DUTCH
SAFETY BOARD

Quarterly Aviation Report

July - September 2023

Q3 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.

Lessons for a safe takeoff

Occurrences involving commercial air transport aeroplanes are regularly the result of using incorrect data. Not every occurrence actually leads to an accident, but we can also learn from near accidents. Lessons learnt help airlines to reduce the number of occurrences by enabling them to make adjustments in the future. This focus on learning was the strategy used by the Dutch Safety Board in an investigation into a recent occurrence. An outline:

- location: Berlin Brandenburg Airport in Germany
- date: 12 September 2021
- occurrence: a commercial air transport aeroplane took off only just before the end of the runway with engine power that was too low.
- explanation: incorrect data entry resulted in engine power set too low at takeoff.

The main lesson learnt from the Dutch Safety Board's investigation was that the safety in this type of occurrence increases as more data and more different data sources are used. Another lesson learnt was that airlines can prioritize risks that are difficult to identify or occurrences that take place infrequently, but have potentially major consequences. This helps them in their considerations on what they should or should not investigate and thus airlines can take additional protective measures to reduce risks.

The Dutch Safety Board recommends that the aircraft manufacturer involved in the above occurrence develop more technical solutions for in the cockpit. This will significantly reduce the likelihood of errors in calculating the minimum engine power. Other airlines can also benefit from this lesson for a safe takeoff.

Chris van Dam
Chairman of the Dutch Safety Board

01 Occurrences into which an investigation has been launched

This chapter contains occurrences into which the Dutch Safety Board launched an investigation in the past quarter.

Aileron control problems, Rolladen-Schneider LS 4-a

Terlet glider airfield, 9 July 2023

During the winch launch and after release, the pilot noticed that she had to move the control stick a half turn to the right to get the glider to fly straight. A full push of the stick was necessary to make a flat turn. The pilot subsequently returned to the glider airfield. After opening the airbrakes, she could no longer move the stick to the left or the right. During the roll-out after landing, the right wing tip hit the ground and the glider made a ground loop. The pilot checked the ailerons after landing and observed that the left aileron was loose.

Classification: Serious incident
Reference: 2023162

Injured after falling out of basket, Cameron Balloons Ltd. A-300

Hendrik-Ido-Ambacht, 13 July 2023

A gust of wind caused the basket of the hot-air balloon to tip over. This occurred after the basket came upright prior to the start of the balloon flight. Tipping of the basket resulted in a passenger who was just boarding to fall to the ground and break their collarbone.

Classification: Accident
Reference: 2023141

Loss of propeller during flight, Schempp-Hirth Duo Discus T

near Almelo, 14 July 2023

After the pilot had started the glider's turbo engine and subsequently climbed to approximately 300 metres, the propeller became separated from the engine.
The glider made a safe landing at Lemelerveld glider airfield.

Classification: Serious incident
Reference: 2023142

▼ *The turbo engine without propeller. (Source: gliding club)*

Blown over by jet blast, Boeing 777-258ER

Amsterdam Airport Schiphol, 17 July 2023

While taxiing to the gate, the aircraft blew stairs away, which were placed next to another aircraft, with its jet blast. A person who was performing maintenance activities, fell off these stairs without receiving serious injuries.

Classification: Serious incident
Reference: 2023144

▲ *The loose L'Hotellier control connection. (Source: pilot)*

Aileron control problems, Rolladen-Schneider LS 4-a

Terlet glider airfield, 9 August 2023

The glider's left aileron started to flutter while making a turn. The pilot stated that the left wing also moved up and down and that he temporarily lost control of the glider. Several seconds later, he regained control and decided to land the glider. Increasing the speed a little made the glider controllable. The glider made a safe landing. Inspection showed that the left aileron L'Hotellier control connection was loose.

Classification: Serious incident
Reference: 2023184

Mid-air collision between two hot air balloons, Kubicek Factory. s r.o. BB60Z and Cameron Balloons Ltd. A-300

Houten, 18 August 2023

Two hot air balloons took off in close succession from two adjacent fields. The second balloon rose faster than the first and had a different heading. The balloons collided with the basket of the upper balloon hitting the top of the lower balloon. No damage occurred and no one was injured. Both hot air balloons continued their flight.

Classification: Serious incident
Reference: 2023170

Passenger broke ankle during intermediate landing, Lindstrand Balloons Ltd. LBL 210A

Lithoijen, 18 August 2023

The pilot-in-command stated that he had lost control of the hot-air balloon because of environmental conditions, which resulted in a hard intermediate landing. One passenger broke her ankle during this landing.

Classification: Accident
Reference: 2023171

Airprox, Piper PA-28-180 and Reims Aviation S.A. F172N

Wieringerwerf, 22 August 2023

The pilots of both aircraft had planned a route through the corridor between Den Oever and Texel. As a result, they were both flying in opposite directions near the dike on the west side of the IJsselmeer and an airprox occurred.

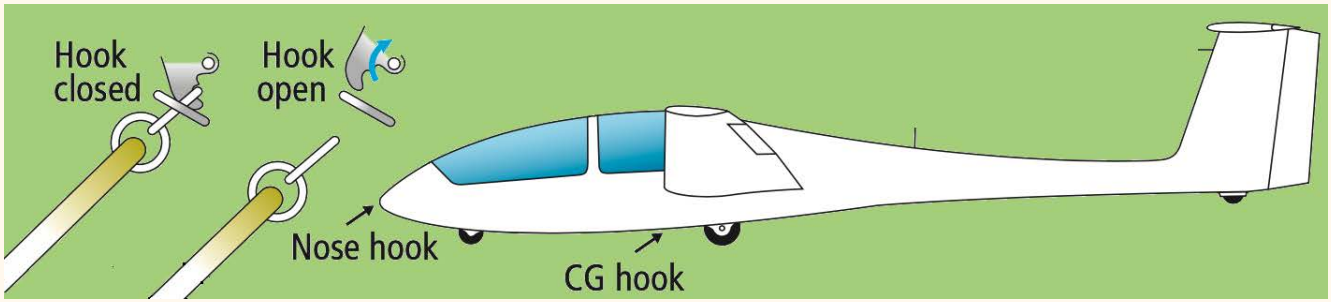
Classification: Serious incident
Reference: 2023176

Short strop attached to nose hook, Alexander Schleicher ASK 21

Lemelerveld glider airfield, 22 August 2023

The pilot-in-command noticed that the glider did not climb as usual during the winch launch. As a precaution, he disconnected the winch cable at an altitude of approximately 300 metres. The remainder of the flight was uneventful. After the flight, it emerged that the short strop, which is attached to the parachute at the end of the winch cable, was fixed to the nose hook on the glider, rather than to the centre of gravity hook.

