



Quarterly Aviation Report

October - December 2023

Q4 2023



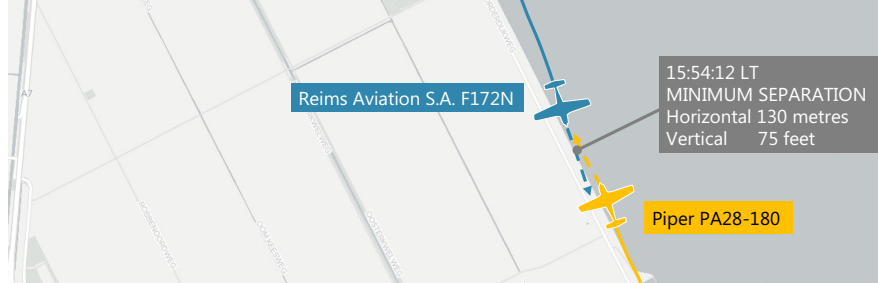
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Investigations

Within the Aviation sector, the Dutch Safety Board is required by law to investigate occurrences involving aircraft on or above Dutch territory. In addition, the Board has a statutory duty to investigate occurrences involving Dutch aircraft over open sea. Its investigations are conducted in accordance with the Safety Board Kingdom Act and Regulation (EU) 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. If a description of the events is sufficient to learn lessons, the Board does not conduct any further investigation.

The Board's activities are mainly aimed at preventing occurrences in the future or limiting their consequences. If any structural safety shortcomings are revealed, the Board may formulate recommendations. The Board's investigations explicitly exclude any culpability or liability aspects.



“Looking out or having to swerve?”

In the ideal world, all aircraft have equipment that gives a timely warning if another aircraft comes too close. A pilot can then make choices in time to swerve. But nowhere near all aircraft have this equipment and in practice a pilot cannot always visually detect every other aircraft in a timely manner.

It is therefore not surprising that airproxes have for years been the occurrence type most investigated by the aviation sector of the Dutch Safety Board. This was also the case in 2023.

In 2023, the Dutch Safety Board launched investigations into nine airproxes. This recent occurrence is an example:

Location: entry point of the aerodrome traffic circuit of Midden Zeeland Airport.

Date: 8 October 2023

Situation: a Cessna 208B had just dropped parachutists. The Robin DR 400/180 had just towed a glider. Both aircraft were returning to the airport to land. In doing so, they flew very close to each other. The Cessna flew just above the Robin. After landing, it emerged that the Robin's rearview mirror had disappeared.

An airprox is when two aircraft are at risk of colliding. Pilots experience airproxes in different ways; some pilots will find it exciting, while others will consider it frightening. But an airprox can potentially endanger the safety of many. This is why the Dutch Safety Board recently launched an investigation into recurrent themes in the occurrences involving airproxes. Everyone can benefit from clear lessons for the future. And wouldn't it be great if the number of airproxes in the next annual review of investigated occurrences in aviation is much lower!

Chris van Dam
Chairperson Dutch Safety Board

Review of occurrences investigated in 2023

The Dutch Safety Board is required by law to investigate all serious incidents and accidents involving manned aircraft in the Netherlands. In 2023, the Dutch Safety Board launched an investigation into 24 serious incidents¹ and 23 accidents. The pilot of a glider was killed in an accident. The Dutch Safety Board also investigated two incidents with gliders.

Aviation reports

In 2023, in addition to four Quarterly Aviation Reports, the Dutch Safety Board published seven other aviation reports. These reports are:

- Fly-away after compass malfunction, The Hague, 11 April 2020;
- Loss of control after cockpit canopy opened, Kornhorn, 13 February 2021;
- Engine failure during initial climb phase, Meerssen, 20 February 2021;
- Loss of engine power after take-off, Teuge International Airport, 25 June 2021;
- Take-off with erroneous take-off data, Berlin Brandenburg Airport (Germany), 12 September 2021;
- Fatal accident Dyn'Aéro MCR01, Caland Canal, 5 June 2022;
- Crashed during winch launch, Terlet glider airfield, 29 June 2022.

In total, the Dutch Safety Board issued eight recommendations to various stakeholders.

Commercial air transport aeroplanes

The Dutch Safety Board has launched an investigation into a total of five occurrences involving commercial aircraft, of which four took place at Amsterdam Airport Schiphol and one at Rotterdam The Hague Airport. These were:

- a touchdown of an Airbus A330 before the runway threshold;
- stairs with ground crew member on it blown over by the jet blast of a Boeing 777;
- a near collision between a Boeing 737 and a tow combination;
- a late rotation on take-off with a Boeing 737;
- a Boeing 737 damaged by ground handling vehicle on apron.

Furthermore, the Safety Board also launched an investigation into a serious incident involving a commercial air transport aeroplane abroad. This was a Dutch airline's Boeing 777, in which an oven in the aft galley overheated. The occurrence took place in French airspace above the Mediterranean Sea, after which the aircraft returned to Amsterdam Airport Schiphol and landed safely.

Investigations abroad

In 2023, the Dutch Safety Board assisted foreign investigation bodies on sixteen occasions. These were occurrences with a Dutch involvement, such as an aircraft registered in the Netherlands or produced by a Dutch manufacturer.

Airproxes

For five years now, the airprox has been the most investigated occurrence. This was also the case in 2023. In such occurrences, both the separation between aircraft and their direction and speed of flight were such that the safety of the aircraft in question may have potentially been at risk.

- The Board launched investigations into nine airproxes;
- Five airproxes involved two powered aircraft;
- One of the airproxes occurred between an F-16 and a powered aircraft.

¹ A serious incident occurred in June 2022 and was not reported to the Dutch Safety Board until January 2023.

Hot air balloons

In 2023, the Dutch Safety Board launched six investigations into occurrences with hot air balloons: three occurred on landing and three occurred on take-off. One of these occurrences involved a hot air balloon that started moving while passengers were boarding. This caused the basket to tip over and a passenger ended up under the basket. The passenger sustained serious injuries. Another occurrence involved a collision between two hot air balloons shortly after take-off, in which the top of one balloon hit the basket of the other balloon. Neither balloon was damaged and its occupants were unharmed.

The Royal Netherlands Aeronautical Association (KNVVl) launched a reporting portal for hot air ballooning in May 2022.² This portal will facilitate the reporting of occurrences. These reports can also be forwarded to the Dutch Safety Board through this portal.

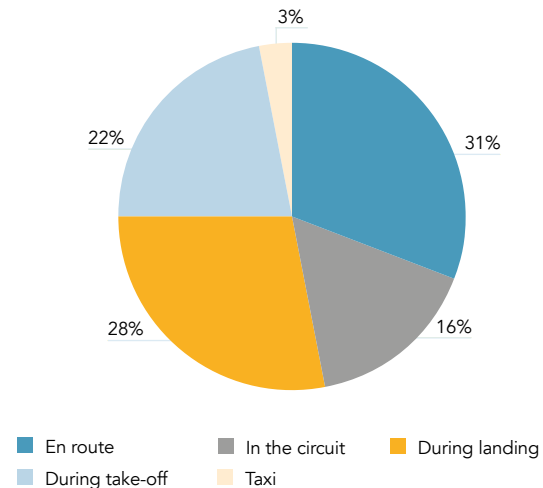
Gliders

Two occurrences in which a glider aileron was loose during a flight took place at Terlet Airfield. In both cases, the pilot was able to land the glider safely and the relevant L'Hotellier connectors were found to be disconnected. There was also an accident at Terlet involving a glider in which the occupant was killed. The L'Hotellier connector of the right flaperon was found to be disconnected.

