on 10-12 volt, power of 5-10 watt. Variable resistors 3R1 and 3R2 regulate terminal voltage X3-2 and X3-3.

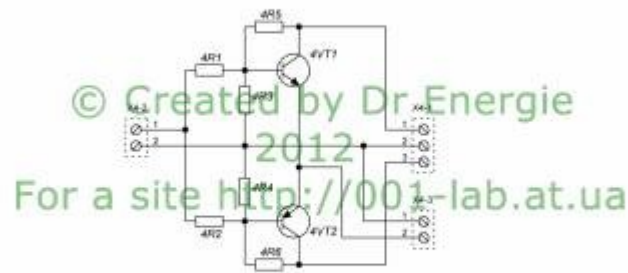
In more perfect device this block has complex circuitry, and is carried out on the microprocessor and other specialised IC. It is possible to execute on the discrete elements, but the circuit will be more complex. This block heart of all installation, from it depends correct work of the device.)



#### **B4 (Block B4), Блок В5 (Block B5):**

(These two blocks carry out an identical problem, therefore circuitry at them identical. In drawing the circuit only one block B4 is more low presented. The block represents the emitter follower circuit which output works on the low-impedance load. The load represents windings of transformers: for block B4 winding L1 TR3, for block B5 winding L2 TR2. Resistors 4R1 and 4R2 limit a current through base of transistors. Resistors 4R3, 4R5 and 4R4, 4R6 represent potential dividers which set an operation mode of transistors. Pay off as for the usual amplifier executed under the circuit of an emitter follower. Transistors 4VT1 and 4VT2 bipolar transistors, represent complementary a couple, that for this such search on the Internet. Transistors should be calculated on a voltage not more low 50 volt and a current not less than 5 amperes, for reliability reasons. Are established on dissipators by the area about 250 square centimetres.)

БТГ Тесла (1-фазный)  
(FFG Tesla (1-phase))  
Created by Dr.Energie for <http://001-lab.at.ua>



Блок В4  
(Block B4)  
Телевизионный усилитель (Television amplifier)

### TR3 (Transformer TR3):

(The transformer is spooled on a dielectric skeleton, approximate diameter of a skeleton of 50-75 millimetres, a length of 200-250 millimetres. The skeleton from a plastic sewer pipe in diameter of 50 millimetres quite will approach. There are some variants of winding of the transformer, two of them are shown more low.

#### Variant 1.

The first wind windings L2.1 and L2.2. Winding is made by a ganged cable, the usual twin-cord, planar cable in single isolation will approach. Section of a vein of a cable of 0 square millimetres. Winding is made in one number to half of skeleton.

The second is wound winding L3. Winding is made usual powered, a soft cable.

Section of a vein of 4-6 square millimetres. Winding is made in two ranks to half of skeleton. A winding direction same, as well as windings L2.1 and L2.2. Between windings isolation by thickness of 1-2 millimetres is laid.

On second half of skeleton winding L1 with a space from windings L3, L2.1 and L2.2 approximately 3-5 millimetres is wound. The space is applied to a voltage breakdown exception. Winding is made usual powered, a soft cable. Section of a vein of 1 square millimetres. Winding is made in two ranks before skeleton filling.

#### Variant 2.

The first winds winding L2.1. Winding is made usual powered, a soft cable. Section of a vein of a cable of 0 square millimetres. Winding is made in one number to half of skeleton.

The second is wound winding L3. Winding is made usual powered, a soft cable.

Section of a vein of 4-6 square millimetres. Winding is made in two ranks to half of skeleton. A winding direction same, as well as windings L2.1 and L2.2. Between

windings isolation by thickness of 1-2 millimetres is laid.