Classification: Incident
Reference: 2023175



▼ *Location of the nose hook and centre of gravity (CG) hook. (Source: Gliding, The British Gliding Association Student Pilot Manual, D. and R. Corporaal)*

Loss of control, Burkhart Grob Flugzeugbau G 103 "TWIN II"

Nistelrode glider airfield, 25 August 2023

After the pilot-in-command had released the winch cable, he allowed the passenger to take over the controls. According to the pilot-in-command, the glider then entered a spiral dive. At an altitude of about 100 metres, the pilot-in-command managed to regain control of the glider. He then made a safe landing.

Classification: Serious incident
Reference: 2023185

▲ *The aircraft after the fire had been extinguished.*

Loss of engine power, Diamond Aircraft Industries GmbH DA 50 C

Kempen Airport, 2 September 2023

The pilot reported that the engine power briefly decreased twice shortly after takeoff from Runway 21. The pilot decided to return to the airfield. Subsequently, the engine lost power completely at the start of the downwind leg. The pilot then started the approach to Runway 03. The aircraft landed hard on the ground next to the runway, thereby causing the right wing to break. The aircraft then made a ground loop and came to a standstill on the runway. The pilot was able to disembark independently and suffered minor injuries. The aircraft's left wing, tail and engine caught fire for several minutes before being extinguished by the fire brigade.

Classification: Accident
Reference: 2023182

Occurrences into which an investigation has been launched (abroad)

This chapter contains occurrences with Dutch involvement into which foreign authorities have launched an investigation in the past quarter.

Crashed, Lancair International Inc. 360

near Habsheim (France), 5 July 2023

The aircraft, carrying a pilot and a passenger, was making a flight from Karlsruhe/Baden-Baden Airport in Germany (EDSB) to Mulhouse-Habsheim Airport in France (LFGB). The aircraft crashed in the woods near Habsheim. Both occupants were killed.

In response to this occurrence, the French Bureau of Enquiry and Analysis for Civil Aviation Safety (BEA) launched an investigation. The Dutch Safety Board provided assistance as the aircraft was registered in the Netherlands.

Classification: Accident
Reference: 2023132

◀ *The aircraft wreckage. (Source: BEA)*

Pilot injured prior to takeoff, Cameron Balloons Ltd. Z-210

Wachtebeke (Belgium), 10 July 2023

The hot-air balloon was being prepared for an early morning flight with passengers. All the passengers were already in the basket when the air in the balloon was being heated using an external gas cylinder connected to the burners. Before takeoff, the pilot connected the burners' gas line to the gas cylinder in the basket. This caused a fire in which the pilot suffered burns. The fire was extinguished and the passengers safely evacuated.

The Belgian Air Accidents Investigation Unit (AAIU) launched an investigation into this occurrence. The Dutch Safety Board offered its assistance as the hot-air balloon is registered in the Netherlands.

Classification: Accident
Reference: 2023179

Hard landing, Burkhart Grob Flugzeugbau ASTIR CS

Schwandorf Airport (Germany), 23 July 2023

The glider stalled at low altitude on the final approach and then made a hard landing. In doing so, the glider sustained damage. The pilot was unharmed.

The German Federal Bureau of Aircraft Accident Investigation (BFU) launched an investigation into this occurrence. The Dutch Safety Board offered assistance as the glider is registered in the Netherlands.

Classification: Accident
Reference: 2023207

Damage during landing, Grob 103 C "TWIN III ACRO"

Schwandorf Airport (Germany), 26 July 2023

The glider, with an instructor and trainee on board, landed further away on the grass runway because it was full of other aircraft. During the landing roll, the instructor took over the controls and steered the glider to the edge of the runway, clearing it for an approaching motorised aircraft. After leaving the runway and crossing a dirt road parallel to the runway, the nose wheel hit a marker stone lying in the grass. As a result, the fairing and suspension of the nose wheel sustained damage.

The German Federal Bureau of Aircraft Accident Investigation (BFU) launched an investigation into this occurrence. The Dutch Safety Board offered assistance as the glider is registered in the Netherlands.

Classification: Accident
Reference: 2023154

▼ *Damaged nose wheel fairing. (Source: pilot)*

Crashed, Risen 915iS

near Dawson Community Airport (USA), 28 July 2023

The aircraft, with the pilot as sole occupant, was flying low and slow when it returned to the airport from which it had just taken off. It then made a rolling motion, started to spin and crashed in a field. The pilot was killed. The aircraft caught fire.

The American National Transportation Safety Board (NTSB) launched an investigation following this occurrence. The Dutch Safety Board offered its assistance because the pilot of the aircraft was a Dutch national.

Classification: Accident
Reference: 2023158

▲ *Archive photograph Fokker 100. (Source: P. Reading)*

Passenger broke ankle during landing, Cameron Balloons Ltd. Z-120

Chambley (France), 29 July 2023

A passenger broke her ankle during the landing of the hot-air balloon.

In response to this occurrence, the French Bureau of Enquiry and Analysis for Civil Aviation Safety (BEA) launched an investigation. The Dutch Safety Board provided assistance as the hot-air balloon is registered in the Netherlands.

Classification: Accident
Reference: 2023156

Descent below lowest safe altitude, Fokker F28 Mk 0100

10 NM north-east of Adelaide Aerodrome (Australia), 30 August 2023

The Fokker 100, with 96 occupants, descended below the lowest safe altitude during the approach. The aircraft then made a safe landing.

The Australian Transport Safety Bureau (ATSB) launched an investigation into the occurrence. The Dutch Safety Board offered assistance as the aircraft was designed and manufactured in the Netherlands.

Classification: Incident
Reference: 2023188

Completed investigations

This chapter contains reports of completed investigations. These are summaries of separately published reports, abbreviated reports with an analysis, and descriptions of the course of events.

