The experiment of Self-charging Inverter driven by the 3rd Positive EMF

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Osamu Ide

Foundation for the Advancement of Environmental Energy (FAEE)

Clean Energy Research Laboratory,
3-4-21-601 Mita, Minato-ku, Tokyo, 108-0073, Japan,

Email: daphne@myad.jp *Email:* lily@xvg.biglobe.ne.jp

Abstract

EMF means electro-motive force found by Michael Faraday of Royal institution of Great Britain in 1831. He found two types of EMF. The first is homo-polar induction which generates DC current and the second is electro-magnetic induction which generates AC current. The latter is used to generate AC electricity by almost all the power plants in the world. The 3rd positive EMF was found by the author in 1980. It is different and independent from Faraday's EMF. It is induced when the time changing of the magnetic flux is very high such as a switching instant of an electrical device containing inductance. The most important feature is the direction of EMF. It is opposite to Faraday's EMF. As Faraday's EMF is called back EMF, so it might be called positive EMF. It accelerates the input current to the device with inductance. Although it is generated in a short moment of electrical switching, if you could catch the positive EMF you would get an extra electrical energy. The author had succeeded in making a prototype of inverter applying the positive EMF. The power efficiency of this prototype easily exceeds 100%. The 3rd positive EMF is not a natural source of power but possibly physical electromagnetic power from fluctuation of space time. The author has finally succeeded in making an experiment of a self-charging system without input energy. The system is composed of a battery, inverter and controller. The inverter is operated by the battery and the output of the inverter recharges the battery. Some load resistance is connected to the battery during operation. After the operation, the voltage of the battery is equivalent or higher than the initial voltage. This experiment proves the possibility of constructing a perfect clean energy generator.

Keyword: EMF, Faraday, Positive EMF, Inverter, Self-charging, Battery

1 Introduction

In 1973, the author started to research a completely new and clean energy after reading a book and paper written by Prof. Shin-ichi Seike in Japan. Then the author had received information on the EMA motor invented and patented by Edwin Gray in Los Angeles, California in 1970. The EMA motor had a unique configuration and quality that run itself. It operated by high voltage discharges from the capacitors through spark gaps. The discharging current of the capacitors flowed in the motor coils and made it run.

In 1976, the author started to reproduce the EMA motor to confirm it's strange characteristic. The author made three different prototype of the motor called Ether-engine. However, as a result, it was not able to run itself.

But in 1980, the author found a strange phenomenon in his 2nd Ether-engine. It was the 3rd positive EMF effect. When the Ether-engine ran, the static charge of the capacitors which was not consumed for running the Ether-engine, was recycled to the capacitors and used for the next discharge. This operation was and is according to the standard electrical theory. The author precisely measured the capacitor initial voltage, before discharge, and recycled the voltage, after discharge, and considered the relation between them. The recycled voltage was a little larger when the motor ran rather than when the motor stopped within some limited condition. It looks strange to physical theory, but the additional voltage is dependent on the magnetic configuration and the rotation speed of the motor. (1)(2)

The author calculated the recharged voltage by Faraday's law. The result of the calculations showed that voltage increase of capacitors in the motor never occurs, and it should be quite natural according to the theory of electro-magnetism.

Then the author had an idea to deduce the hypothesis of the 3rd positive EMF, which is different and independent from Faraday's electro-magnetic induction induced in the motor coils, to explain the strange phenomenon of increasing voltage of the capacitors. As a reaction, the direction of the 3rd positive EMF must be opposite to Faraday's back EMF. So discharging currents in the motor coils are accelerated by the 3rd positive EMF. It might be a kind of reaction but the direction is opposite. So the voltage of capacitors after discharging is increased. This hypothesis seems to explain the over-charging phenomenon of the capacitors in the 2nd Ether-engine. (1)

The author has precisely calculated and measured this effect and found the 3rd positive EMF to have a physical rule. If it has some physical rule, it is not noise but must be a truly new electro-magnetic induction.

