



DUTCH
SAFETY BOARD

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.

Quarterly Aviation Report

January - March 2022



In the first quarter of 2022, the Dutch Safety Board published five aviation reports on a variety of occurrences, the details of which appear in this quarterly report. The occurrences involved two investigations into accidents in general aviation, one of which with a fatality at Hilversum airfield, two investigations into accidents in commercial aviation (one of which occurred at Schiphol and the other in Zimbabwe), and a thematic investigation into a series of airproxes near Lelystad Airport. The diversity of these occurrences is characteristic for the work conducted by the Dutch Safety Board in the aviation sector.

The spring is now upon us; for many pilots in general aviation, this marks the start of a new flying season. Following a period of less or almost no flying, knowledge of procedures and flying skills may have declined. To ensure good flight safety, it is important to focus attention on these aspects. Flying clubs are the ideal forum for such refresher programmes; some flying clubs are already active in this field. Other options are individual study or with the assistance of a flying instructor. Whatever choice you make, always be critical of your own performance before the start of any flight. A good level of knowledge and skills are essential preconditions for good flight safety.

Jeroen Dijsselbloem
Chairman Dutch Safety Board



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Occurrences into which an investigation has been launched

Loss of engine inspection panel, Eurocopter EC135 T2+, Bunne, 7 February 2022

The air ambulance helicopter had taken off from Groningen Airport Eelde; a short time later, the crew returned to the airport because the assignment to which they had been directed was cancelled. During the return flight, the crew heard an unfamiliar noise. The remainder of the flight was uneventful. During the inspection of the helicopter after landing, it was found that it had lost an engine inspection panel (approximately 60 by 30 cm).



The helicopter with the missing engine inspection panel. (Source: ANWB MAA)

Classification: Serious incident
Reference: 2022005

Airprox, Hélicoptères Guimbal Cabri G2 and Diamond DA 40 D, Lelystad CTR, 27 February 2022

The Cabri helicopter had taken off from Runway 23 and had received clearance from air traffic control to fly directly towards Almere after takeoff. A short time later, the Diamond DA 40 took off from Runway 23, and was also given clearance towards Almere. The air traffic controller informed the pilot of the Diamond about the helicopter that was flying ahead of it, in the same direction. The pilot of the helicopter reported near Almere that an aircraft was flying right over him. This turned out to be the Diamond.

Classification: Serious incident
Reference: 2022017

Occurrences into which an investigation has been launched

Hard landing, Comco Ikarus GmbH C 42 B, Stadskanaal airfield, 2 March 2022

The microlight aeroplane made a hard landing on Runway 06, whereby the nose wheel broke off and the propeller was damaged. The two occupants were unharmed.



The damaged aircraft. (Source: flying club)

Classification: Accident
Reference: 2022010

Airprox, Grumman American AA-5 and Alexander Schleicher ASK 21, Gilze-Rijen Air Base, 5 March 2022

According to the report from the gliding club, the motorized aircraft flew through the glider traffic circuit and came in close proximity with a glider, at an altitude of approx. 800 feet.

Classification: Serious incident
Reference: 2022013

Loss of control, Hélicoptères Guimbal Cabri G2, Lelystad CTR, 18 March 2022

The solo pilot¹ on board the Cabri helicopter received clearance for a right-hand downwind for Runway 05, at point X-RAY. Because Runway 05 has a left-hand downwind, the pilot requested confirmation of the clearance. After receiving this confirmation, he flew a right-hand downwind for Runway 23. Another helicopter, flying behind the Cabri, received the same clearance. When the pilot of this helicopter requested confirmation, the traffic controller cleared the helicopter for a left-hand downwind for Runway 05, thereafter repeating the same clearance for the Cabri. The pilot of the Cabri then made what is known as a pedal turn, whereby he lost control over the helicopter, causing it to spin. At low altitude, the pilot managed to regain control over the helicopter, and subsequently made a safe landing.

Classification: Serious incident

Reference: 2022018

Runway excursion, Piper PA-28-161 Cherokee Warrior II, Hilversum airfield, 23 March 2022

The pilot lost control of the Piper while landing on Runway 13. The aircraft went off the runway, and came to rest with its nose in a ditch. The pilot was unharmed. The aircraft suffered damage.



The Piper following the runway excursion. (Source: Dutch aviation police)

Classification: Accident

Reference: 2022019

¹ Pilot not yet in possession of a pilot's licence but permitted to fly solo under the responsibility of an instructor.

Occurrences abroad with Dutch involvement into which an investigation has been launched by a foreign authority

Crashed, Bell 214B-1, Lake HoiYa (Republic of Korea), 19 March 2020

The helicopter, that had been deployed for firefighting, ended up in a mountain lake while scooping up water. One of the two pilots lost his life in the accident. The helicopter suffered serious damage.

The Aviation and Railway Accident Investigation Board of the Republic of Korea launched an investigation following this occurrence. The Dutch Safety Board offered its assistance, since the fuel control unit was examined by Collins Aerospace in the Netherlands.

Classification: Serious incident

Reference: 2021137

Hard landing, Brditschka HB-207 V-RG Alfa, RPUS Porec (Croatia), 15 January 2022

During the approach to Runway 01, the Dutch pilot and owner of the self-built aircraft experienced turbulence. The aircraft made a hard landing. The pilot and passenger were unharmed. The aircraft suffered damage.



Archive photo HB-207 V-RG Alfa. (Source: Berend Jan Floor | AirOnline.nl)

The Air, Maritime and Railway Traffic Investigation Agency of Croatia launched an investigation following this occurrence. The Dutch Safety Board offered its assistance.

Classification: Serious incident

Reference: 2022003

Crashed, Cessna C-207A, Nazca (Peru), 4 February 2022

Shortly following takeoff from Maria Reiche Neuman Airport, the Cessna C-207A with two pilots and five passengers on board made a turn and lost altitude. The aircraft subsequently crashed and burst into flames. All occupants, including three Dutch passengers, were killed.

The Peruvian Accident Investigation Authority launched an investigation following this occurrence. The Dutch Safety Board offered its assistance.

Classification: Accident
Reference: 2022020

Loss of control, Airbus Helicopters EC120B Colibri, Fino Mornasco (Italy), 27 February 2022

The Dutch-registered helicopter crashed on the slip road of the motorway at Fino Mornasco. One of the two occupants suffered serious injuries.

