



Accident to the ROLLADEN SCHNEIDER - LS4 - A registered F-CLMF

on 25 June 2021
at Vinon-sur-Verdon (Var)

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

Time	Around 13:30 ⁽¹⁾
Operator	Association Aéronautique Verdon Alpilles (AAVA)
Type of flight	Local
Persons on board	Pilot
Consequences and damage	Glider substantially 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.	

Loss of altitude after cable release in towed flight, collision with vegetation

1 - HISTORY OF THE FLIGHT

Note: the following information is principally based on statements and the OGN⁽²⁾ aircraft tracking data.

The pilot took off at around 13:25 in towed flight from runway 28 at Vinon aerodrome (Var) (see [Figure 1](#), point ❶). The combination then headed towards the glider release area located on a hill to the east of the aerodrome and to the north of the commune of Vinon-sur-Verdon. Arriving at the release area, the glider pilot released the tow cable at an altitude of approximately 850 m (see [Figure 1](#), point ❷), in the vicinity of the aerodrome⁽³⁾, and made a left turn to find uplifts (see [Figure 1](#), point ❸). The glider's altitude decreased during this manoeuvre⁽⁴⁾. While the glider was at an altitude of 765 m (see [Figure 1](#), point ❹), its rate of descent suddenly increased up to -6 m/s. The pilot continued southwards accelerating up to 100 km/h to clear the hill then, at around 13:28, he turned west towards the aerodrome to attempt to return to land on runway 28 (see [Figure 1](#), point ❺).

He flew along the north of Vinon-sur-Verdon, flying over a wooded area at a height varying between 10 and 20 m, then curved to the south west to attempt to land ahead in a field, beyond the houses. While he was flying over the first houses, the glider struck the top of the trees located on a housing estate and came to a stop on the land of one of the houses, near the house. The pilot made a radio call to the starter to report his landing in the trees. The owners of the plot immediately arrived to help the pilot.

⁽²⁾ Open Glider Network. The purpose of the OGN is to create and maintain a unified tracking platform for gliders, drones and other aircraft.

⁽³⁾ The aerodrome's reference altitude is 275 m (903 ft).

⁽⁴⁾ The rate of descent varied between -2.8 and -1.3 m/s.

