

MileHigh

Position: Sr.
Member



Posts: 431

Re: Bi-toroid

« Reply #13 on: 2010-10-22, 23:43:22 »

For reference, here is Thane's July 28, 2010 instructional video explaining how the Bi-Toroid Transformer works with diagrams:

<http://www.youtube.com/watch?v=GcAYhM0LX9A>

To repeat my point, he is failing to note the flux cancellation problem that I described a couple of postings ago.

The YouTube user besibes18 came to the same conclusion as me. This is a quote from a comment on Thane's clip that Thane did not respond to:

Quote

IT'S WRONG ANALISE IN VIDEO. 1/ WHEN USE BOTH SECONDARY COIL THEY CANCAL EACH OTHER SO THE ONLY WAY THAT FLUX GO IS IN PRIMER COLI LIKE A STANDART TTRANSFORMER. NO ENERGY WIN 2/ WHEN USE ONE SECONDARY COIL ON LOAD THERE IS NO CANCAL FLUX BUT PRIMERY COIL FLUX HAS E EASY TO GO THE SECONDAR COIL UNLOAD SO THE VOLTAGE ON SENDARY DROP MUCH. AND SO DON'T HAVE WIN ENERGY. REPLY ME12:56 12/09/2010

Note that he also makes a very relevant point that I didn't think of. If you put a load on only one of the two secondary coils, then the flux from the primary coil takes a "free ride" through the clear path of the unloaded secondary coil.

Therefore very little flux will pass through the path of the loaded secondary coil and it's voltage output will drop a lot under load.

Well at least I have another person that agrees with me.

I am not concerned with saturation issues, and in this clip Thane does not discuss the saturation of the core. A transformer under normal operation is never saturated. I know that Thane has made more recent clips discussing saturation but I have not watched enough to know where he is going with that.

I will repeat a suggestion for any replicators, and that is to use load resistors where the power dissipation is at least a few watts. If you are operating in the milliwatt range then your measurements will be more difficult and possibly

	inaccurate. Also, if you get a hefty 12-volt transformer, say at least the size of your fist, then you can drive the whole setup with 12 volts AC and be much safer. When you are directly hooked up to 120 volt AC mains power there are three dangers. The first is the high voltage. The second danger is accidentally burning up your coils. The third danger is if you accidentally make a short-circuit, some metal may vaporize and spray into your face before the circuit breaker blows. MileHigh
IP: [Logged]	
<u>wattsup</u> Position: Jr. Member  Posts: 84	<u>Re: Bi-toroid</u> « Reply #14 on: 2010-10-23, 01:38:02 » What I have noticed from Thanos work is one major thing lacking. There is no pulsing, no creative use of capacitors, no looping. Most always everything is connected to the mains and is straight run. He has the greatest drive to produce these great mechanical ideas, rotational schemes, but what is lacking is the pulsing. I can't remember seeing any make/break scheme. Just linear works. Too bad cause I think he is playing with some damn nice ideas, damn nice toys.
IP: [Logged]	
<u>MileHigh</u> Position: Sr. Member  Posts: 431	<u>Re: Bi-toroid</u> « Reply #15 on: 2010-10-23, 02:03:48 » Wattsup: To me it sounds like you have a bias towards pulsing, perhaps because most of the experiments you see use pulsing? Thane mentions somewhere that he envisions an application where the Bi-toroid transformer is used for improving power line transmission. I think he envisions this as a better transformer that is also an over unity device. I would guess that he is not going to go in the direction of pulsing anything. For all of the fun people can have with pulsing, there is a down side that some might not be aware of. The pulsing produces radio interference. Even the famous Imhotep conversion of a computer fan into a miniature Bedini motor would not be acceptable. You would never be able to sell one. In my "bad guy" role I have tried sometimes to demystify pulsing. In the Bedini threads I discuss it in detail, and it's quite technical at times. I admit I also talk

tough on those threads. I discuss how an inductor discharges from multiple angles and completely deconstruct Bedini motors. On OU you started discussing coils and the spark when you disconnect them in a new thread. If you read the Bedini threads on this site you will learn how discharging coils work, but unfortunately you won't find it all laid out in a single clear posting.

