British Hang Gliding and Paragliding Association

REPORT

Investigation of a paragliding incident
which occurred at Edge Top,
on Friday 31st July 2015
in which the pilot suffered fatal injury.

Introduction

On Friday 31st July 2015 the British Hang Gliding and Paragliding Association (BHPA) received reports of an air incident at Edge Top in the Peak District that had resulted in the death of a paraglider pilot. The BHPA tasked Mr David Thompson, BHPA Senior Technical Officer, to investigate the incident and submit a report to the Flying and Safety Committee (FSC) of the BHPA for ratification.

BHPA investigation serial number: IR GBR-2015-2327

Summary
On Friday 31st July 2015 a CP rated paraglider pilot was flying his Gin Carrera paraglider at a site known as Edge Top in the Peak District. Whilst ridge soaring in changeable and thermic conditions, the pilot encountered severe turbulence, causing him to lose control of his glider. The glider entered a rapid rotation and the pilot was unable to regain control before impacting the hill where he suffered fatal injuries.

This document is confidential until ratified.

Date ratified by the BHPA Flying and Safety Committee: 3rd December 2015

THE STRUCTURE OF THE REPORT

The structure of this report conforms to that recommended in the BHPA Technical Manual and is intended to follow the principles pertaining to AAIB reports. It is divided into four sections.

Section 1 - Factual information

Section 2 - Analysis

Section 3 - Conclusions

Section 4 - Safety Recommendations

SECTION 1 - FACTUAL INFORMATION

1.1 History of the flight

During the morning of Friday 31st July 2015 five paraglider pilots arrived at the site known locally as Edge Top, with the intention of flying. At approximately 11am two pilots took off in an attempt to go cross-country. Pilot B was first to take off. He gained height and set off over the back of the hill. However, he was unable to find further lift and landed shortly after, some 4km behind the hill. The other pilot, having taken a slightly different track, had been able to climb to cloud base and go cross-country. He did not return to the ridge.

Pilot A arrived at Edge Top shortly after 11am. He called his friend, Pilot B, and then went to retrieve him.

After returning to the site Pilot A took off at 12.44pm (BST) closely followed by pilots C and D who had arrived in the meantime. All three pilots began soaring the ridge, attempting to gain height. During this time Pilot B was in the take off area preparing to launch. He describes how the wind had reduced in strength down to about 10kph from an earlier peak of 25kph. He took off but after a few beats back and forth was forced to land due to lack of lift. Pilot B then attempted to launch again but was having difficulty getting the wing to inflate. He noticed that the wind was now parallel to the slope rather than at 90 degree to the slope as it had been earlier. He waited for the wind direction to improve and then made a successful launch. During this time Pilots A, C and D continued to fly without incident.

At 1.15pm Pilot A was flying along the ridge in a south-easterly direction with the ridge to his left and at approximately 470m AMSL (approx. 200ft above the ground) in a gradual climb. On approaching the area above and in front of take-off Pilot A's glider suffered a large collapse. In recovering from the collapse the glider entered a spiralling descent, losing approximately 60m before impacting the top of the hill a few metres west of the take-off area.

Pilot A was immediately attended by the other pilots and CPR was administered. The local farmer called the emergency services and the paramedics arrived within ten minutes followed by an air ambulance within twenty minutes. Pilot A showed no signs of consciousness and died from the injuries he sustained.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	1	-	-
Serious	-	-	-
Minor / None	-	-	-

1.3 Personnel information

Pilot A was a fifty year old male weighing 97kg. He held a BHPA Club Pilot (CP) rating, gaining the rating in June 2010. His training records show that he completed all the required exercises prior to gaining his CP rating. Analysis of Pilot A's GPS flight recorder shows that he logged 21 hours in 2014 and 12 hours in 2015 up to and including the incident flight. This included at least two cross-country flights in 2015. Data did not go back beyond 2014 so his total hours are unknown. Pilot A had not attended an SIV course.

1.4 Aircraft information

The paraglider was a Gin Carrera, serial number BD03-K6301040P, size Large. It is certified as an EN B class glider. It has a certified range of 95-115kg total weight in flight. The glider was found to be in very good condition and has suffered no obvious damage in the incident. The glider was sent to

be independently tested and was found to be within its certified specification. The glider was not flight tested.

The harness was a Kortel Kamasutra II size Medium. It was found to be in very good condition. The harness contained a Gin One-G emergency parachute, size 42 (100-130kg). The parachute had not been deployed during the incident. On inspection the parachute was found to be in very good condition, correctly installed and released from the harness smoothly and easily.

