

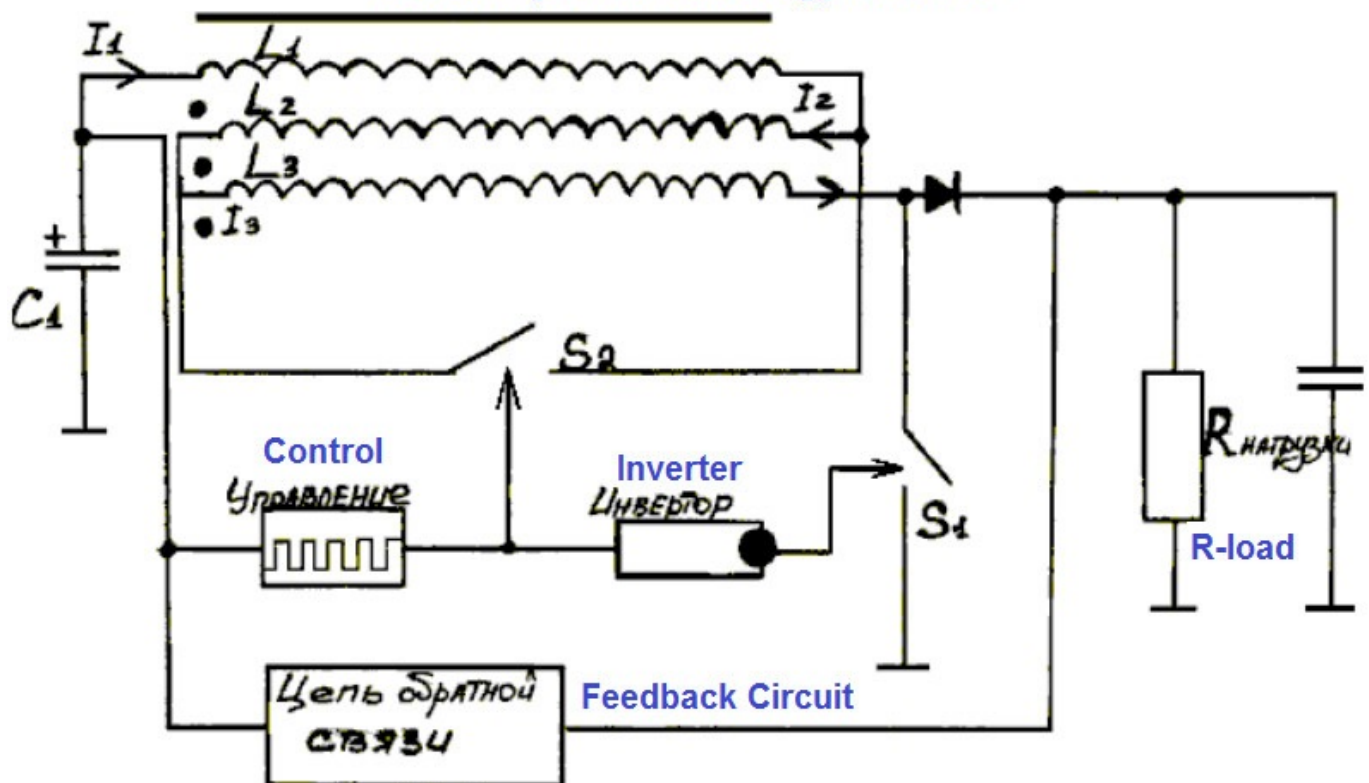
## English translation of: Выпил я как-то пивка и пришла мне идея.doc

For about two years, I've been frequently reminded of this article circulating online.

### Energy Generator with Nonlinear Inductance

A device was developed and assembled with an efficiency greater than 1. It operates in a self-sustaining mode, generating a tremendous amount of energy that powers an incandescent bulb. ... Valery (free-energy@list.ru).

