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 enough to learn lessons, the Board does not conduct any further investigation.

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

Quarterly Aviation Report

January - March 2017

The review of the investigated occurrences in this quarterly report focuses on general aviation last year. Three types of occurrences were most frequently reported: the loss of control, emergency landings following engine failure and hard landings. Factors contributing to these investigated occurrences will be explored in this quarterly report.

Thirteen serious incidents and twenty accidents have been reported to the Dutch Safety Board in the course of 2016. General aviation aircraft were involved in 28 of the 33 serious incidents and accidents reported. Five occurrences involving airliners took place.

The Dutch Safety Board launched investigations into two occurrences involving airliners in the first quarter of 2017. These concern a cargo aircraft that hit the runway threshold lightning during its landing and a passenger aircraft of which its landing gear collapsed during landing. At 6 april the Dutch Safety Board published the final report of the investigation into air traffic safety at Amsterdam Airport Schiphol. The Dutch Safety Board notes that further growth of Schiphol will require more than marginal adjustments to the existing policy. The risks to air traffic at and around the airport must be addressed structurally.

Tjibbe Joustra,
Chairman, Dutch Safety Board


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Identified trends

Review of occurrences investigated in 2016

In the past year 13 serious incidents and 20 accidents were reported to the Dutch Safety Board, which has investigated these occurrences; some of the occurrences are still under investigation. The Dutch Safety Board has also assisted foreign investigating authorities with 30 investigations into occurrences with Dutch involvement that took place abroad in 2016.

In the accidents investigated by the Dutch Safety Board in 2016 there were two fatalities and seven people that sustained serious injuries. One person died during a flight under visual flight rules that ended up in instrument meteorological conditions and there was one fatality in an accident with a paramotor.

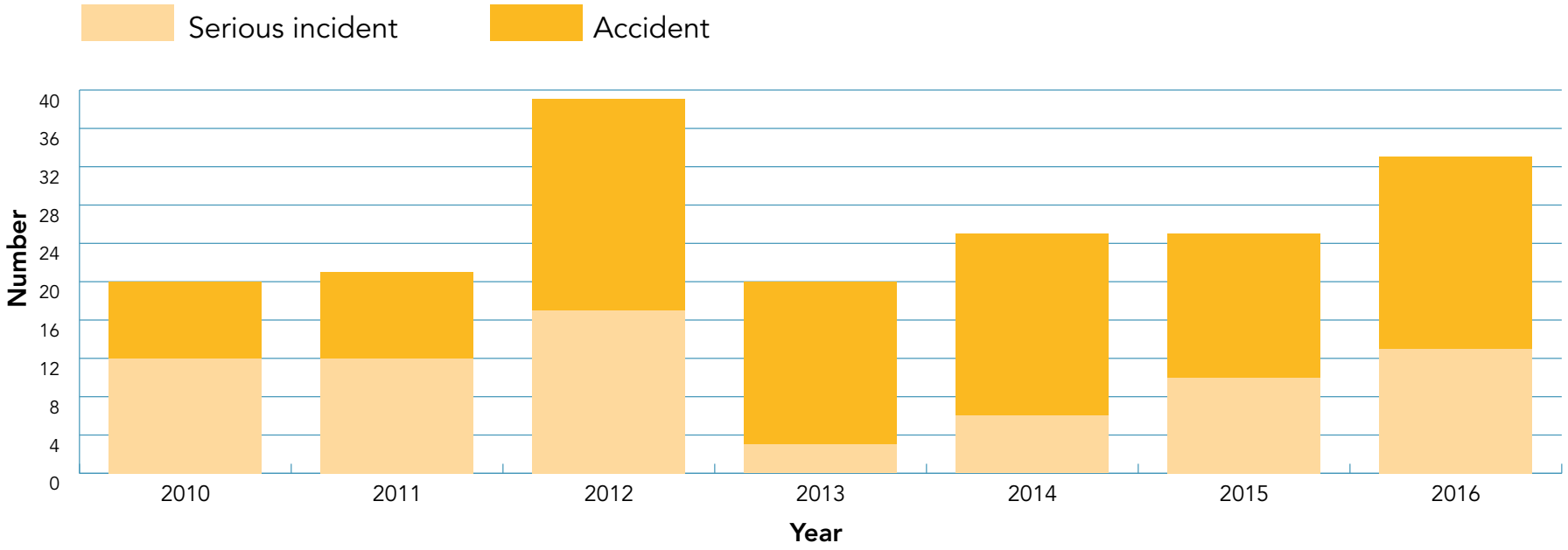
In 28 of the 33 serious incidents and accidents reported general aviation aircraft were involved. Five serious incidents and accidents took place with commercial aeroplanes. In addition to the above occurrences in which civil aircraft were involved, there was one accident in which military aeroplanes were involved. This resulted in a slightly injured casualty.

Reported occurrences concerning general aviation

The focus in this review is on the occurrences reported regarding general aviation in the Netherlands because this is where the vast majority of the reported occurrences originate.

Over the last three years a slightly rising trend is visible in the number of serious incidents and accidents reported in general aviation in the Netherlands.

Of the general aviation occurrences that were investigated by the Dutch Safety Board in 2016 roughly half took place in the final phases of the flight, during approach and landing. Of the occurrences that took place during the approach, three took place during the execution of the traffic pattern. There were two near misses in the traffic pattern area.



A risk of collision occurred on one occasion because a pilot wanted to land in the wrong runway direction. Another risk of collision occurred because of a mutual difference in speed and the failure to notice another aeroplane in the traffic pattern. On one occasion a loss of control took place while flying in the traffic pattern.