Furthermore, the Dutch Safety Board investigated two incidents in which the extension (attached to the parachute at the end of the winch cable) was fixed to the tow hook of the glider, rather than the centre of gravity hook.

General aviation

In 2023, the Dutch Safety Board investigated 32 serious general aviation incidents and accidents. These occurrences can be categorised as follows: 31% en route, 16% in the circuit, 28% during landing, 22% during take-off, and 3% while taxiing.



Drones

In 2023, the Dutch Safety Board investigated two drone occurrences.

The Dutch Safety Board published an information sheet on safety investigations into accidents with drones in the Quarterly Aviation Report Q1 2023.

² <https://www.knvv.nl/ballonvaren/nieuws/meldportaal-ballonvaren>

Occurrences into which an investigation has been launched

Runway excursion, North American Aviation P-51D

Oostwold Airport, 30 September 2023

Due to a problem, the pilot was unable to use the flaps, forcing him to land at a higher air speed. The aircraft did not come to a stop in time and it overshot the runway. The aircraft was damaged. The pilot and passenger were uninjured.

Classification: Accident

Reference: 2023197

Loss of rudder control, Diamond DA40 D

Breda International Airport, 7 October 2023

When approaching the circuit area, the pilot noticed he had lost rudder control. He continued for landing. After going around, his second attempt to land was successful.

Classification: Serious incident

Reference: 2023206

Near collision, Cessna 208B and Robin DR 400/180

Midden Zeeland Airport, 8 October 2023

At the entry point of the aerodrome traffic circuit of Midden Zeeland Airport, the Cessna passed the Robin overhead at a close distance. After landing, the Robin's rear-view mirror appeared to have disappeared.

Classification: Serious incident

Reference: 2023205

- ▶ The Robin with missing rear view mirror (circled in red).
(Source: Dutch Aviation Police)



Airprox, Diamond Aircraft Industries GmbH DA 62 and Groupe Aéropatiale SOCATA TB 9

Lelystad Airport, 17 October 2023

The TB 9 flew on the base leg and turned to the final leg for Runway 05. Simultaneously, a DA 62 was also on the final leg with clearance to land on the same runway. The two aircraft came into close proximity. Subsequently, the DA 62 executed an evasive maneuver, followed by a go-around.

Classification: Serious incident

Reference: 2023214

Airprox, AQUILA Aviation GmbH AT01-100 and Reims Aviation S.A. F152

Breda International Airport, 1 November 2023

Both aircraft came into close proximity during the turn from the take-off leg to the crosswind leg in the aerodrome traffic circuit of Breda International Airport.

Classification: Incident

Reference: 2023221

Airprox, Costruzioni Aeronautiche Tecnam S.r.l. P-Mentor and General Dynamics F-16

north of Elburg, 16 November 2023

The Tecnam P-Mentor with an instructor and student pilot on board was conducting a training flight. Two F-16s were flying from Vlieland (Vliehors Range) to Volkel air base. North of Elburg, one of the F-16s and the Tecnam came into each other's proximity. The F-16 made an evasive manoeuvre. All aircraft continued their flight without any further reported issues.

Classification: Serious incident

Reference: 2023231

Pick-up of wrong banner, Reims Aviation S.A. F172N

International Airport Teuge, 22 November 2023

The aircraft picked up the wrong banner. The weak link broke and the aircraft continued its flight uneventfully.

Classification: Serious incident

Referentie: 2023234

Late rotation, Boeing 737-400

Amsterdam Airport Schiphol, 19 December 2023

During take-off from Runway 18L, the cargo aircraft left the runway well past its rotation speed. After landing, it emerged that a ballast container was not in the correct position.

Classification: Serious incident

Referentie: 2023241

Completed investigations

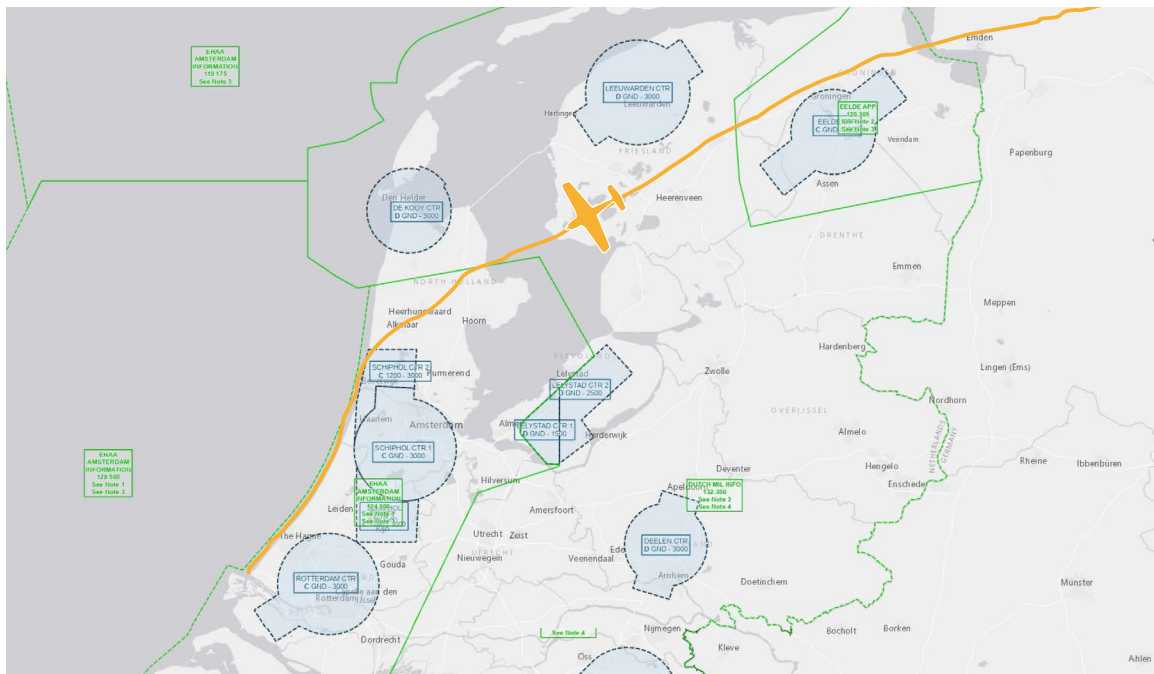
Fatal accident, Dyn'Aéro MCR01, EC-ZAF Beer Canal/Caland Canal, 5 June 2022

A Dyn'Aéro MCR01 BAMBI, a Micro Light Aircraft (MLA) with registration EC-ZAF, crashed in the Beer Canal/Caland Canal on 5 June 2022. Both the pilot and passenger were fatally injured. The aircraft was destroyed and only few aircraft parts were recovered.

According to the filed flight plan, the pilot planned to fly the aircraft from Norway to France. During the second leg, the aircraft crossed Dutch airspace. Before the aircraft left the Eelde Terminal Manoeuvring Area (TMA), the Eelde tower

controller advised the pilot to contact Dutch MIL Info on frequency 132.350 MHz. The pilot read the frequency back as 135.350 MHz, which was not corrected by the tower controller. This was the last radio communication received from the pilot. The pilot did not establish contact with Dutch MIL Info, or any other Dutch air traffic service provider later on. For the remainder of the flight, the aircraft was visible to the different air traffic service providers on the radar, but with unknown identity and therefore no flight plan displayed, as the aircraft did not carry a Mode S transponder. The radar track of the aircraft was lost near Rotterdam at 17.58 hours. Approximately 35 minutes later, parts of aircraft wreckage were found floating on the water of the Beer Canal and Caland Canal.

