British Hang Gliding and Paragliding Association

REPORT

Investigation of a paragliding accident
which occurred at the Eagle's Nest, Mirhleft, Morocco,
on 5th November 2009
in which the pilot suffered fatal injury.

Introduction

On 5th November 2009 the British Hang Gliding and Paragliding Association (BHPA) received reports of an air accident at the Eagle's Nest, Mirhleft, Morocco that had resulted in the death of the pilot. The BHPA tasked Mr Mark Dale, BHPA Technical Manager, to investigate the accident and submit a report to the Flying and Safety Committee (FSC) of the BHPA for ratification.

BHPA investigation serial number: IR 09/098

Summary

On Thursday 5th November 2009 four pilots, an Instructor and a spectator all from a UK group returned to the Eagle's Nest/Nigel's site in Morocco where they had flown the previous two days. The four pilots made two top to bottom flights each in the morning. After lunch the wind picked up a little and conditions became soarable. The wind was off to the left (South). Pilot A was the second of the group to launch after lunch and he commenced ridge soaring to the left (South) of take off. Approximately eight other pilots were airborne from other groups. Pilot A was between 50 to 100 feet above the hill flying to the South when his glider was seen to suffer a small deflation on the right wing tip. This recovered instantaneously but the glider commenced spinning to the right and then dived in front of the pilot. The pilot swung through and he impacted the hill just after the canopy, approximately 100 feet below the top, directly in front of the hotel on the ridge top.

The pilot suffered fatal injury.

The investigation concluded that the cause of the incident was that the inexperienced pilot lost control of his paraglider due to turbulence. The loss of control and subsequent dynamic behaviour of the glider were probably exacerbated by the loose setting of the harness chest strap.

This document is confidential until ratified.

Date ratified by the BHPA Flying and Safety Committee:

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

On Monday 2nd November 2009 a group of three Instructors, twelve clients and three non-flying partners flew from the UK to Morocco. On Tuesday 3rd November the wind conditions were too strong for flying. On Wednesday the 4th November the group of four more experienced pilots and their Instructor went to the site known as the Eagles Nest/Nigel's. All the members of the group made a top-to-bottom flight in the morning and then a soaring/extended top-to-bottom flight in the afternoon.
On Thursday 5th November 2009 the same four pilots and an Instructor (and a spectator) returned to the Eagle's Nest/Nigel's site. The wind was initially light and off to the South. Gradually the conditions improved and members of the group launched and made extended top to bottom flights. Each pilot made two top to bottom flights in the morning. Pilot A's first flight lasted approximately 5 minutes and his second flight approximately 10 minutes. After lunch the wind picked up a little and conditions became soarable. Other pilots from other groups present on the site began soaring. The wind was off to the left (South). Pilot A was the second of the group to launch after lunch and he commenced ridge soaring to the left (South) of take off. Approximately eight other pilots were airborne from other groups - one of these pilots had been airborne for approximately one hour. The conditions at launch gradually became more difficult with the wind swinging further to the South. Pilot A was between 50 to 100 feet above the hill flying to the South when his glider was seen to suffer a small deflation on the right wing tip. This recovered instantaneously but the glider commenced spinning to the right and then dived in front of the pilot. The pilot swung through and he impacted the hill just after the canopy, approximately 100 feet below the ridge top.

A Dutch Instructor in the bottom landing field saw the final stages of the accident flight and called his colleague on the launch to relay the message. Pilots ran down to assist the casualty and First Aid was administered. An ambulance was called but on advice from the locals the decision was taken to evacuate the casualty by car. The casualty was transported to hospital in Tiznet, arriving approximately 25 minutes. He was pronounced dead on arrival.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	1	-	-

Serious	-	-	-
Minor / None	-	-	-

1.3 Damage to the aircraft

None

1.4 Other damage

None

1.5 Personnel information

D.o.B. 17:5:1957
Weight 74kg

The pilot started flying in August 1999, gaining the 'Club Pilot' rating PG (Hill) in June 2002. On the booking form for this trip, in the 'Hours airtime/Training level' space, he had stated that he had, '*10 Max, None last 18 mths'*.

