BEA
Bureau d'Enquêtes et d'Analyses
pour la sécurité de l'aviation civile
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SAFETY INVESTIGATION REPORT

Accident to the BRM AERO Bristell B23 registered OE-AMK on Thursday 9 May 2024 at Chambéry - Challes-les-Eaux

Time	Around 16:15[1]
Operator	Club Vorarlberger Alpenflieger (Austria)
Type of flight	Cross country
Persons on board	Pilot and one passenger
Consequences and damage	Pilot and passenger 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.	

Winch cable strike in initial climb, loss of control, collision with ground, fire

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements and the analysis of the recordings made by the webcams installed on the aerodrome.

At around 13:00, two aeroplanes coming from Austria landed at Chambéry - Challes-les-Eaux aerodrome after completing the first leg of a European circuit. The four people on board planned to next fly to Albenga in Italy.

At around 16:00, the pilot of the aeroplane registered D-ELMD took off from paved runway 32. Around two minutes later, OE-AMK was lined up at the threshold of paved runway 32. The pilot, accompanied by one passenger, increased power to take off. At the same time, a glider on the parallel grass runway 32R started a winch take-off, the cable was taut and the glider began the take-off run. When the aeroplane crossed the threshold 32 marks in its take-off run, the glider was a few metres high. The cable was released at the end of the winch take-off. The aeroplane, in climb, deviated to the right. Around 25 s after the rotation, at an estimated height of roughly 50 m, the aeroplane's propeller struck the winch cable. The pilot lost control of the aeroplane which collided with the ground and then caught fire.

2 ADDITIONAL INFORMATION

2.1 Aircraft information

The BRISTELL B23 is a two-seater, single-engine aeroplane with low wings. It has an entirely metal structure. It is equipped with a ROTAX 912 engine and a three-blade, in-flight adjustable propeller.

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

OE-AMK was equipped with an airframe parachute which was not used during the accident. It was not equipped with a FLARM type anticollision system.

2.2 Examination of site and wreckage

The wreckage was found at around 160 m from the threshold of runway 14, on the axis of the grass runway.

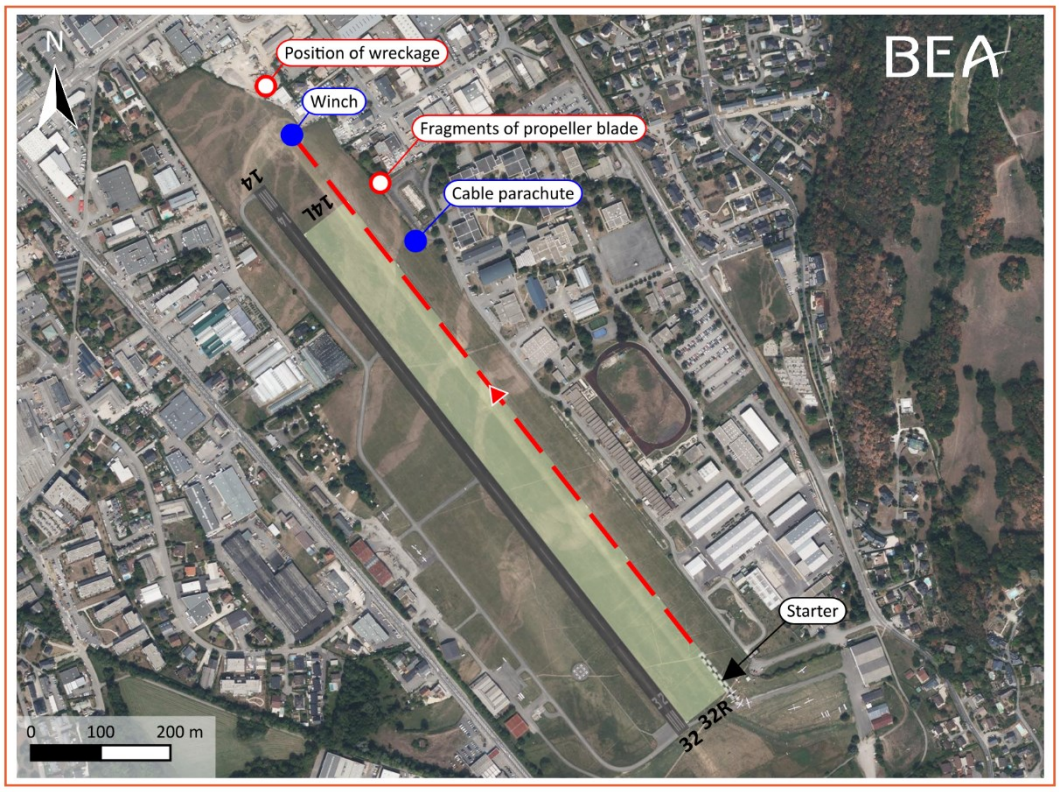


Figure 1: accident site

The technical examination was limited due to the damage caused by the post-impact fire. In particular, it was not possible to determine the continuity of the aileron and rudder controls, the integrity of the flap system, the position of the trims, the condition of the propulsion system and the condition of the cockpit before the accident.