▼ Trajectory of the aircraft. (Source radar data: LVNL)



The cause of the accident could not be determined. Based on available radar data, the accident occurred at approximately 17.58:30 hours. Radar data confirm that altitude variations occurred during the last part of the flight before the aircraft descended from 800 feet above mean sea level (AMSL) and impacted the water.

An extensive analysis of the available weather information was performed to determine the actual weather conditions at the time of the accident. Along the route in Dutch airspace, weather conditions were initially quite good. In general, there was a visibility of more than 10 km, a light eastern wind and a cloud base between 3,000 and 5,000 feet. When the aircraft flew along the Dutch coastline in southern direction, the weather conditions were deteriorating: the cloud base was descending to 2,000 to 3,000 feet with a visibility of 3,000 to 5,000 metres. It seems plausible that the descent of the aircraft along the route to Hoek van Holland was necessary in order to remain in Visual Meteorological Conditions (VMC). During the last trajectory, flight visibility may have been further reduced with few/scattered clouds between 1,000 and 1,500 feet and a visibility of 1,500 to 2,000 metres in light, possibly moderate, rain. It cannot be established with certainty whether there was a discernible horizon, due to the possibility of reduced visibility as a result of light up to moderate rain in the vicinity of the accident site. With a cloud base between 1,000 and 1,500 feet, it is considered unlikely that the pilot lost visual contact with the surface during the last part of the flight.

Due to the limited wreckage parts recovered, a possible technical cause or contributing factor of a technical nature cannot be fully excluded. Examination of the available wreckage parts did not indicate pre-existing defects or anomalies.

In addition to the cause of the accident, the Dutch Safety Board decided to focus part of the safety investigation on the cooperation and communication between Air Traffic Control the Netherlands (LVNL) and the Dutch Coastguard Centre (as

Joint Rescue Coordination Centre (JRCC)). The disappearance of a radar target of a VFR (Visual Flight Rules) flight is not a direct indication of an emergency or crash of the aircraft. Despite the unknown identity and unknown destination, LVNL did take action following the loss of radar track. The Last Known Position (LKP) tool³, developed by LVNL after the Cessna accident at the Maasvlakte in 2012, was used to extract data for the accident aircraft. This data was shared with the JRCC. Analysis of the actions following the loss of radar track of EC-ZAF showed that there are still areas for improvement regarding the notification and provision of information between the two organisations.

First, at the time of the accident, there was no clear shared framework on when and or which situations to contact the JRCC. Early notification and contact between LVNL and JRCC about suspicious situations contributes to more efficient and effective search and rescue operations. This was already identified by the Dutch Safety Board during the investigation of the Cessna accident at the Maasvlakte in 2012.⁴

Second, direct contact and communication between LVNL and JRCC is essential in order to be able to provide relevant information for the search and rescue operations, even in cases where the situation is still unclear

Third, timely retrieval and provision of Last Known Position (LKP) tool output information by LVNL is important for the search and rescue operation. Also, the JRCC staff did not clearly understand the interpretation of the radar responses listed, although the radar data sent by e-mail was accompanied by a written explanation.

³ Tool used by LVNL to find and retrieve relevant information of an aircraft radar track (aircraft 3D position, ground speed and ground track).

⁴ Dutch Safety Board, *Aircraft missing, Cessna accident at Maasvlakte 2, May 2013*



▲ Archive photograph EC-ZAF. (Source: owner)

Following the accident, LVNL has updated its Quick Reference Handbooks for air traffic controllers, adding to inform JRCC of situations where due to circumstances or flight path the controller assumes that the general aviation aircraft is in serious difficulty, even though the pilot did not (yet) report an emergency.

Although the cause of the accident remains undetermined, the investigation highlighted lessons that the Dutch Safety Board considers useful to share with the General Aviation community.

1. In general, it is good practice to include a risk assessment for adverse weather along the route, in your pre-flight preparation. Plan your flight according to weather limits, taking into account the lowest cloud base, minimum visibility and maximum winds aloft. Besides regulatory limits, it is important to take your personal (stricter) limits into consideration as well. During the flight, the encountered weather conditions might be different than expected and adjusting your initial plan might be necessary. Examples of adjusting your plans such as flying a different route, diverting to an en route aerodrome, or even cancelling or delaying the flight, are options that should be considered.

2. For the effective provision of alerting service to VFR flights, VFR pilots are responsible for making themselves known to the local air traffic service provider, either by means of a filed flight plan, transmission of aircraft identity and/or established radio contact.
3. If communication with air traffic services on the next frequency cannot be established, do not hesitate to do a frequency check at the previous air traffic service provider. Other options to verify the correct frequency are to check the frequencies depicted on navigation charts, information provided in navigation applications on tablet/mobile devices and to refer to notes made during flight preparation.

The Dutch Safety Board published the report⁵ on 8 November 2023.

Classification: Accident
Reference: 2022061

⁵ <https://onderzoeksraad.nl/en/onderzoek/fatal-accident-dyn-aero-mcr01/>

Loss of control, Eiriavion Oy PIK-20 D, PH-661

Terlet glider airfield, 30 April 2023

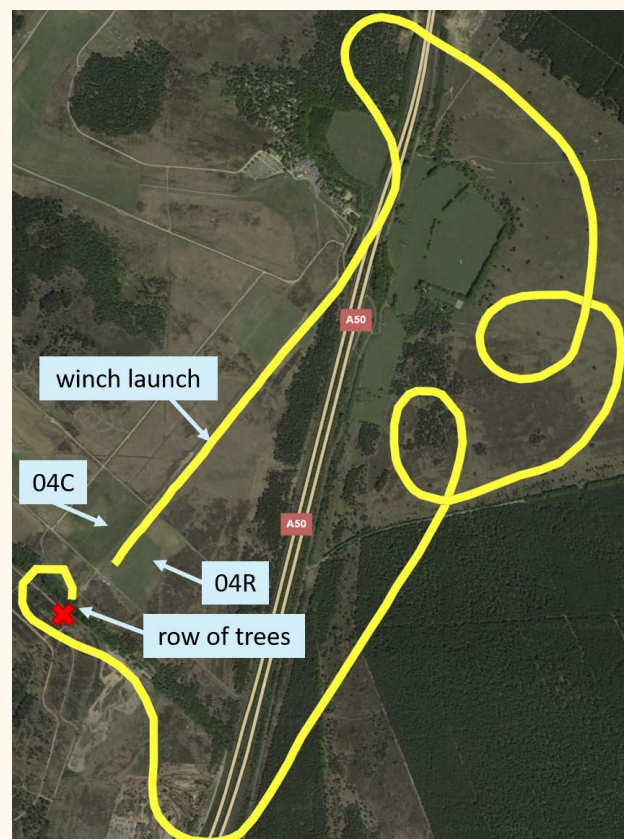
Statement of facts

The pilot assembled the glider on 30 April 2023. It was a single-seater glider with registration number PH-661, an Eiriavion Oy PIK-20 D (hereinafter PIK-20). She took-off with the aircraft at 13.45 hours from Runway 04R at Terlet glider airfield (EHTL) using the winch launch method. It was her first flight of the day. When the winch cable came loose at a height of just over 400 metres, the glider made a slight left turn, followed by a right turn.⁶ The aircraft then flew straight on for a short while, followed by two full circles clockwise. The aircraft then flew the downwind leg, as part of the right-hand circuit, and the pilot made a downwind call. When the landing strip was on the right behind the aircraft, the pilot made a right turn, followed by a slight left turn. In doing so, the aircraft flew a base leg close to the landing strip, but away from it. The glider then made a right turn toward the final approach leg for Runway 04C, passing the row of trees perpendicular to the final approach leg. One witness stated that the airbrakes were open at the time.