Crashed during winch launch, Rolladen-Schneider LS1-d, D-2057

Terlet glider airfield, 29 June 2022

On 29 June 2022, the Rolladen-Schneider LS1-d, a single seater glider with registration D-2057, took off from Terlet glider airfield (EHTL) by the winch launch method. The glider immediately made a steep climb after becoming airborne. At a height of approximately 20 metres, the glider made a slight roll movement to the right followed by a left hand turn with a steep bank angle. The glider then attained a nose-down attitude, started to rotate counter clockwise and crashed into the ground. The pilot was fatally injured and the glider was destroyed.

▼ *Accident location.*

The Dutch Safety Board conducted an investigation into the possible cause of this accident. This investigation answers the question of what caused the glider to crash during the winch launch.

The technical investigation of the wreckage has not revealed, insofar as this was still possible due to the damage of the glider, any technical defects in the flight controls that could have played a role in the accident. The slight roll movement of the glider to the right was the first indication of a stall.[1] The pilot's response to this resulted in the left hand nose down turn with a steep bank angle. That moment, the glider had entered a stall condition. The stall arose because the critical angle of attack had been exceeded, which was initiated by a high rotation rate in the beginning of the winch launch. The pilot was not able to recover from the stall at low height.

A stall at low height during a winch launch is very critical, as a recovery from it is most likely impossible. This risk must therefore be anticipated and prevented. So, it is vital that procedures are followed strictly during the winch launch. The advice to avoid a stall during rotation is therefore to maintain a shallow climb after takeoff until adequate speed is seen with continued acceleration. Ensure that the transition from level flight at takeoff to the full climb (typically 35°) is controlled, progressive, and lasts at least 5 seconds.[2]

Gliding clubs regularly pay attention to the safe execution of the winch launch method during the training of a glider pilot. This also happens during the day-to-day operation of gliding clubs. The Dutch Safety Board therefore does not consider it necessary to make a recommendation regarding this subject. Nevertheless, with the publication of this report, the Board once again highlights the risks of the winch launch method, in particular the stall during rotation, with the aim of raising awareness of the risks. The importance of being aware of these risks does not only apply to student pilots, but also to experienced pilots.

The Dutch Safety Board published the report on 3 August 2023.

Classification: Accident
Reference: 2022079

1 The stall is a breakdown of the smooth airflow over the wing into a turbulent one, resulting in a decrease in lift. The lift will no longer fully support the glider's weight, and the glider sinks. The stall occurs when the critical angle of attack is exceeded.

2 British Gliding Association, *Safety Briefing, Safe Winch Launching*, January 2021.

Takeoff with erroneous takeoff data, Embraer 195-E2

PH-NXD, Berlin Brandenburg Airport (Germany), 12 September 2021

Occurrence

On 12 September 2021, a serious incident occurred with an Embraer 195-E2 at Berlin Brandenburg Airport (EDDB) in Germany. The aircraft took off with a selected amount of takeoff thrust, based on erroneous takeoff data. The Dutch Safety Board investigated the incident and found that the aircraft took off from intersection L5 - as the crew intended - while the performance calculation was based on intersection K5. The actual available runway length was 1,320 metres less than the runway length used in the calculation of the performance parameters. The selected thrust setting was such that the acceleration of the aircraft was too slow to safely take off from intersection L5. As a result, the aircraft became airborne 443 metres before the end of the runway. Safety margins were reduced during the takeoff. The aircraft would likely not have been able to safely abort the takeoff at speeds close to V_1.

The investigation

Incidents related to erroneous takeoff data occur frequently across all aircraft types and operators. The persistence of this type of occurrence is a long standing and complex problem. There is still no technical solution that addresses the wide range of factors underlying the use of erroneous takeoff data. It is therefore important that operators learn as much as possible both retroactively - from occurrences - and proactively with the aim of reducing the number of these incidents. This is why the Dutch Safety Board investigated the incident on 12 September 2021 with the focus on learning by the operator in relation to the risk of using erroneous takeoff data.

Contributing factors

The pilots stated they both accidentally selected intersection K5 instead of L5 in the takeoff performance calculation application. Contributing factors included touchscreen issues such as the lack of system feedback about the finger location and the 'fat finger' problem. Furthermore, lacking visual feedback in the performance calculation application (airport synoptic) and the presence of normally unused options (runway intersections) in the pull down menu played a role. The selection error could propagate because during the cross check the pilots likely only focused on the performance calculation outputs. Also, the crew trusted the performance calculation application.

Learning from the occurrence

The occurrence did not trigger the pilots to think the incident crossed the severity level for which it is necessary to immediately contact the Operations Control Centre of the operator. As a consequence, the Safety and Compliance Organisation (SCO) of the operator was not contacted immediately and therefore did not have the opportunity to secure the cockpit voice recorder nor to interview the crew shortly after the event. The flight crew filed an air safety report to the SCO after landing on 12 September 2021.

The SCO initiated a limited investigation (an assessment) by conducting interviews, reviewing flight data, consulting previous investigations into similar incidents and analysing this information. The operator concluded that further investigation into the occurrence was not necessary as little could be learned and it could contribute little to the mitigations already in place from previous investigations. The fact that erroneous takeoff data was prioritised as a safety concern and the event was classified as high risk did not play a role in this decision.

The operator took two additional mitigating actions after the limited investigation by the SCO. First, the chief pilot sent an e-mail with general information about erroneous takeoff data in order to raise awareness. Second, airport information in the manuals was adjusted, to prevent confusion regarding runway designation.

Learning in order to prevent the use of erroneous takeoff data

The operator manages safety through their Safety Management System (SMS), in accordance with existing guidelines and regulatory frameworks. This provides the operator with a structured approach to manage risks in its operation. The operator has a structure in place to learn by carrying out safety investigations. In the period 2012-2021, several incidents related to erroneous takeoff data occurred and a safety concern was formulated. However, these incidents were not investigated by the SCO, because they reasoned that a predictive investigation (a safety investigation before a change is implemented) should be performed instead. Therefore, valuable lessons on a detailed technical and procedural level may have been lost. It seems that the balance between having enough occurrences to learn from and preventing multiple investigations from having similar findings is missing.

A hindering factor to learning about the hazard of the use of erroneous takeoff data is a lack of occurrence data, which is not unique to this operator. Pilots do not always recognize or report occurrences related to erroneous takeoff data and the current flight data monitoring program is unable to detect all occurrences. Therefore, the operator was not able to monitor the number of occurrences related to erroneous takeoff data, to carry out reliable data analyses, assess the need for safety investigations and measures, and monitor the effect of measures already taken to prevent the use of erroneous takeoff data.

