

Transformer Current

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Nutshell:

I have a lead acid 12V battery charging device that used a wall transformer rated as 120 VAC 26W input, 12 VAC 1.6A out. The xformer failed (primary opened) and I made a replacement (12.6 VAC 3A out) but it is drawing 4.5A and blowing the secondary fuses I put in place.

Synopsis:

I have two "Basement Watchdog" battery operated sump pumps. The batteries are 6 cell 12V lead acid batteries. The control panel on each unit charges the batteries as well as giving status and alarming. The controller accepts a dry contact (float) to trigger a pump cycle. It has some led's, a piezo and a button to silence alarms/run pump. The main load runs from the battery all the time.

One of the devices gave me an AC failed indication. I checked the transformer and was getting nothing from it. I removed it and went on to other things. Several days passed and w/ rain in the forecast I decided to top the charge of on the battery by moving the wall transformer from the (still) good unit to the one that had failed. Not too bright on my part because poof went the other transformer. Turns out there is a problem in the one unit that caused the transformer to fail.

I pulled the failed control unit out and peeked inside and found a shorted 6A bridge rectifier diode. I went to RS to get a replacement and noticed they had a 12V 3A xformer so I decided to build a replacement, one that would run both units. I made a simple box, wired up the xformer (full voltage, not using the center tap), paralleled one secondary leg to two fuses (one for each control unit). I connected the wires to the control unit to one of the fuses and the other secondary leg. Secondary was giving 14.6 VAC, no load.

Power up and connect to the pump control unit and all seems ok but then after about 20 seconds the fuse goes. Investigation shows that the control unit is drawing about 4.5 A. Remember, this unit is the one that had zero problems at all, the repaired one is still on the bench.

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Can someone offer any ideas as to why the charger is drawing far more than the original transformer was rated? I cut one open and could not find any identifying marks on the transformer. The primary had failed and the secondary was fused at 5A. The fuse was intact. Input was labeled as 120 VAC 26W, looks like 0.2A roughly. Stepped down to 12V that would be 2A.

I am not certain why the high draw – maybe the initial charging cycle draws much more than 2A, for some period of time, and then bleeds down? That would mean the original transformer was rated for much higher than what the wall transformer was labeled. It was fused at 5A on the secondary.

Thanks.

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