The Italian Civil Aviation Safety Investigation Authority (ANSV) launched an investigation following this occurrence. The Dutch Safety Board offered its assistance.

Classification: Accident
Reference: 2022009

Published reports

Stalled during take-off, Hilversum airfield

On 15 December 2018 the pilot – being the only occupant – took off from Hilversum airfield for a local pleasure flight. The home-built single engine tail wheel aircraft, type Europa Aviation Limited Europa, registered as PH-BGV, demonstrated a steep climb angle during the initial climb and stalled at low height with a wing drop. The crash was fatal and the aircraft was destroyed.

The investigation revealed that the tailplane trim was not set in the take-off position, but in the full aircraft nose-down position. The cause of the full aircraft nose-down trim position could not be determined with certainty, but a technical anomaly in the trim indicator (shifted needle position over the scale) or a human factor (procedure slip or a reading error) are the most likely explanations.

During the ground roll, the incorrect trim position caused an abnormal nose-down effect. An uncommon backward stick position with a significant stick force would have been required to counteract this nose-down tendency. When applying such force, it is difficult to set the correct pitch attitude. Due to the unnatural control feel and given the risk of a ground strike of the propeller, the pilot presumably pulled the stick abruptly backwards, unintentionally initiating an early over-rotation followed by a steep climb at low airspeed. The gusty wind may have contributed to an early lift-off and the degree of rotation. Furthermore, the design of the aircraft is prone to become airborne at low speeds. As maximum take-off power at low airspeed possibly required up to full right rudder, this increased the susceptibility to slip and wing drop.

When the aircraft got airborne, the situation became critical because of the low height and low speed in combination with the still-occurring unnatural control feel, substantially required rudder input and chance of rapidly varying windspeed. This made it difficult to set the correct pitch attitude and maintain a coordinated flight (no slip). Even if the pilot would have instantly assessed the situation correctly, margins to safely remedy this critical situation were small.



Archive photo Europa Aviation Limited Europa. (Source: T. Weert)

The Dutch Safety Board published the [report](#) on 27 January 2022.

Collision during pushback

On 13 February 2019, during pushback at Amsterdam Airport Schiphol, a Boeing 747-400 (hereafter: B747) collided with a Boeing 787-9 (hereafter: B787) standing on the taxiway before taxiing out.

The following key questions were investigated:

- What led to the pushback of the B747, while another aircraft was standing on the taxiway beyond its pushback limit line?
- To what extent did the applicable procedures cover a long pushback clearance?
- To what extent was the communication between the ground controller, the flight crews and the truck drivers effective for the tasks they had to perform?

Ground Control had issued a long pushback clearance to the B787. The flight crew passed this clearance on to the pushback driver. The driver positioned the B787 approximately 20 meters beyond the pushback limit line on the taxiway. Shortly after, a B747 also received clearance to commence pushback. Following his pushback clearance to the B747, the ground controller realised that this pushback would possibly bring the B747 close to the B787, so he issued a cautionary message to the B747 flight crew. The transmission of this message was partially blocked out by another transmission. There was no readback of the message by the flight crew of the B747, and the ground controller did not act on the missing readback. As a result, the message was not forwarded to the B747 pushback truck driver. The pushback truck driver of the B747 was not aware of the long pushback of the B787. From his position, he could not determine the exact position of this aircraft on the manoeuvring area and during the push his view on the B787 was obstructed by the engines of the B747.

Ground control has the overview of the clearances issued and the positions of the aircraft on the apron and taxiways.



Top view of the position of the aircraft after the accident. The arrows indicate the damaged aircraft parts. (Source: Dutch aviation police)

The undocumented long pushback procedure used in this accident was not an assessed and aligned procedure within the sector parties at Schiphol. The non-standard pushback of the B787 introduced non-standard conditions the pushback truck driver of the B747 was not aware of. Deviating from standard procedures is not an uncommon practice for air traffic controllers at Schiphol, as was also noted in previous investigations of the Dutch Safety Board, such as the 2017 Schiphol investigation. The reason for deviating from the standard pushback procedure was to ensure an efficient flow of traffic.

This deviation, however, introduced risks as separation margins were no longer ensured. The non-standard pushback of the B787 implied a temporary restriction of other traffic in its vicinity. The mitigation action implemented by the ground controller – issuance of a cautionary message – was not effective, as the transmission of this message was blocked. The assessment of the taxiway behind the aircraft and the issuance of conflict-free pushback clearances is the responsibility of Ground Control and cannot be delegated to a pushback truck driver. A pushback clearance should only be issued when adequate separation can be guaranteed.

The use of standard pushback procedures with known obstacle clearances and separation margins is the main barrier to ensure sufficient clearance in pushback operations. It is therefore essential that in case of deviations from the standard procedure, the risks are recognized and mitigating actions are put in place effectively. As a result, in case of deviations from standard procedures, it may be necessary to temporarily stop other traffic movements.

Following the pushback accident, the sector parties decided to conduct a joint investigation in the context of the Integral Safety Management System (ISMS). The ISMS investigation has identified relevant safety issues. The working practice of a long pushback procedure has been amended by Air Traffic Control the Netherlands (LVNL) and only clearances with a specific end position shall be issued by the ground controller. Although providing more clarity, this working practice whereby separation margins may no longer be guaranteed is still being used. This introduces complexities and safety risks as it is not an assessed procedure. It is uncertain to what extent a set of additionally safety measures identified by the sector parties will contribute to a further risk reduction of pushback collisions, as for the majority of these measures further study or technological development is needed.

Published reports

This investigation further showed that the operator's procedures were not effective in preserving the Cockpit Voice Recorder (CVR) recordings of one of the aircraft involved, which is an obligation in case of an accident or serious incident for the purpose of the safety investigation. An extension of the regulatory requirement regarding the minimum recording duration of the CVR has already been recognized by aviation regulators as a necessary safety improvement.

The Dutch Safety Board published the [report](#) on 24 March 2022

Loss of flap part, Boeing 747-400

On 8 July 2019 the Boeing 747-400F, with registration PH-CKA, was flying an ILS approach to Runway 05 at Robert Gabriel Mugabe International Airport in Zimbabwe for landing. While selecting the required position of the flap system, a part of the right wing inboard foreflap broke off and separated from the aircraft. The separation caused a slight rolling motion to the right; the pilots were able to keep the aircraft under control. The pilots continued the approach and landed safely. The broken foreflap part came down in a residential area 5 nautical miles from the airport, close to the approach path and was recovered later. Nobody was injured.