Also, the lack of safety goals directly related to erroneous takeoff data was due to a lack of data. Therefore, the safety goals did not trigger the operator to take measures that cover the entire breadth of the problem.

Learning from work-as-done

The operator recognises that employees play an important role in a learning organisation and takes actions to capture the knowledge of employees about existing processes, about how work is done in practice and about occurrences. Moreover, the operator works according to the principles of Just Culture and various aspects that may contribute to an open culture are present at the operator. The operator also has a structure in place for dialogue and discussion with pilots. However, the quality of the information obtained from employees might be improved by asking more open questions and ensuring a systematic approach to collecting pilot input. The operator does not have a structure in place to learn from work-as-done. The operator might learn more from work-as-done by questioning their own operations and investigating why some work is not done as designed or imagined when that emerges from observations during training, audits or evaluations. Moreover, the operator is aware of the added value of learning from personal strategies and has additional opportunities to learn from personal strategies and by doing this can gain detailed understanding of the context of a particular personal strategy.

▲ *Cockpit Embraer 195 and IPad. (Source: airline)*

Lessons and recommendations

The Board formulates three lessons and a recommendation. The lessons aim to improve learning by operators. Operators may focus on improving data availability by increasing the amount of data and increasing the diversity of data sources, while they should also prioritise difficult to identify hazards or low-frequency occurrences with potentially catastrophic consequences for investigations and mitigating actions. The recommendation aims to stimulate the development of onboard technical solutions to reduce the risk of using erroneous takeoff data.

The Dutch Safety Board published the report on 21 September 2023.

> ***Classification:*** Serious incident
> ***Reference:*** 2021105

Fly-away after loss of control, DJI Matrice 210 V2, PH-6RJ

Amsterdam, 26 July 2022

The operator used the DJI Matrice 210 (M210) unmanned aircraft system (UAS) in the city of Amsterdam. The M210 has four propellers, each powered by its own motor.

The UAS was used for the third time this day. The operator had not experienced any problems during the previous flights that day and the setup of the UAS had remained unchanged. All three flights took place at different locations. The batteries were approximately 90% charged. The operator then had the UAS take off from a bridge for the flight controls check above the water at a height of about 5 to 6 metres above the takeoff location.[3] Shortly after, the UAS stopped responding to instructions, which resulted in a fly-away. The UAS hit a tree and was severely damaged. At that moment, the message "ESC error" was visible on the screen of the remote controller. The operator tried in vain to stop the propellers. Smoke was billowing from one of the UAS motors. The operator then switched off the UAS and removed the batteries to prevent further damage and/or fire.

Weather data, provided by the operator, shows that, at the time of the occurrence, the surface wind came from direction 330 with a speed of 13 knots. There was no precipitation and no turbulence. The temperature was 19 degrees Celsius. The weather at the time of the occurrence does not appear to have contributed to its emergence.

According to the flight data, a compass calibration had been performed before the previous flight. The crew did not perform a compass or IMU[4] calibration prior to takeoff of the accident flight. This was in line with the guidelines in the User Manual of the M210 V2,[5] which state to only calibrate when indicated by the UAS.

After takeoff, the yaw angle as determined by the magnetic compass started deviating from the yaw angle as determined by the IMU. Since the UAS operated in P-mode,[6] this rendered the UAS uncontrollable and ultimately led to the crash.

The Dutch Safety Board requested the manufacturer of the UAS to analyse the flight data. According to the manufacturer, the deviation between the compass and IMU yaw was likely the result of electromagnetic interference (EMI),[7] caused by the steel surrounding the bridge and the power lines present there.

DJI provides some flight environment requirements in its User Manual of the M210 V2, indicating that large metal structures may affect the on-board compass and GPS system. If flying in the vicinity of such objects is nonetheless performed, it is advised that crews pay special attention to the (risks of the) operating environment and choose the flight mode accordingly.

3 This location was the result of a pre-flight risk assessment by the operator.

4 Inertial Measurement Unit.

5 DJI, MATRICE 200 SERIES V2, M210 V2/M210 RTK V2, User Manual v1.4, June 2019.

6 In P(ositioning)-mode, the UAS relies on global positioning system (GPS) and the magnetic compass.

7 Electromagnetic interference (EMI) is unwanted noise or interference in an electrical path or circuit caused by an outside source. EMI can cause electronics to operate poorly, malfunction or stop working completely.

In conclusion, it is it is most likely that the UAS was interfered by the operational environment, which resulted in the drifting away of the UAS.

The operator conducted an investigation into this occurrence and shared the results with the Dutch Safety Board.

Classification: Accident
Reference: 2022102

▼ *Archieffoto DJI Matrice 210 V2.*

Rejected takeoff due to pneumatic duct rupture, Boeing 777-222ER, N787UA

Amsterdam Airport Schiphol, 2 September 2022

A Boeing 777-222ER planned to fly from Amsterdam Airport Schiphol (EHAM) to Newark Liberty International Airport (KEWR). The aircraft taxied out and lined up on Runway 36L. During the takeoff roll, the flight crew received a 'Bleed Air Leak' message on the Engine Indicating and Crew Alerting System (EICAS), followed by 'Bleed Air Failure' message, shortly after. At that moment, they also received a call through the intercom from one of the cabin crew members and were informed of the presence of dust and debris in the passenger cabin.

The pilots decided to abort the takeoff at approximately 90 knots indicated airspeed. Several passenger heard a loud bang, just before the aircraft aborted its takeoff. They subsequently noticed dust and debris in the passenger cabin compartment as well as hot air near the ventilation outlets at floor level.

The aircraft vacated the runway and returned to the gate, where the passengers disembarked. One of the passengers sought medical attention.

▲ *Ruptured pneumatic duct.*

Investigation revealed that a titanium pneumatic duct (see photo), located in the left sidewall near the aft cargo compartment, had ruptured. The material insulating the duct was also damaged, which resulted in dust and debris from ducting insulation entering the passenger compartment through the ventilation outlets near the passenger floor.

According to Boeing, the duct is wrapped with a high temperature air duct insulation blanket. In addition to the insulation around the duct, there were insulation blankets along the interior of the fuselage adjacent to the duct rupture. All insulation material used in the area of the rupture is fiberglass-based insulation material.

