



Accident to the Issoire Aviation APM20 “Lionceau”
registered **F-GRPN**
on Wednesday 17 May 2023
at La Chapelle-la-Reine

Time	Around 18:30 ¹
Operator	Aéroclub Brocard
Type of flight	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. As accurate as the translation may be, the original text in French is the work of reference.	

Collision with ground

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements.

The pilot was carrying out a cross-country flight from Étampes-Mondésir aerodrome to Pont-sur-Yonne and then back to Étampes. She took off at 16:37 from Étampes.

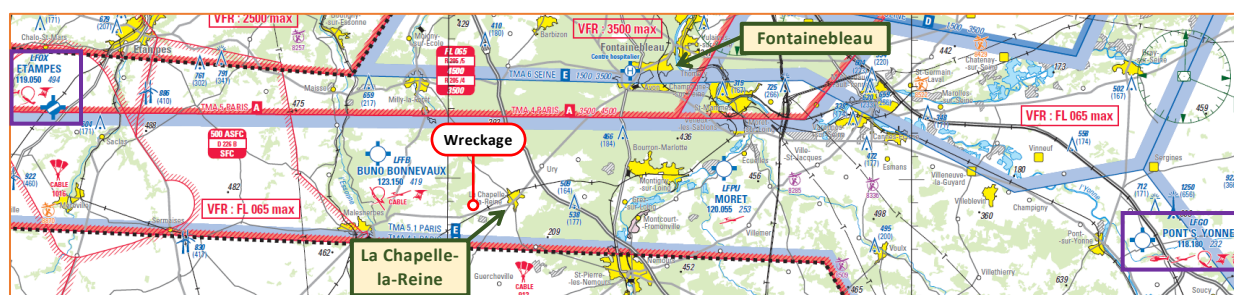


Figure 1: position of wreckage (annotated excerpt of Paris region SIA chart 1/250,000)

At around 18:30, a witness travelling by car between Fontainebleau and La Chapelle-la-Reine saw the aeroplane fly over him, from left to right, and then pitch down towards the ground in the Mainbervilliers sector². He informed the gendarmerie of what he had seen.

The aeroplane wreckage was found during the night, at around 02:40, by the search services, in a quarry west of La Chapelle-la-Reine.

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

² Mainbervilliers is a small village on the main road between La Chapelle-la-Reine and Malesherbes.

2 ADDITIONAL INFORMATION

2.1 Aeroplane search operations

The GTA (the air transport police), the BTIV (the flight information emission office) and then ARCC-Lyon (Aeronautical Rescue Coordination Centre) were informed of the witness's report of an aeroplane in a nose-down attitude, heading towards the ground.

ARCC-Lyon carried out the customary checks (requesting radar track playbacks in the area, calling surrounding airfields to check if any aircraft were missing).

On the basis of the statement, deemed credible, ground search resources were deployed by the Gendarmerie in a search zone delimited by the blue quadrilateral shown on **Figure 2**.

At 20:53, the BTIV initiated a distress phase (DETRESFA).

At around 21:15, air search resources were activated by ARCC-Lyon.

The pilot's husband, seeing that she had not returned from her flight, contacted the flying club. The flying club called the competent authorities at around 22:30 to inform them that the pilot had not returned to Étampes.

Based on the information provided by the husband, the search services asked the competent authorities to locate the pilot's telephone by radiolocation. At around 23:00, the search operations were concentrated in the area where the telephone had been located (purple circle on **Figure 2**).