Three occurrences took place while executing special manoeuvres, two of which when executing aerobatic manoeuvres and one during a low pass of a glider.

In 2016 three types of occurrences were most frequently reported. These were loss of control, emergency landing following engine failure and hard landings. All other types of occurrences took place fewer than four times and are not discussed separately in this report for this reason.

Loss of control

Loss of control of the aircraft in general aviation was reported seven times in 2016. It is therefore the type of occurrence most frequently reported in 2016. Loss of control occurred in different phases of the flight: shortly after take-off, while climbing, while cruising, during special manoeuvres, during the approach and during a go-around. The causes of the loss of control varied. Contributory factors to the loss of control of the aeroplane in the investigated occurrences were:

- VFR flights in instrument meteorological conditions.
- Little experience with the aircraft type concerned.
- Little recent experience in instrument flying.
- Incorrect steering movements during a go-around in strong wind conditions.
- Limited experience in recognising a spin.
- Possible icing on the wings.
- Loss of consciousness due to high G-forces.
- Continuing a final approach after ending up too high on the final approach leg.

The American safety investigation authority National Transportation Safety Board (NTSB) found that loss of control of the aircraft was the cause of 48% of the fatal accidents in general aviation in the United States[1] in the period 2008 to 2014. The NTSB therefore gives priority to preventing such accidents and has drawn up learning points to achieve this.

Emergency landing following engine failure

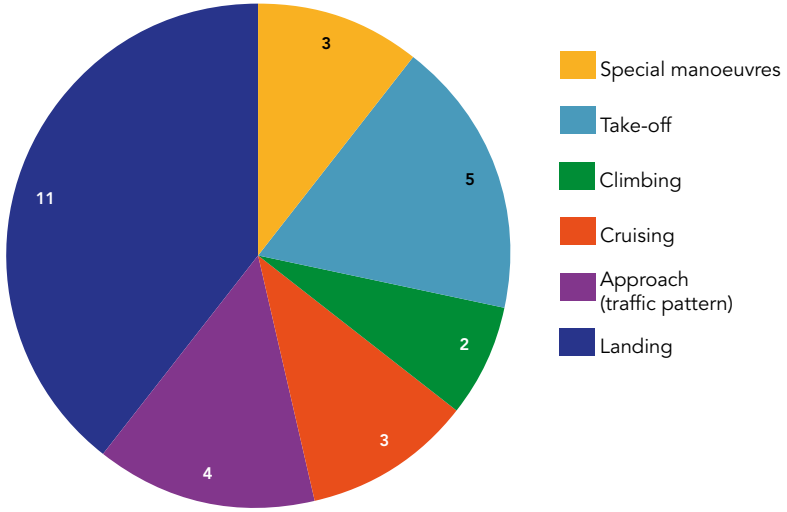
In 2016 four emergency landings were reported that were the result of an engine failure. Twice the engine failure occurred while climbing, once during cruise and once during final approach. Three times the result of the emergency landing was damage to the aircraft. The following factors played a part in the three emergency landings that resulted in damage to the aircraft:

- Landing with tailwind (in two cases).
- Mistakenly flying with the choke activated, which led to the fuel mixture being too rich on final approach.

Hard landing

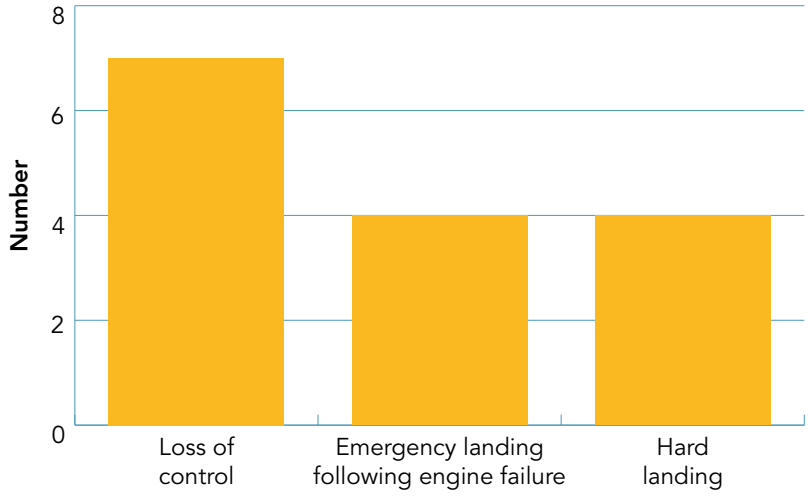
Four times damage to an aircraft occurred because of a hard landing. Twice a glider was involved and twice an aeroplane. Factors contributing to these hard landings were:

- Landing flare initiated too high.
- Air brakes of a glider opened mistakenly during the loss of winch power at low altitude.
- Landing with tailwind.
- Too much height on the final approach leg for an off-airfield landing with a glider.



The phases of flight in which occurrences took place in general aviation in 2016. No serious incidents or accidents occurred during taxiing or descent.

The three most reported types of occurrences in general aviation in the Netherlands in 2016.



1 https://www.ntsb.gov/safety/mwl/Documents/2017-18/2017MWL-FctSht-LossControl-A.pdf

Occurrences into which an investigation has been initiated

Runway lighting struck during landing, Boeing 747-8F, VQ-BLR, Amsterdam Airport Schiphol, 13 January 2017

The cargo aeroplane struck some of the threshold lighting lamps on the runway threshold shortly before landing on runway 36R. The aeroplane sustained damage as a result.

