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Safety Investigation Report

Ref. AAIU-2024-01-28-02
Issue date: 20 October 2025
Status: Final

Scope: Limited

As per ICAO Annex 13 and EU regulation EU 996/2010, decisions regarding whether to conduct a civil aviation safety investigation, and the extent of an investigation, are based on many factors, including the level of safety benefit expected to be drawn from such an investigation.
For this occurrence, a limited-scope, fact-gathering investigation and analysis was conducted in order to produce a short summary report. The investigation mainly focussed on the actions and conditions directly relating to the occurrence and might not cover all aspects of the aircraft operation and/or possible underlying safety factors due to the expected safety benefit of it and/or the extent of evidence/resources available.

SYNOPSYS

Occurrence class	Accident
Occurrence category	Abnormal runway contact (ARC)
Date and time[1]	Sunday 28 January 2024 14:15 UTC
Location	On Weelde airfield (EBWE)
Aircraft	Alexander Schleicher ASK-13
Aircraft category	Fixed wing - Sailplane - Non-powered
Location of departure	Weelde Airfield (EBWE)
Planned destination	Weelde Airfield (EBWE)
Type of operation	Non-commercial - Local
Phase of flight	Takeoff
Injuries	1 seriously and 1 minor injured
Aircraft damage	Substantial

What happened

A sailplane, type ASK 13, was set for a winch-launch take-off. During the first moments of the start, the winch was unable to accelerate the sailplane as expected. The sailplane lifted off and descended abruptly for a hard landing. The passenger, seated in the rear position, above the main wheel, sustained severe injuries.

[1] All time data in this report are indicated in UTC, unless otherwise specified

1. THE OCCURRENCE

The Koninklijke Kempische Aeroclub operates at the Weelde airfield (EBWE).

On this particular day, it was the 13th winch start. Runway 07 was in use, and the ASK-13 sailplane was ready for take-off. A cable, equipped with a weak link and a parachute, was hooked onto the sailplane.

The pilot was seated in the front, while the passenger, who held a sailplane pilot license with an instructor rating, occupied the back seat.

The crew conducted first an external inspection of the sailplane. Afterward they performed the necessary pre-flight checks while seated inside the sailplane. Once everything was in order, the sailplane was hooked up for winch towing. The pilot signaled that they were ready for take-off, and a 'runner' held the wing horizontally. The winch operator then signaled the start of the take-off. According to the pilot, the take-off initially proceeded normally without any issues.

The sailplane transitioned into a light controlled ascent phase. This phase precedes the rotation.

Shortly after the sailplane lifted off, the pilot felt that something went wrong: the winch cable wasn't broken but the acceleration was noticeably lower than normal. At that moment the sailplane was about 30 – 35 m height above the grass runway.

As the winch operator attempted to increase power by moving the throttle handle, he noticed that it had become stuck. Consequently, he was unable to increase the RPM beyond 1200, whereas 1700 RPM is required for an ASK-13 to start. Realizing the issue, the operator immediately signaled "*break, break*" over the radio to notify the pilot of the winch problem.

The pilot reacted by pushing the stick to the front and attempted to round-off before touching the ground again. The cable became detached, however the pilot stated he did not operate the disconnect handle.

The sailplane impacted the ground with his nose first, bounced and came to a stop 150 m further from its starting point.

The pilot only had minor injuries and could vacate the aircraft by himself.

The passenger, who was seated above the main wheel, sustained the most severe injuries from the hard landing, suffering spinal injuries. He was evacuated to the hospital and subsequently underwent surgery.

2. CONTEXTUAL INFORMATION

2.1 Damage to the airplane

Structural damage to the empennage and belly of the sailplane.

Figure 1 : A detail of the damaged empennage

2.2 Personnel information

Table 1 : Front seat pilot data

Age	28 year
License	EASA Sailplane Pilot License (SPL), issued in May 2021
Medical	Class LAPL certificate
Ratings	Qualified for aerotow and winch launch.

