



Accident to the DTA Dynamic Feeling 912UL Diva
identified **77BIQ**
on 20 August 2022
at Meaux-Esbly (Seine-et-Marne)

Time	Around 12:40 ¹
Operator	France ULM
Type of flight	Introductory sightseeing flight
Persons on board	Pilot and passenger
Consequences and damage	Pilot and passenger fatally injured, aircraft 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 during initial climb, tumbling, collision with ground, during a local revenue flight

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on the video recording of the flight, statements and radio communication recordings.

On the day of the event, the pilot made a first flight on a fixed-wing microlight at 10:30. This was a 30-minute instruction flight, as an instructor.

Between 11:20 and 12:30, he made three introductory flights on 77BIQ, each lasting around 15 min.

At 12:37, he took off from runway 25L for a fourth introductory flight with 77BIQ. Once the wheels left the ground, he performed an acceleration stage lasting about six seconds, then pushed on the control bar to adopt a climb slope, while maintaining maximum power.

After five seconds of climbing on this slope, he briefly released the pressure on the control bar, then reapplied the pressure almost immediately.

After a very brief moment, the wing stalled and started diving forward and the trike tilted rearwards, abruptly.

The flex-wing performed a series of rotations on its pitch axis, falling almost vertically and colliding with the ground on the runway around 500 m from the power-up point.

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

2 ADDITIONAL INFORMATION

2.1 Flight context

One of the aims of the operator, France ULM, which was formed under the French Non-Profit Organizations Law of 1901, is to promote microlight activity, as well as sightseeing, introductory and air experience microlight flights.

Having been purchased through a “gift box” type commercial offer, the event flight was a revenue flight carried out within a framework authorised by article 12 of the Order of 23 September 1998 pertaining to motorised microlight aircraft².

Apart from the restriction to local flights, no other regulatory restrictions apply to revenue flights made by microlights in a context comparable to commercial transport. Nevertheless, the French Microlight Federation (FFPLUM), to which France ULM is affiliated, requires its members to ensure that revenue flights are carried out by instructors, or by pilots who have been approved by the president of their club or an instructor.

2.2 Flex-wing information

77BIQ is a flex-wing microlight with two seats comprising a DTA Feeling trike, a DTA Diva wing and a Rotax 912UL engine.

According to information provided by France ULM, regular maintenance was carried out on the flex-wing.

On the date of the accident, the wing had logged almost 450 hours. According to France ULM, since the wing had logged a low number of hours and since it was not exposed to UV as 77BIQ was parked in a hangar, no additional adjustments had been made to the wing since its purchase.

2.3 Examination of the wreckage

The examination of the failures and distortions on the trike, wing, control bar and powerplant, as well as of the images of the flex-wing during its fall (see para. 2.6), showed that these failures and distortions were the result of manoeuvres during this fall and of impact with the ground.

The flight control linkages were continuous. The wing was attached to the trike at one of the two central points of the hanger, which has six positions, corresponding to a standard position according to the wing user manual.

The examinations conducted did not reveal any failure prior to the loss of control.

² This article states that, with the exception of local flights defined in paragraph III of article R. 330-1 of the French civil aviation code, commercial air transport flights are prohibited. The associated definition of local flight, for microlights, is that of a non-stop flight with identical departure and arrival points, during which the aircraft does not travel more than 40 km from its departure point ([Version in force on the day of the accident](#)).

2.4 Pilot information

The 33-year-old pilot held a microlight pilot licence issued in July 2019, along with fixed-wing, gyroplane and flex-wing ratings, and passenger carrying privileges. He also held a microlight instructor licence for the fixed-wing class, as well as a valid Commercial Pilot Licence - Aeroplanes (CPL(A)), with IR and MEP ratings.

The pilot's flex-wing rating was issued in July 2021. In the absence of a logbook for the microlight flight hours, it was not possible to determine the pilot's experience on flex-wings. According to the France ULM management, the pilot had logged more than 200 flight hours on flex-wings, most of which on 77BIQ.

The pilot was an employee of France ULM. He was authorised by the president of France ULM, who is also a microlight instructor, to carry out introductory flights for the year 2022, on flex-wings, fixed-wings and gyroplanes.

2.5 Meteorological conditions

According to the air traffic controller on duty at the time of the accident, the conditions at the time of take-off were as follows: CAVOK, variable 250° to 310° wind, 5 kt maximum.

According to pilots present at the aerodrome, aerological conditions in the area were calm.

2.6 Statements

Witnesses to the accident estimated the height at the time of loss of control at between 50 and 60 m.

A pilot, who was a flex-wing instructor and an employee of France ULM, said that he carried out the first pre-flight inspection of the day on 77BIQ. He explained that during this pre-flight inspection and during the two flights he made, he observed nothing abnormal on 77BIQ. The event pilot then took charge of 77BIQ to carry out introductory flights.

The president of France ULM said that the behaviour of 77BIQ was safe.

2.7 Examination of the onboard camera

The flex-wing was equipped with an onboard camera, positioned under the wing, to the right. The field of view recorded by the camera provided an overall vision of the aircraft, as shown in the figure below.



