

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 short-comings are revealed, the Board may formulate recommendations to remove these. The Board's investigations explicitly exclude any culpability or liability aspects.

Quarterly Aviation Report

October - December 2019



In this quarterly report, the Dutch Safety Board presents a short retrospective on the past year. In 2019, 35 investigations were launched into serious incidents and accidents in the Netherlands. Furthermore, twelve events with Dutch involvement were reported by foreign colleague organisations.

One of the events with Dutch involvement occurred shortly before the end of the year, on 27 December 2019. This serious accident involved a Fokker 100 aircraft owned by a local airline, near Almaty Airport in the Republic of Kazakhstan. Twelve people lost their lives. The Republic of Kazakhstan is conducting the investigation into the cause of the crash. The Dutch Safety Board is participating in the investigation on the basis of the Convention on International Civil Aviation, as the aircraft was designed and manufactured in the Netherlands. Fokker Services B.V. and the European Union Aviation Safety Agency (EASA) are the Board's advisors in this context. Immediately after the accident, investigators of the Dutch Safety Board and experts of both organisations travelled to Kazakhstan.

Jeroen Dijsselbloem Chairman of the Dutch Safety Board







Retrospective on occurence reports and investigations in 2019

all serious incidents and all accidents involving civilian these events. The four serious incidents that occurred in aeroplanes in the Netherlands. In 2019, twenty accidents commercial aviation, in one of which a military aircraft was and fifteen serious incidents were reported to the Board. Over half of the investigations concerning the circumstances under which these events occurred, are still • Near-collision on the ground of two taxiing Airbus ongoing.

In the past calendar year, the Dutch Safety Board offered its assistance to foreign investigation bodies twelve times. This relates to investigations into events with Dutch involvement, such as an aircraft with Dutch registration and/or from a Dutch manufacturer. At the end of December 2019, for instance, two Dutch Safety Board investigators travelled to the Republic of Kazakhstan. They In 2019, two occupants of a Piper Super Cup died in the are participating in the local authorities' investigation into the accident with the Fokker 100, which crashed shortly after taking off from Almaty Airport. Twelve of the occupants died and 35 of the occupants were seriously injured in this accident.

Within the Netherlands, eighteen out of the twenty accidents and eleven out of the fifteen serious incidents all involved general aviation aircraft. The two commercial aircraft accidents involved ground collisions with airliners as they were pushed back on Amsterdam Airport

The Dutch Safety Board is legally mandated to investigate Schiphol. Four aircraft sustained damage in the course of involved, are:

- A320 aircraft at Amsterdam Airport Schiphol.
- Rejected takeoff of a Boeing 737 from a taxiway at Schiphol.
- Airprox between a helicopter and an F-16 over the North Sea.
- Airprox between a business jet and a helicopter near • Rotterdam The Hague Airport.

Netherlands when their aircraft crashed after a mid-air collision with another Piper Super Cup during formation flying practice. Five general aviation accidents in which occupants of the aircraft sustained injuries occurred in the Netherlands. In Australia, a Dutch pilot died when his aircraft, a Yak-52, crashed into the water.



Number of serious general aviation incidents and accidents reported to the Dutch Safety Board.

General aviation reports

The number of serious general aviation incidents and accidents reported in the Netherlands has fluctuated around 25 a year since 2014. The number in 2019 is once again roughly the same as in previous years. A trend analysis is impossible with an eye to the small number of serious incidents and accidents that occur. Furthermore, a wide range of aircraft (from paramotors to turbojet aircraft) is used in general aviation.

42% of all general aviation-related incidents and accidents reported to the Dutch Safety Board in 2019 occurred while landing; 17% in the circuit/on approach, 14% during the start, and 14% en route. The other events occurred during motor starting, taxiing, and restart.

The type of event most frequently reported in 2019 (6x), as it was in 2018, is the airprox¹/near-collision². Three nearcollisions occurred in the control zone of Lelystad in the first weeks after air traffic control was introduced there. One airprox occurred in the control zone of Rotterdam, one over the Terlet glider airfield, and one near Zwartsluis (involving a motorised aircraft and a glider).