1.5 Meteorological information

At the time of the incident a ridge of high pressure covered the southern half of the UK, including the area where the incident occurred. The Met Office aftercast summarises the weather conditions as;

'*good…with no frontal systems, dry with scattered amounts of cloud with bases at or above 4000ft. Winds were west to southwest between 7 and 11KT (8 – 13mph) and the air temperature was between 17 and 19 degrees with dew points between 7 and 8 degrees*'.

It is worth noting that the wind speeds quoted by the Met Office come from data supplied by Manchester and Doncaster Sheffield airports and are therefore from areas significantly lower in altitude than the incident site.

The Regional Atmospheric Soaring Prediction (RASP) forecast predicted moderately strong thermic activity due to the relatively cold airmass and clear skies. The temperature during the preceding night had been unseasonably cold, being close to freezing in the higher areas of the Peak District.

Evidence from pilots at other flying sites in the area at the time suggests the actual wind speeds were fluctuating between 5 and 20mph with gusts to over 20mph.

1.6 Site information

The site, known locally as Edge Top, is situated approximately one mile southwest of Hollinsclough in the Peak District national park. OS Grid reference SK055657. The ridge is approximately 2km long and faces in a southwesterly direction. There is a slight shoulder a few hundred metres north west of the take-off area, beyond which the ridge faces west southwest. The high point of the ridge is 424m as marked at the trig point, situated behind the launch area. The landing area is some 40-60m below depending on the field chosen. There is a farmhouse and a number of barns and outbuildings at the foot of the hill in the area below take-off. The ridge forms one side of a valley, which is approximately 2km wide. The ridge on the opposite side is higher, being over 500m in places. Photo 1 shows the view looking back up towards take-off with the farmhouse in the foreground.

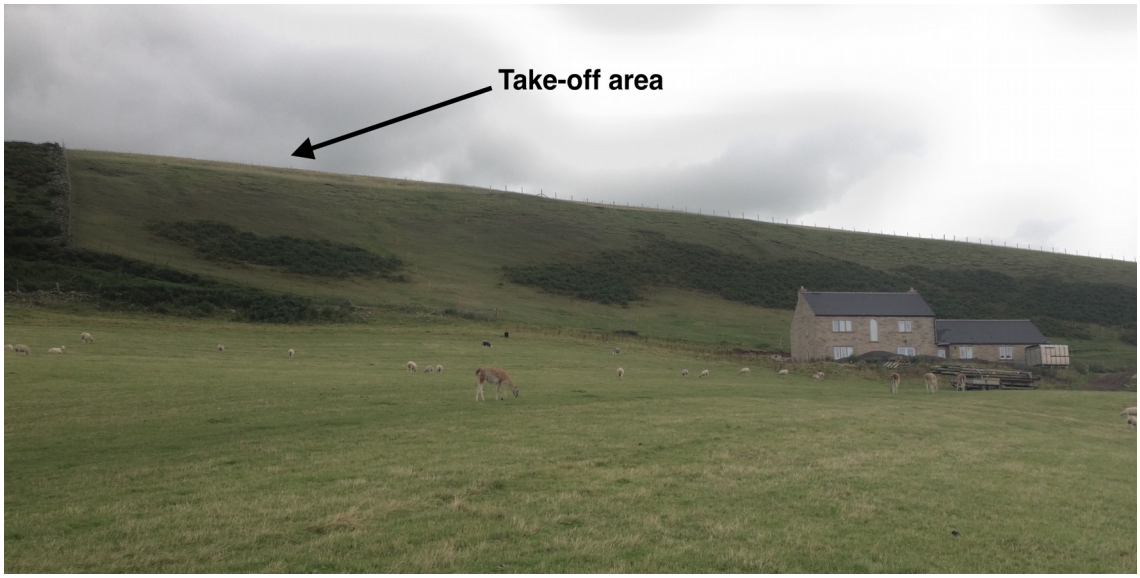

Photo 1.

Photo 2. shows the view in a south-westerly direction, looking out from the area to the west of launch, close to where Pilot A hit the ground.

Photo 2.

1.7 Flight recorders

Data from Pilot A's Skytraxx GPS vario unit was extracted and used to establish his flying currency, and to examine the details of the incident flight.

1.8 Medical and pathological information

Cause of death was given as internal injuries.