Table 2 : Back seat passenger/pilot data

Age	77 year
License	SPL, first issued in 1974
Medical	Class LAPL certificate
Ratings	Qualified for aerotow and winch launch. Flight Instructor (Sailplane)

2.3 Aircraft information

The ASK 13 is a two-seater sailplane and was built by the German manufacturer Alexander Schleicher Gmbh. It is widely used for basic flight training.

The ASK 13 is made of metal, wood and fiberglass. It has a 6-degrees forward sweep single-spar wing allowing the pilot to be seated near the centre of gravity.
The landing gear consists of a non-retractable sprung wheel, mounted aft of the centre of gravity.

Table 3 : General aircraft data

General	
Manufacturer	Alexander Schleicher
Model:	ASK 13
History	
Year of built:	1986
Registration:	OO-ZKS, registered by the Belgian CAA
Airworthiness:	Airworthiness Review Certificate issued on 01 May 2023, valid until 21 June 2024

General characteristics:

- Crew: 2
- Length: 8,18 m
- Wingspan: 15,95 m
- Height: 1,6 m
- Wing area: 17,5 m^2

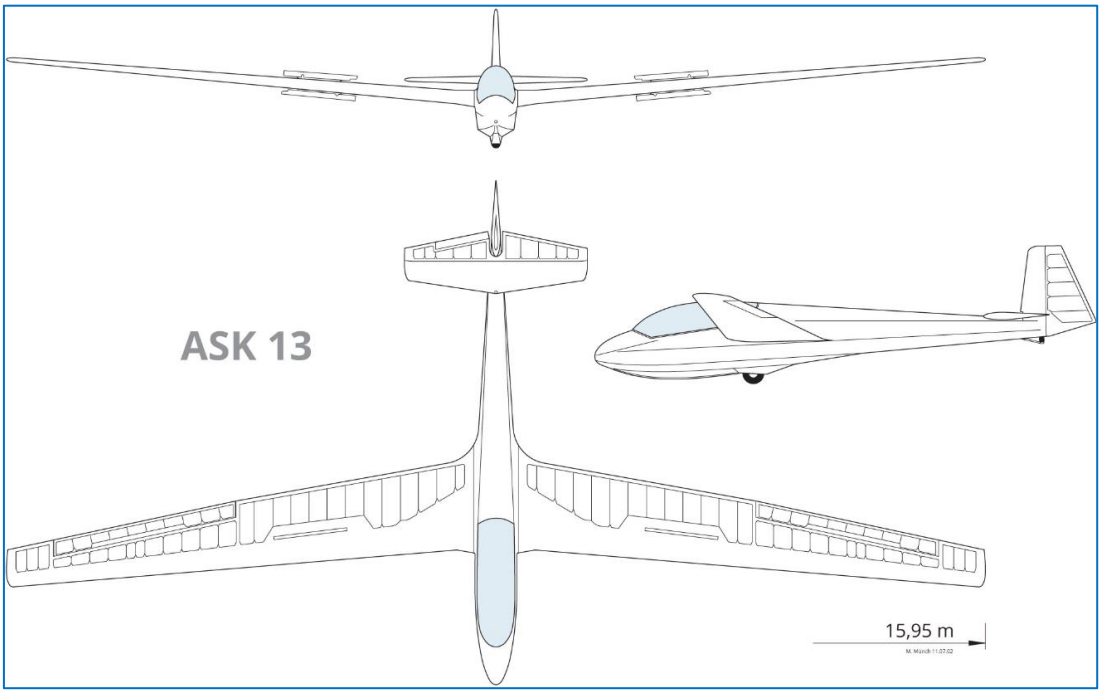

Figure 2: 3-view drawing of the ASK 13

2.4 Meteorological information

The airfield noted the following local meteorological conditions at the time of the accident:

Wind: 5 knots, 140 degrees

Temperature: 8 °C

QNH: 1022 hPa

Cloud ceiling and visibility were OK

2.5 Aerodrome information

Weelde airfield (ICAO code EBWE) is a military airfield operated by civilian clubs outside military activity. It is located in the commune of Ravels in the North of the province Antwerpen.