1.6 Aircraft information

Canopy
Apco Fiesta M
Serial Number 761220
Min total weight in flight: 85kg
Max total weight in flight: 105kg
Certified distance between top of connectors centrelines: 42cms

The glider type is certified at EN 'Standard' level and DHV '1'.

The glider was the pilot's own equipment.
The glider had been professionally serviced just prior to the trip.

The glider was examined as part of the investigation (including checking the brake line measurements). No pre-existing defects were found.

Harness
Sup Air Moovy
Chest strap setting: 52 cm between riser centres.
Back Protector Bump Air and fibreglass plate.

Helmet
Icaro full face.

Emergency Parachute
Apco Mayday 18

Instruments
None????

1.7 Meteorological information

At the time of the accident flight the wind was from the South West and approximately 12mph. There was some mild thermic activity and associated turbulence.

1.8 Aids to navigation

Not applicable.

1.9 Communications

Pilot A and the other students were fitted with radios which would receive information transmitted by the Instructor.

1.10 Aerodrome and approved facilities

The site is known as the Eagle's Nest / Nigel's. It is located approximately 10 miles to the NNE of Mirhleft, Morocco. $29^0$42'05.71"N $9^0$55'48.30" W. The site is long ridge, parallel to the coast and about 1 mile inland. The ridge is approximately 800 feet high. The best wind direction is approximately 280 degrees.

1.11 Flight recorders

N/a

1.12 Wreckage and impact information

The pilot impacted on a hard rocky slope.

1.13 Medical and pathological information

Multiple Injuries.

1.14 Fire

None.

1.15 Survival aspects

The pilot's emergency parachute was not deployed. In the general circumstances of this particular accident it was considered extremely unlikely that an emergency parachute system, deployed when control was lost, would have had sufficient time and height to deploy successfully.

The pilot was breathing but unconscious when reached by the First Aiders. He remained in this state during the evacuation to hospital. The nearest hospital is at Tisnet. This is twenty to thirty minutes drive from the Eagle's Nest/Nigel's flying site.

The decision to evacuate him without waiting for the ambulance was based on the knowledge that the ambulances in that part of Morocco are not equipped with any medical equipment other than a stretcher.

1.16 Tests and research

Not applicable.

1.17 Organisational and management information

This group of Instructors were on the first week of a three week stint in Morocco. The required 'Student Training Abroad Notification' had been lodged with the BHPA Office.

1.18 Additional information

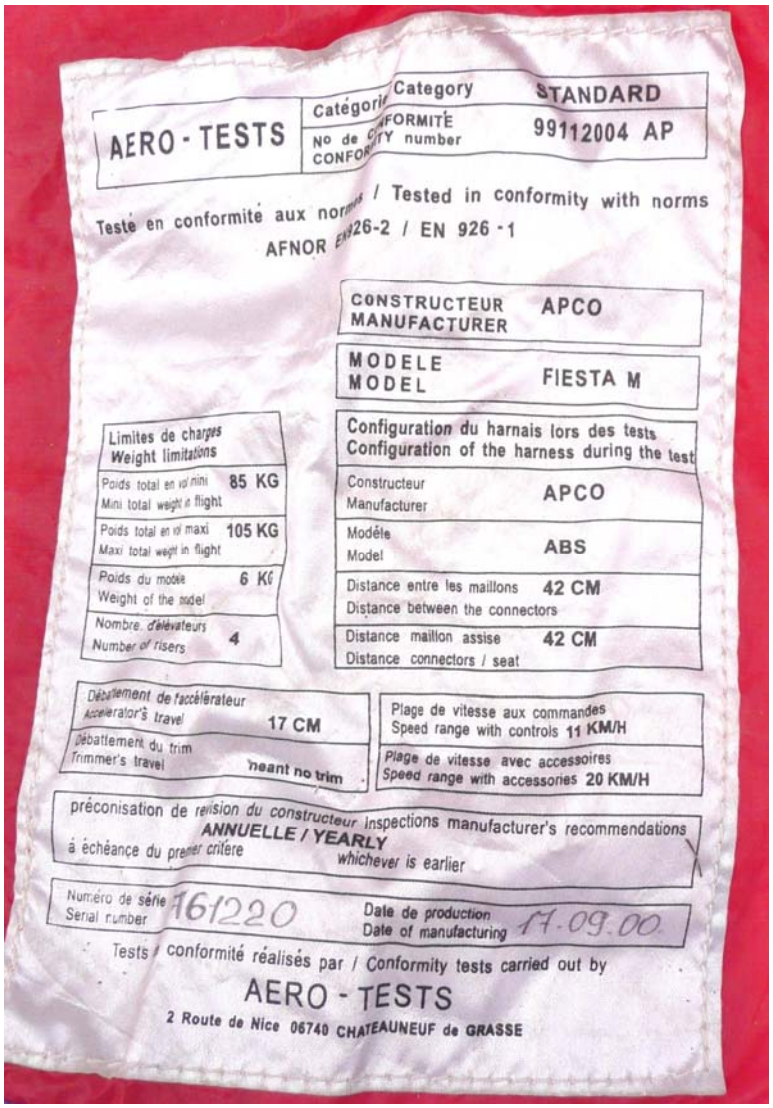
1.19 Useful or effective investigation techniques