Блок схема преобразователя энергии  
Block diagram of the energy converter



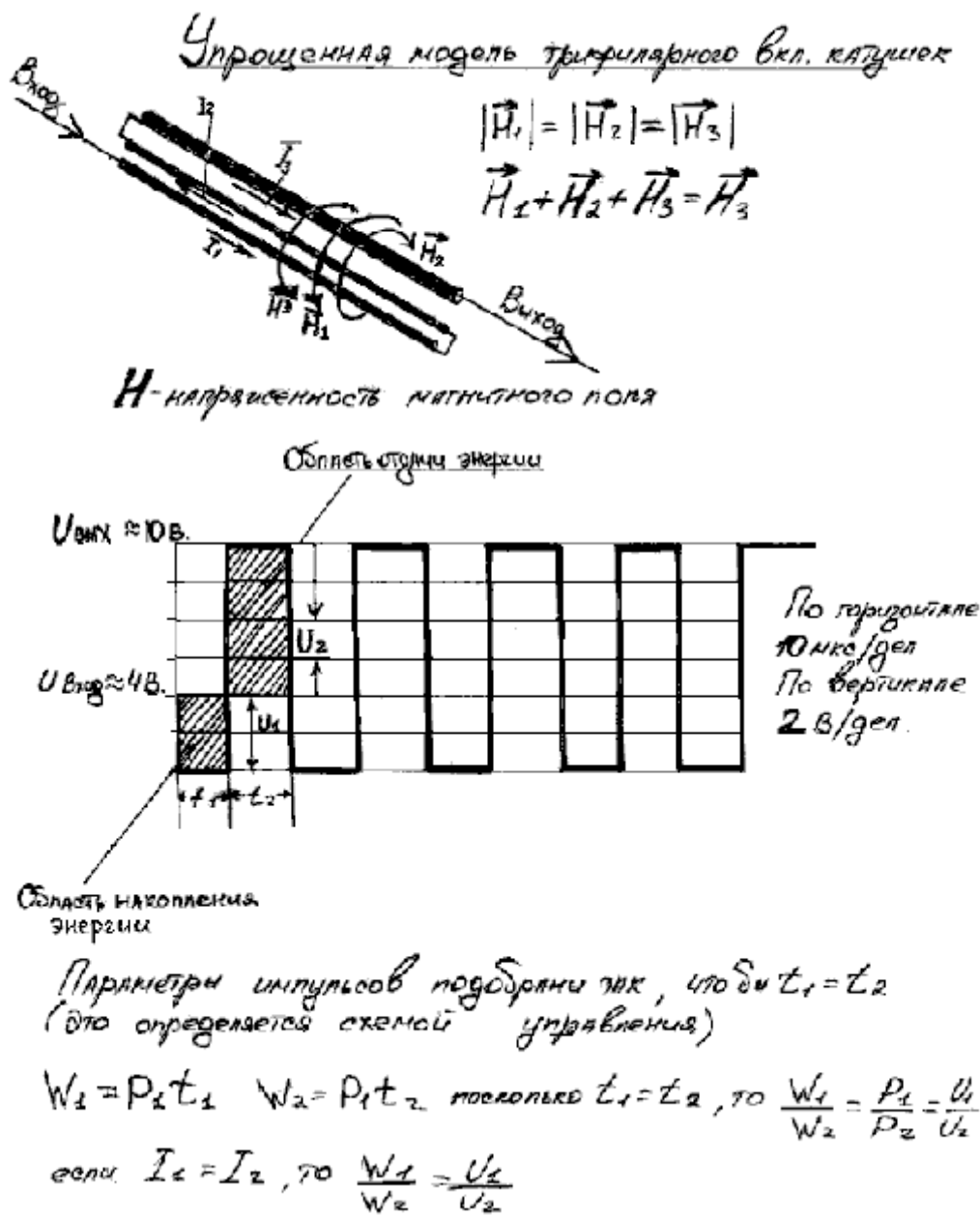
#### At time $t_1$ :