Classification: *Serious incident*
Reference: *2017002*

Landing gear collapsed during landing, Bombardier DHC-8-402-Q, G-JECP, Amsterdam Airport Schiphol, 23 February 2017

The right main landing gear of the Bombardier Q400 collapsed during landing on runway 22. The aeroplane came to a stop on the runway on its right wing and in the process sustained damage to the right wing, the right propeller, the landing gear and the fuselage. Nobody on the aeroplane was injured.

Classification: *Accident*
Reference: *2017016*

The three threshold lamps (after replacement) struck by VQ-BLR. (Photo: AAS)

G-JECP with the collapsed landing gear

Bush struck on final approach, Schleicher ASK-21, PH-1290, Langeveld glider airfield, 12 March 2017

The glider, with an instructor and a student on board, made a crosswind landing during a check flight at the start of the gliding season. On final approach the left wing struck a bush at low altitude, as a result of which the glider rotated approximately 270 degrees about its top axis in the air and then came to a stop on the ground. Neither occupant was harmed. The glider sustained, among other things, damage to its left wing tip.

Classification: *Serious incident*
Reference: *2017018*

PH-1290 after the occurrence. (Photo: KZC)

Emergency descent following loss of cabin pressure, Boeing 767-36N, G-POWD, 35 NM to the southwest of Amsterdam Airport Schiphol, 19 March 2017

The Boeing 767 was making a passenger flight from London Stansted Airport in the UK to Rzeszów Jasionka Airport in Poland. While cruising at an altitude of FL370, approximately 35 nautical miles to the southwest of Schiphol Airport, a cabin altitude warning was generated on the flight deck. As a result of this the oxygen masks were automatically deployed in the cabin. The crew made an emergency call, carried out a descent and decided to divert to Schiphol Airport in response to the warning, where a safe landing was made. None of the aeroplane's occupants suffered any injury.

The United Kingdom's Air Accidents Investigation Branch (AAIB) offered to conduct the investigation into this occurrence because of the mainly UK involvement. The Dutch Safety Board agreed and will provide assistance to the investigation.

Classification: *Serious incident*
Reference: *2017020*

Occurences abroad with Dutch involvement into which an investigation was initiated by foreign authorities

Fuel emergency call, Boeing 737-700, PH-HZW, Malaga Airport (Spain),
2 December 2016

The aeroplane was making a flight from Schiphol Airport to Seville Airport in Spain. The crew diverted to Malaga Airport as the runway at Seville Airport was closed following an incident that had taken place there. On short final for runway 13 at Malaga Airport air traffic control instructed the crew to abort the approach because of a runway incursion that had taken place. The crew made an emergency call because of the limited amount of fuel on board while carrying out the missed approach procedure. The aeroplane then made a safe landing at Malaga Airport.

The Spanish Comisión de Investigación de Accidentes e Incidentes de Aviación Civil (CIAIAC) launched an investigation as a result of this occurrence. The Dutch Safety Board is providing assistance.

Classification: *Serious incident*
Reference: *2016134*

Published reports

Crashed on mountainous terrain, Socata TB10, PH-RCV, near Thiersee (Austria), 30 July 2011

A Socata TB10 single-engined aeroplane was making a flight from Venice-Lido Airport in Italy to Schleißheim Airport in Germany via Austria. Thereafter the flight was due to continue to Kempen Airport in the Netherlands. On board were the captain and one passenger.

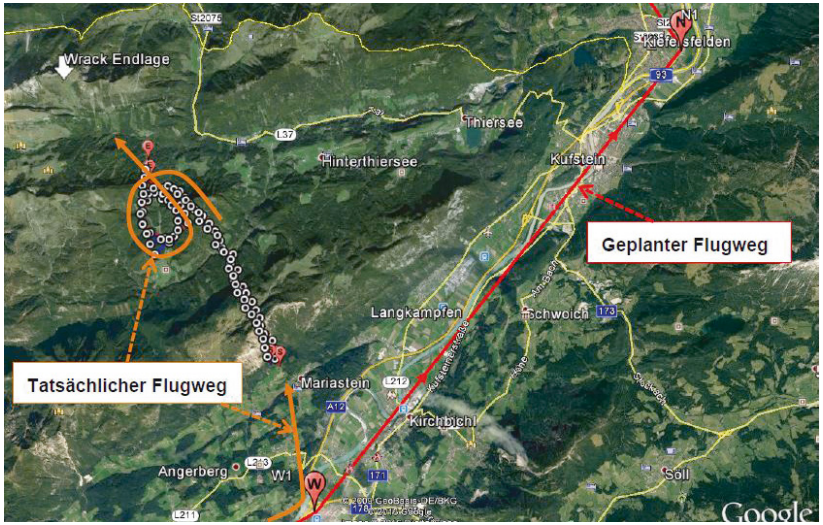
The pilot had postponed the flight from Venice-Lido a number of times because of the forecasted bad weather over the Alps and eventually departed two days later than planned. The planned route was from Venice via Bozen in Italy to Innsbruck in Austria. After Bozen the aeroplane flew above the Inn valley, towards Kufstein, at an altitude between 4,500 and 8,000 feet. After Kufstein the planned flight path led directly to Schleißheim Airport near Munich. The planned altitude to Kufstein was 7,500 feet, descending to 4,500 feet once past Kufstein.

At 09.57 the pilot contacted Innsbruck air traffic control requesting permission to cross the local control zone towards Kufstein. After exiting the control zone the pilot reported on the Kufstein/-Langkampfen airport frequency requesting current weather information. The captain said over the onboard radio that he was planning to fly over Kufstein in a northerly direction. Kufstein airport operations reported in response that the cloud base was at 1,000 feet and that a flight below this base would be too low. In reply the pilot said that at that point he was flying higher and that he would pass the airport above the clouds.