The military airfield is equipped with a 2980 m long x 45 m wide concrete runway, oriented 070°/ 250°. Sailplanes are using the grass zone next to the concrete runway.

For civilian use, the runway is reduced to 799 m long and 18 m wide.
Elevation is 33 m above sea level
The airfield is operated during daytime hours.

Basic flight information is provided by radio: "Weelde Radio" - 119.600 MHz - Information only, no ATC.

The use of the aerodrome is subject to prior permission (PPR) from the operator.

2.6 The winch

2.6.1 Regulation

The winch used to launch a sailplane is not subject to any aviation legislation. EASA left it explicitly to the (national) gliding federations to establish standards and maintenance practices for these winches.

The training syllabus (AMC to Part-SFCL) requires that glider pilots be able to anticipate an interruption of the launch at all phases of take-off.

Common references used by Belgian aeroclubs for winch operations include publications from the *British Gliding Association* (BGA) and the *French Fédération Française de Vol en Planeur* (FFVP). Additionally, a national winch regulation has been established by the overarching Royal

Belgian Aeroclub in collaboration with the national gliding federations. This regulation also mandates that any aeroclub operating a winch must implement both daily and annual inspection programs.

2.6.2 General information on the used winch

The winch is of the type Leopard

- Manufacturer: Glider Winch Europe on behalf of MEL (Machinefabriek Etten-Leur, which went bankrupt in 2009)
- Type: Leopard 4
- Serial number: 34-6003-Z
- Built year: 2008
- Number of drums: 4
- Engine: Diesel 8250 cc

The winch was built in very low numbers. During the investigation, it was discovered that this particular winch was the only one constructed with push-pull cables for engine controls. Other Leopard winches were found to have either an electrical motor or rods for the transmission.

Figure 3 : A picture of the concerned winch

2.6.3 Inspection and findings

Upon inspection, it was found that the throttle control cable from the operator to the winch engine was crunched, causing the push-pull cable to become stuck in the synthetic sheath.

On the operator-side, the push-pull cable is connected to the throttle lever via a bell crank.

On the engine-side, a straight push-pull rod end fitting is attached to the throttle valve assembly. The connection to the throttle lever accommodates various positions.

It appears that the initial position has previously been adjusted, (see Figure 5) resulting in the rod end fitting forming a slight angle (α) with the cable conduit at its attachment bracket.

This setup induces a lateral force on the inner casing of the push pull cable sheath and causes wear on the inner conduit.