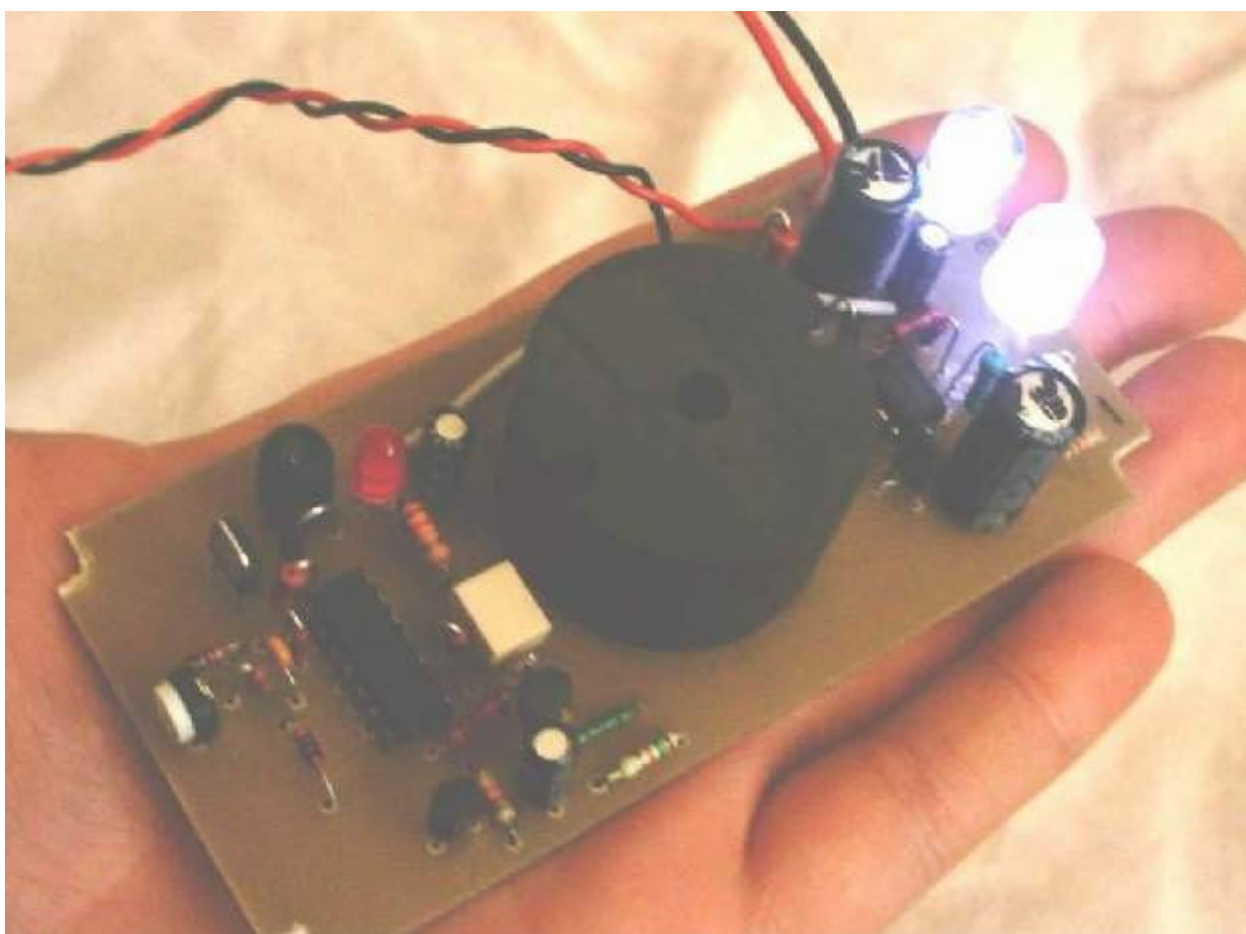
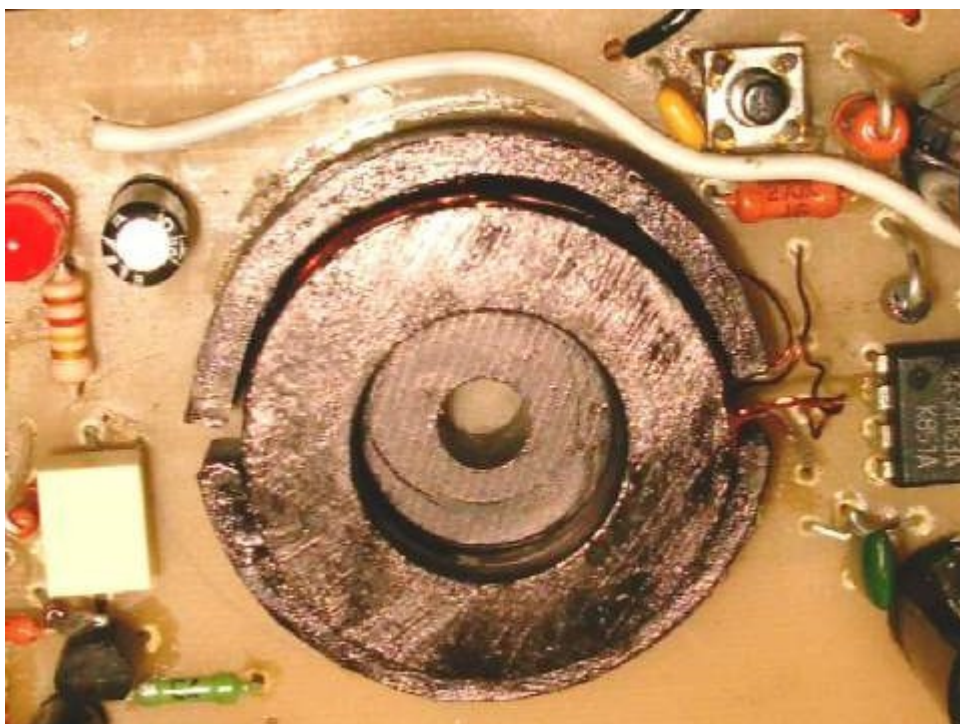
The current from the pre-charged capacitor  $C_1$  flows through  $L_1$ ,  $L_2$ , and  $L_3$ , with switch  $S_1$  closed. At the same time,  $S_2$  is open. Since  $L_1$  and  $L_2$  are connected in anti-phase (meaning energy accumulation in  $L_1$  and  $L_2$  does not occur, as their magnetic fields cancel each other out), energy accumulation takes place in coil  $L_3$ .