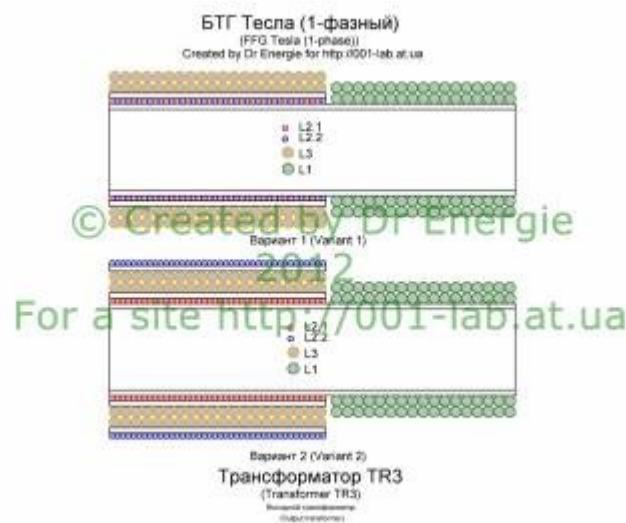
The third winds winding L2.2. Winding is made usual powered, a soft cable. Section of a vein of a cable of 0 square millimetres. Winding is made in one number to half of skeleton. Between windings isolation by thickness of 1-2 millimetres is laid.

On second half of skeleton winding L1 with a space from windings L3, L2.1 and L2.2 approximately 3-5 millimetres is wound. The space is applied to a voltage breakdown exception. Winding is made usual powered, a soft cable. Section of a vein of 1 square millimetres. Winding is made in two ranks before skeleton filling.

### **The simplified variant.**

This variant differs from a variant of 2 that winding L2.2 is not wound. Varies as transformer TR2, winding L3.2 is excluded from it. In such variant the installation output power but as the variant too approaches decreases.

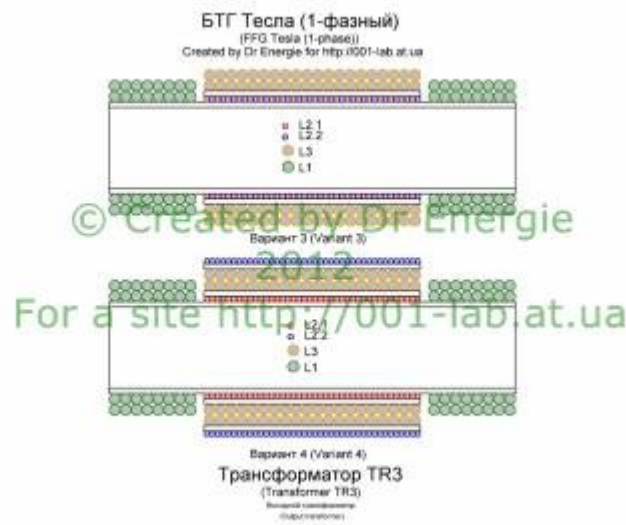
Quantity of turns here not the main thing, target parametres of a voltage and a current are regulated by blocks B4 and B5. Here the big role is played by an arrangement of windings, is defined experimental by. To calculate parametres of this transformer it is not obviously possible yet, there are no necessary formulas. It not the usual transformer. Work of this transformer will be considered further, as a part of all device.)



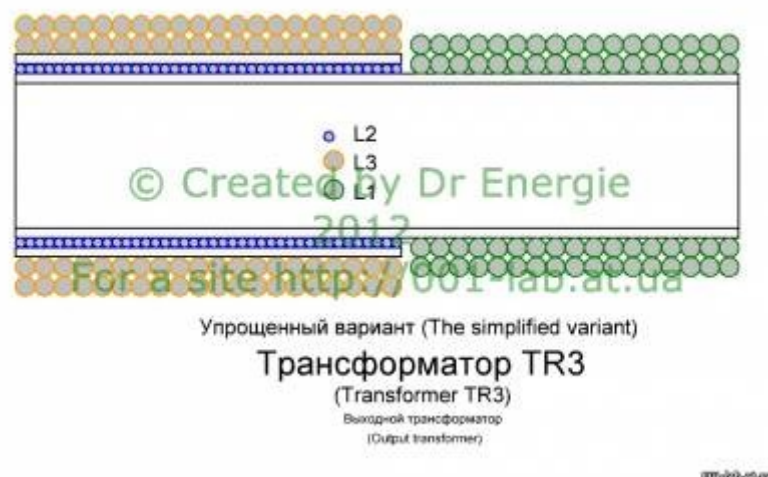
(Two more variants of output transformer TR3.

