



Serious incident to the ROLLADEN SCHNEIDER - LS8-18 registered D-4776 and to the SCHEMPP HIRTH Ventus 1A registered D-5063

on 05 August 2021
at Montluçon Guéret (Creuse)

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

Time	Around 14:20 ⁽¹⁾
Operator	Private
Type of flight	Competition
Persons on board	Pilots
Consequences and damage	Gliders slightly damaged

This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in May 2022. As accurate as the translation may be, the original text in French is the work of reference.

Mid-air collision between two gliders, emergency landing, during a training flight for a competition

1 - HISTORY OF THE FLIGHT

Note: the following information is principally based on statements and data recorded by the IGC computers on board the gliders.

⁽²⁾ Same route for
all glider classes,
with a different
start line opening
for each class.

On the second day of official preparatory training for the World Gliding Championships, the flight of the day⁽²⁾ was a triangular flight between the aerodrome and the points called "La Chatre" and "Bourdon l'Archambault". Approximately 50 gliders were participating.

The first take-off took place at around 13:30. The pilots then took off one after the other and used uplifts near the start line while waiting for the races to start.

At 14:19, the pilot of D-5063 joined a group of gliders making right-hand spirals in an uplift. During this manoeuvre, the glider collided with D-4776.

The pilot of D-5063 made an emergency landing at the aerodrome at 14:28. The pilot of D-4776 landed at the aerodrome at 14:42.

2 - ADDITIONAL INFORMATION

2.1 Damage to gliders

Damage to the D-4776 glider was limited to the trailing edges of the right aileron and the right wing tip. A piece of foam from the right side of the other glider's horizontal tailplane was found between the upper and lower skins of the wing tip. Traces of red paint were visible under the right wing.

Damage to the D-5063 glider was limited to the right part of the horizontal tailplane. The leading edge was scratched and the upper part had a nick. Traces of red paint were also visible.

2.2 Meteorological information

The meteorological conditions estimated by the French Met Office, Météo-France, at the accident site were as follows: wind from 220° at 9 kt to 17 kt, visibility greater than 10 km, scattered cumulus with a base at 4,000 ft, broken stratocumulus with a base at 5,500 ft, ground temperature of 20 °C, low turbulence.

The convective air mass was located between the ground and 6,500 ft. The temperature inversion around 6,500 ft prevented the vertical development of cumulus clouds and caused stratocumulus to form.

These conditions were not suitable for a gliding competition.

2.3 Pilot information

2.3.1 D-4776 pilot

The 66-year-old American pilot held a Sailplane Pilot Licence (SPL) as well as a Private Pilot Licence - Aeroplanes (PPL(A)) issued by the American authorities. He had logged 1,285 glider flight hours, 67 h of which on type and 21 h of which in the previous three months (20 h of which on type).

2.3.2 D-5063 pilot

The 64-year-old Spanish pilot held a Sailplane Pilot Licence (SPL). He had logged 2,217 flight hours, 465 h of which on type and 43 h of which in the previous three months (39 h of which on type).

2.4 Competition information

The competition was scheduled from 08 to 20 August 2021 from Montluçon Guéret aerodrome. Official training had begun on 04 August 2021, the day before the incident. Three glider classes were represented: Club⁽³⁾, Standard⁽⁴⁾ and 15 m⁽⁵⁾. Ninety-five gliders from 24 nations were participating in the event. The World Air Sports Federation (FAI) rules were applied.

The rules provide for separate take-offs for the different classes. A take-off schedule must be defined before the first day of flight. The order on this schedule is then changed every day, by rotation, for each class.

The rules also require that the tow paths, the altitudes and the release areas are defined in local procedures. The recommendation is for each class to use a different release area. In addition, the organisers must define areas around the site where continuous spiralling

⁽³⁾ Gliders in the range of handicap factors allowed for this competition.

⁽⁴⁾ Gliders with a wingspan not exceeding 15 m, without modification of the wing profile and for which the air brakes do not increase the lift.

⁽⁵⁾ Gliders with a wingspan not exceeding 15 m.