In the past the Boeing 747 series trailing edge flap system design encountered various technical abnormalities such as separating parts of the foreflap and a skewed operation of the flap system. Separating foreflap parts cause a risk of secondary damage to the aircraft and cause a risk to third parties on the ground.

The Dutch Safety Board conducted an investigation that answers the following three questions: 1) What was the cause of the inboard foreflap separation? 2) In what way is this occurrence similar to previous foreflap separations in the Boeing 747 worldwide fleet? 3) To what extent did the measures taken by the owner of the aircraft and manufacturer prevent similar foreflap separations?

The investigation found that the right wing inboard foreflap of PH-CKA failed and partly separated, because of a fatigue crack failure of the foreflap outboard fitting lug. The fatigue crack was caused by pitting corrosion. The pitting corrosion had formed because of moisture that had accumulated between the inside of the foreflap fitting lug and the outside of the fitting lug bearing for over a long period of time.

The cause of PH-CKA's inboard foreflap outboard fitting failure is similar to other investigated occurrences concerning inboard foreflap separations, that occurred with the Boeing 747 series aircraft in the past.

The owner of the aircraft's planning of the required maintenance on the inboard foreflap outboard fitting was compliant with Airworthiness Directive 75-20-05. The owner had incorporated Service Bulletin 747-27-2366 (Rev 3), that recommends the visual inspection and lubrication of the foreflap fitting within an interval period of six months, in such a way that an interval period of seven to eight months ensued. The owner had justified this longer interval period by referring to its experience with foreflap fitting anomalies across its Boeing 747 fleet in the past. The European Union regulations concerning continuing airworthiness allow for such an adaptable incorporation of service bulletin requirements into aircraft maintenance programs.

About one year prior to the failure of PH-CKA's right wing inboard foreflap outboard fitting lug, the foreflap outboard fitting lug bearing was replaced during a regular D-check because of migration of the bearing. At that time, it was likely that a progressed form of pitting corrosion was present on the inside of the fitting lug. This corrosion was not discovered during the replacement. Therefore, the Dutch Safety Board emphasises that investigating the cause of anomalies of aircraft parts according to maintenance manuals and by observing standard maintenance practices is vital to ensure system safety.

Boeing issued Alert Service Bulletin 747-57A2367 on 15 November 2019 to further improve the reliability and the safe operation of the inboard foreflap and related parts of the inboard trailing edge flap system. This alert service bulletin requires replacement of the inboard foreflap outboard fitting lug at an interval that is well before the expected time of failure. On 30 March 2021, the Federal Aviation Authority mandated with Airworthiness Directive 2021-02-15 the maintenance requirements from Alert Service Bulletin 747-57A2367. This measure as imposed by the airworthiness directive has been incorporated after a prolonged period with various maintenance measures to improve the Boeing 747 inboard trailing edge flap system. The Dutch Safety Board considers that the alert service bulletin requirements and the mandatory compliance as imposed by the airworthiness directive are adequate to prevent future inboard foreflap outboard fitting lug failures. Hence, the Dutch Safety Board does not issue recommendations.



*The right wing trailing edge inboard flap system and damage.
(Source: owner of the aircraft)*

The Dutch Safety Board published the [report](#) on 24 February 2022.

Loss of control during touch-and-go Piper PA-28-181

On 7 September 2019, PH-LAG, a Piper PA-28-181, took off from Breda International Airport (Seppe) for a local training flight. On board were an instructor, a student and a passenger. During a touch-and-go, the aircraft did not gain altitude and crashed just outside the aerodrome boundary. One of the three occupants, the student, was slightly injured, the aircraft was damaged beyond repair.

No clear agreements had been made before and during the instruction flight on who would steer the aircraft during the touch-and-go. The instructor stated that he would make the landing, while the student thought he was going to perform the touch-and-go. Simultaneous steering inputs on the yoke of both the flight instructor and the student lead to an aft held position of the yoke, and with that a nose's high attitude and high angle of attack during the touch-and-go.

As a result, the takeoff roll caused a considerable amount of drag that could not or hardly be compensated by engine power and consequently led to a takeoff with the airspeed being too low. When the aircraft ultimately became airborne at low altitude, the aircraft banked, struck the ground with the right wing, made a 180 degree-turn and came to rest outside the borders of the airport.



The PA-28-181 after the accident.

Published reports

The high mass of the aircraft and the aft center of gravity had a negative effect on the flight characteristics of the aircraft. Following the accident, the flying school has taken measures to prevent instructors from instructing on types of aircraft with which they have limited experience.

The Dutch Safety Board published the [report](#) on 10 February 2022.

Airproxes near Lelystad Airport

Lelystad Airport is an important airport for general aviation in the Netherlands. Currently there is a mix of commercial and non-commercial flights. Of the small airports (for general aviation), Lelystad Airport is the largest in terms of the number of air transport movements. In order to be able to accommodate commercial air traffic² in the future, preparations are made, commissioned by the Ministry of Infrastructure and Water Management. One of these preparations involved the transition of Lelystad Airport from an uncontrolled to a controlled airport with control zones and terminal control areas. Such a transition is something unique. Since 7 November 2019, Air Traffic Control the Netherlands (LVNL) and the Royal Netherlands Air Force Command (CLSK) have been jointly responsible for handling air traffic at and near Lelystad Airport. LVNL provides tower control and CLSK approach control.

In the control zone of Lelystad Airport, which has airspace classification D, LVNL provides aerodrome control service, flight information service, and alerting advice. As per ICAO airspace classification, LVNL does neither provide separation between visual flight rules (VFR) traffic, nor between VFR and instrument flight rules (IFR) traffic. This means that VFR pilots themselves are responsible for maintaining sufficient separation from other aircraft. As of 7 November 2019, there have been departure and arrival routes in the control zone for VFR traffic to separate these from each other. The traffic circuit has moved from the south side to the north side of the airport.

After the transition from an uncontrolled to a controlled airport on 7 November 2019, the Dutch Safety Board received six notifications concerning airproxes that occurred in November 2019. In most of these occurrences VFR traffic came in close proximity to each other, resulting in potentially dangerous situations. This was a sudden increase in the number of reported airproxes, compared to the period before 7 November 2019. The Board classified three of these airproxes as serious incidents and three as incidents and started an investigation into the direct and underlying causes and possible common factors of these occurrences.

