



Accident to the replica Fokker DR1 identified 59DPK

on 28 December 2019

at Valenciennes-Denain (Nord)

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

| | |
|---|---|
| Time | Around 15:40 ⁽¹⁾ |
| Operator | Private |
| Type of flight | Local |
| Persons on board | Pilot |
| Consequences and damage | Pilot fatally injured, microlight destroyed |
| This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in April 2021. As accurate as the translation may be, the original text in French is the work of reference. | |

Pilot incapacitation, asymmetrical stall in initial climb, collision with the ground

1 - HISTORY OF THE FLIGHT

Note: the following information is principally based on recordings from a camera attached to the left wing of the microlight and the camera of a witness on the ground.

⁽²⁾ 620 x 50 m
grass runway.

The pilot took off from unpaved runway 11⁽²⁾ at Valenciennes-Denain aerodrome. Whilst flying over the end of the runway in climb, the microlight turned left. During the turn, it stalled on the left side, adopted a nose-down attitude that was practically vertical then collided with the ground.

2 - ADDITIONAL INFORMATION

2.1 Aircraft information

The microlight was a 7/8-scale replica of the historic Fokker DR1 triplane. According to the statements taken during the investigation, the pilot built this replica himself based solely on photographs. No document relating to the build was found. Moreover, the pilot had already built several other different types of aircraft.



Source: Wikipedia

Replica of Fokker DR1

He obtained a provisional identification card for this microlight in 2015, and the definitive version in 2017. Different witnesses, including the pilot's wife, said that the accident flight was his maiden flight in this microlight. It would therefore seem that he did not conduct in-flight tests prior to the identification of the aircraft.

2.2 Examination of the wreckage

The examination of the wreckage was limited due to the absence of any technical reference and build document.

Observations made of the wreckage seem to indicate that the microlight collided with the ground in a steep nose-down attitude. The photographs and videos of the accident corroborated this.

The flight controls were in place, intact and mobile. The observations suggest that the aileron control was continuous and functional up to collision with the ground. The metal cables of the rudder and the elevator controls were cut during the emergency operations. Without the build document, it was not possible to determine if any fragments of cable were missing.

The engine, despite being substantially damaged, was not blocked in rotation and its examination revealed no anomaly. The analysis of the soundtrack of one of the videos revealed, in addition, an increase in engine rating after the impact with the ground.

2.3 Pilot information

2.3.1 Experience

The 69-year-old pilot held a microlight pilot licence issued in 1998 along with a fixed wing rating. He also held a private pilot licence and a basic pilot certificate that had both expired. The flight logs that were found indicated that he had logged at least 700 flight hours in different microlights.

He did not have a class 2 medical fitness certificate, this is not a regulatory requirement for flying microlights.

2.3.2 Statements

A friend of the pilot stated that he usually made standard runway circuits and that he did not usually turn as early during initial climb.

The pilot's wife explained that he had carried out taxiing tests in November and that he had delayed his first flight in this microlight several times due to meteorological conditions. She specified that her husband was a smoker and that he had previously suffered a myocardial infarction resulting in an angioplasty with the placement of two stents. The pilot was being medically monitored and had had no other problems since.

2.3.3 Medical and pathological information

The autopsy showed that the pilot's health had deteriorated due to an advanced coronary artery disease⁽³⁾. As mentioned above, this disease had already caused a myocardial infarction and resulted in the placement of stents. In a context of persistent risk factors such as high cholesterol and smoking, he was suffering from another, small, evolving infarction at the time of the flight. This coronary disease can cause varying degrees of incapacitating disorders.

Note: There is no requirement for an aeronautical medical check-up for microlight pilots. For information, applicants for a class 2 medical certificate (required to benefit from the privileges of some aeronautical licences) who are asymptomatic following myocardial infarction shall undergo satisfactory cardiological evaluation, in consultation with the medical assessor of the licensing authority, which is the DSAC in France (Part MED.B.010⁽⁴⁾).

2.3.4 Read-out of the onboard video and audio communications

The pilot had attached a camera to the left wing of the microlight, pointing towards himself. The video on the day of the accident, which is 13 minutes long, started a little before the pilot boarded the microlight and stopped just before the collision with the ground. It shows the microlight from the propeller to the elevator. This camera recording shows that, when the microlight stalled, the pilot's chest tilted backwards. The pilot's mouth remained open and his chest remained tilted backwards until the collision with the ground, whilst the rudder and the elevator gradually returned to the eye of the wind.

On the Valenciennes-Denain aerodrome radiocommunication recordings, the pilot could be heard gasping when he talked. In addition, the video showed that the pilot kept his mouth partially open most of the time.

These observations indicate a sudden incapacitation of the pilot, in one to two seconds, concurrent with the stalling of the aeroplane to the left.

⁽³⁾ Pathology affecting the coronary arteries and resulting in insufficient blood flow to the cardiac muscle.

⁽⁴⁾ Annex 4 to [regulation \(EU\) No 1178/2011 "Air Crew"](#).

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 made his maiden flight on board the microlight that he had built. During the turn before the end of the initial climb, the microlight stalled asymmetrically to the left then collided with the ground.

In the absence of documentation for the microlight, the hypothesis of a technical failure or a flight instability of the microlight that had not previously been tested, could not be ruled out by the examination of the wreckage. However, the investigation showed that the pilot's health had deteriorated due to coronary disease and that he was suffering from a new evolving cardiac event at the time of the flight. It is likely that this infarction resulted in an incapacitation that meant that he could not maintain control of the microlight.

Safety lessons

In the absence of requirements for an aeronautical medical check-up, required for pilots of other categories of aircraft, microlight pilots may not have anyone who is likely to help them to monitor changes to their medical fitness to fly. In practice, all pilots, including microlight pilots, can request the advice of a doctor, preferably an aeronautical doctor.