

Re: low-cost 1800-amp heating source

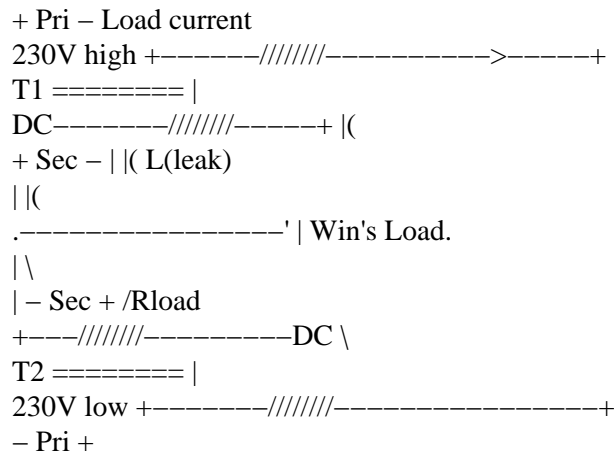
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- *From:* Tony Williams <tonyw@xxxxxxxxxxxxxxxxxxxxxx>
- *Date:* Thu, 02 Aug 2007 12:51:35 +0100

In article <1186051537.860371.213280@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>, Winfield <winfieldhill@xxxxxxxxxx> wrote:

Tony Williams wrote:

I was interested in Ken's idea, so sketched a possible circuit, as below.



For quick estimates, could we guess that the DC current would be 3 to 5 times higher than the peak AC current at the VA rating of transformer?

I don't think it is even as high as that Win.

If you were to leave the Pri open circuit, connect a voltage source to the Sec, and turn it up until the current waveform had nice wide flat tops then the measured Ipeak could be a reasonable estimate of the polarising DC amps needed to saturate the core.

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3 to 5 times the secondary magnetising current peak is probably much lower than 3 to 5 times the peak secondary load current.

The control power would then be the DC amps times the winding resistances.... but see below on what could buggerate that low control power.

Given that the DC winding resistance of the transformers is quite low, the DC-control requirement doesn't look too bad. A fair amount of DC control current, sure, but not too much voltage...

There could be a little ambush in the two-transformer saturable reactor. Those two series'd secondaries may not cancel completely, so there could be a residual AC voltage at their terminals. I suspect that the DC current source must have a high enough compliance/supply voltage such that no AC current flows in the secondaries.

The same (or worse) AC current flow could occur with the circulating currents that would arise from the paralleled windings in your previous post.

This is getting interesting.....

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Tony Williams.

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