Re: Converting mains battery charger for 12v operation

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From: Daniel Kelly \(AKA Jack\) (*d.kellyNOSPAM_at_NOSPAM.ucl.ac.uk*)
Date: 07/28/04

Date: Wed, 28 Jul 2004 14:30:52 +0100

Hi,

The measured battery voltage (no load) is 7.65v. The battery claims to be a
7.2v 3Ah LiIon pack. I guess it is a 2S Li−Ion pack.

Thanks,
Jack

"Tam/WB2TT" <t−tammaru@c0mca$t.net> wrote in message
news:jtadnXe2gJmXKpvcRVn−ig@comcast.com...
> Jack,
> What is the nominal battery voltage? I will take a look later, but the
> 320VDC sounds bad. The 8.45V sounds about right for a charging voltage
for
> a nominal 7.5V or so battery. Unregulated 8.45V would be on the low side
> for a charger input that charges a 6V or higher battery.
>
> The charger for my Motorola GSM phone appears to use a switching regulator
> type of charger. The blob that plugs into the wall is not big or heavy
> enough to contain a 50/60 Hertz transformer.
>
> Tam
> "Daniel Kelly (AKA Jack)" <d.kellyNOSPAM@NOSPAM.ucl.ac.uk> wrote in
message
> news:ce64eq$2ldg$1@uns−a.ucl.ac.uk...
> > Hmmm... having looked again at the PCB, I'm not so sure!
> >
> > Take a look:
> >
> > http://www.ucl.ac.uk/~ucgadak/charger_components.jpg
> > http://www.ucl.ac.uk/~ucgadak/charger_merged.jpg
> > http://www.ucl.ac.uk/~ucgadak/charger_tracks.jpg
> >
> > I want to put 8.45v onto C22 (it's marked on the last 2 JPGs). There
are
> a

> > total of 3 transformers. 2 of which have 240v on both sides (i.e. their
> > coils are symetric). And there's definitely circuitry to produce 320v
DC
> > (D1 is a high voltage rectifier).
> >
> > Urg. I dunno anymore. Any thoughts?
> >
> > Thanks,
> > Jack
> >
> >
> > "Daniel Kelly (AKA Jack)" <d.kellyNOSPAM@NOSPAM.ucl.ac.uk> wrote in
> message
> > news:ce647t$1qe8$1@uns−a.ucl.ac.uk...
> > > Hiya,
> > >
> > > I'm 99.999% sure my charger works in way "A".
> > >
> > > All the control circuitry for the LiIon charging is on a little
daughter
> > > board, which is definitely downstream of the 8.45v I measured across
the
> > > smoothing cap.
> > >
> > > Thanks,
> > > Jack
> > >
> > >
> > >
> > >
> > > "Tam/WB2TT" <t−tammaru@c0mca$t.net> wrote in message
> > > news:zb−dnTGSQPl56JvcRVn−ug@comcast.com...
> > > > Jack,
> > > >
> > > > I want to point out that there are basically two ways the charger
can
> > > work:
> > > >
> > > > A. The AC line is stepped down to a low voltage, rectified, and fed
to
> > the
> > > > charger. The 8.45V is the input to the charger. This is what I am
> > > assuming.
> > > >
> > > > B. The AC is rectified to give 160 −340 VDC, which then goes to a
> > > switching
> > > > regulator. The 8.45V is what goes to the battery. If this is the
case,
> > > > forget it.
> > > >
> > > > Tam

> > > > "Tam/WB2TT" <t−tammaru@c0mca$t.net> wrote in message
> > > > news:0Y−dne4Ly4wn−5vcRVn−qg@comcast.com...
> > > > >
> > > > > "Daniel Kelly (AKA Jack)" <d.kellyNOSPAM@NOSPAM.ucl.ac.uk> wrote
in
> > > > message
> > > > > news:ce5d6i$1oeu$1@uns−a.ucl.ac.uk...
> > > > > > Hi Tam,
> > > > > >
> > > > > > Yes, I've taken the lid off the battery charger. It turns out
the
> > > > voltage
> > > > > > across the smoothing capacitor (downstream of the step−down
> > > transformer
> > > > > and
> > > > > > diode rectifier) is 8.45v.
> > > > > >
> > > > > > Thanks,
> > > > > > Jack
> > > > >
> > > > > This is the unregulated voltage, right? I can't come up with a
> reason
> > > why
> > > > it
> > > > > should not work if you run 8 − 9 V from a 3 terminal regulator to
> this
> > > > point. Your rectifier diodes will prevent the transformer from
> > shorting
> > > > out
> > > > > the DC. I assume the actual battery voltage is 6V nominal. I guess
> > this
> > > is
> > > > > what you proposed originally. The thing to watch for is if the
thing
> > > uses
> > > > > positive ground. Could cause fireworks if any grounded metal on
the
> > > > > camcorder touched grounded metal on the car. Of course, the
> camcorder
> > > > > probably has no exposed metal. At any rate I would be sure to
> include
> > a
> > > > > fuse. Measure the DC current when running off AC.
> > > > >
> > > > > I think some of us are confused as to what the topology is. Is the
> > > actual
> > > > > charger in the camera, in the brick, or do you remove the battery
> from
> > > the
> > > > > camera and connect it to the charger? Any power jack on the camera
> > > should

> > > > *be*
> > > > > *labeled as to what the voltage range is. Either on the camera, or*
in
> > *the*
> > > > > *instruction book. My Ricoh Hi8, for instance, uses a 6V battery.*
The
> > > > *camera*
> > > > > *has a label that states 6 − 7.5VDC. You remove the battery for*
> > *charging.*
> > > > >
> > > > > *Let us know how things work out*
> > > > >
> > > > > *Tam*
> > > > >
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