² Jetliners, such as the Boeing 737 and Airbus A320, and turboprop-powered regional airliners.

In addition, the Board requested the Human Environment and Transport Inspectorate (ILT) to provide reports and any supplementary information of occurrences, in the period from 7 November 2019 to 7 June 2020, that had been reported to them. The Board assessed this information and requested additional information from the ILT about two occurrences, that took place in November 2019, which are also analysed in this investigation. The Board has classified these occurrences as serious incidents. This investigation therefore comprises a total of eight airproxes.

Based on the experiences during the first month after the introduction of air traffic control at Lelystad Airport, LVNL and CLSK have taken temporary and permanent measures to improve the procedures and working methods. These measures took effect on 7 December 2019. They were aimed at making the VFR routes in the control zone less complex, and at reducing the congestion at the tower frequency. One of the measures was the separation of the routes of incoming and outgoing traffic.

The Board came to the following conclusions. First, it was found that, whilst acknowledging LVNL and CLSK had taken a number of actions to inform general aviation pilots about the upcoming changes at Lelystad Airport, the unique transition from an uncontrolled to a controlled airport was a major transition, especially in the initial period, for the pilots and air traffic controllers involved. The new situation was something that all parties involved had to get used to. The pilots who had been flying to Lelystad Airport for a long time had to unlearn old habits. The present situation requires in any case more extensive flight preparation.



Lelystad Airport. (Source: Air Traffic Control the Netherlands)

Furthermore, the investigation has revealed that the following factors played a role in the development of the eight airproxes:

- The convergence of departure and arrival routes for visual flight rules traffic;
- Frequency congestion on tower frequency;
- Non-compliance by, and unfamiliarity among pilots with procedures applicable in controlled airspace (with classification D);
- Late or non-detection by air traffic control of pilots deviating from procedures.

After 7 December 2019, the Dutch Safety Board received one report of an airprox that took place in the Lelystad control zone. In addition, a high level study of occurrences reported to the Human Environment and Transport Inspectorate (ILT) has shown that the number of airprox occurrence reports has decreased after 7 December 2019. Based on these findings, the measures taken on 7

December 2019 appear to have had a positive effect on the number of airproxes in the Lelystad control zone.

After the arrival of commercial air traffic in the future, strict adherence to the procedures then becomes even more important. Irrespective of any changes to procedures or routes, reducing the number of airproxes requires commitment and continuous monitoring and adjustment from all parties involved.

The Dutch Safety Board published the [report](#) on 3 February 2022.

Reports with Dutch involvement published by foreign investigation authorities

Total electrical failure, Beech B200 Super King Air, N7779V, 12.2 NM northeast of Lausanne Airport (Switzerland), 23 February 2019

Approximately ten minutes following takeoff, all three cockpit displays on the Super King Air failed. The flight crew, consisting of two Dutch pilots, immediately started a visual approach to the nearest airport. The approach was completed successfully, partly thanks to the following factors: emergency instruments powered independently from the aircraft's electrical system, the backup navigation on the iPads, the pilot's walkie-talkie, the good weather conditions and the fact that air traffic control kept the airspace clear.

The investigation revealed that this breakdown was not due to a technical defect. Following takeoff, the three position IGNITION and ENGINE START switch of the left-hand engine had accidentally been left in the ON position, causing the battery to discharge. This fact went unnoticed by either pilot because they had failed to consistently carry out the relevant procedures, and had failed to notice the accompanying warnings and displays.

The Swiss Transport Safety Investigation Board (STSB) published its [report](#) on 10 March 2022.

Collision with water, Yakovlev Aircraft Factories Yak-52, VH-PAE, near South Stradbroke Island (Australia), 5 June 2019

The Yak-52, with two occupants including the Dutch captain, was performing aerobatic manoeuvres at an altitude of 500 feet AGL. The aircraft collided with water at high speed, resulting in the death of both occupants. The aircraft was destroyed. In the absence of registered details or witnesses of the accident, however, it could not be determined with absolute certainty that the pilot was performing an aerobatic manoeuvre immediately prior to the impact, but this was considered a possibility.

During the accident flight and previous flights, the pilot had performed aerobatic manoeuvres at low altitude, without having completed the required training and while not in possession of the correct certificate of competence. This may have impaired the pilot's assessment of the risks of low altitude aerobatics.



Archive photograph Yak-52. (Source: ATSB).

The Australian Transport Safety Agency (ATSB) published its [report](#) on 24 February 2022.

Burst tyres right-hand main landing gear, Boeing 737-400, UR-CNP, Budapest Ferenc Liszt International Airport (Hungary), 11 July 2019

During takeoff from Budapest airport, a tyre of the right-hand main landing gear burst. The crew was duly notified by air traffic control. The aircraft subsequently returned to the airport. During the landing, the second tyre on the same landing gear also burst.

The Hungarian Transportation Safety Bureau (TSB) launched an investigation following this occurrence. The Dutch Safety Board offered its assistance since the affected tyre manufacturer retreads used aircraft tyres, in the Netherlands.

The TSB informed the Dutch Safety Board that it had amended the classification of the occurrence from serious incident to incident. No cause could be found for the bursting of the tyre during takeoff. The investigation was halted.

TCAS RA, Boeing 737-800W, PH-BXF and Tecnam P2006T, EC-MNG, southeast of the Barcelona TMA Area 1 (Spain), 28 May 2021

Following takeoff from Barcelona Airport, a TCAS RA³ warning was generated in the cockpit of the Boeing 737 of a Dutch airline⁴ as the aircraft passed an altitude of 8,640 feet, recommending that the climb be halted, and a descent subsequently initiated, to avoid a conflict. The other aircraft, a Tecnam P2006 T, was flying at FL090. The minimum separation between both aircraft was 1.52 NM (nautical miles) with a vertical separation of 350 feet.

The investigation revealed that the cause of the occurrence was a loss of situational awareness of the air traffic controller responsible for the sector in which the occurrence took place.

The Spanish Safety Investigation Authority (CIAIAC) published its [report](#).