At 10.23 the aeroplane was flying at an altitude of 7,700 feet and the pilot contacted Munich Information. He asked permission to fly directly towards Munich. The flight information service gave the pilot permission to do this, with the restriction to keep clear of the restricted area to the south of Munich that has a lower limit of 8,500 feet. The captain said that he would do this and that he would descend as soon as this was possible.

Near Wörgl the aeroplane departed from the original plan, turning directly left towards Munich, and began a descent. During this descent the aeroplane made a 360 degree turn to the left. During this phase of the flight the altitude dropped from 7,800 to 5,600 feet. There are no radar images available from the portion of the flight after this latter altitude was reached. Around three kilometres further on, at an altitude of 5,100 feet, the aeroplane collided with a mountain with the fuselage more or less parallel to the rising terrain and the wings in a horizontal position.

The planned and the actual flight path of PH-RCV. (Source: VERSA)



The Socata TB10 after the accident. (Photo: VERSA)

Published reports

In this collision the passenger died and the captain was seriously injured. The aeroplane was severely damaged.

Based on the radar data and radio traffic that was examined it was concluded that the captain had misjudged his position. In the radio traffic with Munich Info he had said that he was 8,000 feet above Kufstein, while he was actually just north of Wörgl, approximately seven to ten kilometres southwest of Kufstein. Because of the deteriorating weather conditions, the captain no longer had any ground visibility and it was impossible to navigate visually.

The investigation concluded that the fact that there was an unwillingness to postpone the flight any longer until the weather on the route was better played a part in the emergence of the accident. The lack of experience of flying in mountainous terrain and the possibility of fast changes in the weather that can take place here also contributed to the accident.

The Austrian Sicherheitsuntersuchungsstelle des Bundes, Bereich Zivilluftfahrt published the report on 8 March 2017. The Dutch Safety Board provided assistance with this investigation.

Archive photo of PH-3S3. (Photo: Texel Airport)

Crashed, Evektor EV 97 Eurostar 2000 R, PH-3S3, near Gerbach (Germany),
26 August 2013

The Evektor EV 97, with two pilots on board, crashed during a flight under visual flight rules from Tannheim Airport in Germany to Grefrath Airport in Germany. The crew of the aeroplane was in contact with the flight information service Langen Information during the flight. According to the weather report, the cloud cover was 5/8 to 7/8 with a changing cloud base. When the crew made contact with Langen Information they were flying below the clouds at 3,000 feet. The flight information service reported to the crew that another aeroplane in the region was flying at FL70 above the clouds. The crew of the aeroplane replied that they would remain below the clouds and would see how the weather developed. The flight information service responded that various other aeroplanes had turned around further along the route because of bad weather. The crew acknowledged receipt of this message.

Radar data shows that following the communication with the flight information service, the aeroplane climbed above the clouds. The course, altitude and speed of the aeroplane varied. The crew flew a variable flight path to avoid the tops of higher clouds. Approximately 1.8 nautical miles before Gerbach the aeroplane began a 270-degree left turn. The aeroplane disappeared from the radar shortly afterwards. The aeroplane was located by the radar for the final time in the vicinity of Gerbach at FL67. Despite being equipped with an Emergency Locater Transmitter (ELT), the aeroplane was found near this place only quite some hours later. Both occupants were fatally injured. The wreckage of the aeroplane was spread across a distance of approximately 1,300 metres. The ELT had emitted a signal for a short time, but this had not been sufficient to determine its position. The ELT was found damaged nearby the wreck. The aeroplane, belonging in the microlight aeroplane (MLA) category, was not equipped with a Ballistic Recovery System.

The investigation shows that the engine had worked properly during the flight. Post-mortems on the two pilots failed to find any physical disorders that could have affected their performance during the flight. The most likely explanation of the accident is that the crew lost control of the aeroplane while flying above a layer of clouds.

Shortly before the loss of control the aeroplane performed a manoeuvre to avoid high tops of clouds, and probably ended up in worse weather conditions. It is likely that spatial disorientation occurred because of the limited visibility outside. The speed of the aeroplane increased above the maximum speed, as a result of which the structure of the aeroplane failed.

The Bundesstelle für Flugunfalluntersuchung also lists the following factors that contributed to the accident:

- The pilot had little flying experience.
- The crew was insufficiently qualified for flying above a thick layer of cloud.
- The pilot's underdeveloped situation awareness for flying above a thick layer of cloud.
- Previous damage to the wings.
- Significant overweight of the MLA. The maximum take-off weight of the aeroplane was 450 kilograms. During take-off however it weighed 540 kilograms and during the incident 517 kilograms.

German Federal Bureau of Aircraft Accident Investigation (BFU) published the report in January 2017. The Dutch Safety Board provided assistance with this investigation. The report can be downloaded from the BFU website: http://www.bfu-web.de/EN/Publications/Investigation%20Report/2013/Report_13_CX014_UL-EV97_Gerbach.pdf?__blob=publicationFile

Crashed, Altura Zenith AT8X RPAS (drone), S-01, Atkár - Gyöngyöshalász Airport (Hungary), 18 February 2016

The operators of the Unmanned Aerial Vehicle (UAV) carried out a number of training flights from Atkár - Gyöngyöshalász Airport in Hungary. One of these operators started the fourth flight with the UAV after carrying out the pre-flight checks. After about six minutes the UAV made an uncontrolled manoeuvre at a height of around 50 metres. The two rotors on one side failed, after which the UAV made an uncontrolled descent. After a short time, the failed rotors started turning again and the UAV resumed its flight. After a straight-line flight of approximately 20 metres there was a loud bang and the controls of the UAV failed completely, after which it crashed. The UAV was badly damaged. Once the operators saw that smoke was coming out of the UAV, they switched off the power supply and removed the battery.

