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SAFETY INVESTIGATION REPORT

Accident to the TECNAM - P2008 - JC registered F-HBRD on 20 May 2021 at Messimy (Rhône)

Time	16:14[1]
Operator	Aéroclub de l'Ouest Lyonnais
Type of flight	Undetermined (local or cross-country)
Persons on board	Pilot
Consequences and damage	Pilot fatally injured, aeroplane destroyed
This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in September 2022. As accurate as the translation may be, the original text in French is the work of reference.	

Loss of control in initial climb, collision with ground

1 HISTORY OF THE FLIGHT

Note: the following information is based on statements.

The pilot took off at 16:12 from runway 19[2] at Lyon-Brindas aerodrome. Witnesses on the ground, close to the accident site, saw the aeroplane, in a spin, collide with trees.

The activation of the emergency locator transmitter was recorded at 16:14.

2 ADDITIONAL INFORMATION

2.1 Meteorological information

The meteorological conditions estimated by the French met office, Météo-France, at the time of the accident were the following:

- CAVOK;
- wind calm;
- temperature between 17 and 18 °C.

2.2 Witnesses on ground

People present at the aerodrome reported that the pilot had talked with them shortly before taking off and had told them that he did not yet know whether he was going to carry out aerodrome circuits or fly to Vienne aerodrome about 40 km away.

[1] Except where otherwise indicated, times in this report are local.
[2] Lyon-Brindas aerodrome has one runway 01/19 measuring 438 x 55 m.

Two people on the ground, close to the accident site, saw the aeroplane at an estimated height of 40 m. They specified that the aeroplane, in a nose-down attitude, made two left-hand spins before striking trees. These two people added that they heard the sound of the engine.

2.3 Accident flight path

The civil secondary surveillance radars and the military primary surveillance radars did not pick up the aeroplane. The hangar of the Lyon-Brindas flying club is equipped with an antenna for multilateration (MLAT)[3] purposes, but this system did not record any flight path. This is either because the aeroplane had not reached a sufficient height to be detected or because the pilot had not activated the transponder.

The playback of video recordings from a surveillance camera situated in a small business park halfway between threshold 01 and the accident site, briefly shows F-HBRD in its initial climb between 16:12 and 16:13 (i.e. one minute before the collision). The aeroplane's flight path, before leaving the camera's field of vision, provides no element which could explain the accident.

2.4 Pilot information

The 82-year-old pilot held an aeroplane private pilot licence (PPL(A)) obtained in 2008 by converting his private pilot licence A81 which he had obtained in 1984. He held a class 2 medical certificate with the requirement to wear corrective lenses.

At the time of the accident, he had logged around 550 flight hours including 450 hours as pilot-in-command. The record of his flight hours showed that he had performed six flights (flight time of 3 h 30 min) between January 2021 and the day of the accident, including three flights on F-HBRD.

He was a member of the flying club based at Lyon-Brindas. According to the statements made by other members of the flying club, he had good knowledge of the aerodrome's environment and F-HBRD.

The autopsy did not bring to light any element that could have contributed to the accident.

2.5 Aircraft information

The Tecnam P2008 registered F-HBRD was built in 2014. It had logged 1,490 flight hours and held a valid Certificate of Airworthiness. The aircraft belonged to Lyon-Brindas flying club and was maintained by the flying club's mechanic.

2.6 Examination of site and wreckage

The wreckage, oriented 168°, was lying between the edge of a field and the fringe of a group of trees at around 940 m from the south end of the runway at Lyon-Brindas aerodrome. The wreckage was complete and grouped together. Observations of the site and of the wreckage found that the leading edge of the aircraft's left horizontal stabilizer (in the area of the root) had struck a tree. This collision resulted in the two parts of the horizontal stabilizer being torn off. It was not possible to determine the attitude of the aircraft before the impact with the tree.

[3] This system is composed of a network of antennas which enables the position of an aeroplane equipped with a transponder to be calculated by triangulation.

