BEA
Bureau d'Enquêtes et d'Analyses
pour la sécurité de l'aviation civile
www.bea.aero
@BEA_Aero

Accident to the MAGNI M16 identified **29SR** on Monday 2 October 2023 on Morlaix - Ploujean aerodrome

Time	Around 17:30[1]
Operator	Private
Type of flight	Local
Persons on board	Pilot
Consequences and damage	Pilot fatally injured, microlight damaged
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.	

Gyroplane upset during landing run

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements, the GNSS[2] computer and radio communication recordings.

The pilot took off from Morlaix - Ploujean aerodrome for a local flight in the sector of the Granit Rose coast. After a flight time of around 45 min, he returned to the aerodrome then operating with the A/A frequency and reported that he was on final for runway 15. A few minutes later, two flying club users on the apron observed that the gyroplane was lying on its side on the runway. They went over to the gyroplane and found the pilot unconscious.

[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.

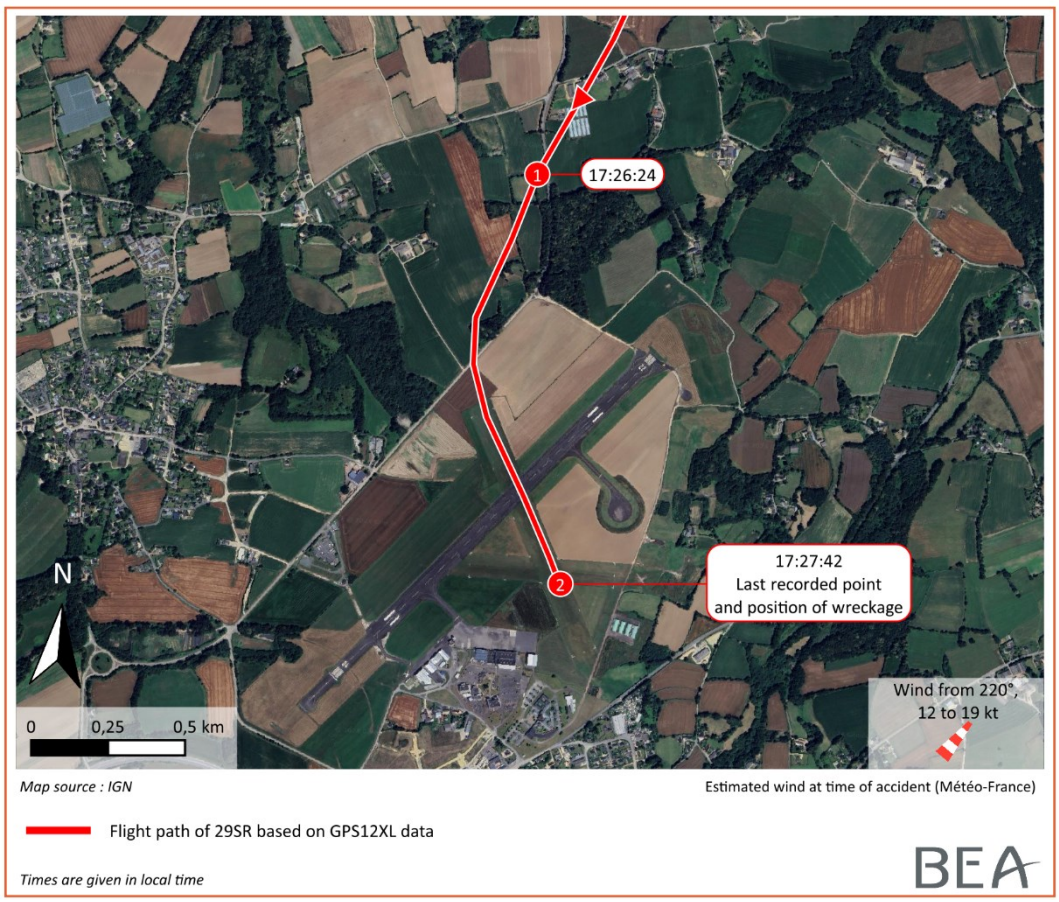

Figure 1: inbound flight path of gyroplane

2 ADDITIONAL INFORMATION

2.1 Morlaix - Ploujean aerodrome information

The aerodrome has:

- paved runway 04-22 measuring 1,617 m x 36 m;
- unpaved runway 09-27 measuring 472 m x 80 m;
- unpaved runway 15-33 measuring 845 m x 40 m.