The Hungarian Transportation Safety Bureau (TSB) launched an investigation into the incident. Since the UAV concerned is a Dutch product, the Dutch Safety Board was asked to assist in the technical investigation that took place at the manufacturer in the Netherlands.

This investigation revealed that the accident was caused by the voltage regulator for the internal monitoring system sensors burning out. As a result, the flight computer was reset during the flight, which was followed by the total failure of this computer. If the flight computer fails, the engines are automatically switched off.

Since the manufacturer has taken steps to prevent similar incidents in the future, the Hungarian TSB saw no reason to draft a recommendation.

The Hungarian Transportation Safety Bureau (TSB) published the report on 13 December 2016. The Dutch Safety Board provided assistance to this investigation.

Runway excursion, Fokker F28 Mark 0100, YR-FZA, Gällivare Airport (Sweden), 6 April 2016

The Fokker 100 was making a scheduled domestic flight from Arvidsjaur Airport to Gällivare Airport in Sweden. On board were four crew members and 51 passengers. The aeroplane made an instrument approach to Gällivare Airport in the dark in winter conditions and passed the threshold of runway 30 at a height of around 50 feet at a speed of 134 knots. The Fokker made a hard landing at a constant speed in the touchdown zone, bounced once and made a yaw movement. After the landing, which was made with full flaps and extended speed brakes, the lift dumpers on the top side of the wings came up. The pilots stated that they had selected maximum reverse and had activated the brakes immediately after the yaw movement. The aeroplane came to a stop past the end of the runway and sustained minor damage in the process. Nobody on the aeroplane was harmed.

The incident was caused by the gradual decrease of the conditions for a safe landing that was not perceived by the pilots in due time. Factors contributing to this were:

- The airspeed did not drop from a height of 50 feet to the landing.
- The reported frictional coefficients of the runway were probably unreliable.
- The braking capacity of the wheel brakes was probably not fully used because of the initial yaw movement.
- The RPM of the engines, following the selection of reverse, did not increase until 20 seconds after the landing.

YR-FZA after the runway excursion. (Photo: SHK)

Published reports

The report contains three recommendations, directed to ICAO, EASA and the Swedish Transport Agency. These recommendations relate to the introduction of a safe landing concept, which includes the flight phase from overflying the runway threshold to the aeroplane coming to a complete stop. This concept must at least give attention to the following points:

- Overflying the runway threshold at suitable speed.
- Monitoring of suitable speed reduction between overflying the runway threshold and landing.
- Landing on the suitable and agreed upon part of the landing runway.
- Performing a go-around if the suitable speed, speed reduction or landing on the suitable part of the landing runway are not achieved.
- The applicable use of braking systems, such as the speed brake, lift dumpers, reverse thrust and wheel brakes.

The Swedish investigating authority Statens Haverikommission (SHK) published the report on 9 March 2017. The Dutch Safety Board provided assistance with the investigation. The report can be downloaded from the SHK website: http://www.havkom.se/assets/reports/RL-2017_03e-Final-report.pdf

PH-BRT after the accident. (Photo: CIAS)

Stalled during take-off, Socata TB9 Tampico, PH-BRT, Măgura-Cisnădie Aerodrome (Romania), 1 July 2016

The pilot of the Socata TB9, with three passengers on board, was attempting to take off from runway 15, a grass runway, for a flight during a show at Măgura-Cisnădie Airport in Romania. During its take-off run the Socata TB9 passed through a number of pools of mud, causing the aeroplane to accelerate less quickly. The pilot nonetheless decided to go on with the take-off because he felt able to build up sufficient speed to lift off in time. As the pilot approached the end of the take-off runway and the adjacent safety zone, he tried to rotate at a speed of 55 knots. According to the aeroplane's manual, the rotation speed of the Socata TB9 is 65 knots. The aeroplane stalled and ended up in a valley behind the take-off runway. One of the four passengers suffered serious injury in the process. The aeroplane was severely damaged.

It had rained heavily at the airport on the days leading up to the accident flight. The operator of the airport had therefore sent out a warning to all aeroplanes taking part in the show that there were pools of mud on the take-off and landing runways. The airport was only to be used by MLA up to 30 June 2016 and by other traffic from 1 July 2016 onwards. It was however stated that assessing take-off and landing at the airport was the responsibility of the captain. On 1 July the pilot of the accident flight first carried out a landing with a Cessna 172N, followed by taxiing over the runway to determine its condition. The pilot then carried out a flight with the same Cessna 172N to drop parachutists. Following the landing of this flight, the pilot was asked to perform a sightseeing flight in PH-BRT.

The pilot had calculated that the required runway length for take-off with the PH-BRT was 528 metres. He made this calculation using data from the aeroplane's manual and applied a correction for taking off from a grass runway. The available runway length was 600 metres. The aeroplane's manual did not however provide for a calculation with a wet grass runway with pools of mud. Because of the decelerating effect of the pools of mud the aeroplane reached a speed of 55 knots at the end of the take-off runway. The pilot, who had just flown a Cessna 172N (with a rotation speed of 55 knots) attempted to rotate at this speed. According to the aircraft manual for the Socata TB9, the stalling speed in the take-off configuration is 54 knots. The early rotation therefore led to a stall, which meant that the aeroplane was unable to gain any height and ended up in a valley behind the take-off runway.

