QEG Instructions for Engineers

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-Exciter Coil

-Tuning

-Core Conditioning

-Power Conversion

Greetings and Blessings to all our supporters!

In lieu of the fact that we missed our deadline for self-looping, we wanted to explain why, and provide you with all the technical details (and a video) of why we're hot on the trail!

During all 4 of the global QEG builds, we were concerned mostly with getting parts for the machines, putting them together, and getting to the point of resonance. That was appropriate since we were all learning how the machine works, and trying to characterize and document the input power (primaries) and output power (secondaries). Naturally, all were most interested in what kind of output power it will produce. Building an electric generator that works by parametric resonance, with no magnets, rotor windings, commutators, or slip rings is fascinating! And the machine has many variables that can be investigated and researched to improve and optimize the system.

We saw that most of the engineers (including myself) were expecting to make some tweaks, do some rewiring, try things like: resonate both windings, add capacitance in the secondary, move the load around, series or parallel?, add this transverter, or that inverter, shunt, transformer, rheostat, isolate the load so resonance is not disturbed, etc. These techniques are being investigated here, and by several of our engineering teams around the world as we speak, in order to get enough power out to first self-loop, then to provide usable power to run your home, small business, or wherever you pay an electric bill.

With the generator built to the original configuration, there is up to 30 kVAR (peak-to-peak) reactive power available in the primary windings that could be converted to possibly 20 kilowatts (RMS) and used to power normal loads. However, taking the load from the primary presents some challenges. For example: how to isolate the load so as not to disturb resonance, how to convert generator frequency to 50/60 Hz and 120/240 Volts (using electronics with 17,000 + volts). These issues are already being worked out using the circuits in the above paragraph. In fact, a couple of solutions are already developed and ready for testing. But using the secondary (in the original configuration) to provide enough power to self-loop has been a bit of a mystery, since we need 700 to 900 Watts (RMS) to run the motor, and to get that much output from the machine, we would be drawing 900 to 1100 Watts from the wall outlet. That leaves us about 200 watts shy for COP of 1. This has been about the same with all the machines we built including Pennsylvania.

This endeavor has been a technical puzzle for us. Any information we received from websites, technical documents, individuals etc., had to be tested and verified, reduced, converted or extracted to see if it would be applicable to the QEG prototype. We got a lot of useless information, some information missing important details, and even some deliberate misdirection as noted in the previous section. We also gathered quite a bit of good information and history, and made many wonderful personal connections. One of those connections was with Tesla Energy Solutions LLC, who brought us the most useful information so far, and much needed support. After extensive experimentation, review, assembly, testing, and verification of data applicable to the QEG, we have the following new specific details of how this all fits together. This should serve to fill in most, if not all of the blanks.

QEG in the original configuration – Our path, from the beginning, has been focused on duplicating the self-looping machine we've all seen in the "WITTS 40kW fuelless generator" video. We believe that what we see in the video is all there is, and all that is needed, to provide maybe 3000 Watts RMS output. Of course we don't see the exciter coil in the video. That is because after the core is conditioned, the exciter coil (and ground connection) is no longer needed and can be removed. This is why the motor and generator look like they are further apart than necessary in the WITTS video. The space between the two is where the exciter coil was placed during tuning. We also cannot see what is in the small electronics box with heat sink fins (and 2 small blue plastic switch boxes). WITTS minimizes the importance of the electronics, saying "you don't need electronics to get over unity" We believe this machine originated sometime in the 1930's (before modern electronics) and that statement is true. We can see two TO-3 packaged transistors mounted to the side of the "electronics box". This is a good indication WITTS added a simple inverter circuit using those two transistors and associated circuitry, to convert the generator frequency (200Hz) to 60Hz, and possibly to select and stabilize the output voltage. The circuits we have prepared can readily do this. The point is, we believe the secondary is intended to provide the output. This eliminates having to convert the reactive power to Watts if using the primary to drive the load. The secondary already converts the primary VARs to Watts, and the output can be used as-is, with minimal processing, as long as there is enough power. Currently, in the original configuration, none of the machines we built have quite enough power to self-loop. As above, we are about 200 watts shy. So what is the solution? Read on beloved supporters!