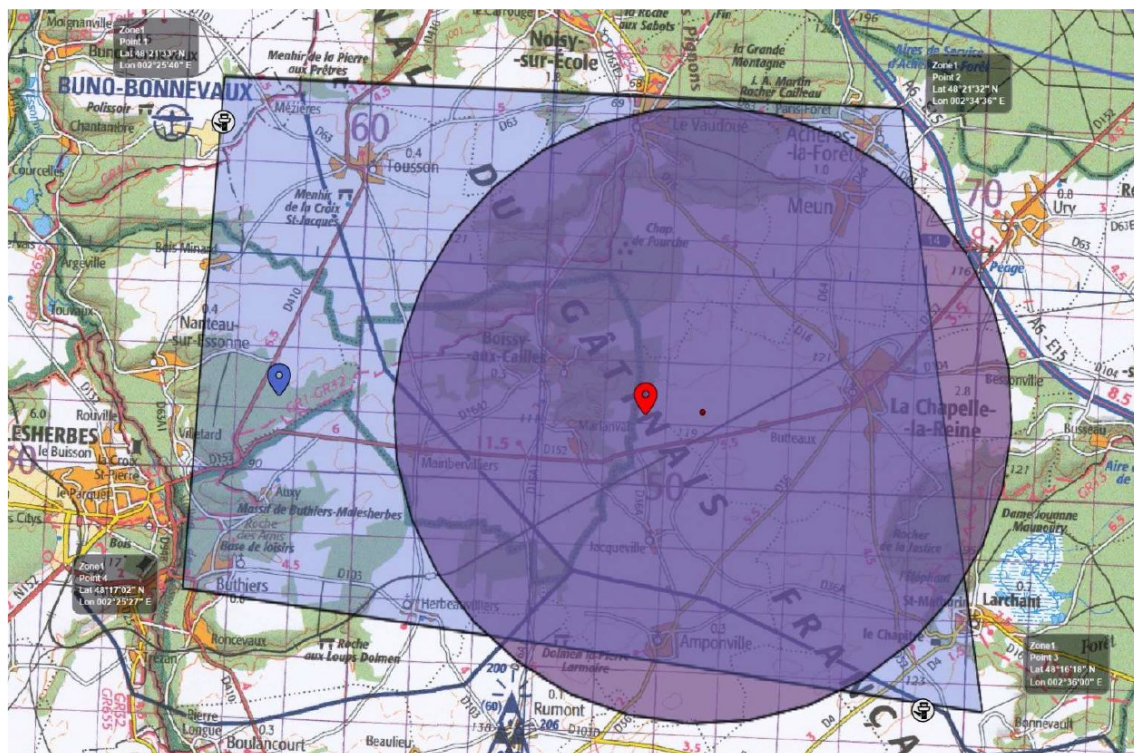


Figure 2: search areas (source: ARCC-Lyon) and location of wreckage (red marker)

The aeroplane wreckage was found at around 02:40 by ground search services.

According to the ARCC-Lyon report, the aerial search was unsuccessful because, although the weather was good, the night³ was dark which meant that the night vision goggles (NVGs) were less effective⁴. Thermal camera searches were also unsuccessful, as they were implemented well after the accident.

The radar track playbacks did not identify the accident site, as the aeroplane was not equipped with a transponder on this flight (see paragraph 2.2).

No emergency locator transmissions were detected after the accident.

2.2 Aircraft information

Normally, the aeroplane was equipped with a transponder but as this transponder was inoperative, it had been removed and sent for repair.

The examination of the aircraft logbook did not reveal any element which might be connected to the occurrence.

2.3 Wreckage information

The aeroplane was found on the slope of a sand quarry, around ten metres below the surrounding ground level.



Figure 3: wreckage of aeroplane (source: Gendarmerie)

The extent of the damage to the aeroplane and its penetration into the slope shows that it collided with the ground with high energy. The wings were level and the attitude was nose-down at the time of the impact.

³ Sunset was at 21:27.

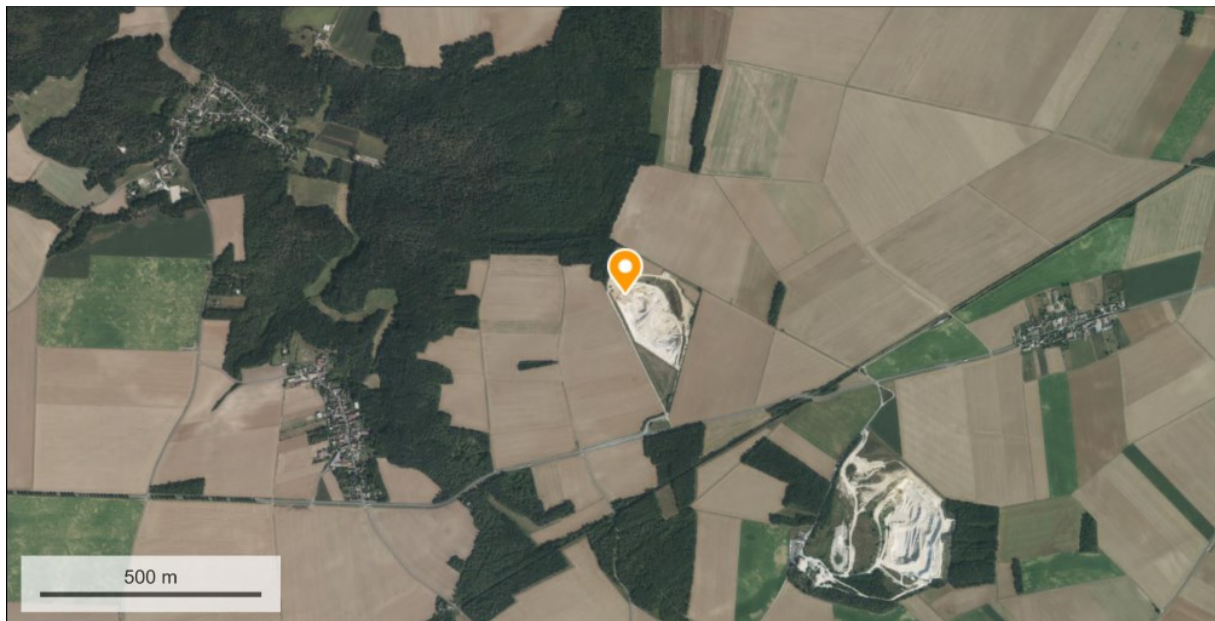
⁴ The technique used by NVGs is light amplification.