Romania's Civil Aviation Safety Investigation and Analysis Center (CIAS) published the report on 22 February 2017. The Dutch Safety Board provided assistance with this investigation. The report can be downloaded from the CIAS website: http://www.cias.gov.ro/images/rapoarte/20160701_RF_PH-BRT_EN.pdf

Emergency evacuation following hydraulic oil leak, Fokker F28 Mark 0100, VH-NHY, Perth Airport (Australia), 23 September 2016

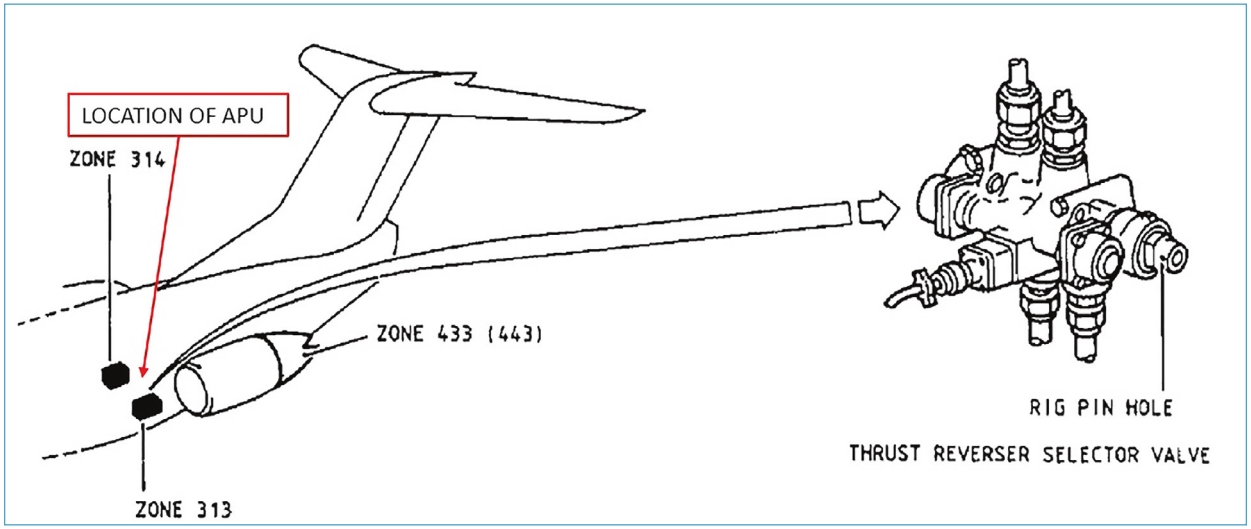
During a flight from Newman Airport to Perth Airport in Australia a warning of a low level of hydraulic fluid in hydraulic system #1 was generated in the cockpit of the Fokker 100. The crew went through the associated checklist, consisting of switching off the pumps for hydraulic system #1. Among the systems that are actuated by hydraulic system #1 is nose wheel control, which is used for steering while taxiing. The crew communicated this to air traffic control and reported that they were going to land on runway 21 at Perth Airport and would come to a complete stop there. An aeroplane tug would then tow the aeroplane to an aeroplane stand because of the inoperative nose wheel steering.

During the approach to the airport the captain activated the Auxiliary Power Unit (APU) so that it could be used instead of the engines as a supply for air conditioning and electricity while the aeroplane was being towed by the aeroplane tug. The landing was completed without incident. The crew did not however see an aeroplane tug standing by and therefore decided to steer the aeroplane onto a taxiway using the brakes. Once the aeroplane had come to a stop, the captain contacted the purser. The purser reported to the captain that there was a strange smell in the cabin. The captain therefore turned off the air supply from the APU to the cabin. The intensity of the smell in the cabin increased however. The crew therefore decided to evacuate. Three persons were slightly injured during the evacuation.

In the course of repair work a maintenance organisation found that hydraulic oil had leaked from hydraulic system #1 because of a damaged O-ring in the thrust reverser selector valve of the port engine. An inspection also revealed hydraulic fluid in the APU and the air conditioning system. The hydraulic oil leaking past the damaged O-ring, which was located close to the APU inlet, could be drawn into the APU by the air suction resulting from the APU at the time that the aeroplane was stationary on the ground. Once the aeroplane had landed and weight was bearing on the wheels, the air supply for the air conditioning automatically switched over from the engines to the APU. As a result, hydraulic oil that had penetrated the APU was spread to other elements of the air conditioning system. Switching the air supply for the air conditioning system back from the APU to the engines manually by the captain was therefore not effective because the hydraulic oil had already spread through the air conditioning system.

