Erik

Joined: 10 May 2005
Posts: 410
Location: Moerdijk, The Netherlands
Posted: Tue Jul 10, 2007 6:38 am Post subject: Amps, I guess it is a stupid question...

Hi all,

As I switched to electronic ignition on my Scott I am currently making a new wiring loom. My new alternator is 100W 6V and as I wanted to use a 60W headlight I fitted a heavier battery (6V 13Ah). I also swapped my 8-0-8 ammeter for a 30-0-30 so this would not blow at the 10 amps the headlight would use. I also fitted 1,5 mm2 wiring all the way.

Now my question...I must not have paid enough attention during science class in school but when I put my 30-0-30 ammeter on a 6V 4Ah battery it totally runs of the scale. Same of course on the 6V 13Ah battery.

I do not understand. I know the Ah reading just states how much amps the battery can deliver in one hour but how can I figure out the nr of amps a battery delivers with no users attached at all? I know this will hardly be the case on a bike but just theoretical. It must that I make a stupid thinking error....

Who can enlighten me?

Cheers,
Erik

_____

Back to top

Jan Buchwald

Joined: 31 May 2004
Posts: 94
Location: Danmark
Posted: Tue Jul 10, 2007 11:47 am Post subject:

Hello Erik
13 Ah means, as you say, that it should be able to deliver 13 Amp's for an hour.

Watt = Volt X Amp
or the other way
Amp = Watt/Volt
Are you sure you don't have a shortage somewhere.
And that you are connecting the amp. meter in series with the bulp?
Not across the battery, that's the voltmeter you use that way.
When no user is attached, there should be no amp reading.
1,5mm2 is not enough, try to measure the voltage from end to end of the wire, while you push your 10 amp's through.
2,5 - 3 mm2 would be more appropriate.
The biggest fault in 6 V wiring, is loss in the wires.

_____
1956 Birmingham Scott, frame no. S 1060

Back to top

efr215

Joined: 06 Nov 2004
Posts: 215
Location: Leigh-on-sea, Essex
Posted: Tue Jul 10, 2007 12:10 pm Post subject:

I too am pretty useless at electrics so I recommend K.I.S.S. (Keep It Simple Stupid)

You need to go back to basics because you must have a problem or a short somewhere, disconnect everything out of the system that is not essential. Disconnect the alternator; check the diodes, (if it is an alternator there has to be diodes somewhere on, in or near it).

Check the ammeter against a known load, the headlight bulb will do, just the battery, bulb and two wires. You never know and at the moment you don't know so check EVERYTHING one bit at a time!

With some spare wire duplicate one at a time the wires in the harness and check each connection with a wiring diagram. It might be wise to check the bona fides of the wiring diagram too, it's not unknown for them to be wrong! The Scott will finish up looking like a cat’s cradle but sooner or later the readings will make sense. Replace one bulb at a time and measure the voltage across each as well as the current being drawn. Sooner or later you should get big amps and low volts.

The “Ah” rating of a battery is customarily based on a 10-hour discharge rate and is observed more in spirit than anything else so a 13Ah battery should supply 1.3A for ten hours or 13A for one hour.

Jan is correct, you will loose .9V in a 10ft run of 1.5mm wire, that is 15% of the available voltage and with bulbs it is the last few percent that makes the difference between white and yellow.

A short aside about stuff flowing: If you chop a water pipe in half water comes out, a gas pipe it’s gas, an oil pipe, a petrol pipe . . . you get the picture, but if you chop a wire in half nuffink comes out therefore it’s gotta be some sort of black magic! Try this one on any electronic buffs you know, it will elicit a Pavlovian response that compels them to try to explain electricity, cruel but fun if you can keep a straight face while acting dumb and I still don’t really believe in the stuff!

Back to top

Erik

Joined: 10 May 2005
Posts: 410
Location: Moerdijk, The Netherlands
Posted: Tue Jul 10, 2007 12:34 pm Post subject:

Thanks guys for putting me on track again.

Of course the wrong reading was me being stupid at simply connecting the ammeter to the + and - of the battery. So no fault in the wires, just a shortcircuit in my brain ;o)

I will reconsider the 1,5 mm wire. My headlight is the only heavy user as I do not have an electric horn and the brakelight is a 2W LED device (fed through a 6V-12V DC converter, but that is another story..). Maybe I should change the wires between the battery and lights for heavier stuff.

Thanks!

Erik

Back to top

Jan Buchwald

Joined: 31 May 2004
Posts: 94
Location: Danmark
Posted: Tue Jul 10, 2007 1:00 pm Post subject:

Quote: Maybe I should change the wires between the battery and lights for heavier stuff.
I use heavyer wires from the dynamo to the battery (with the regulator in between), and to the front light.
And the earthwire almost can't be too heavy, remember, all the amp's are going that way back to the battery.

1956 Birmingham Scott, frame no. S 1060

Back to top

Erik

Joined: 10 May 2005
Posts: 410
Location: Moerdijk, The Netherlands
Posted: Tue Jul 10, 2007 1:52 pm Post subject:

OK that's clear! I will change some wires and report the results tomorrow!

Erik

PS the wires are practically the only thing left of a complete rebuild that strarted 8 months ago as a "simple rebore".... cannot wait to ride again!

Back to top

Erik

Joined: 10 May 2005
Posts: 410
Location: Moerdijk, The Netherlands
Posted: Wed Jul 11, 2007 6:32 am Post subject:

Well, I did some reorganising in the wires yesterday evening and everything works well now. I changed the 60W headlight for a 35W halogen bulb and this works just fine! And uses a lot less amps.

Just another step closer to getting my bike back on the road!

Thanks guys!

Erik

_____

Back to top

Ted Robinson

Joined: 04 Oct 2004
Posts: 28
Location: Coventry
Posted: Thu Jul 12, 2007 9:41 pm Post subject:

Hello Erik, Glad to see you have made progress with the wiring.
1.5mm2 would be adequate even at 10 amps. I don't know how efr215 calculated 0.9 volt drop over a 10ft.length it would be approx 0.33volts.
The longest run is less than 5ft so the v.drop would only be 0.16volts @ 6volts, with the engine running the voltage at the battery is 7.2 volts so the difference would be negligable.If you run a separate earth wire you can ignore the v.drop in this because you have a parallel cicuit through the frame. Best wishes Ted