The pilot proceeded with the right turn, with the bank angle increasing to about 80 degrees. A number of witnesses described this manoeuvre, which was flown at high speed, as a spiral dive. They said that the aircraft produced a screeching and high-pitched sound. The glider then flew towards the row of trees again. A witness stated that at some point the glider flew parallel to the line of trees on the airfield side, after which it pulled up and rolled to the right to a bank of approximately 80 degrees, so it barely climbed anymore.

At 13.50 hours, the right wing made contact with the row of trees. The aircraft then crashed on the other side of the row of trees and landed upside down. The pilot died from her injuries. The glider was badly damaged.

▼ The flight path travelled. (Source: FLARM data, Open Glider Network and Google Maps)



⁶ The flight path was determined using FLARM data obtained via the Open Glider Network.

On-site investigation

The Dutch Safety Board conducted an investigation at the scene of the accident. The left wing was found detached from the aircraft, the fuselage broken in two places, the nose broken off and the cockpit destroyed. The canopy and the horizontal stabiliser were found detached and intact. Investigation has further shown that the lever for operating the flaperons⁷ was in the landing position (+ 16°). The right flaperon's L'Hotellier connector was found separated, fitted with locking wire. The right airbrake's L'Hotellier connector was found attached, without locking wire. The L'Hotellier connectors of the flaperon and airbrake of the detached left wing were fitted with locking wire and were found separated. The ball that broke off from the steering mechanism in the fuselage (to which the rod is connected with a L'Hotellier connector) was found in the sleeve at the end of the rod connected with the left flaperon. This indicates that the L'Hotellier connector of the left flaperon was attached.

Relevant background information

At the time of the accident, the wind direction at a height of 500 feet was 080 and the wind speed was 5-10 knots.⁸

The pilot had started gliding in 1997 and had a valid LAPL(S) (Light Aircraft Pilot Licence (Sailplanes)) and a valid LAPL medical certificate. She had been a member of several gliding clubs. The gliding club of which the pilot had been a member since 2019 was hosting a spring camp at Terlet glider airfield at the time of the accident. This club usually flew from another glider airfield.



▲ The crashed aircraft (after it had been turned over during rescue operations).

The pilot's logbook was not fully up-to-date. It listed 920 flights, the last of which took place on 2 April 2023. Her total hours of flying experience was not up-to-date in the logbook. When she joined the club in 2019, she had made 780 flights (of which 120 were in the last ten years) and had a total flying experience of approximately 320 hours.

A closer inspection of the glider wreckage did not show any defects that could have played a role in the occurrence of the accident. It was not possible to determine with certainty whether the right flaperon's L'Hotellier connector was already loose before the start of the flight. The weight and centre of gravity of the glider were within the specified limits.

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- 7 A flaperon is a control surface that combines the functions of flaps and ailerons. The flaperons are located on the rear edge of both wings.
- 8 Royal Dutch Meteorological Institute (KNMI), *Weather report for Terlet and surroundings on 30 April 2023*, May 2023.



▲ The L'Hotellier connectors found on the right flaperon (separated) and the right airbrake (attached).

Development pathway

The instructor corps of the club where the pilot was a member had set up a development pathway for her on 1 November 2022 because of three flights⁹ in which she had made low final approaches. The pathway was meant to restore her to a satisfactory flying standard. The development pathway consisted of at least 30 flights under the supervision of an instructor, including 10 training flights on the ASK 21 (with an instructor) and 20 flights on an SZD 51-1 Junior (single-seater), after being briefed by an instructor. She was temporarily banned from flying in the Discus CS (club's single-seater) and from flying with passengers. On 2 April 2023, the pilot had made her annual check with an instructor. This went well. After the check, she made a flight with the SZD 51-1 Junior. On 9 April, after completing two flights as part of the development pathway, she flew privately, probably on the PIK-20. This aircraft was owned by her father and an associate. On the day before and the day of the accident, she

asked the instructors from her club present if she could fly the Discus. When she was told that she was still in the supervised development pathway, she decided to fly the PIK-20 on both days. On the day before the accident, the pilot made three flights with the PIK-20.

Instructor on duty

On 30 April 2023, the club in question took part in flight operations at Terlet. Several clubs participated in these operations.¹⁰ The club itself never provided the instructor on duty, who is in general charge of flight operations, for this. The instructor on duty can ban a pilot from conducting a flight if s/he believes that the pilot could pose a danger to themselves or others. On the day in question, the instructor on duty, who was a member of another club, was not aware of the development pathway that had been set up for the pilot. The instructors present from the club, of which the pilot was a member, had not informed the instructor on duty about it. However, it has not been shown that this had any influence on the accident. There is an increased risk of an instructor on duty not knowing the backgrounds of all the pilots in cases where there are combined flight operations (as was the case here). It is important to be aware of this and to take steps to reduce the likelihood of this increased risk occurring.

Most likely scenario

It is surprising that the aircraft did not turn to Runway 04R for the final approach leg, the runway from which it had taken off. At the time, there was enough space on this runway to land. The most likely scenario is that the flaperon of the right wing was not correctly connected during assembly of the aircraft. As a result, the pilot may have experienced steering difficulties on the base leg. When the flaperons were put in the landing position on the final approach leg, an asymmetrical state may have occurred, causing the pilot to lose control of the aircraft.

It has not been determined whether the pilot was assisted by

⁹ The last of these three flights took place on 23 October 2022.

¹⁰ Combinatie Clubs Terlet.

a club member during the daily inspection of the PIK-20. It is recommended that this inspection, which includes checking whether the flaperons are correctly connected and secured, is carried out by someone who was not involved in the assembly of the aircraft. The chance that control surfaces are not, or not correctly, connected without this being observed is thus kept to a minimum. The same applies to the securing of control connections.

In April 2019, EASA published a Safety Information Bulletin¹¹ on the rigging of sailplanes. This contains recommendations to mitigate any safety risk related to the improper execution of rigging procedures and its subsequent inspection.

Classification: Accident

Reference: 2023055

¹¹ EASA, SIB No.: 2019-07, *Sailplane Rigging – Procedures, Inspections and Training*, April 2019. <https://ad.easa.europa.eu/ad/2019-07>

Panels burned during landing, Cameron Balloons Ltd. Z-90, PH-IKZ

Zoelen, 15 May 2023

A student balloon pilot (hereinafter: student) and an instructor had planned a hot air balloon flight from Houten in the morning. This flight, a so-called recommendation flight, was the student's last flight to complete his practical training and therefore the last flight before his exam. This resulted in some stress for the student. In addition, there was some time pressure as this flight had to be carried out before the validity of the theory subjects completed by the student expired. The student and instructor arrived at the field around 05.00 hrs. At that moment, the weather conditions looked fine except for a few spots with less visibility. The preparations were a bit hectic and sloppy, according to the student. For instance, he had not laid out the balloon properly and some lines were tangled. This was corrected after a comment by the instructor. During preparations, the instructor made several comments regarding changing weather, to which little attention was paid by the student. Low clouds had drifted in, resulting in reduced visibility, and the wind speed had increased. According to the student, there was insufficient visibility to fly under visual flight rules (VFR) in airspace class G.¹² However, the instructor later stated that before the start of the flight he could clearly see a row of trees more than 1,5 km away. It was decided¹³ - partly due to the aforementioned time pressure - to depart at around 06.05 hrs with the expectation that visibility conditions would be better upon landing, in accordance with the regional forecast that morning. Additionally, the weather conditions were expected to be unfavourable in the coming days.