Inductance of the motor coil is depending on the position of stator and rotor. When the motor runs, the inductances of motor coils are changed by the position between stator and rotor. The 3rd EMF seems to be induced when the time rate-of-change of the inductance is very short and a function of second order time differential of inductance. (2)(10)(11)

In 1988, the author made his 3rd Ether-Engine. Then its efficiency calculated by the total output including mechanical, electrical and magnetic loss of Ether-engine reaches 110% (maximum: 113%).

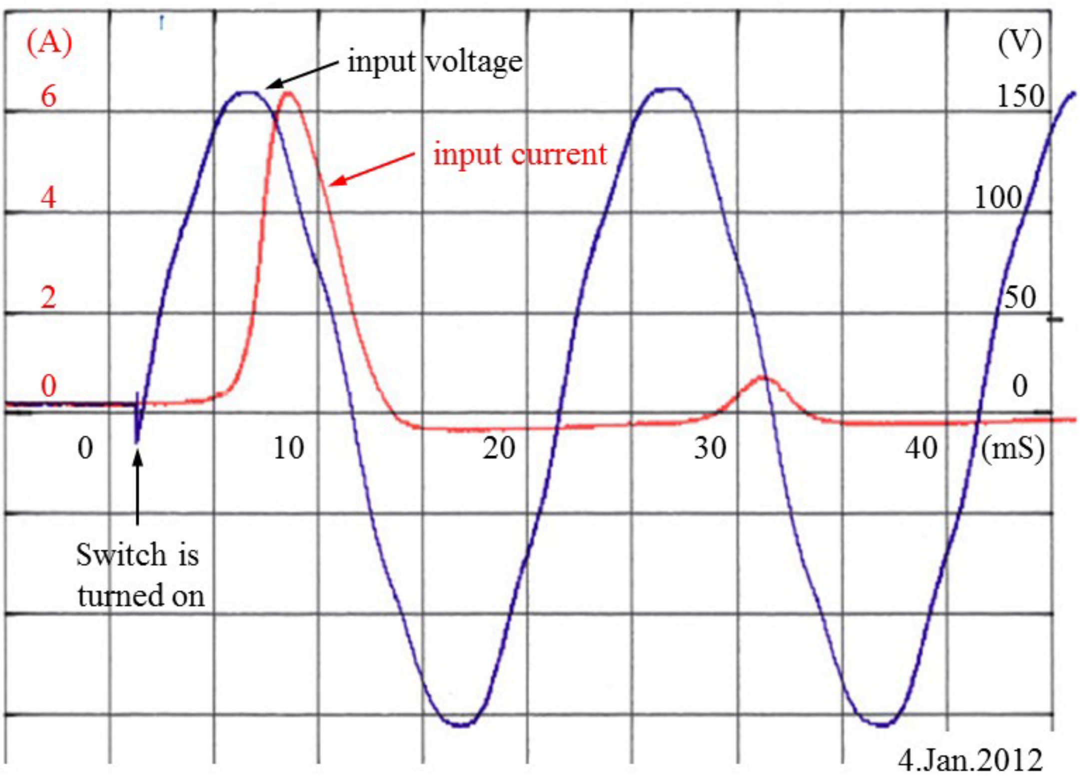
But it was not enough to make a self-sustaining generator, as the total loss of Ether-engine was very large.

In 2000, the author turned the research to inverters applying the 3rd positive EMF. The inner loss of an inverter is smaller compared with a motor, as it has no mechanical loss.