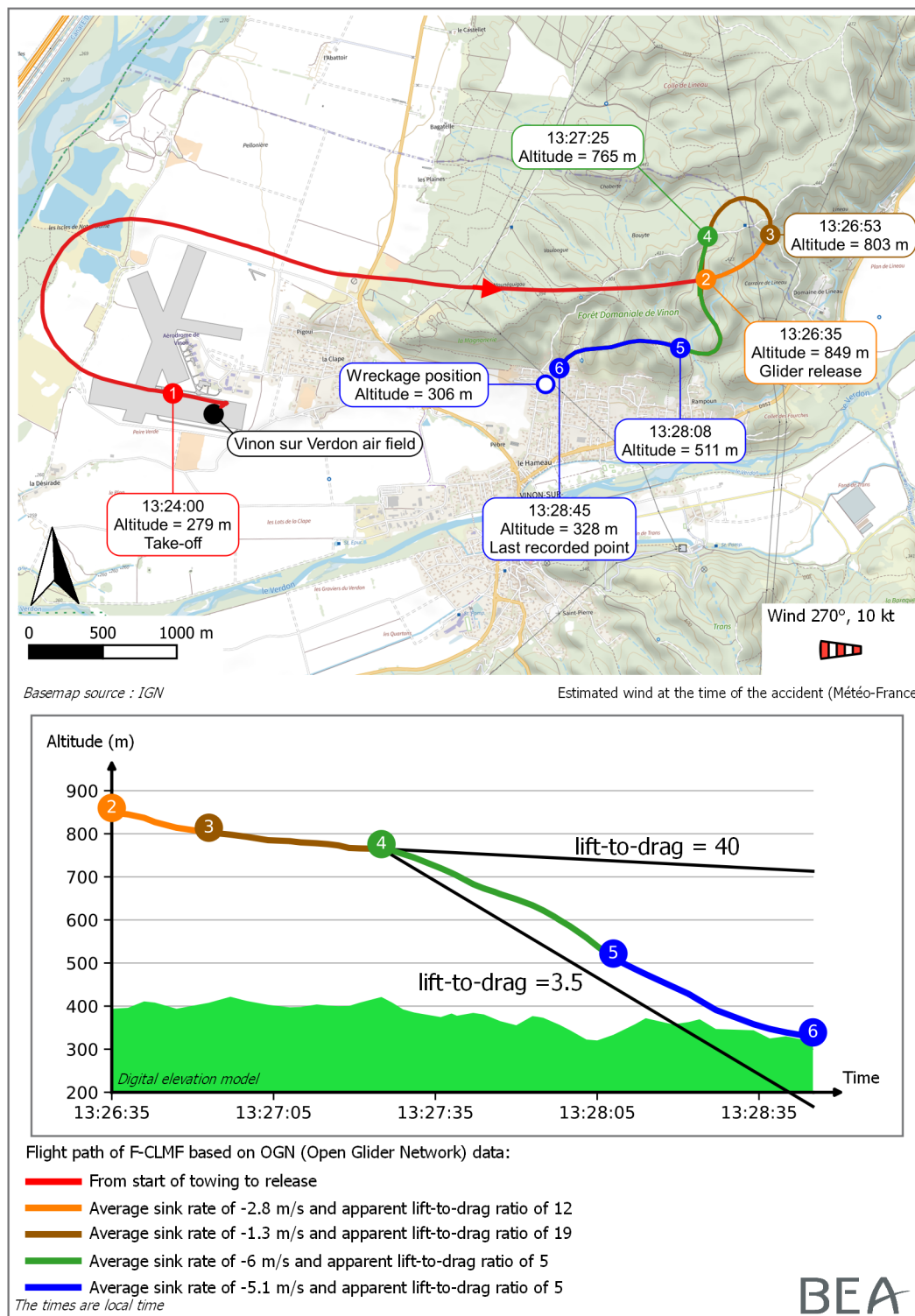


Figure 1: flight path of the accident flight

2 - ADDITIONAL INFORMATION

2.1 Site and wreckage

The glider was found approximately two kilometres from the threshold of runway 28. It was lying on the front section of the fuselage and on the right wing. The right wing was broken around 1.5 m from its root as a result of the impact with a tree trunk. The photos taken by those first on the scene showed that the landing gear was extended and that the air brakes were completely extended on the left wing and partially extended on the right wing (see Figure 2).



Source: witness

Figure 2: position of the glider just after the accident

The BEA's examination of the glider conducted on 08 July 2021, showed that the air brake control linkage was continuous before the accident. As the glider was not disassembled in the presence of the BEA, the operation of the air brake control linkage could not be fully checked. The air brake control locking system located in the aft fuselage section (corresponding to the "air brakes closed" position) and the landing gear control were operational.

The examination of the glider did not reveal any anomaly on the flight control linkages.

2.2 Glider information

2.2.1 Operation of the air brake control

The LS4 glider is a single-seat glider. According to the glider flight manual, the maximum lift-to-drag ratio of the glider is 40 between 90 and 100 km/h (the corresponding vertical speed then varying between -0.63 m/s and -0.69 m/s). The F-CLMF flight manual indicates that it is equipped with two-section air brakes on the upper surface controlled by a lever but does not describe how the control is operated.

The blue lever is located on the left, inside the cockpit. When it is pushed fully forward, the control is locked and the air brakes are retracted⁽⁵⁾. When the control locks, the springs inside each air brake hold it against the upper surface of the wing. Two pictograms conforming to the flight manual were present in the cockpit to identify the corresponding positions of the lever. Red circles on the air brakes visually signal their deployment to the pilot. To unlock the control, the lever needs to be pulled backwards with a certain amount of force; this partially extends the air brakes (red circles partially visible). To completely extend them, the pilot must continue to pull on the lever that shifts by sliding along a guide, to prevent any interaction with the canopy release knob (see Figure 3).

The AAVA's chief-pilot explained that on an LS4-type glider, when the air brakes are unlocked in flight, they will only extend partially under a negative load factor and retract on their own if the pilot releases the control lever. When they are fully extended, they will not retract unless the pilot manually moves the lever forward to clear the guide. He also explained that

when the air brakes are fully extended, the vertical speed of the glider is around -8 m/s (i.e. a lift-to-drag ratio of approximately 3.5 at a horizontal speed of 100 km/h).

⁽⁵⁾ Only position in which they can be locked. The control is then kept locked in the forward position (air brakes retracted) by a misalignment of the rods in the fuselage centre section behind the cockpit.



