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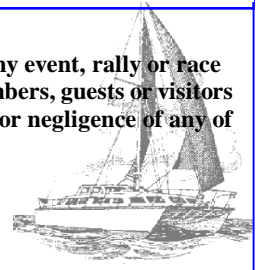
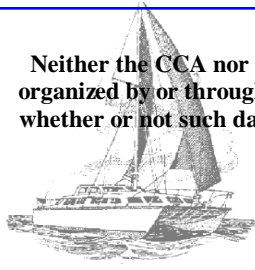
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Disclaimer

Neither the CCA nor Committee will accept any liability for personal injury arising out of participating in any event, rally or race organized by or through the CCA whether sustained by members, guests, or visitors, or caused by the said members, guests or visitors whether or not such damage or injury could have been attributed to or was occasioned by the neglect, default or negligence of any of the officers, committees or servants of the CCA.

Boat Owners Third Party Insurance

It is the responsibility of all boat owners to have adequate third party insurance in respect of him/herself, vessel, his/her crew for the time being & his/her visitors.



January / February 2013

Hi Members,

The Committee and I wish you all fair winds and pleasant seas for the coming season but before you sail off over the horizon we will be holding a meet and eat combined with our A.G.M.

The Catamaran Cruising Association A.G.M.

To be held at midday on the 13th April at The Navigator, (formally 'The Spinnaker') opposite Moody's Yard Swanwick, Buresdon SO317EB.

Please inform, P. Gimson if you are able to attend and the number in your party.

This month's newsletter we begin with the Commodore's report before continuing the article that could be of interest to any member wishing to upgrade his boat wiring.

The Commodores Report.

This past year has been so disappointing despite the early start to the year with a very unseasonably warm period, the rest of the summer proved to be so volatile that most of us only committed to short day trips. It was inevitable that all the rallies we had hoped to hold were affected by these conditions to the point that they were attended by only two or three boats and in some cases none at all. I hope we can do better this coming season.

Due to the financial shortfall in our accounts for the past two years, we have had to curtail our expenditure in an attempt to bring our accounts back into balance. We have at least been successful in this regard as will be shown by the treasurer's report.

I would like to offer my most sincere thanks to Peter Gimson, our secretary who has over many years tried to hold the association together with a newsletter and personal contact with many of the

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members. Sue Stacey our treasurer who has not only looked after our funds for the past two years but has assisted Peter with the newsletter for many more years than I have knowledge of gets yet another vote of thanks from me. Lastly I would like to thank the members of the committee who have not met since the a.g.m. as we have had no issues to deal with but readily put their names forward to serve the association should the need arise.

Last year Peter gave us due notice that he would only continue for one further year and we now need to find someone else to take on the job of secretary. My position became vacant last year and I would like some one to take over from me and Sue would like someone else to take over the treasury. In short our organisation is at a cross roads right now. We have sought the help of members in the wider areas beyond the central south coast of the UK with very little response and without a more active membership it is difficult to see what the future holds.

In the event that we cannot find a more active response from our membership the new committee will have to consider the possibility of joining forces with one or more other organisations operating in the same sphere of activity. Any ideas on how to proceed would be gratefully appreciated.

I hope to see many of you at the AGM on Saturday the 13th April.

Aleck Tidmarsh Commodore

This Electricity Stuff

A chap I know used ordinary house cable on his boat. Is that acceptable?

Yes, provided that the cable used is at least 1.5mm(2) per wire, and preferably 2.5mm(2). His is probably a solid core cable, twin and earth, so it may give some problems by breaking off as it flexes, especially where it is terminated. I bet it was a pig to install as well.

Much better to go to a car spares shop, and buy the sort of wire used in car wiring harnesses. It's available in a variety of thicknesses, is usually marked with its practical current-carrying capacity, and has the recommended fire resistant insulation.

7 - Hot Diggardy

It's late afternoon, you're sailing along on a comfortable broad reach with a mile or so to go, then the breeze dies. A bit anxious to get to your mooring before sunset, you start the motor. Now there's lots of vibration causing things below decks to rattle and shake. One of your cabin lamp connections falls off and comes to rest against the other. You now have what is known as a Short-Circuit.

Nothing happens 'till you try to turn on the lamp.

Soon after the switch contacts close you notice two things:

1. There is no light.
2. There is a smell of hot plastic filling the cabin.

Oh dear! You haven't fitted a high current protector into your lighting installation. You try to switch the current off, but the switch contacts are now hot enough to be welded together. Undaunted, you think of disconnecting the battery terminals, but by the time that you've found the clamp spanner and opened the battery box you realize that you may have a fire onboard.