#### At time $t_2$ :

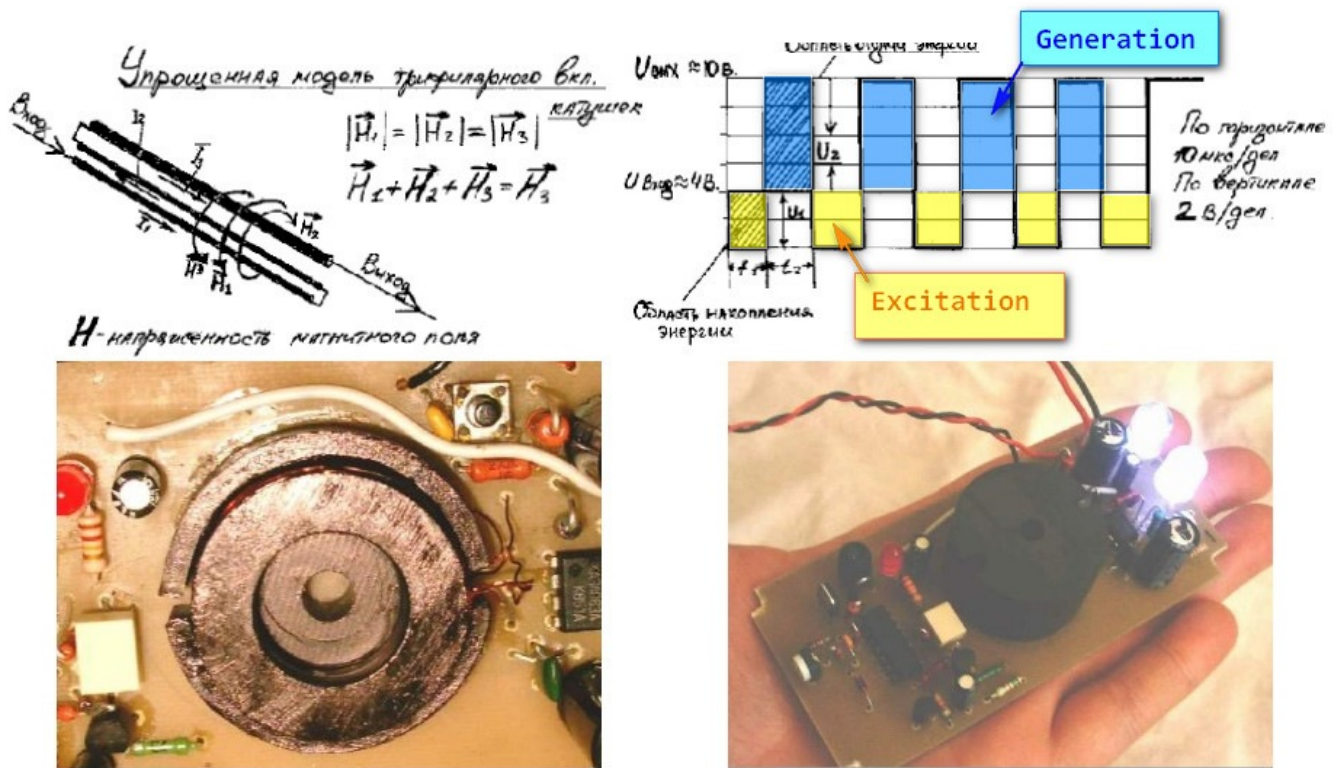
Switch S1 opens, and switch S2 closes. As a result, an EMF appears in coils L1 and L3 (since S2 is closed). Coils L1 and L3 are in-phase (while in anti-phase, the EMFs cancel out, but in in-phase, they add up). Since the current in the coils is the same, we consider the generated EMF at time t2 to be twice the energy spent on accumulation at t1.

This description represents one cycle of the coil's operation. The control circuit ensures repeated cycles of this process, with a feedback loop returning some of the power to the circuit's input for subsequent cycles. The additional power generated is used by the load R.





Extra colorized picture:



So! One day I was drinking a beer, and an idea came to me!