Runway excursion, Fokker F28 Mk 0100, VH-FKD, Laverton Aerodrome (Australia), 28 September 2021

Following landing, the captain taxied the Fokker 100 to the end of the runway with the intention of carrying out a backtrack manoeuvre. With the aircraft on the left-hand side at the end of the runway, the captain started to make a turn to the right by turning the handwheel for the nose wheel control, known as the tiller. Despite applying force with both hands, he was unable to fully turn the tiller. He then attempted to make the turn 'tighter' by applying the right-hand brake and activating asymmetric propulsion, but this did not have the desired effect. The crew decided to continue the turn and as a result the aircraft's nose wheel briefly left the side of the runway. The wheel then returned onto the runway and the aircraft taxied to the terminal.

The investigation revealed that a torn boot on a universal joint probably restricted the operation of the nose wheel control system, as a result of which the aircraft was unable to complete the turn at the end of the runway.

The Australian Transport Safety Board (ATSB) published its [report](#) on 21 January 2022.

3 Traffic Alert and Collision Avoidance System, Resolution Advisory.

4 Also Dutch registered.

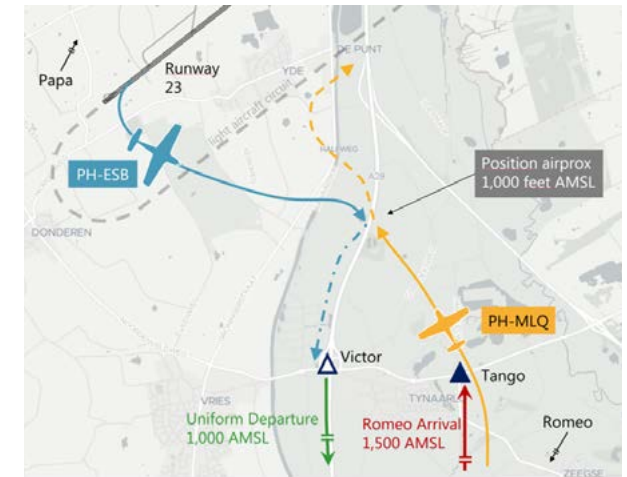
Investigated occurrences

Airprox, Groupe Aérospatiale SOCATA TB 10, PH-ESB and Groupe Aérospatiale SOCATA TB 10, PH-MLQ, Eelde CTR, 25 November 2020

PH-MLQ, a Socata TB-10 Tobago, returned from a local training flight under visual flight rules at around 12.50 hours; the aircraft approached the southern side of the local control zone (CTR) of Groningen Airport Eelde. On board were an instructor and a trainee pilot. PH-ESB, also a Socata TB-10 Tobago, had just taken off from Runway 23 at Groningen Airport Eelde for a local training flight under visual flight rules. On board were an instructor and a trainee pilot.

Following takeoff, PH-ESB (hereinafter ESB) flew on a southeasterly heading and climbed to 1,000 feet AMSL for a Uniform Departure (see figure). At approximately the same moment, PH-MLQ (hereinafter MLQ) passed point Romeo for a Romeo Arrival at an altitude of 1,500 AMSL. MLQ then reported above point Tango; the traffic controller cleared MLQ to join the downwind leg from Runway 23. A short time later, the traffic controller issued traffic information to MLQ about an aircraft that was flying a Uniform Departure via point Papa. The traffic controller then issued traffic information to ESB about an aircraft that was flying downwind from point Tango at 1,000 AMSL; ESB confirmed receipt of this information.

After the trainee pilot in MLQ had passed point Tango, he asked for permission to descend to circuit height; the traffic controller confirmed consent. During the descent, the trainee pilot of MLQ saw that ESB was approaching from the front left; he halted his descent and completed a gentle turn to the right. Immediately afterwards, the instructor of ESB saw MLQ, and made a sharp turn to the right, to avoid a collision. The aircraft passed each other at a separation of around 150 metres. The instructor on board ESB informed the traffic controller that the two aircraft had come close to each other. Following the airprox, the two aircraft continued their flight, without further incident.



Flight tracks of PH-MLQ and PH-ESB and the position of the airprox.

The airspace in the Eelde CTR is classified as Class C airspace.⁵ VFR flights in Class C airspace receive traffic information from the traffic controller about other VFR air traffic, in order to prevent separation conflicts. At the request of pilots, traffic control also issues traffic avoidance advice. In Class C airspace, pilots of VFR air traffic are personally responsible for maintaining separation with other VFR air traffic. Local procedures specify that after takeoff, the shortest turn must be completed to join the departure route at or before point Victor. According to the Meteorological Aerodrome Report (METAR) for Groningen Airport Eelde, visibility was more than 10 kilometres with no cloud cover.

The crew of ESB subsequently stated that flying visibility in the Eelde CTR at 1,000 feet AMSL to the east was moderate, due to low sun and haze. At the time of the airprox, the air traffic controller was resolving a separation conflict between two aircraft performing an IFR and a VFR flight and approaching Runway 23.

5 During the opening hours of the CTR.

The investigation revealed that the following factors contributed to the occurrence of the airprox. The clearance issued by the traffic controller to MLQ to descend to the circuit height of 1,000 feet AMSL after passing point Tango, while ESB was flying at an altitude of 1,000 feet AMSL towards MLQ, on a southeasterly heading. The unclear traffic information about ESB to MLQ, which meant that the trainee pilot on th MLQ acquired a different impression of the position of ESB. The moderate flying visibility also meant that the instructor of ESB only observed MLQ at a late stage, and that navigating ESB to point Victor was made more difficult.

Finally, the Groningen Airport Eelde Uniform Departure and Romeo Arrival routes, that are located parallel and relatively close to one another, mean that departing and arriving VFR air traffic can come into close lateral proximity. The design of these routes causes an inherent risk of airproxes, because the see-and-avoid principle has clear limitations in always safeguarding sufficient separation.⁶

Classification: Serious incident
Reference: 2022088

6 ATSB, Limitations of the See-and-Avoid Principle, April 1991.

Airprox, Piper PA-44-180, PH-SAE and Piper PA-28-161, PH-UGS, Lelystad Airport, 5 March 2021

Runway 05 was in use at Lelystad Airport. PH-SAE, a Piper PA-44, with two persons on board had made a touch-and-go and stayed in the VFR training circuit at an altitude of 500 feet above mean sea level (AMSL). PH-UGS, a Piper PA-28, entered the circuit on downwind behind PH-SAE (standard circuit at 1,000 feet AMSL). The PA-44 did not make a downwind call⁷, whereupon the tower controller finally instructed the PA-44 to turn to base, see first figure. The PA-44 then flew on an extremely extended downwind. The tower controller informed the PA-28 that he was number two, with number one ahead of him flying on base. The pilot of the PA-28 stated afterwards he had not heard this message and was not aware of the PA-44 flying in front of him. Radar data indicates that shortly after the PA-44 turned to base, the PA-28 also turned to base - without having heard a sequence number - followed by a turn to final. The pilot of the PA-28 reported flying on final to the tower controller.



