
BHPA Incident Report: GBR-2018-9122

INCIDENT

Aircraft Type:	Powered Paraglider. Wing: Paramania Revo 3/26 (serial number C40REV26FR643), Air Conception Nitro 200 paramotor and Sup-Air/Air Conception harness fitted with Skyman Ultra Cross 150 emergency parachute (S/N 56564).
Certification:	Unknown, not recorded on wing's placard.
Location:	Field to east of Bishop Norton, near Market Rasen, Lincolnshire.
Date and Time:	7 th October 2018, approximately 11:30 UTC.
Type of Flight:	Local flight.
Persons Involved:	Pilot A
Injuries:	Multiple injuries.
Nature of Damage:	Major damage to the paraglider wing and suspension lines. Major damage to paramotor.
Pilot's Rating/Licence:	unknown.
Pilot's Age:	55
Pilot's Experience:	No logbook available.
Information Source:	Witness statements from Pilots B, C, D, E and F, and Witness G.

1.0 Synopsis.

Pilot A was making a local flight on his powered paraglider (paramotor) from a field near the village of Bishop Norton with other paramotor pilots. During the landing phase of his flight, he collided with a tree on the periphery of the landing field and fell to the ground. He was attended to by the other pilots but died from his injuries.

2.0 History of the flight.

Pilots A, B, C, D, E and F met at the field owned by Pilot F at approximately 08:00 UTC with the intention of flying. Pilot B, an instructor, was providing flying tuition to Pilot E. The conditions reported by the witnesses were settled, with a light wind from an easterly direction. A windsock was placed in the field.

Pilot A made an initial flight without incident. The other pilots made flights over the course of the morning and noted that the wind direction had changed to being predominantly southwesterly or west-southwesterly, and the strength had increased.

During his attempted launch for a second flight, some lines of Pilot A's paraglider caught around his paramotor propeller, severing a line on his paraglider and causing the left-hand side of the propeller cage to be buckled. Pilot A aborted the take-off. Pilot F re-aligned the paramotor cage in his workshop adjacent to the flying field, and Pilot B replaced the broken paraglider line.

Pilot A launched, and was airborne for 15 to 20 minutes, flying in the local area. He initiated his landing approach by crossing the field heading in a southerly direction and was seen to clear the trees and the telecom line on the field's southerly boundary with about two to three metres vertical separation. Pilot A circled the landing area and shouted to the pilots on the ground that the air was "bumpy". He was seen to retract his legs from the landing position, assume a seated position, and apply power whilst heading downwind to the eastern boundary of the field. He flew towards the boundary trees in the field on the other side of the road, downwind of the landing field. The lines to the left-hand side of his wing came into contact with a tall mature tree, turning Pilot A into the tree foliage. His paramotor propeller was heard under power hitting tree foliage. Although the parked cars obstructed the view of the majority of pilots, Pilot C reported that at this point he saw Pilot A's wing surge forward. This led to his impact with the ground.

When the pilots reached Pilot A, they found him found face-down on the ground, attached to his aircraft. The emergency services were summoned, and Pilot A was pronounced dead at the scene.

3.0 Focus.

Based on the information available, the Investigation considered the flying area and local flying conditions, Pilot A's experience and currency, his equipment, and the part of Pilot A's flight immediately prior to his impact with the ground.

3.1 The flying area and local conditions.

The flying area is generally flat farmland. The field used by the pilots for launching and landing has established trees on either side of the road at the eastern boundary of the field (refer to *fig. 1*, below). On the southern boundary is a hedge and occasional medium height trees along its length. Situated at the western end are a farmhouse and farm sheds, and a line of established tall trees approximately 200 metres from the area of the field used by the pilots on the incident day. The northern boundary has no obvious obstructions to the airflow. Running along the field's eastern and southern boundaries are telecom cables on poles.

The conditions recorded on the Met Office Aftercast for the incident day are summarised as follows:

"...visibilities in excess of 10 kilometres, with no cloud below 5000FT and no Cumulonimbus clouds. Although some cloud did start to develop at 4000FT at Humberside after 1300 UTC.

Surface winds were generally southwesterly and between 8 and 12 knots across the area, although winds did increase to around 15 knots at Humberside during the middle of the afternoon.

...the weather conditions at Bishop Norton at the time of interest would have been settled throughout most of the day with no significant cloud below 5000FT and good visibility. Winds would be generally a light to moderate south-westerly."

The pilots' reports of the weather conditions experienced on the field were consistent with the Aftercast. The pilots expected strengthening conditions as the day progressed. Pilots C, D, and F flew over the course of the morning, and opted to land at 10:30 UTC. Pilot F had noticed that the wind had strengthened, and the air he was flying in had become turbulent.