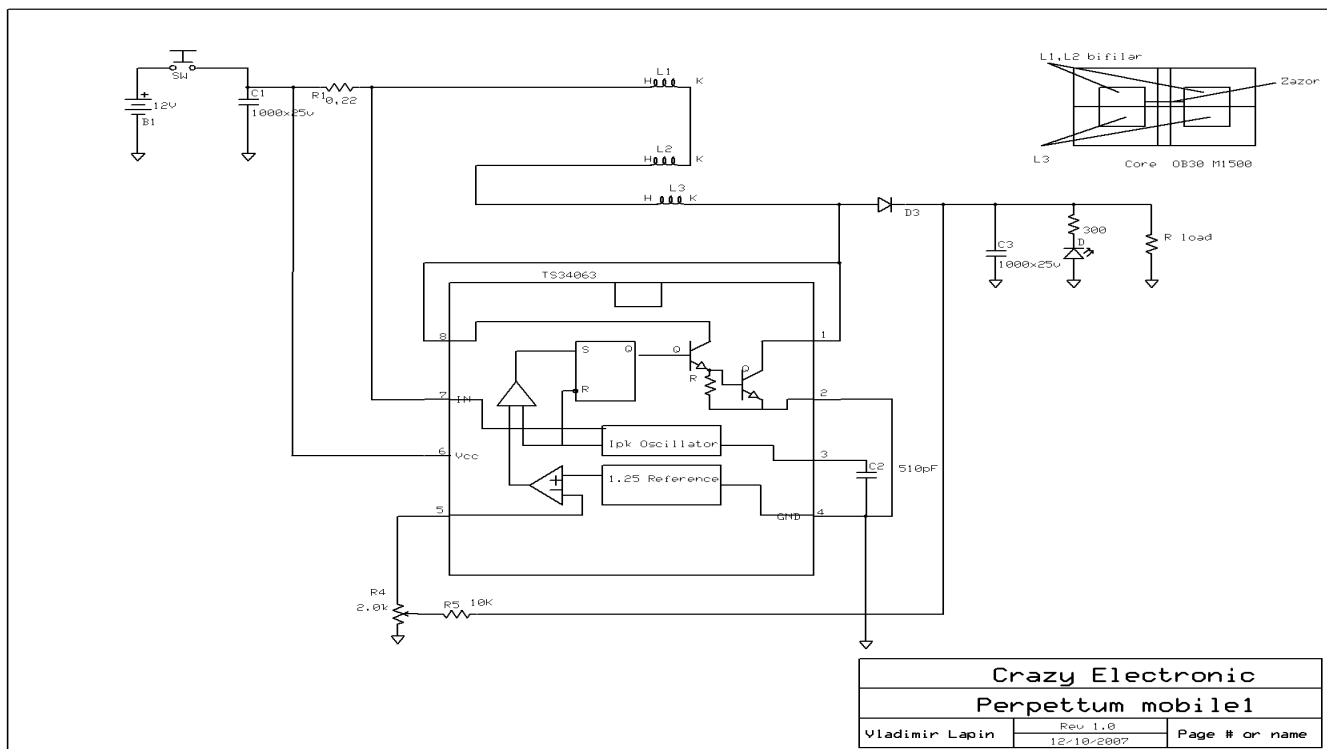
Come on, guys! The Slavic spirit has grown stagnant, lost in idle talk, the search for money, and bodily pleasures! Let's tackle the serious reverse engineering of Valery's suggested design. There is actually quite a bit of information provided, even if it may not seem so at first glance. Let's assume the device actually exists and works. The theory is explained quite clearly and possibly accurately, though certain key points may not be emphasized. To understand it fully, I recommend you read the original description of the device carefully several times and closely examine the photos provided by the author.

Let's begin!

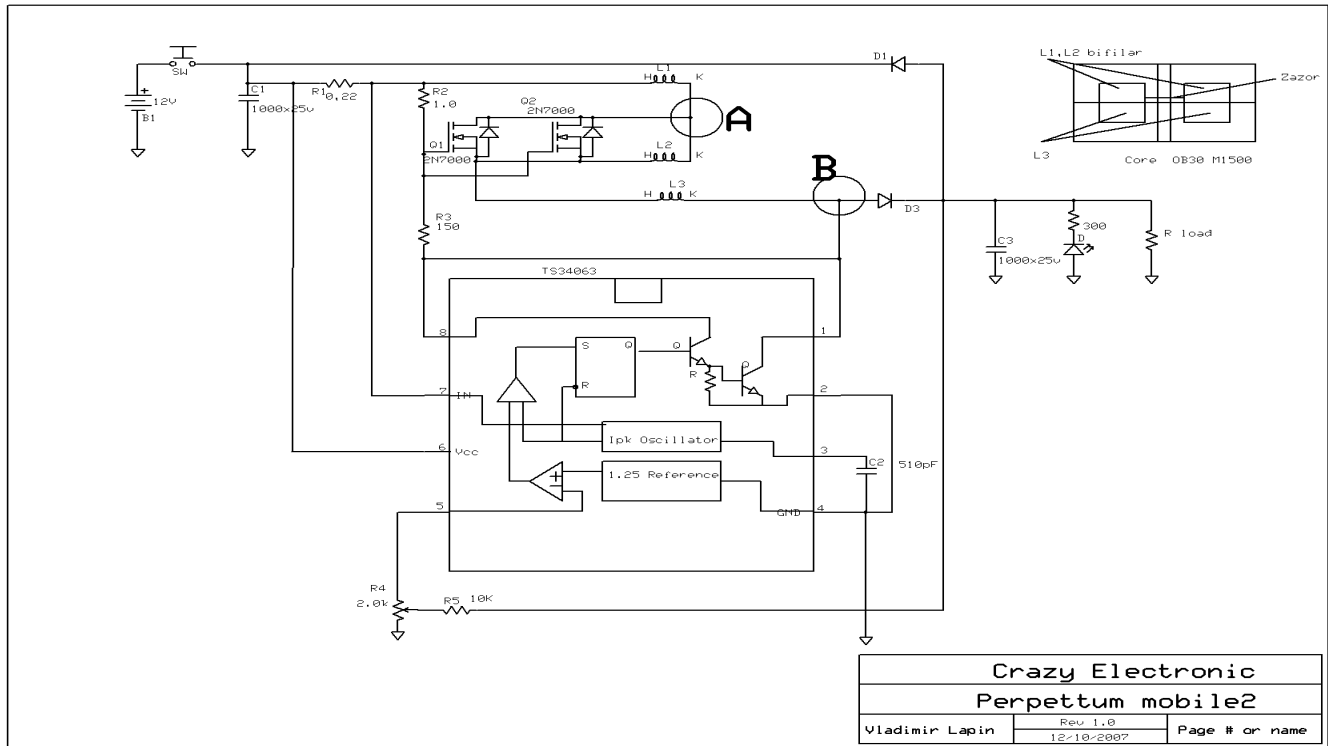
The first thing to note is that the KA34063 chip is clearly used in the device. This chip includes a reference voltage source, a comparator that compares the reference voltage to the output (via a divider), and a control output for the internal generator, which drives a 1.5 A power switch. This chip is very typical for a single-ended flyback converter and, according to the author's theory, is configured as a Step-Up (boost) converter where  $U_{in} \geq U_{out}$ . This chip seems to be the foundation of the device. Evidently, it can't operate without an inductor. Judging by the photos, there's only one inductor present, in the form of a trifilar coil on a pot core. So, it's likely that the

