# Re: Converting mains battery charger for 12v operation

***Source:*** http://sci.tech−archive.net/Archive/sci.electronics.misc/2004−07/0648.html

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***From:*** Tam/WB2TT (*t−tammaru_at_c0mca$t.net*)
***Date:*** 07/27/04

Date: Tue, 27 Jul 2004 16:12:05 −0400

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*
> > > > >
> > > > >
> > > >
> > > >
> > >
> > >
> >
> >