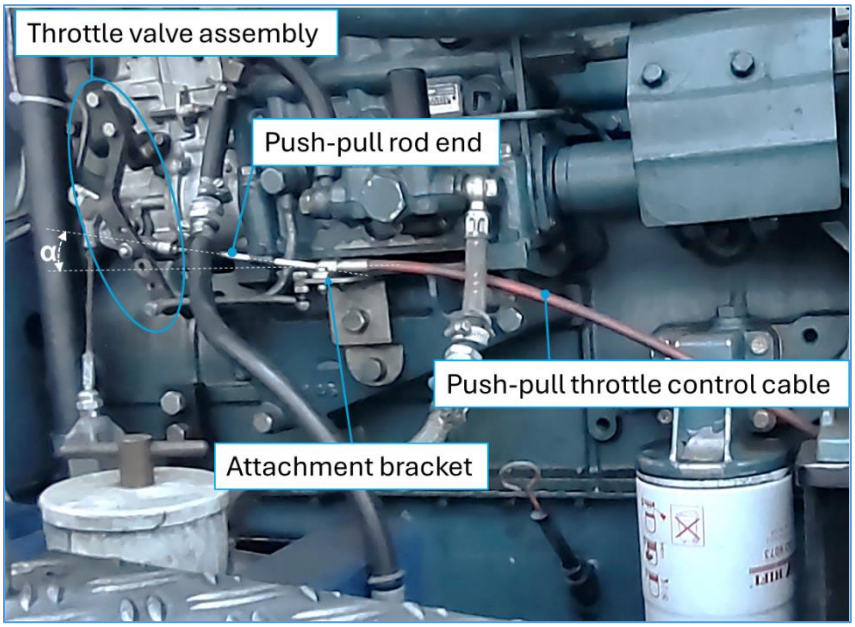

Figure 4: Push-pull throttle control cable installation on the engine-side

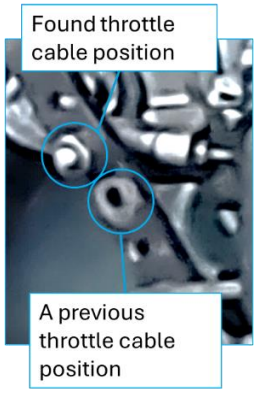

Figure 5: Witness marks showing a previous throttle cable position

Figure 6: the bent rod end fitting of the push-pull throttle control cable

The maintenance program of the winch did not require any inspection of the push-pull cable, nor a scheduled replacement. The regular maintenance activities performed on the winch failed to detect the deterioration of the control cable.

2.7 Power loss during winch launching

The *British Gliding Association* (BGA) published in October 2017, a Safety Briefing on safe winch launching (https://www.gliding.co.uk/).

Figure 7: Safety Briefing on Safe Winch Launching from the British Gliding Association (source BGA).

They observed that between 1974 and 2005, there were 36 fatal and 72 serious injuries resulting from accidents related to incomplete winch launches in the UK.
278 gliders, about 8 per year, were destroyed or substantially damaged in winch accidents during the same period.

The briefing discusses the main causes of accidents during winch launches and provide advice on how to prevent them from occurring.

An extract from the Safety Briefing booklet:

(…)

2.Rotation

(…)

2 POWER LOSS BELOW 100 ft

Accidents resulting from power loss below 100ft used to be common. The serious accidents often led to compressed vertebrae. Usually the glider landed in a stalled state but in 20% of the accidents the glider hit the ground nose first, unstalled. 40% of these power loss accidents were during instructional flights usually when simulating a cable break.

A glider with an L/D of 25 that suffers power loss in a 25° climb at 55 knots might not appear to be vulnerable if the pilot lowers the nose at 0g to a 10° recovery dive but delay in lowering the nose may result in a stall. If there is no delay the airspeed at the beginning of the recovery dive when the 1g stalling speed is restored is a healthy 49 knots. With a 2 second delay the airspeed will be 34 knots and the glider will probably crash.

After power loss below about 70ft a single mistake of lowering the nose too little or too much, or being one second too late in lowering the nose, can make a crash inevitable. This is what happened in many of the instructing accidents. The student made a mistake and the instructor did not take over in time to initiate a recovery.

Advice to recover after power loss below 100 ft:

- If the launch fails, immediately lower the nose to the appropriate recovery attitude. Minimising the reaction time is crucial.
- Do not use the airbrakes unless the glider has attained an appropriate attitude combined with a safe speed.
- Instructors: simulated power loss with less than 50ft and 55kt must be by instructor demonstration only.

PRACTICAL CONSIDERATIONS

Avoid ever being too low, slow, and steep. This can be achieved by following the same launch profile guidelines as those for avoiding a stall during rotation (page 6-7. Safe winch launching – BGA 6th Edition, October 2017).

In a cross wind, wait until you have climbed to about 300ft before correcting for drift.

If power is lost, the imperative is to lower the nose immediately to the correct recovery attitude. Every half second counts. You need to anticipate power loss on every launch and be ready to lower the nose without delay.