SECTION 2 – ANALYSIS

2.1 The Investigation considered the currency and experience of Pilot A.

Pilot A had been paragliding for five years since gaining his BHPA CP rating. Though his total hours are unknown, analysis of his flight instrument showed twenty-one hours logged in 2014 and twelve hours logged in 2015 up to the time of the incident. Pilot A had also flown a number of cross-country flights, the most recent of which was on the 7th June 2015, for a distance of approx. 80km. This would indicate that he was a relatively competent pilot for his level of experience, not unfamiliar with flying in thermic conditions. His most recent flights prior to the incident were on 14th July when he had three flights totalling just over 1h20mins. Evidence from Pilot A's flying friends suggests that the amount of hours flown by Pilot A in 2014 and 2015 was lower than in previous years due to pressures of work. Twenty-one and twelve hours would not be considered excessively low for a recreational pilot. Of particular note however, is the amount of flying hours referred to in Gin's printed information about the Carrera, available on its website, and reproduced below: Gin describe the Carrera as "*...suitable for a wide range of pilots; from improving, ambitious pilots with a few seasons' flying, to very experienced pilots who wish to fly within a wider comfort zone whilst retaining the precise handling and performance characteristics of the more demanding wings to*

which they are accustomed. Experienced thermal/XC pilots flying at least 50 hours per year will benefit most from choosing the Carrera." "TIP: To fly the Carrera, you should be thoroughly familiar with active flying and recovery techniques."

The Gin Carrera is at the upper end of the EN B certification and is aimed at experienced pilots who fly regularly. It is a glider that requires active piloting, especially in potentially turbulent conditions, in order to prevent collapses, and a good knowledge of recovery techniques should a collapse occur.

Pilot A purchased the Gin Carrera paraglider in June 2014. From time of purchase to the time of the incident it appears that Pilot A had flown less than half the hours recommended by Gin for this glider. The fact that Pilot A had not attended an SIV course also meant it was unlikely that he was familiar with recovery techniques to the degree recommended by Gin.

The Investigation considered the experience and currency of Pilot A, coupled with his choice of paraglider to have been a possible factor in this incident.

2.2 The Investigation considered the site.

The site known as Edge Top was historically a hang gliding site. It was chosen predominantly as its location provided easy vehicular access to the take-off area. However, there are a number of hazards that make the site less than favourable from a paragliding point of view. The ridge is one side of a relatively narrow valley. The opposite side of the valley is significantly higher and the terrain between is undulating. In stronger winds this will inevitably result in terrain induced turbulence. There is also a large farmhouse with a number of large barns situated at the foot of the slope, adding to the probability of turbulent airflow.
The site is known to be thermic in sunny conditions and also to be affected by wave in stronger winds.
Under the "Hazards" section of the Peak Soaring Association sites guide it is noted that, "The site becomes extremely bumpy at wind speeds above 20mph". This is certainly the case, however, the description was written long before the buildings at the base of the hill were constructed and with hang gliders in mind.
Given the factors mentioned, it is likely that flying at Edge Top could be potentially turbulent and therefore dangerous to paragliders with wind speeds well below 20mph.

2.3 The Investigation considered the weather conditions.

Conditions on the day were sunny with cumulus clouds indicating thermic activity. Evidence from those at the site and from pilots at sites in the surrounding area suggests the conditions were strong, in that there was significant thermic activity with strong, fluctuating winds. There is some suspicion from experienced local pilots that the fluctuating conditions experienced by the pilots at Edge Top may have been due to wave, set up by the ridges upwind.

The combination of the fluctuating wind strength, fluctuating wind direction and strong thermic activity, coupled with the peculiarities of the Edge Top site made the conditions in that immediate area potentially very dangerous due to the turbulent mixing airmass.

Analysis of the flight data contained in Pilot A's GPS unit showed that in the seconds leading up to the incident he was flying in an east south-easterly direction with the ridge to his left and at a speed of approximately 30kph. He then entered an area of lifting air and began to gain height at a rate of 1 – 2 metres per second, slowing to just over 20kph. He then suddenly, within 1 second, slowed from 21kph to 7kph. At this point the data showed the glider enter a descending left turn that accelerated rapidly until Pilot A impacts with the hillside approximately 8 seconds later.
The rapid deceleration was almost certainly the result of the glider encountering significant turbulence and is the point at which the witnesses would have noticed the glider collapsing. The glider then recovered from the collapse, but on recovery entered a turn, which quickly developed into a spiral dive. There was no indication from witnesses that Pilot A attempted to deploy his emergency parachute. It was noted on examination that the parachute deployment handle was installed correctly in its stowed position. This indicates that Pilot A did not attempt to deploy the parachute or was unsuccessful at reaching the deployment handle at the point when his wing deviated from normal flight.

The Investigation considers the decision of Pilot A to fly at Edge Top, in the weather conditions present on the day, to have been a significant factor in this incident.

SECTION 3 – CONCLUSIONS

The Investigation concluded that the incident occurred as the result of the pilot losing control of his glider at low level while ridge soaring in turbulent weather conditions. The nature of the site and the level of experience and currency of the pilot, in conjunction with his choice of paraglider, were considered to be contributory factors.

SECTION 4 - SAFETY RECOMMENDATIONS

The investigation recommends the Peak Soaring Association reviews and where necessary, updates its sites guide.