Looking back to our example circuit, this is what happens from the electrical point of view. The only resistance offered to the current consists of 2.00 Ohms in the wiring plus a niggardly 0.01 Ohm in the battery, giving a total circuit resistance of 2.01 Ohms.

The circuit current is: $\frac{\text{Volts}}{\text{Ohms}} = \frac{12}{2.01} = 6 \text{ Amps.}$

The heat power in the wires is --- $\text{Amps}^2 \times \text{Ohms} = 36 \times 2.01 = 72 \text{ Watts}$

There is also just over one third of a watt causing the battery to fizz, so with hydrogen gas, oxygen, and hot wires you now have a potential explosive situation.

So what your saying is that if a fuse had been fitted, then the fuse will blow, so breaking the circuit.

Obvious, isn't it. But I'll tell you this, there are a few folks who do have fuse holders fitted, but because they don't have any spare fuse cartridges they put a piece of silver paper into the fuse holder and hope that everything will be alright.

Then they forget about it.

Now, is that asking for trouble, or is that asking for trouble?

4 - Powerful Stuff

So then. If the wire filament inside a lamp gets hot enough to glow, why doesn't the circuit wire do the same?

Good point. The simple answer is that the lamp is designed to have a higher electrical resistance, whereas the circuit wire is designed to have a lower resistance.

Then there's the matter of Power.

Ah! I've heard of that, it's in Watts isn't it?

That's right, or another way of looking at it is: $\text{Watts} = \text{Volts} \times \text{Amps.}$

I thought there'd be some maths in here somewhere!

'Fraid so. Let's take an example. Suppose that we want to fit a simple 12-volt battery, and a cabin lamp. The lamp will probably be rated at something like 12 Volts, 20 Watts.

So, the lamp needs: $\frac{\text{Watts}}{\text{Volts}} = \frac{20}{12} = 1.67 \text{ Amps.}$

From Ohms Law, the lamps resistance will be: $\frac{\text{Volts}}{\text{Amps}} = \frac{12}{1.67} = 7.19 \text{ Ohms}$.

Now, let's suppose that the two feeder wires have a resistance of 1 Ohm each, and the battery has a resistance of 1/100 (0.01) Ohm.

For a series circuit, as in the example, we find the total circuit resistance by adding all of the individual resistances together, which gives us 9.2 Ohms.

To find the actual current flow, we use $\frac{\text{Volts}}{\text{Ohms}} = \frac{12}{9.2} = 1.3 \text{ Amps}$.

Notice that the circuit current is now 0.37A less than the current needed for the lamp. The lamp won't be as bright as you'd hoped for.

So where's the missing current gone?

Actually, there isn't any missing current, but there is some missing voltage!

The resistance of the wires is limiting the current, and at the same time causing a Volts Drop along their length. It's this voltage that's missing from the lamp.

The voltage across the lamp becomes:

$\text{Volts} = \text{Amps} \times \text{Ohms} = 1.3 \times 7.19 = 9.35\text{V}$, instead of 12V

The actual power of the lamp is now $9.35 \times 1.1.3 = 12.2\text{W}$ instead of the expected 20W.

The power lost in the wires due to the volts drop will be: $\text{Amps}(2) \times \text{Ohms} = 1.3(2) \times 2 = 3.38\text{W}$

So the wires are warming up a bit.

5 - Irresistible Force, Immovable Object

It seems to me that this 'electrical resistance' in the wires is a bit of a nuisance. Can't we get rid of it?

'Fraid not old chum. From a practical point of view every wire, termination, switch contact, connection point, fuse, and gadget will have some resistance. Why, even so-called insulation is really a very high resistance material, and when we open a switch contact all that we are doing is inserting a high resistance air gap. So you see, resistance has its uses as well.

Its name seems to be self-explanatory, but what exactly is it?

The property that we call Electrical Resistance was first 'discovered' by a Mr Ohm, hence the name of the unit. He gave us the much quoted 'Ohms Law', which basically says that when an electric current flows round a given circuit, the higher the applied voltage is then the higher the current will be. The ratio of Volts to Amps is the resistance of the circuit.

Ohms Law is often shown as an equation:

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Ohms = $\frac{\text{Volts}}{\text{Amps}}$ which we can re-arrange to give:

Amps = $\frac{\text{Volts}}{\text{Ohms}}$ or Volts = Amps x Ohms

I see! So, if I remember my maths, if we decrease the Volts, or increase the Amps, then we can make the Ohms smaller. Problem solved!