After power loss very near the ground it may not be possible to achieve the approach speed. Be aware that previous habits might lead you to open the airbrakes at an unacceptably low airspeed. If the airspeed is very low you will need to make a brakeless landing. If the airspeed is a little higher it may be safe to crack the brakes. Do not release the cable unless you have time to spare. It will safely back release.

The same safety procedures in the event of a winch power failure—lowering the nose, adapting approach speed, and landing straight ahead—are reiterated in the French *Manuel de lancement des planeurs au treuil* (English: *Winch Launch Manual for Gliders*).

3. ANALYSIS

3.1 The flight path

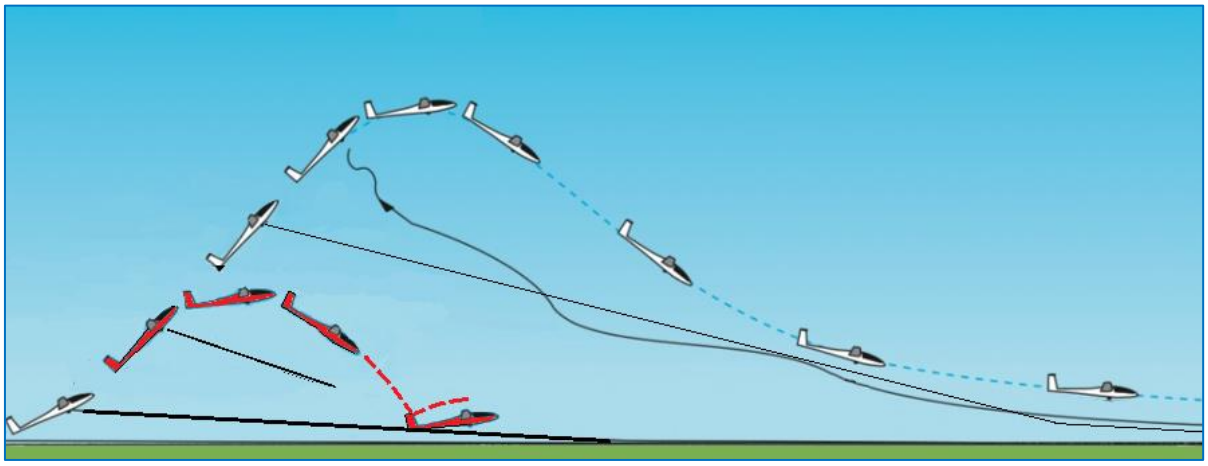

Figure 8: sketch of the flight path (in red; the flight path of the incident sailplane, in white; the desired flight path after a power loss or winch failure)

The sailplane pilot reacted immediately after sensing the abnormal reaction of the winch. His reactions were consistent with the advice provided in existing international guidance for recovering after a power loss below 100 feet.

However, the sailplane airspeed was insufficient to sustain flight and the pilot could not avoid the sailplane made hard contact with the ground.

The pilot did not release the tow cable, that eventually got detached, most probably during the initial impact with the ground, or the subsequent rebound.

3.2 The winch

The incident was caused by jamming of the throttle control push-pull cable in its housing, which occurred after 15 years of operation.

The manufacturer had produced a limited number of this winch type before going bankrupt. These winches were not series-produced, and had each a different lay-out, including the throttle control system. During the investigation, it was discovered that this particular winch was the only one equipped with a push-pull cable for the winch motor throttle control.

The maintenance program, prepared by the winch manufacturer, did not include an inspection of the push-pull cable, likely due to the unique nature of the lay-out.

The operator used and maintained the winch according to the manufacturer's recommendations. As a result, no thorough inspection was performed to detect potential wear.

Additionally, the various positions of connection to the throttle lever and the attachment of the control cable to the winch structure allowed for lateral movement of the cable during operation. This movement likely induced the wear that eventually caused the jamming.

4. FINDINGS

4.1 Findings as to causes and contributing factors

- The normal operation of the winch during the glider launch was hindered because the winch motor rotational speed was limited by the position of the throttle lever.
- The position of the throttle lever on the engine was limited by the push-pull control cable being stuck in its sheath.
- The maintenance manual of the winch did not include an inspection of the condition of the push-pull control cable.
- The push-pull control cable was found crunched.