I think CuriousChris said that when the coil disconnects the current stops flowing for an instant and then the collapsing magnetic field builds up voltage and then you get the spark and plasma conducting through the air and the current flow resumes. He's wrong. The current doesn't stop flowing for an instant. What really happens is the moment the the coil goes open-circuit the plasma is instantly created so that the current keeps flowing without interruption. Even if you don't see or hear a spark for a small coil, the same thing happens. I am not about to get into the whole deal with you though. If you really want to learn about how a coil works, then check the Bedini threads on this site.

MileHigh

IP: [Logged]

ION

Position: Full
Member



Posts: 194

It's turtles all the
way down

Re: Bi-toroid

« Reply #16 on: 2010-10-23, 05:01:44 »

Quote from: ramset on 2010-10-22, 21:53:04

ion

Have you looked at the most recent independent test data?

I would have to be very ignorant not to respect your Knowledge,I just want to know that you are up to speed on Thanes latest INDEPENDENT test Data.

This "Burning up " issue is this recently??

Nobody is really looking to waste time here.

Thank you

Chet

Hi Chet

In the last video (Dilbert's Dilemma) of the group of three posted earlier earlier

by MH, at 4.0 minutes Thane points to the transformer on the left (roughly 150 VA capacity) and says he already burned this one up trying to drive the primary of his BITT .

<http://www.youtube.com/watch?v=3AeWkNYjUNQ>

He says he had to hook the system up to a larger transformer because he needed 220 volts to drive the finer wound primary into saturation.

At 5.5 minutes in the video, he says he has to discontinue the test because he can already smell the larger transformer burning.

His load on the secondary ranges from 1.09 Watts to 1.65 Watts based on the meter readings shown into a resistive lamp.

So a transformer rated around 150 Watts was burned up and a larger one started to burn with a load down the line of less than 2 Watts.

What kind of energy saving device do we have here?

Draw your own conclusions.

I admire Thane's craftsmanship regarding the devices he has built and tested. I applaud his dogged tenacity in searching for ways to improve energy usage.

I hope that he dreams on and has a breakthrough perhaps as an offspring to his present work.

I wish him the very best of luck in his work.

But I smell a measurement error here.

IP: [Logged]

MileHigh

Position: Sr.
Member



Re: Bi-toroid

« **Reply #17 on:** 2010-10-23, 08:20:27 »

Ion:

I just watched the Dilbert's Dilemma clip again. I agree with you and I am going

Posts: 431

to try to add to your comments.

It looks like the problem is the asymmetrical flux paths as pointed out by the YouTube user besides18 that I quoted in posting #13. When he goes high voltage he has set the secondary coil S1 to be either open-circuited or short-circuited. S2 is always connected to the light bulb load.

Case 1: With the S1 secondary coil open-circuited and the primary voltage at 222 VAC he gets $(2.43 \text{ V} \times 0.45 \text{ A}) = 1.09 \text{ watts}$ across the light bulb load.

In this case almost all of the flux generated by the primary coil flows through the left (S1) flux path because it offers no resistance to the flux flow. This looks like a big inductor.

Only a tiny amount of flux flows through the right (S2) flux path and this puts 1.09 watts through the light bulb load.

From the perspective of the mains power, the load looks like a big inductor (the primary coil with the left flux path) and small separate resistive load. Thane thinks the power factor shows a 90 degree phase shift on his scope, but I would assume it's not quite 90 degrees but he can't see it. This accounts for the 1.09 watts of power going into the light bulb load and the power dissipated in the wires themselves.

Case 2: With the S1 secondary coil short-circuited and the primary voltage at 222 VAC he gets $(3.30 \text{ V} \times 0.50 \text{ A}) = 1.65 \text{ watts}$ across the light bulb load.

In this case almost all of the flux generated by the primary coil flows through the left (S1) flux path because it offers very little resistance to the flux flow. I say "very little resistance" in this case as opposed to "no resistance" in Case 1. The fact that the secondary coil is short-circuited means that it looks like another inductor driving a small resistance, which is the resistance of the wire itself. That accounts for the "very little resistance" in the left flux path. In this case there are two coils (the primary and the S1 coil) so this ends up looking like a giant inductor that's driving a very small load.

So compared to Case 1, for Case2 a bit more flux can flow through the right (S2) flux path because of the very small resistance on the left (S1) flux path. That's why a bit more power flows through the light bulb, 1.65 watts.

