



Accident to the LANCAIR 360
registered **PH-KER**
on Wednesday 5 July 2023
close to Mulhouse-Habsheim aerodrome

Time	Around 14:10 ¹
Operator	Private
Type of flight	Cross country
Persons on board	Pilot and passenger
Consequences and damage	Pilot and passenger fatally injured, aeroplane destroyed
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 aerodrome circuit, collision with
vegetation and then ground**

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements, radar data and the data from the aeroplane's Garmin GPSMAP296 computer.

The pilot, accompanied by a member of his family, took off from Karlsruhe airport (Germany) at 12:37 bound for Mulhouse-Habsheim aerodrome under a VFR flight plan². The estimated landing time was 14:15.

At 14:08, the pilot flew overhead runway 02/20³ at a height of 225 ft and a ground speed of 100 kt (see **Figure 1**, point ①) and then turned left in climb. The last point recorded by the on-board GNSS computer (point ②) at 14:09 indicated that the aeroplane was at a height of 520 ft with a ground speed of between 110 and 115 kt.

A witness on the ground saw the aeroplane turn left and perform what seemed to him to be a half-roll before pitching towards the ground. He then lost sight of it behind tree tops. The aeroplane collided with the ground without the witness being aware of it. Thinking that the aeroplane was carrying out acrobatic manoeuvres, he stopped watching it and returned to the hangar where he was working.

At 14:35, as the flight plan had not been closed, BTIV/east informed ARCC-Lyon that PH-KER was late arriving at the destination aerodrome. The ELT had not been activated.

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

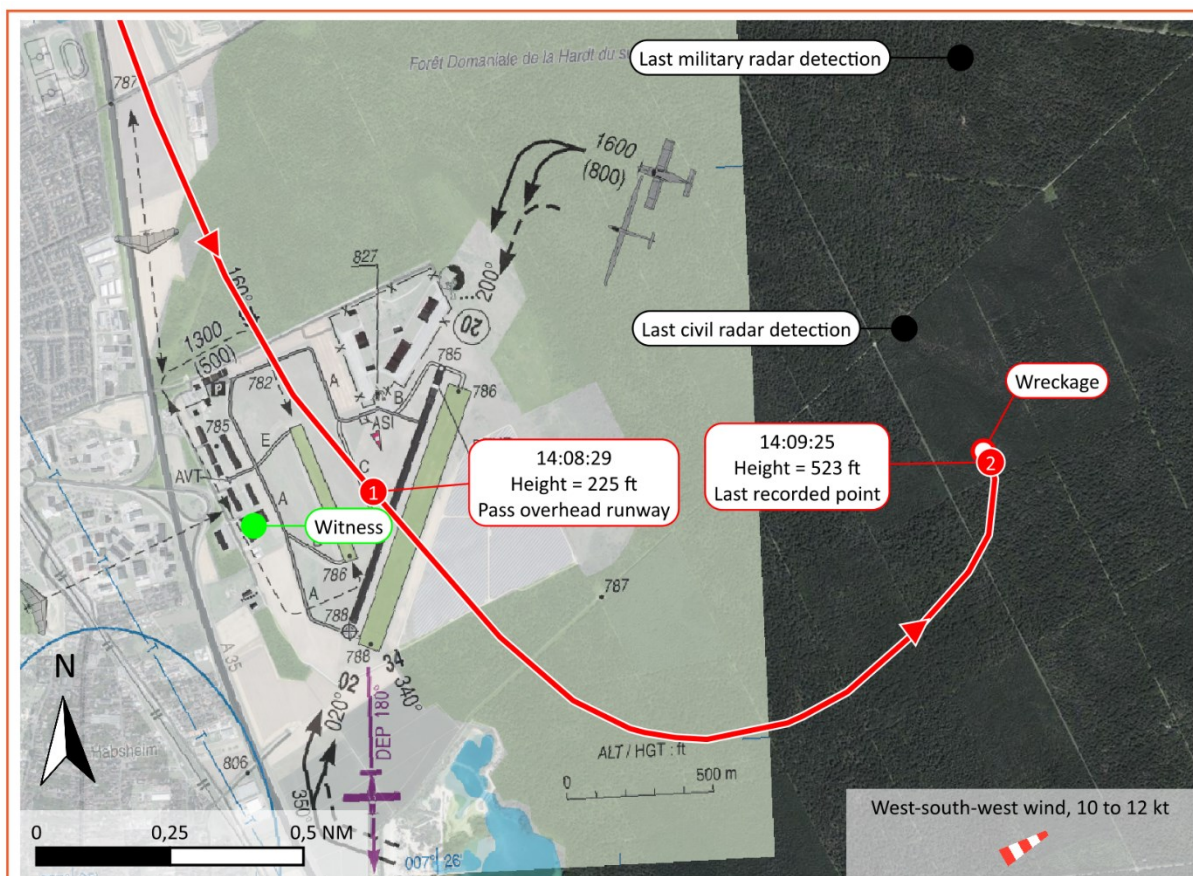
² The glossary of abbreviations and acronyms frequently used by the BEA can be found on its [web site](#).