Figure 1: field of view recorded by the camera

Examination of the flight camera recording of the accident flight did not reveal any technical malfunction on the flex-wing. Spectral analysis of the audio recorded by this camera led to the conclusion that the engine was running continuously up to the loss of control.

With the reference time zero (T_0) being the moment when the main landing gear left the ground, the following points could be noted regarding the accident flight:

- at $T_0 +$ two seconds, the pilot reduced pressure on the control bar to initiate an acceleration stage;
- during this acceleration stage, the pilot momentarily removed one hand from the control bar to show the passenger something;
- at $T_0 +$ eight seconds, the pilot pressed heavily down³ on the control bar to increase the pitch attitude;
- at $T_0 +$ 11 seconds, the pilot slightly reduced the pressure on the control bar and then reapplied pressure;
- at $T_0 +$ 12 seconds, the pilot looked to his right;
- with the pilot's gaze still to the right, at $T_0 +$ 13 seconds, the wing suddenly and abruptly tilted forward.

In the absence of sufficient external reference points, it was not possible to estimate the speed of the microlight from the camera recording.

2.8 Tumbling phenomenon

Tumbling is a phenomenon specific to flex-wing microlights with a delta wing. It is defined in the microlight pilot's handbook as the microlight tumbling around its pitch axis.

According to the document "[Mémo sécurité du pilote ULM](#)" (Microlight pilot safety memo), this forward tilt can occur in the event of a stall on a climb path, a pull-up manoeuvre or a climb at steep pitch attitude. It is uncontrollable.

³ The pitch attitude obtained by this input was compared with videos of other introductory flights made on 77BIQ by this pilot and by another pilot. It was noted that the pitch attitude during the accident flight was greater than in the three videos watched for comparison.

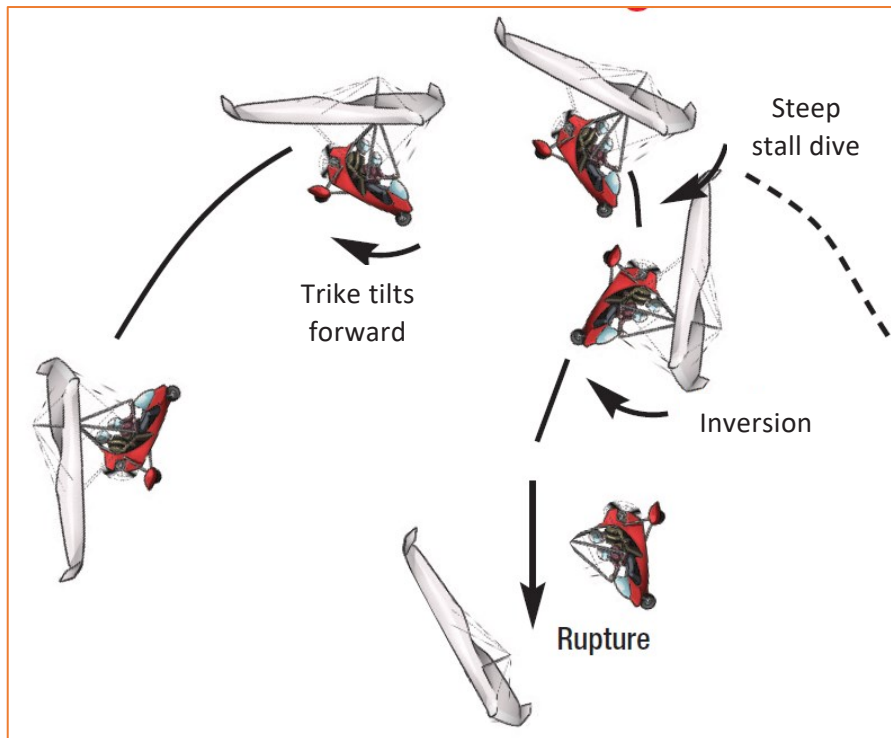


Figure 2: tumbling (Source: FFPLUM, annotated by the BEA)⁴

The microlight pilot's handbook indicates that the aircraft rotates very quickly after the dive. It is rare for the wing structure to withstand the stresses.

3 CONCLUSIONS

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

Scenario

After an instruction flight on a fixed-wing microlight, the pilot made four introductory flights on the flex-wing microlight identified 77BIQ.

At take-off for his fourth flight, during the climb with a higher pitch attitude than that observed on other flights made on this flex-wing, the microlight stalled and started tumbling.

Contributing factors

Insufficient concentration or overconfidence on the part of the pilot may have contributed to the stall during this critical phase of flight, as suggested by some of his inputs during this phase.

This possible lack of concentration could be linked to an effect of routine due to the repetition of sightseeing flights on that day.

⁴ Contrary to this illustration taken from the 6th edition of the "Mémo sécurité du pilote ULM" document, during the accident to 77BIQ, there was no detachment of the wing during the fall of the flex-wing.

The favourable flying conditions may have contributed to a diminished alertness or overconfidence.

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