The Dutch Safety Board did not investigate this incident any further.

Classification: Incident
Reference: 2022128

The broken airbrake lever. (Source photograph on the left: gliding club)

Airbrake lever broke off during final approach, PZL-Bielsko SZD-51-1 "Junior", PH-980

De Peel Air Base, 9 October 2022

After a local flight, the pilot noticed on the final approach leg that the rate of descent was too high to land at the intended spot in the landing zone. The pilot tried closing the fully open airbrakes slightly to reduce the rate of descent. In the process, the airbrake lever in the cockpit broke, preventing the pilot from being able to operate the airbrakes. The airbrakes remained open. As a result, the glider lost more height than anticipated and made a hard landing before reaching the marked landing zone. The pilot was unharmed and the glider was not damaged.

The airbrake lever, which had been in the glider since its construction in 1993, had a fracture in the handgrip. The fracture was a short distance from the weld with the rod of the lever. Material examination showed that the airbrake lever broke off as a result of fatigue. The fatigue appeared to have started at the interior surface. The exact initiation point could not be determined, however. No material defects were identified. The fatigue was probably the result of standard use of the airbrake lever. During the pilot's pre-flight inspection, prior to the flight in question, and during the

routine maintenance of the glider, nothing unusual was found with regard to the operation and condition of the airbrake lever. The gliding club stated that the original lever was never removed for a repair, but there may have been a minor paint repair. The manufacturer stated that they were not aware of any similar incidents.

The safety manager of the gliding club in question informed the safety managers of all gliding clubs in the Netherlands of the occurrence and advised them to check the connection between the lever and the rod.

Classification: Serious incident
Reference: 2022147

The broken airbrake lever.

Airprox, Pipistrel Velis Electro, F-HGBC and Robin DR400, PH-SVU

Teuge International Airport, 25 May 2023

At around 16.45 hours, two aircraft came in close proximity on the final approach leg for Runway 08 at Teuge International Airport (EHTE, hereafter Teuge). A Robin DR400, with a solo flying trainee on board, had departed from Rotterdam The Hague Airport (EHRD) and was flying into Teuge's circuit for touch-and-gos. On board the other aircraft, the Pipistrel, were an instructor and a trainee returning to Teuge after a local flight. The Pipistrel flew to the circuit via point Sierra before entering the circuit halfway downwind. At this point in time, Pipistrel's crew stated that they had seen the Robin turn from crosswind to downwind.

As the Pipistrel turned towards the final approach leg, the crew heard the Robin's pilot reporting on final. Immediately after this, the Pipistrel's crew also reported on final. Both aircraft were on the final approach leg at that moment. This was also observed by the airport operations manager on duty in the tower. The airport operations manager asked the Robin via the radio whether he was number 1 or 2. The pilot of the Robin replied via the radio that he was number 1. Soon after, the Pipistrel's crew saw the Robin coming from above and it continued to descend in front of the Pipistrel. The estimated distance was 10 metres. The instructor aboard the Pipistrel made an evasive manoeuvre to the left, followed by a go-around. The Robin landed on Runway 08.

Teuge is an uncontrolled airport. Both flights took place in accordance with visual flight rules (VFR). The Robin's pilot did not see the Pipistrel in the circuit. As a result, the airport operations manager's question about the landing sequence came as a surprise to Robin's pilot. Both crews stated that they had reported on the downwind leg. The Robin overtook the Pipistrel on the base leg or final approach leg, as a result of which both aircraft were flying on the final approach leg at the same time. On the final approach leg, the Robin was flying higher than the Pipistrel. The positions of the wings of both aircraft may have interfered with the crews' view of the other aircraft, as the Robin is a low-wing aircraft and the Pipistrel is a high-wing aircraft.

The above account is based on statements from both pilots and the airport operations manager. No radar data pertaining to the airprox on the final approach leg were available, since the incident occurred at low altitude. Neither aeroplane had any equipment to detect or warn other aircraft. The Dutch Safety Board did not further investigate the occurrence.

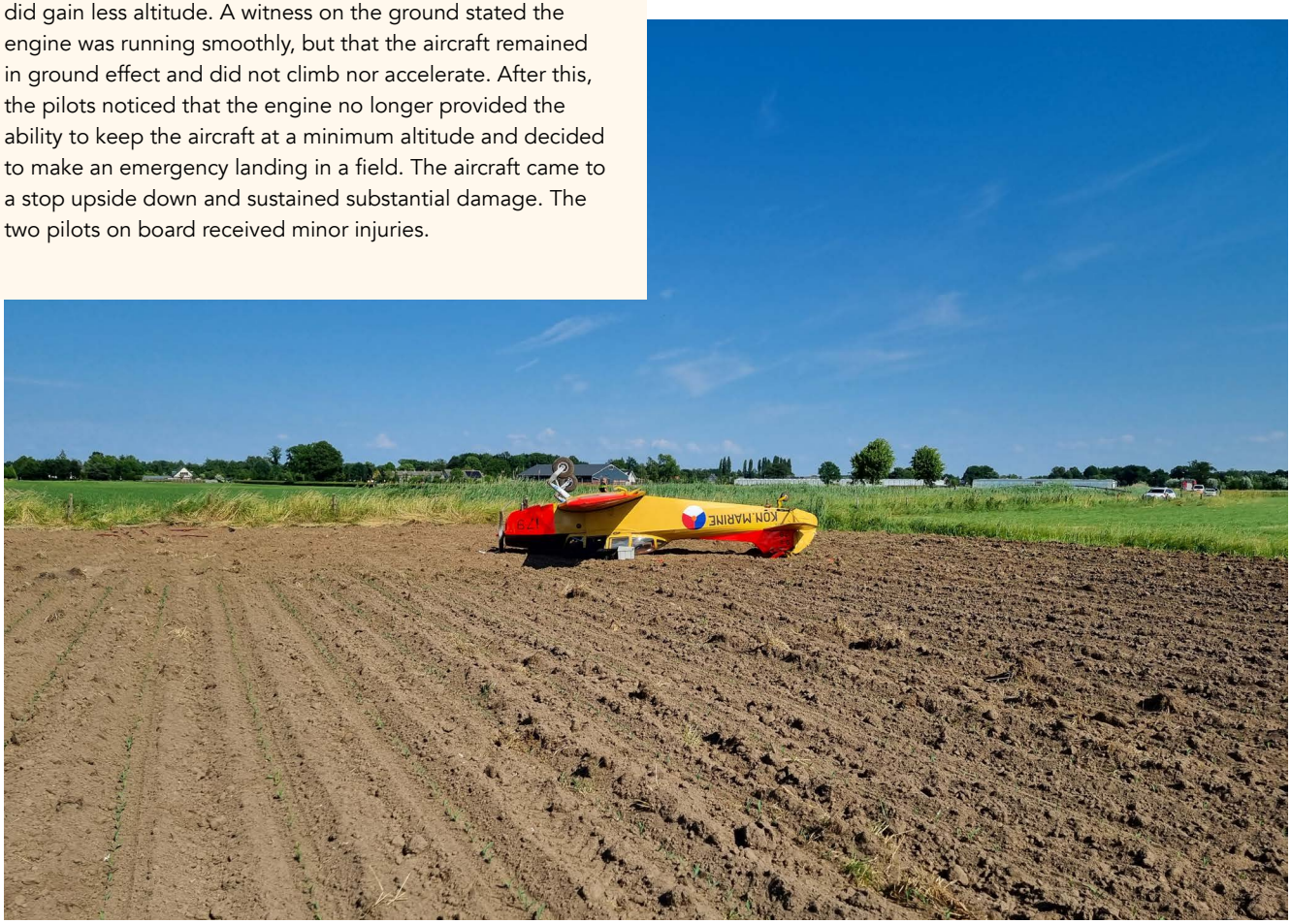
Classification: Serious incident
Reference: 2023105

