

## Accident to the Pioneer 200 registered 87FR

on 30 October 2019

at Saint-Junien (Haute-Vienne)

<sup>(1)</sup> Unless otherwise stated, all times given in this report are in local time.

<sup>(2)</sup> The pilot was an instructor and was accustomed to flying from the right seat.

<b>Time</b>	Approximately 16:20 <sup>(1)</sup>
<b>Operator</b>	Aéroclub de Saint-Junien
<b>Type of flight</b>	Local flight
<b>Persons on board</b>	Pilot in right seat and one passenger in left seat <sup>(2)</sup>
<b>Consequences and damage</b>	
This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in October 2020. As accurate as the translation may be, the original text in French is the work of reference.	

## Loss of control on approach, collision with trees and then with the ground

### 1 - HISTORY OF THE FLIGHT

*Note: the following information is primarily based on witness statements and data from the pilot's touch tablet.*

The pilot took off from Saint-Junien aerodrome (Haute-Vienne) on runway 07 at 15:25. He was accompanied by a passenger who was also qualified on this microlight and a mechanic for the club's microlights. He completed a first runway circuit, followed by a flight of about 50 minutes to Saint-Pardoux-la-Rivière microlight platform (Dordogne). Upon his return, the pilot joined the traffic pattern in order to perform a few runway circuits.

The first touch-and-go occurred on paved runway 07. The pilot then reported on the A/A frequency (123.5 MHz, unrecorded) that he was on the downwind leg and specified his next position on the base leg for runway 07. This was the last message that was heard by the pilots of the aircraft in the circuit and by the persons monitoring the frequency.

The microlight first collided with the tops of trees about 15 m tall and descended vertically to the ground, crashing 530 m from the threshold of runway 07, on its centreline on a 060° heading.

## 2 - ADDITIONAL INFORMATION

### 2.1 Pilot and passenger information

The 68-year old pilot held a microlight pilot certificate with a fixed wing rating with passenger-carrying privileges and an instructor rating. He had a total of 262 flying hours on the day of the accident.

The president of the flying club stated that the accident flight was not an instruction flight but a re-familiarization flight due to the pilot not having flown for an extended period for medical reasons.

The passenger also held a microlight pilot certificate with a fixed wing rating with passenger-carrying privileges. He was also a member of the club and had already flown on this microlight.

The results of the anatomo-pathological examinations carried out on the passenger revealed a pathological condition that may have contributed to the development of a heart rhythm disorder, particularly under stress.

### 2.2 Meteorological information

Conditions estimated by Météo-France at Saint-Junien aerodrome at 16:30:

- variable wind less than 5 kt, no gusting or wind shear<sup>(3)</sup>;
- visibility greater than 10 km;
- cloud cover: scattered clouds with a base at 1,500 ft;
- temperatures: 17 °C, dew point 12 °C;
- QNH 1,019.

### 2.3 Site and wreckage information

The examination of the wreckage and evidence on the vegetation indicated that the microlight collided with the treetops along a slope of about 80° with a steep nose-down attitude, inclined at 180° (on its back). It struck a branch with the right wing, pivoted to the left, reducing its pitch attitude towards zero. It came down directly beneath a large tree trunk, in a level pitch attitude, banked 90° to the left. It hit the ground in this position and came to rest on its back. The examination of the site and wreckage found that the loss of control occurred before contact with the trees. The flaps were in the approach position (approximately 10°).

### 2.4 Miscellaneous information

#### 2.4.1 Microlight information

The Pioneer 200 is equipped with a Rotax 912 UL engine supplying 80 hp, and a three-bladed composite propeller.

The flight manual states that the stall speed at maximum weight is 60 km/h full flaps, 66 km/h approach flaps, and 70 km/h flaps retracted. The approach speed with flaps in the approach position is 110 km/h and 100 km/h with flaps in the landing position.

This microlight is not equipped with a stall warning alarm, as it is not required by regulations.

<sup>(3)</sup> An instructor pilot who was flying with a student at the time of the accident stated that he experienced strong downdraughts on final approach. Maintaining the approach slope required the full power of the DR400.

