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INVESTIGATION REPORT

Accident to the Aeroandina MSL Aero type H80 identified 30-TB

on 25 December 2015
at Sainte-Foy-la-Grande (Dordogne)

Time	Around 13:30[1]
Operator	Private
Type of flight	Cross country
Persons on board	Pilot
Consequences and damage	Pilot fatally injured, aircraft destroyed

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

[1] Except where otherwise indicated, the times in this report are in local time.

Loss of control in runway circuit at low height, collision with ground, fire

1 - HISTORY OF THE FLIGHT

Note: the following information is based mainly on statements.

The pilot carried out a flight between Saint-Chamond - L'Horme aerodrome (Loire) and Saint-Foy-La-Grande aerodrome where a member of his family was waiting for him.

He aligned the microlight directly on long final for runway 28[2] then aborted the approach and joined the right-hand downwind leg to the same runway. He also aborted the second approach before rejoining the right-hand downwind leg. Witnesses then saw the microlight make an increasingly tight right turn, at low height. When the microlight started the base leg, witnesses saw it bank excessively before suddenly entering a spin to the right and colliding with the ground. The microlight immediately caught fire.

[2] Runway 28, unpaved, 1,200 m x 60 m, Landing distance available (LDA) 1,080 m.

2 - ADDITIONAL INFORMATION

2.1 Site and wreckage information

The wreckage was located approximately 100 m east of the threshold of runway 28 in a grass field, outside of the aerodrome boundary.

The wreckage was stored near a hangar, under a tarpaulin, pending its examination which took place four days later.

The microlight was completely destroyed by the fire. It was not possible to check the continuity of the flight control linkages or the position of the flaps. The carbon propeller blades were partially burned. Observations of the propeller hub and of the blades indicated that the engine was delivering power when the microlight collided with the ground.

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The microlight's emergency parachute flare went off after collision with the ground. The parachute's deployment flyweight was found around twenty metres from the wreckage. The undeployed parachute canopy was destroyed.

The GPS used by the pilot for navigation was not found.

2.2 Pilot information

The 54-year-old pilot held a microlight pilot licence issued on 23 November 2015. He had logged approximately 60 flight hours, all in this microlight. As of 21 December 2015, he had passenger carrying privileges.

Having disabled his right arm during an accident, he undertook pilot training adapted to his microlight, which was modified to accommodate his disability.

2.3 Statements

2.3.1 Pilot's instructor

The instructor reported that the pilot's training had lasted around two years as she had had to adapt the training to the pilot's disability. Due to the pilot having to use only his left hand to do what other pilots would normally do with both hands, this increased his reaction time.

She added that the pilot had a very strong desire to become an aircraft pilot, despite his disability. He quickly decided upon microlight pilot training as this type of aircraft is easier to modify from a regulatory point of view. He had purchased his own microlight and started his pilot training in this microlight. The instructor considered this microlight to be well adapted to the morphology of the pilot even if the stick remained somewhat stiff.

The pilot had told her that he wanted to fly with members of his family who lived in the Libourne region. Aware that he had never flown as far before, the instructor had offered to accompany him once he had planned his flight. He organised the flight to Saint-Foy-La-Grande as he would be able to keep his microlight safely at this aerodrome for a few days, an option that was not possible at the Libourne facilities. The instructor did not think that he would make his plans so quickly and without discussing them with her beforehand.

2.3.2 Model aircraft flyers

Model aircraft flyers explained that they had seen the microlight arriving from the east and that it was directly on final for runway 28 without having first flown overhead the aerodrome, despite a steady easterly wind. After aborting the first approach, they were surprised to see the pilot joining the right-hand downwind leg for a second approach on the same magnetic heading. They saw the microlight enter a spin at the base leg of the third approach.

2.4 Microlight information

The MLS Aero Type H80 is equipped with a central stick that enables control from either side of the cockpit. The flaps operate electrically and are oriented according to three preselected positions: position "*2*" is advised for landing.

It has the following main characteristics:

- stall speed without flaps: 64 km/h;
- stall speed with flaps extended in landing position: 58 km/h.

The MLS is not equipped with a stall warning system.

The main modification made to the 30-TB by the pilot concerned the regrouping on the central stick of certain controls originally installed on the instrument panel. This regrouping essentially concerned the throttle control modified as a throttle grip as on the collective pitch controls of the R22 or Guimbal helicopters and the electric flap control, enabling the pilot to fly the aircraft from the right seat using only the left arm.

An article printed in the ULMaG magazine[3] in October 2010 following the testing of the MLS Aero Type H 80, mentioned in particular the stiffness of the controls and specifically that of a stick that required "some force". It also highlighted that, as on most microlights with a reduced wingspan, the management of low speeds was complicated by an ambiguous feeling of stalling and the not very striking natural signs of the onset of stall.

[3] http://www.ulmag.fr/index.php?lire=mag2/mag_aff.php&rub=essais&file=type_H_101010

2.5 Regulations

The microlight regulations do not consider a modification of the flight controls to be a major modification[4]. Hence, a modification of this kind does not need to be declared to the French civil aviation safety directorate (DSAC). The DSAC specifies that these modifications are generally discussed at microlight clubs or with local maintenance workshop technicians.

The "*Commission vol adapté*" (Modified Flight Committee) of the FFPLUM (French Microlight Federation) did not have knowledge of any major modification made to this microlight either. The Committee specified that owners are not required to contact them to make a modification to a flight control such as that made to the 30-TB. It added that modifying the flight controls to accommodate a specific disability is not an isolated case and that other adaptations, such as regrouping certain controls or manual rudder controls, exist.

[4] Article 10 of the decree of 23 September 1998 pertaining to motorised microlights states that any modification to one of the elements described on the identification sheet is considered to be a major modification.

2.6 Meteorological information

The meteorological conditions estimated by Météo-France at Port-Sainte-Foy-et-Ponchapt (Dordogne) located 2 km east of Sainte-Foy-la-Grande aerodrome, were as follows:

- 130 to 150° wind at 8 to 10 knots with gusts up to18 knots;
- CAVOK;
- temperature 16°C, dew point temperature 10°C.

2.7 Cross country information

No witness at Saint-Chamond - L'Horme saw the microlight take off. The investigation was unable to establish the take-off time. However, given the performance of the microlight, it is possible to estimate the duration of the flight to be around two hours and thirty minutes.

2.8 Video footage

A video taken of the last three seconds of the flight by one of the witnesses on the ground on their mobile phone was analysed. The footage showed:

- a flight height of around 200 ft at the start of the sequence;
- a bank angle that varied from 45° at the start of the sequence to more than 65° at the start of the spin;
- a permanent slightly nose-up attitude;
- a low ground speed.

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

After a flight of an estimated duration of approximately two hours and thirty minutes, on arriving at Sainte-Foy-La-Grande, the pilot directly joined the final approach for runway 28 without carrying out a reconnaissance of the aerodrome. In particular, this path meant that he was not able to check the windsock. Pushed by a strong easterly tailwind, he was unable to stabilise the approach and had to go around twice. During the third attempted approach, he made a tight turn at low height to rejoin the runway centreline and lost control of the microlight, probably due to insufficient monitoring of the flight parameters including the speed.

Contributing factors

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

- The unusual perception of exterior elements in approach, due to the tailwind and the faster perceived ground speed.
- Fatigue after a long flight may have altered the pilot's physical and mental faculties.
- Get-home-itis led to a stubbornness to want to land at all cost despite two aborted approaches that certainly increased the stress level of this relatively inexperienced pilot.
- The lack of a stall warning system and the not very striking natural signs of the onset of stall.