Here is the sequence: The QEG is intended to (first) be used in the original configuration as released in our open sourced user manual in March 2014. That is to say; we build up the machine to the point of resonance using the tank capacitor value of about 114nF, which will cause the generator to resonate right around 200Hz on the secondary (RPM will be right around 3000). What is the significance of specifying 400Hz / 200Hz generator frequency? WITTS says that M21 type steel should be used because its self-resonant frequency is right around 400Hz. M21 steel has been obsolete for over 30 years. WITTS is aware of this, and says other steel types can be used, but the self-resonant frequency will be different and has to be determined. This is important because if the steel is resonating at the frequency determined by the tank capacitor value, and that frequency is the same as the steel's self-resonant frequency, we will have additional piezoelectric effect, creating additional voltage in the primary. We contacted an old-timer at Cogent Power Inc. (major global electrical steel supplier) who still had some documentation on M21 type steel. We asked him how we could duplicate the characteristics of M21, and he told us to use type M19 at a particular lamination thickness (.025" thick – 24 gauge), and it would behave the same as M21. That is how we selected the steel type for release in the open sourcing documents. We then attempted to have the steel tested, but the results were inconclusive. We could not afford to re-run these expensive tests, so here is an opportunity for one of you out there to help. If any QEG builder out there has access to a steel testing facility, perhaps they would consider having their core tested to determine what the actual self-resonant frequency is. This would be very valuable information, but again, we don't believe it will be important until after self-looping. Here's why:

We believe the first thing that has to happen once the machine is in resonance, is the conditioning of the core using the exciter coil. This will increase the voltage in the core to the point where we will have

enough power to run the motor (self-loop) and power additional loads. This is the 'Quantum Energy' effect of the QEG. Resulting from this research, we also see that finding the 'sweet spot' during the basic generator tuning (RPM/frequency where we get the most output for the least amount of input) is best done after the core is conditioned. Finding the 'sweet spot' indicates the point where the steel is self-resonant (without the expensive lab testing), but there is not enough power in the secondary to do this effectively until after the core is conditioned, and that's why none of our teams has been able to find it yet. Also, the generator output frequency can be changed to whatever you like after the core is conditioned (I like the mechanical setup with output around 160Hz/167nF/2450 RPM), however, maximum output would be at the frequency of the steel's self-resonance. But keep in mind that the steel's self-resonant frequency may be anywhere from say 150Hz up through the low kHz range, so we may have to tune to a lower harmonic of the fundamental frequency, in order to run within the mechanical speed range of the generator. The precise generator output frequency of 400Hz / 200Hz is only important during the exciter coil tuning. This is because the generator has to drive the exciter coil into resonance. We have this set up and operating NOW, and evidence can be seen on the RF field strength meter in the video that accompanies this post.

The generator is running and accumulating energy from the atmosphere. This is the reason that we missed our deadline. We didn't realize that this process takes some time. We are now trying to determine how long, and as soon as we have a good idea, we will release that information immediately. Here (in detail) is how we did it:

As above, we set up the machine in the original configuration, with the speed / frequency set to 3000 RPM / 200Hz. If we were to try to run at 400Hz directly, this would be 6000 RPM, which is beyond the speed range of the generator. Consequently, the only way to resonate this machine at 400Hz would be to tune a lower harmonic, such as 200Hz. (WITTS actually told us that a harmonic of 400Hz could be used, that it would work, but didn't give us details of how to do it). We suspect that after core conditioning, there will be enough harmonic energy in the core to cut the tank capacitor value in half and actually resonate the primary on a harmonic (400Hz) of the fundamental frequency (200Hz). We believe this is how WITTS can claim they're running at 400Hz, but RPM is only 2450 (around 160Hz). We will try this after core conditioning and report our findings.

If you multiply 400Hz by 3250 (whole number) the result is 1,300,00.000 or 1.3MHz precisely. This means 400Hz is a mathematical harmonic of 1.3MHz. Therefore, 200Hz is also a whole number harmonic (6500). So with that in mind, we made some changes to the original exciter coil to make it a proper power resonant tank circuit. It's very similar to what we released in March, and can be seen in the accompanying video. Here are the construction details: Using the same 4.75" O.D. Plexiglas tube as in the original release, we cut off 2 inches from one end and wound 60 turns of good quality #14 AWG stranded, jacketed wire (41X30 stranding). We glued a round Plexiglas cap on top of the coil form, and mounted terminals to connect to the generator output, antenna, ground, and spark gap (see video). We reduced the amount of turns from 100 to 60, in order to balance the inductor/capacitor combination for better frequency stability. Your coil should end up with about 190uH inductance. Instead of taking turns off to tune the coil, we used a 50-200pF mica variable capacitor from a high power radio transmitter. The value at 1.3MHz is about 80pF. Once this is assembled, here's how to tune it:

1. Place the assembled exciter coil directly in between the motor and generator, and connect only the ground wire going to your ground rod (4' deep minimum) or water pipes at this time. #10 AWG stranded wire or larger should be used for the ground wire.