Both aircraft turning from base to final. (Source of data: LVNL)

7 This call was in any case not audible in the recorded communication on the tower frequency.

The pilot of the PA-44 then reported that the PA-28 was flying shortly in front of them on final, see second figure. Consequently, the controller instructed the PA-28 to make a go-around. The minimum horizontal separation between the two aircraft was 350 metres at about the same altitude.



Both aircraft on final and the airprox. (Source of data: LVNL)

Then, another pilot reported on the tower frequency that the landing gear of the PA-44, while it continued on final for landing, was still up, after which the crew of the PA-44 also initiated a go-around. After both the PA-28 and the PA-44 had started the go-around, they came into close proximity of each other again. The minimum distance was again approximately 350 meters at the same altitude. The PA-28 joined the left hand circuit. The controller cleared the PA-44 for a BRAVO departure and the aircraft made a right turn towards point BRAVO.

In the control zone of Lelystad Airport, which has airspace classification D, Air Traffic Control the Netherlands (LVNL) provides aerodrome control service, flight information service, and alerting advice. VFR pilots are responsible for maintaining sufficient separation from other aircraft. Inside the traffic circuit, pilots have to report downwind, after which they receive a sequence number from the air traffic controller.⁸

8 LVNL, Aeronautical Information Publication (AIP) the Netherlands, EHLE AD 2.22 FLIGHT PROCEDURES, 4 VFR FLIGHT PROCEDURES AND REGULATIONS (consulted on 1 March 2022).

Investigated occurrences

The pilot decides when to turn to the base leg whilst ensuring sufficient separation from other traffic.

The day of the occurrence was a very busy day at Lelystad Airport. In addition to the tower controller and assistant, there was an extra controller in the tower in the role of observer. At the time of the airprox, besides the aircraft in the circuit, several aircraft were waiting at the aerodrome for departure or proceeding to the fuel station. Some aircraft were instructed by the tower controller not to enter the control zone yet, but to hold outside. The complexity of the traffic situation was further increased by a AS355 helicopter that entered the circuit without clearance and flew in the wrong direction on downwind. In addition, the pilot of a Diamond DA-40 reported a fuel malfunction (low fuel situation), later declaring an urgency (PAN-PAN).

Under these circumstances, the controller did not notice that the PA-28 had turned to base leg and final and had thus positioned itself in front of the PA-44, creating the airprox. The radio frequency was congested, resulting in pilots blocking each other on the tower frequency. The tower controller did not take action after the PA-28 did not provide feedback to his call. Although some regulation of traffic was done by the tower controller by reducing the number of aircraft in the control zone, this did not result in a reduction of the workload. The fact that the PA-44 was flying an extended downwind and at the VFR training circuit altitude, might have contributed to the pilot of the PA-28 not seeing the PA-44.

In February 2022, the Dutch Safety Board published a study on eight airproxes with VFR traffic in the control zone of Lelystad Airport. They took place in November 2019, shortly after the transition from an uncontrolled to a controlled airport.⁹ The study concluded, amongst others, that congestion on the tower frequency and late or non-detection by air traffic control of pilots deviating from procedures, were factors that played a role in the occurrences. Following the series of airproxes, LVNL took measures to improve the working methods, for example by implementing procedures to regulate the amount of traffic in the control zone and the simulator training of VFR traffic scenarios.

⁹ Dutch Safety Board, Airproxes near Lelystad Airport, February 2022.

Although this had a positive effect, there were still reports from airports user that the frequency congestion was sometimes perceived as heavy, especially at peak times of traffic.

LVNL conducted an internal investigation into the airprox of 5 March 2021. The airprox took place during a period of 80 minutes in which, on average, more than 14 aircraft movements took place every 20 minutes. For 50 minutes in this period, the radiotelephony load was 80% or higher.¹⁰ In combination with the complexity of the traffic situation, this resulted in a prolonged period of high workload for the tower staff. LVNL concluded that the regulation of traffic by the tower staff was not done timely and the cooperation between the tower controller, assistant and observer was not effective. LVNL made two recommendations. First, to improve the effectiveness of the measures to regulate traffic in order to manage the workload of the tower staff. Second, to improve the mutual communication and shared decision-making between the tower staff. Further training of tower staff has been conducted, amongst others regarding the role of the assistant. An extra observer in the tower was considered a temporary measure and no longer necessary. This measure is therefore no longer in place since January 2022.

The amount of traffic and radio frequency occupancy is monitored on a daily basis and evaluated when the set thresholds are exceeded. There has been a dialogue with the local flying schools on the scheduling of instruction flights, in order to reduce the peaks and complexity on busy days and times (e.g. on Fridays). LVNL has increased the effort into regulating the amount of VFR traffic by asking pilots to report their flight intentions to Lelystad Delivery when requesting start-up.

¹⁰ LVNL monitors the traffic situation at Lelystad Airport using the following thresholds: maximum of 14 aircraft per 20 minutes (at the time of the occurrence) and maximum radio frequency occupancy of 75% per 20 minutes.

Regulating the amount of traffic in the control zone enables management of the workload for the tower staff. However, since flight operations in the control zone are a collaboration between all parties involved, strict adherence to the procedures by pilots in the traffic circuit is also very important and contributes to a safe conduct of flights.

Classification: *Serious incident*

Reference: 2021011

Loss of control during landing, Cessna 177, G-BAJE, Hilversum airfield, 21 July 2021

The flight instructor was conducting a trial lesson with a pupil in a Cessna 177, from Hilversum airfield. There was one passenger in the back of the aircraft. Following a flight of around one hour, the flight instructor took control of the aircraft, and joined the downwind leg for a landing on Runway 31. The aircraft then flew on final with full flaps. The flight instructor declared that just before the landing, at a height of approx. 1 to 1.5 metres above the grass runway, the left wing suddenly dipped. The left wheel came into contact with the ground. The aircraft continued its flight, and subsequently drifted to the left, towards a ditch and a barbed wire fence. The instructor selected full power and raised the nose of the aircraft in an attempt to avoid colliding with the barbed wire. The aircraft flew over the barbed wire with its nose in a high pitch attitude. However, the flight instructor lost control of the aircraft, which then hit the ground. The aircraft then completed a ground loop and came to a stop in a meadow, approximately 50 metres to the left of the runway, with its nose facing the opposite direction. The occupants remained unharmed. The aircraft suffered severe damage. Following the accident, the flaps were found to be in the $\frac{1}{4}$ position.