Emergency landing after engine problem, Fokker S.11.1, PH-ACG

near Teuge International Airport, 16 June 2023

The pilots of this historic aircraft had fueled the aircraft at Teuge International Airport (EHTE) for a flight to Lelystad Airport (EHLE). Before setting course, the pilots performed a touch-and-go. According to the pilots, the engine, an AVCO Corporation, Lycoming Division O-435-A, initially responded normally when full throttle was selected. However, immediately after liftoff it became apparent that the aircraft did gain less altitude. A witness on the ground stated the engine was running smoothly, but that the aircraft remained in ground effect and did not climb nor accelerate. After this, the pilots noticed that the engine no longer provided the ability to keep the aircraft at a minimum altitude and decided to make an emergency landing in a field. The aircraft came to a stop upside down and sustained substantial damage. The two pilots on board received minor injuries.

▼ *The Fokker S.11.1 in the field. (Source: Dutch Aviation Police)*



On the left side of the cockpit, the Fokker S.11 has a power lever and a mixture lever. On the center console in between the two seats, the aircraft has a power lever and a carburetor heat lever. After the accident, the left power lever was found in the full forward position (maximum power) and the right power lever in the full aft position (minimum power). The carburetor heat lever was found in the 'cold' position. The mixture lever was found stuck, halfway between the lean and rich position. The aircraft's flight manual states that the mixture lever must remain in the rich position when operating the aircraft below 1,500 metres altitude.

The technical examination carried out by the owner showed that the engine mounting was bent and the engine controls no longer functioned fully. Further investigation has not yielded any information that could explain the cause of the engine problem. The lock mechanism of the mixture handle no longer functioned due to wear. This may have caused the mixture control to partially move from "rich" to "lean", causing the engine to receive too little fuel and a loss of power.

The Dutch Safety Board did not further investigate the occurrence.

Classification: Accident
Reference: 2023112

▲ *The aircraft after the emergency landing. (Source: Dutch Aviation Police)*

Emergency landing after engine problem, Denney Kitfox Mk IV, PH-DJM

Drimmelen, 17 June 2023

The pilot took off from Breda International Airport (EHSE) for a local flight. Near Drimmelen, the pilot gave less throttle, after which he heard a loud bang. Subsequently, the engine power decreased. The engine vibrated heavily and more loud bangs followed. The engine power was insufficient to maintain altitude and speed, upon which the pilot initiated a descent to maintain speed. The pilot decided to make an emergency landing in a field and made a mayday call on the frequency of Dutch Mil. After the emergency landing was initiated, the aircraft landed in a potato field. Because of the loose soil, the aircraft nosed over during the emergency landing and came to rest inverted. The pilot was uninjured and was able to leave the aircraft on his own.

The aircraft falls within the homebuilt aircraft category and had a valid special certificate of airworthiness at the time of the accident. The pilot had bought the aircraft four years ago and performed the maintenance himself. The pilot had a total flying experience of 149:40 hours as Pilot in Command, of which 48:45 hours on this aircraft type.

Investigation of the engine after the accident revealed that one of the four spark plugs of type BR8ES was broken in the middle. The upper part (with the isolator) was found loose from the cylinder, hanging from the spark plug cable.