In 2010, the author had succeeded in constructing an inverter of over 100% efficiency and found that the 3rd positive EMF is also generated by high speed changing of input current to the coil (inductance). (3)(4)(7)

The author called the new inverter Degoichi. This name is from a famous and popular Steam Locomotive in Japan. Then the 3rd term of the EMF function (1) [equation 13 in (2)] the author had deduced was, at last proven. It was shown that the 3rd term generates high speed time changing of not only inductance (L) but also current (I). This meant high speed changing of the magnetic flux (Φ =LI).

$$\mathrm{EMF} = K_0\Phi - K_1\frac{d\Phi}{dt} + K_2\frac{d^2\Phi}{dt^2} - K_3\frac{d^3\Phi}{dt^3} + \cdot\cdot\cdot + (-1)^n K_n\frac{d^n\Phi}{dt^n} + \cdot\cdot\cdot \quad (1)$$



1：Surge input current to transformer and the voltage applied to the primary coil

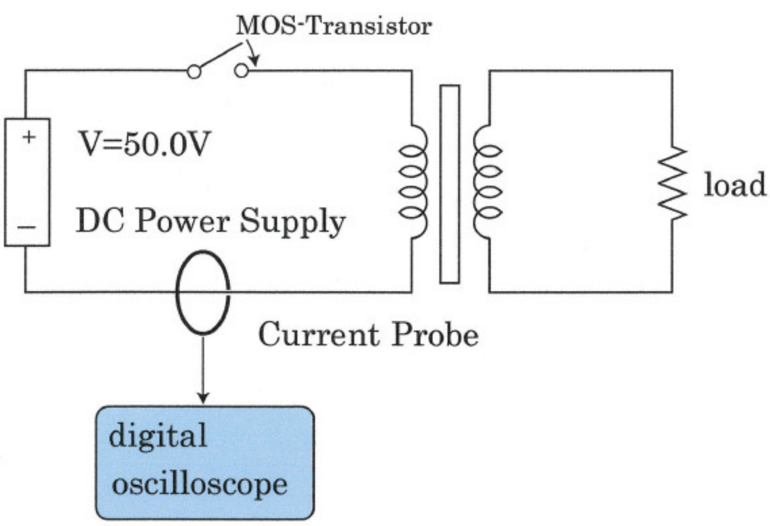
At the moment when the switch of the electrical circuit is turned on, extremely large time changing of the current occurs. Then the strong 3rd positive EMF must be induced in any kind of inductance and accelerates the input current as shown in Figure 1 and Figure 2.

Figure 1 shows the strong surge current induced in the common power transformer (50W) of the primary coil with no load connected to the secondary coil. When it is connected to AC 100V power line, surge pulse input current flows into the primary coil of the transformer. Peak of it reaches Ip= 6.19A. The inductance of the primary coil is L=1.18H. The magnetic energy Et (J) induced in the transformer is Et= 1/2 LIp^2 = 22.61J. Time: t (sec) to rise-up to the peak current Ip is t= 7ms.

So the power input to the transformer is P= 3.23KW.

It often occurs although not every time. What is the cause of this strong pulse current?

