

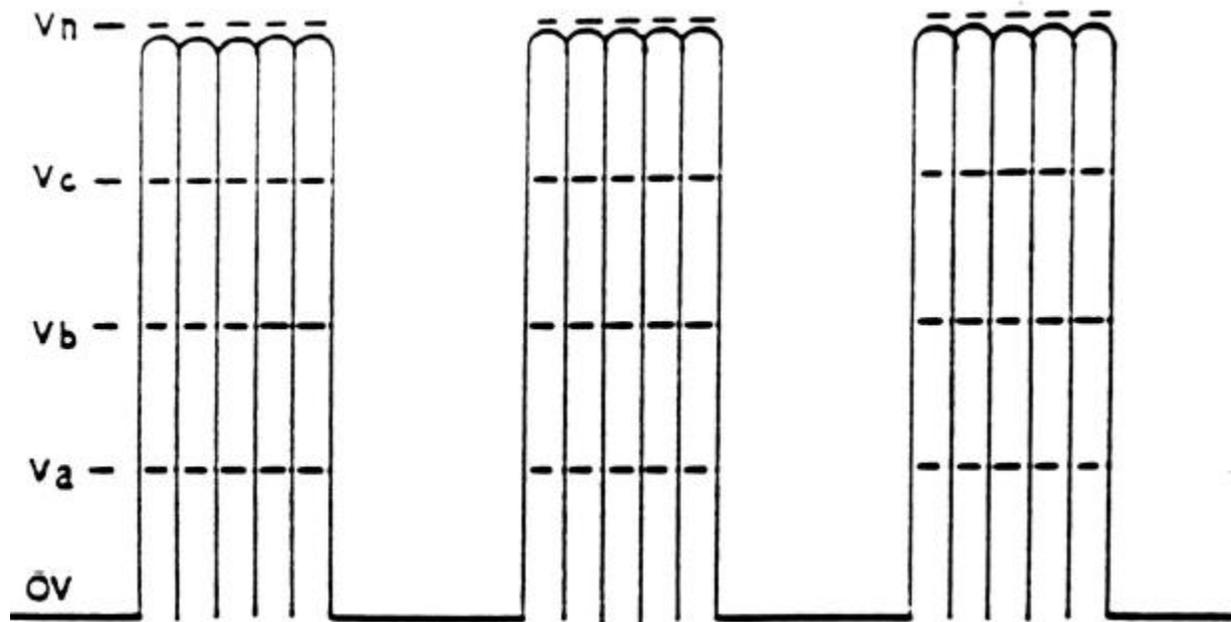
**Note:** This my attempt to collect items from the Understanding How Stan Meyers Fuel Cell Works. I have also added a few items that I feel is very important from the “WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)” thread here at the start as it feeds into the rest below – I have corrected some typos and made minor formatting changes to made things easier to read but this is mostly cut and past from threads I have tried to copy a reference back to original thread, if one is missing it is close to things above and/or below it as I have not changed order in this document. Earl

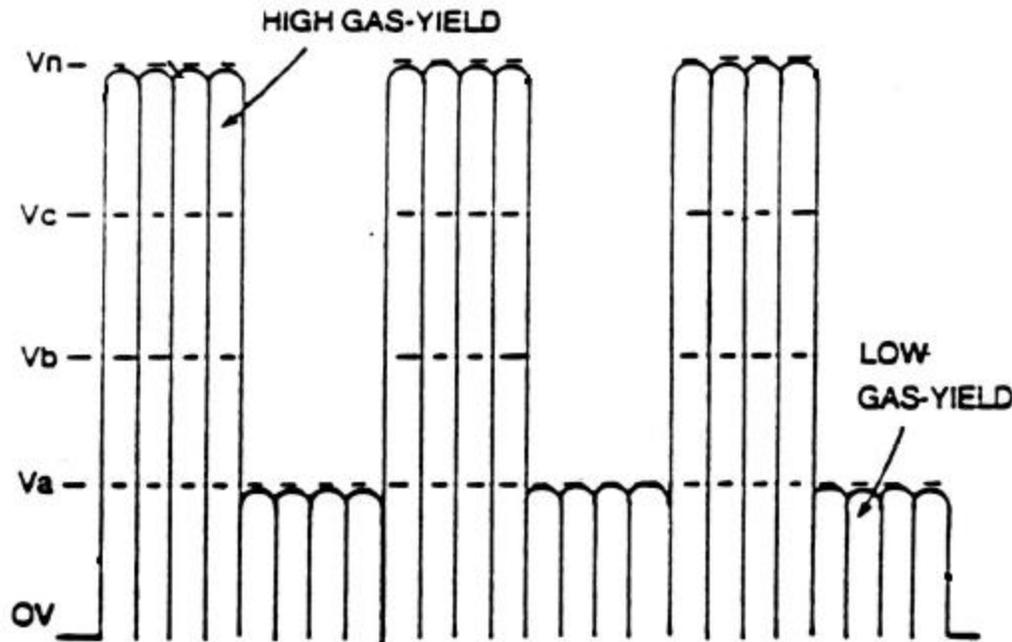
**[WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2466, on January 15th, 2016, 03:01 AM » [Last edited on January 15th, 2016, 03:44 AM](#)

I agree with Chess's quote 100%.

I would like to open up a discussion about two photos' below. I want people to post and explain their comments about the difference's they see in the two photos.





**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2472, on January 15th, 2016, 03:36 PM » [Last edited on January 15th, 2016, 04:48 PM](#)

Without reading anything about the pictures, I would say the top picture represents the signal being sent to the primary coil and the second picture is on the secondary. The low signal on the second picture would be a ringing effect when the main pulse is turned off.

A second way to look at the second picture could be voltage amplitude modulation which would modulate the gas production as needed while keeping the resonant action active instead of gating a constant voltage to control gas production.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2473, on January 15th, 2016, 05:33 PM » [Last edited on January 15th, 2016, 05:44 PM](#)

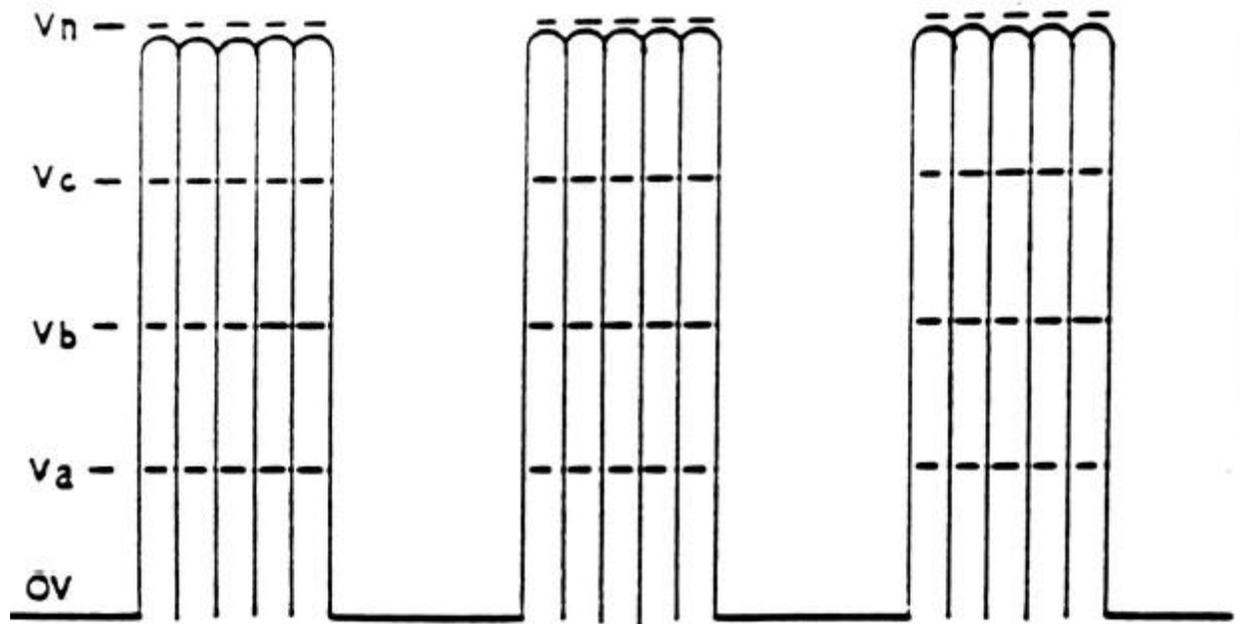
First of all, I would like to thank Fabio for that post, I been looking this thread over for it. I know Rav posted it here somewhere. I will be using some information out of it later.

Second, timeshell your second way of looking at it is correct.

Let's look at what is going on in those two photos.

In photo one, You will see most people using this photo even after I have told them many times to stop throwing high voltage to the cell. For that is all they are doing, and it will not create any gas. The only way you will ever create any gas with high voltage with photo one is using it to Fracture the water molecule like in the injector. And it will take more high voltage than a copper coil will ever produce. This is exactly what people like Ed M. is doing. And by the way Ed I didn't

like what you said about the people here at RWG over at Ionization forum. Maybe it was just about me who knows. Just to show I can knock chips off my shoulders I'm even going to help you here.

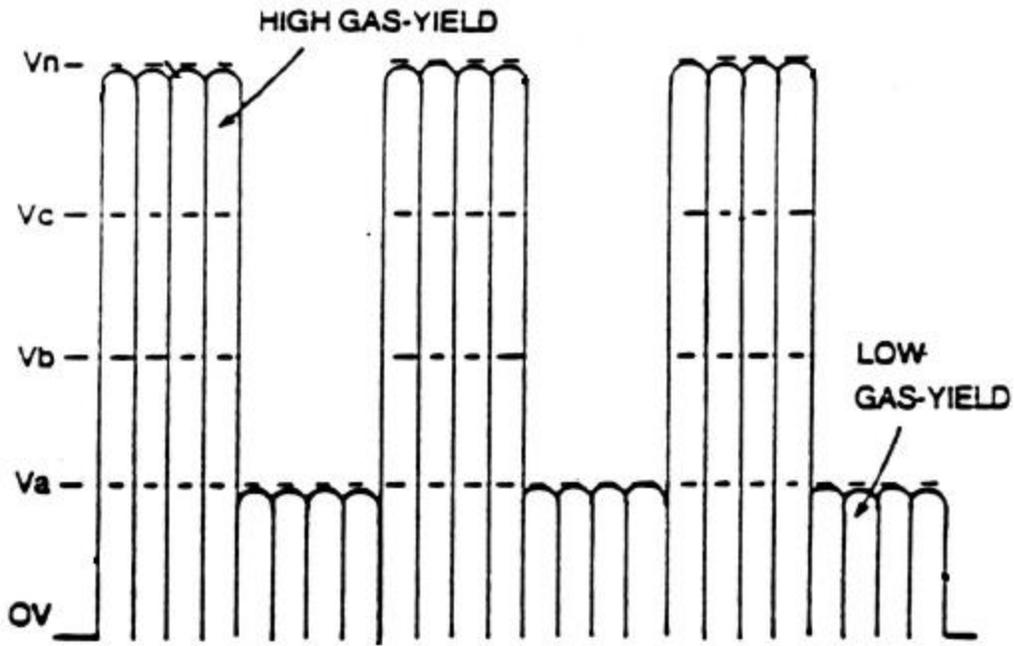


Pic 1

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2474, on January 15th, 2016, 05:52 PM » *Last edited on January 16th, 2016, 01:27 PM*

In the Pict.2 you will see a constant high voltage, from  $0v$  to  $V_a$ . You never want the voltage to fall below this voltage because it sets up the polarization process and low gas production and it can never be lost. As you can see this is a constant pulse voltage with no gating at all. You can see this in Pict.3



Pic 2



Pic 3

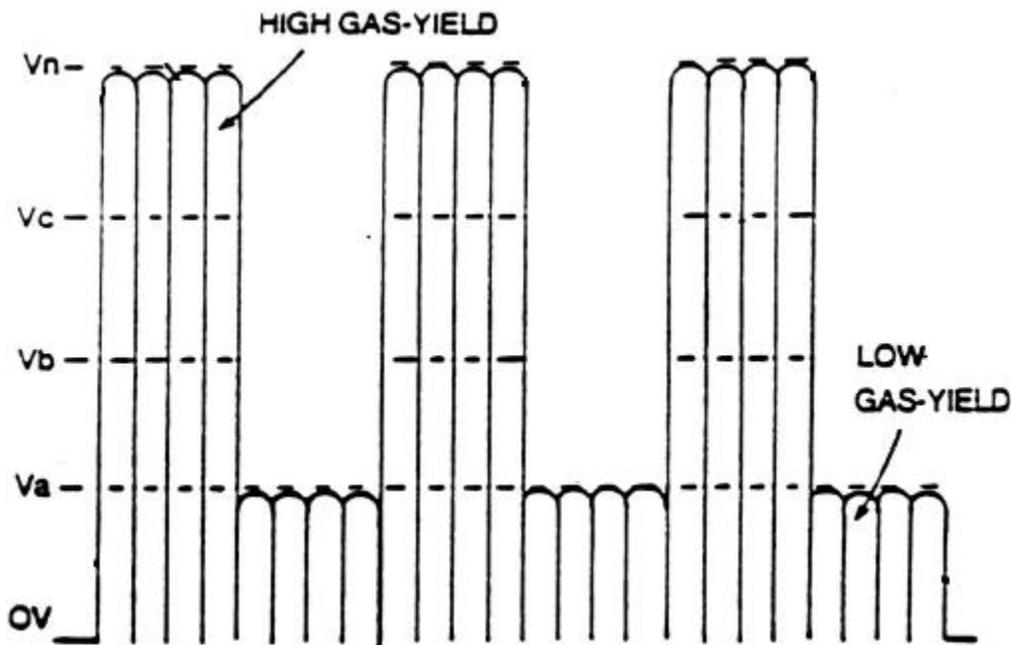


Pic 3 (Notice the dashes are one part and dashes/hump are the second part Earl)

**WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2476, on January 15th, 2016, 06:00 PM » [Last edited on January 16th, 2016, 01:29 PM](#)

Now let's increase the voltage from Va to Vn.



Pic 3

**WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2477, on January 15th, 2016, 06:02 PM » [Last edited on January 15th, 2016, 06:08 PM](#)

There you go the gating shows up in full view.

The old saying goes, it takes money to make money.

Same goes For Stan's way, it takes gas to make gas.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2478, on January 15th, 2016, 06:12 PM »

Interesting info GPS, thanks for sharing.

So are you saying the voltage shouldn't be completely shut off during gating?

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2479, on January 15th, 2016, 06:16 PM » [Last edited on January 15th, 2016, 07:09 PM](#)

Exactly, if you shut the voltage off completely you will never create the polarization process and keep it going.

The polarization process can't be created on the fly like in Pict1 using high voltage.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2482, on January 15th, 2016, 06:28 PM » [Last edited on January 15th, 2016, 06:34 PM](#)

GPS,

How do you keep the circuit from not shutting off during gating?

From the looks of Stan's circuits it seems like they shut off completely during gating.

The only thing I can think of is maybe the gate frequency has something to do with it?

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2483, on January 15th, 2016, 06:32 PM » [Last edited on January 16th, 2016, 01:33 PM](#)

I had to build a circuit to do it. But with Stan's GMS and VIC cards it will do it all for you.

But I will tell you the gating frequency and the pulse frequency has to be synchronized with each other.

Stan does this with his frequency card. All the frequencies that come from his main frequency card are all synchronized with each other.

Just build yourself Stan's frequency card and build yourself an offset circuit for the gating frequency.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2484, on January 15th, 2016, 06:36 PM » [Last edited on January 15th, 2016, 06:49 PM by gpssonar](#)

[Quote from gpssonar on January 15th, 2016, 06:32 PM](#)

I had to build a circuit to do it. But with Stan's GMS and VIC cards it will do it all for you.

But I will tell you the gating frequency and the pulse frequency has to be synchronized with each other.

Stan does this with his frequency card. All frequency that come from his frequency card are all synchronized with each other.

Just build yourself Stan's frequency card and build yourself an offset circuit for the gating frequency.

That doesn't make sense to me, unless there is something I am not seeing in his diagrams and PCB's.

Which frequency card are you talking about, the gated pulse freq gen or the variable pulse freq gen?

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2485, on January 15th, 2016, 06:39 PM »

The main frequency generator board.



**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2486, on January 15th, 2016, 06:42 PM »

The gate board is for the GMS unit that controls the gating for the Digital control means card.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2487, on January 15th, 2016, 06:46 PM » *Last edited on January 15th, 2016, 06:49 PM*

you could do that adding a second primary OR varying the voltage don't you?

I just cannot see those wires going anywhere. I think that's only half the answer =) isn't it?



**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2488, on January 15th, 2016, 06:51 PM » *Last edited on January 15th, 2016, 06:56 PM*

what is an off set circuit for the gating ?

I imagine the gating doing the reverse...kind of raising the voltage for the production when needed on demand?

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2489, on January 15th, 2016, 06:55 PM » *Last edited on January 16th, 2016, 01:34 PM*

All you will need is an offset circuit for the gating frequency. You can find one in Stan's circuits. There is one on the voltage control card and also on the Vic card. I'm sure you can find a simple offset circuit on the web.

R.Walke

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2490, on January 15th, 2016, 06:57 PM »

Beautiful explanation Ronnie. I can't believe we all missed that.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2491, on January 15th, 2016, 07:01 PM » [Last edited on January 15th, 2016, 07:12 PM](#)

It's just an offset that raises the gate signal above 0 volts to 2, 3, 4, 5 volts above ground state, so the polarization once created can't be lost. When Stan say's the process starts all over again, He don't mean from ground state.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2492, on January 15th, 2016, 07:13 PM » [Last edited on January 15th, 2016, 07:20 PM](#)

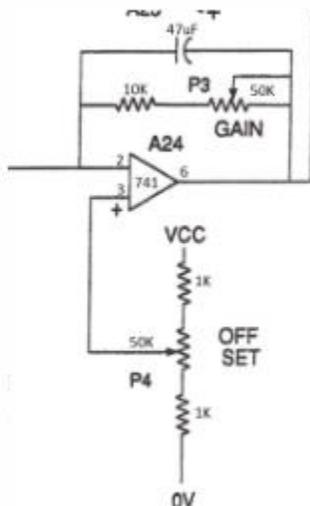
Can you point it out in Stan's circuits....That's something I've never noticed before.

From what I just looked at it's part of the 741 op amps Stan used?

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2493, on January 15th, 2016, 07:30 PM » [Last edited on January 15th, 2016, 07:39 PM](#)

It is part of the 741 op amps. This is just one example of offset and gain control. If you look at the GMS and Vic unit all the offsets and gains has lock nuts on them so they can be set and never be moved once set. If you look at the Accel card on the GMS unit you will see low idle and Max that is also offset and gain controls.



[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)

« Reply #2494, on January 15th, 2016, 07:44 PM »

Wow, that alone is probably what has stopped so many of us from getting the cell working.  
Thanks GPS

The only issue it's going to cause is if you don't have it right, you'll saturate the core.

[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)

« Reply #2495, on January 15th, 2016, 07:48 PM »

You won't saturate the core if you pick the right core for the frequency you will be pulsing at.

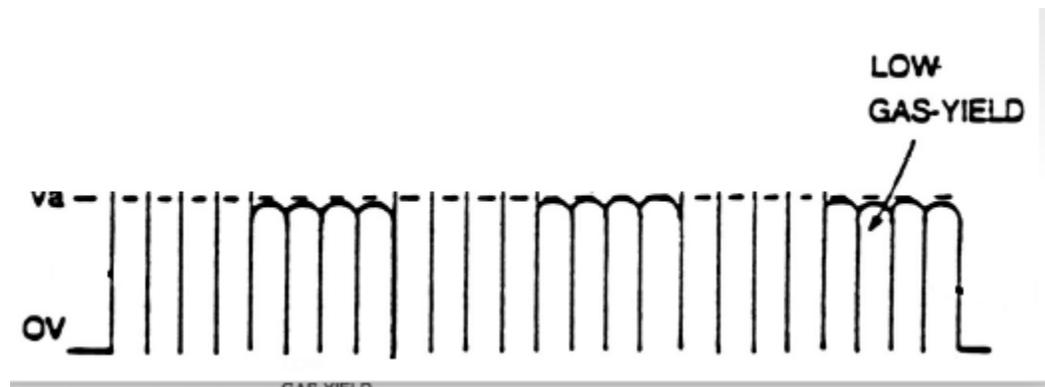
[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)

« Reply #2496, on January 15th, 2016, 07:51 PM » [Last edited on January 15th, 2016, 08:06 PM](#)

Here is a couple things that may help you understand better also.

The pulsating voltage zones also help restrict amp flow during the electrical polarization process.

PolarizationProcess. Pic



Pic 3

The higher the frequency of the voltage pulse, the greater the production of gas.

[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)

« Reply #2497, on January 15th, 2016, 07:54 PM » [Last edited on January 15th, 2016, 07:58 PM](#)

[Quote from HMS-776 on January 15th, 2016, 07:44 PM](#)

Wow, that alone is probably what has stopped so many of us from getting the cell working.

Thanks GPS

I know that is the reason people has not got gas out of their cells. But there is more once you get the polarization started. We will get to it all as time goes by. That should be enough to keep people busy for a while including Ed M. Stop throwing high voltage to the cell Ed, it won't do you any good believe me. I done been there.

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2498, on January 15th, 2016, 08:07 PM »

It does make sense as it keeps the molecules aligned during the "off time".

I looked into dielectric relaxation years ago but never connected the dots...

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2499, on January 15th, 2016, 08:18 PM » *[Last edited on January 16th, 2016, 01:37 PM](#)*

Exactly, as long as them little molecule's buggers are spinning you will never stop them long enough to align them to make any gas using Pic1. By the time you get them to slow down your letting them spin again. :)

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2501, on January 15th, 2016, 09:55 PM » *[Last edited on January 15th, 2016, 09:58 PM](#)*

Ronnie,

Your last string of posts have made it absolutely clear to me why you chose to use Stan's exact circuits. There was no way you could have known what to do until you actually saw Stan's circuits doing it. Thank God you listened to your gut on this one.

Also, great detective work reverse engineering Stan's circuits. I know others have tried. I think Nate made good progress, but it would have taken quite a bit more time hadn't you come along.

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2505, on January 15th, 2016, 11:42 PM » *[Last edited on January 21st, 2016, 03:09 PM](#)*

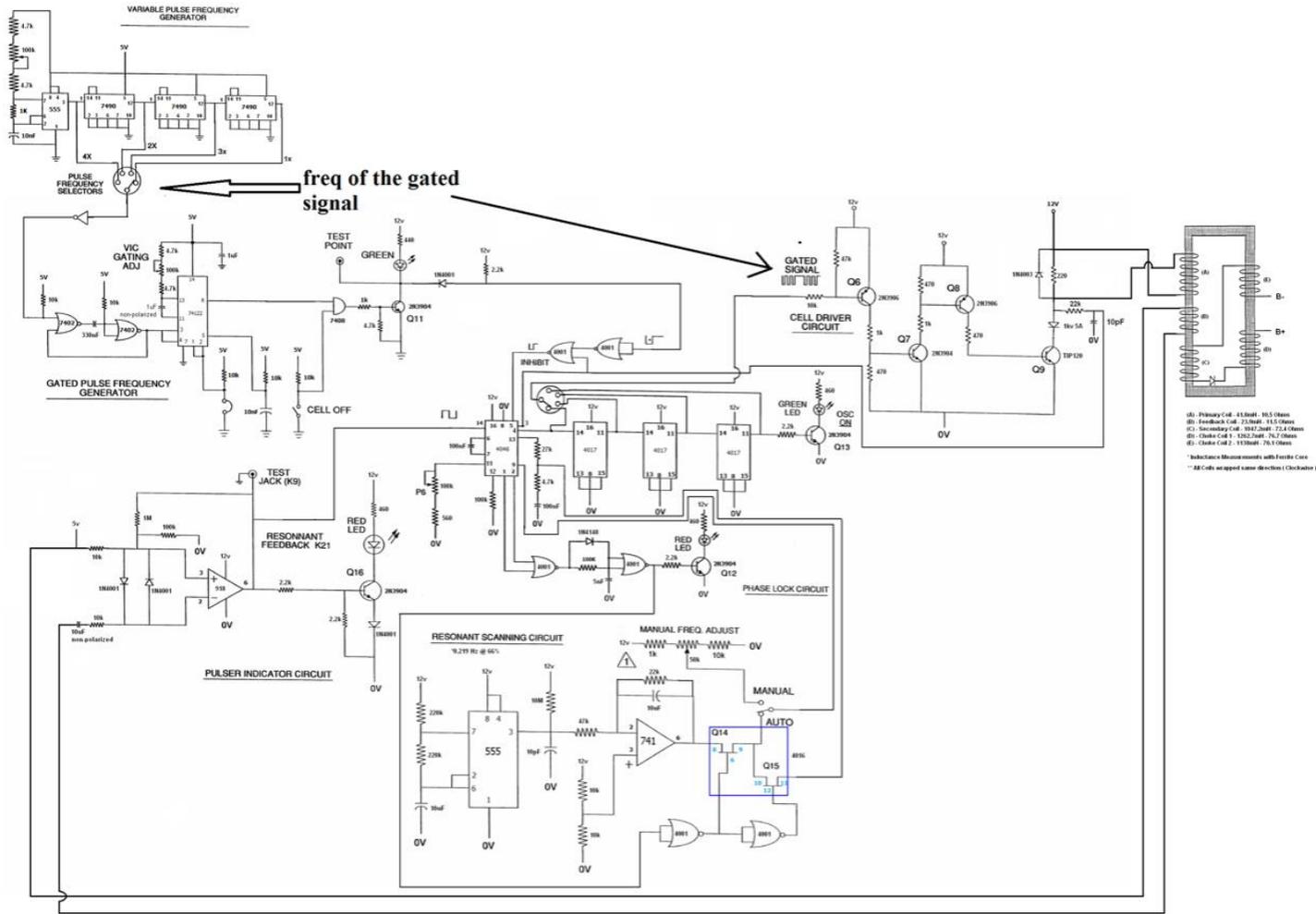
Looking at the Voltage Amplitude Control, is producing 2V to 9V feeding the tx of the primary. The offset and gain, control the 2V offset and gain the speed it will adjust the voltage depending on the input (J) pulse frequency from the accelerator card.

~webmug

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2506, on January 16th, 2016, 05:03 AM » *[Last edited on December 16th, 2016, 03:41 PM by haxar](#)*





Complete\_Circuit\_with\_values\_3-18-2012.png

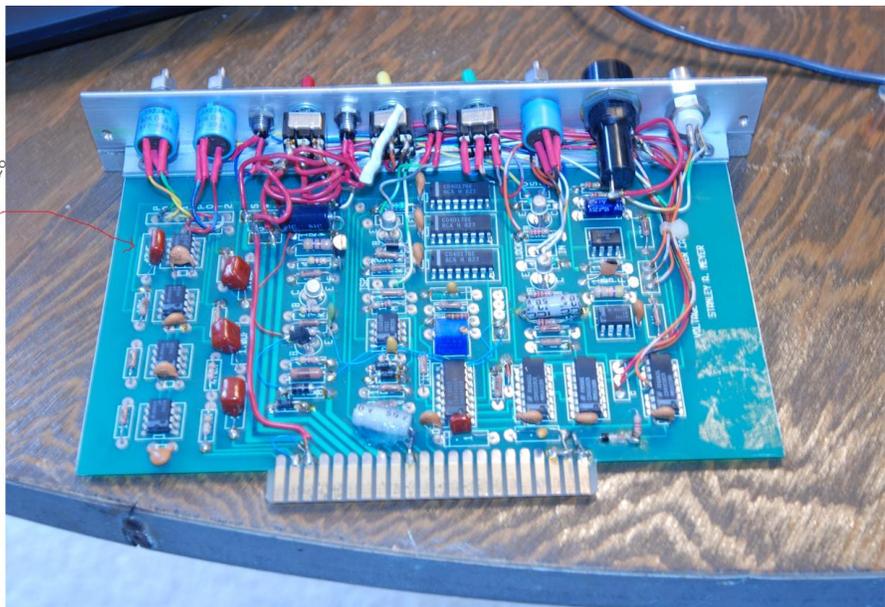
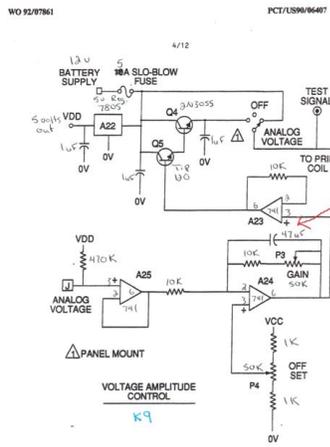


FIGURE 4  
SUBSTITUTE SHEET

Pic

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2507, on January 16th, 2016, 07:37 AM »

Thanks, Ronnie, for sharing / teaching us that important bit of information. There is value in knowing something works, but the greater value is in knowing why that something works.

