BRUCE GOLDSMITH *ICARISTICS*

COLLAPSE ANALYSIS

Manilla in Australia this year has been hot and strong. The area is suffering drought conditions, which means stronger thermals and higher cloudbases. However, it also means more aggressive conditions, with strong thermal-induced turbulence and dust devils even at low altitudes.

This amazing sequence of photos was taken by Brooke Whatnall during the Manilla XC Camp in February. It shows an incident where Bill Brookes, a pilot from Perth, ended up on the ground a few moments after launch.

I spoke to Bill himself and Godfrey Wenness, the king of Manilla, to bring you an in-depth analysis of the incident.

Photo 1

Even though the photographer has quick reactions he did not catch the start of the incident. The collapse was almost certainly caused by thermal-induced turbulence or a dust devil without any dust in it. This caused severe turbulence causing the wing to frontal.

Godfrey, who was on launch and saw the incident, doesn't think it was a dust devil, "just a sharp small bullet". He said: "The pilot behind wasn't affected at all. There wasn't much launch action at the time either – about 10km/h with 15-20 km/h maximum in thermal gusts."

More often than not a full frontal is caused by a lack of pitch control. Often, if the wing surges forward at the same time as a downdraught in the airflow the result is a front collapse.

From the very first photo you can see that the pilot is already applying some brake. His right brake is clearly at shoulder height and the trailing edge is deflected about 15cm.

Bill, who is 58 and has been flying for 20 years, said: "I took off into a light thermal coming up the front, glided out 10-15m then put on my right brake to glide across the face. I could see another glider close behind me flying out. Moments later I got a big whack and descended very quickly."

Photos 2-5

The pilot is correctly applying symmetrical brake on both sides and the glider progressively starts to recover with the nose of the wing popping back out. The amount of brake applied by Bill increases during these photos from 15cm to 30cm with the brakes starting at his shoulders and ending in photo 6 close to his waist.

Photo 6

Photo 6 is the critical moment. Now the wing's nose has recovered and is starting to re-inflate the wing. However, the wing is in a stalled state with the pilot holding 30cm of brake on: 30cm of brake is a lot of brake and the pilot needs to go hands-up fast at this point to allow the wing to re-fly. When the wing re-flies it would surge forward, and it is possible that the pilot may have decided not to release the brakes but to keep the wing in the stalled state due to his low altitude. This is why I asked Bill for his comments. He said: "I tried to steer away from the hill but everything happened so quickly."

Photos 7-9

Bill appears to maintain his hands at around hip level, and the glider enters a full stall.

Photos 10-11

Either because the right wing recovered earlier than the left or perhaps because of more brake on the right, the right wing stalls more and the glider starts to spin to the right. Godfrey said: "The pilot over-controls, especially on the right side with 50-80% brake, and stalls the right side. He does a 90-degree heli."

Photo 12-13

Despite the fact that the brakes were not released the glider starts to recover normal flight, but just at that moment the pilot touches the ground. Godfrey agreed: "The glider tries to exit with a surge, still lots of brake on and he pendulums to land below launch in semi-parachutal at approx 3-4m/s."

He added: "Billy landed some 30-40 vertical metres below launch, so the last photo you see is still a good five seconds from touchdown. Most of the sequence shows the parachutal nature of the incident."

Bill's back protection meanwhile had done its job: "I landed on a large rock with me still in the sitting position with my legs dangling over the front of the rock. The airbag of my Advance Axess 2 did its job perfectly and I was able to stand up with no injury."

After the collapse

Billy was fine: "With some help from Frigga Bausenwein and others we untangled a couple of lines and I carried my bunched up Delta 2 back up the hill. After a 30-minute breather, shaken but not stirred, I took off and flew 75km."