< measuring circuit >



< equivalent circuit & simulation >

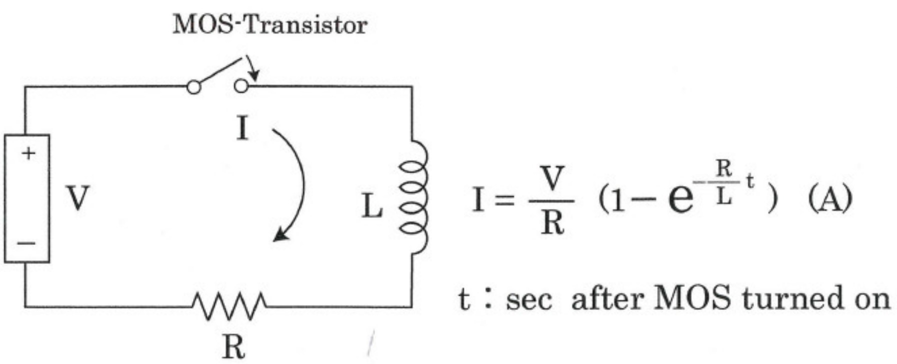


Figure 2(a) : Measurement of rise-up current of inverter after MOS is turned on

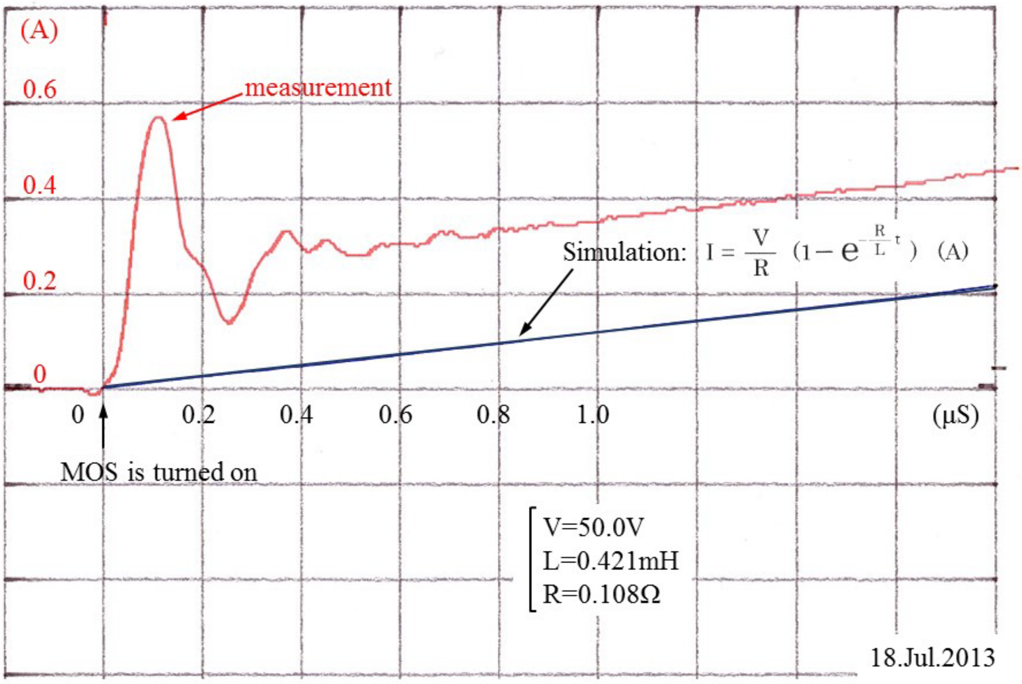


Figure 2(b) : Rise-up current of inverter after MOS is turned on

Figure 2(a) shows the measuring and equivalent circuit of the inverter to check rise-up current just after the MOS-transistor is turned on.

Figure 2(b) shows the strong input pulse current of the inverter after the switch of DC power source is turned on. The red curve is measured. The input current is also calculated by the famous equation of transient phenomenon as shown on Figure 2(b) to compare with the measuring result. The simulation is the blue curve. Figure 2(b) shows that a strong 3rd positive EMF is induced within a short moment of 0.5 micro-seconds after the MOS-transistor switch is turned on.

Like these matters above, sometimes extremely strong pulse current occurs in the transformer, motor, inverter and some devices which have some inductance when the power switch is turned on.(5)(6)(8)(9)

Most of electrical engineers call this strong pulse phenomenon just noise, ringing or surge. But they never think why it happens. It is very important that the magnetic energy induced by the surge input current to inductance is much larger than input electrical energy to induce it.(7) Common electrical engineers only try to eliminate the strong surge current because it disturbs the operation of the circuit, although it has free strong energy.

The Degoichi inverter invented by the author utilizes only this input surge pulse. That is why Degoichi has extra energy output. (3)(4)(5)

This phenomenon of input pulse current was replicated by Kurt Arenhold and Dr. Horst Eckardt in March, 2015. (8) They also derived the phenomenon by the method of a more fundamental theory which may be the deeper reason for the positive type of EMF. They calculated the phenomenon by ECE theory of Dr. Myron Evans and proved it is from fluctuation of space time. The result shows amazing coincidence with measurement and simulation.