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2510, on January 16th, 2016, 01:54 PM » *[Last edited on January 16th, 2016, 02:09 PM](#)*

**[Quote from Matt Watts on January 15th, 2016, 09:55 PM](#)**

**Ronnie,**

Your last string of posts have made it absolutely clear to me why you chose to use Stan's exact circuits. There was no way you could have known what to do until you actually saw Stan's circuits doing it. Thank God you listened to your gut on this one.

Also, great detective work reverse engineering Stan's circuits. I know others have tried. I think Nate made good progress, but it would have taken quite a bit more time hadn't you come along. Matt, All I knew is I got it to working again, But I was not going to post anything about how it works until I was able to confirm it with Stan's electronics. Building all this is making it all come together and putting a lot of theories to rest. I can't wait to get into the choke and cell and how the cell is charged up. But right now, people have enough to chew on for a while with the polarization process.

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2518, on January 16th, 2016, 09:08 PM »

Awesome to hear that story. Thanks for sharing it!

I'll set up a camera once I start testing again. I have a good feeling about it all this time thanks to your and Adams help.

Just got my new scope today, awaiting my new dual channel freq gen and some other equipment....Hopefully testing will start again in a month or less.

**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2519, on January 16th, 2016, 09:12 PM » *[Last edited on January 16th, 2016, 09:17 PM](#)*

Does your dual frequency counter have offset control on it?

Also check it and see if both frequencies are synchronized with each other.

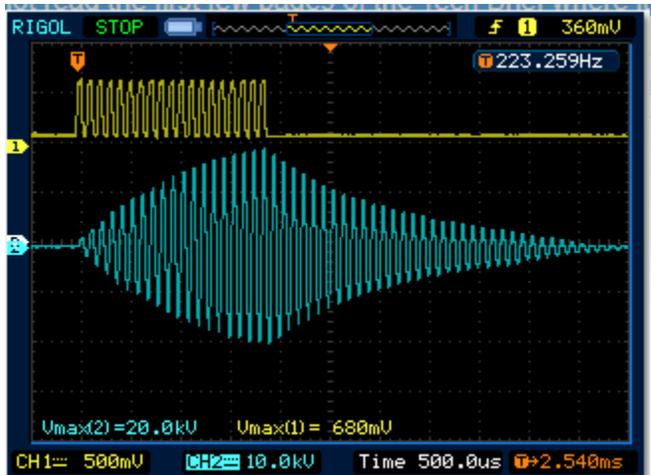
**[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)**

« Reply #2523, on January 17th, 2016, 04:50 PM » *[Last edited on January 17th, 2016, 05:07 PM](#)*

Some people has looked at my sperm wave and made comments about it.  
For some reason they must have not read the first few pages of the Tech Brief where it states.

The Inductor (C) takes on or becomes an Modulator Inductor which steps up an oscillation of an given charging frequency with the effective capacitance of an pulse-forming network in order to charge the voltage zones (E1/E2) to an higher potential beyond applied voltage input

Modulation Pic



Wave Pic

[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)

« Reply #2524, on January 17th, 2016, 06:24 PM » [Last edited on January 17th, 2016, 07:12 PM](#)

So, it's an amplitude modulated wave???

The resonant freq is the carrier while the gate is the modulating wave?

Stan led us all to believe he was charging the capacitor to a high DC voltage?

I still don't get Stan explaining the choke as a pfn, it discharges right when the applied pulse ends. I guess you could call it a pfn but an inductor does the same thing....

[Re: WATER FUEL CELL Technical Brief \(Building, Testing and Understanding Stan's Work\)](#)

« Reply #2526, on January 18th, 2016, 05:02 AM »

[Quote from gpssonar on January 17th, 2016, 04:50 PM](#)

Some people has looked at my sperm wave and made comments about it.

For some reason they must have not read the first few pages of the Tech Brief where it states.

Perhaps this might help?

<http://www.angelfire.com/moon2/xpascal/MoonHoax/ApolloSystems/ApolloSystems.HTM>

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2528, on January 18th, 2016, 08:32 AM » [Last edited on January 18th, 2016, 08:39 AM](#)

Timeshell,

Great find, tons of similarities there.

GPS,

Stan's waveforms are taking me back to Puharich's work, surely they were doing the same thing, their circuits are nearly identical.

Maybe all of Stan's talk of charging the capacitor to a high DC voltage was another method he used to keep people from replicating his work and to keep the patent office from realizing he was doing the same thing as Puharich?

BTW, when I modeled and simulated the VIC in multisim a few years back I added in the capacitance of the chokes. Once I did this, I simulated the circuit and guess what happened? I got an Amplitude Modulating waveform! Maybe that is why Stan talks about the coil capacitance as if it's so important. In that circuit the resonance was occurring between the choke and the cell, but the chokes themselves also formed a parallel LC circuit which caused the voltage across the cell to change polarity, even with the diode in the circuit the choke capacitance makes it possible.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2532, on January 22nd, 2016, 07:57 AM » [Last edited on January 22nd, 2016, 08:01 AM](#)

@Ronnie,

Can you tell a bit more on what point (M, M1, J, A) in the circuits the yellow and blue (duty-cycle) scope traces are measured showing in your video? I think I know, but I'm not sure... yellow is (to primary coil TX1) and blue (M, M1)?

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2533, on January 22nd, 2016, 04:18 PM » [Last edited on January 23rd, 2016, 01:14 PM](#)

Sure, there is one (J) output from the analog voltage generator that is connected to the digital control means card. That is the signal that you see going up and down. They are several outputs of the J signals that comes out the Digital control Means board. One (J) goes to the voltage amplitude for the primary. Some of the J outputs goes to other cards. The (M) on the digital control means card is the signal that is fed into the analog voltage generator which

produces the J signal. (M1 through M4) goes to the injector cards which is the signal that you see going back and forth which controls the injection (on) time and other things.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2538, on January 22nd, 2016, 11:52 PM » [Last edited on January 22nd, 2016, 11:53 PM](#)

Ronnie, I only found one J output connected to the input of the voltage amplitude control, but several M? What do you mean with several J outputs??

~webmug

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2540, on January 23rd, 2016, 01:20 PM »

If you look at Stan's actual Digital control means card you will see it has, I think 4 or 5 (J) outputs on it, that goes out to different circuits.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2541, on January 24th, 2016, 08:15 AM »

**Quote from Webmug on January 23rd, 2016, 12:07 AM**

**The yellow scope signal.**

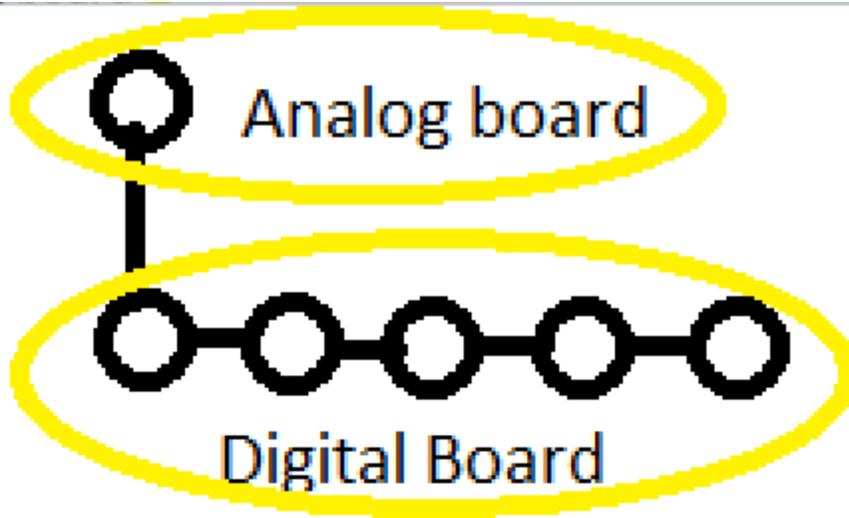
~webmug

the yellow scope signal comes from the analog voltage generator, which is tied to digital control means, meaning build everything just for a simple offset. Anyway, I managed to "foul" the J input by building a voltage divider coming in the J input, without that the "gain pot" is locked. Don't know why but the offset pot is adjusting the voltage from 2v to 11.45v, and the gain pot is adjusting the same voltage but in a short range of 2v. How your circuit works Ronnie? which pot does what?

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2543, on January 24th, 2016, 05:10 PM » [Last edited on January 24th, 2016, 05:17 PM](#)

The digital control means board has nothing to do with (J) it only has 5 additional outputs on it from the analog generator board. The analog board sets on top of the digital board. In other words, one J output from the analog board, and that one output is fed to 5 pins on the digital board as outputs. Like the photo below.

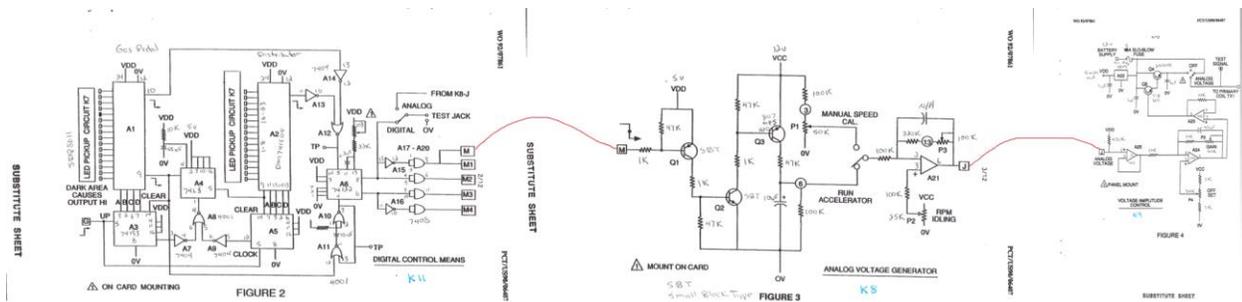


**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2548, on January 25th, 2016, 11:13 AM » *Last edited on January 25th, 2016, 11:39 AM*

Ronnie, I made a group of pics so we can see better. The digital control (has acceleration circuit on it) is tied to the analog voltage gen, then that goes to amplitude control, so...they all tied. I searched all the opamp circuits, I built stan's sch. but it only controls the ON pulse up and down. You cannot control 2 freq with a single output of an opamp. The signal must be fed to the opamp inputs + - to control its offset

HMS-776, in pin 2 of the opamp there is not a square wave, but I think you place that to experiment. If we trace back the schematic, we can see that on analog voltage gen there is another offset opamp, and before that there is a manual speed calibration which is a pot as a voltage divider, that's where the signal starts, excluding the digital control. **And from what I saw in all schematics "VDD" is 5v, VCC is 12v.**



**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2549, on January 25th, 2016, 12:44 PM » *Last edited on January 25th, 2016, 09:05 PM*

**Yeah that frequency to the 741 pin 2 represents the gate frequency. You see in the waveform when the gate is "off" the voltage across the resistor (primary coil) decreases but does not go to**

zero. The amount of offset changes when you adjust the pot.

From GPS's explanation that's what I understand the circuit is supposed to do and the simulation shows the same thing....I just picked out all the other stuff as I am not building the whole GMS unit, I just want to get my cell working....I think I need to do more work on the offset circuit though as right now it's just not giving me a wide range of control.

Comment added by Earl: Notice in the circuit above M and M1 are the same output. M goes through the Analog voltage path and gets the voltage offset added and it appear from this discussing the gate as well. This is analog part of signal to VIC. M1 goes through the Gated Pulse Frequency Generator which sets the pulse width of the digital signal and passes it to VIC.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2550, on January 25th, 2016, 09:43 PM »

Yes, HMS that's what I said too, the gating must be fed on the opamp input pins. But I did not see on estate photos any connection on the opamps input pins

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2551, on January 25th, 2016, 10:41 PM »

Pretty sure it's there....anyways that offset circuit I posted came directly from Stan's drawings. Like I said I just removed it from the rest of the GMS so it can be used on its own.

Now my question for Ronnie is about the gate and resonant frequency being synchronized? I'm not sure what he means but I think they need to be sync'd so that when the gate turns the circuit on the resonant frequency comes on at the same time and both pulses rising edge lines up. He said there is a sync function in Stan's circuits that do the job, maybe I can take that out and get it to work separately too.

Either way I'll be breadboarding some stuff soon, Hopefully I'll have my offset circuit, drive circuit, and sync circuit up and running soon as everything else is ready.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2552, on January 26th, 2016, 02:45 AM » *Last edited on January 26th, 2016, 03:00 AM*

If you look at Stan's schematics, on the digital control means schematic and the analog generator you will see rising edges and falling edges signals with Dots on them. The dots tells you if the signal is on the rise or on the fall edge. In the photo below tells you it cares less what the rising edges is doing or when it occurs, it only cares when the falling edge occurs. That's how he is able to keep everything synchronized, some IC chips works on rising edges and some work on falling edges.



Ronnie can I just ask you something? A spark plug has about 4000 ohms impedance, but I don't think your VIC has nowhere near that, I've been using capacitive reactance calculators and such trying to work out how you tuned the VIC to the spark plug. How did you match the capacitive and inductive reactance of the VIC to the spark plug and did you also have to narrow the spark gap?

Did you use any resistive or capacitive elements in the impedance matching network or was it more to do with frequency?

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2643, on September 8th, 2016, 09:02 AM »

Frequency

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2671, on October 4th, 2016, 05:54 PM »

Quote from HHO-Dan on October 4th, 2016, 06:24 AM

Impedance Must be a HUGE deal or there would not be a 220 Ohm resistor on the primary.

Or suppose the primary was exactly the value you wanted, then there would be no need for the resistor.

Quote from HHO-Dan on October 4th, 2016, 06:24 AM

This can only be there to match the impedance.

The primary impedance must be matched yes, but to what is the question. Before you can answer that, you must ask why.

You also need to take into consideration what the impedance is during the pulse, not just when the pulse is off.

**Re: WATER FUEL CELL Technical Brief (Building, Testing and Understanding Stan's Work)**

« Reply #2672, on October 5th, 2016, 03:47 AM »

Exactly, Matt

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## Understanding How Stan Meyers Fuel Cell Works

« on October 22nd, 2016, 04:13 AM » [Last edited on October 23rd, 2016, 05:58 PM](#)

The time has come to tell my story how **Stan Meyers Fuel Cell Works**. October the 23th 2016

First! I want to have a disclaimer statement. I **Ronnie Walker** will not be responsible for anyone that uses this information in this thread to create any type of voltage and current either high or low of either of the two. **You** take full responsibility of your own actions and the use of any information that is discussed in this thread. "**High Voltage and Current can KILL You**" This thread, and the post in this thread made by me or others, is for information use only.

Second! It is assumed that anyone that uses this information has at least the basic knowledge of electronics, formulas and equations. Therefor I will not be held responsible for anyone that uses this information and cannot get a Fuel Cell to work. In other words **DON'T BLAME ME!**

Thanks,  
Ronnie Walker (gpssonar)

Let's get started! (October 23, 2016)

Several years back I made the discovery how Stan was able to produce gas on demand for the second time. Like everyone else I keep throwing voltage to the water hoping to see it just fall apart into Hydrogen and Oxygen with no luck at all. Like everyone else, with very little production of the two gases. (Due to Amp Leakage)

I came across a drawing in Stan's Tech Brief that clearly shows that there is amp leakage in the cell. (Which I will Post below) Like everyone else, I thought the resonant reaction Stan talked about, was on the water itself. When in fact the resonate action will only take place when the water is removed from within the cells. Then an only then will the two choke coils come together and interact with one another. As long as there is water between the cells, the two choke coils will not interact with each other which will stop any resonance to occur between the two due to the dead short. (Water)

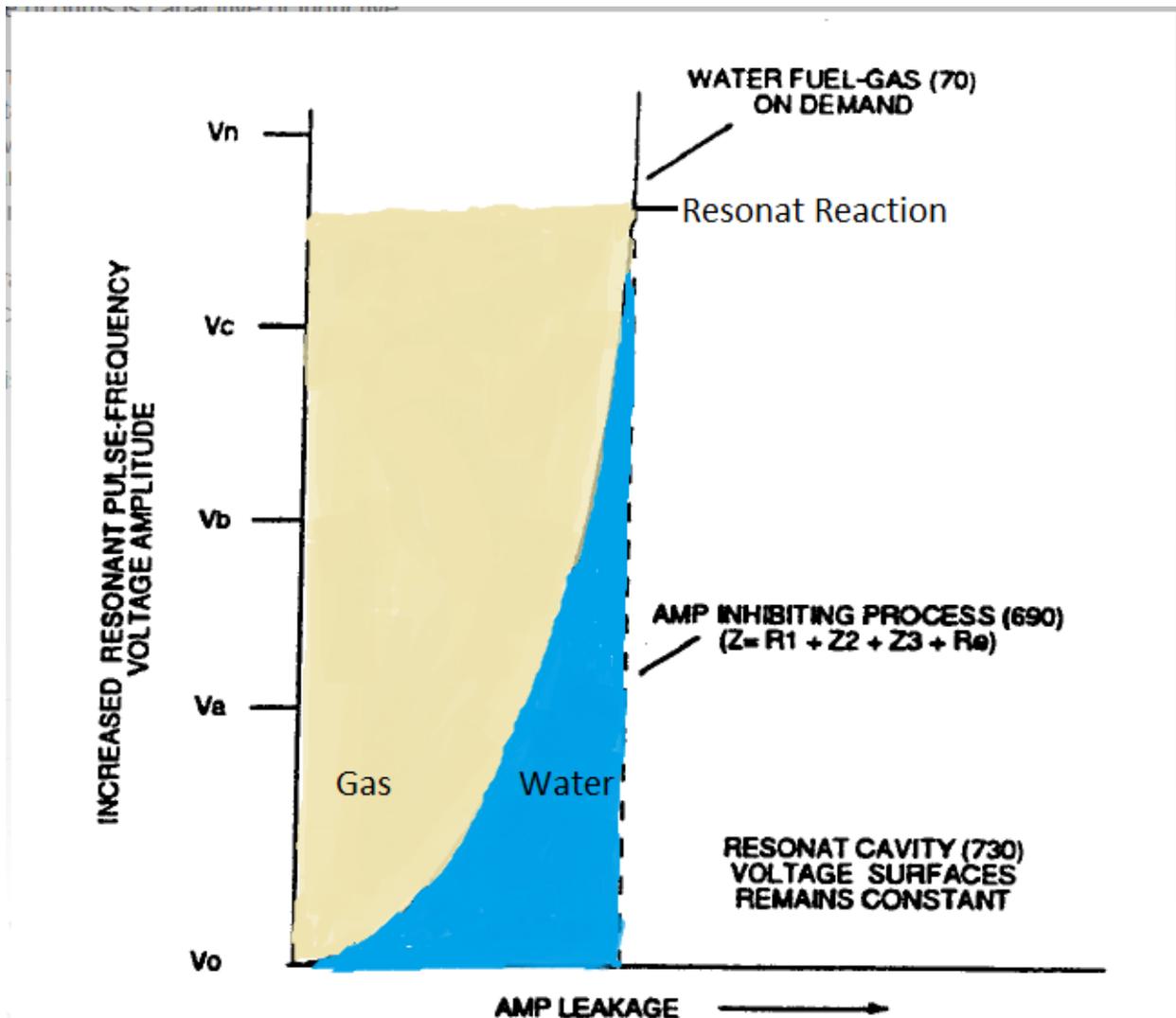
Stan states, that you must overcome the dead short condition before resonance will occur and allow the voltage to take over and do the work. This is where everyone including me took this statement way out of context.

It does not mean applying a high voltage to the water and it will just go away. It means removing the water within the cells, which is a dead short condition in order to overcome it.

So the question is how do we remove the dead short condition so the coils can interact with one another? The answer is Amp leakage within the cell. So how do we create this Amp leakage in the cell? The answer is with the L1 Choke Inductive Reactance and the Cell Capacitance Reactance. When you design the choke and the cell it has to meet certain criteria. When you subtract the two from one another you don't want the math to come out to zero. What you want is an ohm value left over. That ohm value is what is going to cause the Amp leakage within the cell. This is where you get into voltage leading the current or voltage lagging the current, depending on if the net value of ohms is capacitive or inductive.

So in other words as the voltage increases so does the amp leakage. At a certain point of increased voltage, the water will be removed from the cell and will be replaced with gas. This is where the resonate reaction will occur between the two chokes and the voltage will take off to infinity and the amps will drop to nearly nothing. (Voltage taking over and doing the work). Since all coils are adding one another.

In the drawing I have colored it showing the water in blue and gas in yellow. As you can see there is amp leakage that causes the water to be removed and replaced with gas or gasses. Once this is achieved and only when this is achieved is when you will see a resonate condition take place to make Stan Meyers Water Fuel Gas on Demand.



**Re** ["Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #3, on October 23rd, 2016, 01:01 PM » [Last edited on October 23rd, 2016, 01:19 PM](#)

As you can see, we don't want resonance to occur until the water is removed. In fact, we are using the water itself to prevent it from occurring until the water is removed at the same time as the maximum applied voltage is reached.

**Re** ["Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #6, on October 23rd, 2016, 01:26 PM » [Last edited on October 23rd, 2016, 01:36 PM](#)

Quote from X-Blade [on October 23rd, 2016, 01:18 PM](#)

Ronnie, and what happens in relationship to L2 before the Water being "removed"?

The resistance in the coil of wire on the L2 choke is used as to restrict amps as well. It will not become part of aiding the voltage until resonance occurs. Only when the water is removed will the two chokes interact with one another. As Stan states the water is part of the circuit, but once the water is removed you are left with the resistance of the wire used in the coils. **The water itself and the amount of amp leakage gives you control to reach maximum voltage before resonance occurs.**

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #8, on October 23rd, 2016, 01:38 PM » *Last edited on October 23rd, 2016, 02:02 PM*

**Quote from X-Blade on October 23rd, 2016, 01:35 PM**

**So, the coil behaves only resistive at this time? Or reactive to?**

The L1 choke is inductive and the L2 is resistive until the water is removed then it becomes inductive and aids to the voltage when resonance occurs.

**People talk about frequency doubling the wrong way. Frequency doubling will not and does not occur until the water is removed and resonance takes place.**

**Also step charging is taking out of context also. Step charging only occurs as the water is being removed. Once the water is removed and resonance takes place you won't see step charging anymore. It's not something you will see that still stays on your scope. All you will see on the scope is the two chokes interacting with one another and their resonate reaction with one another once resonance is achieved. You have to start the process over again in order to see step charging take place again, or lower and raise the voltage.**

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #10, on October 23rd, 2016, 02:13 PM »

So, we are still after resonance, but only when the cell is empty of water. In this condition, if things are tuned properly, we should be able to waive a fluorescent bulb near the cell and see the glow from the high voltage. I would call that basically step one to ensure the VIC is actually working as it should. One might want to connect a high voltage oscilloscope probe and verify, but really all that is needed is something to indicate there is a couple thousand volts per water cap (individual cell).

Step two, that you just went into is intentionally creating amp leakage, otherwise known as brute force electrolysis. We need this to electrically separate the plates--make them

a true capacitor by removing the dead short. This is where all the bunk about coating the plates goes out the window. The raw stainless is fine once we have gas between them and not all water. And once we have gas, the voltage in there will prevent water from returning. The voltage will jump and stay that way under the resonant conditions. So, here's my question about step two: Is the amp leakage needed in proportion to the cell and/or plates? Meaning, if the plates are large, more amp leakage is needed to create sufficient gas where the voltage can begin to rise. But... There is a limit, if we attempt to draw too many amps from those small gauge wires, it's game over. So, the VIC dictates the dimensions of the cell. It would also seem the cell could be too small allowing the voltage in the VIC to climb too high, also another disaster when the wires begin to arc over. So, if you would Ronnie, can you confirm to us that there needs to be a pretty decent match between the cell and the VIC--get outside the boundaries and the VIC smokes. Or... Is the voltage produced by the VIC limited to the Q-factor of the resonant components--coils and water cap?

#### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #11, on October 23rd, 2016, 02:14 PM »

People has made the statement many times, There is no way Stan could be producing enough gas to run an engine.

The Fact is Stan doesn't have to produce a lot of gas to run a car or air plane, or rocket engine. It's not done by producing a lot of gas.

It is done by exciting the gas to a higher voltage to make what gas he does make more powerful.

That's why it has to be diluted to equal the burn rate of gasoline or any other fuel source that is being used.

#### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #13, on October 23rd, 2016, 02:32 PM » *Last edited on October 23rd, 2016, 02:50 PM*

Let me try and answer one question at a time.

Amp leakage needed is not due to surface area or the length of cells, it is due to the gap of the cell and the amount of water that needs to be removed and the voltage you are trying to achieve. You want the water to be removed at the same rate as voltage applied. in other words, you don't want the water removed at 6 volts and resonance to occur when your wanting to apply 12 volts to the primary. The higher voltage you can apply to the gas the more excited it will be and will become a more powerful gas. It is something you have to control with math when designing the VIC and cell.

The smaller the water gap, therefore it takes less amp leakage due to less water to be removed. As you see this in the water injector.

You are exactly right Matt, you cannot draw more current than the wire you use will allow. This is where everyone needs to be careful, once resonance occurs the voltage

will climb towards infinity even with the smallest amount of current in the secondary side, if knocked out of tune it will make toast out of your VIC in an instant. Unlike those, that allows people to set and turn knobs, you cannot allow anyone to tune anything once resonance is achieved.

And to answer your question about match between the Vic and Cell, yes it has to be a matched by design, you want all cells to have close to a perfect match as you can get. That way you have the same voltage across each cell, which will require the same Amp leakage to remove the water at the same time. You want the resonance to occur at the same time in each cell.

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #31, on October 24th, 2016, 02:51 AM » *[Last edited on October 24th, 2016, 03:10 AM](#)*

Russ is right, The Vic uses the L1 and the cell to get the system started. That's what I was saying it is by design, The Inductance reactance of L1 and the Capacitance reactance cannot be zero when the math is done or in other words balanced. It has to be a positive number which will be (ohms) when they are subtracted from one another, not reactance of either of the two. This will allow a small amount of current in the cell as the voltage amplitude increases up to 11 or 12 volts. You do not want the water to be flushed from the cell until you reach almost maximum applied voltage. You want it to be flushed with graduations of voltages 2 4 6 8 10 volts. Therefore, you get maximum voltage when the system goes into resonance at around 10 or 11 volts from the VIC's primary. It's so important that the system doesn't try to go into resonance with water still in the cell, all you will get is amp leakage production. It is also important that it doesn't go into resonance with the cells flushed at 6 or 8 volts because you lose all that voltage you still have left (12) volts. You want the resonate action to take place at or close to peak input voltage, that way you get maximum high voltage when the system goes into resonance.

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #59, on October 24th, 2016, 02:01 PM »

Ronnie, having read what you've said about the function of the VIC and tuning of the cell etc., can you explain how those principles fit into the below schematic for Stan's simple bifilar system. You will see that both coils lengths are the same and there is no primary, it is fed with rectified AC voltage in bursts using a gate. The voltage is 0-115vAC probably using a variac.

Can you explain to the forum the phases of the bifilar, each coils relationship to each other and their relationship to the cell and why Stan has written 'Amp inhibiting circuit (without amp influxing)'

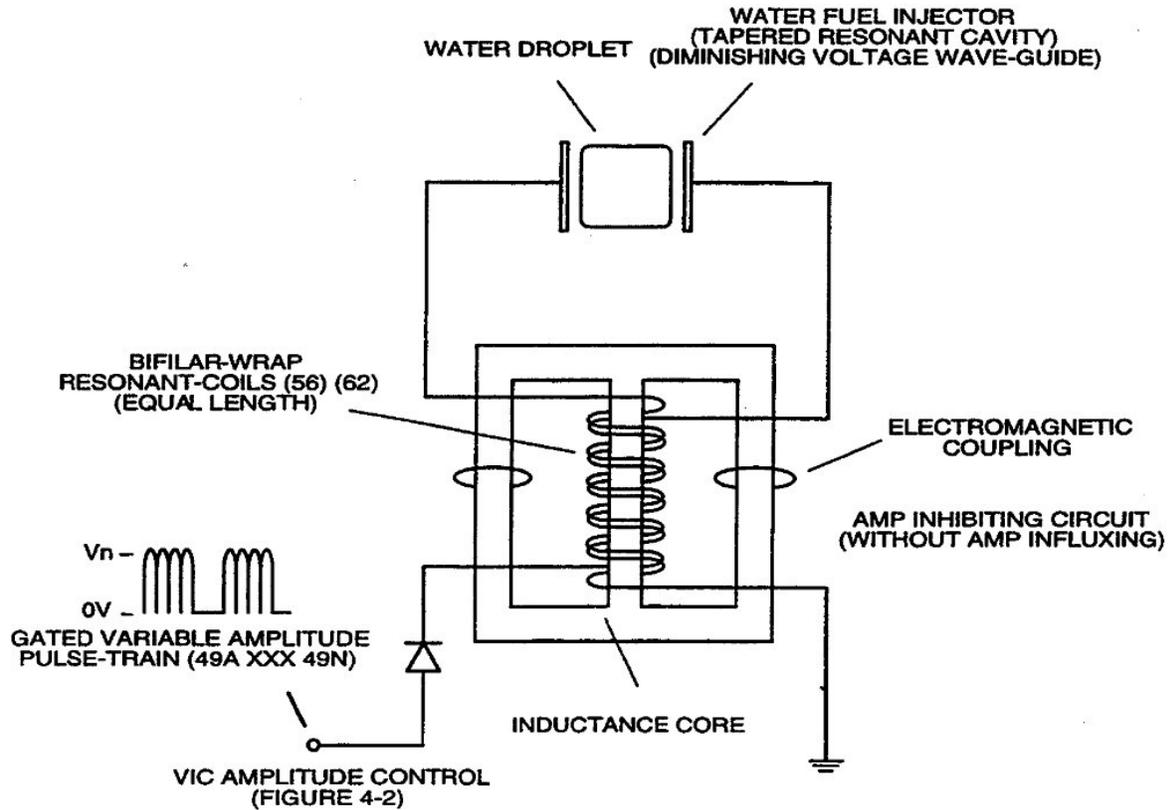


FIGURE 10-3B:VIC BIFILAR-WRAP ASS'Y

### [Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #66, on October 24th, 2016, 02:25 PM »

That's a good photo to share, I was going to share it later, but since you already have, I will talk about it.