³ Mulhouse-Habsheim aerodrome has one paved runway 02/20 measuring 1,000 m x 20 m. This aerodrome operates using the A/A frequency. The exchanges are not recorded. The reference altitude is 787 ft.

For around one hour, ARCC-Lyon tried to obtain information. It tried to contact the pilot by telephone (calls and messages), and contacted the French and German air traffic services. The various sources (ADS-B and radar) indicated that the radar signal had disappeared to the east of Mulhouse-Habsheim aerodrome. ARCC-Lyon contacted people present at the aerodrome (flying clubs, refuelling manager) who all indicated that the aeroplane was neither on the apron nor in a hangar.

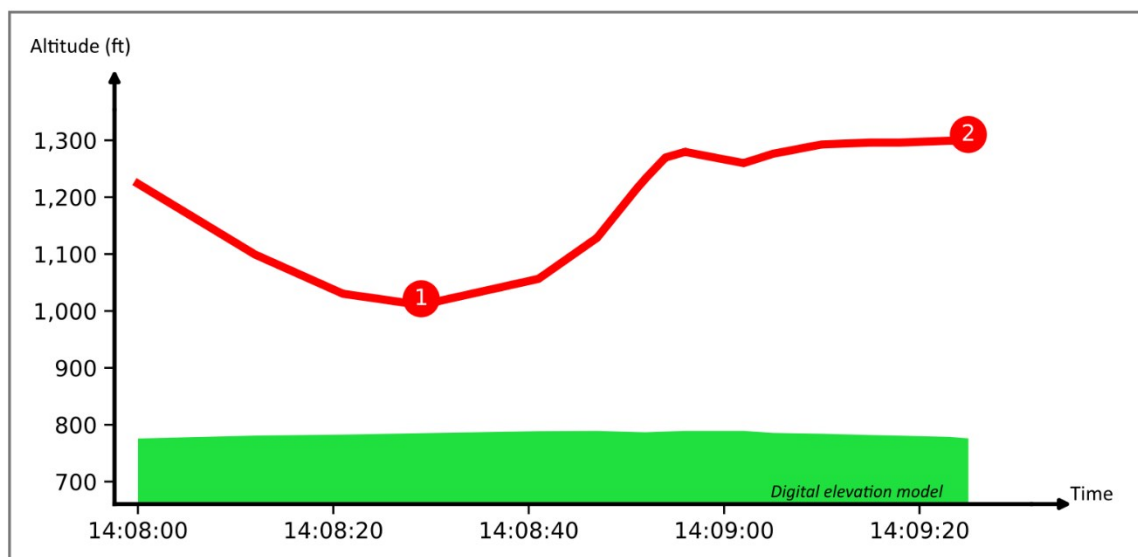
At 15:34, ARCC-Lyon asked for a SAR operation to be activated. BTIV/east declared a DETRESFA phase and the Haut-Rhin prefecture activated a SATER C phase which defines the search zones (circles with a 5 km radius centred on the last military and civil radar detection points). Three helicopters were engaged in the search operations overhead the presumed accident zones. These zones were consistent with the position of the wreckage , but the thick forest meant that it was not easy to find it.

At 19:35, ARCC-Lyon organised a call between the pilot of one of the helicopters and the eyewitness to the aeroplane's fall who had just been identified. This coordination meant that the helicopter pilot could reduce his search zone and the wreckage was found at 20:40.



Map source: IGN

Estimated wind at time of accident (Météo-France)



— Flight path of PH-KER based on Garmin GPSMAP296

Times are given in local time

Figure 1: flight path of PH-KER

2 ADDITIONAL INFORMATION

2.1 Meteorological information

The analysis of the meteorological conditions carried out by Météo-France indicated that in the area and at the time of the accident, the sky was clear with a few small cumulus.

Visibility was greater than 10 km with a mean west-south-west wind of 10 to 12 kt.

