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INVESTIGATION REPORT

Accident
to the COMCO IKARUS C42 identified 03AEN and the Schleicher ASK21 registered F-CITS
on 11 September 2019
at Itxassou (Pyrénées-Atlantiques)

Time	Around 16:10[1]
Operator	Itxassou gliding centre
Type of flight	Glider towing
Persons on board	Pilot (microlight) Student-pilot and instructor (glider)
Consequences and damage	Tug pilot deceased, microlight destroyed Glider damaged

This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in September 2021. As accurate as the translation may be, the original text in French is the work of reference.

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

Loss of control of tug microlight at take-off and collision with the ground; collision of towed glider with a tree, in instruction

1 - HISTORY OF THE FLIGHT

Note: the following information is principally based on a video taken by a witness on the ground and on statements.

At around 16:10, in temperate meteorological conditions[2], the microlight pilot took off from unpaved runway 26 at Itxassou aerodrome to make his ninth glider tow flight of the day, all of them performed in the afternoon. A student-pilot and an instructor were on board the glider being towed.

[2] North-westerly wind of 10 kt gusting at 17 kt, temperature 22 °C.

Shortly after the tug aircraft's lift off, it deviated to the left of the runway centreline. The glider was still on the ground. A yaw correction to the left during its take-off run to laterally follow the tug aircraft was observed.

The tug aircraft climbed sharply with the nose-up attitude increasing, wings level, whilst the glider remained near the ground. The combination lost speed, whilst moving further away from the runway centreline, until they laterally exited the aerodrome grounds. The tug aircraft next banked steeply to the left, when it was at a height of a few dozen metres, then fell to the ground. The glider instructor released the cable.

The microlight collided with the ground, and the glider collided with a tree before coming to a stop in a field.

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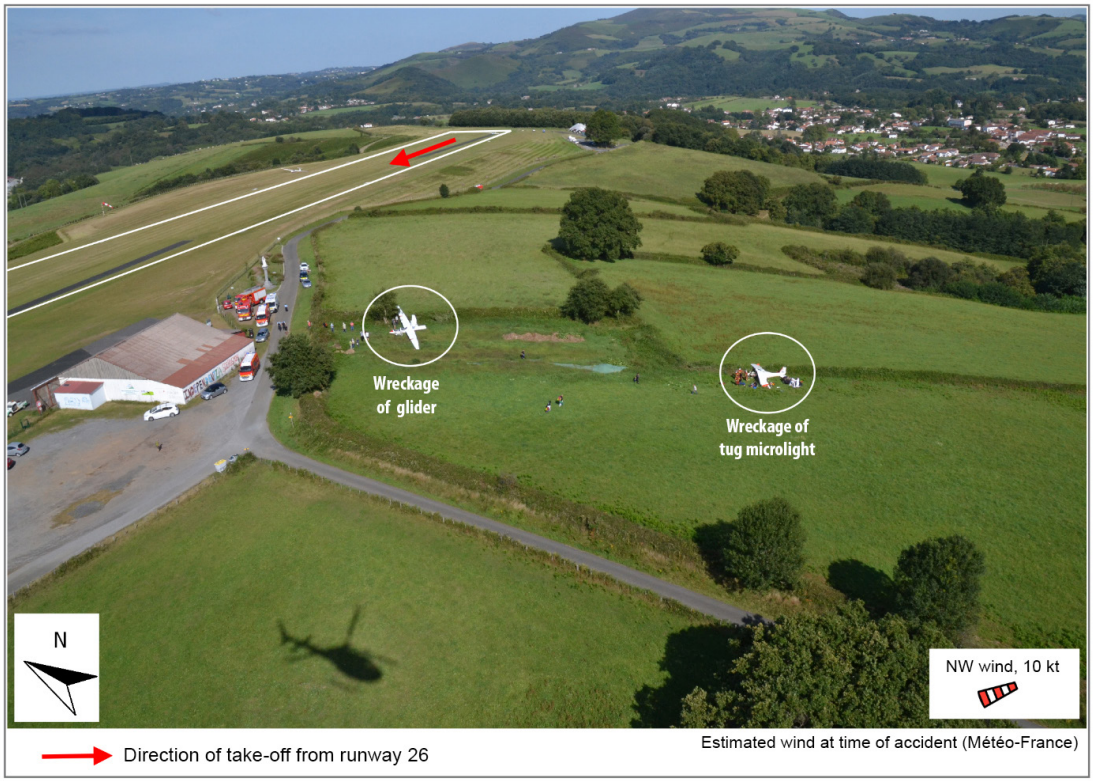
2 - ADDITIONAL INFORMATION

2.1 Examination of the wreckages

Both wreckages were found to the south of the aerodrome runway. The glider wreckage was approximately 110 m south of the runway centreline, near a tree. The microlight wreckage was approximately 70 m further south (see illustration).