During the accident, wind was blowing at ground level from a direction of 340 degrees, at a wind strength of 5 to 7 knots. On a video recording made by the passenger, the stall warning can clearly be heard, just before the left wing dipped.

The flight instructor has held a PPL(A) since 1978, and had a total flying experience of 1,928 hours, of which 1,136 hours as a flight instructor. He had flown around 10 hours on the Cessna 177.

The cause of the left-hand rolling movement the aircraft made shortly before the landing could not be determined with certainty. The meteorological conditions may have contributed to the occurrence of the accident.



The crashed aircraft.



The accident location in relation to Runway 31. (Source: Dutch aviation police)

Classification: *Accident*

Reference: 2021080

Investigated occurrences

Departed from wrong runway, Reims Aviation S.A. F172N, PH-SKC, Hilversum airfield, 23 July 2021

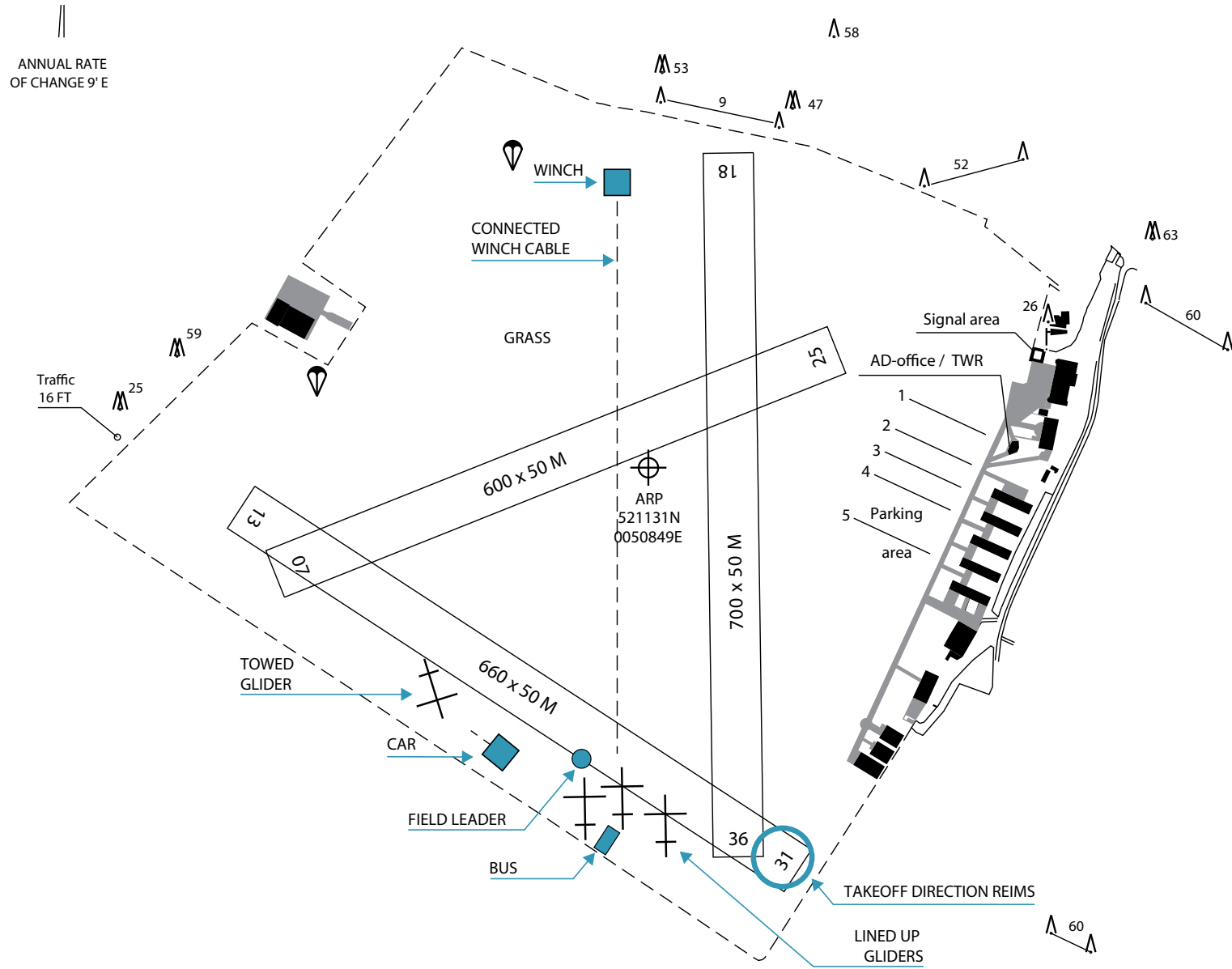
The pilot, as sole occupant of the Reims F172N, taxied to the stand for Runway 36 currently in use. At the same time, gliding activities were underway to the left (west) of Runway 36. When the pilot arrived at the holding point of Runway 36, there were two other aircraft waiting. The pilot carried out the before takeoff checks¹¹ on the holding point. After the two other aircraft had departed, he reported on the Hilversum radio frequency that he was joining Runway 36. However, by accident, he joined Runway 31. The pilot saw that the runway was clear, and immediately started his takeoff run. A number of gliders were located to the south of Runway 31. The takeoff of one glider was halted. The motorized aircraft flew over the winch cables and passed close to a member of the gliding club. Following the takeoff, the Reims came close to a glider that was flying in the circuit. The flights of both aircraft were continued without further incident.

The pilot had been active as a private pilot from Hilversum airfield since 1973 and had flying experience of around 820 hours. An acquaintance of the pilot was due to film the takeoff of the Reims from a carpark, located at the end of Runway 36. After the occurrence, the pilot declared that he had joined the runway too quickly, due to the slight stress he felt as a result of the takeoff being filmed. When he saw the clear runway ahead of him, he applied full power. During the takeoff run, the pilot noticed that the 'picture' was different to what he was used to. He decided to continue the takeoff because he had seen no other aircraft on the runway. The pilot indicated that the point where Runway 31 and Runway 36 cross is unclear due to the large numbers of runway markers.