First: it shows that the chokes does not have to be on the same core material as the primary and secondary. You will find a few more to prove this in the Tech Brief.

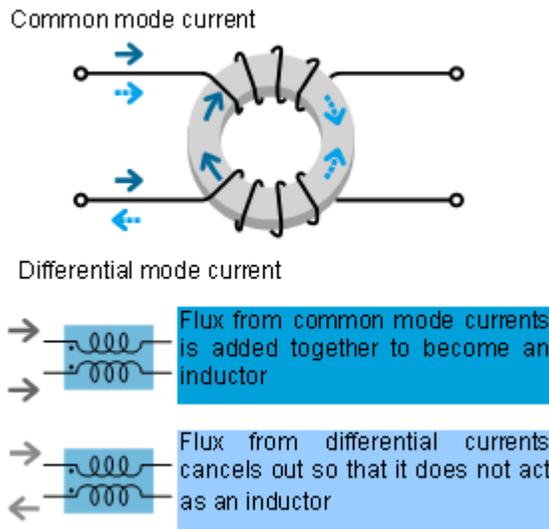
Second: It shows a balance coil design which leaves you with only one variable left that you can make adjustments with. (which is the capacitors) Which he used tubes that he could slide up and down to make adjustments with along with a flat plate cell that is a variable to tune the system.

Third: The I2 choke is always an amp inhibitor until the system hits resonance then and only then will it react with the other coils.

### [Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #71, on October 24th, 2016, 02:47 PM »

I've tested this arrangement many times. It is for all intents and purposes a differential mode choke. It allows frequencies of one nature to pass freely while choking other frequencies. It does so because the Q factor changes from one frequency to another. The flux lines cancel each other out @ self resonance and that is why it inhibits current, when the coils go into self resonance the magnetic lines of flux still cancel each other out in differential mode but the voltage builds up if an escape line of capacitors is not present in which case it dumps the voltage to ground usually. Stan collects the differential mode voltage in his cell instead of dumping it to ground. That is my understanding of it. See here:



**Fig. "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #72, on October 24th, 2016, 03:03 PM » [Last edited on October 24th, 2016, 03:10 PM](#)

**Quote from X-Blade on October 24th, 2016, 02:30 PM**

Ronnie, Is that second stage (resonance) automatic when the voltage goes up to a certain level or we have to do something special?

We can clearly hear Stan saying that resonance superimposes the particle impact to the polarization process rising the yield of gas production (New Zealand house meeting video)

You want that resonance to occur at your peak voltage applied to the primary and not before. That way you get all the high voltage you can produce on the secondary side when it goes into resonance. The leakage current is what's controlled from 2 to 11 or 12 volts. it's automatic once tuned the L1 choke and cells has to be designed to setup the amp leakage along with Frequency.

Let's take Stan's primary for instance:

It has 10.5 ohms in the coil of wire used because he wants a 500 turn on the primary.

The wire he uses is rated at 1.2 amps. in order to get 1.2 amp in the primary you just take 10.5 ohms and a 220 ohm resistor in parallel with the coil and it will give you  $1/(1/220+1/10.5)= 9.97$  close enough to 10 ohms then you take  $12\text{volts}/10\text{ohms}=1.2$  amps

You don't want to fool with your turn count ratio.

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #82, on October 25th, 2016, 02:44 PM » *Last edited on October 25th, 2016, 03:04 PM*

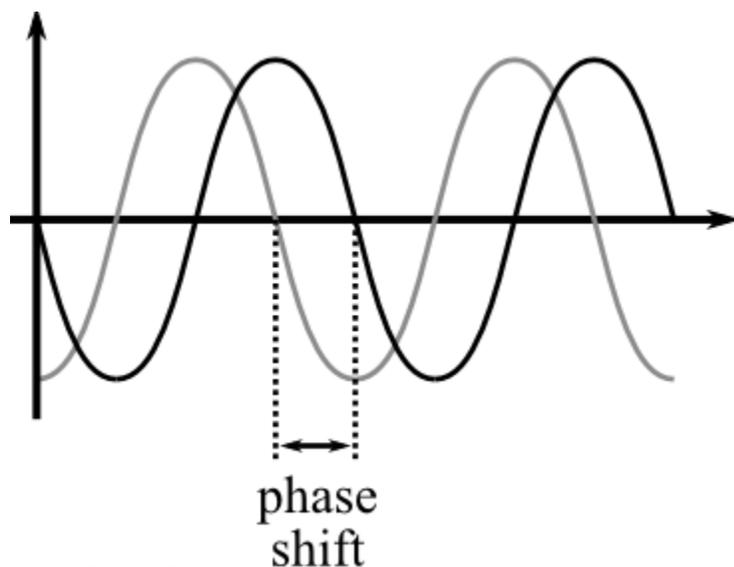
Quote from nav on October 24th, 2016, 04:09 PM

Stan used the wiper arm on L2 to regulate the voltage on one set up but on the bifilar set up there is no regulator apart from the plates. That would mean the plates would need to form a plasma ark to create a voltage dump so that the reactance of the cell could be matched. Here is how I think Tesla did it: Anyway, I'm hogging your thread, sorry I'll just be on the sidelines from now on.

I want to put to rest what the L2 choke is:

I haven't told this to anyone so you're going to see it here for the first time. It is a built in Phase-Shifter Circuit in the VIC, it's for the purpose of providing a desired phase shift in the output voltage compared with the input voltage. Depending on the value of the capacitor and the value of the variable resistor or (inductor) you can determine the phase shift you want.

Kind of looks like the Frequency doubling Stan talks about, don't it?



**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #84, on October 25th, 2016, 03:05 PM » *Last edited on October 25th, 2016, 03:09 PM*

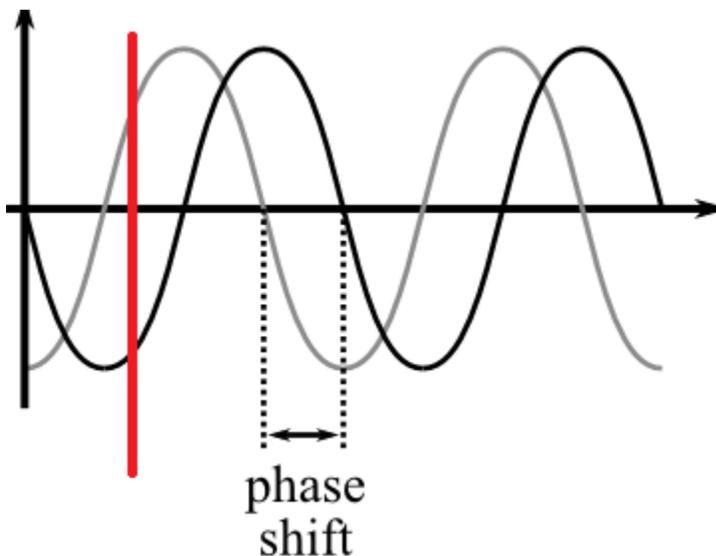
Quote from gpssonar on October 25th, 2016, 02:44 PM

I want to put to rest what the L2 choke is: It is a built in Phase-Shifter Circuit in the VIC, it is for the purpose of providing a desired phase shift in the output voltage compared with the input voltage.

Ah Hah!

That's what I suspected. Like I've said before, timing is everything. Look at where that red line is. Do you see your voltage required to get electrolysis started? I do. (see figure below)

And since it is timing related, you know what that means--changing the running frequency will raise heck with your desired phase shift. So, you have to get the running frequency nailed down before you attempt to adjust the negative choke, or all bets are off.



**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #86, on October 25th, 2016, 03:13 PM » *Last edited on October 25th, 2016, 03:25 PM*

You are exactly right about that Matt!!!! and at hammer down and if the gas pressure gets too high in the cell the gas management card shut the cell down to a preset voltage

but never turning it completely off and once the cell drops to a low pressure per-set value it turns the cell back on again.

**Re: "Understanding How Stan Meyers Fuel Cell Works"** « Reply #91, on October 25th, 2016, 04:07 PM »

Merc, you have to be able to control the phase shift it in Stan's system.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #93, on October 25th, 2016, 05:35 PM » *Last edited on October 25th, 2016, 10:54 PM*

Quote from mercury101 on October 25th, 2016, 03:57 PM

Hmm. A phase shift.

I seem to remember a toroidal coil or transformer also provides phase shift but perhaps too much for the application?

Merc, if you don't know much about the phases and what it does with C and L do read up on it, you will need to know about it, google "Power Factor" and read up on it, also read up on it here find the sections related to L C and Resonance, and Power factor.

<http://open-source-energy.org/rwg42985/russ/books/Hawkings%20Electrical%20Guide%20Full%20Set%20Vol%201-10.zip>

if you understand phase shift, sorry for extra information, for others who do not know the relationship between voltage and current, do read up on it.

Ronnie, I have a simple Question. explain how and why the diode is in there. We know we are trying to make DC not AC Correct?

for me the diode dose may have more reason than meets the eye.

like here look at where the ground is, this is in only a few diagrams everything else the ground is left off.:

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #96, on October 25th, 2016, 06:15 PM »

Russ, I haven't seen that drawing where did it come from? It goes against everything he has said about an isolated ground. It has to be a mistake or something. I have looked at all his VIC's and none of them are grounded. So, I can't comment on that one, other than he mislabeled it.

I would like to draw up something to explain the diode before I comment on it. So, I can put some visual to it. I will work in it and post it.

### [Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #97, on October 25th, 2016, 07:29 PM » [Last edited on October 25th, 2016, 07:40 PM](#)

[Quote from gpssonar on October 25th, 2016, 04:07 PM](#)

Merc, you have to be able to control the phase shift it in Stan's system.

Like Matt said timing is everything.

And for this circuit, timing is handled by the length of wire. You have an AC signal originating from the secondary, one side heads down the positive choke; the other down the negative choke. Now one might think where these two signals meet at the WFC, you have maximum voltage separation and that's true, at resonance. But you don't have resonance until the water is displaced. What you have is a direct short through the water. In essence the output of both chokes are shorted together at this stage in the operation. That's a no-go all the way around. But we still have this little trick we can play and that is shortening the length of wire on the negative choke.

Let's suppose we have a center-tapped secondary and at that center-tap we connect the ground of our two-channel scope as a reference point. Now we connect probe-A to the output of the positive choke and probe-B to the output of the negative choke. What should we see? If the two chokes are equal length, we'll see two identical signals, perfectly in-phase. Make sense? The signal has to travel equal lengths of wire through each choke and therefore they will arrive at the same point at exactly the same time.

Now what happens if we shorten the negative choke (take off turns)? You don't suppose we'll see a phase shift, do you? We should. The signal from the negative side of the secondary should get to the output of the negative choke first. So now run a differential between probe-A and probe-B. You should see a voltage there. If that voltage exceeds 2 volts per cell, bingo! You have the start of electrolysis in your WFC. Get to that point and you're off to the races.

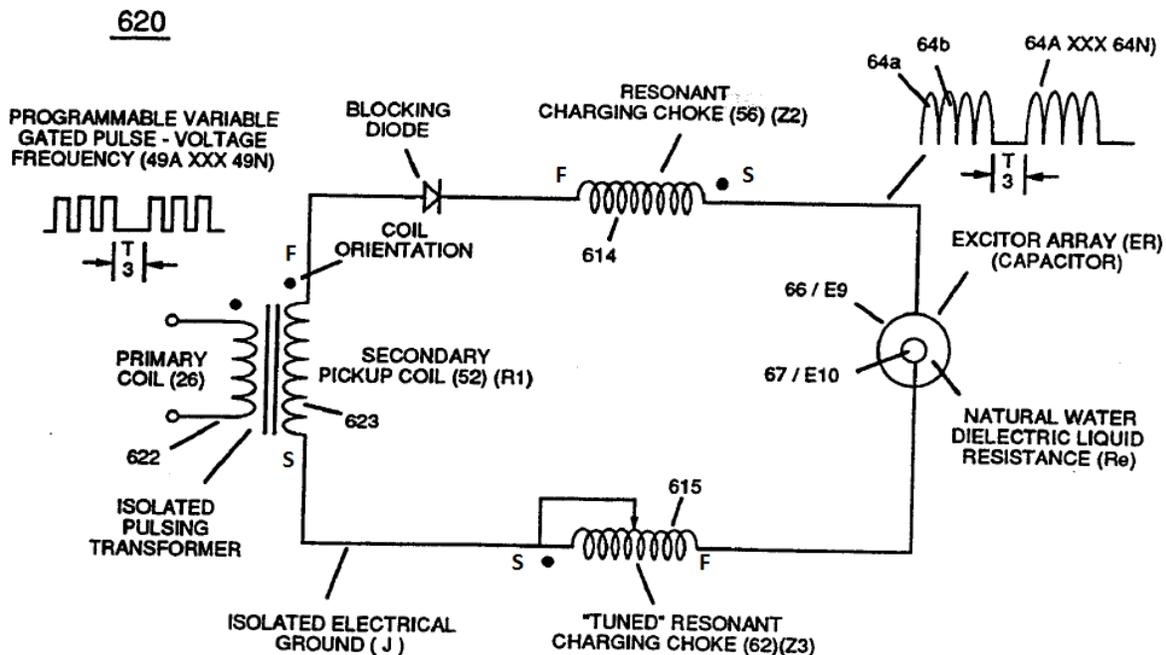
So now do you see how to tune the negative choke with water in the WFC after you have already tuned for resonance with high voltage on an empty (dry) WFC?

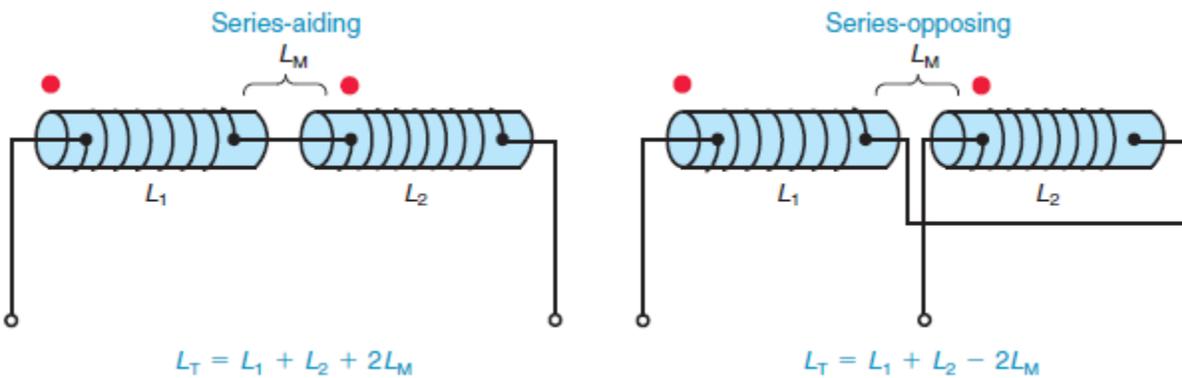
The thing to keep in mind with Stan's technique, you are only creating just enough phase shift to squeak out a few volts to start electrolysis; once resonance takes over, these few volts are far overcome by the thousands of volts when the water is fully displaced in the WFC. The little bit of voltage loss due to this phase-shift becomes negligible.

### "Understanding How Stan Meyers Fuel Cell Works"

« Reply #120, on October 27th, 2016, 03:00 PM » [Last edited on October 29th, 2016, 02:21 PM](#)

Here is a couple photos of the phasing and how the coils are connected. Hope this helps everyone and answers a few questions. Can you tell which coils are aiding and opposing each other?





Now ask the question about the choke coils being the same. The way I can answer this is.

As you can see in plain sight in the photos above, there is a B+ and B- voltage. (Example B+ 500 volts and B- 500 volts. (If the choke coils are of equal value)). In a perfect situation, if the L2 choke has the right amount of resistance in it to stop current flow, and because the blocking diode which only conducts electrical energy in one direction. During pulse off time it also would stop current flow back into the secondary to prevent shorting of the secondary.

We don't want a perfect situation; we want electron movement in the cell. We want what

Stan calls (Electron Bounce), which is electron movement within the cell from plate to plate during On time and Off time. Since voltage is pressure, we can create this electron movement by having two different voltage pressures. (Example B+ 500 volts and B- 450 volts).

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #124, on October 27th, 2016, 09:32 PM »

Quote from Matt Watts on October 27th, 2016, 07:51 PM

I can also see the L2 coil appears to have fewer wraps of wire. At least it looks a bit smaller in diameter to me.

**Primary** (Yellow) -> 10.5 ohms

**Feedback** (Green) -> 11.5/11.1 ohms

**Secondary** (Blue) -> 72.4 ohms

**Choke 1** (Red) -> 76.7 ohms

**Choke 2** (Red) -> 70.1 ohms

AWG 30 resistance to length values:

**Primary** (Yellow) -> 10.5 ohms / (103.2 ohms / 1000 feet) = **101.744186047** feet

**Feedback** (Green) -> 11.5 / (103.2 ohms / 1000 feet) = **111.434108527** feet

**Secondary** (Blue) -> 72.4 ohms / (103.2 ohms / 1000 feet) = **701.550387597** feet

**Choke 1** (Red) -> 76.7 ohms / (103.2 ohms / 1000 feet) = **743.217054264** feet

**Choke 2** (Red) -> 70.1 ohms / (103.2 ohms / 1000 feet) = **679.263565891** feet

Source: Dynodon's Stan estate data sampling. Continued: <http://open-source-energy.org/?topic=119.msg2559#msg2559>

Primary to secondary ratio is 1 to 7.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #127, on October 28th, 2016, 02:15 AM »

Matt, the secondary and L1 are aiding each other and the secondary and L2 are opposing each other. That's how you get a B+ voltage and B- voltage. Compare the two photos below and you can see the aiding and opposing. The second photo came out of the Grobb book if you want to look it up. It's in the chapter 19 Inductance. It will also teach you how to calculate the mutual inductance of aiding and opposing coils. I'm not getting into the Math of it all, right now I just want everyone to be able to identify all the working parts of the VIC.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #130, on October 28th, 2016, 03:11 AM » *Last edited on October 28th, 2016, 03:51 AM*

Quote from ~Russ on October 26th, 2016, 10:13 AM

Nav, you remove turns from L2, that is the " wiper arm" it is a thing you tune by removing turns a few at a time ( let's say 25 at a time) until you see the results your looking for. Matt explained this quite well above.

hope this helps.

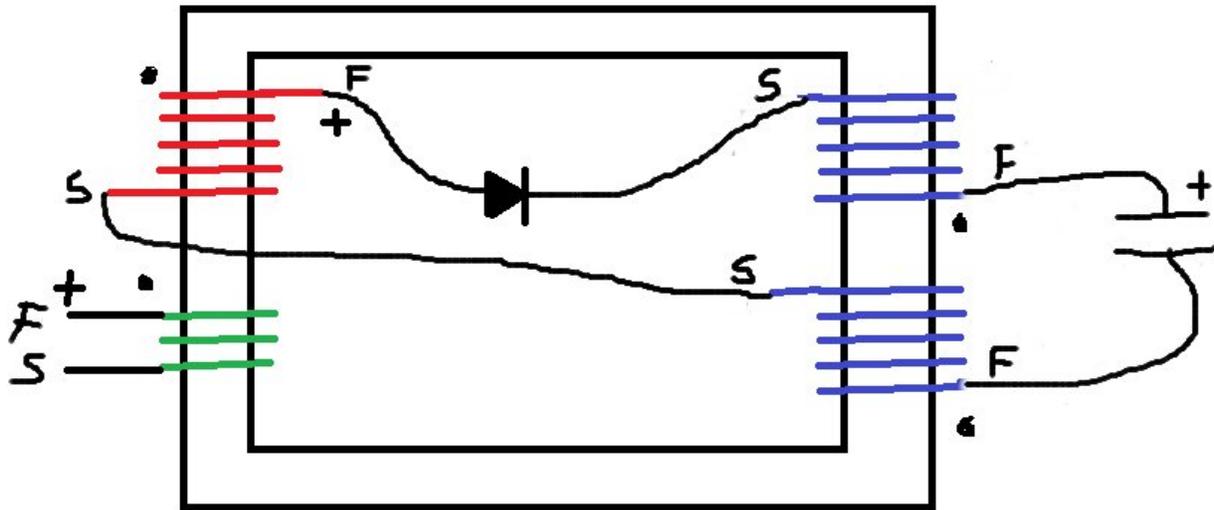
~Russ

Russ if you remember Stan saying in one of his video's he was talking about a tv and how you adjust the B+ voltage. You can do this either by taking turns off the L2 or add turns to L1. But for the Math of everything to keep B+ higher than the B- and to keep it equal and balanced. This goes back to what Nav was talking about when he was stating the coils are matched. Whatever you take off the L2 it must be added back to L1 if that makes any sense. That way you only take off half of what you need on L2 and add back to L1. Man, this VIC is a complicated little animal for it to be nothing, but a bunch of wire coiled up on a core. Lol The biggest thing is identifying each part of the VIC and how they work together and knowing how to calculate the math for each part to come up with a working end result when you're done. You must know what the end result needs to be before you even start. I have described the end result in my posts, so that ought to give some insight of what everyone should be working towards. You want, as in Stan words (Voltage stimulation) (Electron Bounce) (Electron Movement) (Current Flow) whatever the term you want to use along with High Voltage, within the cell but not get back to the Secondary that's the end result.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #135, on October 28th, 2016, 09:36 AM »

I'm thinking it's like this Ronnie.



So what you're saying Ronnie is that L2 as an opposing current direction to the secondary because both negatives oppose each other but because L2 has less turns there is leakage current and voltage and it is the leakage voltage that finds its way to the cell while the vast majority of the current is choked by L2 and secondary cancellation. Brilliant, I should have realized this when I did my bucking coil testing and found leakage voltage.

If we hit resonance during pulse off time, the voltage is exponential and not linear, I'm loving this Ronnie.

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #138, on October 28th, 2016, 02:52 PM »

Quote from nav on October 28th, 2016, 09:36 AM

I'm thinking its like this Ronnie.

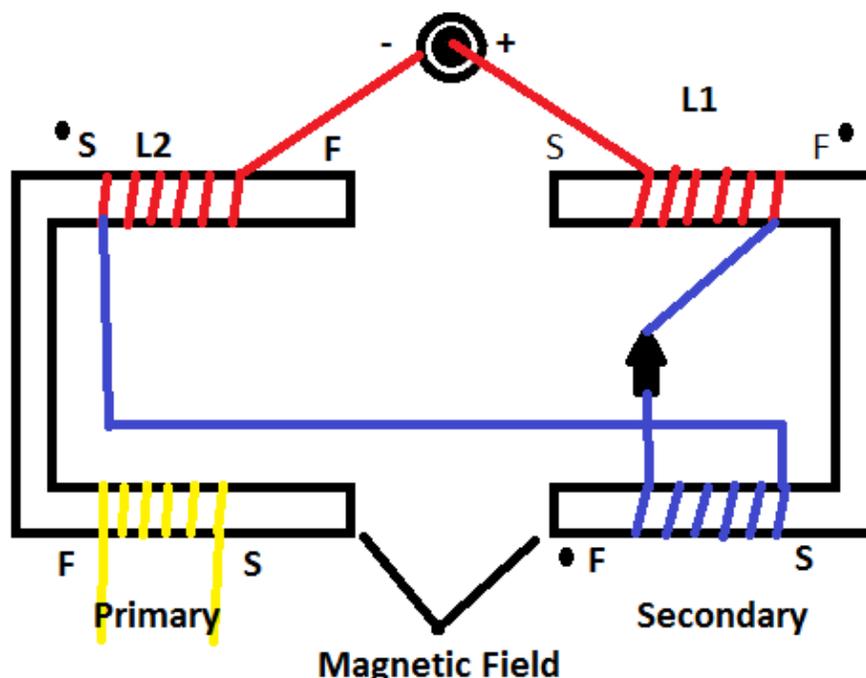
You are correct Nav. Thats how it's wired.

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #144, on October 29th, 2016, 04:59 AM » *Last edited on October 29th, 2016, 01:33 PM*

In this drawing below I have separated the cores for a reason. First, I want you to take notice of the Primary and L2 choke is on the same core coupled together. Next the Secondary and L1 choke is on the same core coupled together. Take notice of the capacitor, it is what brings everything together (other than the magnetic field) that cause

the coils to interact with one another. With a dead short this won't take place, once again you must remove the dead short in the capacitor before any interaction of the coils will occur. You have one transmission line from the secondary and the L2 choke that couples the secondary to the L2 choke. The secondary and L1 choke is already coupled by being on the same core. So therefore, besides the magnetic coupling, it takes the capacitor as well to bring everything together.



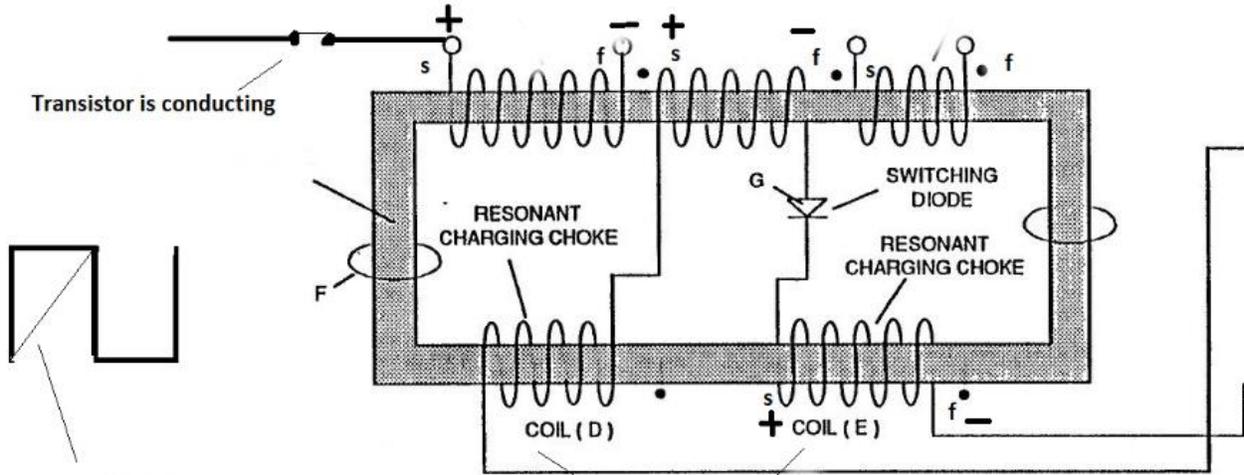
**[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)**

« Reply #146, on October 29th, 2016, 05:32 AM » *Last edited on October 29th, 2016, 05:36 AM*

I think I'm beginning to understand the stages Ronnie. The principle is definitely based on the flyback transformer.

Stage 1 - reverse biasing the diode. The primary is charging the magnetic field in the core and a voltage is building up on the secondary and 2 chokes but the voltage cannot go into the load because the diode will not allow it.

Voltage is building up in the secondaries at the same rate that the magnetic field is building in the core.