2. Set your signal/function generator to 1.3MHz sine wave output precisely (verify on oscilloscope), and output level between 5 and 20 volts. Place the signal generator output cable termination on top of the coil assembly. We used a 1X scope probe as the signal generator output cable. Don't actually connect the cable to anything. Just needs to be in close proximity to the windings on the coil. Get a decent portable radio that picks up the standard AM band (540 to 1700kHz). Place the radio near the signal generator cable and tune it precisely to the 1300kHz (1.3MHz) signal coming from the signal generator. You'll know you're on 1.3MHz when the radio goes quiet (no static).

3. Now leave the radio on and move it slightly outside the range of the signal coming from the signal generator (don't touch the tuning dial). Now using a non-metallic screwdriver, adjust the variable capacitor until you hear the static reduce or go quiet on the radio. (see video) You may have to move the radio around a bit and/or adjust the signal generator output somewhat to be able to pick up the signal. Make sure you're not picking up the signal generator signal directly. You can tell if it's working when adjusting the capacitor changes the sound from the radio. Another way to make sure the exciter coil is resonating is to touch the ungrounded side of the capacitor with your finger. Touching it should throw it out of tune due to your body capacitance. This gets you pretty close on the tuning, but we have to be dead on.

4. Get your RF field strength meter (bandwidth specification must include 1.3MHz), and set the sensitivity to max. Without disturbing any of the setup, bring the RF meter near the exciter coil only as close as necessary to cause the meter to read about half-scale. Keep the meter in that position, and adjust the variable capacitor very slightly for maximum deflection on the meter. This may take a few iterations until you are satisfied you have it tuned precisely. Once tuned, be very careful not to disturb the adjustment of the capacitor. The proximity of your hands, arms, and body to the exciter coil will affect the tuning somewhat. So try to do this at arm's length as much as possible.

5. We put up a long wire antenna to pick up the energy from the atmosphere. We used 34 feet of the same wire used on the exciter coil, suspended between two insulators about 30 feet in the air. We used 75 ohm coax for feedline to bring the signal in. The coax shield is grounded at the generator. And as a means to impedance match the antenna (for maximum signal transfer), the antenna plus feed line are the same length (about 77 feet) as the wire wrapped on the exciter coil.

6. Connect the antenna and the two leads from the QEG to the exciter coil. (We used the same #14 stranded wire to connect to the generator). The antenna and top of the QEG secondary should connect to the top of the coil, and the loaded side (of the secondary) and ground, to the bottom. Again, be careful not to disturb the variable capacitor setting.

7. At this point, the generator output frequency should be set for 200Hz at about midrange into the phase lock range. We started with an incandescent lamp load of 700 Watts, using two 400 watt, 120 volt lamps in series, and those two in parallel with two 150 Watt 120 volt lamps in series. Since we are

developing our machine for European installations, we are targeting 240 Volt / 50Hz. It will be a small matter to also do 120 Volt / 60Hz. We noticed our generator RPM drifts down slightly after running for maybe 8-10 minutes, then stabilizes. You may need to take that into account when setting the main tank capacitor value.

8. Adjust the spark gap initially for a very small gap. Maybe about .002". The gap will be increased as more and more energy comes in, and you may have to tweak it a bit to get the spark going (see video). We have also gotten some recent information that the spark gap is not absolutely necessary, but is helpful to get the energy transfer started. We will use it, because it is also a visual indicator of how much energy is coming in. Your generator load should be set up so that the load can be increased while the machine is running (possibly in increments of 200 Watts) as the energy comes in. Increasing the load during the energy transfer will bring more energy in.

In Summary:

The mechanism here, we believe, is that the QEG, running at 200Hz, drives the exciter coil into resonance by generating a strong whole number harmonic signal of 1.3MHz. This is the reason everything must be tuned precisely. Once the coil is resonating, it provides an open door to the 1.3Mhz signal in the atmosphere, much like a band-stop filter. We have information that the energy coming from the atmosphere (we can call it radiant energy) actually modifies the molecular structure of the core steel, causing it to become electrified and produce additional voltage. How can this radiant energy be superimposed on the much lower (200Hz) power frequency? We believe it happens by skin effect.

With the exciter coil in the circuit and everything connected and tuned, we are running the QEG and accumulating energy now. We will inform everyone as soon as we have a better idea of how long it will take to get enough energy to run the motor, and any new discoveries and insights. Once the core is conditioned, we will go for self-looping, followed by application of the circuitry solutions as mentioned above, to process the output power into the proper voltage and frequency.