The examination found that:

- the ailerons were in place on the wing and could move;
- the elevator was in place on the horizontal stabilizer and could move;
- the rudder was in place on the tail fin and was blocked due to the damage caused by the impact with the ground;
- the rudder control was continuous from the rudder pedals to the rudder;
- the flap control actuator was found in a position corresponding to the take-off position;
- the propeller hub was in place on the engine flange, the blades were all damaged.

A section of winch cable was partially found in the debris of the wreckage. It was cut in several places at around 10 m from the wreckage. This section was situated at a distance of around 65 m from the area where the cable was sliced by the “guillotine”, an emergency system operated by the winch operator to cut the cable.

Fragments of at least one propeller blade were found at around 220 m before the wreckage. This damage was probably the consequence of the in-flight impact with the winch cable.

2.3 Aerodrome information

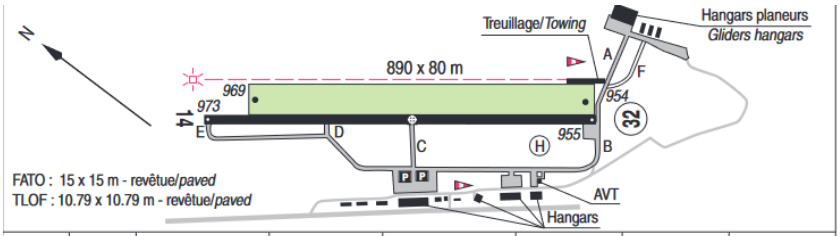
Chambéry - Challes-les-Eaux aerodrome is an aerodrome open to public air traffic and uses an A/A frequency. It has two runways oriented 14/32, one paved (990 m x 20) and one grass (890 m x 80).

The *Centre Savoyard de Vol à Voile Alpin* (CSVVA) glider club whose home base is on the aerodrome carries out glider flights on a daily basis, with winch and towed take-offs.

The VAC[2] indicates:

- winch launching activity up to 2,000 ft AMSL with a non-marked cable and winch equipped with flashing lights;
- simultaneous use of paved runway and adjacent grass runway is prohibited;
- radio silence must be complied with during a winch launch;
- French must be spoken on the frequency.

Winch launching takes place on the north edge of grass runway 32 (winch launch axis shown by a line of red dashes on the VAC, see **Figure 2**). The lateral distance between the centreline of the paved runway and the winch cable is therefore around 85 m. The winch and the winch operator are positioned behind the threshold of runway 14 (see **Figure 3**).



RWY	QFU	Dimensions *Dimension*	Nature *Nature*	Résistance *Strength*	TODA	ASDA	LDA
14 32	142 322	990 x 20	Revêtue *Paved*	5 TRSI	990 990	990 990	990 990

Figure 2: excerpt from Chambéry - Challes-les-Eaux aerodrome VAC chart (source: SIA)

[2] The glossary of abbreviations and acronyms frequently used by the BEA can be found on its web site.

Figure 3: view from winch situated behind threshold 14 looking towards threshold 32 (source: BEA)

2.4 Meteorological information

According to the meteorological information provided by Météo-France, at the time of the accident the cloud cover was between clear and few clouds, and the visibility was very good with a light to moderate northerly surface wind (5 to 10 kt).

2.5 Pilot information

The 54-year-old Austrian pilot held a private pilot licence (PPL(A)) obtained in 2016 along with solely level 6 English and German language proficiency. According to the president of the Austrian flying club to which the pilot belonged, the latter had logged some 400 flight hours with the club, including 67 hours on type and 13 hours in the previous three months.

The pilot was accompanied by a passenger who had no piloting experience and spoke no French.

2.6 Statements from occupants of other aeroplane

The occupants of the second aeroplane, also members of the Austrian flying club, were both pilots. The pilot flying for the arrival spoke French. The second pilot, president of the flying club, and pilot flying for the take-off did not speak French.