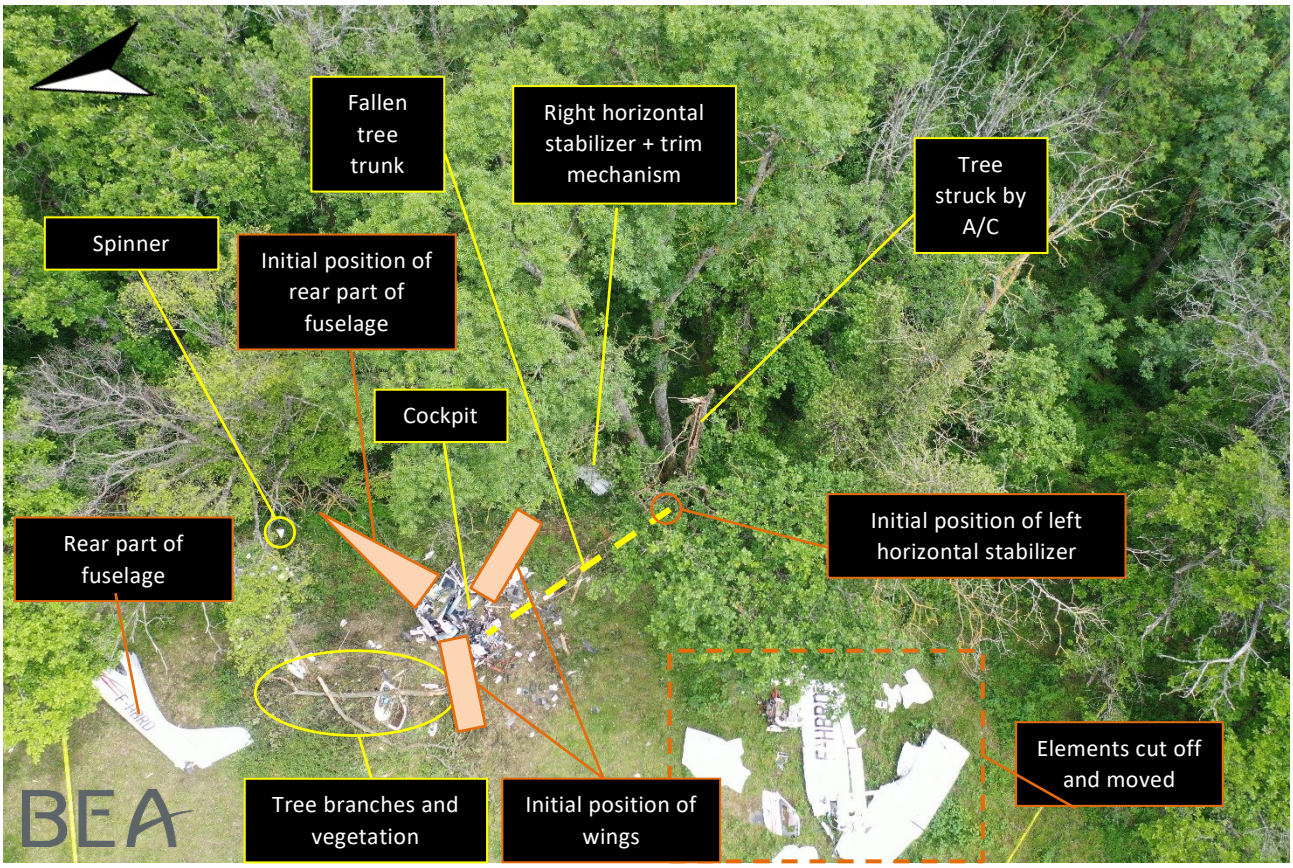

Figure 1: aerial view of site

(source: BEA drone, after elements had been moved by rescue workers)

In orange, the elements moved and their original position; In yellow, the elements not moved.

The engine was rotating on impact with the vegetation. It was not possible to determine how much power the engine was transmitting to the propeller at the time of the impact. The fuel tank selector was set to the left tank. The two fuel tanks were ripped open and found empty but there was a smell of fuel on the site after the accident. All the breaks in the fuel system were the result of the impact or the intervention by the emergency services. The flight control linkages on the three axes and the pitch trim control were continuous at the time of the impact.

The examination of the site and of the wreckage did not reveal any technical failure prior to the accident.

2.7 Examination of engine

F-HBRD was equipped with a ROTAX 912 S2 four-stroke engine cooled by a mixed air-water cooling system.

No mechanical damage was identified on the engine block. It turned freely with no friction points.

The examinations of the carburettors found the presence of rubbing marks between the pistons and carburettor bodies. The examination of the ignition system revealed that one of the four ignition coils was malfunctioning. It was not possible to know if this malfunction preceded the accident.

The BEA was not able to determine whether these findings might have caused an engine failure.

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.

Shortly after take-off, the pilot lost control of his aeroplane which collided with the ground.

The investigation was not able to determine the cause of this loss of control.

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