The Australian Transport Safety Bureau noted in its report that this incident underlined the importance of training and procedures, since the crew had been faced with two successive emergency situations, to which they reacted in accordance with their procedures and training. This resulted in a safe evacuation in which three people suffered minor injuries

The Australian Transport Safety Bureau (ATSB) published the report on 9 February 2017. The Dutch Safety Board provided assistance with this investigation. The report can be downloaded from the ATSB website: https://www.atsb.gov.au/media/5772334/ao-2016-125-final.pdf



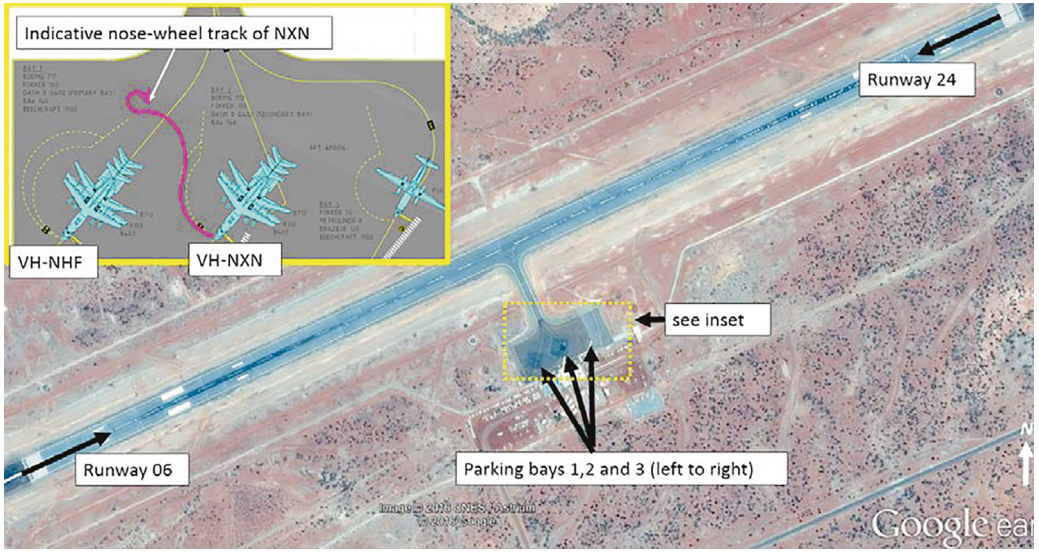
The location of the thrust reverse selector valve in relation to the APU. (Photo: ATSB)

Published reports

Collision while taxiing, Boeing 717-200, VH-NXN, Fokker F28 Mark 0100, VH-NHF, Paraburdoo Airport (Australia), 5 October 2016

The Boeing 717 left the aeroplane stand at Paraburdoo Airport to taxi to the take-off runway for a flight to Perth in Australia. The space on the apron of Paraburdoo Airport is limited to two spaces for aeroplanes with the size of a Boeing 717 or Fokker 100. There is also a third aeroplane stand available for smaller aeroplanes. The Boeing 717 departed from the middle aeroplane stand. A Fokker 100 on which maintenance work was being done was parked next to the Boeing 717.

During the standard taxi procedure, consisting of a turn to the right from the aeroplane stand, the captain of the Boeing 717 saw that a Boeing 717 of the same airline was on its final approach. The captain of the taxiing Boeing 717 realised that he had to make room for this Boeing 717 because of the limited space on the apron and the fact that only one taxiway connects the take-off runway with the apron. The captain decided to taxi behind the parked Fokker 100 to create space for the arriving Boeing 717. As the captain was unsure whether there was sufficient clearance between the Boeing 717 and the parked Fokker 100, the crew wanted to ask a wing walker to see from the ground whether the Boeing 717 would touch the Fokker 100. Involving a wing walker is normally standard practice at Paraburdoo Airport. A maintenance engineer who was working on the parked Fokker 100 and was concerned about the distance at which the Boeing 717 would pass the Fokker 100 came into the captain's field of view precisely at this moment. He gave a thumbs up signal at the point at which he could see that the wing tip of the Boeing 717 would not touch the Fokker 100. The crew of the Boeing 717 interpreted this as a signal that the aeroplane had passed the Fokker 100. The captain then decided to make a sharp turn to create space for the arriving Boeing 717. The maintenance engineer, who was expecting the Boeing 717 to taxi to the take-off runway and not make a sharp turn could see that the tail of the Boeing 717 would collide with the tail of the Fokker 100. At this point he was outside the field of view of the captain of the Boeing 717 and rushed to a position in front of the aeroplane. There he signalled to the captain with hand gestures to stop. This was done immediately, but the collision had already taken place. The crew of the Boeing 717 had failed to notice the collision.



The layout of Paraburdoo Airport and the route followed by the Boeing 717. (Photo: ATSB)

The Australian Transport Safety Bureau drew the following conclusions:

- The crew of the Boeing 717 did not become aware of the arriving Boeing 717 until it had started taxiing. The crew therefore chose a taxi route that was not standard in order to make room for the arriving Boeing 717 on the apron. Paraburdoo Airport has no tower to separate air and ground traffic. In addition, the company operating the Boeing 717s does not have procedures for informing cockpit crews about the presence of several aeroplanes at the capacity limited Paraburdoo Airport.
- A ground handling agents' wing walker, who can also communicate verbally with the cockpit crew, was not present at the time of the accident. The ground handling agents were busy preparing for the arriving Boeing 717.
- The maintenance engineer who was working on the parked Fokker 100 was unable to communicate verbally with the cockpit crew of the Boeing 717. This is what led to the cockpit crew of the Boeing 717 interpreting the maintenance engineer's thumbs up signal as a signal that the Boeing 717 was clear to continue taxiing.

