

Seconds to Ground Zero

A reflection on emergency decision making: double burner failure and emergency landing in a hot air balloon

Reading the excellent article on "Long and Short Term Judgement and Decision Making" in the autumn edition of GASCO's Flight Safety magazine I was strongly reminded of my most horrific flight experience that happened just recently whilst on a ballooning project in Africa. Many points made in the article could and should be applied to balloons as well.

During our balloon training we all learn about various emergency procedures – some similar to fixed-wing piloting. Most of them concentrate on fire on board (or also on 'ground' as a result of a recent fatal accident in Canada). We are trained to follow certain procedures and hopefully practice them during our career. Having said that, who has ever tried to pull out a striker 'in anger' to relight two failed burners when just a few hundred feet above power lines at high wind speed?

Indeed some of those practices are much harder to simulate in ballooning than in fixed wing piloting where emergencies can be practised in the 'safe' environment of a simulator. Unfortunately for ballooning there is no such machine to rehearse serious emergencies. But even if there were, such as on a tethered flight, the nature of ballooning is 'flying with the wind' and conditions can change by the minute. Practising therefore at least mentally a series of the FAA's mnemonic DECIDE or in short DIE which is 'detect, implement, evaluate' is probably a good thing but when the real emergency happens, instinct or intuition should not be forgotten.

Captain Sullenberger's and First Officer Skiles' emergency ditch into the Hudson river on US Airways Flight 1549 was the perfect example

of firm and intuitive decision making based on experience and thorough training without going at length through some formal emergency procedure. Their fundamental decision to land on the Hudson river was made within the first minute of bird strike (they had another 2 minutes till impact after that) ignoring offers to divert but sticking firmly to their initial decision. Their key focus was a safe landing – wherever! The result was, as we know, excellent.

For any balloonist in flight there are only a very few things that can lead to a serious crash or emergency landing: fire on board (extremely rare), fuel exhaustion (empty gas tanks), contact with electric lines, or total burner failure. Identically to fixed wing flying, take off and landing are the most critical parts of a flight.

When therefore only seconds after take-off I realized that both of my pilot lights were out, I knew I was in a very serious situation. Having climbed at an ascent rate of probably 300-400ft/min and drifting in a fast wind I immediately tried to relight both pilot lights but despite several attempts, nothing happened. In 'normal' emergency procedures the second step would have been trying to use a striker for relighting the pilot lights. But, looking at what was now my inevitable descent path, I could see three frightening objects rapidly approaching: a huge set of power lines, thorn trees and jagged rocks!

My next reaction was to give an emergency call to my retrieve (similar to calling out a 'May Day' but I was in the African bush) followed by saying to my passengers that it will be a very hard landing. My full concentration from then on went into judging my approach towards all those obstacles and holding the rip (stopping)-line firmly in my hands. As a later GoPro camera video of this flight showed, I had exactly 39 seconds from realizing the total power failure to impact.

We hit the ground very hard (probably with a descent rate of 400ft/min), but hardly dragged, the balloon didn't bounce nor was it damaged and we stopped well before the trees, the large rocks and most important: those deadly power lines. Except for a slightly sprained ankle and some bruises we got away with the crash astonishingly well. What a huge relief – but also what a shock!

Why did this happen? A check on the pilot light indeed showed that something wasn't functioning properly (despite it looking fine on pre-flight inflation and take-off) and in subsequent flights with this equipment we had some more problems. Double pilot light failures are so rare with modern burners that it happened

Flying in the Masai Mara.



only twice in my husband's 40 years and over 3000hrs of flying experience. Experiences like this haunt you for many weeks and months and you will never stop thinking: should I have done something else? What could I have done better?

My striker wasn't immediately at hand, which surely it should have been, but even if so: I would probably then have wasted valuable seconds in fiddling with the kit looking up to the burner and not down towards my glide path. In retrospect therefore I think I instinctively did the right thing (considering the very low altitude and the fast speed I was travelling at) which was full concentration on the landing.

Had I been higher up and flying slower I could have used other options, but under the prevailing circumstances this would have not been a good thing to do. Maybe just as Capt. Sullenberger dismissed 'normal emergency procedures' and carried out his approach. This certainly does not mean you should not practise and rehearse your standard emergency procedures but in some situations you also need to use your instinct and react spontaneously.

When I fly now, I listen constantly to the sound of the pilot light and check frequently that it's still running. I bought a new type of striker with a long flame that also has a slight curved angle so that it definitely should be able to create a spark and I keep it so it can be reached instantly.

Accidents in your flying career are never pleasant experiences, but they teach you a lot about your capabilities and reactions. Thinking and writing about them therefore are a very useful way of reflecting and learning. Hopefully such a crash will never happen to me again.

Points learnt and wanting to share are:

- If you have hired an aircraft (as we had), make absolutely sure you have checked its papers for a valid CofA and insurance. Be twice as careful on your pre-flight checks and after take-off. Keep an especially close eye on things during the flight.
- Check all your emergency kit like fire-extinguisher and striker. Make sure you know where it is and that you can reach it easily. If these items are obstructed due to other equipment or your passengers, then brief them to reach out for the items in case needed. Make sure the items are functioning and not out-of-date!
- Check your pilot lights and possibly turn the flame up. It's better to have more noise than to worry that they might be out!
- If an emergency like this occurs: concentrate on the safest and least damaging way on impact/landing!



Burner test early morning

- Do your 'Mayday', 'Pan', or emergency call to the retrieve followers.
- Brief your passengers for a hard landing. Holding firmly on, bending knees and facing backward or sideways and staying in the basket.
- Check that you yourself are in the brace position and, if available, wearing a restraint
- Stow away any dangerous or loose items
- If time, switch off any fuel sources and vent fuel lines
- Hold on to the deflation line!
- Do fly as soon as possible again afterwards! If you feel uncertain then fly with another P1 but you should conduct the flight 'hands-on'!

Allie Dunnington

AFTERWORD

Thanks also to Colin Fisher for his article on "Going Down" in the last issue of *Flight Safety* in which he openly shared his feelings on his near-ditch accident in the Bay of Biscay. He mentioned that he "didn't prepare for the ditching, didn't grab the life-raft, didn't make a Mayday call, didn't unlatch the door". That he was 'like a rabbit in the headlights, resigned, accepting and wide-eyed'. But: wasn't he also fully concentrating on NOT ditching? Not being too much distracted by other emergency procedures but just fully concentrating on the only thing that would save his life, which was to get the best climb airspeed?

Another fast landing!

