

Safety Bulletin 11

Bulletin 10 ended on a promise of advice on how to reduce your electricity bills. Actually it's more about tips on how to reduce your expenditure replacing gliding equipment destroyed by electricity and perhaps avoid death.



Most members will be aware of the recent incident at Threlkeld involving a visiting pilot and high voltage power lines. We avoided open discussion on the club forum as a damage limitation exercise. We wished to avoid sensitive, possibly ill-considered information getting into the public domain in the light of possible insurance claims from businesses and individuals affected by the ensuing power outage. The club committee instigated a pre-emptive PR strike making contact with the Threlkeld Parish Council, attending a meeting and writing a brief article for inclusion in the parish newsletter. A potential PR disaster was turned into a successful marketing opportunity. But enough of that, let's talk about safety!

There are two aspects to the subject. First, how to avoid power lines and second, what to do if you fail at the first. We have two local case studies available, one dating from 2007 in the Lorton Valley and the recent incident at Threlkeld.

Incident 1.

From the archives. (SFC 'Oops I shouldn't have done that.' October 2007.)

By Sparky

It was a lovely clear summer's and I was standing on top of Kirk Fell looking forward

to a pint in the Wheatsheaf Inn. As the wind had all but died to a gnat's fart it was just going to be a fly-down to a field next to the pub. The field was clear mown of crops and was visible from take off. A scan of the field revealed nothing alarming just a small bush in the centre but leaving plenty of room to land. The light was just starting to fade so time to get going. The flight was lovely and the approach was fairly low although I arrived at the field with height to spare. I'd been eyeballing the field on the way down so put in a few turns to lose height for my final approach. The final glide was fairly buoyant placing me further up the field than I'd originally planned but no matter the field was long enough and it did put me closer to the pub. A second later as I approached the ground I looked up and exclaimed "Arse!" or words to that effect. Straight above and in front of me were some interesting looking high voltage power lines. I tried in vain to full stall the glider but as I touched the ground it gently over flew me and flopped onto the lines. It was at this point the world grew very bright and loud as the 11,000 volts and lots of amps did their thing. The outcome was that I managed to get out of my harness and away from the lines unhurt. Things appeared to quieten down and I thought of recovering my harness and wing from the power lines. Before I had a chance to make contact the glider burst into flame and molten wing dripped onto my harness igniting it and the enclosed reserve parachute resulting in a small patch of smelly black plastic. Ah well at least I've got my health. After taking out the power to the whole of the Lorton valley for an hour or so I later paid a visit to the main pubs to apologise and try to limit any bad feeling.

The first and main thought was how the hell didn't I see these power lines in the first place?? The mistake I made apart from the obvious of not checking the landing field from the ground was to accept that the field was safe based on my observations from takeoff. It's easy to come to a decision quickly based on the information at the time. It's vital to keep updating that information continuously. I didn't pay enough attention to the new information as I approached the field I just relaxed into an uneventful fly-down. As it turns out the power lines were backdropped against the houses and stone wall at the end of the field making them more difficult to see. There were lines and poles in the adjacent field but they sneakily changed direction, its no excuse just some observations. Power lines are one of the most difficult things to see as you glance about but they are probably the most dangerous so it pays to check and re-check. I took my eye off the ball and nearly got fried; I know I've learned a valuable lesson.

Incident 2.

BHPA accident summary report of the Blease/Threlkeld incident.

While on approach to landing the pilot decided to land in a field adjacent to the landing field because of the close proximity of other landing pilots. Pilot was aware of the power line running parallel to the field but did not see the line running across the field. Glider struck line which snapped and the pilot fell to the ground.

In necessary elaboration of the BHPA report the pilot has shared a video of his experience on PG Forum which is available here. <https://www.youtube.com/watch?v=CC2dg3FYG6Y> It is worth watching to the end for the cameo role as a human ammeter played by our own survivor, Ken.