From first two variants differ with an arrangement of windings. In the detailed

description of these two variants there is no necessity. They are practically identical described above, except for one. Winding L3 breaks on two parts. These two variants more optimum in comparison with the first.)



(The description and principle of work of the device):



(Now I will try to describe device work how I understand it. Probably, it was necessary to begin with it, but has decided to lay out at first the device circuit, and then the description of its work. The work principle does not apply for true, it only my understanding on which the device is constructed. The sense of work is simple,

constructed by a principle «Divide and dominate».

At first about that we wish to receive from the device. Certainly, power which is expressed by formula  $P=U \cdot I$ . That is two making  $U$ -pressure and  $I$ . It is the classical formula which is considered at school. This formula is fair both for the oscillator, and for the consumer. And in the oscillator it is meant, that the voltage and a current belong to one source (oscillator) and the case when the voltage belongs to one source is not considered anywhere, and the current belongs to other source. It seems absurdity.

Let's consider an example when the voltage and a current belongs to different sources. We will admit, at us is Source-1 100 volt and 0.1 amperes and Source-2 1 volt and 10 amperes. Each of them at such parametres puts out on 10 watt of power, in the sum of 20 watt. We will assume, that we somehow could allocate power of these two oscillators on one consumers, thus from the first source we took the first component of power - a voltage, from the second source took the second component of power - a current. The power formula has taken following form  $P=U \text{ (a source 1)} \cdot I \text{ (a source 2)}$ . As a result at us on a load power  $P=100 \cdot 10=1000$  watt was allocated. It also is a principle «Divide and dominate».

How we can divide on two making power of a source? With it problems are not present. It can be made by means of two converters, one of which establishes a high voltage and the small current, the second on the contrary, establishes the big current and a small voltage. The circuitry of such converters is widely known and various. In the given device block B4 puts out a small voltage and the big current, block B5, the big voltage and a small current. The circuitry of blocks is identical and executed under the emitter follower circuit (the current amplifier). This circuit allows to work on the low-impedance load which windings of transformers L1 TR3 for block B4 and L2 TR2 for block B5 are.

Now we should unite a voltage from block V5 with a current from block V4. This association occurs in output transformer TR3. The simplified variant of an output transformer (look drawing Transformer TR3) is more low shown.

It is inductance-capacitor the transformer. Windings L2, L3 represent capacity, between them there is a capacitor coupling, therefore this part of the transformer it is possible to name capacitor the transformer. Windings L1, L3 form the inductive transformer with a small induction coupling. Influences of windings L2 and L3 among themselves do not occur almost. A capacitor coupling between them very small, because of a relative positioning. An induction coupling same as between L1 and L3, but in winding L2 it is few current as a circuit of winding L2 it is opened for a current. It is a lot of variants of performance of an output transformer, the best variant can be defined experimental by.)

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(Variations and additions):

(During probing it was found out, that it is possible to simplify some parts of system. It concerns the high-voltage transformer. Look drawings «Circuit of junction of transformers TR2-TR3».

It concerns transformer TR2 output winding. The Output winding is carried out by one section L3, instead of as earlier L3.1 and L3.2. Needs for two sections of windings are not present. As it was found out, that the second lead-out of a winding which has not been connected earlier, it is possible to connect to other lead-out of a winding. Also it is possible to replace a winding with a tube of necessary diameter with a cut lengthways (this variant was not checked yet). Circuits with variations are shown on the Variant 1 and the Variant 2.)