Source: BEA

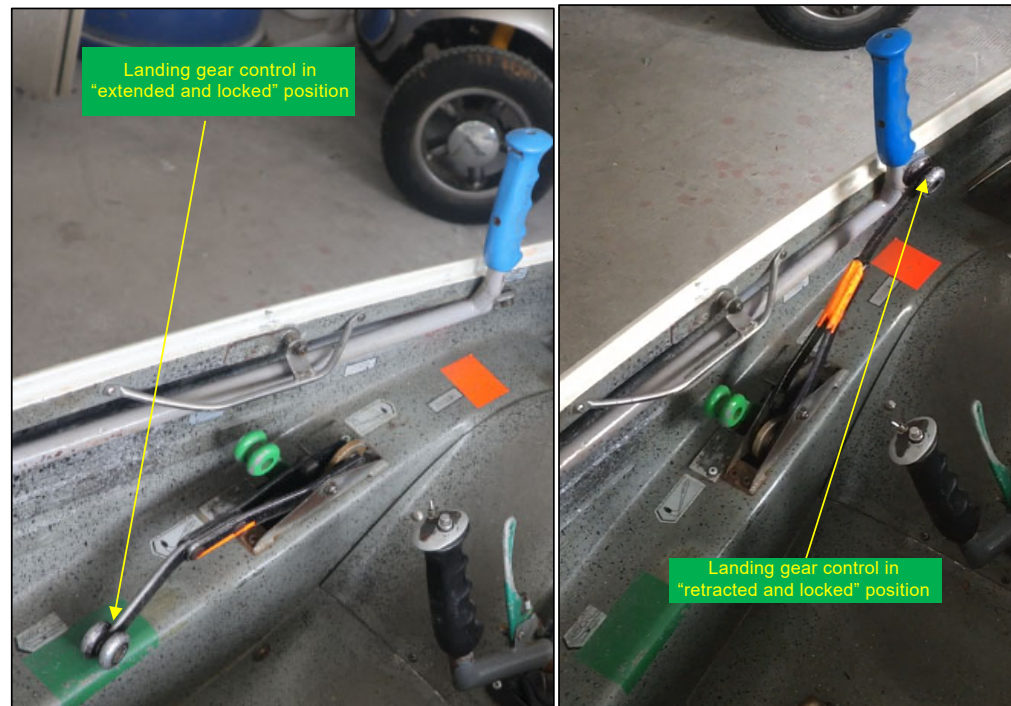
Figure 3: air brake control positions

2.2.2 Operation of the landing gear control

The glider is equipped with a retractable landing gear controlled by a lever. Due to the cockpit configuration, no interference is possible between the landing gear and air brake controls.

The manufacturer's flight manual specifies that when the lever is pushed fully forward, the landing gear is retracted and locked. When the lever is in the fully aft position, the landing gear is extended and locked. The F-CLMF flight manual used by the AAVA describes the operation of the landing gear control incorrectly by indicating the opposite. However, two pictograms conforming to the manufacturer's flight manual indications were present in the F-CLMF cockpit as a reminder of the two positions of the landing gear, and the AAVA had added green and orange labels to avoid any confusion⁽⁶⁾ (see Figure 4).

⁽⁶⁾ Green label aft for the landing gear extended position, orange label forwards for the landing gear retracted position.



Source: BEA

Figure 4: landing gear control positions

2.3 Meteorological information

The meteorological conditions estimated by Météo-France at the accident site were as follows: westerly wind of 10 kt, visibility greater than 10 km, clear sky, low to moderate thermodynamic turbulence, no strong downdrafts.

2.4 Pilot information

The 82-year-old pilot held a glider pilot licence issued in 1967. He had logged 2,540 flight hours in gliders and approximately 24 h in the previous three months, 2.5 h of which on type. According to his statements, he had last flown in the LS4 20 years ago. He had completed five training courses at the CNVV (French Gliding Federation) at Château-Arnoux - Saint-Auban aerodrome and knew the Vinon area well.

Up to March 2021, he had flown within a gliding organisation at Romorantin aerodrome (Loir-et-Cher) until he was informed that, from then on, he would only be authorised to fly in a two-seater glider accompanied by another licensed pilot. This decision was taken by the flying club managers following an incident on 27 May 2020 during a skill-test flight in a VENTUS during which he landed at the aerodrome, outside of the runways ([see feedback](#) written by the pilot). The pilot then changed flying club to join a gliding association at Mézières aerodrome (Loiret) on 05 June 2021, where he was signed off to fly solo by the chief-pilot after two flights in dual control and two supervised solo flights. Several days later, he joined Vinon-sur-Verdon aerodrome to attend a training course organised by the AAVA. The AAVA managers stated that upon his arrival, the pilot had not informed them of the decisions made at Romorantin concerning him. On 18 June, he made a dual control flight in a DUO DISCUS with an instructor. On 19 June, he was signed off to fly solo in the LS6 by a second instructor, then he flew solo in the ASK21. On 20 June, he made three flights in a PEGASE; then one flight on the 21 June and two on the 23 June in a DUO DISCUS in dual control.

On 24 June, the day before the accident, he made two solo flights in an LS4, the first lasting 15 min due to the lack of uplifts, and the second lasting approximately 2 h and 25 min.