¹² In airspace class G at and below 3,000 feet, horizontal visibility must be at least 1,500 metres for VFR flights. In addition, one must stay clear of clouds and have the surface in sight. (Source: AIP Netherlands)

¹³ The instructor is primarily responsible for the execution of the flight.



▲ Some burnt panels of the Cameron Balloons Ltd. Z-90.
(Source: student balloonist)

Data from KNMI showed that the ground wind was 5 knots at the time the balloon was set up in Houten and was 7 knots at departure. The wind speed increased during the flight to 10 knots for altitudes between 500 and 3,000 feet. The ground wind had increased to 9 knots with gusts of up to 15 knots during the final phase of the flight. According to the measurements of the KNMI, visibility around departure was 500 to 1,500 metres. This later increased slightly to 3 to 5 km. The cloud base was around 500 feet, with cloud cover ranging from partly cloudy to heavily cloudy with peaks up to 2,000 feet. Furthermore, KNMI data reports that there was haze on the trajectory flown by the balloon.

Around 07.00 hrs, after a flight of about an hour, the instructor told the student to start looking for a landing spot, as the balloon was nearing Tiel. Due to the rising thermals and the gas supply, it was necessary to land before Tiel. The instructor pointed this out to the student and the student chose a suitable landing spot. Then, during the approach, the instructor made a remark about another meadow closer by. This does not fit with a recommendation flight in which the instructor observes instead of instructs. The student took this

remark as an instruction and deviated from his original plan and immediately continued the descent to land. The student's rapid ripping resulted in a fast descent and upon first contact with the ground, the basket tipped over. The instructor stated that he saw no possibility to correct, as the balloon was low, at a height of about 2 metres. The basket dragged through the meadow and landed in barbed wire and a ditch. In response, an attempt was made to ascend by turning on the burner.¹⁴ However, the balloon had already lost a lot of air due to the rapid ripping during the descent, causing the balloon's "mouth" to close. Therefore, the flame burned directly on the fabric. As a result, some panels and parts of the load tapes¹⁵ got burnt. No one was injured. After the occurrence, the instructor and the student closed the gas bottles and degassed the burners. The balloon was not airworthy anymore after the occurrence.

Classification: Accident

Reference: 2023085

¹⁴ Those involved both gave conflicting statements regarding who exactly was at the burner.

¹⁵ Load tapes are located vertically on the outside and horizontally on the inside of the balloon fabric. Between the load tapes are the panels.

Airprox, Alexander Schleicher Ka-7, D-2709 and Schempp-Hirth Duo Discus T, PH-1529

Terlet glider airfield, 21 May 2023

The Ka-7 had taken off from glider airfield Terlet (EHTL) with two people on board and joined several gliders that were trying to gain altitude in one or more thermals. According to the pilot, the thermals were weak and limited to an altitude between 500 and 600 metres, which resulted in several gliders flying 'quite close' to each other. The visibility was good and no clouds were present.

One of the gliders that flew in the same area as the Ka-7 was the Duo Discus. The pilot of the Ka-7 stated to be worried about the Duo Discus making clockwise circles, as nearby gliders were turning counterclockwise, and tried in vain to contact its occupants over the radio. After completing a few clockwise circles, the Duo Discus turned counterclockwise and at a certain point triggered a FLARM warning in the Ka-7.

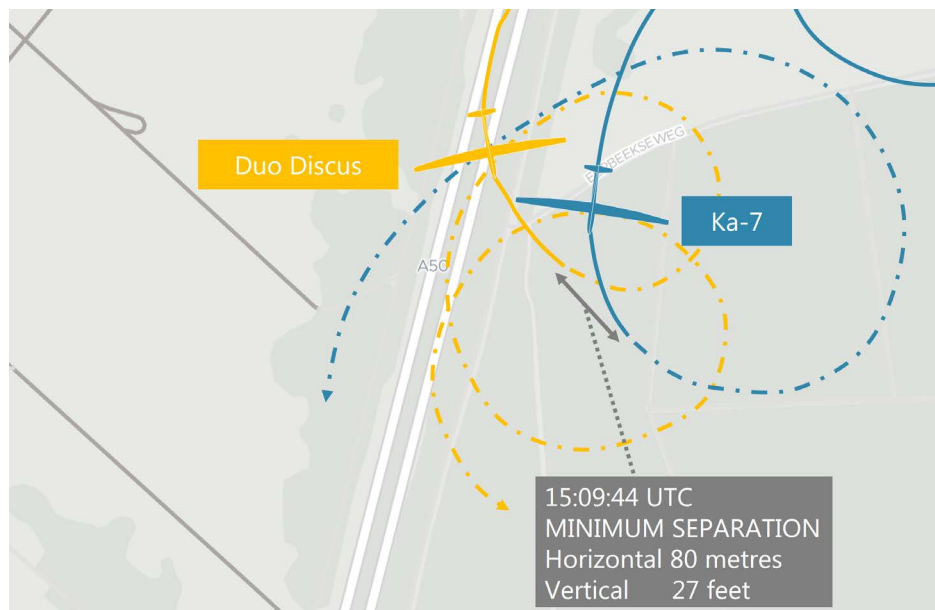
At this moment, the Duo Discus was positioned at the right rear and above the Ka-7. When both gliders rotated into the turn, the minimum separation between the two gliders was approximately 80 metres horizontally and 27 feet vertically. After the moment of minimum separation, the pilot of the Ka-7 started a shallow dive to increase the vertical separation. After executing this action, the Duo Discus was no longer in sight of the pilot of the Ka-7. The pilots continued to fly in the same area for several more minutes after which they continued their flight without any further particularities reported. The pilot of the Duo Discus was unaware that this incident had occurred.

The Dutch Safety Board did not investigate the incident further.

Classification: Serious incident

Reference: 2023091

▲ The flight paths of the Ka-7 and Duo Discus at the moment of the airprox. (Source data: FLARM data, source map: OpenStreetMap)



Winch launch on aerotow hook Alexander Schleicher ASK 21, PH-733

the Maldens Vlak glider airfield, 11 June 2023

Alexander Schleicher ASK 21, PH-1552

Lemelerveld glider airfield, 22 August 2023

On 11 June 2023, PH-733, an ASK 21 two-seater glider, was ready for a winch launch from Malden glider airfield. Onboard were a student pilot and an instructor. The student pilot had conducted the cockpit check, after which he pulled the yellow release button and the wing runner, an inexperienced student, pushed the small ring on the extension into the aerotow hook. The student then released the button. All this took place while four cables were still being towed out.

The glider was then winched up. The instructor indicated that he had to help the student as the aircraft remained level during take-off. In addition, an unusually high pulling force had to be applied to achieve the climb position. The winch cable disconnected at a height of 240 metres.

Neither the inexperienced student who hooked up, nor the instructor and field leader had noticed that the extension, which is attached to the parachute at the end of the winch cable, was fixed to the aerotow hook, instead of the centre of gravity hook. The aerotow hook of the ASK 21 is located at the bottom of the fuselage, out of sight of the pilots, just in front of the nose wheel.