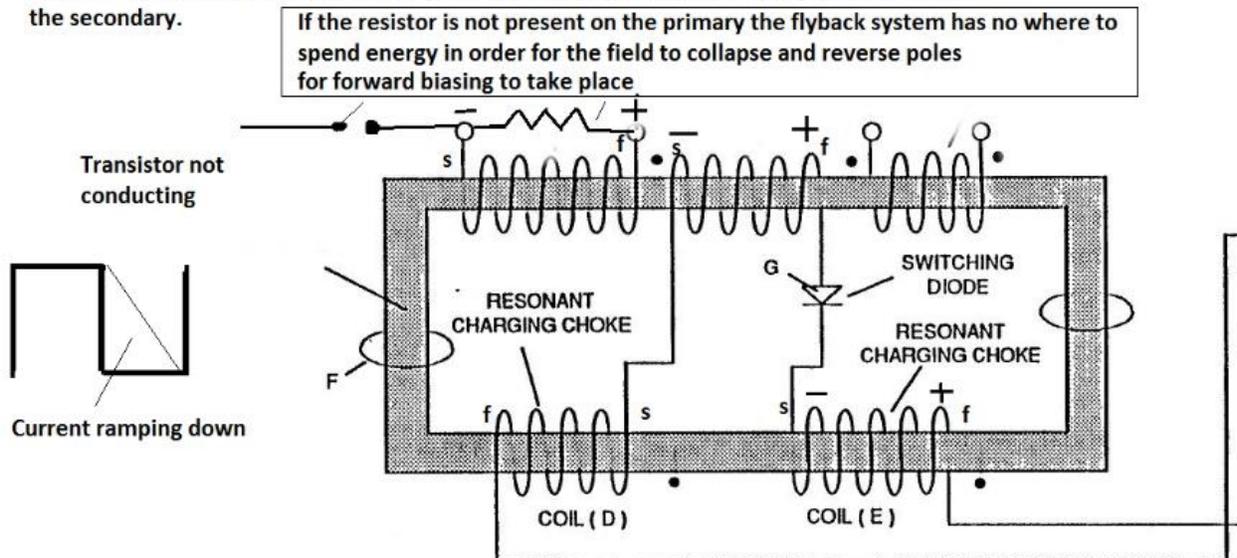


The magnetic field is ramping up just like x-blade explained

The relationship between these 2 coils is irrelevant at this point because of the reverse bias

**FIGURE 9**

Stage 2, the diode goes into forward bias. When the transistor switches off and the primary no longer charges the magnetic field, the field tries to collapse and reverses the voltage poles on the inductors. This allows the voltage to forward bias through the diode and reach the load and normally the current would follow but Stan has used his L2 ( coil D on this pic) to oppose the negative current from the secondary.



**FIGURE 9**

This is an important fact Ronnie: When you pulse the primary and are wondering which wires go where, you must make sure in testing that when the primary is pulsed the secondary wire which goes to the diode MUST produce NEGATIVE charge and reverse bias the diode. When the primary is switched off the coils will switch polarity and the wire going to the diode will turn POSITIVE and forward bias the diode

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #149, on October 29th, 2016, 05:50 AM »

Nav, you're doing a fine job putting things together.

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #150, on October 29th, 2016, 06:10 AM »

<http://www.butlerwinding.com/flyback-inductor-transformer/>

Great read concerning what happens in Stan's VIC, take note of what is said in the discharging stage statement:

**The induced current cannot maintain this field but does slow down the decline of the magnetic field. A slower decline translates to a lower induced flyback voltage. If current cannot flow, the magnetic field will decline very rapidly and consequently create a much higher induced voltage.**

Stan creates opposing negatives and opposes current so that the above statement comes true.

The resistor across the primary ensures that the magnetic field collapse across the primary is quick enough for high voltage to be maintained in the secondaries. Look what people are doing when they build flyback transformers for Jacobs ladders and such. They always solder a 220 Ohm resistor across the primary.

Here lies the basic principle:

If you allow the field to collapse slowly, the induced voltage will be low and the current will be high.

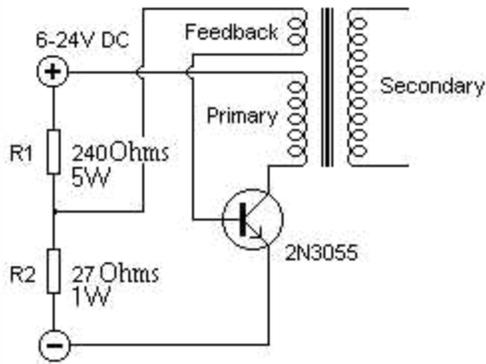
If you block the current and collapse the field quickly then the current will be low and the voltage high.

TV flyback transformers now have series coils and diodes built in and can produce 30kv output from 12v input @ 300mA. But take note, if they don't spend the voltage at the same rate that it is created then they destroy themselves quickly which is impedance lingo.

So, in essence, the VIC is a tv flyback transformer using the reverse voltage bias principle but further blocks the current with L2 opposing the secondary current then uses transmission line impedance matching principles. Also allowing it to operate at the self-resonant frequency of its secondaries which incidentally is also a principle used in more efficient tv flyback transformers. TV's are tuned so that the 30kv from its flyback circuit is always fully used by the tv screen and a dump capacitor. If we build a capacitor and we need to tune it to our flyback circuit, then we too can build a dump to tune it. A big spark gap would be useful.

Here is a typical flyback with the tip 3055 and a 240 Ohm resistor, looks remarkably similar to stans primary set up doesn't it? I wonder what the resistance is of a tv flyback secondary?

Has Stan just rearranged this schematic?



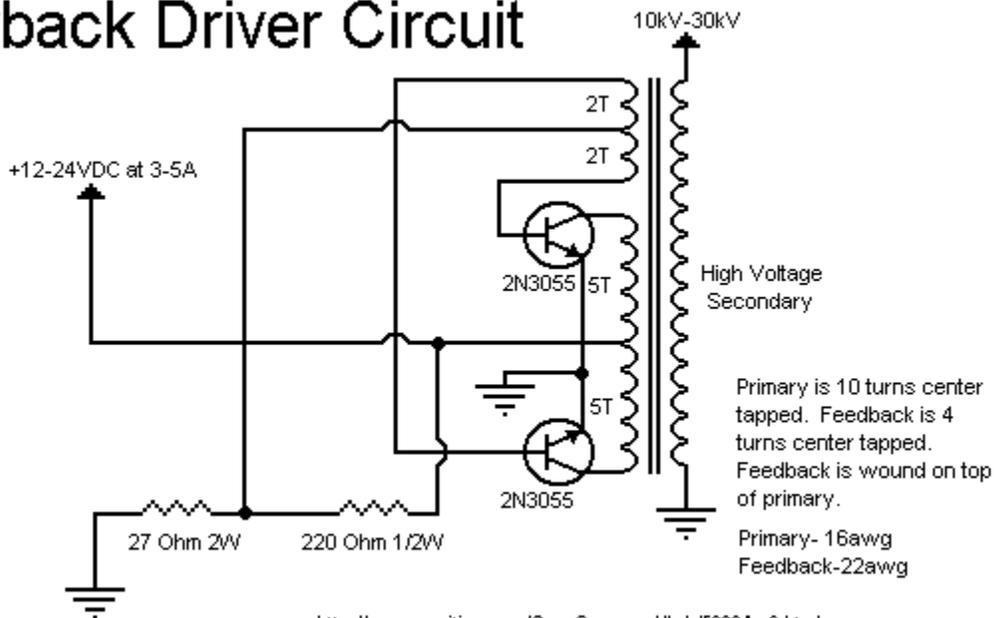
**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #155, on October 29th, 2016, 09:18 AM »

Another flyback drive circuit, this one produces 30kv @ 5 amps but no current restriction.

You could fit this drive circuit onto Stan's VIC though and have current restriction @ resonance of the secondary.

## Flyback Driver Circuit

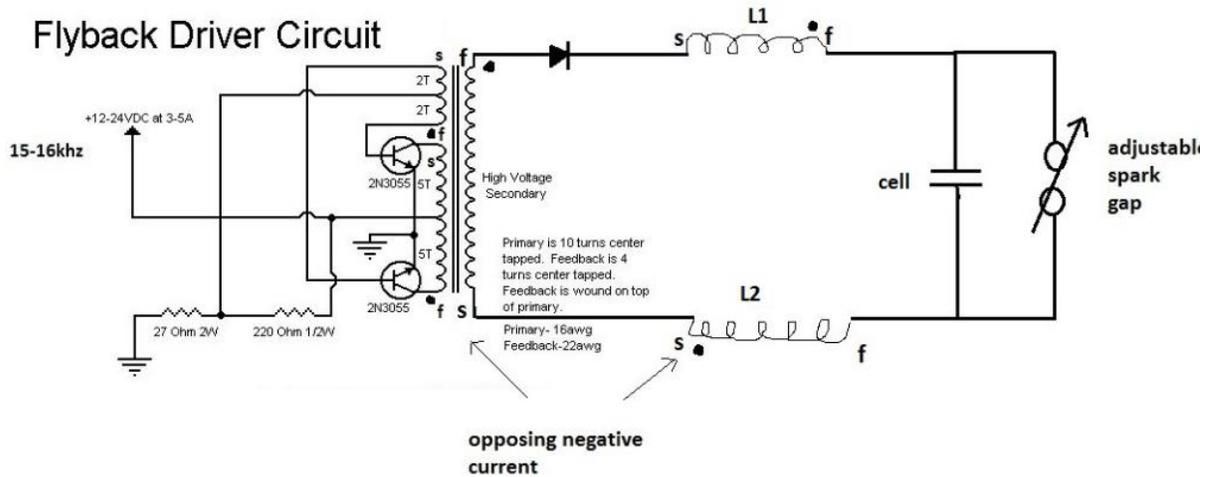


Ronnie has shown us how to restrict current using L2, this was the stalling point for most, now the gloves are off you can fly. We can take the drive circuits and flyback circuits out of tv's and make this work, you don't have to build stan's circuits.

**Quote from hydrofuelincanada on October 29th, 2016, 09:42 AM**

**Stan's circuits are needed to make it work the way he intended it to. Safely and automatically.**

You still can do, but there are other ways like thus which can still be controlled safely. It's understanding the principle at this stage which is important.



Superb reading here:

<http://boginjr.com/electronics/hv/flybacks-guide/>

Boy oh boy is this getting good Ronnie. You were right, Stan took his B+ jargon from tv circuitry talk.

Quote from gpssonar on October 29th, 2016, 10:25 AM

Nav keep up the good work, you are taking a lot of work off my shoulders. Thanks, you don't know how much you are helping.

You're welcome. Now we know why Stan placed his tip 3055, voltage regulator and resistors in close proximity to the primary and the pick up coil as in the below picture. I always wondered why the tip 3055 wasn't on the main board and the voltage reg too. It's because they are part of the most common flyback driver circuit ever made and the diode is also part of that famous tv circuit that's been around since the 1940's more or less. Stan has taken this circuit which has a principle of reverse biasing the diode during charging then forward biasing during discharging, he's rebadged it completely and cleverly hidden it from the patent office. In other words, he found out a tv HV driver could charge a cap of his choice as long as he matches the drive circuitry just like a tv drive circuit is tuned to the cathode it drives. Kinda disappointed really in the end that it turned out this way but it's opened up Aladdin's cave and made things a whole bunch easier. If people can't get the cell working now, then I don't know what to say.



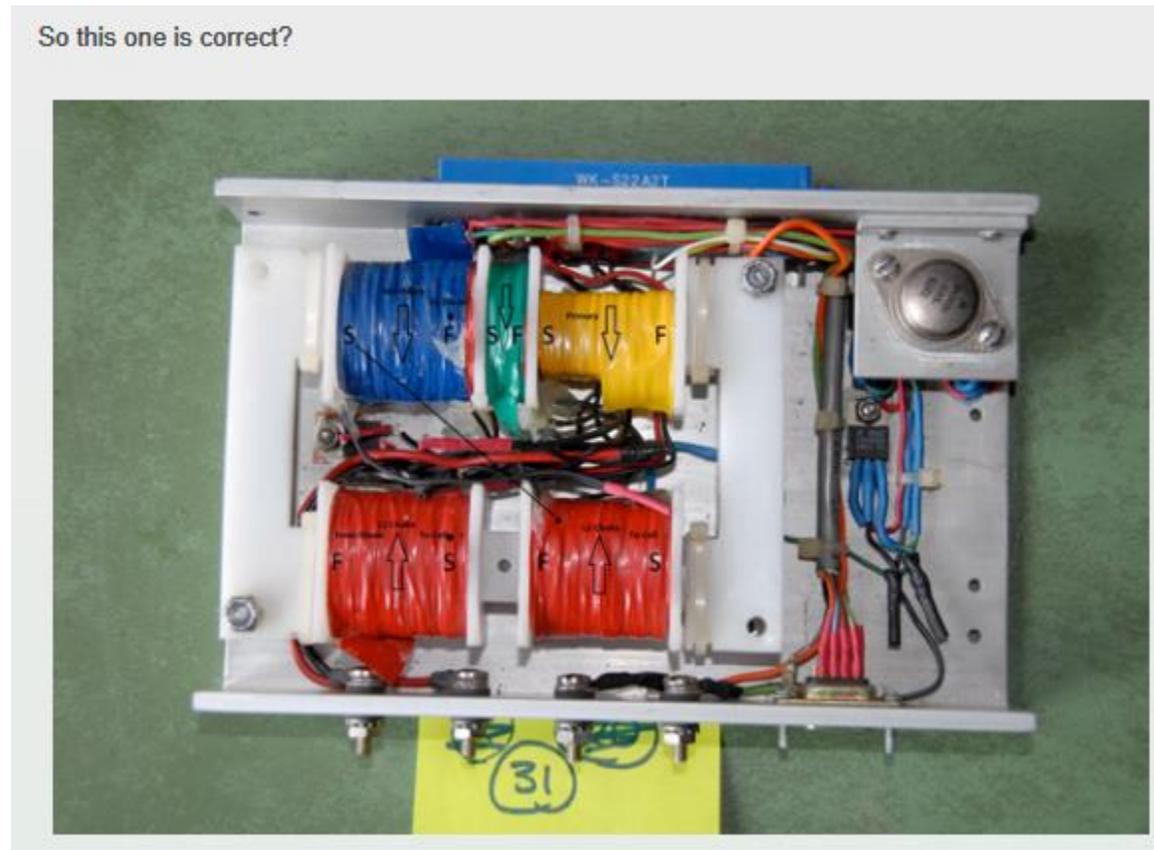
**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #189, on October 29th, 2016, 03:05 PM » [Last edited on October 29th, 2016, 03:07 PM](#)

Quote from Matt Watts [on October 29th, 2016, 03:03 PM](#)

So, this one is correct?

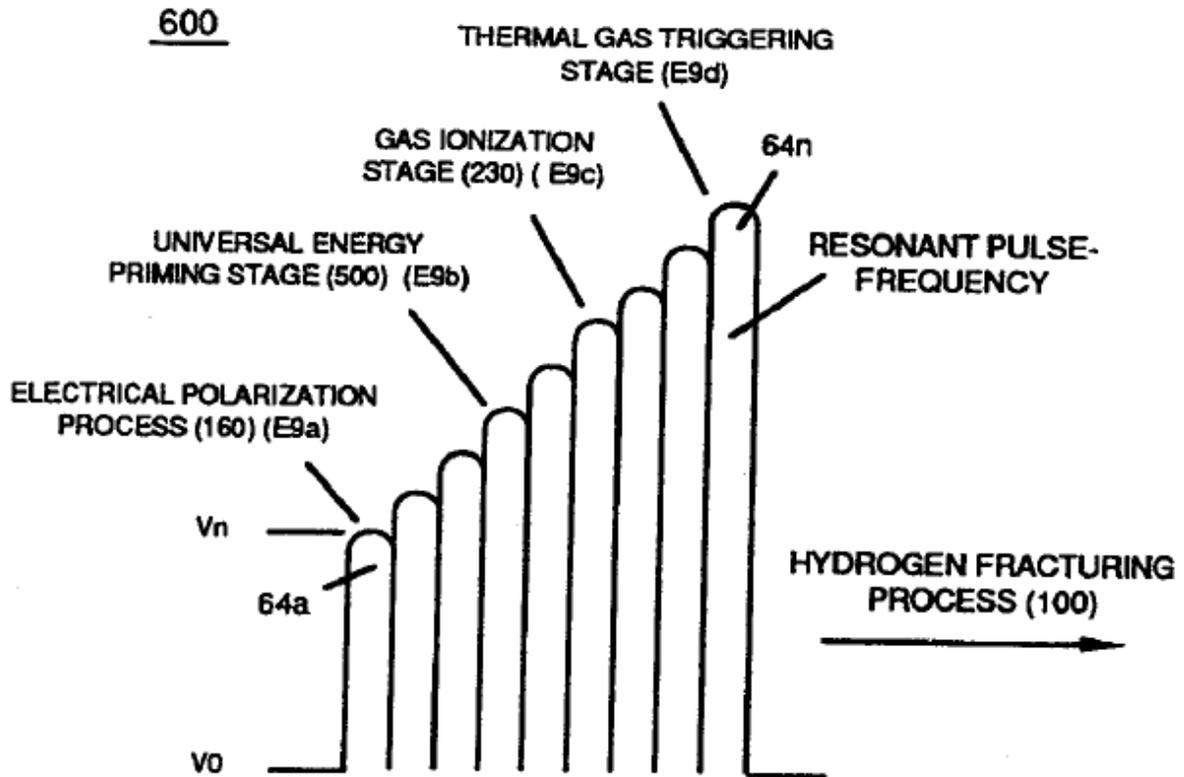
Yes, sorry about the mistake. I'm trying to do all this out of memory due to not having all my work here.



### [Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #205, on October 29th, 2016, 03:49 PM » [Last edited on October 29th, 2016, 03:57 PM](#)

All I can say is, "It takes gas to make Stan's gas". It's a lot easier to take a gas through these stages than it is to try to take water through these stages. Water is only used in the V0 to Vn stage and to keep the process going. It even states Gas Ionization not Water Ionization.



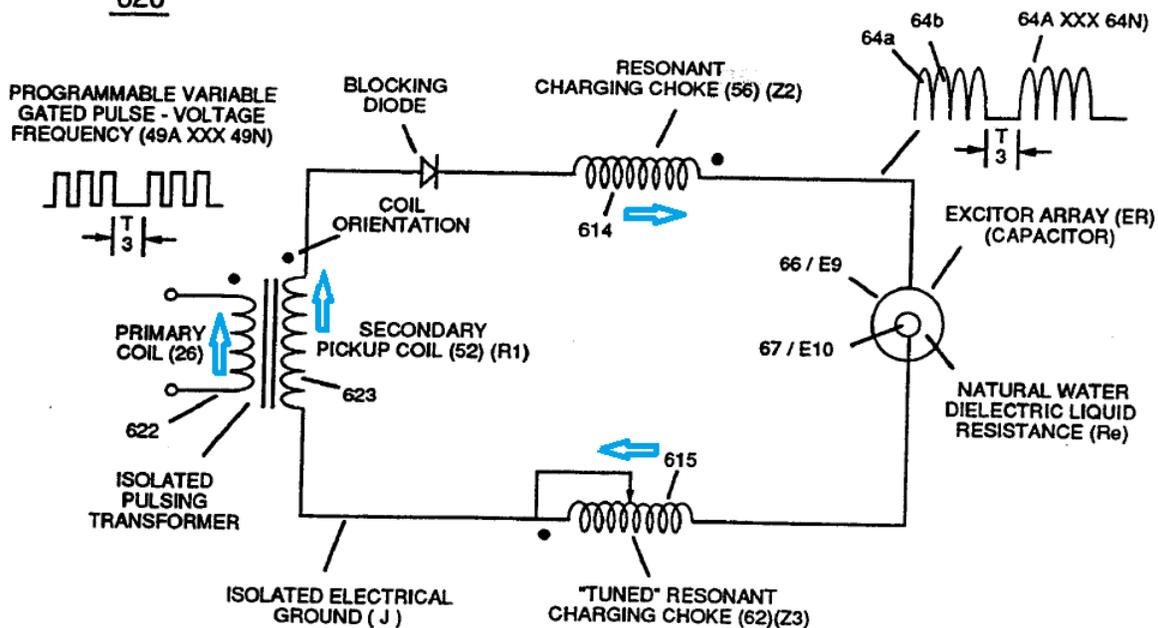
**FIGURE 6-3: DYNAMIC VOLTAGE POTENTIAL**

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #239, on October 30th, 2016, 10:02 AM »

Watch this video, then compare it to the drawing with the phasing dots that Stan has on his drawing.

<https://www.youtube.com/watch?v=LuZh1QnegC4>

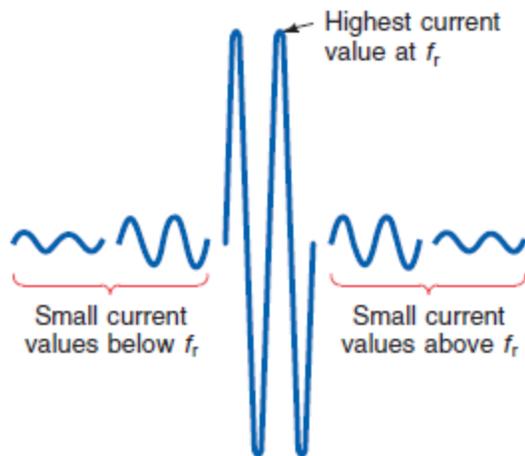


### Re "Understanding How Stan Meyers Fuel Cell Works"

« Reply #254, on October 30th, 2016, 04:51 PM » *Last edited on October 31st, 2016, 03:36 AM*

Remember these 3 things about XL and XC.

1. Below the resonant frequency,  $X_L$  is small, but  $X_C$  has high values that limit the amount of current.
2. Above the resonant frequency,  $X_C$  is small, but  $X_L$  has high values that limit the amount of current.
3. At the resonant frequency,  $X_L$  equals  $X_C$  and they cancel to allow maximum current.



As Brad stated the total resistance of the coils of wire on the Secondary and L1 and L2 and the  $R_e$  of the water is what is used to calculate the current. As you can see the less resistance in the coils of wire and  $R_e$  stays the same can raise the current. But also the resistance of the coils can stay the same and lowering the  $R_e$  can also raise the current. At resonance when  $X_C = X_L$  all you end up with is the resistance of the coils of wire plus the  $R_e$  of the Gas that will determine the maximum current at the resonate frequency.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #257, on October 30th, 2016, 07:36 PM » [Last edited on November 13th, 2016, 02:32 PM](#)

Using Stan's Vic and the numbers Don gave us as an example, I will attempt to show how to impedance match it all.

Question is what is the purpose of Impedance matching?

The answer is Watts in must equal Watts out. (Isn't that right Mr. Watts: *clap*.)

Let's start with the Primary, I have already show it has 10 ohms of impedance in it and how it is calculated.

Line(Primary) side=10 ohms

$12\text{volts}/10\text{ohms}=1.2\text{amps}$

$1.2\text{amps} \times 12\text{volts}=14.4\text{watts}$

Next we use a transformer (Amplifier) to match the Load side.

we need to know the total resistance of the load side.

Secondary side=  $72.4+76.7+70.1+Re78.54+11.5=310$  ohms

Now that we have a total resistance of the line side of 10ohms  
and a total resistance of the load side of 310ohms

Next we take the 310ohms and 10ohms and use this formula to get the turn ratio.

$N_s/N_p = \sqrt{Z_s/Z_p} = \sqrt{310/10} = 5.567$

So we need a turn ratio of 5.567 to 1

We know our line voltage is 12volts We can times this by the turn ratio of 5.567 which is  
=66.816 Load Voltage

Now we have our load voltage.

Next we calculate the load watts

using formula  $(66.816^2)/310\text{ohms} = 14.4$  watts

That's how you do it. :bliss:

Matt, The 11.5 is the feedback coil.....and yes that is correct the chokes must match the secondary....That's why if you take turns off the L2 they must be added back to L1. In Stan's example secondary is 73ohms close enough, then 76ohm for the L1 and 70 for L2 if you take 3ohms off the L1 and put that 3 ohms back on the L2 you can see they all match to 73ohms. Why does he do this? It's to get the slight potential difference in voltage needed on the chokes. Yea My brain can't keep all this straight, that's the reason for the spreadsheet. Too much math to deal with all at the same time. Now you can see when someone ask me a question, how my brain gets all scrambled.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #263, on October 30th, 2016, 11:16 PM » *Last edited on October 30th, 2016, 11:42 PM*

Quote from gpssonar on October 30th, 2016, 07:36 PM

Using Stan's Vic and the numbers Don gave us as an example, I will attempt to show how to impedance match it all.

Question is what is the purpose of Impedance matching?

The answer is Watts in must equal Watts out. (Isn't that right Mr.Watts :clap:)

Hooray! See, I knew I was a part of this whole mess somehow.

Quote from gpssonar on October 30th, 2016, 07:36 PM

Secondary side= 72.4+76.7+70.1+Re78.54+11.5=310 ohms

So secondary coil, plus positive choke, plus negative choke, plus dielectric property of water, plus...

**What's that 11.5 ohms? Where does it come from?**

Quote from gpssonar on October 30th, 2016, 07:36 PM

That's how you do it. :bliss:

Holy cow! The math looks pretty easy, but...

I see some interdependency here that will take lots of do and redo to zero in on the final values. I also see how that very fact enables this circuit to function as it does. It has a built-in feedback loop that will constantly attack the water at faster than the speed of light. If anything changes in the cell, the impedance changes immediately, faster than the water can react. This might be the whole key to it Ronnie. Did you ever consider that?

**The turns ratio will force you to recalculate the resistance of the wire you use to get that many turns, and...**

**The resistance of the wire you spin on the bobbin will force you to recalculate the turns ratio.**

Hmmm... This could turn out to be a little bit of a pain in the butt.

Ronnie, didn't you mention to me a while back that the **turns on the chokes need to match the turns on the secondary?** So if I was to adjust the secondary, to get the right turns ratio, I would also have to alter the turns on both chokes?

That's enough questions for now. I can see why you had a spreadsheet to calculate this stuff.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #265, on October 31st, 2016, 03:09 AM » [Last edited on October 31st, 2016, 03:56 AM](#)

Matt, The 11.5 is the feedback coil.....and yes that is correct the chokes must match the secondary....That's why if you take turns off the L2 they must be added back to L1. In Stan's example secondary is 73ohms close enough, then 76ohm for the L1 and 70 for L2 if you take 3ohms off the L1 and put that 3 ohms back on the L2 you can see they all match to 73ohms. Why does he do this? It's to get the slight potential difference in voltage needed on the chokes. Yea My brain can't keep all this straight, that's the reason for the spreadsheet. To much math to

deal with all at the same time. Now you can see when someone ask me a question, how my brain gets all scrambled.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #266, on October 31st, 2016, 04:21 AM »

Quote from gpssonar [on October 30th, 2016, 04:51 PM](#)

Remember these 3 things about XL and XC.

1. Below the resonant frequency, X L is small, but X C has high values that limit the amount of current.
2. Above the resonant frequency, X C is small, but X L has high values that limit the amount of current.
3. At the resonant frequency, X L equals X C , and they cancel to allow maximum current.

Now this says everything

everyone thinks that choke coils restrict current going in cell which is absolutely incorrect

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

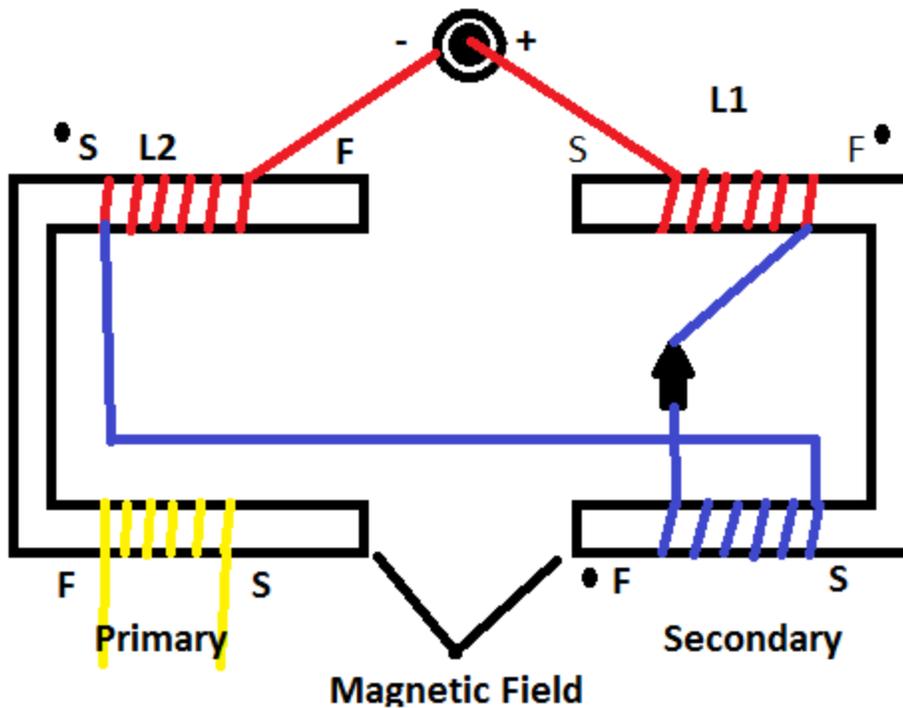
« Reply #278, on October 31st, 2016, 11:18 AM » *[Last edited on October 31st, 2016, 11:20 AM by Sulaiman](#)*

I just realised that I have missed a critical detail,  
where in the VIC core(s) is/are the airgap(s)

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #279, on October 31st, 2016, 11:22 AM »

Just as I have them here. back to work, talk more later.