2.5 Statements

2.5.1 Glider pilot

The pilot stated that the aerological conditions were quite turbulent during the tow and that he observed rates of climb greater than +4 m/s, which promised good uplifts. He is certain that he retracted the landing gear immediately after the release⁽⁷⁾. Following this action, he immediately observed a rate of descent of approximately -5 m/s. He turned left in an attempt to find uplifts, which proved unsuccessful. To remain in the vicinity of the aerodrome, he continued south of the hill, accelerating up to approximately 100 km/h. He explained that the vertical speed indicator indicated -5m/s for the duration of the descent and that he thought that he was in a descending air mass. He stated that he fully extended the air brakes just before the collision with the trees and remembered having made a reflex action to extend the landing gear.

He stated that he had not been briefed on the LS4 as he had already flown this type of glider. He explained that he had not read the glider flight manual. He had not therefore been misled by the erroneous description of the landing gear control in the flight manual (see para. [2.2.2](#)).

2.5.2 Tug pilot

The tug pilot, also a glider instructor at the AAVA, stated that during the solo flight on 19 June in the LS6, the pilot had shortened the flight and aligned on the wrong runway during final. He then had to perform a check flight with another instructor in dual control in the ASK21.

The pilot stated that, on the day of the accident, the meteorological conditions were normal with slight turbulence during the tow. This was the sixth tow flight of the day and he specified that the pilots of the previous gliders, who had been released in the same location as F-CLMF, had all found uplifts. He stated that the air brakes of F-CLMF were retracted throughout the tow. After the release, he returned to land. When he heard the message of the pilot of F-CLMF on the radio, he took off again to try to locate the glider. He flew at a height of around 150 m over the probable accident area and did not encounter any specific aerological phenomenon.

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

The lift-to-drag ratio of the glider observed after the search for uplifts was compatible with that of a glider of the same type with the air brakes fully extended. In addition, the information gathered did not reveal any aerological phenomenon that could explain the continuous high rate of descent of the glider. The most likely explanation was therefore the pilot confusing the controls.

After the cable release, when he wanted to retract the landing gear, the pilot very likely operated the air brake control instead of the landing gear control.

⁽⁷⁾ An AAVA directive stipulates that the landing gear must not be retracted prior to release.

He thus positioned the air brake control aftward in the “air brakes extended” position. Observing an unusually high rate of descent, he supposed that the glider had entered a descending air mass. He focused on the marked deterioration of the glider’s performance and did not check the position of the two levers, nor that of the air brakes on the upper surface of the wings.

Due to the high rate of descent caused by the position of the air brakes and the little amount of time he had to analyse the situation, the pilot did not realise that the glider’s unusual rate of descent could be linked to an incorrect configuration of the air brakes and he did not have the capacity to question his analysis of the situation. He was not able to return to the aerodrome and had no choice but to make a forced landing.

Safety lessons

Self-assessment of flying capabilities

Gliding is an activity where some phases may take place under high time pressure requiring a certain level of physical and cognitive capabilities. As the years pass, it is important for glider pilots to reassess their capability to fly solo. Nevertheless, it can be difficult for a pilot to analyse their own capabilities, particularly in the case of a slow deterioration over time of their own flying capabilities. Moreover, a deterioration of capabilities can be difficult to accept for a pilot, who may be in denial about their own situation.

There is no age limit for glider pilots to fly solo. [Issue 16 of the “Actions vitales !”](#) magazine published in November 2020 by the French Gliding Federation (FFVP) addresses the topic of increased life expectancy and the associated deterioration of physical and cognitive capabilities in connection with the body’s natural ageing process.

Flying different types of gliders with different configurations

With the club’s fleet made up of a variety of glider models, pilots may be required to fly different types of gliders according to a random frequency.

The training video entitled [Initiation à l’utilisation des aérofreins](#) (Introduction to using air brakes), published on line by the French Gliding Federation, specifies that depending on the type of glider, the air brake control can differ in terms of force required to unlock it, length of travel, nose-down effect that can be more or less pronounced, etc. and that such specificities need to be demonstrated by an instructor.

Prevention of risk of confusion between controls

The glider flight manual published by CEPADUES (14th edition) describes the conditions in which pilots may be led to make mistakes (oversight, one action instead of another, incorrect execution, incorrect sequence of actions, etc.).

More specifically, an article devoted to this problem of confusion of controls was published by the French Gliding Federation in [issue 50 of the “Planeur info” magazine](#) during the 3rd quarter of 2015 to draw the attention of pilots to this risk and to enable them to implement safety measures to guard against any error of this type. In particular, pilots are advised to visually check the position of a control to be moved before performing any input on it. Faced with an unusual situation, especially a sudden deterioration in rate of descent following an input on a control (supposed manoeuvre of the landing gear or air brakes), pilots are also advised to check that the correct control has been moved.