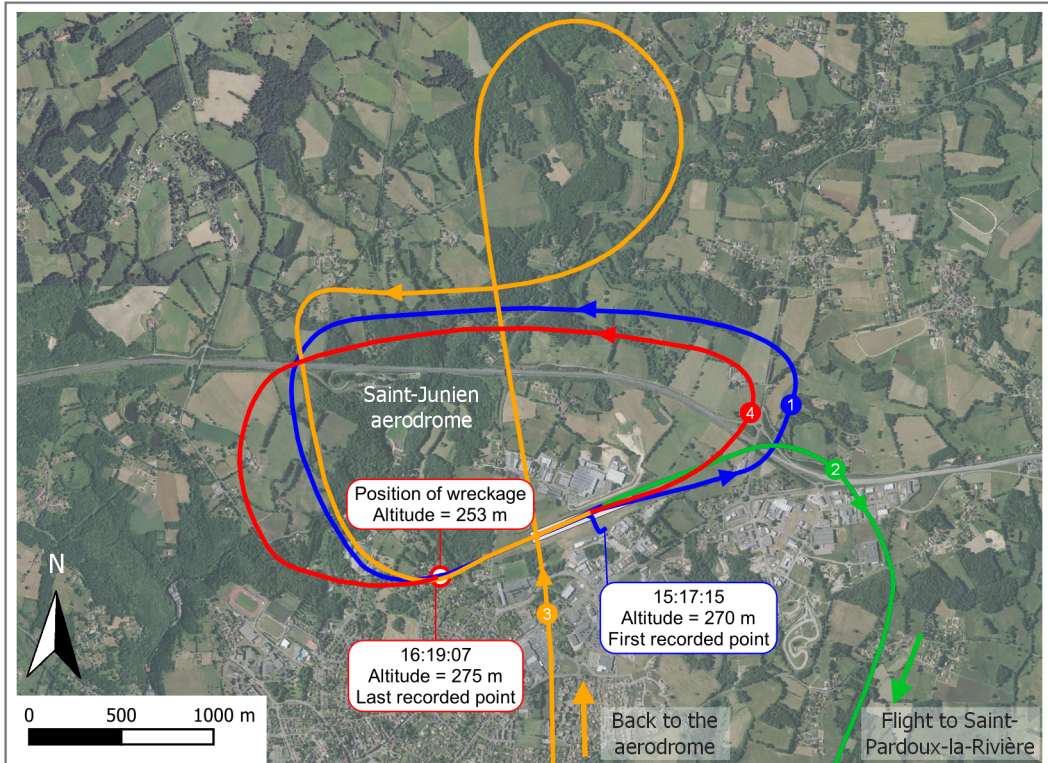
## 2.4.2 Examination of power plant

The examination of the engine on a test bench did not reveal any malfunction.

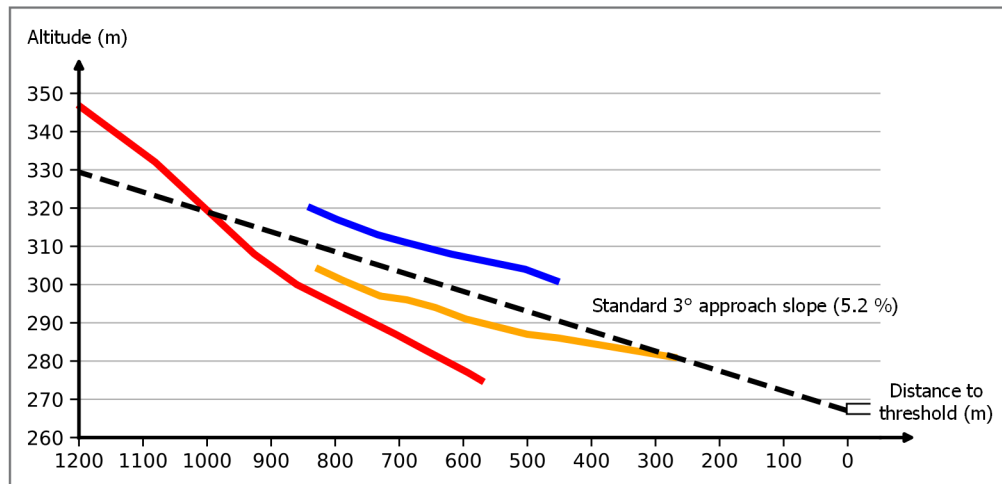
## 2.4.3 Examination of the pilot's tablet

A touch tablet equipped with the SDVFR application to prepare the flight and monitor the GNSS path<sup>(4)</sup> was read out.

<sup>(4)</sup> Global Navigation Satellite System.



Basemap source: IGN



Partial path of 87FR recorded in the SDVFR application:

- Take-off, first runway circuit and touch-and-go
- Return to the aerodrome, joining the traffic pattern and touch-and-go
- Accident runway circuit

*The variable sampling of the path points does not allow the reconstruction of the descent profiles to the threshold for the first two approaches. Times are given in local time.*

Detailed view of the three approaches, at the beginning and the end of the flight

<sup>(5)</sup> Sideslip in landing configuration (flaps extended) has the effect of disturbing the aerodynamic flow feeding the elevator and reducing its effectiveness. At low airspeed and close to the ground, sideslip presents a risk of loss of control.

The GNSS data of the flight was extracted and shows, among other things, that:

- ❑ The base leg of the last approach (in red, [see illustration](#)) was at a distance of about 500 m from the microlight traffic pattern.
- ❑ The ground speed was between 85 and 90 km/h on final during the runway circuit performed at the beginning of the flight and during the touch-and-go on the return flight (in blue and yellow), [see illustration](#)).
- ❑ The last approach was conducted with a steeper slope than the theoretical standard slope and dropped below it about 1 km from the runway threshold. The ground speed was between 80 and 85 km/h on final. The increase in slope without a significant increase in ground speed can be explained by an attempt to return to the approach slope by deliberately making asymmetric rudder inputs (sideslip<sup>(5)</sup>).

### 3 - CONCLUSIONS

*The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation. They are not intended to apportion blame or liability.*

#### Scenario

The pilot undertook a training flight following a long period without flying. Analysis of the flight path did not reveal any information to explain the loss of control. However, a witness statement suggests the presence of downdraughts on final at the time of the accident flight. The GNSS recordings show that the pilot did not choose to increase his approach speed during the various approaches conducted. The pilot lost control on final and struck trees before striking the ground along a near-vertical path.

#### Contributing factors

The following factors may have contributed to the loss of control:

- ❑ inappropriate management of the approach speed given the configuration of the microlight, the aerology described and a possible asymmetric flight induced by sideslip with a high angle-of-attack;
- ❑ the absence of a stall warning device on the microlight;
- ❑ the possibility of the occurrence of an incapacitating heart rhythm disorder supported by the medical data collected and the results of the passenger's autopsy.

#### Safety lessons

Deliberate sideslip or asymmetric flight is sometimes shown or taught as a technique for returning to a steep approach slope in order to land. Under these low speed / high angle-of-attack conditions, it is potentially hazardous.

The sideslip technique and its consequences have been described in a BEA report<sup>(6)</sup>.

<sup>(6)</sup> <https://bea.aero/en/investigation-reports/notified-events/detail/accident-to-the-uhl-bf-lightweight-aircraft-fk9-mark-3-identified-59cbf-on-22-10-2019-at-chavenay-villepreux-ad/>