Ruptures were observed on the aileron control and elevator control linkages. All these ruptures were the result of the collision with the ground. The yaw control channel was continuous.

The powerplant was substantially damaged. Due to this damage and that observations on the site did not find any particular failure, the BEA did not carry out additional examinations on the powerplant.

The emergency locator transmitter was found activated but the connector between the distress signal transmission antenna and the transmitter was torn off.

The quarry where the aeroplane wreckage was found was situated in an area where there were numerous fields available for a forced landing (see **Figure 4**).



*Figure 4: aerial view of quarry where wreckage was found
(Source: Géoportail, aerial view in 2021)*

2.4 Examination of radar tracks and communications

Except for the communications on the A/A frequency on departing from Étampes, the examination of the radio-communication recordings of the Flight Information Service (FIS) in the navigation zone found that the pilot did not make radio contact with these services.

As the aeroplane was not equipped with a transponder, the BEA examined the tracks detected by the civil and military primary radars in the area between Étampes and Pont-sur-Yonne: portions of a path were detected by the primary radars in the area studied but it was not possible to correlate these flight path portions with F-GRPN.

No radar track could therefore be associated with the flight of F-GRPN. This lack of correlation is probably due to the aeroplane's insufficient flight altitude to permit continuous radar detection.

2.5 Pilot information

The 53-year-old pilot held a PPL(A) licence with a valid SEP rating, obtained in 2017. She also held a microlight pilot licence with a fixed-wing rating.

She had logged nearly 280 flight hours, including 192 hours as pilot-in-command. According to the information recorded in her pilot logbook, she had flown for a total of 1 h 49 min in the previous 30 days and 6 h 52 min in the previous three months.

She carried out the sport of precision flying and rally flying, and took part in inter-regional competitions in these disciplines in the Honour category.

The examination of her recent medical history and of medical documents found among the pilot's flight documents revealed that she had received psychiatric treatment and taken antidepressants in 2021, had consulted a number of general practitioners and specialists, was scheduled for surgery in June 2023, and had a history of vascular disease and a family history of heart disease.

She held a class 2 medical fitness certificate, issued on 27 April 2023.

On the medical certificate application form completed at the time of this medical fitness examination, in the section for general and medical history, the pilot had ticked in the negative, box 118 "Psychological/psychiatric disorders", box 128 "Any other illness or injury", box 106 "Heart and vascular disease" and, in the family history section, box 170 "Heart disease". She had ticked in the positive, box 130 "Visit to a doctor since the last medical examination", indicating that it was for seasonal pathologies in box 30 "Remarks". The box associated with the medical field concerning the scheduled surgery had been ticked in the negative.

She had consulted a general practitioner on 3 May 2023. The general practitioner who had seen her had prescribed her with anxiolytics and referred her to a psychiatric emergency service for advice on severe depressive symptoms with suicidal thoughts. She consulted a psychiatrist a week later. She was then prescribed antidepressants in addition to anxiolytics. She had been off work since 3 May 2023.

The toxicological analyses confirmed the presence of an antidepressant at an effective level and traces of an anxiolytic, which is consistent with the prescriptions. According to the analysis report, the concentrations of drug substances found were not likely to significantly impair vigilance and reflexes⁵. These analyses also ruled out the possibility of carbon monoxide poisoning.

2.6 Statement from pilot's husband

The pilot's husband also flew for recreation and in competitions at inter-regional level.

He indicated that the pilot was having problems at work, and that he had encouraged her to ask a doctor to sign her off.

He considered that, despite these professional difficulties, she was not really depressed, and was dubious about the hypothesis of a suicide to explain the accident. This was based on the fact that she had many short- and medium-term projects.

⁵ The individual's habituation and tolerance may have an influence on this aspect.