KA34063 (TS34063) chip functions as switch S1. For proper operation, the following should accompany the chip:

- a) An inductor - L1+L2+L3+ diode + electrolytic capacitor + load resistor R.
- b) A 510 pF timing capacitor Ct.
- c) A pot core OB30 M1500 with 3 windings (50 turns each of 0.35 mm wire, inductance: 3 x 716  $\mu$ H) on a two-section bobbin (standard for this type of core). Bifilar windings L1 and L2 are on one section, and L3 is on the other. There's also an air gap of 0.5 mm (as the theory suggests).
- d) Plus other necessary components (refer to application note AN920 on <http://onsemi.com> for chip use).



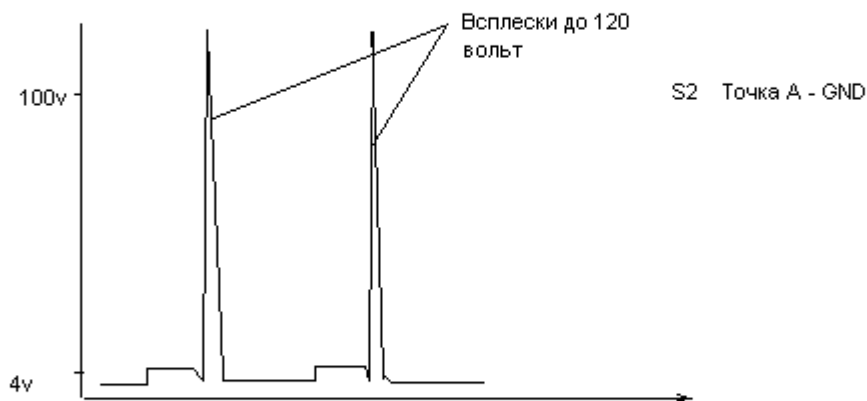
The circuit is starting to take shape. No objections to the KA34063 as S1, right? It fits nicely. Moving on, we need switch S2. Let's follow the author's theory and insert a MOSFET.



I happened to have some 2N7000 MOSFETs rated at 500 mA, so I used two in parallel (this halved the channel resistance from 5 to 2.5 ohms).

The circuit should work in theory, but probably won't. From the photo, there's another 14-pin chip with some supporting components: an adjustable resistor, a capacitor (this is part of the timing circuit), and a few resistors. We'll get to this in time.

I tried turning it on, but of course, it didn't work as expected! Points A and B showed readings on the dual-trace oscilloscope (C1-99) that were unusual. Frequency was about 2 kHz, with a duty cycle of around 5, which doesn't match the author's data. The duty cycle should be 2, with a frequency around 100 kHz.



Осциллограммы сделаны на двухлучевом С1-99. Исследуется макет схемы на трифиларе 3x716 мкГн, 2x параллельных полевиках( S2), шим контроллере TS34063.

So, it's clear that the pulse appears after S2 closes and not at the right time—i.e., while switch S1 is closed. By then, L3 is already saturated, and this pulse on L2 only saturates L3 further. The pulse's energy is not negligible.

I'm considering moving this pulse forward by halving the opening time of S2. This way, the pulse should appear in the second half of S1's closed period and, ideally, should go through the diode to the buffer capacitor and to the load.

