

LUCKY STRIKE!

Bob and Gill Hogarth's HR 34 *Ellös* was struck by lightning while on a mooring near Sydney. This article describes the strike, its impact and how they managed its repair.

In March 2010 we sailed from Tasmania to Sydney. We left *Ellös* for the winter on a safe mooring at Cottage Point in Cowan Creek, one of the four arms of Broken Bay.

In December 2010, as we planned our sailing for that summer, came a phone call advising us that *Ellös* had been struck by lightning! Eyewitnesses (who proved helpful for the insurance claim) described the strike: a very loud "crack", the top third of the mast glowed orange and gave off a puff of smoke, the size of a person. The staff of the boatyard where *Ellös* was moored, checked the boat before phoning us: they were surprised to see no visible damage below. The remains of the masthead VHF antenna lying on the deck and some mysterious black "whiskers" protruding from the top of the mast were the only visible evidence of a strike.

Electronics

So what to do from distant Adelaide? Should we drop everything and go to Sydney? A check by an electrician revealed that most of our electronics were inoperable but the batteries seemed undamaged and the engine ran normally. A visit seemed unlikely to achieve much so instead we completed and submitted an insurance claim, shortly before one of the Queensland disasters attracted all the attention of the insurance people! A week or two later the insurance company asked us to obtain a quote to repair the damage: indeed they would not process our claim until we had such a quote. With Christmas upon us we had no chance of interesting trades-people in our plight until at best the end of January. Nonetheless our marine electrician identified and removed all the faulty equipment. Much of it had no visible signs of damage but needed to be shipped to its distributor or maker (most of whom were shut till February) to determine whether the remedy was to repair or replace the item. This all had to be done before we could complete a quote.

Hull, Engine and Rig

In early January we went to Sydney to go ahead with the boat's annual scrub and anti-foul, which had been arranged previously. To determine if there was any other damage other than to the electronics, we had a shipwright check the hull, a mechanic check the engine and sail drive and a rigger check the rigging. The shipwright removed and inspected the HF radio ground plate in case the lightning earthed itself that way. He had had experience of ground plate mounting bolts being damaged in a lightning strike leaving the ground plate attached only with caulking compound and the boat at risk of sinking if the plate fell off. The rigger paid particular attention to the chain plates and mast step but found no lightning damage to any of the rigging. The mechanic also found no lightning damage.

It was February before we could assemble a complete quote for repair and have an assessor-appointed to evaluate the claim. The damage sustained is summarised in the box. Much of the gear to be replaced had been superseded by enhanced models. In many cases it would have been more expensive to repair items than to replace them.



Gill and Bob Hogarth at Pt Davey

Full Replacement or Depreciation?

The insurance policy (but not the product disclosure statement!) stated that the insurance company "can deduct an amount for wear and tear and depreciation." We were concerned how this might be applied as it seemed to give absolute discretion to the insurance company and none to us. In the event it was most reasonably applied by the assessor, who pointed out that in determining depreciation levels he was largely guided by the condition in which the boat was maintained. We made a small contribution for the upgraded gear that was to be fitted. As well we chose a larger plotter screen and some upgraded and additional instruments and these were, of course, a cost to us.

Internet Purchase or local suppliers?

We considered, briefly, the possibility of buying the replacement gear on the internet. This was never really a sensible option as we would have had to have the assessor re-evaluate our claim on that basis rather than having a boatyard undertaking the repairs on a "turn-key" basis. We would have had to find ways to manage the integration of all the systems, which would have been beyond us. Repairs were completed in late March. In April we spent a couple of week's cruising the Sydney area and testing our new equipment, all of which proved to be excellent. The whole experience had cost us our planned summer's sailing but we did get a good look at all the nooks and crannies of Sydney's beautiful harbour - and picked up lots of folklore, advice and observations on lightning strikes!



Notes on the Strike

Let me summarise a few such pieces of information (without guaranteeing the veracity of any of them):

- Being in the "shadow" of a taller mast may not provide a boat with lightning protection. When *Ellös* was struck she was close to a larger yacht with a taller mast which was not struck. We heard of a strike on a small yacht while moored next to a marina of very large yachts.
- The impact of the strike was limited to the boat's electronics. The guess is that the charge struck the VHF antenna, travelled down the co-axial antenna cable, through all the (Sea Talk) linked electronics and out through the VHF earth on the engine.
- Perhaps because the path the charge took was along the copper wire, there was no damage to the rigging. Apparently if the charge travels down the rigging, major areas of risk are chain plate fittings as the charge still has to earth itself.
- Items were struck at random: two of seven LED reading lights below were destroyed and two saloon LED overhead lights each had five or six of their 64 LEDs destroyed. Yet the masthead tricolour and white lights were not damaged. The stereo player, the HF radio and its antenna tuner were all destroyed but all their speakers were intact.
- None of our wiring, which would have been very expensive to replace, was damaged despite items attached to it being destroyed.
- The severity of the strike was probably limited by the heavy rain at the time of the strike which, some said, would have facilitated earthing the charge.
- Opinion is divided on the economic and technical viability of lightning protection systems for small boats. Some advice we had was that it seems possible to conduct a charge to a point inside the hull below the waterline but getting it through the hull without damage seems more difficult.

In all, the experience is well behind us now. We trust implicitly the old adage that lightning never strikes twice! Perhaps the best observation we had was that Adelaide is a great place to be when one's boat is struck by lightning in Sydney!

Finally I would be remiss if I did not mention that the insurance company which took such a reasonable and co-operative approach was Club Marine, their helpful assessors were Marineassess and the boat yard which undertook the work so professionally and responsively was Cottage Point Marine.

Items Able to be Repaired

Plotter screen
Heater electronic control
Man overboard warning system
Depth and speed instruments

Items Needing Replacement

Radar radome
All deck level LED navigation lights
Wind instruments
HF Radio and tuner
VHF Radio and masthead antenna
Stereo
Pilot
Several interior LED lights
GPS
Battery condition monitor
Voltmeter for motor battery
Voltage regulator