Source: Détachement Aérien de la Gendarmerie de Bayonne

Position of the wreckages

The microlight wreckage was complete and not dispersed. Observations of the wreckage found that the microlight had struck the ground with a nose-down attitude and a left bank angle. The position of the flaps when it collided with the ground could not be established with certainty. The examination of the microlight wreckage did not bring to light any anomaly likely to have contributed to the accident.

The glider presented damage consistent with the impact.

The tow cable was still attached to the tug aircraft and the other end was intact and detached from the glider. The cable release control lever in the glider was found in a position corresponding to an open hook.

2.2 Regulatory requirements for towing gliders in a microlight

In France, the Order of 23 September 1998, pertaining to motorised microlight aircraft[3] contains the regulatory requirements pertaining to the microlight activity and in particular towing a glider in a microlight.

To tow a glider in a microlight:

- The microlight must be authorised by the French civil aviation authority (DGAC) to make glider tow flights. This authorisation is based notably on in-flight tests performed by the *Centre National de Vol à Voile* (CNVV) at Saint-Auban (Alpes-de-Haute-Provence).
- The microlight must be maintained in compliance with its user manual.
- The microlight pilot must:
  - hold a microlight pilot licence for the relevant class;
  - hold a glider pilot licence;
  - have logged, as pilot in-command, at least 50 hours on gliders and have satisfactorily performed a microlight flight check, prior to undergoing glider towing training, carried out by an instructor approved by the organisation;
  - have followed minimum towing training, in compliance with the regulatory programme defined in the Order;
  - follow a recurrent training programme described and implemented by the organisation.

However, the regulations do not contain any medical requirement for microlight pilots, including when towing a glider[4].

2.3 Tug pilot information

2.3.1 Experience and licences

The 82-year-old pilot held a glider pilot licence issued in 1966, along with self-launch, power and advanced aerobatic ratings. He had logged more than 2,700 flight hours in gliders, three-and-a-half hours of which in the last three months, and had taken part in several aerobatic competitions. He had logged more than 2,500 flight hours in aeroplanes and around 100 flight hours in helicopters. He had stopped flying aeroplanes and helicopters in the early 2000s.

He held a fixed wing microlight pilot licence with passenger carrying privileges issued in 2000, as well as a glider towing rating issued in 2014. He had logged more than 300 flight hours in microlights, 23 hours of which in the last three months.

2.3.2 Medical and pathological information

The seriously injured pilot was treated by the emergency services for non-haemorrhagic cardiocirculatory failure and was taken to hospital, where he died.

The non-haemorrhagic character of the cardiocirculatory failure, despite the traumatic context, was consistent with a malaise in flight.

The autopsy revealed traumatic bone and lung injuries caused by the collision with the ground. Two coronary-artery bypass grafts and myocardial scarring showing heart disease prior to the accident were identified.

[3] https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000392212/2019-09-11/ (Version in force the day of the accident).

[4] Certain organisations do however impose additional requirements: for example the CNVV require that their microlight tug pilots hold a class 2 medical certificate.

2.3.3 Information on his medical certificate

The pilot held a valid class 2 medical certificate, associated with his glider licence, which expired on the day of the accident. He had an appointment to see his aviation medical examiner the day after the accident to request renewal of the medical fitness certificate. This medical certificate is not applicable for microlight flights but is required to fly a glider.

His medical certificate notably included the OSL[5], requiring the presence of a second qualified pilot on board, issued by derogation by the civil aviation medical association in 1997.

[5] Operational Safety pilot Limitation.

The OSL limitation is intended to minimise the consequences of an in-flight incapacitation of a pilot whose state of health is characterised by an acceptable theoretical risk of a malaise. It was issued to the pilot following a heart operation. The pilot then corrected his cardiovascular risk factors by adopting a healthy lifestyle which allowed him to renew his fitness certificate each year. He was subject to regular heart and aeronautical medical check-ups.

2.4 Statements

2.4.1 Instructor on board glider

The instructor was the club's training manager. He was also an examiner pilot and an instructor trainer.

It was his third flight of the day, all three flights towed by the pilot of the microlight involved in the accident, but with different glider student-pilots.