4.2 Findings as to risks

- There was no support from the winch manufacturer after it ceased operations in 2009.
- The winch seemed to be the only model of the Leopard type fitted with a push-pull control cable to operate the motor throttle.

4.3 Other findings

- The sailplane pilot reportedly reacted promptly to the event, following the advise in existing guidance. However, the circumstances could not prevent him from a hard landing.

5. SAFETY ACTIONS AND RECOMMENDATIONS

*A **safety issue** is a safety factor that (a) can reasonably be regarded as having the potential to adversely affect the safety of future operations, and (b) is a characteristic of an organization or a system, rather than a characteristic of a specific individual, or characteristic of an operational environment at a specific point in time.*

*A **safety action:** the steps taken or proposed to be taken by an organization or agency on its own initiative in response to a safety issue.*

*A **safety recommendation** is a proposal by the safety investigation authority in response to a safety issue and based on information derived from an investigation and/or study. It's aimed to improve the safety of an organisation and/or system and therefor always addressed to an organisation and/or agency, never to a specific individual. The sole purpose of a safety recommendation is the prevention of accidents or incidents and the reduction of the consequences of such occurrences. It, in no case has the purpose of creating a presumption of blame or liability for an accident or incident. Neither does it reflect the level of contribution to a specific accident or incident.*

*A **safety lesson learned** is the knowledge and insight gained through an individual's experience, intended to be applied to prevent similar events from occurring in the future.*

*A **safety message:** An awareness which brings to attention the existence of a safety factor and the lessons learned. AAIU can distribute a safety message to a community (of pilots, instructors, examiners, ATC officers), an organization or an industry sector for it to consider a safety factor and take action where it believes it appropriate. There is no requirement for a formal response to a safety message.*

5.1 Safety action

The club introduced a yearly inspection on the push-pull throttle control cable in the maintenance program.

The AAIU has no further safety recommendations.

ABOUT THIS REPORT

General	
What?	Safety investigation reports are a technical document that reflects the views of the investigation team on the circumstances that led to the accident or serious incident and is conducted in accordance with Annex 13 to the Convention on International Civil Aviation and Regulation (EU) No 996/2010.
Objective	**The sole objective of safety investigations is the determination of the causes, and to define safety recommendations in order to prevent future accidents and incidents. It is not the purpose of this investigation to apportion blame or liability.** In particular, Article 17-3 of Regulation (EU) 996/2010 stipulates that the safety recommendations made in this report do not constitute any suspicion of guilt or responsibility.
Investigation authority	The Air Accident Investigation Unit of Belgium (AAIU for the rest of this publication). It is the Belgian permanent national civil aviation safety investigation authority as defined in Article 4 of Regulation (EU) No 996/2010 and established in accordance with the Royal Decree of 26 December 2022. This unit is part of the Federal Public Service Mobility and Transport and is functionally independent from the Belgian Civil Aviation Authority and other interested parties.
This investigation	
Investigation initiation	AAIU was notified of the occurrence by Skeyes ACC. It was decided to not travel to the scene of the accident.
Scope	**Limited** As per ICAO Annex 13 and EU regulation EU 996/2010, decisions regarding whether to conduct a civil aviation safety investigation, and the extent of an investigation, are based on many factors, including the level of safety benefit expected to be drawn from such an investigation. For this occurrence, a limited-scope, fact-gathering investigation and analysis was conducted in order to produce a short summary report. The investigation mainly focussed on the actions and conditions directly relating to the occurrence and might not cover all aspects of the aircraft operation and/or possible underlying safety factors due to the expected safety benefit of it and/or the extent of evidence/resources available.
Other parties involved	None
	AAIU would like to thank the mentioned parties above and all other entities and individuals that have contributed to this safety investigation.