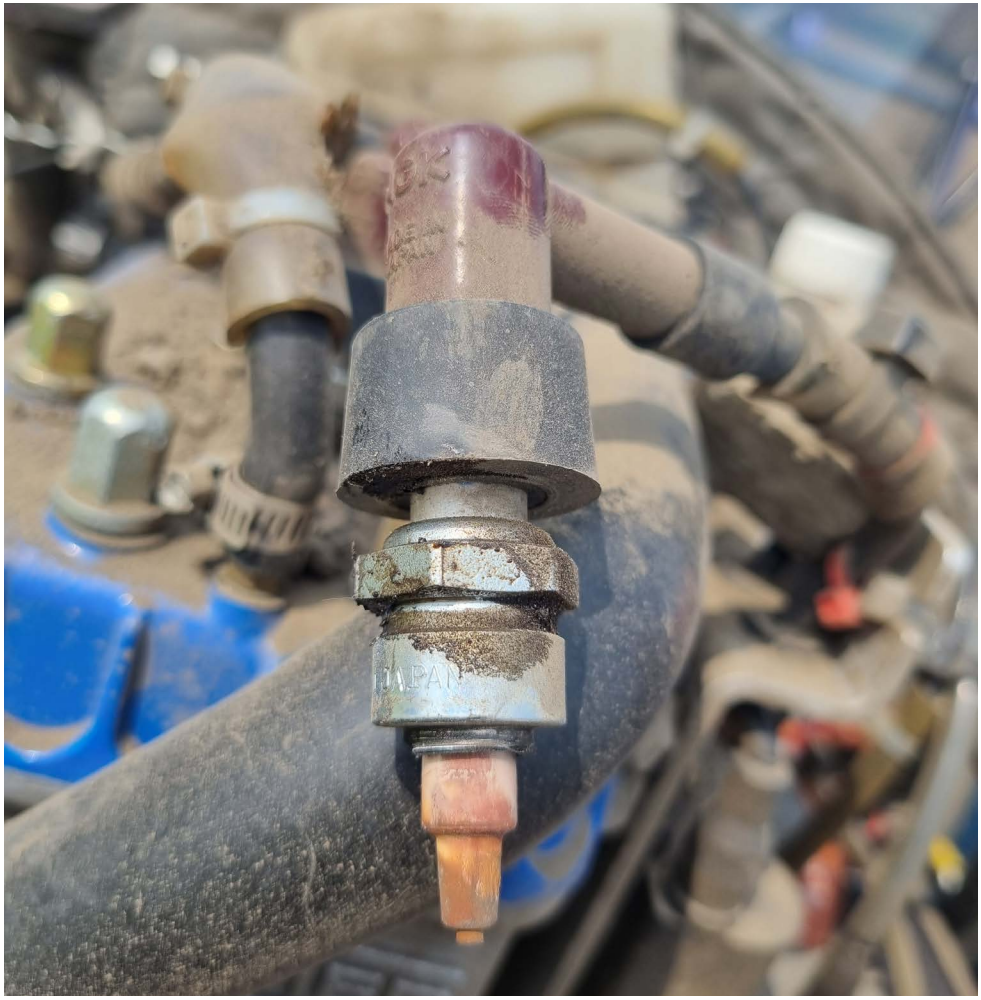
The Rotax 582UL is a liquid-cooled two-cylinder two-stroke inline engine, certified in the United States of America in accordance with standard ASTM F2339-17 ("Standard Practice for Design and Manufacture of Reciprocating Spark Ignition Engines for Light-Sport Aircraft"). This type of engine is used in homebuilt and microlight aircraft (MLA). The pilot declared that the BR8ES spark plug is approved by Rotax for this engine.[8]

8 See also Service Information 17 UL 97-D/E, November 1997, published by Rotax.

The reduction of engine power during flight was caused by the broken and loose spark plug. As a result, no ignition took place in the cylinder and an opening was created in the cylinder head causing the cylinder to lose compression. Because of this, only one of the two cylinders was delivering power. A large part of the engine power was lost. The bangs were probably caused by the piston in the second cylinder that still went up and down and the uncombusted fuel-air mixture that ignited partly in the hot exhaust manifold.

The pilot had replaced the spark plugs on 12 February 2023. According to the pilot, the engine had run 3 hours and 10 minutes with the new spark plugs without any problems, of which 2 hours and 25 minutes flying time, including multiple full power takeoffs. The cause of the failure of the spark plugs was not further investigated.

Classification: Accident
Reference: 2023113



The failed spark plug. (Source: Dutch Aviation Police)

Unmanned aircraft went missing

DJI Mavic 2 Enterprise, 30 June 2023[9]

The Pilot In Command (PIC) of the unmanned aircraft system (UAS) received a "low battery level" warning on his remote controller, urging him to land the Unmanned Aircraft (UA). The battery percentage had dropped below 30%, the low level limit that he had set himself. Due to operational needs and pressure to accomplish the mission, the PIC decided to ignore the message and kept the UA in hovering mode in its current position.

Moments later, the PIC received a message on the remote controller, stating that the Return To Home (RTH) function was initiated. This RTH was activated by the Smart Return Home function which determines the minimum battery percentage required to safely return to the 'home' position. The PIC cancelled the RTH function and was aware that the UA might no longer be able to reach the 'home' position and he would have to land the UA on an alternative landing site. Sooner than he expected, the PIC received a "critically low battery" message and the UAS went into the auto land mode. This mode cannot be overruled, however the PIC still had control of the UA's lateral flight path. The PIC was able to direct the UA to an alternative landing site but had to divert due to road traffic nearby this site. The PIC then directed the UA over several trees into an open field at which point, the UAS lost connection with the UA. The UA has not been found.

DJI's User Manual for the Mavic 2 Enterprise series[10] stated that the "low battery" RTH function is triggered when the intelligent flight battery is depleted to the point below which the safe return of the UA may be affected. DJI advises to return home or land the UA immediately when this message is prompted. The UA will then automatically return to the home point if no action is taken within ten seconds. The PIC may choose to override the RTH.

When a "low battery" RTH function is cancelled by the PIC and the flight is continued, the intelligent flight battery may not have enough charge for the UA to land safely at the home point. This potentially leads to a required landing on an unprepared landing site and a higher risk of the UA crashing or being lost.

The thresholds for the battery level warnings are automatically determined based on the UAs current altitude and distance from the home point. The user may define a custom percentage at which these warnings are generated regardless of altitude and distance. In both cases, the UA will perform a forced landing if the current battery level can only support the UA long enough to descend from its current altitude.

From this occurrence it can be learned that if you deliberately cancel the RTH function and continue the flight and the UAS then enters the auto land mode, you can only control the UA laterally to a limited extent.

9 The flight was carried out in the context of the detection of offences. Pursuant to Article 57(2)(3) of the Kingdom Act instituting a Safety Investigation Board, the registration of the drone and the location are not included in this report.

10 DJI, MAVIC 2 ENTERPRISE SERIES, User Manual, v1.8, April 2021.

On 29 August 2023, a similar occurrence took place at the same operator with a similar drone. Given the great similarity between the two occurrences, the Dutch Safety Board did not investigate the latter occurrence further.

Following both occurrences, the operator's advice to other operators is to pay attention to the pressure that pilots may experience to continue flying for their operational purpose if, for example, full batteries are no longer available. In addition, the advice is also: If you, as a pilot, consciously make the choice to continue flying; are you aware that the UA could end up in a forced landing. Prepare for that and think about an alternative landing site.