He knew she was taking anti-depressants. He had spoken to her on the phone at midday on the day of the accident, and had felt that she was happy that she was going to fly, and that she had seemed well to him. He explained that if this had not been the case, he would have told her not to fly. He felt that flying was good for her, because it was a pleasure, and the concentration required to fly allowed her to “clear her head”.

2.7 Medical and pathological aspects

The BEA has treated the subject of medical fitness in the context of depression and/or use of medication, and even the committing of suicide, in the course of various investigations. In particular, the following reports on general aviation cases can be cited for reference:

- [Accident to the Robin DR400 registered F-GIKC on Wednesday 23 February 2011;](#)
- [Accident to the Robin DR400 registered F-GDYC on Wednesday 11 March 2015;](#)
- [Accident to the Piper PA-28 registered F-OGPJ on Monday 20 February 2017;](#)
- [Accident to the Tecnam P2008 registered F-ORVY on Saturday 13 March 2021;](#)
- [Accident to the Cessna 208 registered F-HSLE on Sunday 15 October 2023.](#)

The AAIB also concluded that the accident involving the Cessna 210 registered G-TOTN on 17 July 2023 was a deliberate act.

Finally, commercial aviation is also affected by this type of problem, despite more stringent medical requirements for crew members, the latest example being the accident involving the A320 registered D-AIPX operated by Germanwings, on 24 March 2015.

Implementing Regulation (EU) No [2019/27](#), paragraph MED.A.020 dealing with a decrease in medical fitness sets out that, “*Licence holders shall not exercise the privileges of their licence and related ratings or certificates [...] at any time when they: (1) are aware of any decrease in their medical fitness which might render them unable to safely exercise those privileges; (2) take or use any prescribed or non-prescribed medication which is likely to interfere with the safe exercise of the privileges of the applicable licence; (3) receive any medical, surgical or other treatment that is likely to interfere with the safe exercise of the privileges of the applicable licence.*” It also sets out that, “*In addition, holders of a medical certificate shall, without undue delay and before exercising the privileges of their licence, seek aero-medical advice from the AeMC, AME or GMP, as applicable, when they [...] have commenced the regular use of any medication.*”

This paragraph of the regulations is set out on the back of medical certificates, so as to bring it to the attention of those who hold them.

As explained in some of the aforementioned reports, the decision to give up an aeronautical activity is primarily based on the pilot's own judgement of his or her condition, a judgement which may be impaired by the very pathology or treatment. Thus, the principle established by the requirements of paragraph MED.A.020 that a pilot must self-report any decrease in his or her fitness can be undermined. The BEA was unable to establish whether the doctors who saw the pilot in the context of her general medical and psychiatric consultations were aware of her flying activities. Although the pilot had been placed on sick leave shortly before the accident and was taking psychotropic medication, she continued to fly.

Relatives may not fully appreciate the pathology or the effects associated with its treatment. They may see flying as a diversion that allows the pilot to take his/her mind off things, without realizing the paradoxical nature of the situation.

Knowledge about and acknowledgement of depression is poor, to the point where it is sometimes treated lightly - a matter of willpower - and endowed with a pejorative character for those who are free of it. For the sufferer, depression represents a profound distress, a radical change in their value system to the point of sometimes losing their footing and becoming isolated in the face of incomprehension from those around them. Suicide may then seem the only way out.

Flying requires an acuity and availability that is hampered by depression. The report concerning [F-GDYC](#) recalls that the purpose of psychotropic drugs is to act on brain activity, and that psychotropic drug users can be at risk:

- primarily due to possible reduced vigilance;
- but also due to the disinhibiting effect of certain molecules, which can encourage people to take impulsive action.

2.8 FFA measures regarding risk of deliberate action

The FFA, which observed that in Western Europe and in the scope of light and sport aviation, at least one fatal accident in a hundred is the result of the pilot's personal intention, drew up a confidential memo addressed to flying club managers affiliated to the association.

The note, which aims to raise the awareness of the management bodies and instructors with respect to the risk of suicide, provides information and offers advice on how to prevent it within their organisation.

3 CONCLUSIONS

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

Scenario

During a cross-country flight, while in a straight line, the aeroplane entered a nose-down attitude. No witnesses saw the final flight path which resulted in a collision with the ground.

The impact damage limited the examination possibilities on the wreckage. The elements examined did not reveal any technical reason that could explain this flight path.

The pilot of the aeroplane was being treated for symptoms of depression, and had been taking a course of antidepressants and anxiolytics for just under two weeks. Although certain elements tend to point the investigation towards a potentially deliberate act (see paragraph 0), it is not possible to conclude with certainty on this point.

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