2.2 Lancair 360 information

The Lancair 360 is an amateur-build, two-seat, composite aeroplane sold in kit form. It is a low-wing monoplane with a retractable three-wheel landing gear. It is equipped with a 180 hp Lycoming O-360 piston engine.



Figure 2: Lancair 360 registered PH-KER (source: photo by Bart Hoekstra, airhistory.net)

The flaps are controlled by an electric motor associated with an actuator. This actuator moves two rods each one connected to a 90° bellcrank. These two bellcranks control the rods connected to the flaps. The flap control is a lever that the pilot holds in the down position or up position in order to extend or retract the flaps.

The Lancair 360 does not comply with EASA's airworthiness requirements. It is excluded from the scope of application of European regulation (EU) 2018/1139⁴. As a consequence, PH-KER had a special certificate of airworthiness issued by the Netherlands civil aviation authority (CAA NL).

2.2.1 Site and wreckage information

The wreckage was located in a very dense forest around 2 km east of the aerodrome, close to the downwind leg of the runway circuit, and oriented north-north-east.

⁴ [Version in force on the day of the accident.](#)



Figure 3: aerial views of wreckage (source: SRTA)

The small amount of damage to the trees around the wreckage indicates that the aeroplane collided with the vegetation on a largely vertical flight path. The examination of the wreckage found that the ruptures observed were the result of the impact with the vegetation and the ground. The aeroplane was whole and the flight controls continuous when it entered the canopy. The actuator of the flap electric motor was found in a configuration close to maximum extension. The control linkage from the actuator to the flap on the right-hand side was continuous, the control linkage on the left-hand side was found ruptured under overload (due to impact). These observations on the flap control linkage indicate that the flaps were extended in a configuration close to the landing configuration. The landing gear was extended.

The examination of the site, the wreckage and the engine-propeller assembly did not find evidence of any malfunction which could explain the accident.

2.2.2 Approach procedures (Lancair 360 flight manual)

The PH-KER flight manual indicates that:

- the landing gear can be extended when the speed is below 120 kt;
- the flaps in the landing configuration must be used at a speed below 106 kt.

The calculated speeds based on the flight path recorded in the aircraft computer seem to indicate that the pilot probably extended the landing gear and flaps at the manufacturer's recommended speeds.

2.3 Pilot information

The 74-year-old Swiss pilot held a Private Pilot Licence (PPL (A)) issued in Switzerland in 1979.

The pilot's logbook indicated that he had logged more than 2,600 flight hours.

The pilot's home base was Mulhouse-Habsheim aerodrome.

2.3.1 Medical information

The medical examinations carried out in 2018 detected that the pilot had heart rhythm disorders. This pathology requires oral medication (anticoagulants), and meant that he was not able to keep his class 2 medical fitness certificate issued until then by the Swiss authorities. The pilot was declared unfit on 20 July 2018 by his aviation medical examiner in coordination with the Swiss civil aviation medical service, as he had failed to provide the requested results of cardiological

examinations. The pilot then unsuccessfully attempted to obtain his certificate in Germany on 31 July 2018, without specifying that he had not obtained it in Switzerland.

On 28 November 2018, the pilot underwent a surgical procedure which meant that he no longer had to take the anti-coagulant treatment.

In February 2019, the pilot attempted to obtain his medical fitness certificate in France. The aviation medical examiner contacted the French civil aviation medical service, which coordinated with the Swiss medical service. His certificate was again refused.

Each year from 2020 until 2023, the pilot provided a French aviation medical examiner with the results of his medical examinations. The latter, in coordination with the Swiss and French medical services, issued the pilot with a class 2 medical fitness certificate. This certificate included the following limitations:

- VML: requirement to wear suitable optical correction;
- 12 month TML: limitation of the medical certificate's validity to 12 months;
- SIC: compulsory contact with the authority (medical assessor) - request for specific medical examination(s) if required. The pilot was required to undergo annual cardiological examinations.

2.3.2 Anatomopathological information

The autopsy and anatomopathological reports mention that it is possible that the pilot was exposed to a new cardiac accident during the flight.

3 CONCLUSIONS

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

Based on the examination of the wreckage, it was possible to establish that the pilot lost control of the aeroplane when it was configured for landing. No technical failure was identified to explain the loss of control. The statement from the eyewitness on the ground and the examination of the accident site indicate that this loss of control was sudden and that the aeroplane struck the vegetation on a nearly vertical flight path. The meteorological conditions were favourable for the flight.

The investigation was not able to explain the loss of control. However, medical data showed that the pilot was not in perfect health due to a cardiac pathology, and that he could have been exposed to a new cardiac accident during the accident flight.

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