He stated that during the radio tests and on lining up on runway 26, the tug pilot had responded normally. During the take-off run, he noted that the microlight started to deviate laterally by several degrees to the left. He asked the student-pilot to follow him. When they had completely deviated from the centreline, shortly after lift off, he told the student-pilot that he was taking over the glider controls. He then saw the microlight suddenly adopt a steep nose-up attitude. He used the radio several times to ask the microlight pilot to stop pulling but the latter failed to respond[6]. He saw the left wing of the tug microlight stall.

[6] Other members of the club at the edge of the runway with a radio confirmed this and that there was no reply from the pilot.

According to him, he could not release the cable due to obstacles nearby and the slow speed. He had hoped that the tug pilot would respond to his calls, or at least come back to the runway centreline and correct the nose-up attitude. He does not remember releasing the tow cable. The glider collided with a tree before coming to a stop in a field.

He had not identified the position of the microlight's flaps.

He added that the student-pilot had not intervened during the sequence and had not disturbed his actions.

Lastly, he stated that he had been aware of the tug pilot's medical limitation, but specified that the tug pilot had maintained a very healthy lifestyle: he regularly ran 10 km per day, did not smoke and did not drink. He also attended regular six-monthly check-ups with an aviation medical examiner.

2.4.2 Student-pilot on board glider

The student-pilot's statement corroborated the sequence of events reported by the instructor. He stated that he had seen the instructor release the tow cable before the collision with the tree.

He stated that he had not been aware of the tug pilot's medical situation.

2.4.3 Other statements

Other members of the club, including its managers, stated the following:

- The club's managers had been aware of the microlight pilot's medical limitation.
- When the microlight pilot flew in a glider, he respected his medical limitation and always flew accompanied by a second qualified pilot.
- He carried out numerous microlight flights alone, both for pleasure and to carry out tow flights.
- The club also owned a MS 880 Rallye type tug aircraft. However, due to operating costs, the Ikarus was almost exclusively used for towing.
- Generally at the club, a change of tug pilot was made after 12 to 15 flights. Two other tug pilots were also present at the time of the accident.

2.5 Summary of the pilot's situation with regard to medical requirements within the framework of mixed glider towing activities

In towed flight, a combination comprises a glider and a tug that can be a plane or a microlight. Thus, different aeronautical requirements apply to the different aircraft in the combination and these requirements vary depending on the tug aircraft used: glider towing is a mixed activity.

In the safety model associated with glider flying, a European LAPL medical certificate or a European class 2 medical certificate is required, and its associated privileges and limitations apply. This is the same for flights in a plane, in particular when a glider is towed.

However, there is no medical regulatory requirement applicable to microlight flights, even when towing a glider (see paragraph 2.2). To tow with a microlight, it is not mandatory for the required glider pilot licence to be valid. Thus, a valid class 2 medical certificate or an LAPL certificate is not required.

In the context of the accident, the medical OSL limitation to the tug pilot's class 2 medical, which imposed a second qualified pilot on board, was not applicable to the glider towing flight performed using a microlight. The situation where the pilot regularly carried out glider towing flights, alone on board the microlight, was therefore acceptable in accordance with the regulations.

In glider towing, the combination is not considered as a whole. Yet, as the two aircraft are physically connected, an occurrence impacting one can also impact the other, especially in the critical stages of the flight such as the take-off during which the low height leaves little time to react.

2.6 Previous occurrences

The BEA was informed of other occurrences concerning this tug pilot on this microlight.

In April 2019, he took off from runway 26 at Itxassou aerodrome, towing a glider with two pilots on board. The complete combination left the ground, then the tug deviated to the left before adopting a steep nose-up attitude. The pilots on board the glider were unwilling to release the cable because of the hangar located to the west of the runway, and shouted over the radio to alert the tug pilot. The latter returned to a conventional flight attitude and the flight continued without further incident.

After the flight, one of the glider pilots debriefed the occurrence with the tug pilot, who had been unable to provide an explanation. The occurrence was not the subject of feedback or a CRESAG (general aviation safety occurrence report).

In June 2019, he took off from runway 26 at Itxassou aerodrome with a crosswind, towing a glider with a student-pilot and an instructor on board. During the take-off run, the tug started to deviate to the left of the runway centreline and exited the acceleration strip. Still on the ground, the glider also exited the strip but at a gentler angle. Once in flight, and when he considered the path to be dangerously close to the hangar, the instructor decided to release the cable and to return to the centreline to land. Upon releasing the cable, the instructor stated that the tug had taken a steep nose-up attitude, banked right to return to the centreline, made a low-height runway circuit and landed.