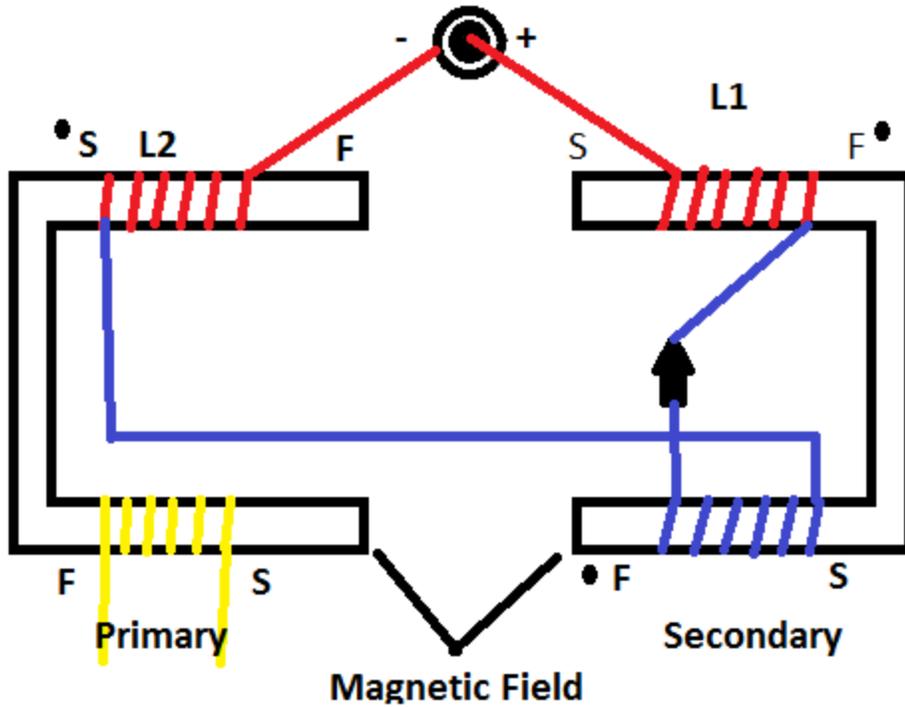


<http://open-source-energy.org/?action=dlattach;topic=2785.0;attach=14138;image>

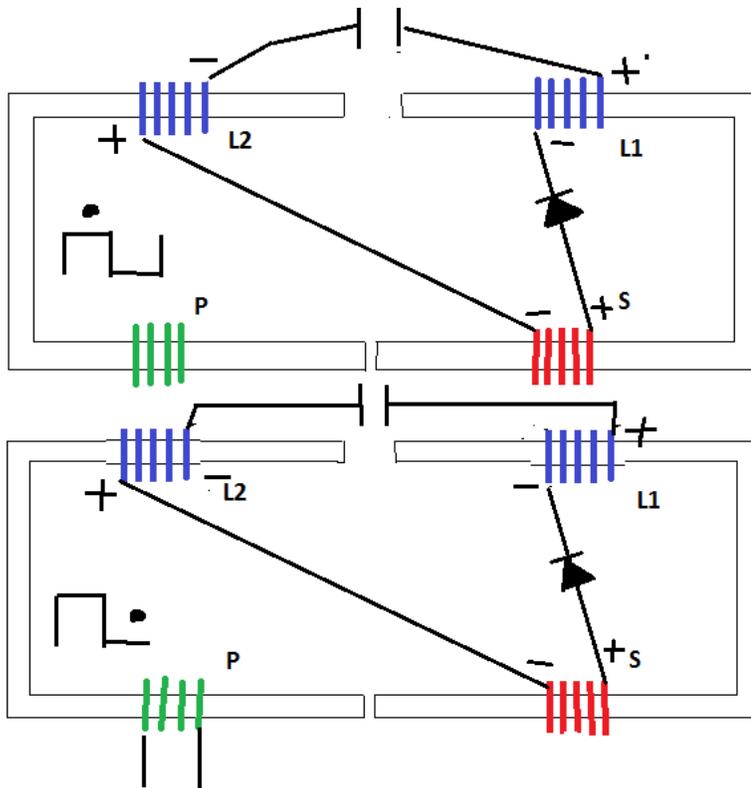
**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #282, on October 31st, 2016, 12:01 PM » *Last edited on October 31st, 2016, 12:06 PM*

Guy's inductors hate reverse current that's why they sound like they are frying when in resonance. What better way to cause oscillation within the cell than to put an inductor on each side of the cell.



Sulaiman, I think Ronnie is trying to tell you this:



Pulse on time, the diode allows voltage to charge the 2 chokes not thru the core but thru the capacitor. The magnetic fields build up in L1 and L2 during pulse on time and the magnetic field also builds up in the secondary

Pulse off time, when there is a change in current to the primary the secondary and L1/L2 magnetic field try to change direction but the diode will not allow it causing current to be static but there is still voltage at the same polarity on the coils. The core cannot operate because of the air gap and short the coils.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #290, on October 31st, 2016, 02:28 PM »

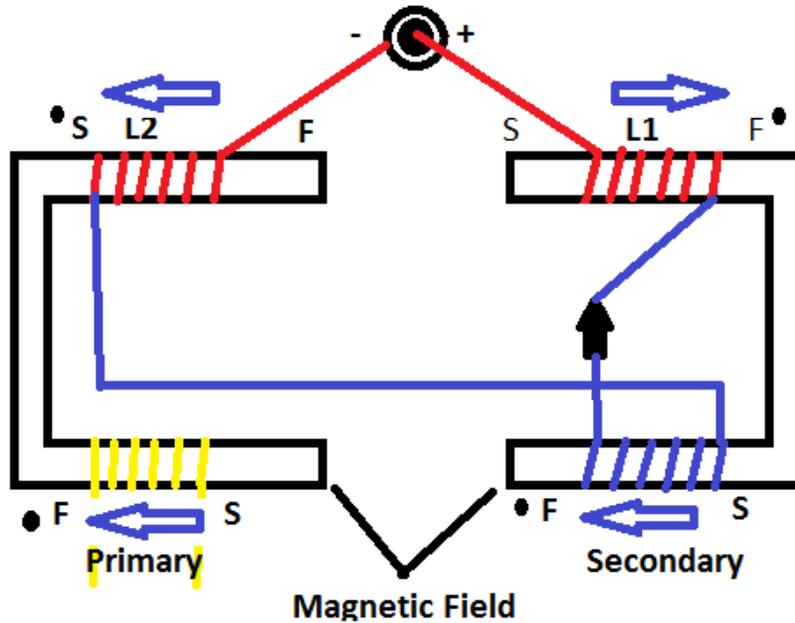
Sulaiman, a few months ago I carefully rejigged the VIC from the estate pictures and found significant gaps in the core as pictured below. You will see where there is a hole in between the bobbins so stan could set the gap in the core. But what is more important is the pickup coil is over the top of one air gap and that is why I thought the middle coil was the primary bridging the gap so I started testing VICs with air gaps with some success but still at a loss to how it works. Ronnie has made it clearer but when Ronnie did his spark plug video, he placed the primary over the air gap but never explained why. Perhaps Ronnie will explain why he did this. I think there is a network on the primary side that somehow bridges the gap and its either the primary or pickup or both together forming a linear core down the primary side of the core then it uses the two chokes and the capacitor to charge the other side of the core.



**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #294, on October 31st, 2016, 04:06 PM »

Here is another drawing that may help people with phasing and direction.



[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #295, on October 31st, 2016, 05:28 PM »

Quote from gpssonar on October 31st, 2016, 04:06 PM

Here is another drawing that may help people with phasing and direction.

So, everything is in-phase except the L2. Got it.

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #316, on November 1st, 2016, 09:59 AM »

Ronnie, earlier on in the thread you posted the phases (in blue) all in the same direction with the phase dots running correspondingly.

Today you moved the dot on the L2 choke to oppose L1 and the secondary. See pics above.

I'm confused, which is correct now?

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #324, on November 1st, 2016, 11:14 AM » *Last edited on November 1st, 2016, 11:19 AM*

Nav don't take that comment I made personal it was directed to everyone. I just don't get it, I drew up a photo of how the coils are on Stan's Vic and how they are phased and people want scope shots showing it. Damn I can visualize that in my head. I don't need a scope. Again both drawings are the same. The top one of STAN'S is a wire diagram and mine is actually on the Vic as drawn. Stan's drawing is not on the Vic it's a diagram of the Vic circuit.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #298, on October 31st, 2016, 07:10 PM » *Last edited on October 31st, 2016, 07:17 PM*

Threw this together to work through the impedance matching. Hopefully it's helpful.

The way I did this is to have a manual turns ratio, then a calculated turns ratio using Ronnie's formulas. You can use Excel to goal-seek so that the two values are equal. That will find the values you can build around. Base everything you do off the primary and you should be good to go.

	Primary	Ratio	Secondary	Pos Choke	Neg Choke	Secondary Side
Turns	240	4.678796	1122.91109	1122.91109	1122.91109	3368.733259
Turns/Ohm	24		24	24	24	
Bobbin Width (mm)	10		46.7879619	46.7879619	46.7879619	
Resistance (Ohms)	10	4.678717	46.7879619	46.7879619	46.7879619	218.9038858
Potential (Volts)	12					
Current (Amps)	1.2					
Power (Watts)	14.4	1				14.4
<b>Goal Seek this value to zero by changing D3</b>						
7.96402E-05						
<b>Non-calculated values</b>						
All bobbins have identical diameter so that layer count is equal and turns per ohm is consistent.						

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #300, on October 31st, 2016, 07:32 PM »

Looks great Matt.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #300, on October 31st, 2016, 07:32 PM »

Looks great Matt.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #306, on November 1st, 2016, 03:46 AM »

Good questions Gunther, maybe Sulaiman can answer that.

The question I have is why exactly is there only one solution to this algorithm? Only one turns ratio that makes this all work as Ronnie detailed?

Ris, would you be able to explain this?

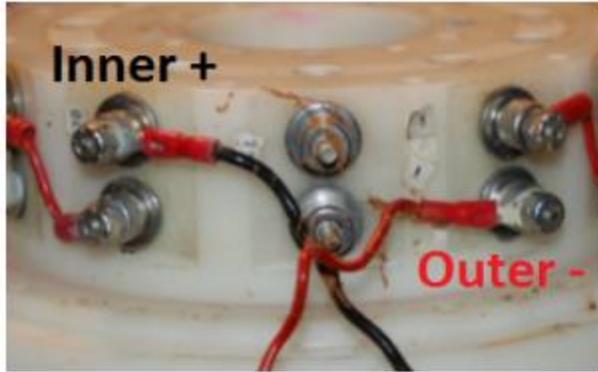
If no one chimes in on this, I will tonight when I get home from work. Think about this in the meantime. If we didn't know the resistance values of the wire in the chokes and pretend, they didn't even exist and all we knew was what the load impedance is 78.54ohms, where would all the resistance end up to match it to the line impedance? Answer, all on the secondary would it not? I need to go back and reteach this, I see where I got a little ahead of you guy's.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #337, on November 1st, 2016, 02:08 PM » [\*Last edited on November 1st, 2016, 02:51 PM\*](#)

Ok let's stop and work the phasing out together, so we all can agree together before me move forward any farther.

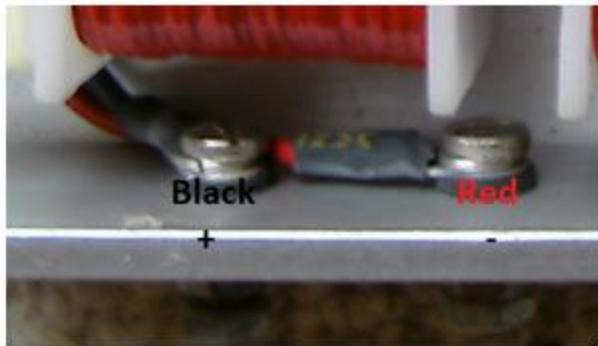
Going to use actual photo's from the estate photos. Reverse engineering.



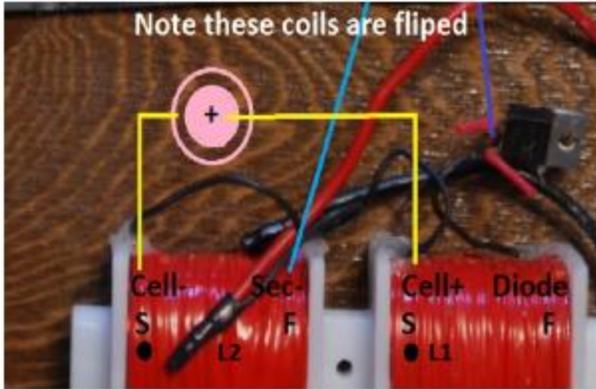
[Capture17.PNG](#) - 134.08 kB, 365x227, viewed 8 times.



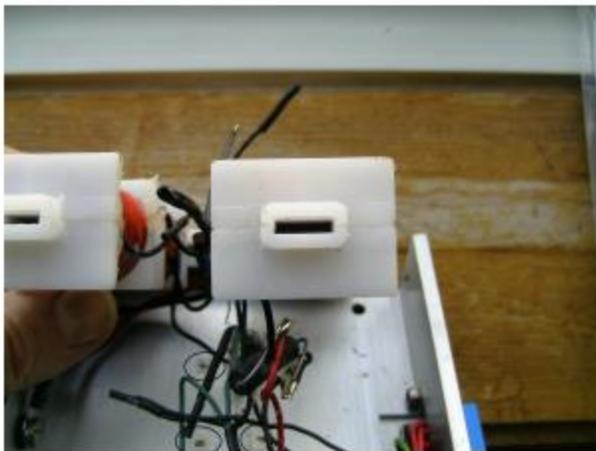
[Capture16.PNG](#) - 102.14 kB, 308x247, viewed 7 times.



[Capture15.PNG](#) - 243.38 kB, 548x315, viewed 8 times.



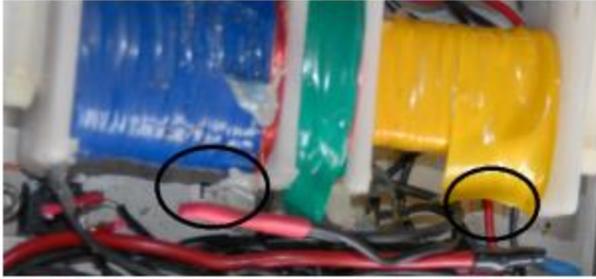
 meyers pics 1.jpg - 174.32 kB, 794x517, viewed 13 times



 Vic 2.jpg - 845.52 kB, 2560x1920, viewed 11 times.



 Vic3.jpg - 1018.73 kB, 2560x1920, viewed 12 times.



 Vic4.PNG - 296.2 kB, 637x296, viewed 11 times.

Nav, Go by Don sketches on the phasing, the photo's I just posted has stickers on the Vic that Stan put there. S and F stickers. go by them and follow the wires. You can tell the start of the wires and finish just by looking at the coils on his vic.

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #369, on November 1st, 2016, 04:32 PM » [Last edited on November 1st, 2016, 05:33 PM](#)

Let's move on, What I was trying to show in the impedance matching the line to the load was with resistance only. Let's say we only had the line resistance and the load resistance. But we knew the voltage to the line and the amp to the line. We can get the watts from that.

We know we need the same watts out of the load.

but we only know the load ohms and watts from the line.

If we use the same calculation as before. All the resistance would end up on the secondary as one big coil. but still equaling out to 310 ohms when done.

Stan needed two chokes on both sides of the capacitors. What better way to do this than to take the secondary and divide it into 3 coils. Take 3.83 ohms from each coil and you have the Feedback coil of 11.5ohms

You still end up with the 310 ohms in the load side.

But now you have charging chokes to boot. You have the ability to have a LC circuit now.

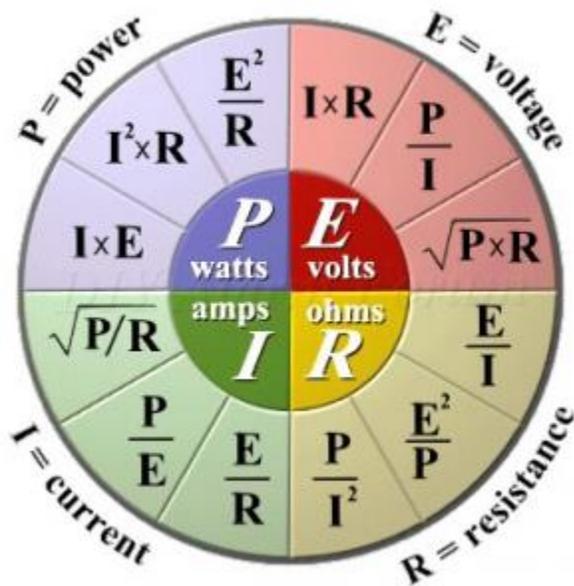
You not only have amp restriction built in because Inductors can't stand reverse current. Now that you have everything impedance matched and inductors in place all you need now is a capacitor to set up the LC circuit.

**Because at resonance  $X_L$  and  $X_C$  will not have any effect on the impedance match.**

I hope this helped in identifying all the working parts, and how they were calculated in.

Summary:

Without inductors, the resistance can be a secondary coil with 73 ohms and a two resistors of 73ohms and a feedback coil of 11.5 ohms and a load of 78.54 ohms. But replacing the two resistors with two inductors will be the same total resistance needed to impedance match the load resistance.



Stan's Vic does not have a steel core, it has a ferrite core material and the VIC produces frequencies in the AM range.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #378, on November 2nd, 2016, 03:18 AM » [Last edited on November 2nd, 2016, 10:55 AM](#)

Quote from adys15 on November 1st, 2016, 10:50 PM

Ronnie why do you include all the coils as a load and not calculate from the chokes to cell?

Because at resonance there is no ohm value if XC and XL is tuned to cancel each other out, So therefore it does not affect the impedance match. The only way you have an ohm value in XC and XL, is if there is a difference left once you subtract the two. We don't live in a perfect world, so therefore our coils are not going to be perfect and our total resistance we need may be a little off here and there as we wind each of the coils, So we can still use the XL and XC to our advantage to still keep all the resistance right by having a small ohm value left once we subtract the two. That is achieved by tuning the frequency. In other words (a little above or below

resonate frequency will add an ohm value). That's why when tuning it is so damn touchy, and things can go south real fast. Again that is why you want see anyone touch my cell and turn knobs once tuned and working, (Like I seen another person do), and Stan wouldn't either.

Note: If you don't start the tuning around 2 volts on the line and work your way up, You will indeed burn up a coil and not even know it. And you can tune for a year and never get any voltage. The only way you will know if you burn up a coil is to take everything apart and check the inductance of each coils to see which one you fried.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #419, on November 4th, 2016, 09:38 AM »

Quote from gpssonar on November 4th, 2016, 03:57 AM

Question for today:

As the dielectric changes in the cell from water to gas, Does the cell capacitance change? Everyone please chime in.

Yes, It will,

if I set the values for the distance of the plates and the area of the plates and do not change theses....

water has a dielectric constant of 80.10

let's say we have water the cell, will be n value, let's say its 7.092054F

if we change dielectric constant to 1 ( for let's say air) we get a capacitance of 0.08854F

so indeed the capacitance will change. it will become lower with more gas in the cell, I do not expect it to become the full value of air / H<sub>2</sub>,O<sub>2</sub> mixture. I believe it will be only change some amount, there will still be water paths between the bubbles.

between the bubbles, this is where the water will become highly polarized, hence the " bubbles come from the center of the cell, not at the plates"

this I have seen.

~Russ

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #421, on November 4th, 2016, 09:44 AM »

Thanks Russ, I'm about to explain something about this, and I needed some people that has done some real testing.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #439, on November 4th, 2016, 05:32 PM » [Last edited on November 4th, 2016, 05:50 PM](#)

Looks like we had a few to chime in on the question of today.

Some say's it does, and some say it don't.

Some say's it increases and Some say's it decreases and a few say's it stay's the same.

This is critical to know.

I remember many people saying it was a moving target years ago.

When I was doing my research on this, I made a few experiments.

- 1: Checked the cell's capacitance dry with no water just air.
- 2: Checked the cells capacitance full of water.
- 3: Checked the cells capacitance with different levels of water within the cells.

For those that think it stays the same, do these three experiments.

Once you do these experiments **I think you will find the capacitance does indeed change.**

For those that say's the capacitance does change, **Can we all agree we have a variable capacitor?**

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #440, on November 4th, 2016, 05:51 PM »

already posted in my excel sheet : [as posted here under the Russ 6 single cell mesurments TAB](#)

using the cheep meter that seems more correct...

with out water: = 16.69pf

with water: = 1393pf

and if you take  $16.69 \times 80.1$  you get... 1336pf

$16.69 \times 78 = 1301\text{pf}$

so i can trust that measurement...

and everything else in that sheet... individual, series, inside out, ect.

series measurements of 6 cells...

with out water: 2.20pf

with water : 239.8pf

lower frequency the higher the capacitance. in my testing... but that meter seems to give measurements that i do not trust...

so yes its changes.

~Russ

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #441, on November 4th, 2016, 05:54 PM » *Last edited on November 4th, 2016, 06:00 PM*

Russ would you call that a variable capacitor if the ratio of gas increases and water decreases, changes the capacitance?

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #444, on November 4th, 2016, 06:14 PM »

Quote from ~Russ on November 4th, 2016, 06:03 PM

I would call it a variable in our math, aka we need to know theses as even frequency play's a BIG roll on the capacitance.

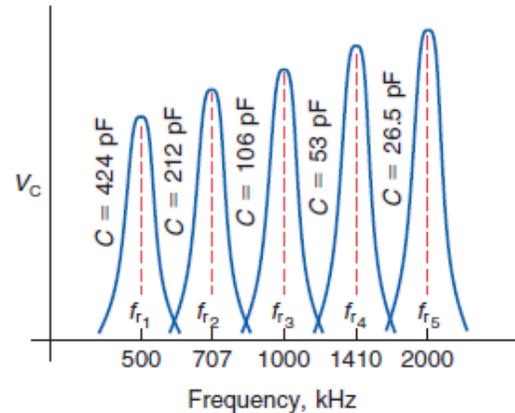
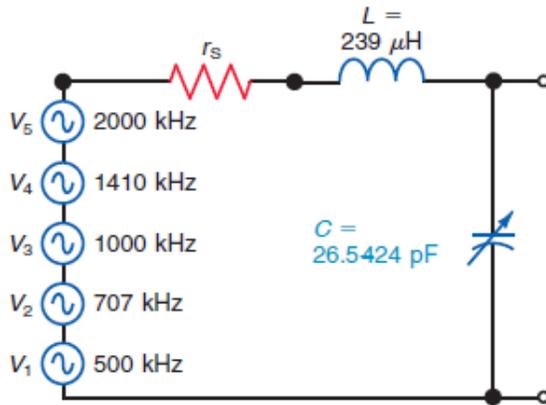
~Russ

Exactly, Now you and others wanted to know how to tune the system.

What I am about to say and show is for manual tuning only, with no feedback coil or phase lock loop device.

I have stated many times you have to start out at a couple volts and work your way up a couple volts at a time while tuning until you reach full voltage.

What I am about to show everyone is how to use a fixed L to tune into a variable C It is all done by frequency.



**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #445, on November 4th, 2016, 06:21 PM »

As you can see at different voltage levels at different frequencies with a fixed L as the capacitance changes, we can use a different frequency with a different voltage and still tune into resonance. If you do the inductance reactance and the capacitance reactance at each level you will find it is still at resonance throughout. **Not only that you can see how the step charge is formed.** (notice the five frequencies and five pulses) Those number of pulses is determined by the water gap. they can be more or less, all depending on the water gap.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #446, on November 4th, 2016, 06:33 PM »

yes, this is well known, we must match capacitance reactance with inductance reactance = electrical resonance

a "simple" concept...

electrical resonance basics 101.

~Russ

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #447, on November 4th, 2016, 06:35 PM » *Last edited on November 4th, 2016, 06:39 PM*

Ok, so if everyone knows this and its basic 101, they why is no one using it?

My next question then is why no one has a working cell if they know this and are using it?

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #448, on November 4th, 2016, 06:39 PM » [Last edited on November 4th, 2016, 06:41 PM](#)

Can I make a guess as to something here Ronnie?

My hunch is the rate of this change you just showed in the chart is controlled by the turns ratio.

Yes? No? Maybe so?

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #449, on November 4th, 2016, 06:40 PM »

Yes

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #452, on November 4th, 2016, 06:55 PM » [Last edited on November 4th, 2016, 07:03 PM](#)

What I've seen all along is people throwing 12 volts to the primary and trying to tune to resonance. Can you see the problem why you can't do that? Your using all the voltage you have to tune into the first level of resonance and not allowing the capacitance to change. It's just like doing the same thing at 1 volt but you've use up all the voltage before anything changed. You have to take it through the different voltage levels and tune to resonance at each level. At each level an amount of gas will be released changing the capacitance. As you take it through each level more gas will be released until you reach the last level of resonance by that time gas is in the cell and water is removed and voltage will take over and go to infinity and amp drops.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #454, on November 4th, 2016, 07:13 PM »

It's as simple as this Matt, if you take a dry cell and tune it to resonance where the inductance is fixed and the capacitance is fixed you can throw 12 volts to the primary and tune it to resonance no problem. When you do this do all your probing and measurements and take notes. You should end up with the same measurements give or take with a wet cell once it goes through the resonance levels and voltage levels.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #455, on November 4th, 2016, 07:18 PM » [Last edited on November 4th, 2016, 07:26 PM](#)

The only other thing that is taking place at resonance, the current is at its highest and the two chokes tries to restrict the current between each choke and that causes some oscillation within the cell.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #457, on November 4th, 2016, 07:30 PM » [Last edited on November 6th, 2016, 04:22 AM](#)

Quote from ~Russ on November 4th, 2016, 07:20 PM

I have a quick question.

You once told me that you can... After the system is tuned... Just flip on 12v and the system will start.

However. This kind of goes agents the voltage frequency step tuning process.

So your implying that the system will just start of its tuned already.

Can you give me your best guess why this is?

Thanks. ~Russ

The water bath will hold its charge as long as there is gas pressure in the cell. Once the pressure is lost and the gas is released the cell will discharge. That's why Stan's gas management card and pressure sensor will never let the cell drop below a certain pressure. If you remember also, I said no one would stick their finger in my cell without getting the piss knocked out of them, even with it off. Because we have increased stable capacity of the cell.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #458, on November 4th, 2016, 07:38 PM » [Last edited on November 4th, 2016, 07:41 PM](#)

Another thing I might add, If your using a plastic see through cover for the water bath, check the capacitance of the cell without touching it and then check it with your hand on it. If it changes the capacitance then never touch the plastic cover when the cell goes into resonance, there may just be enough change in capacitance to burn up the VIC. Stan took extra steps even with a thick Delrin cover for this not happened. Just look at his cell that is inside the red gas tank and also even in the metal tank.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #480, on November 6th, 2016, 05:41 AM » [Last edited on November 6th, 2016, 06:03 AM](#)

To make a long story short, Others have proven me wrong when I Made that statement. It was due to me making a mistake when I was drawing up the cells with three and four cells. I made a new drawing with my mistake in it. So disregard that statement.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #486, on November 6th, 2016, 06:59 AM » [Last edited on November 6th, 2016, 08:57 AM](#)

Dan there is more to it than just a capacitance value. Voltage plays a big role in this. If you look at this photo of Stan's, the first level is the polarization process. You want this

process to take place with around 2 volts on the primary. If you tune to resonance at 2 volts and you see no gas being produced at all then you know there is something wrong. By leaving it at resonance at 2 volts, raise the voltage from 2 volts 4,6,8,10,12 somewhere in that voltage range you should see some gas being made. Whatever that voltage is that you see the gas being made let's say 6 volts. That should tell you, the turn ratio is off on the secondary, because you want it to take place at 2 volts to the primary not 6 volts. This is where everything gets tricky to adjust. In order to keep the impedance match, what you have to do is take turns off the chokes and add them to the secondary to increase the voltage. By doing this you change the inductance which will change the resonate frequency. So, it's a balancing act that you're shooting for. Again, if the polarization process takes place at 6 volts and it's supposed to start at 2 then you've lost 4 volts in the process that you can no longer do anything with.