Classification: Accident
Reference: 2023131

Airprox, ASK 23 B, PH-760 and Van's RV-9A, F-PDAD

Noordkop glider airfield, 8 July 2023

The FLARM[11] equipped ASK 23 B single-seat glider took off from Runway 03 at Noordkop glider airfield (hereafter Noordkop) for a local flight using the winch launch method. On board was a pilot who did not yet hold an Sailplane Pilot Licence and was making his 25th solo flight. Towards the end of the winch launch, the pilot observed a motorised aircraft at his 10 o'clock position flying towards a position above the winch path where the glider would soon afterwards be at almost the same altitude. The pilot pushed the stick forward and levelled the glider off after which he released the winch cable early. According to his estimate, the vertical distance between both aircraft at that moment was less than 50 metres. FLARM gave no warning.

The motorised aircraft was a single-engined Van's RV-9A. The aircraft had taken off from Texel International Airport (EHTX, hereafter Texel) for a VFR flight to Grimbergen Airfield (EBGB) in Belgium. The aircraft was flying from the south of the Wadden Sea Corridor towards the Pampus VOR[12] at an altitude of 1,275 feet. The pilot, who navigated using SkyDemon navigation software, was aware that he was in the vicinity of Noordkop. He tried to visually locate it, but did not see any airfield nor gliders (in the sky). Since, according to the pilot, there were no thermals above 1,200 feet, he had assumed that no gliding activities were taking place. The SafeSky application he used also gave no indication of any activity on the ground or in the air.

▲ *The flight path of the RV-9A.*
(Source data: LVNL, source map: OpenStreetMap)

In the figure below, Texel is shown to the north and Noordkop to the east of De Kooy CTR. On the chart, the glider airfield is indicated with a G (of glider site) and the number 23 (indicating the maximum altitude of the winch cable, in hundreds of feet). The Aeronautical Information Publication (AIP) states that gliders can be launched daily up to a height of 2,300 feet from Noordkop before releasing the winch cable. The AIP also states that the winch cable represents an almost invisible obstacle, at a distance of approximately 1 NM all around the geographical location of the airfield.

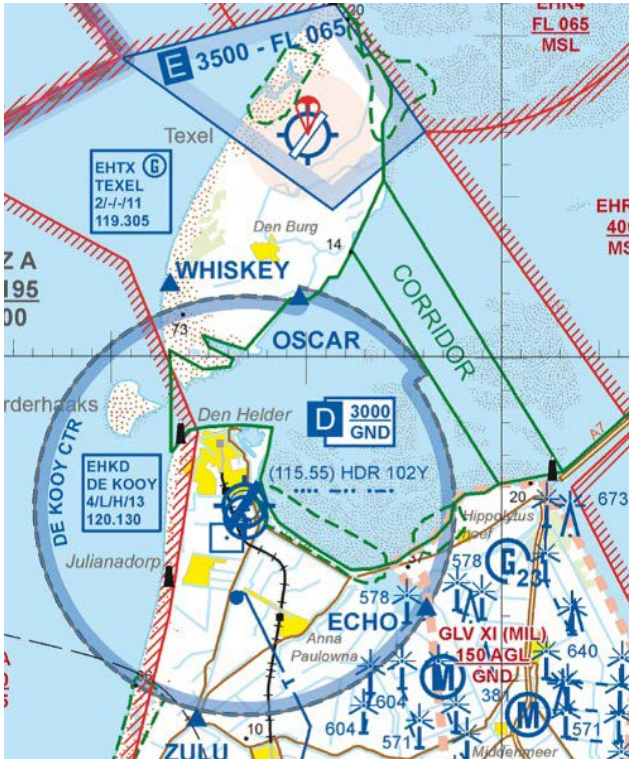
The occurrence took place at 15.41 hours in class G airspace. This airspace is uncontrolled and pilots themselves are responsible for maintaining sufficient separation from other aircraft in order to avoid a collision. At the time of the occurrence, there were no clouds and the visibility values were between 30 and 50 km. Visibility was greater than the minimum required for VFR traffic in uncontrolled airspace.

The Wadden Sea Corridor is a busy route for aircraft flying to and from Texel. The location of Noordkop and its glider

11 FLARM is a traffic awareness and collision avoidance system.
12 VHF Omnidirectional Range transmitter.

activities close to this corridor means aircraft and gliders frequently come into close proximity of one another. It is essential to take this into account during flight preparation. During the flight, it is crucial to maintain a constant lookout for other air traffic and employing a good scanning technique.

Classification: Serious incident
Reference: 2023137



▲ *Cut-out from aeronautical chart, the Netherlands. (Source: Air Traffic Control the Netherlands)*

DUTCH
SAFETY BOARD

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.

November 2023

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

The Dutch Safety Board in three questions

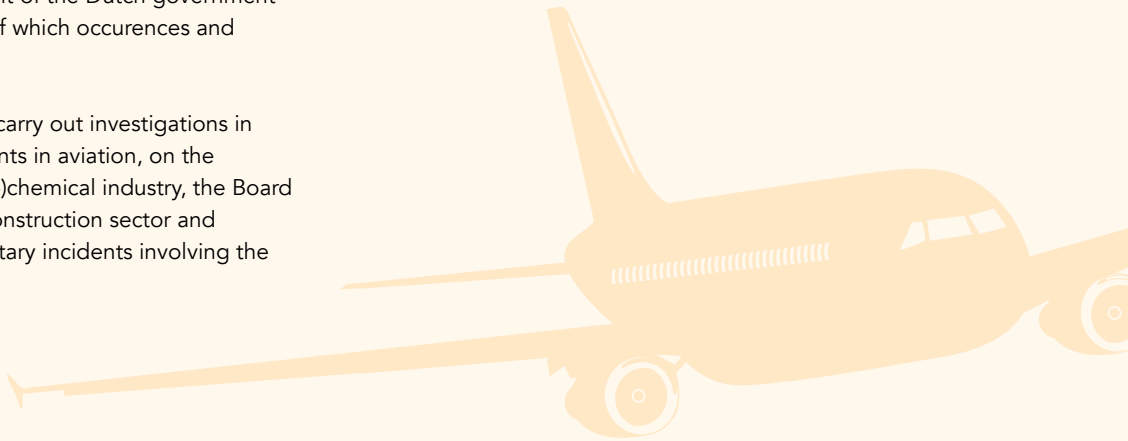
1. What does the Dutch Safety Board do?
Living safely, working safely, safety. It seems obvious, but safety cannot be guaranteed. Despite allknowledge and technology, serious accidents happen and disasters sometimes occur. By carrying out investigations and drawing lessons from them, safety can be improved. 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 occurences 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 wel 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 MPA. 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.