The aerodrome is reserved for aircraft equipped with a radio and has an AFIS service from 09:00 to 12:00 and from 14:00 to 17:00. Outside of these times, the A/A frequency is used.

2.2 Site and wreckage information

The gyroplane was lying on its left side at the intersection of the grass runways. It had little damage.

The wreckage was grouped and oriented 220°. The rotor was separate from the airframe. The examination of the site and wreckage determined that the microlight, after landing on the runway, had tipped over onto its LH side. No technical element which might have contributed to the loss of control was found[3].

[3] The BEA did not carry out a detailed examination of the wreckage, however, the elements collected made it possible to rule out a problem concerning the connection between the fork tube and the square pivot (see accident to the Magni M16 identified 21AGP on 2 March 2022 at Vaux-Saules).

2.3 Pilot information

2.3.1 Experience

The 74-year-old pilot held a microlight pilot licence with the following ratings:

- class 1 (paramotor) obtained in 1997;
- class 2 (flex-wing) obtained in 2001;
- class 4 (gyroplane) obtained in 2010 with passenger carrying privileges obtained the same year.

The pilot had been the owner of 29SR since 2017. According to the statements collected, he had stopped flying following an operation to his ankle in October 2022. He resumed flying at the end of May 2023, initially alone, then accompanied, notably by his granddaughter, four flights before the accident flight.

A member of the FFPLUM since 1999, he had provided a medical certificate at the end of 2017, indicating that there were no contra-indications to him flying microlights . He renewed his “leisure” license every year without a new medical certificate, following negative responses to the “QS-Sport” health questionnaire (cerfa 15699).

2.3.2 Medical and pathological information

The various statements gathered during the investigation indicated that the pilot, who held a disability card, was tired and suffering from a leg problem. He was taking two medications prescribed for stable angina and chronic heart failure.

The autopsy also revealed a major cardiovascular pathology. The pilot had diffuse arterial lesions, particularly in his coronary arteries, which had been bypassed. He was at risk of death at any time.

However, despite completing the QS-Sport questionnaire each year and being monitored for his cardiac pathology, the aeromedical risk linked to his physiopathological condition was not anticipated.

2.4 Meteorological information

The day of the accident, the weather conditions were favourable for a VFR flight with a ceiling at 1,500 ft, visibility greater than 10 km and a temperature of 19°C. The wind was from 220° of 12 to 19 kt, i.e. a RH crosswind of around 15 kt.

2.5 Landing with a gyroplane in crosswind conditions

To land with a RH crosswind, as on the day of the accident, the pilot must fly the approach with the stick to the right (on the windward side), then align the gyroplane's axis with the runway by applying inputs on the LH pedal. If the rotor, which represents a large surface area, is tilted slightly to the LH side, the wind will rush under the rotor, and can cause the gyroplane to tip to the left.

In the book covering theoretical and practical aspects of flying a gyroplane, *L'autogire, de la théorie à la pratique*[4], it is specified that whether the rotor is turning or not, a gyroplane is laterally unstable on its tricycle landing gear when taxiing and that the residual energy remaining in the rotor can contribute to the gyroplane tipping sideways, especially when taxiing in strong crosswinds.

3 CONCLUSIONS

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

Scenario

During the landing run, the gyroplane tipped onto its LH side probably due to the crosswind. The investigation was not able to determine the exact causes of this loss of control, and in particular whether the loss of control generated cardiac distress leading to death, or if the cardiac distress occurred during the landing run.

Safety lessons

Medical aspects

A pilot who is medically monitored can consider that s/he is able to fly.

The health-sport questionnaire, filled in truthfully, can help pilots to realize the importance of an aeromedical risk assessment. However, this questionnaire only takes into account "new" problems over the last twelve months, and not the evolution of previous pathologies. If there is any doubt, it is important for the pilot to consult the GP who is responsible for her/his regular medical check-ups. In addition, FFPLUM members can benefit from the advice of a federal doctor, who will examine with them the aspects of their medical condition which could affect their flying activity.

In the Safety Lessons General Aviation section of its website, the BEA identified the "Medical aspects" theme in its 2023 microlight review. Reference is made to three safety investigations conducted by the BEA and to BSV No 56 published by the FFPLUM which includes the *MAFORME* personal health checklist. This checklist is designed so that pilots will ask themselves about the consequences of an intercurrent disease or a partial incapacitation, on flight safety. If pilots do not question whether their state of health is compatible with the planned flight, they may not be aware that they and their possible passengers are exposing themselves to a major risk.

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

[4] Vincent Hoffmann, L'autogire, de la théorie à la pratique, published by Cépaduès, 2023.