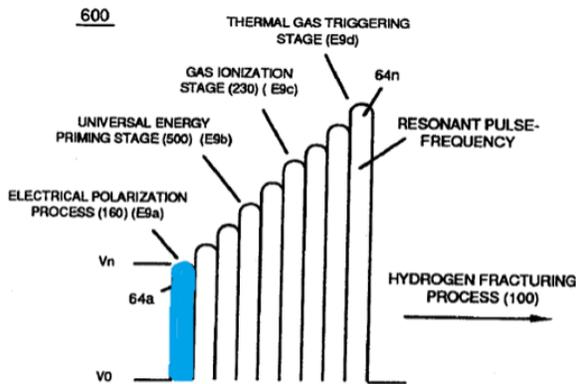


FIGURE 6-3: DYNAMIC VOLTAGE POTENTIAL

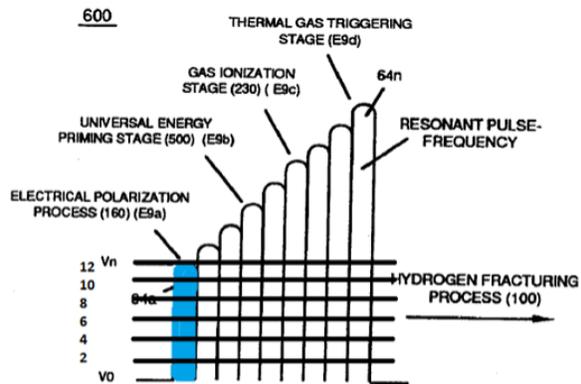


FIGURE 6-3: DYNAMIC VOLTAGE POTENTIAL

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #492, on November 6th, 2016, 10:28 AM »

Ye i can do that but before I do, I have another Question: Does people understand the polarization process? Because that is where it all starts. I would like to hear peoples thought on this first.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #497, on November 6th, 2016, 11:15 AM » *Last edited on November 6th, 2016, 11:30 AM*

Quote from gpssonar on November 6th, 2016, 10:28 AM

YeS I can do that but before I do, I have another Question: Does people understand the polarization process? Because that is where it all starts. I would like to hear peoples thought on this first.

let me give a go,

we know the "step charging" is not quite the way Stan means, in your way of thinking it's not really the cap charging in a short pulse duration. like in the resonance attachment .jpg it's the voltage it takes to get to resonance in the gas phase.

the steps are the tuning process,

the "polarization process" this is the first part of aligning the water molecules. orientating them for the next phase.

This is voltage controlled.

This not the same as brought force electrolysis.

brought force electrolysis is a surface phenomenon.

the "polarization process" is soothing that happens in between the plates.

like in figure 7-4

~Russ

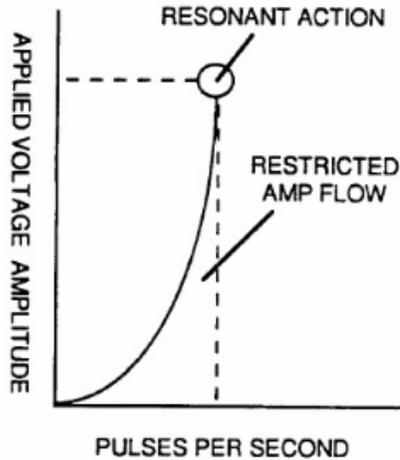


FIG. 5-4A: TRIGGERING RESONANCE

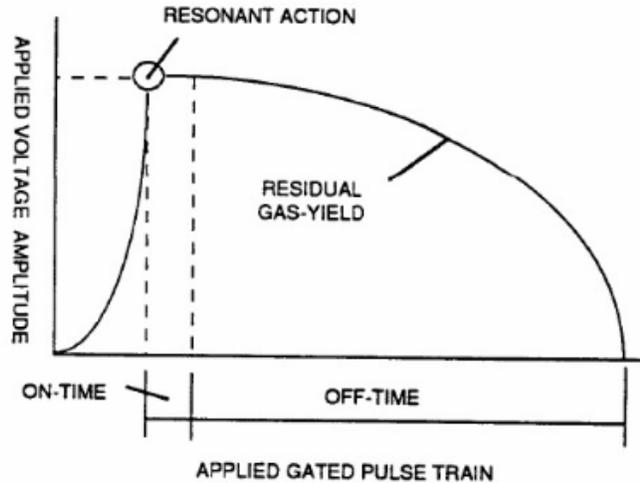


FIG. 5-4B: SUSTAINING RESONANCE

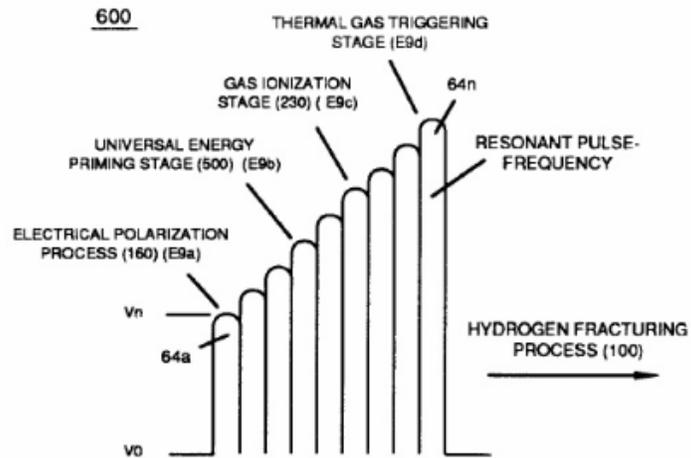
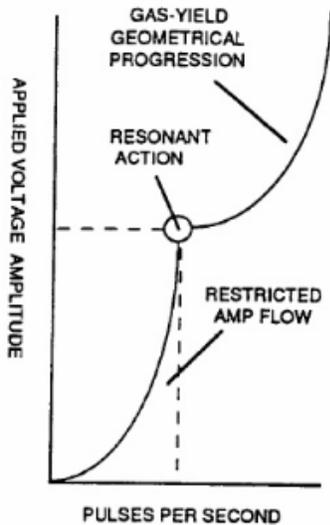


FIGURE 6-3: DYNAMIC VOLTAGE POTENTIAL

["Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #503, on November 6th, 2016, 12:34 PM » [Last edited on November 6th, 2016, 04:31 PM](#)

Thanks Ris, very good video. Watch the video Ris posted then read this. As you can see the polarization process is started when a voltage is applied to the capacitor plates. It don't matter if it's brute force or not. When you apply a voltage to a capacitor the water molecule will align since we are using natural polarized water as the dielectric. It's just the nature of a dielectric to polarize in a capacitor. If you took notice in the video it showed once aligned it cancels out charges. As you know the water molecule has two hydrogen and one oxygen so there would be two cancels on the neg plate compared to one cancel on the positive plates. Question again: if

the battery is left on, would they be more charge accumulate on the neg side than on the positive side?

650

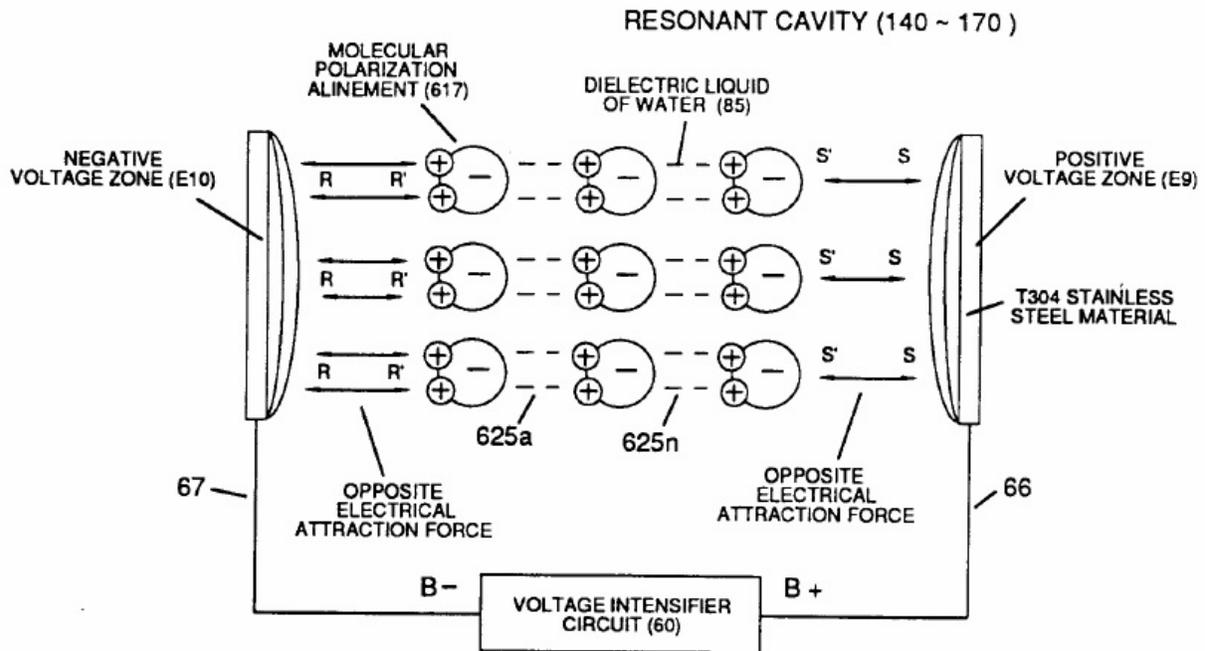


FIGURE 7-4: ELECTRICAL CHARGING EFFECT

Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #509, on November 6th, 2016, 05:15 PM » [Last edited on November 6th, 2016, 05:25 PM](#)

So by the logic in that video (Good find Ris), if we have a dry cell ( $K = 1$ ) that measures 10pF, without even taking another measurement, we know immediately when the cell is filled with water ( $K = 80$ ), the capacitance has just increased to 800pF.

That much is pretty easy and it completely defines the working range of our cell.

[Quote from gpssonar on November 6th, 2016, 12:34 PM](#)

As you know the water molecule has two hydrogen and one oxygen so there would be two cancels on the neg plate compared to one cancel on the positive plates. Question again: if the battery is left on, would they be more charge accumulate on the neg side than on the positive side?

Yes, I agree, more charge would accumulate on the negative plate. The tougher question is what happens with the voltage in this unbalanced system? And where do you place a reference point? That's the "bloody hell and bloody hell again" spot for me. It's like an asymmetric capacitor where the two plates are of different dimensions. I think T. Townsend Brown was probably the only one that really comprehended such a scenario.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #514, on November 6th, 2016, 10:32 PM » *Last edited on November 6th, 2016, 10:43 PM*

Quote from ~Russ [on November 6th, 2016, 08:19 PM](#)

Matt the tube cell is also asymmetric.

That's true it is, but...

Ronnie explained to me the tube sets have to be in pairs--one plus/minus and the other minus/plus. So, to me that means the tube sets are balanced. Also, why Ronnie told me plate cells can be used--they are naturally balanced.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #537, on November 9th, 2016, 08:22 AM »

Quote from HHO-Dan [on November 7th, 2016, 03:18 AM](#)

About 1000v+..after C1 charges there is no longer a load to hold the field on L1 and it will discharge into C1

Got to get something right....

Note: GPS Twin core bobbins all cleaned up now time to make a new cell I lost my tubes from last year!

Sorry for being grumpy last night guys just wish I had 1 solid number for the twin core.

Dan, apparently, you're the only one who cares about this Question I asked. (or so it seemed) so thank you for responding, I ask this question because when Ronnie gets to explaining the diode, I think this simple idea will come in to play.

it just shows you the effects of a charging inductor and cap. using a DC source, and the effect of the Diode.

the inductor is like a fly wheel, so once the switch is closed you get the flywheel going and once the potential is = to the source, the "flywheel" does not want to stop. so, it keeps its momentum and gives even more than the supply delivered.

the voltage is Double the input. this works without the diode as well. but what the diode

dose is KEEP that voltage in the cap, this is an important thing to remember.

I just thought this was extremely relevant and if everyone here has already seen this or knows this, well good lol but i wanted to post it anyway.

its theses simple things, knowing what each part dose of the system...

~Russ

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #541, on November 9th, 2016, 12:11 PM » *Last edited on November 9th, 2016, 12:38 PM*

Let's talk about the coupling of the coils. In Stan's drawing he shows the coupling for the Magnetic field of the coils with the cores. Even though the primary and feedback and secondary is not in the right places (His drawings are a little confusing) according to his real VIC even though it still shows the magnetic coupling. **If you arrange everything the way the actual Vic is, you will see the Primary and L2 choke is 100% coupled and the Secondary and L1 choke is 100% coupled. So, you may say what couples the Primary to the Secondary and L1 to L2? Answer is the gap between the cores.** I also placed a second drawing below that shows them in the correct order, excluding the feedback coil. As we all know with a gap between the cores and the primary and secondary and L1 and L2 being on cores of their own, they can't be 100% coupled no matter how close you get them together. So, in my opinion the gap between the cores is for a variable magnetic field to couple the primary and secondary and L1 and L2 together. Question: If we have a variable magnetic field that brings the Primary and Secondary together, what can be varied in the secondary by having a lose coupling or a tight coupling? Also, what can be varied by having a lose or tight coupling between L1 and L2? Or does this variable coupling matter at all?

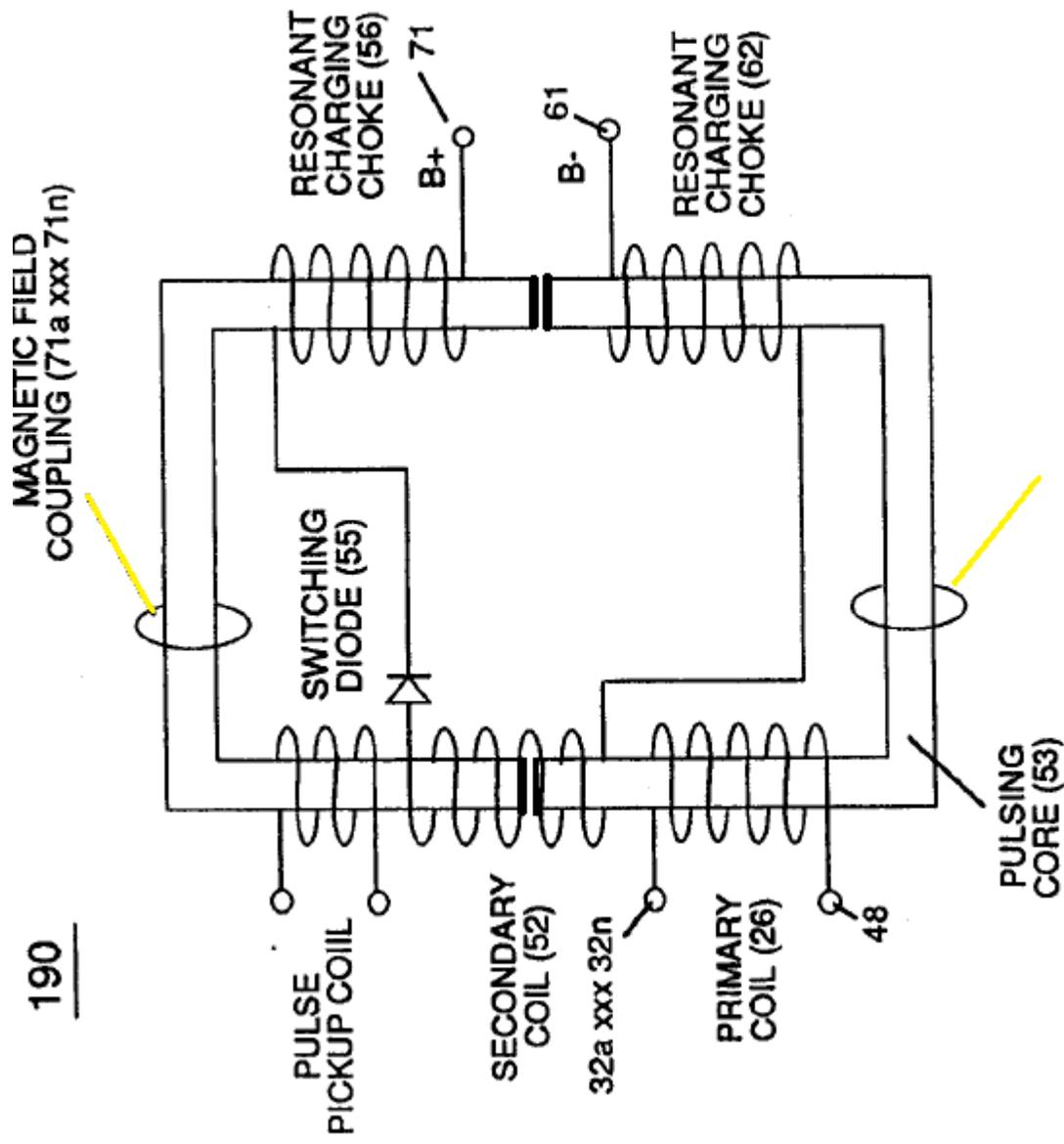
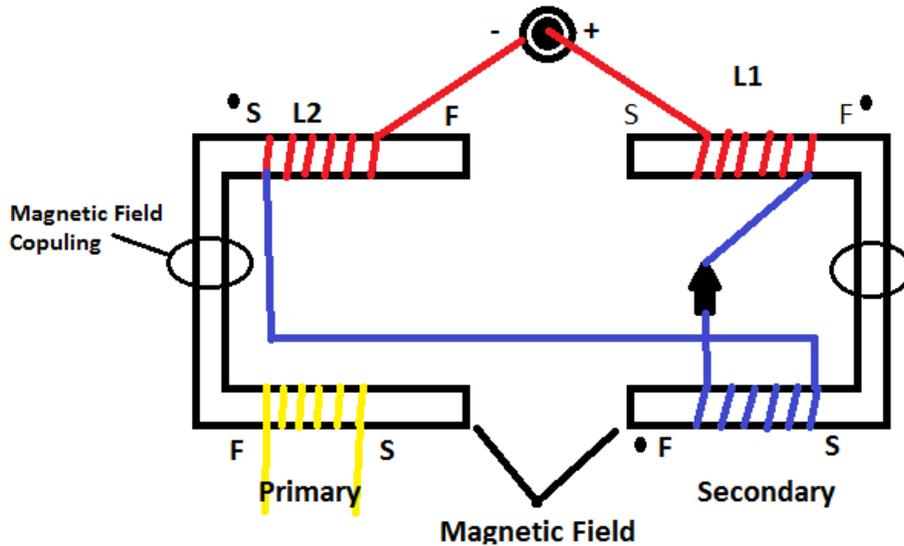


FIGURE 3-23 : PULSING CORE CONFIGURATION



[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #543, on November 9th, 2016, 01:24 PM »

I also think that voltage is controlled by the primary/secondary coupling but also the inductances of the 4 coils

[gpssonar](#)

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #544, on November 9th, 2016, 01:32 PM » *Last edited on November 9th, 2016, 01:38 PM*

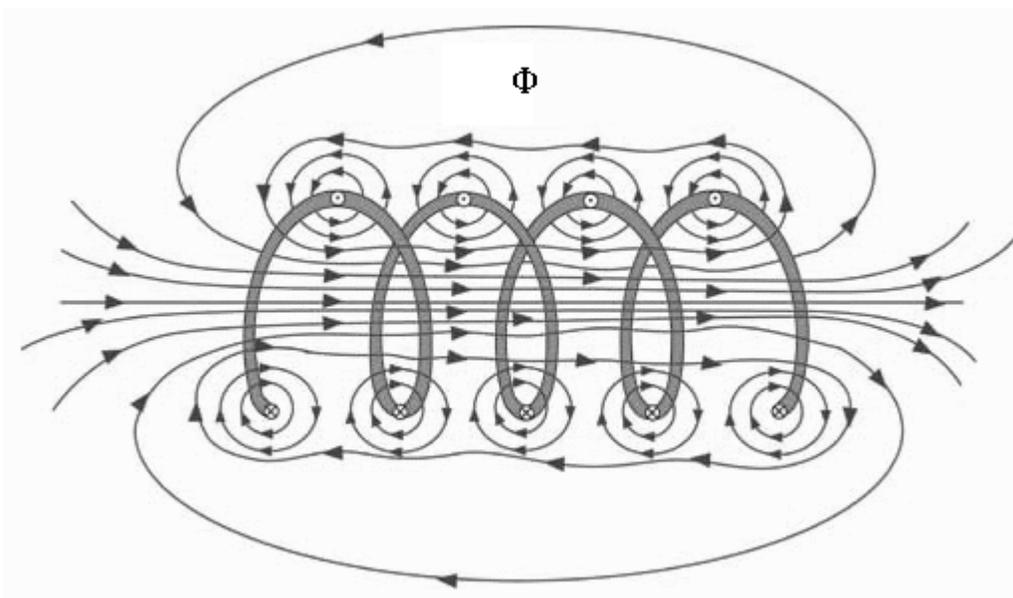
Ady15, if all the coils have a piece of core in them already the inductance cannot be change, unless you move the core in and out of the coil which that is not the case here. The only thing that can change the inductance of the coils is the AL value of the core material. This is why this needs to be discussed, I think they are other people that thinks the way Ady15 does.

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #545, on November 9th, 2016, 01:39 PM »

I don't agree to primary and L2 100% coupled because 100% coupling only takes place if the whole magnetic path is directed thru the ferrite.

imagine primary and L2 on a ferrite rod ... there is a huge gap around the rod and no direct coupling.



if you take away half of the core and leave primary and L2 on a core half then the magnetic field will be asymmetric, but it still remains an open core (like a bent rod).

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #546, on November 9th, 2016, 01:52 PM »

Yes, Gunther you are correct, but as we all know both cores is together whether tight or lose coupled but they are coupled. So therefore, the whole magnetic path is directed thru the ferrite. So therefore they are 100% coupled.

Looks like it is experiment time:

- 1: Place a Primary coil and a L2 coil on a rod, pulse the primary and take measurements on L2.
- 2: Place a Primary coil on one rod and a L2 on another rod side beside and pulse the primary and take measurements on L2 while moving the coils away from each other horizontally and back again.
- 3: Place a Primary coil on one rod and L2 on another rod and put them in front of each other and pulse the Primary and take measurement of L2 while moving the coils vertically from each other and back again.
- 4: Place a Primary coil and L2 coil on one core and place another core like in Stan's so the magnetic path is directed around the cores and pulse the Primary and take measurements of L2, move the gap back and forth and take measurements.

Do your own experiments don't take my word for anything,

That's what solves problems.

It may take a little time to do experiments, but it will put facts in your mind that you can see for yourself.

### [Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #546, on November 9th, 2016, 01:52 PM »

Matt, this is not a big variable at all. Just trying to get people to understand the gap of the cores and what effect it has. The main important thing here is what effect does the gap have on the primary and Secondary. It is just common since what the Primary and L2 and the secondary and L2 does and how they work.

Try this as an experiment:

1: Take a primary coil and place it on one core like in Stan's and place the secondary on the other coil pulse the primary coil and move the gap back and forth at different gap distances and take measurements of the secondary. See if changes voltage or what!

### [Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #549, on November 9th, 2016, 02:55 PM » [Last edited on November 9th, 2016, 04:54 PM](#)

They are so many different opinions on this, and that is why I can't just tell them and get anyone to believe in what I say. So you will have to do all these experiments yourself and see what takes place on your own. Hell they are some people thinks the gap, stores energy, controls core saturation, some thinks it changes inductance and some thinks it's is a spark gap. LOL

### [Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #551, on November 9th, 2016, 03:19 PM » [Last edited on November 9th, 2016, 04:49 PM](#)

Common since tells me that the circle on his cores being where they are tells me what coils are 100% coupled and what coils are not. If the primary and Secondary was 100% coupled they would be a circle drew around both gaps of the cores also. In other words, there is nothing you can do to the Primary and L2 choke that will change anything as long as they are on the core and don't move off that core. The only changes you can make to those two coils is changing frequency or taking turns off the coils or adding turns to them. Just common since. Same goes for the secondary and L1.

Come on people, you know the primary voltage controls the magnetic field strength of the core it's on, and placing another core with other coils on it like Stan has, the gap controls the magnetic field strength of that set of coils.

If you increase the voltage of the Primary from 2 volts up to 12 volts your increasing the magnetic field strength of that core.

So the question is? what does a weak field strength or a strong field strength do the secondary coil and L1 coil due to the gap between the two cores?

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #546, on November 9th, 2016, 01:52 PM »

Watch this video that has been posted a thousand times already starting at 30:00. He tells you exactly what I have been talking about how to switch off the covalent bond of the water molecule. Notice the two hydrogen and one oxygen and listen to him. He uses the voltage on the B+ to switch it off. Question is how does dial in the B+ voltage?

What set of cores is the B+ on?

Would the Gap of the two cores adjust the fine tuning of the B+ voltage? (New Zealand one)

<https://www.youtube.com/watch?v=yGqCaVFWIWQ>

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #555, on November 9th, 2016, 07:05 PM »

Guy's I've told you how the math works to get watts in and watts out on the VIC. You should know that you can divide the coils up into three coils or 4 as long as you keep the same resistance in the secondary side circuit. You can take from one coil and add to others and vice versa. You know now that the two hydrogen atoms will place more charge on one plate than the one oxygen atom will due to cancel of charges. You should know how to raise the B+ voltage by taking turns off the L2 and placing them on L1 in order to control its charge on the plate and how to fine tune it with the Gap of the cores.

So what do we have left?

- 1: Core material
- 2: Diode on primary side
- 3: Diode on Secondary side
- 4: LC circuit
- 5: Tuning the LC circuit to the Fuel cell

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #562, on November 10th, 2016, 12:47 AM » *Last edited on November 10th, 2016, 12:49 AM*

Hi GPS... Are you sure this statement is correct

"if all the coils has a piece of core in them already the inductance cannot be change,

unless you move the core in and out of the coil"

I say.... If you take a coil and place it on half a core than connect a VOM it will show a low inductance.

Drop the other half of the core on and...boom the inductance is 2-5 times higher?

You can also gap the cores to get most any number in between.

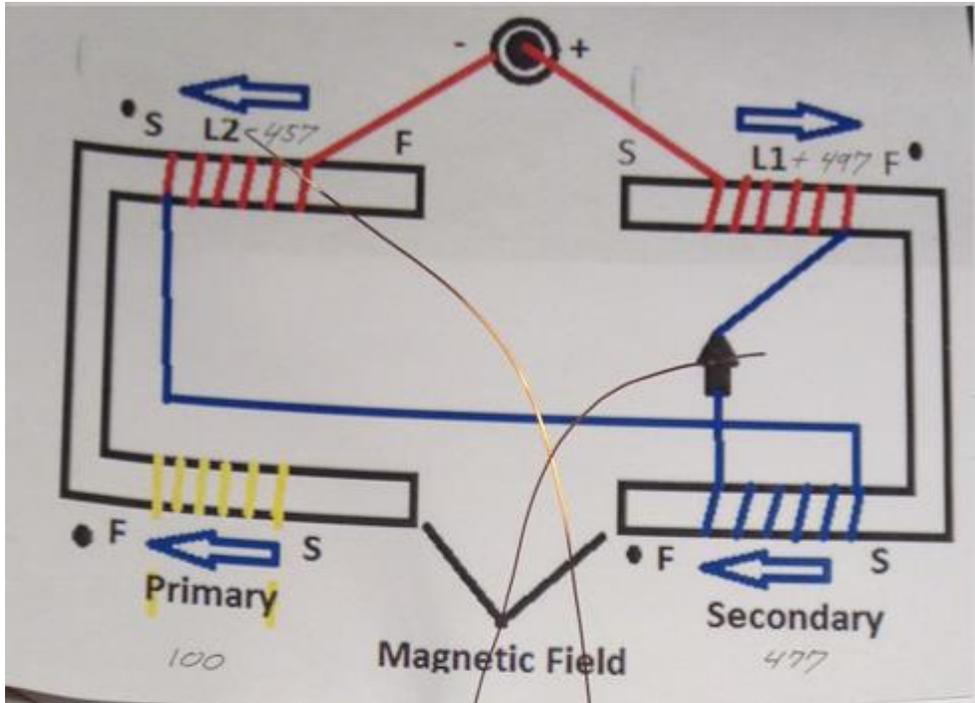
Wish I could help on the coupling question.

All I know is Tesla used loose coupling on his high voltage coil.

### ["Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #563, on November 10th, 2016, 03:37 AM »

Dan you are correct if you're saying the core material is only half way through the bobbing and you slide in another half. But the example I am using throughout this thread is Stan's vic. It already has the core material completely through the bobbing.



	Primary	Ratio	Secondary	Pos Choke	Neg Choke	Secondary Side
Gauge (AWG)	30		24	24	24	24
Turns	100.2766	4.760099	477.326465	497.326465	457.326465	1431.979394
Bobbin Width (mm)	5		29	29	29	
Resistance (Ohms)	4.154452	4.760099	5.1979502	5.44361959	4.9322908	94.13385059
Potential (Volts)	3.5					16.66034804
Current (Amps)	0.84247					0.176985728
Power (Watts)	2.948644	1				2.948643821

Non-calculated values

Linked values

All bobbins have identical diameter.