In the following categories, two events each were occurred in 2019. reported: loss of control, runway excursion, runway incursion, collapsed wheel, collision with trees, and winch launch accident.





¹ An airprox is an event in which, in the opinion of a pilot or an air traffic controller, both the distance between aircraft and their relative positions and speeds were such that the safety of the aircraft in question may have been at risk.

² A near-collision occurs if one or more of the pilots involved made an evasive manoeuvre in the airprox to avoid a collision.

Occurrences into which an investigation has been launched

Near collisions in Lelystad CTR, November 2019

In November 2019, six occurrences³ were reported to the Dutch Safety Board that occurred in the control zone (CTR) of Lelystad Airport. These involved situations in which aircraft approached each other.

Classification: Serious incident Reference: 2019091, 2019095, 2019098



Visual Approach Chart/VFR procedures. (Source: AIP Netherlands)

3 Three events were classified as an incident, the other three as a serious incident.

Airprox, Cessna 560XL, EC135 T2, Rotterdam CTR, 24 December 2019

The trauma helicopter departed from Rotterdam The Haque Airport for a flight under visual flight rules. Approximately 5 minutes after takeoff, the pilot decided to turn back due to worsening weather conditions. In the course of this manoeuvre, the helicopter came close to a business jet on approach to the airport using the instrument landing system. Both aircraft landed without further problems.

Classification: Serious incident **Reference:** 2019102

Aircraft flipped inverted while landing, TL Ultralight s.r.o. TL-3000 Sirius, Middenmeer airfield, 30 December 2019

In the course of landing, the aircraft flipped inverted and came to a standstill upside down. Both occupants remained unharmed. The aircraft was damaged.



The Sirius after the occurence. (Source: Police, Aviation Supervision Team)

Classification: Accident **Reference:** 2019106 Occurrences abroad with Dutch involvement into which an investigation has been launched by a foreign authority

Runway excursion, British Aerospace Jetstream 32, Münster-Osnabrück International Airport (Germany), 8 October 2019

With three crewmembers and a passenger on board, the aircraft left the runway during takeoff. The aircraft sustained light damage. The occupants remained unharmed

Investigation has launched an investigation into this event. The Dutch Safety Board has offered its assistance.

Classification: Accident **Reference:** 2019085



Tracks of runway excursion. (Source: BFU)

Runway excursion, Fokker F27 Mk 050, Wilson Airport (Kenia), 11 October 2019

With 5 crewmembers and 50 passengers on board, the Fokker 50 left the runway during takeoff from Wilson Airport. The aircraft came to a standstill beyond the end of the runway and suffered substantial damage. Three passengers sustained serious injuries.

The Kenyan Aircraft Accident Investigation Department The German Federal Bureau of Aircraft Accident launched an investigation into this event. The Dutch Safety Board offered its assistance.

> Classification: Accident **Reference:** 2019086

Loss of airspeed, Fokker F28 Mk 0100, Rockhampton aerodrome (Australia), 10 November 2019

While on a final approach at an altitude of 300 feet, the Fokker 100 experienced moderate turbulence that caused the airspeed to drop. The pilots attempted to compensate for the loss of airspeed but because they did not manage to push the thrust levers forward in a timely manner, the airspeed dropped below the minimum approach speed. The aircraft made a safe landing.

The Australian Transport Safety Bureau (ATSB) launched an investigation into this event. The Dutch Safety Board offered its assistance.

Classification: Incident **Reference:** 2019092

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

Loss of cabin pressure, Fokker F28 Mk 0070, Jacksons International Airport (Papua New Guinea), 21 November 2019

On the Fokker 70's descent to its destination Jackson's International Airport, the cabin decompressed resulting in the oxygen masks being released. The aircraft made a safe landing.

The Accident Investigation Commission (AIC) of Papua New Guinea launched an investigation into this event. The Dutch Safety Board offered its assistance.

Classification: Serious incident Reference: 2019093

Crashed after takeoff, Fokker F28 Mk 0100, Almaty Airport (Republic of Kazakhstan), 27 December 2019

The Fokker 100 crashed shortly after takeoff on a national flight from Almaty Airport. The aircraft collided with a building. The aircraft carried 93 passengers and 5 crewmembers. Twelve of the occupants died and 35 of the occupants were seriously injured in this accident.