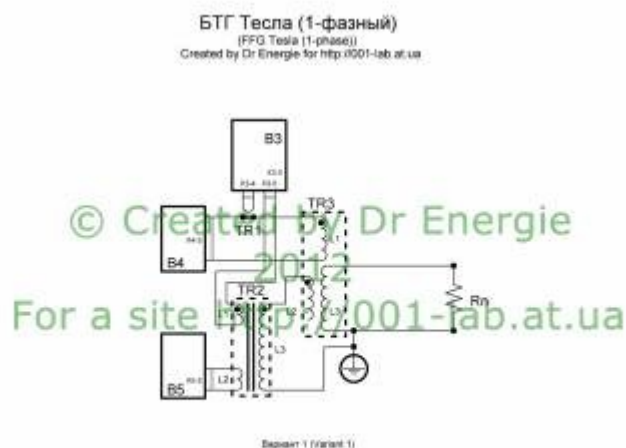


Схема соединения трансформаторов TR2-TR3  
(The circuit of junction of transformers TR2-TR3)

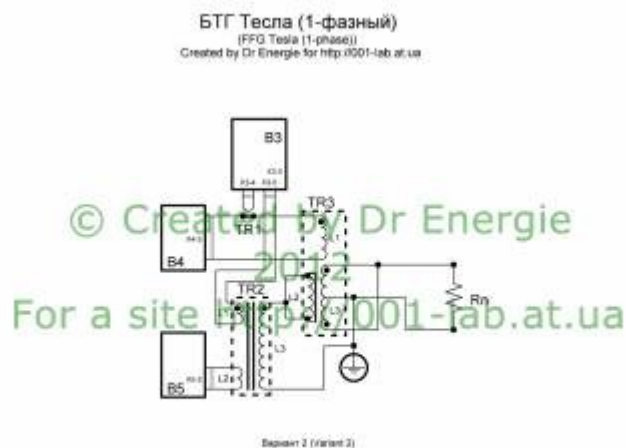
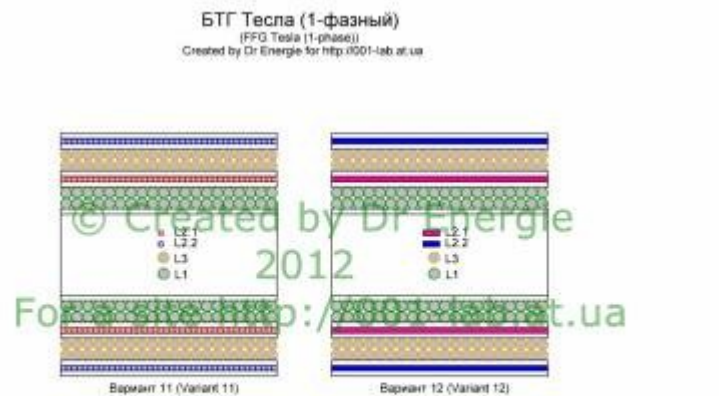


Схема соединения трансформаторов TR2-TR3  
(The circuit of junction of transformers TR2-TR3)

(More low two drawings, on one «the Circuit of junction of transformers TR2-TR3», on the second variants of winding of output transformer TR3. This variant was not checked yet. In explanatories, I think, there is no necessity, from drawings all is clear.)



Трансформатор TR3  
(Transformer TR3)  
Варианты соединений  
(Output transformer)

Variations in the circuit of blocks B4 and B5. By mistake not correctly were transistors are drawn, they should be changed places. The circuit in the message is replaced with the correct. Thanks the user **panya78** , for noted error.

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One more important addition. For the period of experiments, to consistently output winding L2 of transformer TR2 to put resistance on some megaohm. As put in TV sets on an output of the high-voltage transformer of a line scan. In case of an insulation breakdown it will limit a current through a high-voltage winding.

Adapted by Vadim Ganzha

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