They stated that this was the first time that the pilot of OE-AMK had landed at Chambéry - Challes-les-Eaux. Both aeroplanes had landed at the beginning of the afternoon. The four people on board had lunch in the aerodrome restaurant. They watched the gliding activity over lunch and prepared the flight together by consulting the VAC chart. The two witnesses stated that they had agreed on making a LH turn after take-off.

The club president considered that the pilot was familiar with the winch-launch glider activity, as this was carried out at many airfields close to their home base aerodrome. In April 2024, the pilot carried out a check flight with the flying club's training manager in the scope of the revalidation of his licence. The club president indicated that during check flights, it was customary to raise the pilot's awareness with respect to glider winch take-offs. In fact, several nearby aerodromes are only open to home-based gliders and carry out winch take-offs on a grass runway which is difficult to detect in flight. Towed take-offs are carried out at their Austrian home-base aerodrome.

The president of the flying club considered that the pilot spoke “a good French”, using French in his professional activities.

The other pilot indicated that he had never seen a winch before the occurrence. He was used to the towed glider activity carried out in Austria. He added that he spoke better French than the pilot of OE-AMK. According to him, the pilot was not used to winch operations. He was not able to say whether the pilot perfectly understood the winch terms in French.

2.7 Analysis of audio and video data

The video recordings from two webcams installed on the aerodrome were downloaded. These recordings show part of the two take-offs.

The spectrum analysis of the sound and the visual analysis of the images made it possible to determine the following facts[3]:

16:03:36	The glider is lined up in preparation for the winch take-off from the grass runway.
16:03:51	The pilot of OE-AMK starts the engine tests on the taxiway.
16:04:27	The pilot of D-ELMD increases power to take off on the paved runway.
16:04:34	The pilot of OE-AMK finishes the engine tests.
16:06:00	The runway assistant raises the left wing of the glider.
16:06:15	A gliding club golf car appears in the camera field, coming from the club facilities. At the same time, the engine speed of OE-AMK increases for four seconds. It is probable that at this point the pilot starts taxiing from holding point B to line up on the paved runway. It is not possible to determine if the pilot stops on the runway before increasing power.
16:06:44	The pilot of OE-AMK applies maximum power to take off. At this time, the winch cable is taut and the glider starts the take-off run.
16:06:48	The glider leaves the ground.
16:06:50	OE-AMK crosses the threshold 32 markings.
16:06:59	The pilot of OE-AMK rotates after a take-off run of 210 m.
16:07:24	A second glider flies over the threshold markings of paved runway 32 and lands on this runway three seconds later.
16:07:26	OE-AMK strikes the winch cable.
16:07:31	OE- AMK collides with the ground.

2.8 Gliding club information

According to the information provided by the FFVP, the CSVVA carried out around 4,000 winch launches in 2023. It is the gliding club with the highest number of winch launches per year.

[3] The indicated times are the times indicated by the CSVVA webcam installed behind the fuel pump.

2.8.1 Monitoring outside traffic before starting winch launch

Runway supervisor or starter

The starter stands next to the gliders that are going to be winch launched. According to the CSVVA winch operating manual, the starter should only intervene during the winch launch preparation phases. In addition to checking the glider and the correct coordination between the pilot and the winch operator, they check that all the conditions are met for the winch launch (traffic, weather, etc.).

Runway assistant

According to the manual, in addition to the actions involved in hooking the cable and configuring the glider, the runway assistant checks that the runway axis is clear, and that there are no aircraft on final.

Winch operator

The CSVVA's winch operating manual states that, once the cable is taut and before starting the winch launch, the winch operator checks the winch parameters and performs the following safety checks:

- the runway axis is clear;
- there are no people, vehicles or aircraft:
    - from the winch to the threshold of runway 32,
    - from the wire fence to the east of the aerodrome (barracks side) to the paved runway,
    - from the ground to 600 m agl;
- the winch launch volume is free during the winch launch:
    - grass runway vacated,
    - no landing in progress (final) on any runway except for gliders and CSVVA tug planes,
    - no aeroplane on final except for the CSVVA tug plane,
    - no take-off in progress (aeroplane, helicopter, motor glider, tug plane-glider combination),
    - no glider aerobatics in progress.

The winch operator then switches on the rotating light, indicates over the radio that the winch launch is about to start and pushes the speed control lever to start the winch launch.

About twenty seconds elapse between the moment the winch operator activates the speed control lever and the glider starts its take-off run.

