



Accident to Tusker wing - Funflyer tandem trike powered paraglider identified 52GJ

on 28 January 2018

at Dompierre-sur-Charente (Charente-Maritime)

⁽¹⁾Except where
otherwise indicated,
times in this
report are local.

Time	Around 15:40 ⁽¹⁾
Operator	Private
Type of flight	Local
Persons onboard	Pilot
Consequences and damage	Pilot fatally injured, aircraft slightly damaged

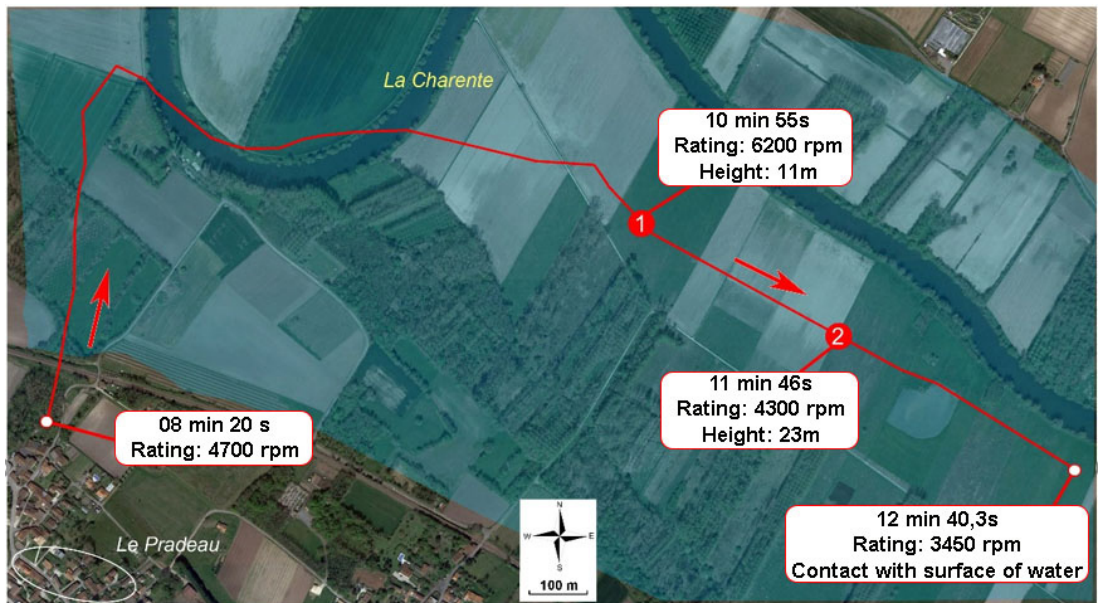
This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in March 2020. As accurate as the translation may be, the original text in French is the work of reference.

Collision with surface of water

1 - HISTORY OF THE FLIGHT

Note: The following information is based on the video recordings from the onboard camera installed by the pilot and from the camera of a drone present in the area at the time of the event and which filmed part of the powered paraglider's flight.

The pilot took off from a field situated south of Lieu-dit Le Pradeau in Charente-Maritime. He carried out several manoeuvres at low height and then flew towards the river Charente. He flew over the fields flooded by the Charente for about four minutes. Two minutes before the end of the flight, the pilot descended, a first time, to a height of around 6 m above the water and then climbed to a height of 23 m (point 2 of Figure 1). The pilot then continually descended for around one minute before coming into contact with the surface of the water.



Basemap source: Google Hearth

- Estimated end of 52-GJ's path based on analysis of video recording
- : Zone flooded by the river Charente
- ① : Maximum engine rating reached during flight over the water surface
- ② : Maximum height measured during flight over the water surface

The times are indicated with respect to the beginning of the video

The heights are indicated with respect to the water surface

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Figure 1: path of powered paraglider

2 - ADDITIONAL INFORMATION

2.1 Pilot information

The 59 year old pilot had held a microlight pilot licence with a valid “powered paraglider” rating since 28 November 2006. The pilot did not hold other aviation licences.

2.2 Meteorological information

The general situation on 28 January 2018 at around 15:40 was anticyclonic with moist air in the low layers. The conditions estimated by Météo France at Dompierre-sur-Charente were the following:

- wind from south between 3 to 5 kt;
- visibility above 10 km;
- broken to overcast cloud layer based at above 1,000 ft;
- temperature 8°C, dew point 7°C;
- QNH 1040 hPa.

2.3 Examination of powered paraglider trike

The trike was equipped with:

- two seats, the rear seat serving as a fuel tank;
- emergency parachute;
- protective cage;
- propulsion system.

This type of trike has a hand throttle which the pilot must hold in one hand. If the pilot releases this control, the engine speed decreases to idle.



Figure 2: trike assembly, right side



Figure 3: trike assembly, rear view

The trike was not damaged. The examination did not reveal any singularity which could be linked to the occurrence of the accident.

2.4 Survivability

The video from the onboard camera showed that the pilot was able to get out of the trike after colliding with the surface of the water. His body was found in the water at around 50 m from the wreckage and at several hundred metres from unflooded land. The autopsy indicated that the pilot died from both ingestion of water and hypothermia.

