



**Accident** to the paramotor  
identified **60ADX**  
on 7 February 2022  
at Duvy

<b>Time</b>	Around 16:20 <sup>1</sup>
<b>Operator</b>	Private
<b>Type of flight</b>	Local
<b>Persons on board</b>	Pilot
<b>Consequences and damage</b>	Pilot deceased, microlight substantially damaged

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

## Loss of control in flight, collision with ground

### 1 HISTORY OF THE FLIGHT

*Note: the following information is mainly based on data from a Sys Evolution tablet.*

The pilot took off from a private microlight strip at 16:17, heading north-east. Three minutes later, he stabilised his height at approximately 250 m and carried out a right turn and then a left turn. The ground speed was approximately 60 km/h.

At 16:21, the pilot lost control of the microlight<sup>2</sup> which collided with the ground. An onlooker stated that the wing folded in and the microlight started to spin, falling almost vertically.

### 2 ADDITIONAL INFORMATION

#### 2.1 Meteorological information

Four more paramotor pilots, friends of the pilot, had taken off from the strip during the afternoon of the day of the accident.

Three among them carried out a foot launch approximately two hours before the accident. They stated that the wind was turbulent and of an average strength of approximately 20 km/h. The fourth pilot took off with a trike a few minutes after the pilot of 60ADX. He thought that the wind speed had dropped.

The first pilots reported they were “shaken about” by turbulence and thermal lifts during their flights. There was a tail end of a depression with a few cumulus clouds.

<sup>1</sup> Except where otherwise indicated, the times in this report are given in local time.

<sup>2</sup> The read out of the radar data showed that no aircraft that could have caused turbulence was in the area at the time of the loss of control.

They indicated that when they came back, around 15 min after the accident, the wind was more stable at approximately 10 km/h.

The French met office, Météo-France estimated that at the time of the accident, at a height of 250 m, the wind was from 270° at 20 km/h. The turbulence was light. The clouds and the visibility were compatible with the flight. The temperature was 9°C.

## 2.2 Microlight information

The main elements of the microlights were:

- A Dudek Nucléon 4 reflex profile wing, with a wing surface of 26 m<sup>2</sup>, equipped with a TST<sup>3</sup> system, which allows the pilot to make an input on the wing tip trailing edge only;
- A trike made by P2air64;
- A two-stroke engine made by Vittorazzi.

The French importer of the wing gave the following information:

- On a Reflex profile, the trailing edge of the wing slightly rises at the rear. This profile is self-stable, the wing naturally positioning itself above the pilot. This type of wing allows the pilot to accelerate. It is a lot less prone to frontal collapse, particularly in an accelerated wing configuration, with the leading edge lowered. Nevertheless, should the Reflex profile wing close, it is more difficult for the pilot to reopen it, reopening can be sudden and may cause a spin, unlike a standard profile wing (gentler reopening and less likely to enter an autorotation).
- The wing is equipped with trimmers and accelerators on the wing risers which allow the pilot to modify the wing's attitude, and thus to accelerate the wing. The trimmers are fixed to the wing's aft part and allow the pilot to raise the trailing edge with respect to the leading edge. They give a permanent setting to the wing. The accelerators are fixed on the forward part and allow the pilot to lower the leading edge. They are generally operated for a short time by the pilot, with his feet. The microlight trike was not equipped with an accelerator control.
- The TST system of the Reflex profile wings allows the pilot to make inputs solely on the wing-tip trailing edge (on each side) in order to turn, unlike the brake controls which are located on the full length of the trailing edge. This system does not deform the Reflex profile and allows the pilot to turn with no risk of collapse when the pilot has operated the Reflex profile.

The wing's flight manual indicates that the slightest input on the brakes (especially when fully accelerated, trimmers open) shifts the centre of pressure to the aft. The pitching moment decreases the angle of attack. The airflow is disturbed. In some cases, this can cause a collapse. An input on the brakes may be necessary to correct the flight path, but in straight flight, the brake controls must be released otherwise they will affect the balance of aerodynamic forces.

The importer, who was also an instructor, added that:

1. pilots must not use the brakes when the wing is untrimmed by more than 50 % or accelerated. To control the direction, they must use the TST intended for this purpose;
2. pilots must always untrim before they accelerate;

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<sup>3</sup> Tip Steering Toggle.

3. pilots must never use the Reflex profile in highly turbulent conditions, the wing is flexible and when the weather conditions are not suitable for flying, pilots must stay on the ground.

The importer added that flying with the TST and opening and resetting the trimmers is very simple.

The pilot had used his wing, which he had purchased new, for a few months. A relative indicated that it was not the first Reflex profile wing that he had used. He considered this type of wing as easy to fly.

## **2.3 Examination of the site and wreckage**

The accident occurred in a field. The collision of the microlight with the ground formed a crater, around 20 m from where the main wreckage had come to rest.

The paramotor trike collided with the ground with a nose down attitude. It showed numerous deformations which were all caused by the collision with the ground.

The wing was examined by a specialist. Apart from the damage due to the collision with the ground, the wing and the rigging lines were in an excellent condition. The trimmers were open, which corresponded to an accelerated wing.

The engine was examined at the importer's premises and no fault or problem which could have caused the accident was observed.

The emergency parachute was not used.

## **2.4 Pilot information**

The 73-year-old pilot held microlight class 1 (paramotor) and class 2 (flex-wing) pilot certificates issued in 1998 and 2003 respectively.

According to a relative of the pilot, he flew once or twice a week on average. Nevertheless, he had not flown much during the months before the accident because of the meteorological conditions.

According to the Paramotor cross-country French Cup (CDFM) website, the pilot had totalled 83 certified flights over 6,000 km in 2021. In 2002 he had carried out four flights over approximately 300 km.

The pilot's relatives indicated that during the months prior to the accident, he had been tired. They had noticed that at times he was "absent" and had a tendency to forget things.

An anatomical-pathological examination revealed:

- advanced atherosclerosis of the coronary arteries, up to obstruction of one of them. There was advanced fibrosis of the left ventricle. Such lesions can impair cardiac function spontaneously or in the event of stress;
- a loss of neurons (nerve cells) in the cerebral cortex, which could explain the cognitive problems observed by the relatives.

The pilot's son indicated that he was not aware of any cardiac pathology affecting his father.

### 3 CONCLUSIONS

*The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation.*

#### **Scenario**

A few minutes after take-off, at a height of about 250 m, the pilot lost control of the microlight, which collided with the ground. The air was slightly turbulent.

The investigation was unable to determine the cause of the loss of control.

Nevertheless, the elements gathered during the investigation are compatible with the occurrence of a cardiovascular accident, a pathology possibly unknown to the pilot, or with an inappropriate action on the controls in a context of diminished cognitive capacity.

*The BEA investigations are conducted with the sole objective of improving aviation safety and are not intended to apportion blame or liabilities.*