From the perspective of the mains power, the load looks like a huge inductor (the primary coil plus the S1 coil with the left flux path) and a slightly larger separate resistive load as compared to Case1. Again, **Thane thinks the power factor shows a 90 degree phase shift on his scope, but I suspect it's not quite 90 degrees but he can't see it.** This accounts for the 1.65 watts going into the light bulb load and the power dissipated in the wires themselves.

In summary, for this clip his setup in both cases looks like a giant inductive load plus a tiny resistive load. That's why his power factor is almost zero. The reactive part of the load is dissipating considerable power through the wire resistance. The fact that he is lighting up a light bulb is almost incidental. The problems associated with the asymmetrical flux paths for this particular experiment mean that the setup fails to efficiently transfer the mains power to the light bulb load. Instead the setup is acting more like a pure inductance through the left (S1) path than anything else.

I think Thane should explore this asymmetrical flux path issue in more depth,

as well as exploring the issue relating to the canceling fluxes mentioned in post #13.

MileHigh

IP: [Logged]

ION

Re: Bi-toroid

« **Reply #18 on:** 2010-10-23, 14:20:52 »

Referring again to the Dilbert's Dilemma video:

Position: Full Member



Posts: 194

It's turtles all the way down

<http://www.youtube.com/watch?v=3AeWkNYjUNQ>

Thane attempts to convince viewers that the phase shift between voltage and current on the primary is exactly 90 degrees out of phase therefore zero power factor.

He shows the traces with low vertical gain when he is driving the primary at very low input voltage, and the traces appear **not** to be close to 90 degrees out of phase.

He then shows the scope in an extremely expanded scale when he **overdrives** the primary forcing it into saturation. We then see three sharp vertical traces on the scope, the two outer green being current and the center violet being voltage, and since they are equally spaced, we are led to believe the current and voltage are exactly 90 degrees out of phase within the resolution of our eye.

As anyone who has used a scope knows, you can position the current waveform exactly between the voltage traces by adjusting the vertical position for that channel. This would fool the viewer into thinking the zero power factor 90 degree phase difference is maintained. You could also add some delay to one channel so that when the PF appears to be approaching 90 degrees out, it is actually moving closer to unity.

No one has commented on how a 150 VA driving transformer can be overheated and burned up by driving his supposedly zero power factor primary and a lamp with less than 2 Watts.

I would recommend that Thane purchase a \$25 "Kill-O-Watt" meter and put this to rest.

IP: [Logged]

poynt99



Group:
Administrator
[4 blue squares]
Posts: 458

It's not as
complicated as it
may seem...

Re: Bi-toroid

« **Reply #19 on:** 2010-10-23, 15:08:41 »

Quote from: ION on 2010-10-23, 14:20:52

Referring again to the Dilbert's Dilemma video:

I would recommend that Thane purchase a \$25 "Kill-O-Watt" meter and put this to rest.

ION, If Thane did that, he'd then have to get a REAL job 😊

Right now it's all gravy, and he appears to be enjoying it.

.99

IP: [Logged]

wattsup

Position: Jr.
Member
[2 gold stars]
Posts: 84

Re: Bi-toroid

« **Reply #20 on:** 2010-10-23, 15:27:59 »

@MH

The conversation with @CuriousChris continues. Seems throwing around "qualifications" or "credentials" is where it's at so I will just stay out of it from now on. No sweat. lol

Regarding the BITT video of Thanes, I stand by my comment. Such multi path flux builds could only be controlled and improved with precision pulsing at various levels. A straight run device in my view is only possible once such a multi-path transformer was better understood via what you would learn with pulsing. For me a straight run device can only be built once all the parameters are known in advance. Regarding radio interference of pulsed devices, ultimately, if a totally free energy device was devised that could change the face of how energy is produced, believe me, radio interference would be the last of the worlds problems or counter arguments. It's like saying if you want to catch some fish in this lake, only stay in the 3 foot and 1000 foot depths so that's about 10% of the lake.

Again, in my view what Thane has built is a very nice toy, but the game played with that toy is going by the wrong rules. He should be pulsing that primary and not wasting straight juice. But we can only do what we are comfortable with. If

you look at OU.Com there is a thread on a new EV Grey video. There you can see a total mastery of build and thought and control. Not just plug it in and see what happens.