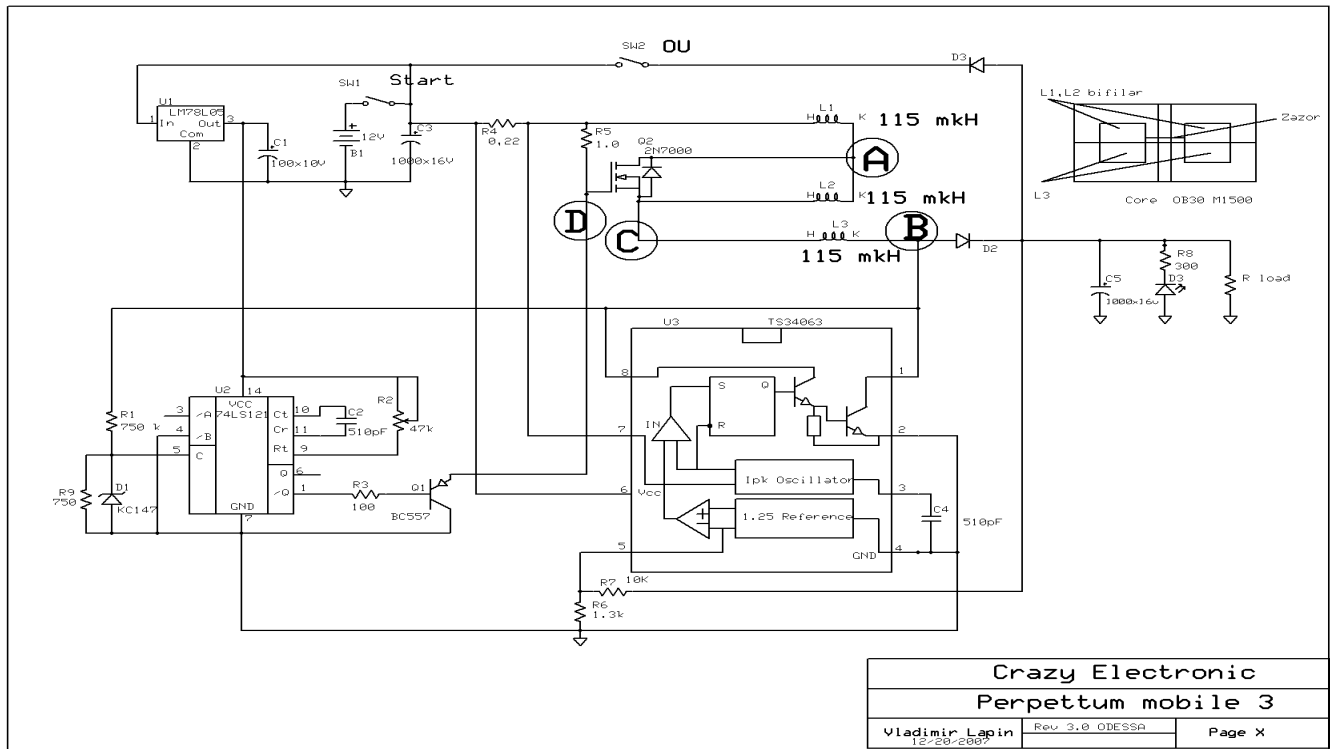
Based on available components, I concluded that the 155AG1 chip would be suitable. It has 14 pins and meets our needs, though it requires a 5 V power supply. Adding a three-terminal 78L05 (100 mA) regulator should handle it, plus a 100  $\mu$ F electrolytic capacitor (10 V).

To protect pin 5 of the 155AG1 from high voltage (it's triggered on the leading edge, with pin 3 grounded), we add a resistor divider (750 ohms) and a KS147 zener diode to clamp the input pulse amplitude. Then we attach a 47 k $\Omega$  potentiometer to pin 9 and a 510 pF capacitor to pins 10 and 11.

To control S2, we add a PNP transistor like the BC557. The transistor's base gets the output from pin 6 via a 100-ohm resistor, while its emitter connects to the gate of S2,

with a 1 kΩ resistor to ground. In this configuration, it should open and close as intended.