The Aviation Accidents Investigation Authority of the Ministry of Industry and Infrastructural Development of the Republic of Kazakhstan launched an investigation into this incident. The Dutch Safety Board participates in the investigation.

Classification: Accident Reference: 2019104



The crashed Fokker 100.

Published reports

Loss of brake pressure during taxiing, Fokker F28 Mk 0070, PH-WXC, Amsterdam Airport Schiphol, 5 March 2015

After landing at Amsterdam Airport Schiphol, the Fokker 70 exited landing runway 18R on its way to the aircraft stand. To reduce fuel consumption, engine #2 had been shut down in line with the policy of its airline. Initially, the aircraft taxied without any problems. The crew had to apply slight brake pressure from time to time without having to come to a standstill.

Once arrived at its assigned free aircraft stand (not at the terminal gate) both crew members stepped on the brake pedals to bring the aircraft to a full stop. The aircraft did not slow down noticeably. Despite an evasive manoeuvre to the left, the bottom of the aircraft's right wing collided with the ground power unit (GPU). Handling personnel that were meant to connect the GPU and place the wheel chocks in front of and behind the wheels, were forced to run away in order to avoid being run over.

The aircraft continued to roll, ending up on a taxiway and moving towards one of the busy main taxiways around the Schiphol terminal complex. When the crew shut down the remaining engine, the brake pressure suddenly returned, bringing the aircraft to an abrupt halt. At the time, it had returned to the nearest main taxiway without having collided with other aircraft or obstacles. Clearly, the loss of brake pressure initially presented a serious risk to the safety of the handling personnel. After that, after the collision with the GPU there was still the risk of a subsequent collision with another object, particularly as PH-WXC drove onto a main taxiway where other aircraft might have been present. However, the alertness of the handling personnel, actions of the cockpit crew, and fortunate circumstance that there was no other traffic in the aircraft's immediate vicinity, served to limit the consequences of this incident.

The Dutch Safety Board concludes that complex failures, generally in avionics systems (line replaceable units (LRUs)), are difficult to detect. The investigation of PH-WXC did not yield an immediate cause. Based on this investigation, the Dutch Safety Board is able to specify two factors that may present a safety risk in the maintenance environment, particularly when they are combined:

- Despite following the correct procedures for maintenance and the airworthiness requirements, LRUs may be recommissioned without the problem having been established and without being certain that it has been resolved.
- The pool system may affect the effectivity of monitoring the continuous airworthiness of LRUs (including tracking unplanned replacement of units and recurring incidents) because the operators are not aware of them.

The Dutch Safety Board published the <u>report</u> on its website on 12 December 2019.



The Fokker 70 and the GPU. (Source: Aviation police)

Reports published by foreign investigation authorities

Undetected deactivation of thrust reverser, Fokker F28 Mk 0100, VH-NHA, Karratha Airport (Australia), 27 December 2017

Following approach and touchdown, the pilot selected the thrust reversers of both engines. The right thrust reverser was not activated. The speed of the Fokker 100 dropped, with the pilots using the 'regular' brake system, and taxied to the gate without further problems.

The Fokker 100 had been serviced on the previous day using the minimum equipment list (MEL) lockout bolt of the right thrust reverser instead of the lockout bolt that is required during maintenance. The latter features a warning flag and must be withdrawn from the tool storage space before being used. By using the MEL lockout bolt, the visual check (warning flag) becomes ineffective; the same applied to the procedural check that is meant to show what tools are in use. As a result, the aircraft was released for flight with the bolt still in place.

The Australian Transport Safety Bureau (ATSB) published the report on 18 December 2019.

Occurrences that have not been investigated extensively

Loss of propeller in flight, Tipsy Nipper, **OO-PVA, Weesp,** 18 October 2018

The aircraft took off from the Hilversum airfield on a local flight. During the first leg of the flight, the pilot detected vibrations in the aircraft. These vibrations disappeared after the engine speed was changed. Later in the flight, as he was pulling out of a looping, the pilot detected a different engine sound and an increased engine speed. He concluded that the propeller had disappeared and made an emergency landing in a meadow. The pilot was unharmed. The detached propeller fell into a meadow without causing any damage. The engine cover sustained light damage due to the propeller separation.