The Investigation considers the site to be suitable for powered paragliding, however, turbulent air would be expected in the lee of the buildings and tall trees, and caution would need to be exercised when flying in a moderate windspeed, especially with a westerly component.

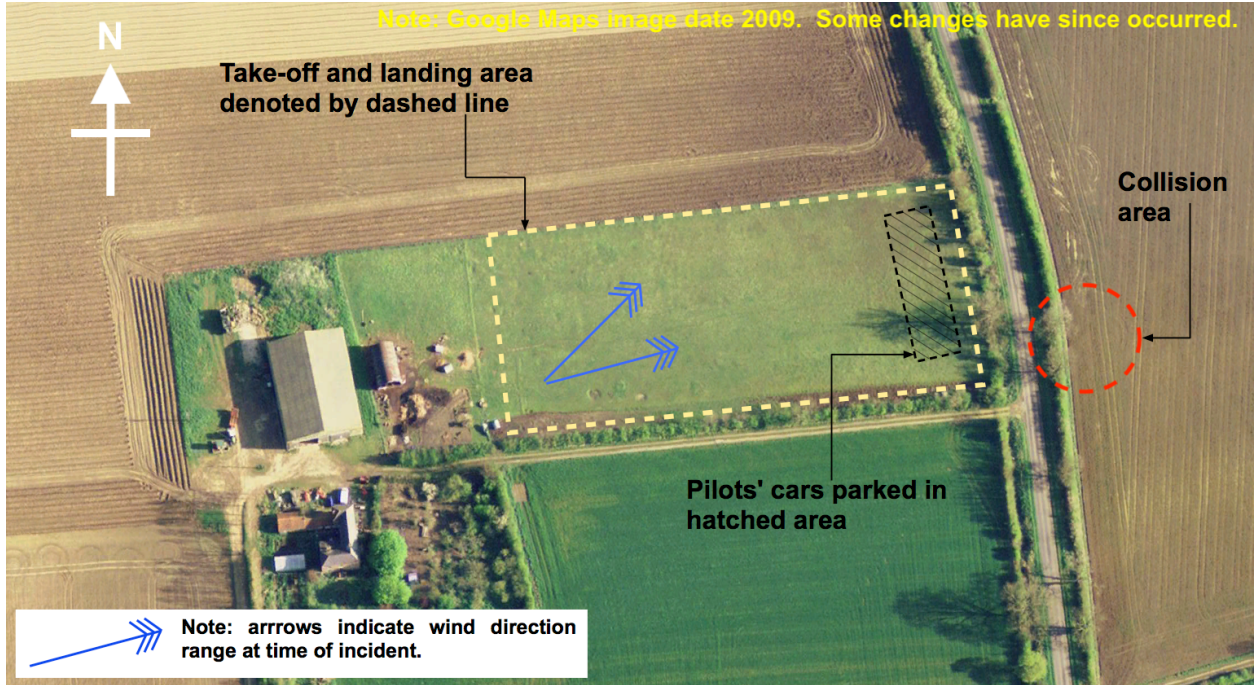


Fig. 1 (above). Indicative aerial picture of the activity field, showing the trees and approximate impact area in the dashed red circle. (not to scale).

3.2 Pilot A's experience and currency.

Pilot A was trained to fly by Pilot B, a paramotor instructor and owner of an independent paramotoring school, unaffiliated with the BHPA. Pilot B stated that Pilot A began flight training with him by making hill launches (without a power unit) in 2015, before commencing powered flight training in July 2016. No written records of Pilot A's training were made available to the Investigation. Pilot B stated that following the two months (approximately) of paramotor tuition he gave Pilot A, he was competent and able to safely operate a paramotor.

No log book was available to the Investigation, so it was not possible to establish the regularity of Pilot A's flight activities. However, he was known to have last flown three to four weeks before the incident day.

Pilot B estimated that Pilot A had gained around nine hours' airtime on the Nitro 200 paramotor, and that he had a total paramotor airtime of about 30 hours. It is not possible to verify how much of this airtime was obtained whilst under instruction, and how much he subsequently acquired when operating autonomously, without instructor supervision.

The Investigation determined that Pilot A's airtime after his training equated to less than fifteen hours per year. This is a low amount of accumulated airtime and experience gained in his two years of paramotoring, possibly with significant gaps of time between flights.

The Investigation considered that Pilot A's inexperience and lack of airtime on the aircraft was a contributory factor in the incident.

3.3 Pilot A's equipment.

The Paramania Revo 3 used by Pilot A is a paraglider designed for powered and unpowered flight. It is described by its manufacturer as being an "ideal wing to start out on and yet performance is clearly intermediate." Pilot A's total weight in flight was unknown and it is therefore not possible to determine the wing loading, or comment on the flying characteristics of the wing.