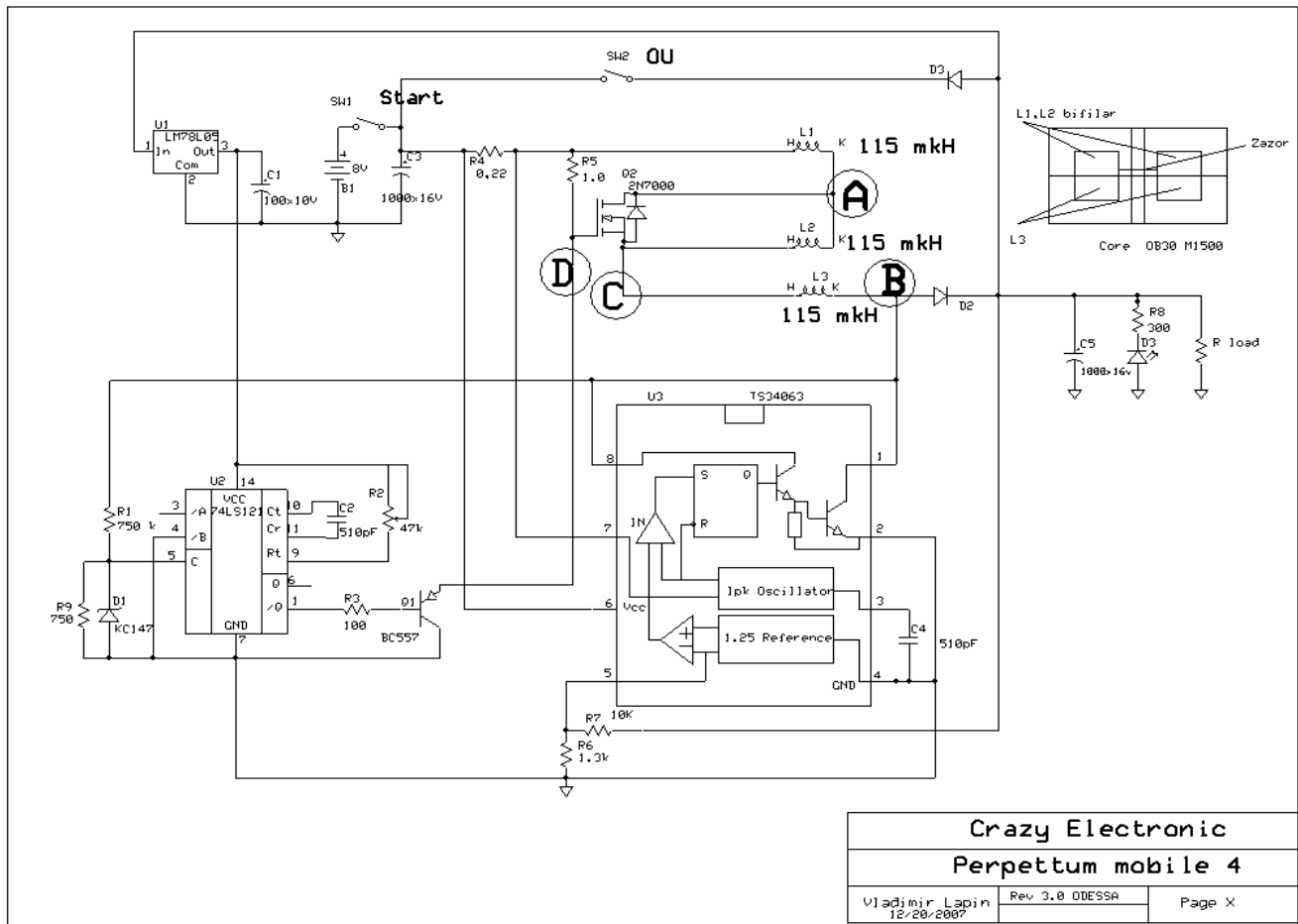
Now, if you've read carefully, you should recognize all these components in Valery's photos. The circuit starts making more sense. For further optimization, we'll rewind the coils to a lower inductance. According to AN920 (<http://onsemi.com>), the inductance for Figure 18 should be 115 μH. We achieve this with 20 turns of 0.35 mm wire, resulting in three 115 μH coils (L1,L2,L3).



With the beer finished, all that's left is to heat up the soldering iron and make myself a New Year's gift!



## Additional circuit details:



Odessa, December 20, 2007. V.G. Lapin

I don't have more time to explore this. The rest is up to you!

Translated using ChatGPT. Additional info:

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It seems 155AG1 could be 74LS121 while KA34063 should be TS34063, at least that's the numbers in the schematic along with the text.

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ChatGPT:

Yes, you're correct about those substitutions:

1. **KA34063** indeed corresponds to the **TS34063**, a well-known DC-DC converter IC commonly used in step-up (boost), step-down (buck), and inverting configurations. It's widely used for single-ended flyback converters, which aligns with the boost topology suggested in the text.
2. The **155AG1** designation could refer to the **74LS121**, a monostable multivibrator IC. This component is commonly used to generate pulses with defined timing, which fits the need described in the text for controlled timing in the circuit.

These replacements seem accurate and should work in replicating or analyzing the described device.

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Is it likely these would be referred to with the numbers in the original text?

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ChatGPT:

Yes, it's quite likely that the numbers **155AG1** and **KA34063** refer to the **74LS121** and **TS34063** components, respectively, based on common practices in Eastern European and post-Soviet electronics literature and parts catalogs.

In those regions, component numbering sometimes follows conventions that differ from Western standards, especially for widely used ICs like logic gates and voltage regulators. Local or legacy part codes were often used interchangeably with internationally recognized numbers when discussing electronic circuits. Additionally:

- The **TS34063** is identical to the **KA34063** in function and pinout, and the part could be marked as such depending on the manufacturer.
- The **155AG1** as **74LS121** makes sense since the 155 series was a popular series of logic ICs used in the former Soviet Union and could indicate a monostable multivibrator like the **74LS121**.

Given the context and descriptions in the original text, these substitutions should be correct and maintain the circuit's intended functionality.