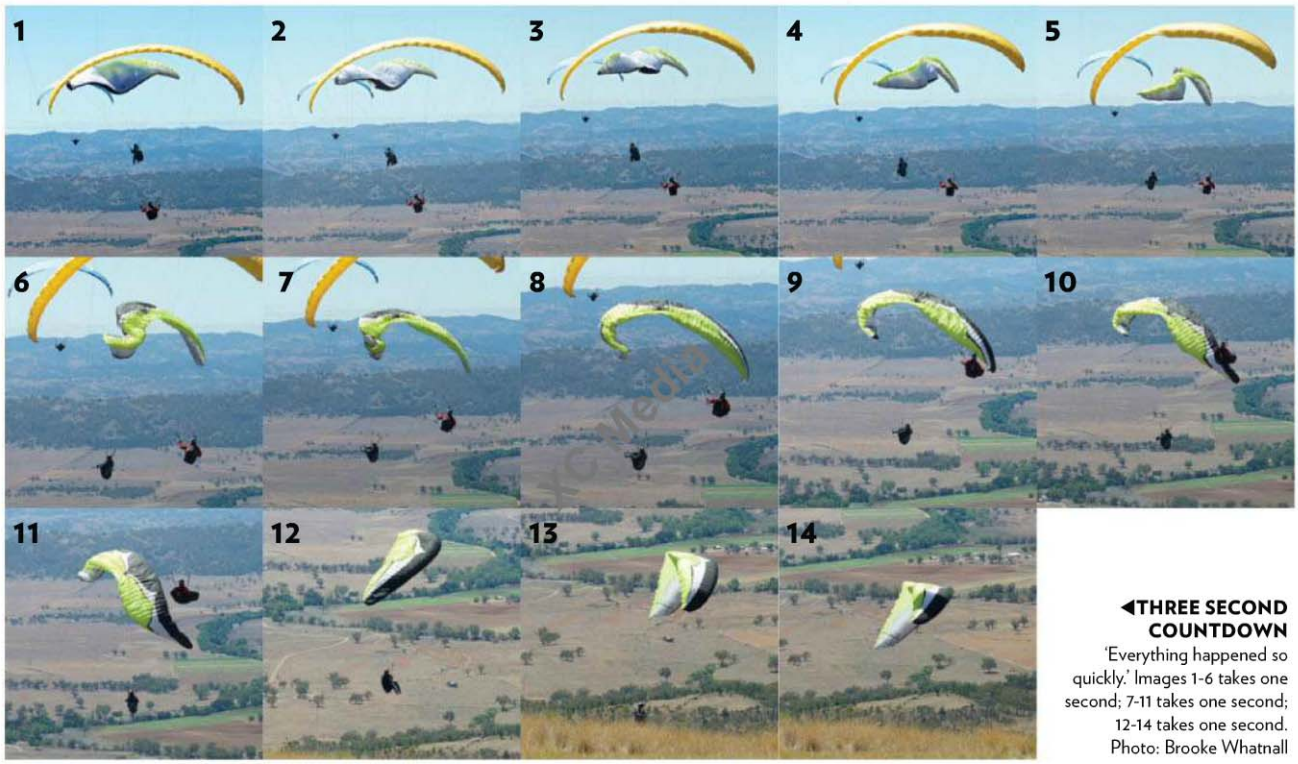
Godfrey added: "It was a pretty standard frontal to start with, but pilot error and over-control made it worse … Over the week of the Manilla XC Camp we had 102 pilots here and flew seven days out of eight, with a combined total of 31,000km flown. Most reported well-behaved gliders and no dramas."

Lesson learned

Godfrey said that the photo sequence for him shows that the latest generation of top-end EN Bs and mid-Cs can be demanding and are not for "new, low-airtime or irregular pilots".

For me the most important lesson to learn from this photo sequence is to release the brakes once the nose has popped back to being at the front of the glider. Otherwise the glider will not fly again.

Bruce Goldsmith has been flying since the 1980s. He has been British Hang Gliding Champion twice, British Paragliding Champion three times and was Paragliding World Champion in 2007. He has been designing paragliders for 20 years.



◀THREE SECOND COUNTDOWN
'Everything happened so quickly.' Images 1-6 takes one second; 7-11 takes one second; 12-14 takes one second. Photo: Brooke Whatnall