Since 2011, the author tried to check the feature of the Degoichi inverter and found the efficiency was increasing little by little. In 2014, it reached more than 600%. But the heat output of the load seemed to be less than the expected value. Then the author found that the value of the output current measured by analogue meter, magnetic current probe and shunt resistance current probe were all getting extremely large. And so then it looks Ohm's law is violated.

It seems that the extra unknown current, of no heat, is accompanied with ordinary current. Sometimes it is called "cold current". The paper of Dr. Douglas Lindstrom explained cold current by ECE theory. (12)

This cold current could generate electro-magnetic force in the same way as ordinary current, because it could move the pointer of an analogue current meter. Then, a DC motor running test by the output current from the Degoichi inverter was done to compare with the ordinary DC current from common DC power supply.

The result is so interesting because the DC motor runs by the output current from the Degoichi inverter at 1.1～1.2 times faster than by common DC current of identical value from DC power supply. It also runs smoother than by common DC current. Although the reason is not clear, these series of experiments show that different kind of electrical current should be existing and flows out from the Degoichi inverter. In the future, the author will report on the motor running test.

It might be possible to easily recycle the output power to a battery and to make it a self-sustaining or a self-exciting system if the Degoichi inverter had enough efficiency of beyond 100%. But this has proven difficult, as the output current from the Degoichi inverter is not ordinary. It might be a different kind of cold current as described above. The system of the Degoichi inverter, battery and the controller should be constructed together. The battery must be able to charge by the output of the Degoichi inverter.

In August, 2015, the author had succeeded in making a self-charging experiment. It was composed of a Degoichi inverter, batteries, special coils, capacitors and switches. The circuit looks more complicated than expected by common electrical engineers.

As a result, if it is operated with no load connected to the battery, the voltage of the battery increases after operation. If the battery has some load connected during operation, then the battery voltage is equivalent or a little larger than the initial voltage. The result shows the battery is charged by the output of the Degoichi inverter rather than being discharged by the Degoichi inverter. The heat output power of the load connected to the battery is around 0.85W.

The output power of this system represents a new and clean source of energy, with no need for natural resources.

2 Block diagram of experiment and the operation

Figure 3 shows a block diagram of a self-charging experiment. Figure 4 shows the experimental set-up. It mainly consists of the Degoichi inverter and the driving circuit, two Batteries Ⅰ and Ⅱ, special coils, capacitors Cx and the two switches to control charging. The Degoichi inverter is driven by narrow spike pulses (3)(4)(7) from the driving circuit. The two batteries are both Pb-batteries of 49V, 2Ah. Battery Ⅰ is for charging by the charge of Cx. Battery Ⅱ is for driving power source of the Degoichi inverter. Capacitors Cx are combined from chemical and polyester film capacitors.