IP: [Logged]

MileHigh

Position: Sr.
Member
★★★★★
Posts: 431

Re: Bi-toroid

« Reply #21 on: 2010-10-23, 15:31:48 »

Quote from: ION on 2010-10-23, 14:20:52

No one has commented on how a 150 VA driving transformer can be overheated and burned up by driving his supposedly zero power factor primary and a lamp with less than 2 Watts.

Ion:

It's great that you are a transformer expert!

You could hear the humming getting louder as he cranked the voltage up to 220 volts. I am assuming that humming was from the Bi-toroid transformer and not the variac, but I can't be sure. My guess is that the fine wire in his primary coil could not take the reactive AC current going through it considering the amount of resistance in the wire. Especially when the wire is tightly wound, you can produce more heat than can be readily dissipated, and the coil has to get damn hot before it reaches thermal equilibrium.

I have an interesting question for you. What about all of the little low-power wall transformers that are used to power small electronics devices. If they are not connected to anything, they are unloaded transformers and reactive loads also.

My train of thought has always been that for a much larger unloaded transformer, the inductance is much larger, and therefore the AC impedance is very high at 60 Hz. The inductance is high enough that the reactive current is insignificant, and there is nothing to worry about.

But for a little unloaded "wall wart" transformer, the inductance is much lower and I always had the feeling that they should fry at 60 Hz. Is there a series resistor or something to keep the reactive current low when they are unloaded?

Thanks,

	MileHigh
IP: [Logged]	
<u>MileHigh</u> Position: Sr. Member ★★★★★ Posts: 431	<u>Re: Bi-toroid</u> « Reply #22 on: 2010-10-23, 15:59:50 » Wattsup: For sure the current in a discharging inductor does not stop momentarily when you first make the disconnect. I read CuriousChris' latest posting and it looks like he knows what he is talking about except for that fine detail. The moment you open-circuit an inductor that has current flowing through it, it starts to discharge through the air which is turned into plasma due to the high voltage. While the plasma is in existence the current flow will decrease from the initial level until it stops at zero. But to be absolutely precise, there is never a "hiccup" in the current flow like CuriousChris is suggesting. If you really really want to split hairs, there may not be plasma for a few microseconds because the current flowing through the coil has to charge the stray capacitance in the coil before the plasma ignites, but I really doubt that's what CuriousChris is implying. Even if you were charging the stray capacitance, the current would still be flowing in the coil. If you read through my Bedini stuff you will learn that a discharging inductor is a current source, and that explains the high voltage right there, it's a no-brainer. As far as the pulsing and transformers goes, I saw a posting by you recently discussing inductive spikes and the amount of energy they contain. You, and many people believe that there may be a stress induced on the aether or something to that effect that taps into some extra energy. The real truth is that inductors are just as boring as capacitors. They only discharge as much energy as you put into them in the first place. This is an absolute carved-in-stone fact. It can be proven quite easily on the bench. Inductors have a mystique because of the high voltage they can produce. Many people find this fascinating and almost mystical and something takes on a life of its own around that property of inductors. They call it "radiant energy." If I said to you that capacitors can produce super-high spikes of current, you might not even take notice. Inductors and capacitors are very similar. So I am not sure if you think pulsing some sort of transformer configuration will bring out some extra effects, but I just wanted

to give you the low-down on coils and by extension transformers. There is never excess energy in the output voltage spike from a coil. To be even more precise, the output spike is a current and a voltage spike, where the current is determining what the voltage is. In that sense, it would be more appropriate to call it a current spike. Again, that's all explained in the Bedini threads.

MileHigh

IP: [Logged]

ION

Position: Full
Member



Posts: 194

It's turtles all the
way down

Re: Bi-toroid

« Reply #23 on: 2010-10-23, 16:52:58 »

Quote from: MileHigh on 2010-10-23, 15:31:48

Ion:

It's great that you are a transformer expert!

You could hear the humming getting louder as he cranked the voltage up to 220 volts. I am assuming that humming was from the Bi-toroid transformer and not the variac, but I can't be sure. My guess is that the fine wire in his primary coil could not take the reactive AC current going through it considering the amount of resistance in the wire. Especially when the wire is tightly wound, you can produce more heat than can be readily dissipated, and the coil has to get damn hot before it reaches thermal equilibrium.