CSVVA management indicated that before the accident, they had never encountered a situation of simultaneous take-offs by a glider being winched and an aeroplane.

2.8.2 Implementation of a "winch stop"

The winch operating manual specifies that the winch launch can be stopped at any time by calling out the "*STOP TREUIL*" message on the frequency. This message can be called out by the pilot, the winch operator or the runway supervisor (or starter if different).

According to the CSVVA's winch operating manual, up to the time that the winch operator indicates over the radio that the winch launch is about to start, the starter can interrupt the procedure at any time by issuing the "*STOP TREUIL*" order. Once the winch operator has announced "*TREUILLAGE*

IMMÉDIAT A CHALLES" (imminent winch launch at Challes), the starter should normally no longer intervene. The starter will then only intervene when implementing the safety procedures associated with a ground loop, second cable caught either by the winch cable or by the glider's wing, aircraft in the axis of the winch launch and approaching the cable, by ordering the winch to be stopped and the cable to be severed ("*STOP TREUIL, GUILLOTINE*).

2.8.3 Winch operator's statement

The winch operator on duty at the time of the accident had been a member of the gliding club and winch operator for four years. He had been approved for winch launches in the morning after performing two winch launches under the supervision of a winch instructor. The person he replaced stayed with him in the winch.

He stated that the activity was not particularly high that day. He carried out the safety checks before calling out in French that the winch launch at Challes was imminent and asking for radio silence. According to him, the aeroplane was at the holding point for runway 32. He heard the runway supervisor warn the aeroplane pilot over the radio of the presence of a glider on final. The winch operator said he waited until the end of the runway supervisor's message before starting the winch launch. According to him, the aeroplane had not entered the runway. Apart from the pilot's call when he left the apron, he heard no other radio messages from the pilot. During the winch launch, he was concentrating on the glider. He did not see the aeroplane until it was a few meters from the cable, heading for the winch. He then severed all four winch cables by operating the "guillotine", before losing sight of the aeroplane.

2.8.4 Runway supervisor's statement

The runway supervisor was level with the starter at the time of the event. He indicated that a glider was on the downwind leg when the aeroplane was at holding point 32. The glider pilot then reported over the radio that he was on the base leg and then on final. The start of the winch launch was announced by the winch operator. He saw the aeroplane start taxiing and remembered hearing a radio message from the pilot in French, which he did not understand, and whose intentions were unclear. The runway supervisor warned of the presence of a glider on final on the frequency[4]. There was no response from the pilot. He preferred to let the winch launch continue, given the risks involved in rejecting a winch take-off. In his opinion, the pilot of OE-AMK made a quick stop before applying power for take-off. Then he saw the aeroplane swing to the RH side in initial climb.

2.8.5 Statement from glider pilot on approach

The glider pilot indicated that the aeroplane was at the holding point when he was on the base leg. In his opinion, the aeroplane entered the runway when he was on final. He thought it was at the runway threshold.

2.9 Other statements

Aeroplane pilots in the air at the time of the accident and glider pilots on the ground reported that the Austrian crews communicated with each other in German on the radio frequency during their approach to Challes-les-Eaux, and did not comply with the radio silence instructions.

[4] The gliders usually land on the paved runway.

2.10 CNVV Saint-Auban glider winch-launch manual

The French national gliding centre, CNVV Saint-Auban, has published a glider winch-launch manual as a national reference for clubs.

The CNVV states that a fundamental principle of winch launching is the vigilance of all those involved in the winch operation during the preparation and launch phases, in the vicinity of the cables, in the vicinity of the glider in the departure procedure, and in relation to other activities simultaneously operating on the platform. The CNVV indicates that preventing a collision must be a constant concern during all the winch launch phases, and applies to all forms of traffic (pedestrians, vehicles, aircraft, etc.).

The CNVV defines a winch launch safety volume. Before starting the winch launch, the winch operator must check that there are no vehicles, aircraft or people on the runway in the take-off zone, and that there are no aircraft (in motion) in or near the winch launch volume.