In April 2018, the engine of the aircraft (Jabiru 2200A - 499 engine hours) had been subjected to a 100-hour periodical inspection and maintenance. The six propeller bolts had been replaced with new bolts and secured with lock-wire as part of the 500-hour replacement schedule. At the time of the incident, the engine had reached 532 running hours.

The mandatory 25-hour inspection at 524 engine hours had not been done.

The investigation revealed that five of the bolts with which the propeller flange is mounted onto the (engine) crankshaft flange had fractured. One bolt had not fractured but had been vanked from the crankshaft flange in its entirety, severely damaging the thread. When the five threads remaining in the crankshaft flange were removed, it was noted that these could be unscrewed without any resistance. Three of the bolt heads were still wired together with the lock-wire.

Microscopic investigation of the fracture surfaces shows fatique fractures that started in the thread core. This means that the bolts had slowly detached during the course of the flight, steadily increasing the clearance between the propeller flange and the crankshaft flange. This resulted in a combined bending moment and tensile force within the bolts, causing the bolts to eventually fracture due to excessive stress.

The engine manufacturer makes the following statement about the use of lock wire to secure propeller bolts: "no objection to lock-wire being used. However, lock-wire on its own has proven to be insufficient restraint for the screws. Loctite 620 must be used - all other restraints are optional". However, no residue of Loctite 620 was found on any of the bolt thread sections. It was established that only lock-wire had been used instead of Loctite 620.

The periodical inspection and maintenance work had been done by an experienced service engineer. He had performed this operation several times before. Furthermore, he stated that he was certain he had followed the correct procedure.

The engine had not been serviced in accordance with the manufacturer's instructions. Failure to use the prescribed retaining compound caused the bolts with which the propeller was mounted onto the crankshaft to come undone. This led to fatigue fractures, which eventually resulted in the bolts breaking off. It is deemed unlikely that the absence of retaining compound would have been detected during the 25-hour inspection if it had been performed according to schedule, i.e. eight hours prior to the incident.

Classification: Serious incident **Referentie:** 2018113



Tipsy Nipper after the emergency landing.

Occurrences that have not been investigated extensively

Collided with tree after loss of engine power, TL Ultralight TL-3000 Sirius, PH-4Q2, Hilversum airfield, 8 April 2019

The TL-3000 Sirius was on a training flight with an instructor and a student on board. After three touch-andgo's on runway 07 of Hilversum airfield, the aircraft landed, intending to perform another touch-and-go. The aircraft had bounced on landing, after which the instructor took the controls and made a restart. The controls were then handed over to the student once again. At an altitude of approximately 300 feet, when the aircraft was in line with the runway and turned into the crosswind, the engine started to stutter. The instructor took back the controls once again and performed a failure check. He moved the throttle to idle and back to full power several times. The engine continued to stutter and delivered inadequate power to fly a short approach. The altitude was such that no other option remained but to land in the trees on a military terrain bordering the airfield. The aircraft came to a halt in a treetop. The two occupants were rescued from their situation by the fire department. They remained The TL-3000 Sirius after its treetop landing. unharmed but the aircraft was heavily damaged.

A limited technical investigation was conducted of the engine, checking for the presence of fuel and oil, the control levers of the engine, the spark plugs, carburettor, cylinders, and valves, among other things. The investigation did not yield a technical explanation for the engine stutter.