Hunt Turns Ratio

Desired Ratio

Negative Choke Turns Offset

4.76

20

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #590, on November 11th, 2016, 08:47 AM » *[Last edited on November 11th, 2016, 08:49 AM](#)*

29 gauge is the best it has a 1.2 amp rating, since we need 1 amp. 30 gauge is under rated it is only good for .86 amps. So a balance between 28 and 30 gauge is 29 gauge if you can get it. If you can't get 29 gauge, I would shoot for 28 gauge for it has a amp rating of 1.4 amps.

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

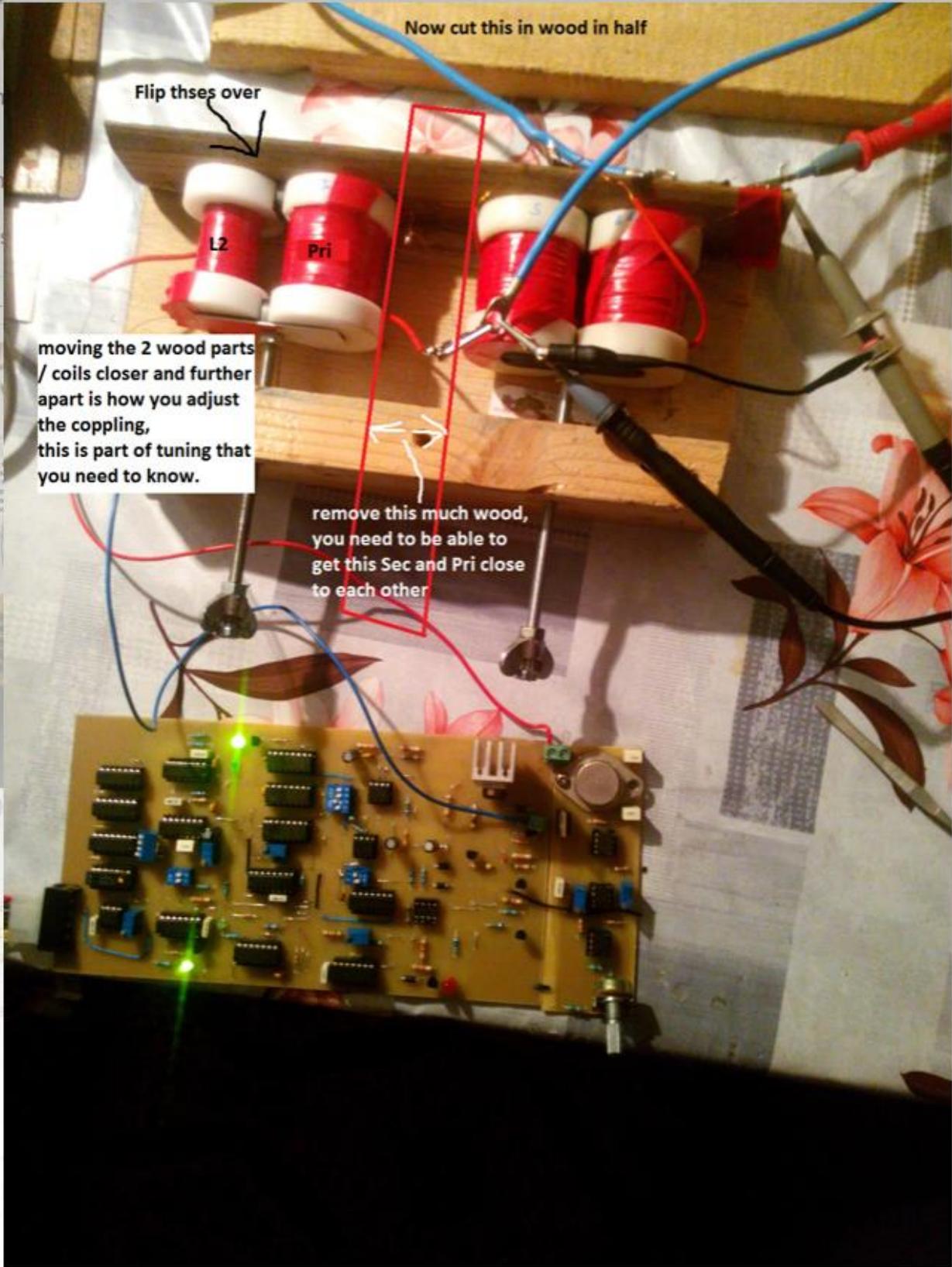
« Reply #546, on November 9th, 2016, 01:52 PM »

Ady15, don't throw it in the garbage, just put the primary close to the secondary and you will see an increase in voltage. That's the only way the primary will couple with the secondary. You only wasted time because you don't know how it is coupled. That's what I been trying to teach here for the last 5 pages. Just watch this video of Don's he shows moving a coil close to one another even without a core in either of the coils. As you can see, they couple together when they are moved close to one another. So just try putting the primary and secondary close together in your setup. I bet you will see a voltage increase.

[https://www.youtube.com/watch?v=X2mT\\_RAyJm0](https://www.youtube.com/watch?v=X2mT_RAyJm0)

This part different and Stan's Vic

Oops, you need to put the Pri and Secondary close to each other!!!



### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #606, on November 11th, 2016, 11:33 AM » [Last edited on November 11th, 2016, 11:35 AM](#)

Getting back to Stan's Vic, can everyone see how the gap between the cores controls the coupling from the Primary to the Secondary which in return controls and fine tunes the voltage in the secondary and L1. And if you follow through with this to the positive plate, it also fine tunes the charge on that plate.

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #608, on November 11th, 2016, 11:44 AM » [Last edited on November 11th, 2016, 12:07 PM](#)

Ady15 because it is you, I will tell you all the variables you can control with the dual setup like you have.

1: on one core you have the primary and L2 choke coupled together. You can control the inductance of L2 by grinding one of the legs by a thousands or two and even more if you need to. But don't grind the leg the primary is on. whatever you grind on the L2 leg place a brass or copper spacer of the same thickness as you ground off. That is one adjustment you can make to control the inductance of L2. Then you have turns you can take off or add to on the L2, that is another adjustment you can make.

2: you can repeat the same on the L1 choke leg by grinding some off and placing a spacer of the same amount you ground off but don't grind the secondary leg That allows you to control the inductance of L1. You can also add or take turns off the L2 choke.

3: place the primary close to the secondary move them as close to each other as you can. pulling them apart from one another is another adjustment you can make.

4: taking turns off the secondary and add turns is another adjustment you can make.

So now do you see what all you can do with the two core setup?

Now with that being said we need to get back to Stan's Vic in order to see what all these adjustments do.

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #609, on November 11th, 2016, 11:46 AM »

I have a LONG list, most of them are the things you already tried to express in this thread, i will get back to them shortly but first i want to start with a few things on the list you posted

- "1: Core material
- 2: Diode on primary side
- 3: Diode on Secondary side
- 4: LC circuit
- 5: Tuning the LC circuit to the Fuel cell"

I want to start with #3. you haven't got to it yet... but i want to give I a go.

here it goes,

when in resonance mode\*

The diode between the Sec and L1 (Positive choke) is acting as a one way valve, letting positive voltage go through but not back.

note the "DC resonant charging" when L1 is charged as it discharges it will charge the "cap" up to 2X the voltage of the input "source"

see this page for more details on this concept. <http://www.richieburnett.co.uk/dcreschg.html>

~Russ

PS. this one should be easy to answer :)

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #610, on November 11th, 2016, 11:52 AM

That is 100% correct Russ

The diode on the primary gives it a flywheel during the off time to suppress voltage spikes getting back into the driving circuit.

The core material must meet or exceed the required frequency you're going to be using without saturating the core material. It also needs to be able to raise the inductance into the range needed for the LC circuit.

The other two I will have to get some material together to talk about them. If you have something together already you can discuss them and I will weigh in on it if I need to.

### **Re: "Understanding How Stan Meyers Fuel Cell Works"**

«Reply #611, on November 11th, 2016, 12:28 PM

next understanding.

There needs to be more negative "charge"

(charge is defined by the idea of having potential difference we can call it "voltage" but that gets confusing, so we use the term "charge" just to help us understand this, like Matt was saying "electrostatic" )

the ratio 2:1 due to the fact that H<sub>2</sub>O Having two positive H charges and one negative O charge. (opposites attract) we must "match" the water charge differential. 2:1, in the cell.

~Russ

650

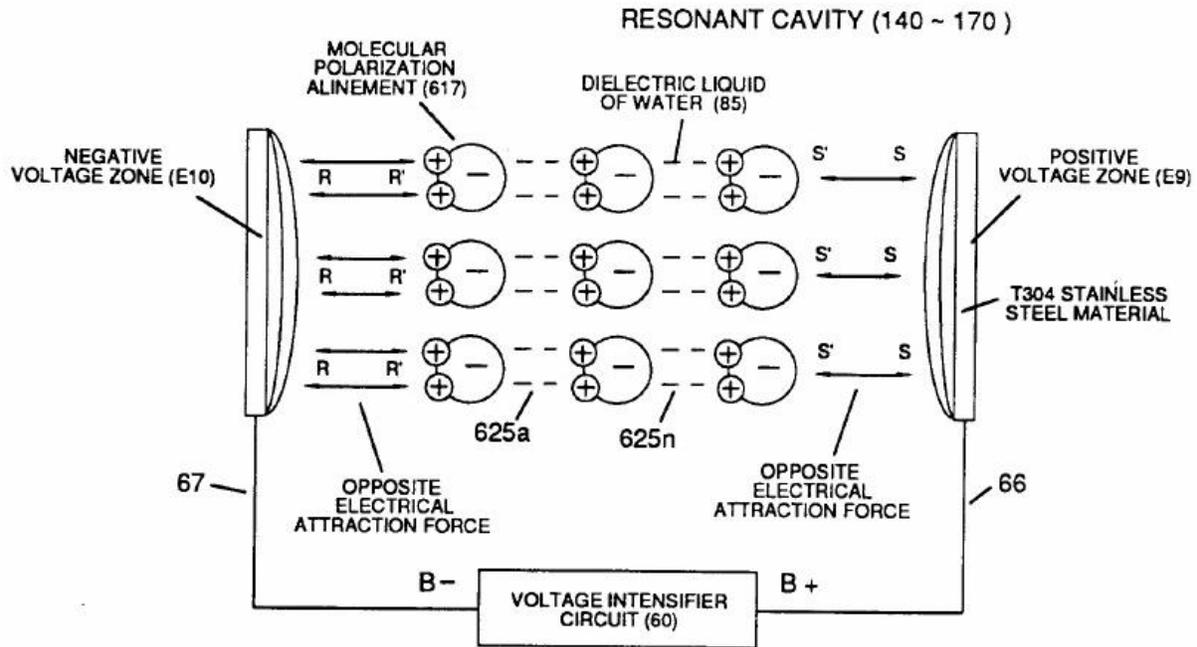


FIGURE 7-4: ELECTRICAL CHARGING EFFECT

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #612, on November 11th, 2016, 12:32 PM »

More B+ voltage

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #613, on November 11th, 2016, 12:43 PM »

Next understanding.

The primary and L2 (negative choke) are connected on one half of the "core", this gives "100%" flux transfer between the choke and Pri

The Secondary and L1 ( positive choke ) are connected on one half "core", this gives "100%" flux transfer between - choke and Sec

those 2 things above are considered "closely" coupled inductors

adjusting the core gap of the cores will adjust the ratio of charges on the plates. this is a "fine tuning" parameter for the 2:1 charge ratio.

this is considered "loosely" coupled inductors.

~Russ

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #614, on November 11th, 2016, 12:52 PM »

Correct again!

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #615, on November 11th, 2016, 01:19 PM »

next:

a bigger tuning parameter for the 2:1 ratio is :

To raise the negative voltage, take turns off the L1 (positive choke) and placing them on L2 (negative choke) in order to control the charge on the negative plate. This works both ways, less on L2 less voltage on the negative plate.

We "move" turns from one choke to another to keep the impedance matching. You could also keep the impedance matching via changing the primary Resistance or doing it by adding a resistor across parallel or in series depending if its high or low.

we need to worried about resistance. more on this later but its all about impedance matching.

~Russ

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #616, on November 11th, 2016, 04:46 PM » *Last edited on November 11th, 2016, 04:51 PM*

Russ and others, keep in mind the Stan Meyer VIC is accomplishing two tasks in one device. You need to keep things straight in your head which task you are hoping to adjust/optimize and do it in a way that least impacts the task you already have working (hopefully).

Task 1. You must create enough amp leakage to start basic electrolysis.

Task 2. You must create a condition on the plates where there is a two to one charge ratio.

Because you are building one device that accomplishes two tasks, things become a minefield if you don't understand the relationships. One component can contribute to both tasks, so if you adjust it and you already had one task working, you probably just screwed it up.

So there is some complexity here and to overcome it, you must do things in the correct sequence which Ronnie has been walking us through. Once you get your hands dirty, it will become apparent this is an iterative process--a little adjustment here; a little adjustment there, then on to the next step.

I posted earlier the PDF about electrostatic measuring techniques. What I want you all to glean from this is in the first page or two. You will notice there is no mention of amperage, unlike what you will find elsewhere on the Internet when you search the word charge or Coulomb. It says quite plainly:

**"When we move one coulomb of charge from one point to another in an electric field, we are doing work on that charge. The term we use for this is electric potential or voltage."**

**"Again, a volt is the amount of work it takes to move one coulomb of charge a certain distance through an electrical field E."**

Voltage does do work, just like Stan said and the people that know how to measure electrostatics know this. Now you do too.

You must think about charge and the VIC as a creator and distributor of charge, charge which you will separate in the proper proportions and put it where it needs to go.

What I found very confusing to me until it finally clicked is this unbalanced (two to one) charge ratio. The reason for it being so confusing is because you have no reference point. *I think you actually could though by center tapping the secondary*, but suppose you don't. So what do I mean...

If you measure voltage across the two plates, you get a voltage differential. Let's say for example the value is 200 volts. Now look at this algebraically:

$$200 = A - B$$

A and B have limitless possibilities to satisfy that equation. If we add another equation:

$$A = 2 * B$$

Only then can we find values for both A and B that actually work--that actually "switch-off the covalent bonds".

We can do this because we can adjust the gap between the two cores and more fundamentally, we have complete control over what charges the VIC produces and where they go. Let's look at this closer by referring back to the image Ronnie posted.

As you can see, the primary and L2 (negative choke) are fixed on the same core. So we know immediately the negative plate will collect the maximum negative charge possible coming from the input signal. It has to because it is directly coupled. Now let's look at the positive plate...

As we can see here, the only way to get positive charge to the positive plate is to get the secondary to produce more voltage. So let's place the two C-cores tightly together so that maximum coupling is achieved. What do we get charge-wise?

Well, with 100% flux flowing through both C-cores, we can see the charge ratio between the two plates is pretty nearly one to one. You'll get a voltage differential, but the ratio is no good. This won't help us with water. We need two to one charge ratio.

Okay, I glossed over this pretty quick didn't I? I said one to one with the cores tightly pressed together. Let's look closer...

L2 is outputting full negative charge; L1 is outputting full positive charge and the secondary is outputting half-and-half, equal positive and negative going each direction. Let's forget about the diode for a moment and just think of it as a valve making sure charge is only moving in one direction on the rising impulse of magnetic flux. On the decaying side of the magnetic flux, everything just sits still because the valve opens and stops any charge movement. Hopefully now you can see one to one charge distribution when the cores are together.

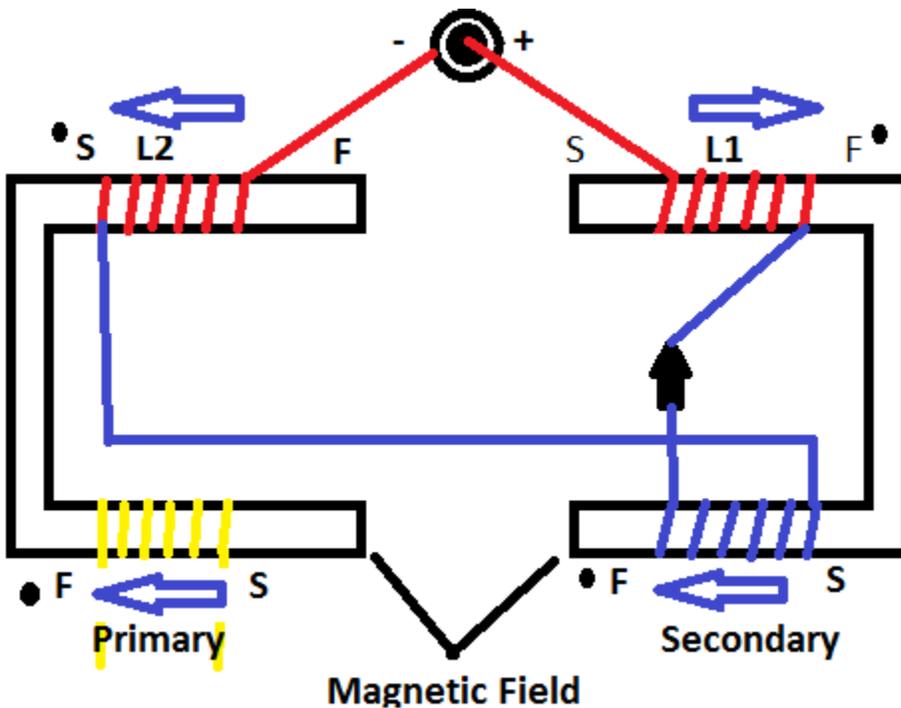
When the cores are apart, again only negative charge is pushed out of the L2 choke; the L1 and secondary are no longer participating in the conversion of magnetic flux to electrical charge.

So we want a two to one charge ratio. I'm hoping you guys are already ahead of me now that I have set the two possible limits, cores far apart and cores tightly together. Now let's look at when the cores are separated apart by just the right distance...

As stated above, the L2 choke will always produce the maximum negative charge since it is stuck on the same core with the primary where the input signal is coming from. Now go slow here, another minefield awaits. What is it?

You're thinking turns ratio right? Yes, you should because the turns ratio between the primary and L2 is slightly different than the turns ratio between the primary and the secondary. Or I should say, it could be. But don't get too tripped up here and fall off the wagon. Here's another reason why Ronnie mentioned the secondary coils should all be similar turns count of similar wire. If you took heed of this, you're still okay.

Now when you bring the cores together with a small gap, the L1 and Secondary begin to kick-in their contribution to the positive charge on the positive plate. As stated above, there must be a spot where the negative charge produced at the negative plate is exactly twice in absolute value or strength as the positive charge produced at the positive plate. This is your goal--task number two. What's going on here with the gap is the manipulation of the coupling factor to achieve the desired charge ratio. I can't tell you how touchy this adjustment might be, because I haven't done it yet, but I'm sure you will want to fill the gap with some kind of a sturdy material that will not compress, so once you have things dialed-in, they will stay that way.



**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #617, on November 11th, 2016, 05:01 PM »

Quote from Matt Watts on November 11th, 2016, 04:46 PM

Russ and others, keep in mind the Stan Meyer VIC is accomplishing two tasks in one device. You need to keep things straight in your head which task you are hoping to adjust/optimize and do it in a way that least impacts the task you already have working (hopefully).

Task 1. You must create enough amp leakage to start basic electrolysis.

Task 2. You must create a condition on the plates where there is a two to one charge ratio.

yes, I agree, I call this the "mode change"

This is the mode where we go from starting the electrolytes mode to the resonance mode.

also on your task #2 you forgot to add that when in this mode of operation everything must match "resonance"  $XC=XI$

but during Task 1 or mode 1 this is not the case.  
This is why we tune the VIC with no water in the Cell!!!

(I think we understand that)

good stuff. I'm going to keep posting things for Ronnie to agree with or disagree with. I have a few more things to post but a lot to think about still.

after I'm happy with MY understanding of Ronnie's prospective of the VIC, then we can talk about the math. because the math and the mode go hand and hand. but it all starts with what we are trying to achieve. (and understanding it so we can engineer it along the way!)

~Russ

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #620, on November 11th, 2016, 06:11 PM » [Last edited on November 12th, 2016, 12:08 AM](#)

**Quote from ~Russ on November 11th, 2016, 05:01 PM**

**yes I agree, I call this the "mode change"**

This is the mode where we go from starting the electrolytes mode to the resonance mode.

I will contend there is no actual "mode change". The VIC executes both modes simultaneously. What happens is that task 1 dies out because the dead short begins to go away and the effect of task 2 takes over. At some point the resistance of the cell becomes less than the dialed-in amp leakage. This is the resistance band going from 80 to 4 as the dielectric property of water changes, but I assure you both VIC tasks are operational at all times. This is also why I would conclude no other device does what the VIC does. It has both ends covered when it comes to manipulating water.

**Quote from ~Russ on November 11th, 2016, 05:01 PM**

**also on your task #2 you forgot to add that when in this mode of operation everything must match "resonance"  $XC=XI$**

I would look at this term differently. Instead of resonance, I would call it resonant-rise.

The analogy here is a spinning flywheel with little to no friction (resistance). If you keep bumping the flywheel with a ratchet-type impulse device (diode), the storage device (capacitor) continues to charge, or in this case acquire charge. You can in effect force (voltage) charge onto the flywheel until something gives way. Or as Stan says, "up to the ability of the electronics". All depends upon how sharp your impulse is. If it's dull, you'll quickly hit a point where you cannot boost the speed of the flywheel any further, but if it's sharp, look out, you'll have more than coils crackling like bacon.

My preferred way to look at the [chokes is they are low-pass filters](#), meaning that at the frequencies we are pulsing at, they always pass the voltage (the force to move charge), but they

don't allow current flow, hence we call them chokes. They choke-off current flow. And as a reminder, what is current flow? What are amps?

Think Ohms Law. It means there is a resistance present. And we fixed that problem already by impedance matching all the coils and the cell itself at DC (all frequencies and their harmonics).

Now these two chokes or low-pass filters allow charge through them no problem, but to fulfill task #1, they have to be offset just enough in accordance with the input frequency to allow some amp leakage. No amp leakage, no process start. You can send all the perfectly balanced charge ratio charge to the cell you want and it will all hit the dead short and re-arrange itself to equalize within the cell. Game over.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #626, on November 11th, 2016, 10:22 PM » [Last edited on November 11th, 2016, 10:46 PM](#)

Primary mode of operation maybe.

Because the circuit doesn't have any hard switches in it, it can do both modes/tasks simultaneously. My feeling and not proven. Dollard would classify it as an analog computer.

The more I study the VIC circuit, the more apparent to me how ingenious this device actually is.

The trick to all this that Ronnie has now mastered, is to not overthink things. Comprehend why the parts are there, what they should do and how to adjust them to get them to do what they should do. And there really isn't all that many parts:

1. Signal generator.
2. Transistor driver.
3. Primary diode.
4. Primary coil.
5. Impedance match resistor if primary isn't already matched.
6. Secondary coil.
7. Secondary diode.
8. Negative choke coil.
9. Positive choke coil.
10. Magnetic core.
11. Water capacitor or WFC.

That's really not too much compared to most digital electronic devices. A stupid switching power supply has far more components and can't do half as much as a VIC.

So I see there are still quite a few questions floating about. Ronnie, would you like to tackle some of them? Boost their confidence a little maybe...?

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #654, on November 12th, 2016, 11:17 AM » [Last edited on November 12th, 2016, 11:20 AM](#)

always from arc over shorted, due to screwing up tuning the thing to resonance. And also that time i had it working and hit the frequency knob, that was the big one, that brought out the smoke. All the other times was just due to going the wrong way in frequency while making a voltage change. The closer you get to reaching you max voltage input, there is not room for mistakes.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #658, on November 12th, 2016, 11:48 AM »

The phasing dots on the Secondary and L1 needs to go toward the B+. I am at work right now don't have anything here. But If I remember right the secondary and L1 phase goes toward the cell and is in phase with the Primary. I will check when i get home. I hate working weekends.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #664, on November 12th, 2016, 05:01 PM »

Ronnie, I'm still checking my understanding.

please read this and agree or disagree so i can keep going down my list. I'm taking it slow so its easier for you to respond.

next:

a bigger tuning parameter ( we know the fine tuning is core movement) for the 2:1 ratio is :

To raise the negative voltage, take turns off the L1 (positive choke) and placing them on L2 (negative choke) in order to control the charge on the negative plate. This works both ways, less on L2 less voltage on the negative plate.

We "move" turns from one choke to another to keep the impedance matching.

we need to worried about resistance. more on this later but its all about impedance matching.

~Russ

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #665, on November 12th, 2016, 05:58 PM » [Last edited on November 12th, 2016, 06:01 PM](#)

Yes that is right, you can move turns from any coil as long as they are put back on somewhere. You must maintain the resistance in the secondary circuit in order to maintain the impedance match.

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #666, on November 12th, 2016, 06:10 PM »

thanks,

I'm kind of jumping ahead but... lets briefly talk about impedance matching (you already kind of answered this in the above post... but... )

next:

keep in mind that we always need to keep a "DC" impedance match. This is between the primary and the rest of the VIC Sec,L2,L1,C = Pri we can say "DC" resistance. because it's when it's in resonance, that is reactance in the cap and inductor cancel each other out.  $X_L = X_C$ , so the only thing left is resistance... kind of like we remove "impedance" the Z. impedance is normally AC resistance...

I have a follow up question on this but first... yes / no ?

~Russ

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #667, on November 12th, 2016, 06:31 PM »

Yes if I understand you correctly.

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #669, on November 12th, 2016, 07:47 PM »

Russ, use the watts-in equals watts-out power formula. This will take care of your turn ratio problem you are missing.

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #679, on November 13th, 2016, 03:25 AM »

@ Matt 10 ohms in the primary is critical, you have to have 1 amp in the primary. At 10 volts/10 ohms gives you 1 amp. so the target voltage in the primary is 10 volts when you hit resonance. Because of things not being perfect the target may end up being 11 or 12 volts. If so the primary coil can still handle the amps.  $12\text{volts}/10\text{ohms}=1.2\text{amps}$  which is the rating of the wire used. That's the reason Steven said "We found it to works better around 11 volts". Because of loses of things not being perfect.

If we use your example of 3 ohms in the primary we would have  $3\text{volts}/12\text{volts}=4$  amps in the primary so you can see the wire size 29 gauge is not rated for that. Therefore you would have to use

a different wire size to handle the amps in the primary. Then you have to ask the question what effect would that have on the other working parts of the VIC.

We have to use the values from Stan's VIC that Don gave us in order to understand it. Even though we can change things to get the watts in and watts out, Just remember if we change things, what effect will it have on other things in the process.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #685, on November 13th, 2016, 08:15 AM » [Last edited on November 13th, 2016, 10:37 AM](#)

Brad, I have to kinda disagree about the 50% duty cycle reducing the power even more.

When you do the math for the time constants that it takes for an Inductor (Primary Coil) to reach 1 amp it also takes time constants for it to decay. That's your pulse on time and pulse off time. (Frequency)

So in other words 5 time constants during the pulse on time will reach 1 amp, then you have an Off time of time constants for it to decay.

Keep in mind the secondary is doing the opposite, during the off or decay time of the primary is when the on time is on in the secondary, which is the voltage source on the secondary side. So therefore, you have time constants that needs to be considered to match the primary going into the choke during off time of the Primary. Keep in mind we have two different voltage sources with two different amp ratings.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #688, on November 13th, 2016, 10:40 AM »

[Quote from gpssonar on November 13th, 2016, 03:25 AM](#)

[@ Matt 10 ohms in the primary is critical, you have to have 1 amp in the primary. At 10 volts/10 ohms gives you 1 amp. so the target voltage in the primary is 10 volts when you hit resonance.](#)

So until the system hits resonance, the input current continues going up along with the increased voltage. And only at resonance does the current drop off.

So if there was some way to get into resonance quickly, then you could use the thinner wire on the primary. Hmm...

I'll have to think about that some more.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #689, on November 13th, 2016, 10:44 AM »

In order to use thinner wire, just close the gap up between the cells like he did in the injector plug.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #689, on November 13th, 2016, 10:44 AM »

In order to use thinner wire, just close the gap up between the cells like he did in the injector plug.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #691, on November 13th, 2016, 11:34 AM »

simple question. Ronnie you wants told me this resonance is between L1 and the cell. but at some point L2 also becomes part of the resonance. could you potentially try to explain your understanding of how those things work with each other and when. This might help me and Matt think more clearly about how the chokes resonate with the cell

There is some confusion.

Thanks!!