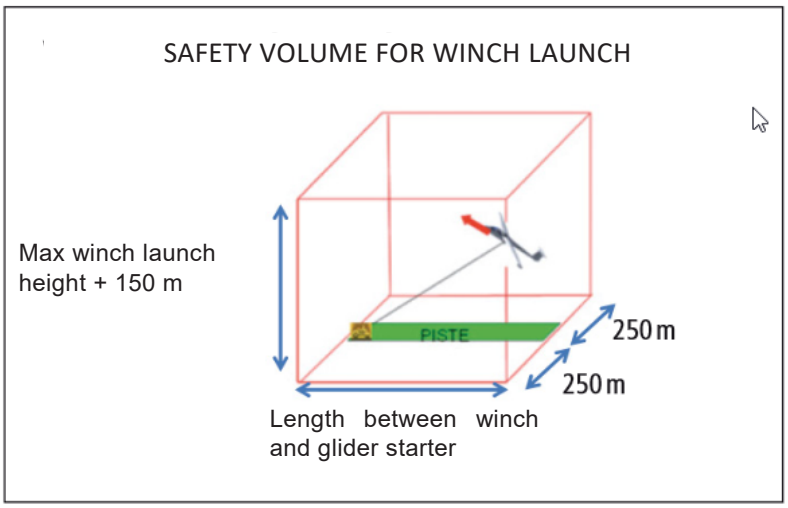


Figure 4: winch launch safety volume described in the glider winch-launch manual (source: CNVV, translated by BEA)

The runway assistant also checks for the absence of aircraft in or near the winch launch volume when he has hooked the cable to the glider's winch hook, and before raising the wing.

The CNVV indicates that as throughout the winch launch, the winch operator is focused on the glider being winched, he must ensure anti-collision safety before applying power.

In the manual, the CNVV has drawn up a list of risks and actions to be taken when they arise. The CNVV has identified, for example, the risk of a cable strike when an aircraft is close to being overhead the aerodrome. The action to be taken is to reject the winch launch by calling out "*STOP TREUIL*" to stop the winch.

2.11 Winch activity statistics in France

The FFVP has not recorded any reports of simultaneous take-offs between an aeroplane and glider being winch launched at aerodromes equipped with a winch. In France, 67 winches are listed, for a total of 52,000 winch launches in 2023.

For information, in 2023:

- the CSVVA carried out the highest number of winch launches (a total of almost 4,000);
- the Saint-Florentin gliding club was in second place, with 3,500 winch launches. The aerodrome has three parallel grass runways. One is reserved for winch launches and is 165 m from the runway used by motorized aircraft. Simultaneous use of these two runways is authorized;
- around 2,800 winch launches were performed at Saint-Rémy de Provence, an aerodrome reserved for gliders and tug planes with a single runway;
- between 2,000 and 2,500 winch launches were carried out at four other aerodromes, one of which is reserved for gliders only, another for home based aircraft, one has an AFIS service and two runways 220 m apart, their simultaneous use is authorised, and the last with two main runways (one paved and one grass reserved for winch launches) 120 m apart, their simultaneous use being prohibited.

2.12 Measures taken after accident

2.12.1 Reminders issued by French National Council of Aeronautical and Sports Federations (CNFAS)

Following the accident, the CNFAS published two information sheets with respect to simultaneous activities on aerodromes, one on towing and the other on winching (both in French). These information sheets describe the operation of these types of take-off, their particular features and the associated risks. They also set out recommendations and best practices to reduce risks, in particular the risk of dangerous proximity between aircraft.

In particular, the CNFAS indicates that no other aircraft may take off or land before the end of winch launch message has been received on the frequency.

The CNFAS also explains that the winch is equipped with a rotating light or a flashing light, which is illuminated every time the winch is moved, and for the entire duration of the winch launch (until the cable has been completely rewound). Any movement of the vehicle or cable is the subject of a radio message. As a message may not have been received, the CNFAS advises to always check whether or not the rotating light or flashing light is operating.

2.12.2 FFA ICARUS sheet

The FFA publishes *ICARUS* sheets for pilots on its website, which summarise, for each aerodrome, the local specificities and the threats likely to have an impact on flight safety as a complement to the information published on the VAC charts. The FFA states that they are intended for use in flight preparation and are designed to make pilots aware of the specific risks associated with each airfield, in order to contribute to a better awareness of the situation. They are available in French and sometimes in English. However, their existence, where applicable, is not mentioned on VAC charts.

Since January 2025, there has been an ICARUS sheet, in French and English, for Chambéry - Challes-les-Eaux aerodrome, which explains how pilots should behave in aerodrome traffic with regard to gliders.

The French flight preparation and tracking application SDVFR now displays the ICARUS sheets when selecting an aerodrome covered by the sheets. The FFA has indicated that it has contacted the publishers of other French applications.