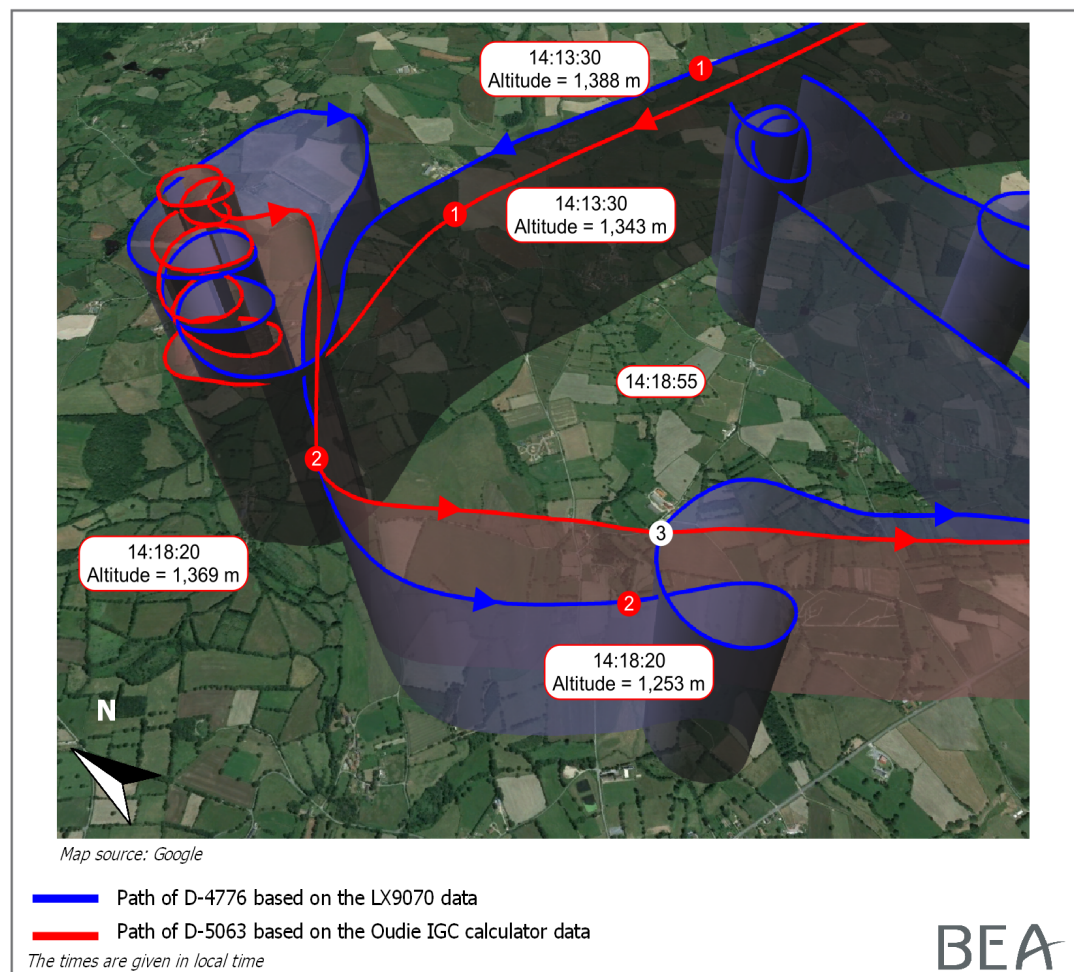
is prohibited. A race is generally scheduled to start 30 minutes after the last glider of the relevant class has taken off.

2.5 Read-out of data

2.5.1 Data from the onboard IGC computers

The D-4776 and D-5063 gliders were both equipped with an IGC computer, respectively a LXNAV LX9070 and a Naviter Oudie IGC. The IGC files pertaining to the incident flights were retrieved by the BEA.

The map below shows the manoeuvres around the collision.



Gliders' path

At the time of the collision, the estimated ground speeds based on the GNSS data were 116 km/h for both gliders.

2.5.2 Video

The collision between D-4776 and D-5063 was filmed by a camera on board a third glider. An excerpt of the video lasting 14 s was provided to the BEA. Synchronisation of the excerpt with the IGC data was possible thanks to the local time displayed on the Zander computer equipping this third glider.

The video started at 14:18:50. D-4776 was then positioned in front of the glider equipped with the camera and behind another glider. All three were following each other in a right

turn. D-5063 was visible in the background on the left side with a straight path converging with the path of D-4776.

At 14:18:55, D-4776 and D-5063 collided. No loss of debris or sudden change of path was observed. Nevertheless, D-5063 seemed to tilt slightly to the right immediately after the collision.

Two seconds later, as D-5063 disappeared from the camera's field of vision, its path seemed to be straight and the wings were level again.

When the video excerpt stopped at 14:19:04, D-4776 was still making right-hand spirals.