After the incident, Pilot A's wing was examined by a paraglider service centre, which undertook a general condition inspection. The wing was reported to have sustained significant damage to the top and bottom surfaces. The service centre reported that the suspension lines were too severely damaged to establish whether the wing was in accordance with the manufacturer's line length specification. It was therefore impossible to determine whether the wing was airworthy and in trim.

The paramotor unit used by Pilot A is a lightweight paramotor with a counter-clockwise rotating propeller (when viewed from the rear), and a standard harness. The harness to paramotor frame connection incorporates floating suspension arms of standard design found on many modern paramotors.

The paramotor was visually inspected following the incident. The fuel tank held a quantity of fuel estimated to be between two to three litres. Engine sounds associated with poor running had not been reported by any of the witnesses. It was not possible to start the motor to ascertain the operation of the engine, throttle and emergency engine kill switch, and there were no visual signs on the motor that would have indicated poor running prior to the impact.

The carbon propeller blades were fragmented, indicating the machine was under power at the point of impact. The propeller cage was found to be severely damaged, and the main frame (that the engine is fixed to) was significantly distorted (predominantly on the left-hand side). The right-hand suspension arm showed signs of distortion at the pivot point mounting with the frame, indicating that it had been subject to a lateral force.

The Investigation considered the airworthiness of the paramotor, and whether the damage that had occurred during the line entanglement prior to the incident flight may have given rise to unexpected behaviour from the wing.

Pilot A was reported to be a cautious pilot who selected flying conditions carefully, took care of his equipment, and had been taught by Pilot B to regularly perform safety checks. Whilst the effects of possible prior damage to the paramotor affecting the flight cannot be completely ruled out, the Investigation considers it unlikely that he would not have satisfied himself that the equipment was airworthy prior to taking-off on the incident flight. Had the damage affected the control or stability of the paraglider, this would have been evident to Pilot A and the flight would have been aborted or cut short soon after launch. Instead, Pilot A was seen by the witnesses to be flying with no detectable issues.

The damage to the propeller, the structure and the cage was consistent with a heavy impact following a fall from height. On the balance of probability, the extensive damage to the paramotor evident in its post-incident inspection occurred following the collision with the tree and subsequent fall to the ground.

3.4 The incident.

The Investigation considered the portion of the flight immediately prior to the impact.

Pilot A was seen to inflate his wing using a reverse launch and took-off in a westerly direction heading into wind. It was evident that the wind strength had increased enough to sustain a reverse inflation and was in a southwesterly or west-southwesterly direction as had been forecast. After around 15 to 20 minutes of flight, Pilot A approached the field from the north.

Paramotor pilots often set up landings using a traditional aircraft circuit pattern. In order to make a controlled landing and minimise the risks of a fast arrival on the ground, pilots aim to establish the paraglider wing on an into wind glide for final approach.

Pilot A did not perform a traditional aircraft circuit landing approach pattern. It is evident however that he was attempting to land as he was seen to have lowered his legs. He shouted to the witnesses on the ground that the air was “bumpy”, suggesting that he was experiencing turbulence. He retracted his legs having decided to abort his first landing approach, and he opened the throttle on his paramotor in order to reposition for a second landing attempt.

Pilot A’s direction of flight leading up to the collision with the tree was seen to be in an easterly or southeasterly direction. The reported wind direction would have had added a tailwind component. The wind strength would have given Pilot A’s aircraft a high ground speed towards the eastern boundary of the field.

Pilot C stated that he considered Pilot A to be “quite low at about 15 feet”, and that his heading appeared to be between the two tall trees on the other side of the road from the landing field’s eastern boundary. Pilot A’s height above the ground and high ground speed toward the field boundary and the trees would have made a collision with an obstacle on his flight path highly probable.

Pilot A struck the tree with the paramotor and enough of the suspension lines to affect the paraglider’s trajectory. The wing turned left around the snagged lines before surging forward. As it dived towards the ground, the snagged lines became detached from the tree, some lines possibly being severed at this point. Pilot A would have swung dynamically towards the ground underneath the diving wing. The thrust provided by the paramotor under power would have added to the momentum of this swing, resulting in an impact with the ground of considerable force.

4.0 Findings

The Investigation determined from the available evidence that Pilot A collided with a tree as he had misjudged and did not adequately monitor his aircraft’s trajectory during the landing phase, and he did not make effective control actions in order to avoid contact with the obstacle. The collision ended the flight, and the subsequent impact with the ground led to the pilot sustaining fatal injuries.

5.0 Recommendations.

None.