Classification: Accident **Referentie:** 2019025



Canopy open during winch launch, Calif A-215, D-6237, Biddinghuizen glider airfield, 29 May 2019

The two-seater glider took off from runway 23 after a winch launch. The pilot was seated to the right in the cockpit, with a passenger in the left seat next to him. Early on in the winch launch, the pilot noticed that the canopy was not locked correctly on his side. He took hold of the canopy structure to prevent it from opening completely. The pilot asked the passenger to help him by holding on to the canopy on his side. The passenger inadvertently opened the canopy lock, causing the canopy to catch the wind and open fully. The pilot stated that he then controlled the glider with his left hand on the canopy and his right hand on the control stick. The winch cable detached from the glider. He estimated that the glider had reached an altitude of approximately 300 metres. The pilot was worried that the canopy would be torn off completely and collide with the horizontal stabiliser. Together, the pilot and passenger managed to pull back the canopy and close it. In the meantime, the pilot had made a 180-degree curve to join the circuit. He stated that he was rather low and close to the glider strip when he was midway on the downwind leg. The pilot turned into the base leg well before the landing strip.

He stated that the wind pushed the glider to the right after he turned into the final approach leg. At that point he was unable to position the glider in front of the landing strip and decided to land in a nearby wheat field. During the ground roll, the glider made a ground loop. The occupants remained unharmed. The aircraft sustained damage to the wings and flaps.

Prior to the launch, the pilot had performed a cockpit check. He had also checked whether the canopy was closed and locked. He possibly overlooked the fact that the canopy was locked improperly on the right side. This incident emphasises the importance of a thorough cockpit check prior to every flight.

Classificatie: Accident **Referentie:** 2019045



The Calif after the off-field landing. (Source: Aviation police)

Occurrences that have not been investigated extensively

Airprox, Glaser Dirks LS8, PH-1454, Piper PA-28-181, OY-SPL, to the south of Zwartsluis, 2 June 2019

PH-1454, a Rolladen-Schneider LS8-18 single-seater glider, took off from Lemelerveld glider airfield at 16:15 hours for an overland flight. Around 16:30 hours, the glider was flying to the south of Zwartsluis when a motorised aircraft passed by at a very short distance. The aircraft crossed the glider's path from right to left at approximately the same altitude. Since PH-1454's pilot was taken by surprise, he did not have time to take evasive action. Nor did the pilot of the motorised aircraft engage in an evasive manoeuvre.

Investigation showed that the motorised aeroplane was a Piper PA-28-181 with the Danish registration OY-SPL. The aircraft had taken off from Breda International Airport at 15:47 hours on a flight to Ringsted airfield in Denmark. The pilot and three passengers were on board. Shortly after takeoff, the pilot received clearance to continue the flight under instrument flight rules (IFR). The pilot then engaged the autopilot, after which the aircraft continued on a northeasterly course at an altitude of 5000 feet in the direction of Denmark. He stated that he remembered having been alerted to the presence of gliders by air traffic control in the course of his flight, but he could not remember where this was. The pilot and passengers had been alert at all times, but had not seen any other aircraft nearby. They had not noticed the incident.

The radar images showed that PH-1454 was on a course of 065° at a radar altitude of 4900 feet at 16.31:35 hours. The following point recorded by the radar was at 16.31:47 hours. at which time the glider was still flying at the same altitude. The course line of PH-1454 was crossed by the course line of OY-SPL. This aircraft flew on a course of 010° at a radar altitude of 5000 feet. At 16.31:39 hours. PH-1454 was positioned to the left of OY-SPL. At 16.31:43 hours, OY-SPL was positioned to the north of the course line of PH-1454.

The weather did not play any part in this incident.

The incident occurred in class E airspace. In this type of airspace, air traffic control separates IFR flights from other IFR flights and, insofar as feasible, air traffic information is provided to all flights. IFR traffic is not kept separate from VFR traffic.

This means that pilots are themselves responsible for remaining alert to other air traffic at all times and maintaining a safe distance from other aircraft.

The incident occurred because both pilots did not visually acquire each other and therefore could not take timely evasive action.

Classification: Serious incident **Reference:** 2019065



Airprox near Zwartsluis. (Source: Radar data: LVNL, Map: **OpenStreetMap**

Wheel collapsed during landing, Discus CS, PH-1317, Venlo glider airfield, 9 Jun 2019

The pilot had set off in westerly direction from Venlo glider airfield. Approximately 15 minutes later, the takeoff and landing directions were changed to the east because the wind direction had changed. All pilots who had taken off from Venlo were notified by radio. After a flight of nearly one hour, the Discus' pilot entered the circuit at an altitude of 200 metres. The pilot stated that he performed the • Provide an unambiguous description for securing the downwind call and then conducted the checks (wheel, water, flaps, wind, landing site, landing speed).