There are similarities and differences in the two cases. In both incidents the pilots accept that the wire strikes resulted from a failure of observation. Interestingly, both pilots report being aware of power lines but were caught out by the change of direction. The Kirk Fell incident is largely explained by lack of familiarity with the landing area greatly exacerbated by poor light. In the Blease incident, the pilot was unfamiliar with the landing site but, as is made clear in the video, the power lines appear clearly visible in the good light conditions. It may be that the (relatively low airtime) pilot was so focused on landing in an unfamiliar area he missed the major hazard.

No new lessons emerge from these two incidents but they do serve to reinforce what should be normal practice.

- Do not fly into power lines.
- In searching for power lines, look for the poles. In bright conditions the shadows from the poles are often the best or only indicator. In overcast or poor light – look harder.
- Expect power lines to change direction or for a ‘tee off’ line at right angles to the main line. If a line of poles appears to stop it probably indicates a change of direction.
- Assume any isolated building is connected to an overhead power line. Don’t think ‘is there a power line’; think ‘where is the power line?’
- If you suddenly find yourself approaching powerlines take any action necessary to avoid contact.

Action in the event of a wire strike.

The key to a safe recovery from an overhead power line incident is understanding how the electricity grid works. The Kirk Fell incident illustrates what happens. After the initial fireworks Sparky managed to get out of his harness and walk away. After a period of electrical inactivity, he decided it was safe enough to recover his glider. As he was walking towards the suspended glider it burst into flames with molten glider running down the lines setting fire to his harness.

When power cables are shorted out the power supply is temporarily cut off. After a very short period the circuit is re-established. If the lines are still touching there will be more sparks and the circuit will be cut again. There will be another, longer, interlude of non-power followed by another attempt at reconnection. This will be repeated. This process is designed to counter the more normal power failures caused by tree branches blowing against lines in windy conditions or large birds flying into lines. You have to assume that the power lines are live. You should not approach a glider which is or could be in contact with power lines as you could be electrocuted or enveloped in burning debris. The correct action is to call the emergency services and get the power turned off.

The BHPA is in the process of reviewing its advice and training, a process that is being led by Gordy Oliver. North West Electricity website carries safety advice. <http://www.enwl.co.uk/safety-and-incident-reporting/public-safety-near-electrical-installations/aviation-safety-and-electricity> Of most relevance to us are:

What to do if contact is made with an overhead line:

- Phone NW Electricity with the accurate location of the incident so they can deploy engineers or remotely switch off the power. Telephone 0800 195 4141 or 999 in emergency.
- If you are in contact with, or close to a damaged overhead wire move away as fast as you can and stay away until the emergency service or an engineer arrives.
- Once a line is on the ground you don't have to touch it to be killed. The current can travel through the ground or along a fence.
- Lines which have been damaged can stay live or become live again without warning by automatic operation of the system.
- Report any damage or contact to equipment no matter how minor it seems. Factors to be aware of:
 - Electricity systems carry voltages up to 400,000 volts.
 - Even the lowest voltage overhead lines can produce 10,000 times more current than is required to kill a person.
 - High Voltage electricity can jump gaps.
 - Touching electricity lines or objects or people in contact with the lines can be fatal.
 - Trees, string, ropes and water can conduct electricity.

In both the situations discussed above the pilots were in contact with the ground and were able to extricate themselves from their harnesses. Had they been dangling above the ground the situation becomes more complex. The general advice provided by NW Electricity is that if a machine (read paraglider/hanglider) is in contact with an overhead line and remain seated in the cab (harness) and warn others to keep clear until the electricity company confirms that conditions are safe. If it is essential to leave the machine (read harness) while it is in contact with the overhead line, jump clear - do not attempt to climb down and do not touch any part of the machine (Harness or glider) when on the ground. Paraglider lines are not insulators (and hanggliders even less so!) All materials will conduct electricity, more so if wet or damp. Electricity can jump over 2 metres; you do not necessarily have to come into direct contact.

There appears to be a great deal of ignorance surrounding electrical hazards particularly on the matter of the power being switched back on without warning. It is one of the instances where the rescuer is at equal or greater risk than the unfortunate pilot.

Once again we are grateful to both pilots for sharing their experiences. We can all benefit from their lucky escapes.

Fly lots, fly safe!

CSO