2.5 Analysis of videos from drone and onboard camera

2.5.1 Engine operation

The acoustic analysis of the video recorded by the onboard camera did not detect any anomaly characteristic of a powerplant failure. Changes in the engine and propeller speed seemed to be controlled.

This analysis was able to establish that around 1 min 15 s before contact with the surface of the water, the engine speed progressively decreased to values in the region of 4,000 rpm⁽²⁾. Around four seconds before contact with the surface of the water, the engine speed dropped to around 3,000 rpm before increasing again. This reduction was concomitant with the pilot adjusting the angle of the camera. At this point, the aircraft was at a height of less than five metres above the surface of the water.

The weather conditions were conducive to carburettor icing, however, no sign of the appearance of this phenomenon was found either in the video analyses or in the examination of the engine.

2.5.2 Estimation of height of powered paraglider with respect to water surface

The height of the powered paraglider with respect to the water surface was estimated using the videos from the drone and onboard cameras. The changes in the powered paraglider's height and engine speed are shown in Figure 4. The regulations impose a minimum flight height of 500 ft (150 m) above the ground for VFR flights outside of congested areas or over an open-air assembly of persons.

⁽²⁾According to the manufacturer's documentation, the idle rating is 2,200 rpm, the level flight rating is between 3,000 and 4,500 rpm and the high speed rating is 6,800 to 6,900 rpm.

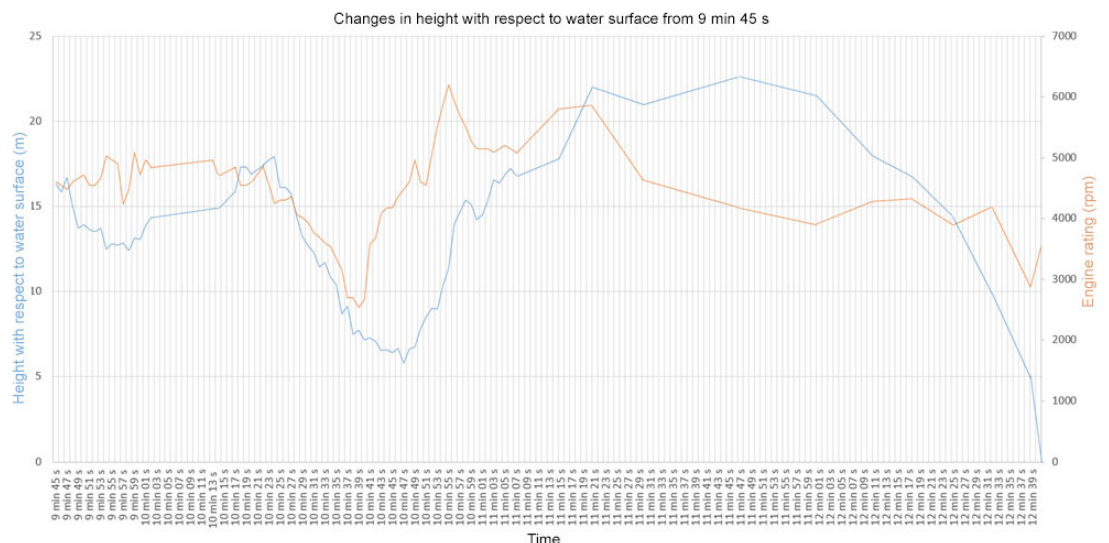


Figure 4: height with respect to water surface and changes in engine speed

2.5.3 Glide distance in event of engine failure

It is difficult to estimate the lift-to-drag ratio of a powered paraglider of this type as this depends on the type of wing and its settings as well as on the type of trike. Furthermore, the wing manufacturer's manual does not provide information about its lift-to-drag ratio.

However, according to the estimated path and the extent of the flooded area, the powered paraglider was continuously at a distance of more than 400 m from the edge of the flooded area and at a height of less than 25 m, which in all probability meant that he would have been unable to reach a suitable area for a forced landing in the event of an engine failure.

3 - LESSONS LEARNED AND CONCLUSION

While flying over flooded zones, the pilot was continuously below the minimum flight height fixed by the regulations and most likely, was out of reach of a landing area in the event of an engine failure. The duration of this overflight, the speed of the path and the first descent over the water two minutes before the accident indicate that it was very probably the pilot's intention to fly over these zones and to come close to the surface of the water.

The aircraft collided with the water after the pilot released the throttle by inadvertence when he was flying a few meters above its surface. This action was concomitant with the pilot adjusting the angle of the camera which he had installed on this aircraft.

The pilot survived the collision with the surface of the water. He died as a result of drowning combined with hypothermia when at several hundred metres from unflooded ground.

The risks associated with flying at low height over stretches of water in a powered paraglider have already been underlined in the accident in 2017 at Geiswasser involving an unidentified powered paraglider⁽³⁾.

⁽³⁾ https://www.bea.aero/uploads/tx_elydbrapports/BEA2017-0214.pdf