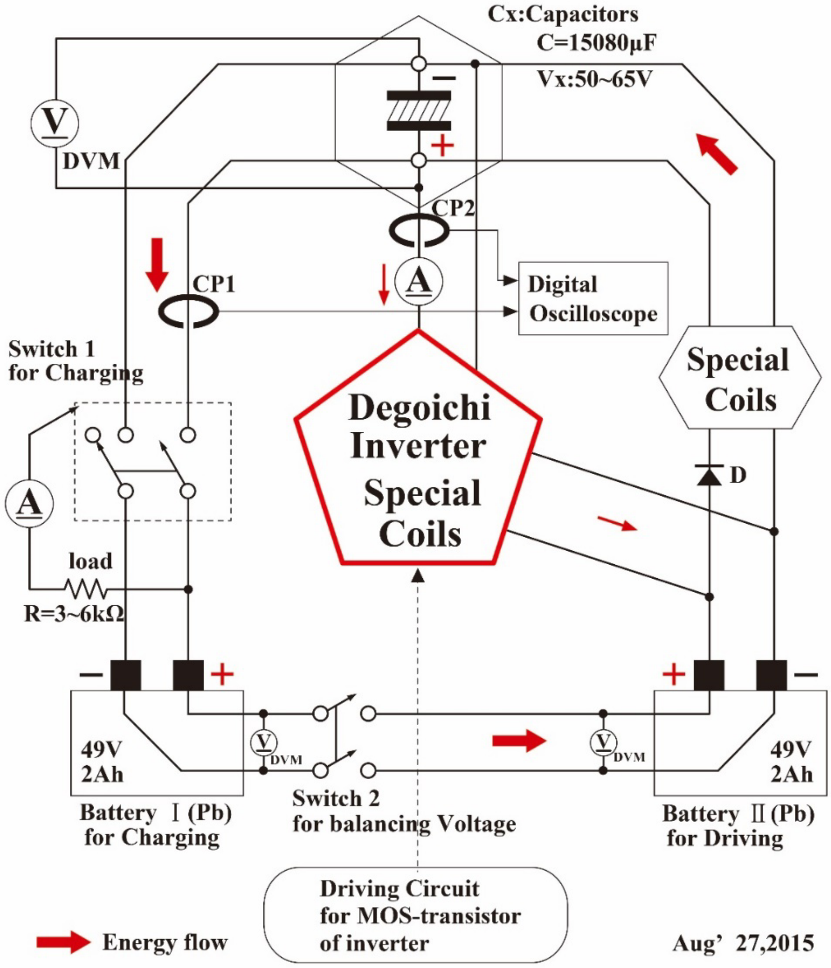


Figure 3 :Block diagram of experiment

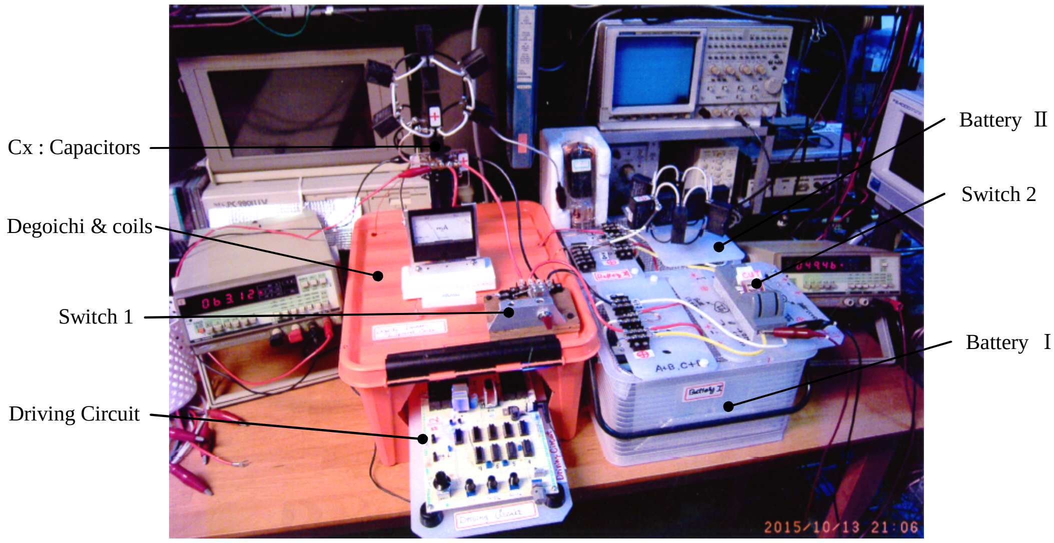


Figure 4 : Experimental set-up

When Switch 1 and Switch 2 are both turned off, Cx is charged to almost the same voltage as Battery Ⅱ. After the driving of Degoighi is started, the output of Degoichi charges Battery Ⅱ and also charges Cx through diode D and special coils. When the voltage of Cx has reached around 56～60V, Switch 1 is turned on and Battery Ⅰ is charged by Cx until the voltages of both are balanced. Then Switch 1 is turned off and Cx is started to charge again. This is one cycle of operation. This operation of switching is cycled by hand, should be automatically done in the next experiments. The time for charging up Cx is 3～6 second. So one cycle takes around more than 1 second.