SECTION 2 – ANALYSIS

The Accident
The actual accident event was initiated by a small right wingtip deflation. This was almost certainly a result of encountering turbulence. The turbulence could have been caused by the wind being off the slope or it could have been associated with a thermal – or a combination of the two. The fact that Pilot A was continuing to soar above the ridge indicates that he (and the other pilots airborne) were happy with the weather conditions at that time. Flying down to land at the bottom was an option any of the pilots could have exercised at any time.
It is not clear why the small deflation of the right wingtip resulted in a spin. Normally a small deflation will pop out of its own accord – and this one did recover (although it is not known whether it self-recovered or was 'pumped out' by the pilot). It is possible that the pilot took some action on the controls, in response to the minor deflation, that led to the spin. Pilots are advised that to re-inflate a collapsed wing they should make firm, smooth pumps on the control for the deflated side. They are cautioned against holding the control down whilst doing this as that could stall the wing. If the right wing was inadvertently stalled then a spin to the right would be the likely result. It is possible that the pilot over-reacted to the small deflation and, through pumping on the right side, inadvertently stalled that wing.

Experience and currency.
Pilot A was qualified to fly on his own without supervision. That said, he had booked on a course with a school and had made clear on his booking for that he had very little experience ('10 hours max.') and had not flown for eighteen months. The investigation therefore considered the question of how a pilot with this lack of currency should have his skills refreshed. There is no published advice on this. The school had progressed the student through top to bottom flights with turns to soaring top to bottom flights. It was not clear whether all the other Club Pilot flying skills (including 'Active Flying' and 'Dealing with an Asymmetric tuck') would have been specifically covered during subsequent flights.

Harness chest strap setting (Distance between risers).
A paraglider's stability (i.e. its tendency to remain undisturbed by turbulence) and its recovery characteristics (its ability to recover to normal flight after an upset) are both significantly affected by the geometry of the pilot's harness. The most critical part of the harness geometry is the distance between the main riser karabiners – which is set by the pilot by adjusting the 'chest strap'. When paragliders are certified, the test pilot sets his harness at the appropriate setting: 38cms for small gliders (<50kg pilot weight), 42cms for medium gliders and 46cms for large gliders (>80kg pilot weight). All the flight tests are carried out at this setting. The glider involved in this accident had a take-off weight range of 85kg to 105kg and had a correctly affixed placard showing the certification details which includes the harness settings used during certification: these are recorded as being 42cms between the connectors - and at this setting the type was certified at the EN 'Standard' level. (The levels on this certification scheme went from 'Standard' (most stable) to 'Competition' (least stable)). The accident pilot had set his harness so that the actual distance between connectors was 52cms. With the harness set up in this way the glider's stability and recovery characteristics would be worse than those established at the certified setting.



SECTION 3 – CONCLUSIONS

The accident was the result of the inexperienced pilot encountering turbulence and losing control of his wing. The loss of control and subsequent dynamic behaviour of the glider were probably exacerbated by the loose setting of the harness chest strap.

SECTION 4 - SAFETY RECOMMENDATIONS

It is recommended that the FSC should consider issuing advice to schools and Instructors about how to conduct ‘refresher’ training.