Ah, no. This is a non-commutative equation; it works one way but not the other. Years of research have shown that Resistance is not dependent on voltage or current, but upon the circuits material, length, and cross-section area. So, you see, all that we can do is to arrange so that the wires are made of very good conductive material, are kept short, and have a large cross-section.

The best conductive wires that we could use are Gold, Silver, or Platinum, need I say more? So, as a reasonable affordable alternative we use Copper. Wires are made of other materials, (e.g. Aluminium), but although they are a tad cheaper, they're not as good as copper.

Similarly, we could use an enormously thick wire, but could we handle it? (Or afford it?) So, we use the thickest wire that does the job.

As for the length involved, we only have a limited choice here, but careful consideration can make the run as short as possible.

6 - The Thick and the Thin of it

So why do they make cables that have two, or more, wires inside a common covering, when separate wires will do the trick just as well?

Of course, you can use separate wires, and they are available in a variety of colours, as well as red and black. Having two, or more, wires enclosed in a common cable sheath simply makes installation less work.

The cable sheath does three jobs. It is made of a fire-resistant material, protects the wires and insulation against physical damage, and keeps the wires of a circuit together. However, the manufacturer has no control over the environment where the cable is installed, that's why they put a sheath over the insulation of single wires, as well as over multi-wires.

That makes sense.

Now. I know that wires are made in different thicknesses, and that some are solid-cored, some are stranded, and some are tinned. Some are even made out of metal other than copper. How is a chap supposed to make a simple choice from what's available?

Horses for courses, old chum. All those different wire types are make available by the manufacturers to cater for a wide variety of applications, that's why electrical engineers are paid. For our purposes though, we can considerably narrow the choice down. On most boats, you won't be installing any long lengths of wire, and by long, I mean several hundred yards. You probably won't require specially armoured cable, neither will you be using a high voltage supply. All that we need

to concern ourselves with is finding wires that have a fire resistant covering, a fairly low electrical resistance, and are not too difficult to install.

The first point is already catered for, just about every wire made for carrying a fairly high current will have a fire resistant sheath.

The second point means that you should choose copper wire that is as thick as you can handle in order to keep its electrical resistance low, which brings us to the third point.

Ease of installation. That includes things like pulling it through narrow spaces, getting it to bend around corners, and will it be relatively easy to terminate. Don't forget that the equipment terminations will have to be able to accept the wires thickness. In most cases, you'll find that a multi-stranded wire will be better than a solid core wire, with the added advantage that it will 'give' as the boat flexes whilst sailing, or withstand vibration when motoring. Mind you, multi-strand wire will be somewhat thicker than an equivalent solid wire, but that shouldn't be too much of a problem.

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FIRST CRUISE IN A CAT.

Having loaded the car last night, we were able to leave home at a reasonable hour without too much concern about what we had or had not forgotten. We arrived at 'Morffa' to find that the radar reflector had slid down its halyard and had an argument with the wind generator which had come off the worst. Several blades were broken, leaving bits of plastic strewn around. After taking 'Morffa' alongside at the Hardway SC we unloaded the car, which was quite an undertaking, as we were off for four weeks. Left Portsmouth harbour at 12.45 with the no 1 jib set and the main reefed to the first batten, despite a S/F of 5/6 westerly. Having been confined at Pompey for three days at the beginning of our holiday last year, we were determined to get to Studland Bay the first day.

Having totally forgotten that it was Cowes week, we were rather surprised to find the Solent very crowded in that area. We had to motor through the Hurst Channel and it took us from 16.30 to reach Studland, during which time I had to take two Sea Legs as I was feeling rather green. Kim (our elder 6 1/2 year old daughter) was very sick but immediately ate an enormous tea. What recuperative powers children seem to have. It was dark by the time we crept into Studland Bay and I was feeling absolutely shattered. The Scilly Isles, for which we are heading, seemed a thousand miles away.

After Pat had washed up the breakfast things, I shooed him and the girls onto the beach while I did some very necessary cleaning. We have only had 'Morffa' for a few weeks but already I have realized there is a lot more to clean in a multi than a monohull. Unfortunately, yesterday a milk bottle (opened, of course) threw itself onto the carpet at my feet and emptied half of its contents out so now I know how quickly milk can go off. Having scrubbed the offending, and offensive, carpet and swept the floors and shaken the remaining carpets and cushions, I collapsed in a heap with a cup of coffee to write the log in peace. The hungry hunters will soon return from the beach, demanding lunch.