After the operation, when the voltage of Battery Ⅰ is raised enough, switch 2 is turned on for balancing the voltage of Battery Ⅰ and Ⅱ.

The evaluation of the result is comparing the initial balanced voltage of batteries before operation and the balanced voltage of them after operation.

3 Results

Table 1 shows the result of no output power. Battery Ⅰ has no connected load during the operation of the Degoichi inverter. The output of the Degoichi inverter is only used for charging batteries. Initial voltage means balanced voltage of two batteries before driving. Deviation of battery voltage means the difference of balanced value between before driving and after driving.

Table 2 shows the result of the case that some resistive load is connected to Battery Ⅰ during operation of the Degoichi inverter. The value at right-hand side shows the load resistance and the output heat power of the load during operation. Both Table 1 and Table 2 show that the battery voltage is increased or equivalent after operation of the Degoichi inverter.

Table 1　Self charging without battery Figure

Date 2015	Initial battery voltage	Driving time (min.)	Deviation of battery voltage after driving
8/18	49.83V	22	+0.41V
8/19	50.01V	30	+0.05V
8/20	49.83V	5	+0.10V
8/20	50.03V	20	+0.05V
8/21	49.71V	6	+0.17V

Table 2　Battery with resistive load during operation

Date 2015	Initial battery voltage	Driving time (min.)	Deviation of battery voltage after driving	Load: Rl output power(W)
8/27	49.59V	10	0V	3KΩ 0.853W
8/30	49.58V	10	+0.01V	3KΩ 0.853W
9/1	49.71V	7	+0.02V	6.2KΩ 0.448W
9/3	49.62V	7	+0.01V	3KΩ 0.867W
9/8	49.51V	7	+0.02V	3KΩ 0.817W
9/13	49.47V	7	0V	3KΩ 0.816W

To confirm the results above, the identical current of driving the Degoichi inverter and the load of battery was taken out from batteries for the same operating time. The battery voltage was definitely decreased. This is quite natural.

4 Confirming test

To prove the result above, the author measured the charge flow from Capacitor Cx to Battery Ⅰ for charging and the charge flow from capacitor Cx to the Degoichi inverter. They were calculated by the wave form detected by current probe CP1, CP2 and a digital oscilloscope, as Figure 3 shows. It is impossible to check input and output current to batteries by a common current meter.

CP1 is set to measure the current wave form from capacitors Cx to Battery Ⅰ. It is a strong and wide single pulse wave form. CP2 was set to measure the current wave form from Cx into the Degoichi inverter. It is a high frequency random pulse wave. The former is to check the output charge TQ2(q) from Cx to Battery Ⅰ. The latter is to check the output charge Q1 (q) from Cx to the Degoichi inverter for operation and to compare both values.

The wave form of each was stored in a digital oscilloscope and the time integral was calculated to get the total charge (q) flown during one cycle operation. The integral calculation is done by the function of the digital oscilloscope.