2.6 Statements

2.6.1 D-4776 pilot

The pilot indicated that he carried out a towed take-off at around 13:30 and was waiting for the race to start. He was spiralling in an uplift with around 10 other gliders, just north of the start line, when another glider, coming from behind, hit his right wing.

He added that he asked one of his teammates to visually check the condition of his glider before returning to the aerodrome to land.

He specified that the FLARM was on and that the aural warning mode was activated for the duration of the flight. He did not see any conflict on the screen and did not hear any aural warning before the collision.

2.6.2 D-5063 pilot

The pilot indicated that he carried out a towed take-off at around 13:55. He released the cable when he was at a height of approximately 500 m and immediately used thermal uplifts to gain altitude. He used several thermal uplifts along with other gliders, including D-4776.

At 14:18, he joined a group of at least six gliders making right-hand spirals in an uplift. He chose a glider as a reference to join the group at an altitude of 1,320 m. As this other glider was passing in front of him at a distance of approximately 100 m and he was joining the group, he felt an impact at the rear of his glider, as well as small vibrations.

He checked that his glider was flying properly and that the flight controls were operational and then asked one of his teammates to visually check the outside of the glider.

He issued a message saying, "*Mayday, Mayday, Mayday. Montluçon, I have a mid-air collision, four five (45)⁽⁶⁾*" before indicating that he was going to land on runway 17. He was then about seven kilometres north of the aerodrome, at an altitude of 1,300 m. The organisation had stopped the take-offs.

He started to descend at a speed of 100 km/h, lost altitude at the start of the downwind leg for runway 17, and then performed the aerodrome circuit before landing at 14:28.

According to him, the fact that all gliders had the same route with the same starting point at the same time led to many gliders being close to each other. He specified that he did not detect the presence of D-4776 because of the position of the latter in relation to the other glider which he had identified.

He specified that he had already participated in 14 national championships with up to 65 participants. He recalled that during these championships, the organisers used different

⁽⁶⁾ 45 is its callsign.

starting points for the different glider classes, located between 15 km and 20 km apart, and that if there were more than 20 gliders participating in the same competition class, different starting times had been allocated, with intervals of between 10 and 15 minutes.

He specified that the FLARM was on and that the aural warning mode was activated for the duration of the flight. He added that due to the large number of gliders using the same uplift, the aural warning was sounding continuously and the indications on the screen were displaying other gliders in the immediate vicinity of his glider. According to him, FLARM indications are not usable in such conditions and the pilot must use only the “see-and-avoid” rule.

2.7 Collision risks

In order to limit mid-air collisions, the following three means should be implemented:

- the “see-and-avoid” rule, which corresponds to monitoring the outside environment throughout the flight and especially before any change of path, in order to detect other aircraft that may be on a conflicting path;
- the use of the FLARM, an onboard computer to assist with the detection of surrounding aircraft;
- the application of high-visibility markings.

Various studies, including one by the BEA⁽⁷⁾, have shown the limits of the “see-and-avoid” rule, as the visual detection of other aircraft does not depend just on the quality of the pilots’ attention to the outside environment.

Even though the FLARM can take into account a high number of gliders, it does not allow the pilot to detect all the conflicting situations, especially in uplifts, since it indicates the most imminent risk on a priority basis. This means that pilots must monitor the outside environment in order not to be surprised by other aircraft in the vicinity, which might not be indicated by the FLARM.

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

On the second day of training for the World Gliding Championships, two gliders collided as one of them was joining a group of gliders making right-hand spirals in an uplift.

Neither pilot was aware of the presence of the other glider. The pilot of D-4776 was not able to see D-5063 because it was approaching from behind. The pilot of D-5063 used another glider as a reference, which was, according to him, located around 100 m in front of him, and he did not detect D-4776 because of the position of the latter in relation to his reference.

Despite the presence of FLARMS on board both gliders, the pilots did not detect their respective presence, due essentially to the large number of gliders in the vicinity.

After the collision, the pilot of D-5063 performed an emergency landing at the aerodrome, after notifying the competition organisation of his emergency situation, whereas the pilot of D-4776 landed at the aerodrome.

⁽⁷⁾ [Mid-Air Collisions 1989-1999](#)

Contributing factors

The large number of gliders flying at the same time in the same area, all waiting to start the races, may have contributed to the collision. The weather conditions were not suitable for gliding, and there were a lot of foreign pilots taking part in the championships. This led the organisers to define the same route for all pilots carrying out this training flight, regardless of the class of glider in which they were flying. The start line openings were well sequenced as per the competition rules, however many pilots waited until the last moment to cross the line.