The glider club in question investigated the occurrence and identified a number of possible causes and lessons regarding the attachment of the cable to the wrong hook. It was a very hot day and there were more inexperienced people present on the strip than usual. The last-minute tow out of four more cables even though the glider was already ready for the winch launch may not have contributed to a calm pre-take-off situation for those involved. All the participants of the gliding club have a shared responsibility for conducting a safe winch

launch. Pairing a buddy with a member for a day may be a good way for a member who has not participated in the gliding company for a while to regain experience. In addition, it is important to devote extra attention to the presence and use of the nose and centre of gravity hooks during theoretical and practical instructions. If during an unusual winch launch it is noticed or suspected that the cable has been attached to the wrong hook, it should be disconnected early at a safe height.

On 22 August 2023, a similar incident occurred during an instruction flight with PH-1552, also an ASK 21 two-seater glider, at Lemelerveld glider airfield. A new member had attached the extension to the aerotow hook. The student and the instructor had not seen this, however, during the winch launch the instructor did notice that the glider did not climb properly. As a precaution, he disconnected the winch cable at an altitude of approximately 300 metres.

The glider club in question also conducted an investigation into this incident and concluded that the lack of experience and routine of those involved played a major role. In this case, the members were also advised to abort the winch launch early, but at a safe height, if they suspected that the cable was fixed to the aerotow hook. This is to avoid any release problems, given that the aerotow hook disconnects poorly with a downward force. Furthermore, new members should be better instructed on hooking and the potential dangers of this being done incorrectly.

The above is based on statements from those involved and on gliding clubs reports. The Dutch Safety Board did not further investigate the occurrences.

In its publication *Breukstukjes*¹⁶ (weak links), the *Commissie Veiligheid Zweefvliegen* of the Royal Netherlands Aeronautical Association (KNVvL), recommended that close attention should always be paid when hooking up and that there should be no distractions. This recommendation was in response to three occurrences ('Winch launch at the aerotow hook'). In addition, the committee emphasised that everyone is responsible for a safe gliding operation and that members who hook up and give launch signals must be properly trained.

Classification: Two incidents

Reference: 2023108 and 2023175

¹⁶ Breukstukjes 2023 – Quarter 2&3, <https://der78rijp0cfsg.cloudfront.net/uploads/files/breukstukje-2-0/2023Q2-3-Breukstukje-CVZ.pdf>

Hard landing due to loss of control, Lindstrand LBL 210A, PH-PDH

Lithoijen, 18 August 2023

A group of eight family members had booked a balloon flight over their company near Geffen. They had agreed with the balloon flight company that they could determine their own start location. This balloon flight company indicated that the customer had to choose about three alternative locations at a distance of no more than 1 kilometre from the company in three different (wind) directions.¹⁷ This distance was crucial in meeting the desire to fly over the company near Geffen. To a question from the passengers about having the balloon followed by their own car with friends and acquaintances, the balloon flight company replied that this is possible and even recommended to capture the balloon flight on video.

The balloon flight company with which the passengers had booked outsourced the balloon flight to another balloon flight company. This company carried out the balloon flight with the Lindstrand LBL 210A, a category B balloon¹⁸, and hired one of their regular freelancers as the balloonist. The balloonist had 13 hours of experience on category B balloons (out of 128,5 hours total) and therefore little experience with groups of this size. On the day of the flight, which had been postponed three times, the balloon flight company they had booked with informed the passengers via WhatsApp that the wind direction was 'east'. Based on this information, the passengers chose the starting field in Berghem, which is 7 kilometres away from their company. This was a lot further than advised by the balloon company. The balloonist was informed of the starting field on short notice and met the group of passengers there. There, the passengers told the

balloonist that they were going to fly over their company. The balloonist indicated that it was impossible to fly over Geffen and that it would be a short balloon flight, given the weather conditions and the chosen starting field. As, at the take-off location, the balloonist released a small balloon to determine the wind speed and direction, showing that the wind was coming more from the north. During this conversation, the balloonist experienced the atmosphere as unpleasant.

Around 8 o'clock in the evening, the balloon rose to an altitude of 800 feet. During the flight, a discussion followed regarding the precise location of the company. The balloonist experienced this as an unpleasant discussion, while the passengers felt this was a normal conversation. Several cars followed the balloon, which the balloonist also experienced as unpleasant. The conversation about the location continued and one of the passengers wanted to point out the location on the tablet of the balloonist. According to the balloonist, the passenger pulled the tablet from his hands.¹⁹ This caused the balloonist to become distracted for some time. The balloonist lost control of the hot air balloon and lost altitude. He tried to compensate for this by turning on the second main burner and thus slowing down the descent of the balloon as much as possible. However, due to the inertia of a hot air balloon, the weight of the balloon (about 95% of the maximum weight²⁰) and the low air density, it can take up to several minutes before the balloon is stable again and rises. Just before the balloon hit the ground, it descended at approximately 200 feet per minute and the double burners were turned off.

¹⁷ A subsequent email of the balloon flight company confirming the balloon flight stated that the take-off location is weather dependent and within 30 km of the passengers' preferred region.

¹⁸ The Balloon Pilot License has four Groups (A to D) based on envelope size. Group B hot air balloons have an envelope with a volume of 3,401 to 6,000 m³.

¹⁹ The passengers stated that the tablet was in a holder during the entire flight. The pilot later stated that the passengers removed the tablet from its holder.

²⁰ Weight calculation with the expected outside temperature and load.

The balloonist could not prevent the balloon from coming into hard contact with the ground and then rising again with a lot of lift. Several passengers were injured during the landing. The balloonist then turned on the burners and found a suitable landing spot and landed with a short drag, which refers to the moment when the basket hits the ground and is pulled a short distance over the terrain before the balloon comes to a complete stop.

It is important for balloonists and balloon flight companies to be aware that they may encounter passengers who do not always stick to all the information provided. The training for balloonists did not pay attention to dealing with passengers.

Classification: Accident

Reference: 2023171

Mid-air collision between two hot air balloons, Kubicek BB60Z, PH-BTN and Cameron A-300, PH-AAD

Houten, 18 August 2023

In Houten, approximately twelve hot air balloons were prepared for an evening flight. The balloons would start from two adjacent open fields. The balloonists of the field of the Cameron agreed that the Cameron would take-off first. They did not contact the balloonists on the adjacent field, where the Kubicek was located, among others. The balloonist of the Kubicek had no contact with the other balloonists about the order of departure. The Cameron balloonist noticed that during the preparations, the average wind speed, but also that of the wind gusts, increased.

Immediately after the Cameron took off around 19.35 hrs, the balloonist noticed during his ascend to 500 feet that the wind direction changed, causing the Cameron to now follow a north-western course, instead of a western course as with the start. At that moment, the Cameron suddenly saw another balloon, the Kubicek, which had taken off 100 metres away from the adjacent field. The Kubicek balloonist also had the Cameron late in sight, as it was in his blind spot (behind his burner and envelope²¹) during the take-off. The Kubicek rose faster than the Cameron and followed a western course. Due to the two different courses of the balloons and the difference in take-off speed, they were heading towards each other. The balloonist of the Cameron decided to ascend faster and the Kubicek balloonist started to pull the rip line. Pulling the rip line causes hot air to escape from the balloon, causing it to descend. However, both of these actions could not prevent the top of the envelope of the Kubicek from briefly touching the basket of the Cameron at an altitude of approximately 150 metres. This collision caused no damage to either balloon and none of the occupants suffered any injuries. After the incident, both balloons continued to ascend and followed a north-western course. The balloonist of the Cameron stated that the wind behaved capricious at

low altitude during the first 30 minutes of the flight, meaning the wind varied in both direction as speed.