~Russ

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #692, on November 13th, 2016, 11:43 AM » *[Last edited on November 13th, 2016, 02:44 PM](#)*

Yes, when  $X_L$  and  $X_C$  equal zero let's say, current is at its max, you will never get L1 or L2 to choke off all the current from rushing back, and that causes an oscillation between the two chokes. what's between the two chokes the water capacitor. It wouldn't be a huge amount of current because we don't have a huge amount of current in the secondary side anyway. But we do have a huge amount of voltage at this time. Just calculate the time constants of the L1 Charging and the time constant of its decay time. You better have a pulse coming in at the right time when the decay time starts to takes place or you will have current movement. I personally believe you will never get it to choke it all and stop all movement. That's where the term voltage stimulation comes from Stan talks about if you ask me! That little bit of current change is enough to allow the voltage to raise and lower a real small amount in the cell. (Voltage Stimulation)

If you reach this point, Just remember this old saying:

Mary had a steamboat the steamboat had a bell, Mary pulled the wrong chain and the steamboat blew all to H@\$L.

So the moral of this story is, don't turn the wrong knob, or pull the wrong chain when you reach this level of resonance. LOL

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #697, on November 13th, 2016, 04:20 PM » *[Last edited on November 14th, 2016, 08:34 AM](#)*

Let's do the math to find the time constants on the primary side of Stan's Vic.

According to Don's measurements:

Things we need to know.

Primary Coil Inductance=48.5mH with core @10kHz

Primary Coil Resistance=10 ohms

Primary voltage at 1Amp=10 volts

First thing we need to do is convert 48.5mH to Henry= 0.0485H

Next we need to divide the inductance into the resistance  $0.0485/10=.00485s$

.00485 is 63.2% of the rise in current and is the first time constant.

It takes 5 time constants to get to a full 1 amp in the coil

So take  $.00485*5=.02425s$

.02425s is the time period

Next we need to get the Frequency

The math for that is  $f=1/time$

$1/.02425=41.2371134Hz$

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #698, on November 13th, 2016, 04:55 PM » [Last edited on November 13th, 2016, 05:11 PM](#)

Ok so once we get time constant on the primary do we apply the math to the secondary coils also or all we need is to know the primary??

That would be 5 pulses @ .2425 seconds each ? (time constant) to get the 1 amp

Basically we want to put this into first gear and gain movement towards the next gear???

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #699, on November 13th, 2016, 05:12 PM » [Last edited on November 13th, 2016, 06:26 PM](#)

Sure you would Dom on the L1 choke, Just remember you will have a different voltage and resistance on that side. It must match the off time of the primary. If it don't the inductance is to high or too low or the resistance is too high or too low. This is where you get into "What do I do" LOL And no that don't mean 5 pulses. It means one pulse.

Use these calculators, Time constants are a period of time. You have to finish out the math to get the frequency which is  $f=1/time$

$1/.02425=41.2371134Hz$

<http://www.sengpielaudio.com/calculator-period.htm>

<http://www.learningaboutelectronics.com/Articles/RC-RL-time-constant-calculator.php#answer2>

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #702, on November 13th, 2016, 05:25 PM »

During the off time of the primary is when the secondary is ramping up current in the L1 choke, if it don't match the primary off time then you will not get all the current into L1 from the secondary.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #703, on November 13th, 2016, 05:26 PM » *[Last edited on November 13th, 2016, 05:42 PM](#)*

**Quote from Dom on November 13th, 2016, 05:22 PM**

**If we have a setting we look to have on primary would that not just simply automatically covert to the secondary and L1? Would not the pulse from primary on be an off time in the secondary?**

No: You want it to be, but the inductance and resistance has to be right in the L1 choke before that can happened. What's the use of having .27amps "as an example" on the secondary side if you can't get all of into the L1 choke.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #711, on November 14th, 2016, 05:39 AM »

**Quote from gpssonar on November 14th, 2016, 01:05 AM**

**@ Matt, I left off the zero. it should be .02425s I changed it in my post.**

Okay, 20 Hz then. Just a low buzz. That frequency makes a lot more sense now looking at how the VIC operates.

Just curious how many people having actually wired together a VIC, have tried an input signal of that low a frequency. I'm guessing quite a few started at the bottom around 100 Hz and went up from there.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #713, on November 14th, 2016, 06:19 AM » *[Last edited on November 14th, 2016, 08:33 AM](#)*

I changed my post to add the extra math to get the Frequency

**Quote from gpssonar on November 13th, 2016, 04:20 PM**

Let's do the math to find the time constants on the primary side of Stan's Vic.

According to Don's measurements:

Things we need to know.

Primary Coil Inductance=48.5mH with core @10kHz

Primary Coil Resistance=10 ohms

Primary voltage at 1Amp=10 volts

First thing we need to do is convert 48.5mH to Henry= 0.0485H  
Next we need to divide the inductance into the resistance  $0.0485/10=0.00485s$   
.00485 is 63.2% of the rise in current and is the first time constant.  
It takes 5 time constants to get to a full 1 amp in the coil  
So take  $.00485*5=.02425s$   
.02425s is the time period  
Next we need to get the Frequency  
The math for that is  $f=1/time$   
 $1/.02425=41.2371134Hz$

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #715, on November 14th, 2016, 12:05 PM »

Quote from gpssonar on November 14th, 2016, 06:19 AM

I changed my post to add the extra math to get the Frequency

$1/.02425=41.2371134Hz$

Ronnie, if that time constant is only the on-time, you have to double it to calculate the total period (@ 50% duty cycle), which gives you half that frequency. In this case, 20.6 Hz.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #716, on November 14th, 2016, 12:07 PM »

No, Matt that is not correct. that time constant is for only the on time. There is another time constant for decay time.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #719, on November 14th, 2016, 12:16 PM »

Quote from andy on November 14th, 2016, 12:13 PM

Ronnie

Can you answer my question , please?

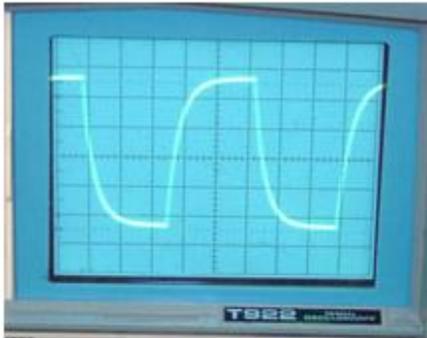
andy

andy don't read to much into the 2:1 ratio. There is more to it than a 2:1 ratio

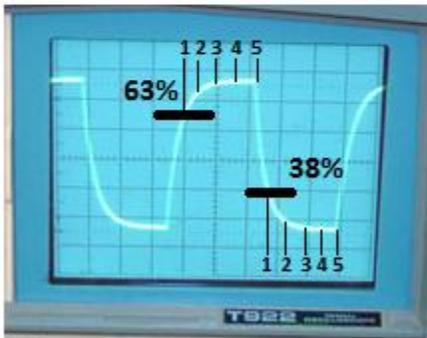
**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #720, on November 14th, 2016, 12:17 PM » *Last edited on November 14th, 2016, 12:30 PM*

Matt the time on is the same as the decay time which gives you 50% Duty cycle. Just double the 4Hz Frequency. Only thing different in the decay time is, it decays down to 38% instead of 63% rise but takes the same amount of time



📎 Capture23.PNG - 80.42 kB, 221x170, viewed 120 times.



📎 Capture24.png - 62.1 kB, 221x170, viewed 117 times.

Two educational videos shows what is going on using pictures instead of math – very good

[https://www.youtube.com/watch?v=f\\_MZNsEqyQw&t=300s](https://www.youtube.com/watch?v=f_MZNsEqyQw&t=300s)

<https://www.youtube.com/watch?v=Mq-PF1vo9QA>

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #726, on November 14th, 2016, 05:12 PM »

Quote from gpssonar on November 14th, 2016, 12:17 PM

Matt the time on is the same as the decay time which gives you 50% Duty cycle. Just double the 4Hz Frequency. Only thing different in the decay time is, it decays down to 38% instead of 63% rise but takes the same amount of time.

Yeap. I mostly expected that. The primary diode forces the back EMF to turn around and re-enter the circuit and the WFC just soaks it up--the energy has nowhere else to go.

And by the way everyone, you can calculate these time periods or use an amp probe on your scope so you can clearly see the charge/discharge cycles as you adjust frequency. Big inductors like these at low frequency typically show a textbook response--just like Ronnie's images above. You can also

use a CVR (low ohm, non-inductive resistor) placed in series with the primary, then connect your voltage scope probes across the resistor. I have a 0.1 ohm and a 0.02 ohm that I use often for this. The smaller the better because you don't want to mess up your impedance match. You'll find it interesting to put it in series with the transistor output and then put it in series with the primary, the later way you can see the back EMF (recoil) surge back against the diode.

All good information Ronnie.

What's next on your list?

### Re: "Understanding How Stan Meyers Fuel Cell Works"

« Reply #735, on November 16th, 2016, 12:25 AM » [Last edited on November 16th, 2016, 12:31 AM](#)

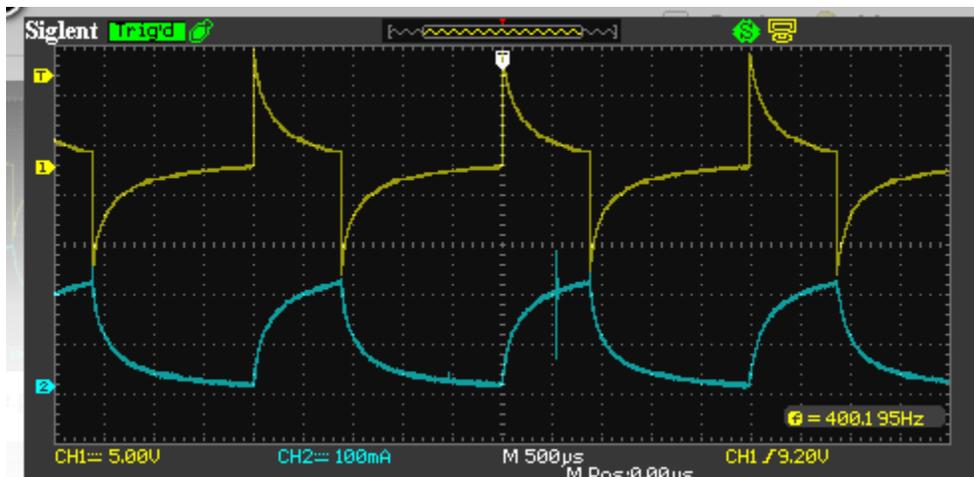
[Quote from gpssonar on November 14th, 2016, 12:17 PM](#)

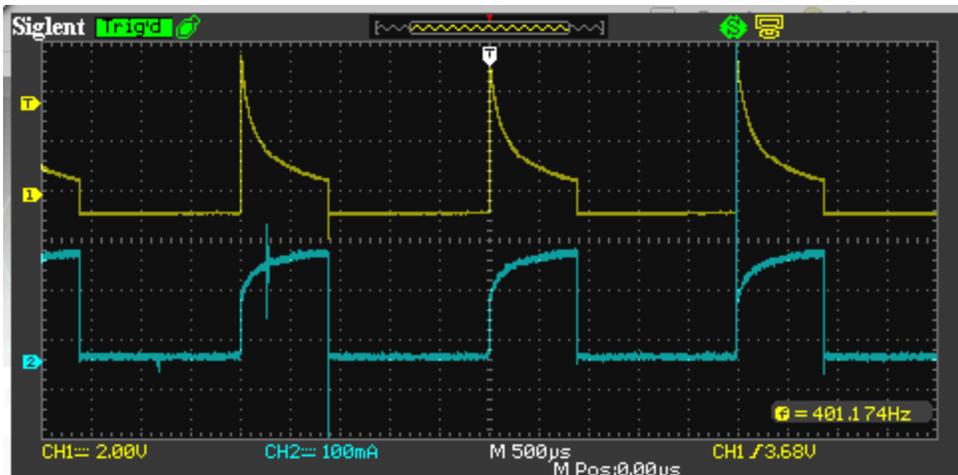
[Matt the time on is the same as the decay time which gives you 50% Duty cycle.](#)

So I connected my VIC up and thought I'd show some input drive signals, both voltage and current across the primary.

First scope shot is without the parallel primary diode; the second one with the diode. I set the duty cycle a little below 50% so it is more clear when the pulse is on (smaller width).

I'm hoping Ronnie recognizes these signals as looking much like his do.





[Re: "Understanding](#)

[How Stan Meyers Fuel Cell Works"](#)

« Reply #737, on November 17th, 2016, 12:31 PM » [Last edited on November 17th, 2016, 12:38 PM](#)

This would probably be some good wire to have on hand for this project:

<https://www.temcoindustrial.com/28-awg-copper-magnet-wire-5-lb-mw0216-magnetic-coil-gpmr200.html>

Dielectric strength of 10,000 volts per layer should be about right.

When I use this wire and run the numbers with my cores/bobbins, I get pretty close to Ronnie's values:

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #743, on November 17th, 2016, 04:49 PM » [Last edited on November 17th, 2016, 05:09 PM](#)

[Quote from gpssonar on November 17th, 2016, 03:04 PM](#)

[Looking good Matt, we will get on skype again when I have time.](#)

Sounds good Ronnie. Making progress, but it's sure easy to get myself screwed up.

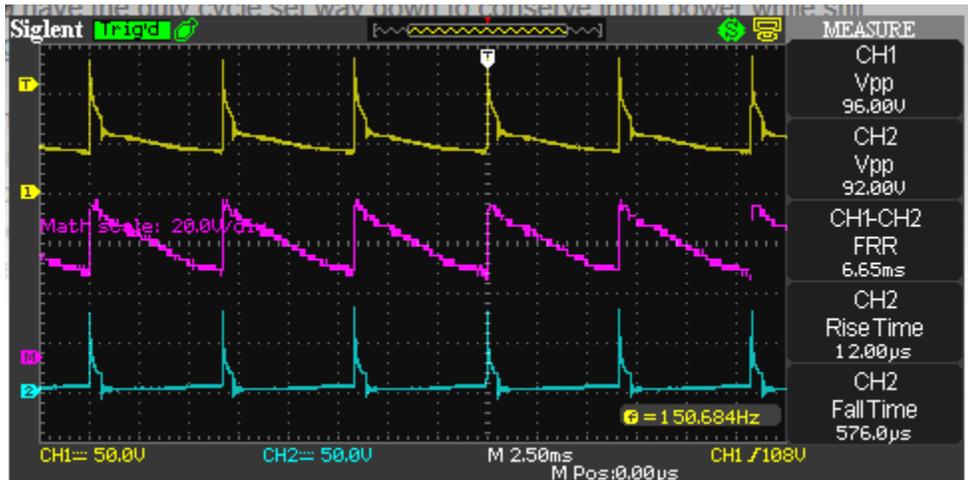
Speaking of screwed-up, I had my L2 wired backwards. Easy to do. Looked right at the schematic and did it wrong.

So with that fixed, have a look at how this thing functions now. As you can see, L2 does not add to L1 and the secondary, it subtracts from it. This is how we get the proper charge ratio. Charge is absolute between the VIC and WFC, but relative to the rest of the world.

So this scope-shot shows the VIC charging a capacitor, depicted by the purple math trace. Notice how now the B+ and B- waveforms are no longer altered by having the capacitor

connected. I also have the duty cycle set way down to conserve input power while still providing a strong impulse.

You might ask why does the B+ and B- appear to have the same voltage peaks. L1 and the secondary combined are twice the turns ratio, meaning half the amperage capability. This allows the L2 to over-power them amperage-wise, which pulls the voltage down to the same level as L2. As you can see though, I still have 40+ volts to start the electrolysis process and form a few bubbles. Once the amp-leakage is overcome, then things should start to get interesting...



Quote from newguy [on November 17th, 2016, 04:46 PM](#)

Hey Matt, just a guess here....that's not an electrolytic cap you used was it?

No, it's a 6000 volt ceramic, 0.001 uF. Still don't know the best way to simulate an actual WFC. This cap provides enough load to keep voltages manageable with the scope probes I have.

Matt here are the two circuits I was telling you about:



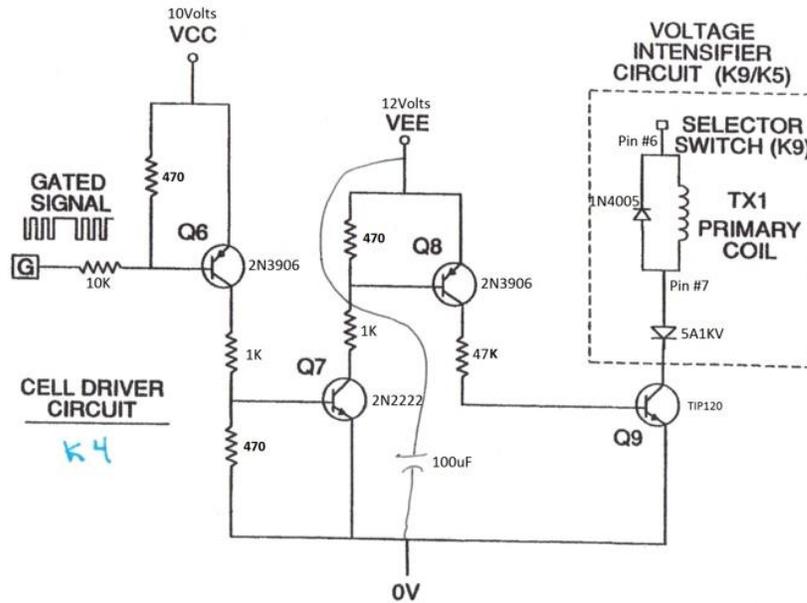


FIGURE 5

5/12

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #766, on November 20th, 2016, 05:48 PM

@andy, There are things that people still needs to know about the polarization process before we move into the other areas of the process. This is a two part process.

Most people don't know the L1 choke, with Direct Current the coil has no inductive reactance. There is a reason there is an offset voltage. It's to get the process started and never let it fall below that voltage level. If it falls below that level you will lose the polarization process. So in other words as soon as you turn the unit on, it starts with a DC offset voltage and the process starts. Again the L1 choke coil has no inductive reactance with Direct Current. It's an RC circuit well before it becomes an LC circuit.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #776, on November 21st, 2016, 03:44 AM » *Last edited on November 21st, 2016, 04:05 AM*

I say it is a two part process because the RC circuit sets up an environment of an attracting force between the two plates to align and stretch the water molecule (Polarization Process). Then the LC circuit kicks in at a predetermined voltage level in an instant of time and sets up the repelling force on the two shared electrons that holds the water molecule together, (Like Stan said with enough repelling force on the two shared electrons the water molecule just falls apart, (Like a light switch cutting off the covalent bonds that holds them together). That's what the VIC (voltage intensifier (CIRCUIT)) does.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #785, on November 22nd, 2016, 05:10 PM » [Last edited on November 22nd, 2016, 05:21 PM](#)

Matt and others, The DC bias is only a potential difference of 1.23 Volts. Just so everyone don't make a mountain out of a mole hill.

EXAMPLE: Hydrogen electrode -0.41 volts Oxygen electrode +0.82 volts.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #794, on November 25th, 2016, 11:16 AM » [Last edited on November 25th, 2016, 11:35 AM](#)

Those numbers means a lot whether you know it or not. I don't care if you got one cell or five hundred cells. How many of you have charged up a cell and disconnected the cell and hooked up a led across the cell and watch it stay lit for a period of time before the cell completely discharges. Every ask yourself why the cell will light the led after the cell has been turned off? I'll give you the answer, the water molecules are polarized which will keep a charge on the cell and the led lit, once they lose their polarization they start to spin again and the led dies out. It takes a potential difference of 1.23 volts to maintain the polarization process. If not, you will have to start the process all over again from the start.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #815, on November 29th, 2016, 06:07 PM »

13:23 (180 degrees out of phase) From Stan video time in 13.23

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #822, on November 30th, 2016, 04:53 AM » [L](#)

I've said it in my other thread. It's all about stripping electrons form the water molecule. The water molecule will not fall apart unless you equal the force that holds it together. (Period)

Whereby

Net Force (F) is the "electrical attraction force" between opposite electrically charged entities, and is given by Coulomb's Law

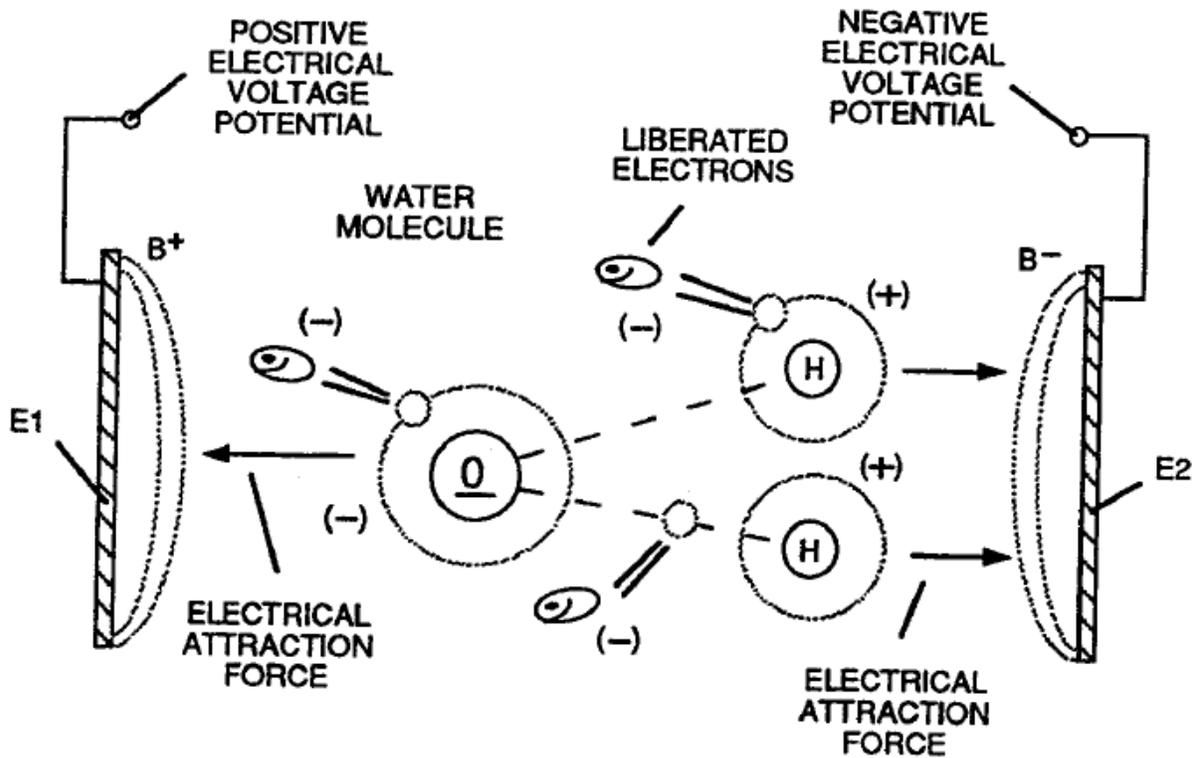
$$F = \frac{qq'}{R^2} \quad (\text{Eq 13})$$

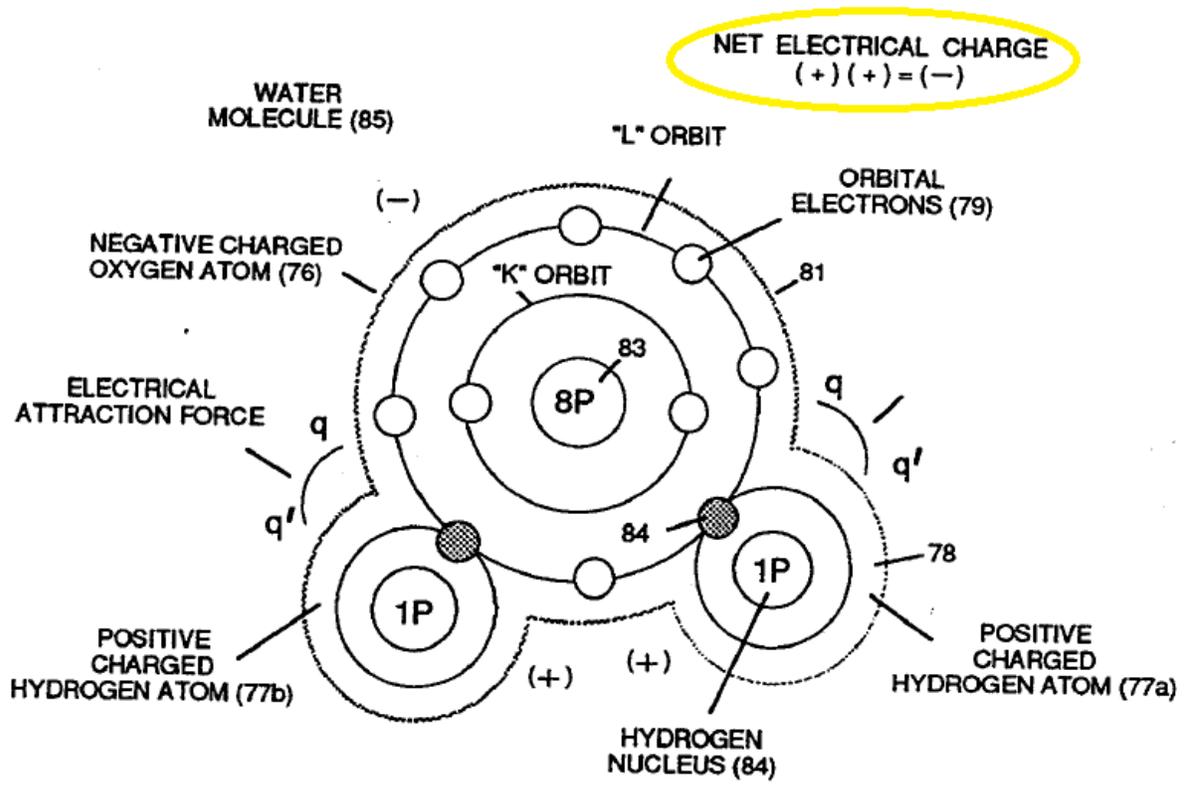
Whereas

Difference of potential between two charges is measured by the work necessary to bring the charges together, and, is given by

$$V = \frac{q}{eR} \quad (\text{Eq 14})$$

The potential at a point due to a charge (q) at a distance (R) in a medium whose dielectric constant is (e).







**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #824, on November 30th, 2016, 05:39 AM » [Last edited on November 30th, 2016, 05:56 AM](#)

Ronnie, can you give us any advice on tuning and finding resonance?

I just did in my last post. You can under charge the water molecule and you won't have enough attracting force to strip electrons, you can have too much force and you end up with a repelling force. That's what Stan means by tuning into the properties of water. Watch this video and you may get something out of it.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #836, on November 30th, 2016, 03:35 PM

» [Last edited on November 30th, 2016, 04:44 PM](#)

If people can't wrap their head around Coulombs Law, they just as well lay the Vic & Cells down and let them collect dust. It answers all the question needed to build the VIC and the Cell to do what it's supposed to do. (Break the Covalent Bond & Strip Electrons) You even have to know this to build the VIC & Gas Processor as well. (To strip the electrons from the oxygen atom). I tried to walk everyone through Stan's Vic to get to this point so people would understand the working parts of the VIC. Maybe it's best if people starts at the water molecule and work backwards on this using Coulombs Law. It should answer all the unanswered question for everyone about the Cell and Vic.

**Re: "Understanding How Stan Meyers Fuel Cell Works"**

« Reply #874, on December 5th, 2016, 11:45 AM »

well let's get back to "checking my understanding"

Ronnie, this is directed to you, got some more Q and A, if you see ANYTHING you disagree with please state so.

If some of this is a repeat, just answer it any way. please answer yes/no for each number. or reword it to make scene to you.

1. The chokes are indeed amp restriction devices, using the magnetic flux, However Because the Capacitor is "variable" ( due to the gas bubbles being formed) the "bandwidth cut off" of the resonant frequency is outside the parameters needed to achieve resonance between L1,L2 and the "cap" . But ONLY when in the "dead short" condition is there.

2. The change in capacitance/resistance will allow the resonant action to take place. it's important to note that the chokes do not enter resonance until enough gas is generated to change the capacitance / bandwidth cut off to do so, this is automatic and by design.  
(this must be part of your design. parameters)

3. This is why we need to tune the system with dry cell's, This is how we check the resonance of the system.

4. Resonance only happens when we reach that sweet spot after we start making gas ( after the start the polarization process with our amp leakage) and if the bandwidth cut off allows to go in to resonance.

5. Then things change when in resonance mode( The phase angle changes between current and voltage when things change in to resonance mode.)

6. This is a Question: we can change the phase angle changes between current and voltage by having an imbalance of turns between L1 and L2???

more after this,

~Russ

[Re: "Understanding How Stan Meyers Fuel Cell Works"](#)

« Reply #878, on December 5th, 2016, 02:18 PM »

1:yes

2:yes

3:yes it helps

4:yes

5:yes and I got more to say about this in another post.

6:got more to say about this one as well in another post.

Gps good video

<https://www.youtube.com/watch?v=r18Gi8lSkfM>