2.13 Regulations concerning language proficiency for radio telephony

Requirement FCL.055 of EU regulation No 1178/2011 known as "Aircrew"[5] sets out that:

"*Aeroplane [...] pilots required to use the radio telephone shall not exercise the privileges of their licences and ratings unless they have a language proficiency endorsement on their licence in either English or the language used for radio communications involved in the flight. The endorsement shall indicate the language, the proficiency level and the validity date.*"

The regulation requires at least an ICAO level 4, i.e. *"operational level of language proficiency both in the use of phraseologies and plain language."*

The BEA questioned the necessity, in view of requirement FCL.055, of having validated language skills in a language other than English when this is specified as mandatory in aeronautical information. To date, no position has been obtained from EASA on this point. The DSAC confirmed to the BEA that the regulatory requirements in this area are ambiguous.

Lastly, the European SERA[6] regulation, Standardised European Rules of the Air, does not contain any radio telephony requirements for A/A (Air to Air) communications.

[5] Commission regulation of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew (Version in force on the day of the accident).

[6] Implementing regulation EU No 923/2012 laying down the common rules of the air and operational provisions (Version in force on the day of the 'accident).

3 CONCLUSIONS

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

Scenario

When the pilot of the aeroplane took off from paved runway 32, a winch launch was in progress on the parallel grass runway. The simultaneous use of the two runways is prohibited on the aerodrome.

The investigation was not able to precisely determine the sequence of events and in particular, whether the pilot of the aeroplane entered the runway after the winch operator had announced the start of a winch launch. The latter indicated that he had not detected the presence of the aeroplane as it taxied to line up at the holding point although he carried out the visual scan specified by the internal procedures notably designed to check that there is no aircraft on the runway before starting the winch launch. While the aeroplane was taxing from the holding point, the runway supervisor of the gliding club warned the pilot over the frequency of the presence of a glider on final for the paved runway.

The glider carrying out a winch take-off left the ground a few seconds after the aeroplane's power was increased. At this point, the aeroplane and the glider were at a lateral distance of 85 m from each other. For an unexplained reason, the pilot of the aeroplane deviated to the RH side during the climb and the propeller collided with the winch cable.

Contributing factors

The following factors may have contributed to the glider and aeroplane taking off simultaneously:

- the aeroplane pilot's possible haste to take off after being warned of the presence of a glider on final;
- the runway supervisor not requesting the rejection of the winch launch as he was concerned about the possible risks involved in rejecting the take-off;
- the difficulty of correctly seeing the threshold of runway 32 from the winch position;
- the large number of winch launches on an aerodrome open to aircraft not based there, with no air navigation service and two adjacent parallel runways, even if the winch launch axis is offset to the opposite edge of the grass runway.

The investigation was not able to determine whether the pilot's level of French was sufficient to understand the calls made by the gliding club regarding the preparation and the start of the winch launch. Neither was it possible to determine the reasons for the aeroplane's deviation to the RH side of the runway centreline during take-off.

Safety lessons

Coexistence of different aeronautical activities on an aerodrome

The simultaneous existence of several aeronautical activities on an aerodrome, each with its own particularities and constraints, can give rise to safety risks.

As the CNFAS points out in a practical information sheet[7] published after the accident, these risks

[7] https://www.aerovfr.com/wp-content/uploads/2024/09/TreuilCNFAS.pdf

can be increased by the presence of pilots who are not based at the aerodrome, or who are not accustomed to this type of coexistence. The various activities are mentioned on the VAC charts of the aerodromes concerned, and may be the subject of special instructions which pilots must take into account when preparing their flight, by reading the charts carefully. Other documents may provide further details on the functioning of activities and the associated risks (recap sheets created by federations, aerodrome information sheets, available on federation websites or on French flight preparation apps, for example). The absence of any mention of the FFA's ICARUS sheets on VAC charts, for example, makes it more difficult for pilots, particularly foreign pilots, to know about these sheets.

These instructions are not infallible safety barriers. All those involved must be especially vigilant with regard to other activities, and be ready to act in the event of an abnormal, potentially dangerous situation. The winch launch operation, in particular, is a specific activity that needs to be structured, with defined roles and well-established procedures. The monitoring of traffic, the rejection criteria and associated actions must constitute key elements of these procedures. To ensure the effective application, it is essential that those concerned are continually made aware of the various risks involved, particularly those associated with the coexistence of different activities.

Language used for radio telephony

A good command of the language, both in expression and comprehension, is essential for safe and effective coordination between aerodrome users, particularly in the case of activities using specific terms or phraseology. This requires pilots to acquaint themselves with and take into account any radio telephony indications available on VAC charts, before undertaking a flight to an aerodrome.

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