The flying club investigated the occurrence and one of its conclusions was that the pilot's advanced age may have played a role. The pilot had been active as a pilot for more than 49 years, the majority of which from Hilversum airfield. Remarkably, almost five weeks later, an almost identical occurrence took place on the same runway. In this case, the pilot did abort the takeoff. Here, too, the pilot was from a higher age class. In consultation with the club, both pilots have since stopped flying.

Classification: *Serious incident*
Reference: 2021081

¹¹ Before takeoff checklist.



The runway system at Hilversum airfield. (Source: AIP, AD 2.EHHV-ADC)

Investigated occurrences

Airprox, Alexander Schleicher ASK 21, PH-1382 and Cessna 172M Skyhawk, PH-ACT, near Biddinghuizen, 11 October 2021

PH-1382, an Alexander Schleicher ASK 21, was carrying out a local flight close to glider airfield Biddinghuizen, at around 14.10 hours. The pilot was the only occupant on board. PH-ACT, a Cessna 172M Skyhawk, was conducting a local flight under visible flight rules from Lelystad Airport. On board were a pilot and a passenger.

The airspace around Biddinghuizen glider airfield below 1,500 feet AMSL is classified as Class G airspace. In this airspace, pilots of VFR air traffic are personally responsible for maintaining separation from other air traffic. Flying visibility at 500 feet AMSL was more than 10 kilometres, with half cloud cover and a cloud base at 3,500 feet.

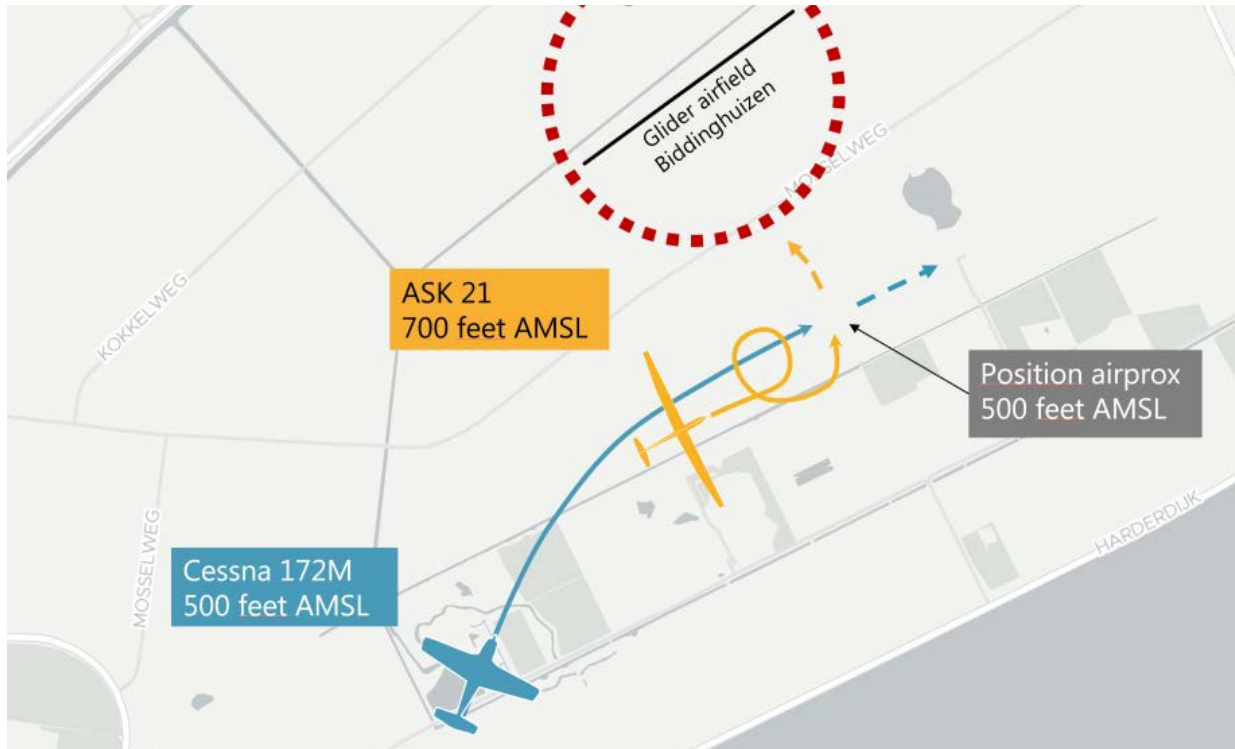
The ASK 21 took up a position to enter the circuit of Biddinghuizen glider airfield (see figure). The glider was flying at an altitude of 700 feet AMSL, and was descending to the circuit starting point in a left-hand turn. Just previously, the Cessna 172M was flying at an altitude of 500 feet AMSL, around 3 kilometres to the southwest of Biddinghuizen glider airfield. The Cessna approached the ASK 21 from a southwesterly direction. At the moment that the pilot of the ASK 21 turned towards the circuit starting point, he observed the Cessna passing below him, from left to right. He estimated that the vertical separation between the two aircraft was around 10 metres. The pilot of the Cessna observed the ASK 21 at the moment that it passed just above the nose of his aircraft, flying from right to left. The pilot of the Cessna therefore pointed the nose of the aircraft downwards. After the airprox, both aircraft continued their flight.

The pilot of the Cessna 172M declared that he was aware of glider traffic around the Biddinghuizen glider airfield. This airprox demonstrates the limitations of the 'see-and-avoid' principle in VFR airspace. Pilots in VFR airspace are required to maintain a safe separation between aircraft through visual observation in which good attention sharing and scanning techniques¹² are vitally important.

In order to reduce the risk of a collision or an airprox between a motorised aircraft and a glider above or near a glider airfield, it is recommended that the locations where gliders can be winch launched (and/or tow launched) and their immediate vicinity are avoided, and not overflowed (under all circumstances not below the heights, indicated in the AIP, that a glider can reach during a winch launch).

Classification: *Serious incident*
Reference: 2021116

¹² Skybrary, Visual Scanning Technique, 2022.



Flight paths of the ASK 21 and the Cessna 172M and the position of the airprox. (Source of data: LVNL)

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 three permanent board members under the chairmanship of Jeroen Dijsselbloem. 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.

The Safety Board's bureau has around 70 staff, two-thirds of whom are investigators.

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



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June 2022

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