The regional forecast of balloon flight for the central region of the Royal Netherlands Meteorological Institute (KNMI) showed a change in wind direction, namely from a south-eastern wind to an eastern wind, between 19.00 hrs and 20.00 hrs. This forecast also showed an increase in wind speed and a slight increase in wind speed at increasing altitudes. The forecasted wind direction was nearly the same at the various altitudes (9, 76, 152 and 305 metres).

The KNMI reported that the Houten area, between 19.30 hrs and 19.45 hrs, the measured surface wind was slightly higher than the forecast, ranging from 4 to 5 knots. In addition, the wind was locally gusty until 19.55 hrs with gusts of up to 10 knots. From 19.30 hrs, a ground inversion²² was formed. The KNMI reported that during the formation of a ground inversion, gustiness is a normal occurrence in the beginning, with the possibility of local and short-distance variation in wind speed and direction.

Generally, hot air balloons can safely take-off shortly after one another, as they will follow the same course. However, when there is ground inversion, balloons at low altitudes may follow different courses. This occurrence demonstrates that hot air balloons departing from the same or nearby locations may not initially follow the same course. Therefore, it is advisable to coordinate and establish agreements in advance regarding the order of departure to prevent collisions between balloons.

Classification: Serious incident

Reference: 2023170

²¹ The balloon fabric.

²² Ground inversion is the reversal of the normal temperature decrease (inversion) in the layer adjacent to the earth's surface.

Airprox, Reims Aviation S.A. F172N, PH-SKC and Piper PA28-180, N8325W

near Wieringerwerf, 22 August 2023

The Reims F172N executed a VFR cross-country flight from Texel International Airport (EHTX, hereafter Texel) to Hilversum Airport (EHHV). At the same time, a Piper PA28-180 performed a VFR cross-country flight from Lelystad Airport (EHLE) to Texel. Both pilots had planned their route via the corridor between Den Oever and Texel and flew their route such that they remained clear of the EHR49 (restricted area), airfield Middenmeer and glider airfield Noordkop. As a

result, they both flew in opposite direction along the dike of the IJsselmeer. Both pilots were monitoring the frequency of Dutch MIL (132,350 MHz) and the pilot of the Reims had also registered there. Near Wieringerwerf, the aircraft came into close proximity at 15.54 hrs at an altitude of approximately 1,400 ft. This occurred in class G airspace. The pilots stated that Dutch MIL had not provided any traffic information.²³ Radar data shows that the aircraft passed one another at distances of 130 metres horizontally and 75 feet vertically. The pilots of both aircraft stated that the visibility conditions were good. The KNMI has confirmed this. Visibility was over 10 km and the cloud base was at 2,000-2,500 feet. The pilots



▲ The flight paths of the Reims F172N and the Piper PA28-180 and the moment of the airprox. (Source data: LVNL, source maps: AIP Netherlands and OpenStreetMap)

²³ In class G airspace, flight information, including traffic information, is provided to VFR traffic if the pilot requests this.

stated that despite the good visibility, they only had each other in sight at the last moment. Both pilots made an evasive maneuver.

The Dutch Safety Board noted in a previous investigation into an airprox north of Medemblik²⁴ that the design of the airspace (military zones, De Kooy control zone, the corridor above the Waddenzee) and the location of the various airfields (with the accompanying local traffic) in this part of The Netherlands has led to a densification of the VFR traffic along the dike of the IJsselmeer. The chance of an airprox is therefore greater in this area.

Classification: Serious incident

Reference: 2023176

²⁴ Airprox , approximately 10 km north of Medemblik, 6 March 2021. https://onderzoeksraad.nl/wp-content/uploads/2023/11/kwartaalrapportage_luchtvaart_q4_2021.pdf

Near collision during taxi, Boeing 737-800, EC-LTM and tow combination

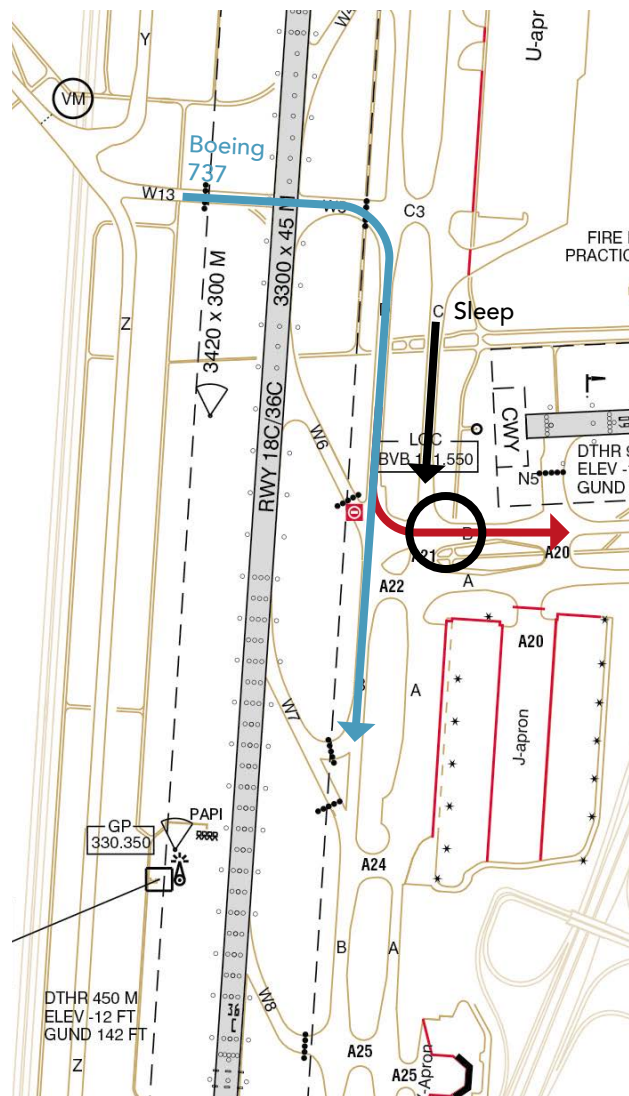
Amsterdam Airport Schiphol, 10 October 2023

The flight crew of the Boeing 737, which had landed on Runway 18R, received clearance to taxi to parking stand C13 and cross Runway 18C at W13. After the flight crew's read-back, the ground controller instructed them to take the first right turn after crossing, via Taxiway Delta and to contact Ground on another frequency. They were then cleared to continue via taxiways Bravo and Quebec. At the first junction, however, the Boeing 737 turned left onto Taxiway Bravo. It then proceeded in front of an aircraft under tow, which was heading south on Taxiway Charlie and had clearance to turn left onto Taxiway Bravo. The driver of the tug vehicle had to brake abruptly to avoid a collision. The Boeing 737 continued taxiing, with the distance between the two aircraft narrowing to approximately 40 metres.

The intention of the ground controller was for the Boeing 737 to taxi straight ahead on Delta to Bravo. However, the crew of the airliner misinterpreted the clearance from the ground controller and turned left to taxi clockwise on Bravo. Although the standard taxi routing on Taxiway Bravo is counter clockwise, it was logical for the crew to turn left, as parts of the parallel Taxiway Alfa were unavailable that day.