As the glider was on the base leg and the pilot opened the airbrakes, the wheel alarm sounded. The pilot then checked whether the wheel lever, which was supposed to be pushed to the front, was actually in that position. However, he failed to check whether the handle was in the 'lock' position to lock the wheel in place.

The wheel then collapsed during rollout after the landing. Due to the strong deceleration, the pilot was lifted from his seat and banged his head against the canopy. This caused the canopy to fracture over a length of approximately 50 centimetres. The pilot was unharmed.

The pilot stated that he did not check if the wheel lever was in the lock position after the downwind alarm sounded. The reason was that he had experienced an unjustified alarm several times before. When letting down the wheel, he had forgotten to set the wheel lever to the right. The wheel was therefore down but not locked. He stated that he was focusing on the approach and landing and did not want to take his attention away from those operations for too long.

The aliding club conducted an internal investigation and shared its findings with the Dutch Safety Board. The pilot was able to hit the canopy with his head because the belts were not tightened sufficiently. Within the club, it was found that tightening the belts was subject to different interpretation. A difference of opinion was brought to light as to how much the belts should be tightened. In two known cases, this led to canopy damage. The club's investigation resulted in the following recommendations:

- safety belts.
- Devote more attention to the correct sitting position and the use of safety belts in the training and taking lessons on a different glider model.
- Issue a safety bulletin to bring the importance of a correct sitting position and the correct use of safety belts to the members' attention.
- Stimulate reporting of all technical defects.

The pilot was a seventeen-year-old solo flyer. He had a total flight experience of 205 starts (approximately 82 hours), 3 of which (approximately 5 hours) involved the glider model in guestion. The number of starts in the last 3 months prior to the accident was 32 (approximately 22 hours).

Classification: Accident **Reference:** 2019051



Archive photo PH-1317. (Source: Gliding club)

Occurrences that have not been investigated extensively

Parachute rescue system activation, TL-ULTRALIGHT Stream, OK-WUA 42, Middenmeer airfield, 18 June 2019

Czech manufacture with two seats positioned behind each The Emergency Checklist of the TL-ULTRALIGHT Stream other. The aircraft is equipped with a parachute rescue system. In an emergency situation, the aircraft and its PULL FIRMLY! With a force from 11.5 KG about 40 cm! occupants can be carried by the parachute and descend at a vertical speed that ensures a maximum survival chance The aircraft's owner has stated that the procedure for for the occupants. The system can be activated from both seats by pulling a lever on the instrument panel of both seats. These levers are secured with a locking pin when the aircraft is on the ground. The lever of the pilot-incommand must be removed prior to the flight. If the other seat is occupied by a (student) pilot or passenger, that pin must also be removed. The pilot-in-command briefed the cockpit layout, including the control lever of the parachute control system, with the passenger.

At the start of the flight, standing still on the platform, the passenger alerted the pilot that the (hindmost) locking pin of the parachute rescue system had not been removed. The pilot then gave the passenger permission to (carefully) remove the locking pin. The passenger accidentally activated the system, after which the parachute was ejected and opened. Nobody was injured but the aircraft sustained serious damage.

The passenger stated that moving the activation lever was necessary to be able to remove the locking pin. At the moment he was able to remove the pin, the lever also moved, activating the parachute. The passenger also stated that the force he exerted was small and that he had The TL-ULTRALIGHT Stream is a light sport aircraft of not pulled out the lever more than approximately 5 cm. specifies the following: Parachute Activation Handle...

removing the pins will be reviewed and changed.

Classification: Accident **Reference:** 2019050



The parachute of the rescue system. (Source: Pilot)

The Dutch Safety Board in three questions





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.



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



Who works at the Dutch **Safety Board?**

The Board consists of three permanent board members under the chairmanship of Jeroen Diisselbloem. 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.



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.

March 2020

Photos

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

Source photos cover: Photo 3: Pilot