The tug pilot stated that he had had the feeling that the microlight's tail was being continually pulled to the right and of ineffective actions on the controls to return to the centreline.

The occurrence was the subject of feedback and a CRESAG. The gliding centre's analysis concluded that the microlight had deviated from the runway centreline due to the combined effects of the crosswind and the engine torque. As the glider had remained more or less on the runway centreline, the lateral tension on the cable had prevented the tug from returning to the runway centreline as the control was against its stop.

The gliding centre stated that it had implemented the following corrective actions: issuance of an advisory to pilots to try to follow the tug within reason, and to immediately release the cable in the event of danger.

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

During take-off, the path of the tug microlight gradually deviated to the left of the runway centreline in the direction of the wind and engine torque effects. The instructor asked the student-pilot to follow the tug, and the glider, still on the ground, laterally followed the microlight's path with a left yaw movement. When the combination was in the air and the glider was at low height, the microlight adopted an increasingly steep nose-up attitude. The instructor on board the glider took over the controls and asked the tug pilot several times over the radio to stop pulling on the controls. The tug pilot did not respond. The left wing of the microlight then stalled and the microlight collided with the ground. The instructor released the cable before colliding with the ground. By chance, the student-pilot and the glider instructor came out of the occurrence unscathed.

The combination's manoeuvres cannot be explained by a lateral deviation of the glider in relation to the tug. However, the observations of the emergency services, the autopsy results and the pilot's past medical history, as well as his lack of response over the radio, point to the tug pilot becoming incapacitated during the flight. The pilot's advanced age as well as the nine flights performed in the afternoon could have contributed to this incapacitation.

Having suffered a heart attack 20 years previously, the tug pilot had adopted a healthy lifestyle enabling him to conform to the requirements of the class 2 medical regulations with an Operational Safety pilot Limitation (OSL) which required him to fly on board a certified aircraft in the presence of a second qualified pilot who would be able to take over the controls in the event of a possible in-flight incapacitation.

His determination to fly, the service he rendered to the club and his aeronautical experience resulted in him being alone on board a microlight in compliance with the regulations, but contrary to the meaning of the OSL limitation to which he was subject (single pilot flight prohibited) and that he adhered to for his glider flights.

Actions taken following the accident

Following the accident, the managers of the Itxassou gliding centre decided to no longer authorise pilots without a valid medical certificate to tow, and to no longer authorise pilots with a class 2 certificate with OSL limitation to tow gliders in a microlight.

4 - RECOMMENDATIONS

Note: in accordance with the provisions of Article 17.3 of Regulation No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation, a safety recommendation in no case creates a presumption of fault or liability in an accident, serious incident or incident. The recipients of safety recommendations report to the issuing authority in charge of safety investigations, on the measures taken or being studied for their implementation, as provided for in Article 18 of the aforementioned regulation.

4.1 Medical requirements for towing a glider with a microlight

The tug pilot had undergone the medical fitness examination required to exercise the privileges of his glider pilot licence. It was identified that he was exposed to a risk of in-flight incapacitation. In order to "manage" such a risk, the class 2 medical certificate that he held was accompanied by an OSL limitation requiring the presence of a second qualified pilot on board. This limitation was not applicable under regulations to the accident flight carried out in a microlight.

The possibility for the tug pilot to fly alone on board the microlight obscured the meaning and practical aspects of his medical limitation, unrelated to the type of aircraft. If this risk is only run by the tug pilot, it can be considered that he is solely accountable to himself and that he judges this risk acceptable. This occurrence shows, however, that the occupants of the glider, although subject to medical requirements, can be exposed to an unmanaged medical risk via the tug-glider combination.

It should also be noted that for operating costs, environmental and noise abatement reasons, the use of microlights for towing will, in all likelihood, be more frequent in the future.

Consequently, the BEA recommends that:

- **in the absence of medical requirements for towing a glider with a microlight and given the regulatory inconsistency raised by the accident, namely a pilot with a medical certificate with an OSL limitation flying alone on board a microlight which was towing a glider,**
- **whereas the glider clubs' judgement with respect to medical matters may not be sufficient without resolute encouragement or support,**
- **whereas the use of microlights for towing will, in all likelihood, be more frequent in the future,**

the French glider federation (FFVP) encourage the glider clubs to adopt appropriate medical measures for their tug microlight pilots.
[Recommendation FRAN 2021-012]