Classification: Serious incident

Reference: 2023209



▲ The area where the occurrence took place. (Source: AIP the Netherlands)



- ◀ The overturned gyroplane. (Source: Dutch Aviation Police)

Turned over during landing, AutoGyro Cavalon, OK-YWC 72

Hilversum airfield, 13 October 2023

On 12 October 2023, the pilot and his partner had departed in the pilot's gyroplane for a cross-country flight from Frýdlant Airfield in the Czech Republic. They were joined by two other gyroplanes. After a night stop in Germany, they continued their journey and after another fuel stop they approached Hilversum airfield. The pilot stated that it was quite windy during the last flight, and especially during the second half of it. Runway 25 was in use at Hilversum airfield. The wind came from direction 220 with a speed of 22 knots and gusts of 32 knots. With the gyroplane's maximum demonstrated crosswind component for landing of 20 kts, the wind during landing was within limits. According to the pilot, the

approach went without any problems. At the end of the landing roll, just before he wanted to move the control stick fully forward to level-off the rotor, a wind gust tipped the gyrocopter to the right which then overturned. It suffered severe damage. Both occupants were unharmed. The pilot stated that he should have moved the rotor into the wind earlier, even though the landing had not yet been completed.

The pilot had 450 hours of flying experience on the Cavalon gyrocopter and 80 hours in the Condor TL ultralight.

Classification: Accident

Reference: 2023210

Completed investigations (abroad)



Collision with obstacle during take-off, Cameron A-210, PH-NOA

Como (Italy), 11 October 2021

The Dutch-registered hot air balloon, with nine occupants on board including the Italian pilot-in-command, collided with the ornament of a historical building during take-off. The ornament broke off as a result. The occupants remained unharmed. The basket suffered minor damage.

The Italian Agenzia nazionale per la sicurezza del volo (ANSV) investigated the occurrence and concluded that the pilot-in-command had not sufficiently taken note of the obstacles present in the area from which he was taking off (vegetation and buildings) and had not sufficiently assessed the associated risks. Moreover, he had underestimated the meteorological conditions at the time of take-off, in particular the direction and strength of the wind.

The ANSV published its report²⁵ on 15 September 2023.

Classification: Serious incident

Reference: 2021125

◀ *The breaking off of the building's ornament (red circle).
(Source: ANSV)*

²⁵ <https://ansv.it/wp-content/uploads/2023/09/10-relazioni-brevi.pdf>

Loss of control, Airbus Helicopters EC120B Colibri, PH-OMM

Fino Mornasco (Italy), 27 February 2022

The Dutch-registered helicopter with two occupants crashed on a slip road of the motorway at Fino Mornasco. The Italian pilot was seriously injured and the passenger suffered minor injuries. The helicopter was damaged beyond repair.



▲ Archive photograph PH-OMM. (Source: D. Gualdoni)

The Italian ANSV investigated the occurrence and concluded that the pilot lost control of the helicopter at low height and the helicopter then made an uncontrolled rotation and crashed. This happened near the destination just before landing. The cause was not determined with certainty. However, it cannot be ruled out that the pilot's limited experience with the EC120B was instrumental in the occurrence taking place. This is because the EC120B has different flying characteristics than the helicopter (NH500) on which the pilot had gained most of his experience.

The Italian ANSV published its report²⁶ on 10 October 2023.

Classification: Accident

Reference: 2022009

²⁶ <https://ansv.it/fino-mornasco-co-ec-120-b-marche-ph-omm/>



▲ Archive photograph PH-YMC. (Source: YouFly)

Crashed during flight, Cirrus Design Corporation SR20, PH-YMC

Mala Kapela mountain (Croatia), 20 May 2023

During a flight from Maribor Airport in Slovenia to Pula Airport in Croatia, the aircraft crashed in mountainous terrain. Three occupants with Dutch nationality lost their lives.

The Croatian Air, Maritime and Railway Traffic Accident Investigation Agency (AIN) investigated the accident and concluded that the following factors were instrumental in it taking place: 1) The decision to change the route and the choice of the new route. 2) Instrument meteorological conditions the aircraft encountered that made visual flight difficult or even impossible. 3) The pilot's inability to fly entirely on instruments.

The AIN published the report²⁷ on 22 December 2023.

Classification: Accident
Reference: 20230082

A photograph of a DJI Inspire 2 was erroneously posted on page 19 of the Quarterly Aviation Report 2023-3. It should have been a DJI Matrice 210 V2 as the caption below the photograph read.

²⁷ <https://ain.hr/istrage/nesreca-zrakoplova-tipa-cirrus-sr20-mala-kapela-20-svibnja-2023/>



Colofon

This is a publication of the Dutch Safety Board. This report is published in the Dutch and English languages. If there is a difference in interpretation between the Dutch and English versions, the Dutch text will prevail.

March 2024

Photos

Photos in this edition, not provided with a source, are made by investigators and are owned by the Dutch Safety Board.

The Dutch Safety Board in three questions

1. What does the Dutch Safety Board do?

Living safely, working safely, safety. It seems obvious, but safety cannot be guaranteed. Despite all knowledge and technology, serious accidents happen and disasters sometimes occur. By carrying out investigations and drawing lessons from them, safety can be improved. In the Netherlands the Dutch Safety Board investigates incidents, safety issues and unsafe situations which develop gradually. The objective of these investigations is to improve safety, to learn and to issue recommendations to parties involved.

2. What is the Dutch Safety Board?

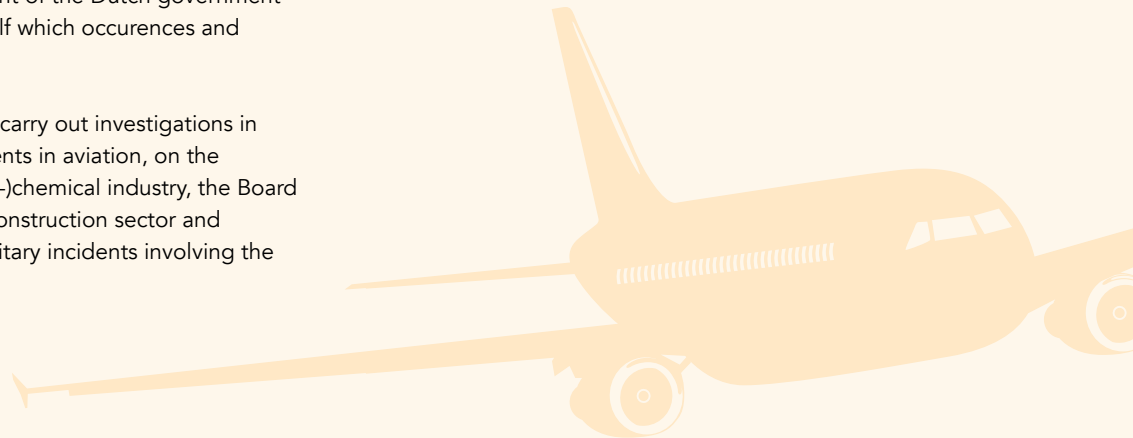
The Dutch Safety Board is independent of the Dutch government and other parties and decides for itself which occurrences and topics will be investigated.

The Dutch Safety Board is entitled to carry out investigations in virtually all areas. In addition to incidents in aviation, on the railways, in shipping and in the (petro-)chemical industry, the Board also investigates occurrences in the construction sector and healthcare, for example, as well as military incidents involving the armed forces.

3. Who works at the Dutch Safety Board?

The Board consists of permanent board members; the Chairperson is Chris van Dam MPM. The board members are the public face of the Dutch Safety Board. They have extensive knowledge of safety issues.

They also have extensive administrative and social experience in various roles. For specialist knowledge, the Board members can enlist the assistance of the associate members of the Board. The Safety Board's bureau has around 80 staff, two-thirds of whom are investigators.



Visit the website for more information www.safetyboard.nl.