I went on the beach with the girls after lunch to enable Pat to do some running repairs on the wind generator. The weather is rather cool but Kim and Lee, aged 4 1/2 never seem to notice. Never has the Daily Mail been so thoroughly read. We all walked up to the local pub in the evening and sat shivering in

the garden with our beer while the girls demolished crisps and 'ticky' orange. They were rather late to bed but not us – we are always so tired on holiday. Its all this doing nothing that's so exhausting.

As the S/F gave us a W6 we stayed put at Studland. After lunch we walked along the cliff to Old Harry rocks. It was lovely, sunny and warm and almost completely out of the wind. Luckily the forecast heavy showers did not materialize. Scurried around after the girls' tea to get them washed early so our visit to the local hostelry would not mean another late night for them. Trust us – we forgot about the Sunday licencing laws so we walked around the churchyard until 1900.

Kim and Lee went rowing in the dinghy after breakfast, attached to the cat. by a long line – great fun for them and a bit of peace for us to plan in. Later we went on the beach despite dreary weather. I have been instructed by Kim to note in the log that both she and Lee swam, although Lee is more splash than swim. After an exciting lunch of steak and kidney pies and baked beans, we set off for Portland Harbour despite force 5/6W. Set sail with full main and no.1 jib but soon the main was reefed to the first batten and we thrashed our way out to sea to avoid St Albans Race. Pat showed me how to take bearings so at 1400 we found that my fix was only 1/10 mile from Pat's DR. Fantastic. Bet that doesn't occur again. I think Pat almost suspects me of cheating somehow. I've found that plotting a course is not the easiest thing while feeling queasy so took two Sea Legs to quell my mutinous stomach.

The weather was sunny but cloudy at times with a choppy sea, that 'Morffa' was prone to slam into. We've had a funny experience, about 1745 as we were not far off Weymouth, we had a very brief but violent squall which left us becalmed and hobby-horsing on a confused sea. The wind had swung through 180 before it died on us. I suggested to Pat that we might remove the reef from the main, but this suggestion was scorned. Pat reckoned with his superior met. knowledge that the wind would soon return. He was right, of course and eventually at about 1815 we were off again, with black clouds looking ominous overhead. The wind rapidly increased until we were rushing along on a broad reach towards Portland. Poor Albert has had a busy day, our autopilot. After a short, heavy shower the black clouds went their way and we were warmed by the evening sun. Pat eventually did shake out that reef. Arrived in Portland Harbour about 1930, put the girls to bed still exclaiming about the lovely rainbow that had dipped into the sea. Surprisingly, Portland was totally devoid of naval shipping, so much for the might of the RN. Adlard Coles book gives the impression that you can hardly move for frigates, destroyers etc. We anchored off Castle Cove and while Pat went and rang his mother, I washed up the lunch things and cooked our freshly caught mackerel for supper – lovely.

What a gray day. Cold too, so ventured onto the beach as late as we were allowed to by the girls. Walked into Weymouth for a lovely crab salad lunch and then did some shopping. Kim and Lee both had a donkey ride and a ride on the roundabout on the beach and then we tramped our way back. The sun had managed to struggle out from behind the clouds for a while to warm us.

Had a visit from another 9 metre owner in the evening, M'Bulu – so entertained him with Pat's home brew which is powerful stuff. He said he was on his way to Spain to avoid the dreaded VAT. Wish we were going there, it would be a lot warmer than here. The 1755 S/F did not sound very promising, yet again, W5. Oh for a nice E3 to run by.

We are still in Portland and the weather is even grayer if that's possible. A heavy shower put pay to a morning on the beach. Kim had swum (I cannot imagine what possessed her on a day like this) and was standing under an awning, teeth chattering, looking quite blue, saying couldn't we please go back to the boat. So I rowed like a mad thing back to Morffa just in time before the heavy shower became a torrential downpour. Those poor people trying to shelter on the beach. I could feel their dejection from here. Luckily the weather cleared enough to walk into Weymouth for lunch. Poor Pat had to carry an empty gas cylinder and it's quite a walk. Worse still, he had to carry a full one back. At last I've found some boots, have been trying for ages but no-one seems to have my size left. The price to pay for having average size 5 feet. Just as we arrived back we had another deluge, very glad to be in the dry and warm. In the evening we went to Castle Cove SC for a shower. It took ages to sort out how the showers worked. It was rather tricky trying to shower the girls with a high velocity jet without getting soaked myself. Feel much fresher and cleaner and I'm sure we look it too. Pat hopes we may sail for Salcome tomorrow.

TO BE CONTINUED>