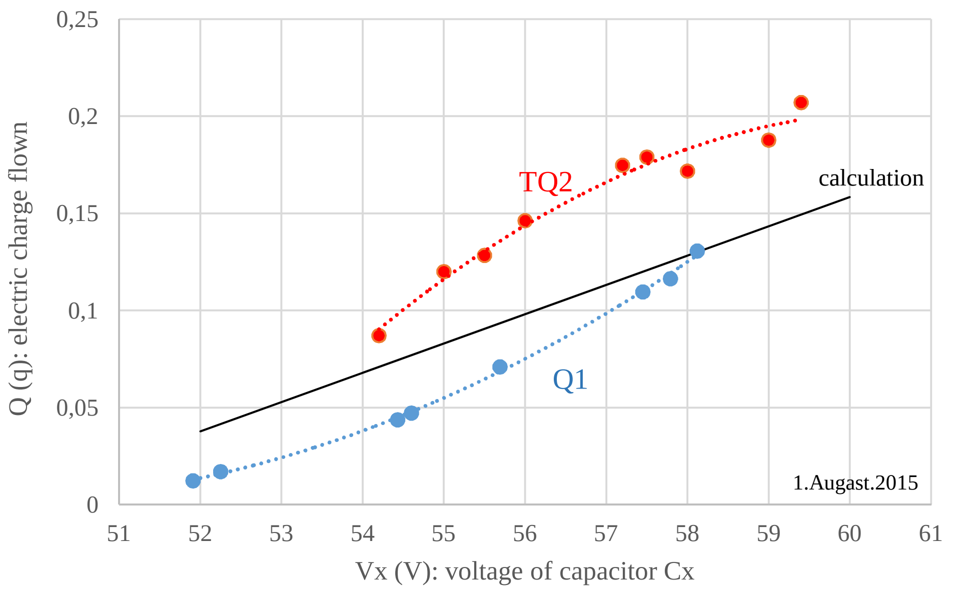


Figure 5 : Q1 shows charge flow from capacitor Cx to Degoichi
TQ2 shows charge flow from capacitor Cx to Battery I

Figure 5 shows the result. Vx(V) on the horizontal axis is the varying charged voltage of Cx. Q1(q) of the vertical axis is the time-integrated charge flow from Cx to the Degoichi inverter for operation when Cx is charged up to Vx(V). TQ2(q) of the vertical axis is also the time integrated charge flow from Cx to Battery Ⅰ for charging after Switch 1 is turned on until the voltage of

Battery Ⅰ and Cx are balanced.

The calculated value of TQ2 is shown for reference. It should be linear in electrical theory.

Figure 5 shows that it has a definite deviation between Q1 and Q2. Then the result of this measurement proves the result of Table 1 and 2. The charge flow from Cx to Battery Ⅰ for charging is larger than charge flow from Cx to operate the Degoichi inverter.

It is difficult to understand that the calculated curve is also lower than TQ2. It means that extra charge is produced during the current flow from Cx to Battery Ⅰ.

5 Questions unsolved and the model of self-exciting generator

We still have a big question left. Why does the current flow from a low voltage (under 49V during operation) Battery Ⅱ to a high voltage (50～60V during operation) Cx through diode D?

This question is related to a more wondrous question below. The current flow above is still continued and observed even if the driving of Degoichi stops. Capacitor Cx is charged up during several minutes after the switch of Degoichi is turned off as if the current flow had inertia, although no such operating part is in the system. It is just like the famous lithograph, “water fall” drawn by M.C. Escher. This question could be explained neither by electrical theory nor physical theory. It might depend on the operation of special coils.

The author found a few more phenomena which are not understood by ordinary electrical and physical theory. We need more basic research of these phenomena to develop a prototype of a stable self-exciting generator. The output of the experimental system is around 1W. It is enough to light up a LED. After we could make the extra output beyond 100 W from battery, an ordinary inverter (50~60 Hz) might be connected to the battery. Then we could generate practical electric power from a Degoichi system.

This report should be the starting of new electrical engineering and clean energy. It is also important to develop new materials of rechargeable batteries, capacitors and magnetic materials to fit this experiment. The author expects that this will become a subject of chemical engineering.

6 Conclusion

The self-charging experiment of an inverter driven by the 3rd positive EMF was performed. The system is mainly composed of an inverter, capacitors, two batteries and switches to control charging. The inverter is operated by one battery for driving and the battery for charging is charged by the output of the inverter. After the driving of the system, the voltages of both batteries are balanced. The conclusions below were obtained from the results.

1.After 5〜30 minutes driving with no load connected to the battery, the battery voltage balanced after operation is always larger than the initial balanced voltage.
2.After 7〜10 minutes driving with some load resistance connected to the battery, balanced battery voltage is similar or a little larger than the initial balanced voltage.

It might be possible to construct a self-exciting generator which is pollution-free and clean, and needs no natural resources.

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