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But for a little unloaded "wall wart" transformer, the inductance is much lower and I always had the feeling that they should fry at 60 Hz. Is there a series resistor or something to keep the reactive current low when they are unloaded?

Thanks,

MileHigh

I am by no means a transformer expert, just a practical experimenter.

Typically a transformer will emit a loud buzzing or humming when driven into saturation. Also the current waveform will be tall thin slightly rounded spikes 2-3 milliseconds wide with nothing on either side of the zero crossing. This is the pulse sharpening effect of a saturated inductor.

A typical 120 volt wall wart such as a Uniden 7 Watt telephone supply is rated at 9 volts 300 mA. output.

Note that it has a primary DC resistance of about 310 Ohms. There' your series resistor, the primary is wound with very fine copper wire, probably #32 or #36.

Unloaded the power factor is 0.16 to 0.17, and the current at the primary 0.03 Amps

Loaded with a 20 Ohm resistor the secondary yields 9.45 Volts or 4.46 Watts

The power factor is then 0.84

The high primary resistance helps to limit excess current from an unloaded device, still it is mostly reactive from the 0.16 power factor.

BTW, size of a transformer does not necessarily mean high inductance. A much smaller device with lots of primary turns can have more inductance. Ampere turns. Size is related to power handling capability, and you can use a bathroom scale to get a rough idea of this (for a given frequency say 60 Hz.)

Last Edit: 2010-10-23, 18:42:46 by ION

allcanadian

Position: Jr.
Member



Posts: 75

Re: Bi-toroid

« **Reply #24 on:** 2010-10-23, 19:06:11 »

@milehigh

Quote

The real truth is that inductors are just as boring as capacitors. They only discharge as much energy as you put into them in the first place. This is an absolute carved-in-stone fact. It can be proven quite easily on the bench. Inductors have a mystique because of the high voltage they can produce. Many people find this fascinating and almost mystical and something takes on a life of its own around that property of inductors. They call it "radiant energy."

I would agree to some extent but it should be understood that what many call absolute carved-in-stone facts sometimes have limitations to the rule or exceptions. A few years ago I did some experiments to first define what constitutes "normal" operation of an inductance and then the limitations of the popular understanding of normal operation. I built a solid state electrometer to measure both magnitude and phase differential in electric fields, hall effect circuits for measuring magnetic fields as well as the standard equipment. Now let's consider "normal operation", we close a switch to charge an inductance with current, we see a voltage rise on our oscilloscope connected across the inductance which then levels off indicating the current has stabilized, we open the switch and see a voltage spike (an inductive discharge) proportional to the resistance to the discharge. This is normal operation which is equivalent in a mechanical sense to a water ram pump, we have increased voltage at the expense of current and the energy remains constant.

Now let's consider abnormal operation that is what you do not know, if we consider that the current input to the inductance is solely responsible for the inductive discharge or voltage spike then they must always be proportional to one another and there can be no exceptions but this is not the case. I built many circuits to specifically test one exception to the rule whereby I could produce an inductive discharge, a voltage spike, on both the "make" and "break" of the circuit switch. Both inductive discharges (two) would induced a voltage in nearby coils and would also be indicated on all measuring devices. Now if the inductive discharge is solely a product of the disruption of a current already established in an inductance then how can I produce another inductive discharge before any current whatsoever has started to flow in the same inductance? It should be

noted that both inductive discharges were in fact equal in every sense of the word which still leaves us with this nagging question of how an inductive discharge can occur "before" a current has been established, in fact before any current of any sort is flowing in the inductance? Now if as many believe, the input must be equal to the output then why do I get two equal outputs from only one input?

It would seem to me that what I have proven as a fact in reality through actual experiments would seem to be in direct conflict with what you have stated. It should also be noted that my experiments are based on the research of Nikola Tesla over 100 years ago and that he had documented these facts on more than a few occasions.

Now consider your statement:

Quote

They only discharge as much energy as you put into them in the first place. This is an absolute carved-in-stone fact.

If this is true then how can I produce a "discharge" well documented by Nikola Tesla before I have "put" any energy into it in the first place? Common sense would suggest one of us is wrong.

Regards

AC