> *The Australian Transport Safety Bureau (ATSB) published the report on 17 January 2017. The Dutch Safety Board provided assistance with this investigation. The report can be downloaded from the ATSB website: http://www.atsb.gov.au/media/5772214/ao-2016-129-final.pdf*

Occurences that have not been investigated extensively

Parking brake activated during pushback, Airbus A319-111, Amsterdam Airport Schiphol, 1 December 2016

The Airbus A319 was ready for departure from Schiphol Airport. Before it could taxi to the take-off runway the aeroplane was to be moved from the pier to the taxiway by an aeroplane tug. Once the driver of the tug had asked the crew to deactivate the parking brake and to turn on the anti-collision light, the crew prepared to start the engines during the pushback. After obtaining permission to start the engines, the crew went through the checklist for start-up. For starting the engines, the engine mode selector must be turned to the right to the 'IGN/START' position. Instead of this action the parking brake was mistakenly activated, whereupon the aeroplane came to an abrupt stop. The parking brake, like the engine mode selector, must also be turned to the right for activation. As a result of the sudden stop during the pushback the aeroplane tug came to a stop under the nose wheel of the aeroplane.

The flight was cancelled. None of the occupants of the aeroplane suffered injury.

Various inspections recommended by the aeroplane manufacturer were carried out on the nose landing gear on site following the incident to determine whether it had sustained any damage. No defects were found, after which the nose landing gear was released for use for a restricted duration of 200 flights or 30 days. The nose landing gear was replaced during this period of time. The manufacturer of the nose landing gear then carried out a detailed inspection of the nose landing gear involved in the incident. No abnormalities were found and the nose landing gear was overhauled and taken back into service.

Classification: *Serious incident*
Reference: *2016130*

The Airbus A319 following the mistaken activation of the parking brake. (Photo: Amsterdam Airport Schiphol)

The locations of the engine mode selector (top) and parking brake (bottom) in the Airbus A319.

Occurences that have not been investigated extensively

Approach in the wrong direction, Cessna 172R, PH-STW, Lelystad Airport,
4 February 2017

PH-STW, a Cessna 172R, took off from runway 23 for a flight over North Holland. On board were the captain and a passenger. Some time later the runway in use was changed to 05. When PH-STW returned to the airport the pilot reported back on the Lelystad Radio frequency where he heard that runway 05 was in use with a right-hand traffic pattern and that the QNH was 999 hPa. The pilot read this back correctly. When passing points Bravo and Sierra the pilot reported this on the radio. The next call that he made was 'PTW, lefthand downwind for the 23'. PH-4N4, a Blackshape Prime, was flying on final for runway 05 some time later and the pilot made the call 'N4, final, gear down'. Then the call 'PTW is turning final 23 full stop', could be heard on the Lelystad Radio frequency. PH-STW flew on final for runway 23. Then a witness asked Lelystad Radio from the ground by radio whether it could confirm that runway 05 was in use as he had just heard someone make a call for runway 23. Lelystad Radio confirmed that runway 05 was in use, whereupon the pilot of PH-STW realised that he was approaching the runway from the wrong direction. He aborted the approach, made a turn to the right and reported on the frequency that he was carrying out a go-around. PH-4N4 had made a landing, followed by a go-around and at this point was above the runway at an altitude of approximately 100 feet. The two aeroplanes passed each other and the pilots continued their flights safely. PH-STW flew back to point Bravo. The pilot of PH-4N4 judged the distance between the two aeroplanes as ample. In his view there was not a real threat of a collision.

Lelystad Airport Tower.

The pilot of PH-STW had assumed that runway 23, from which he had taken off, was still in use when he returned from his flight. Despite Lelystad Radio reporting on his return that runway 05 was in use with a right-hand traffic pattern, which was read back correctly by the pilot, there was no change in his assumption that runway 23 was in use. The call on final by the pilot of PH-4N4 did not make the pilot of PH-STW realise that he was approaching the runway from the wrong direction. This was possibly partly caused by the call of PH-4N4 on final not referring to the runway direction. The controller in the tower also did not see that PH-STW was approaching the runway from the wrong direction, despite the pilot reporting that he was flying a traffic pattern for runway 23.

This incident shows the importance of listening carefully to the landing information that is provided by airport operations on the radio. The incident also emphasises the importance of referring to the runway in use while using the radio in the traffic pattern.

Classification: *Incident*
Reference: *2017010*

PH-DHA after the occurence. (Photo: Aviation Police)

Damaged during landing, Aquila AT-01, PH-DHA, Midden-Zeeland Airport,
15 February 2017

The Aquila AT-01, with a pilot and a passenger on board, was carrying out a cross country flight from Den Helder Airport to Midden-Zeeland Airport. During the crosswind landing on runway 09 at Midden-Zeeland Airport (the wind was blowing from the south with a strength of roughly three knots) the aeroplane bounced several times and the nose wheel broke off. The aeroplane ended up on its nose and threatened to tip over. When the aeroplane came to a stop, it tipped back onto its main landing gear. Neither occupant was harmed. The aeroplane sustained damage to its nose wheel, propeller, engine, left side main wheel cover and the Pitot tube under the left wing.

Eye witnesses stated that the aeroplane had bounced twice during landing. After the second bounce they observed the nose of the aeroplane come down and the aeroplane made contact with the ground on the nose landing gear. The nose wheel then broke off.

The captain holds a private pilot's licence with a rating for SEP (single-engine piston). His total experience was 167 hours, around 50 hours of which in the aeroplane type concerned. During the three months before the incident the captain had gained four hours and 30 minutes' flying experience, all on the aeroplane type concerned.

Based on the statements of various witnesses and a visual inspection of the nose wheel, the Dutch Safety Board decided not to carry out any further investigation on the nose wheel.

Classification: *Accident*
Reference: *2017011*

The Dutch Safety Board in four questions

1

What does the Dutch Safety Board do?

When accidents or disasters happen, the Dutch Safety Board investigates how it was possible for them to occur, with the aim of learning lessons for the future and, ultimately, improving safety in the Netherlands. The Safety Board is independent and is free to decide which incidents to investigate. In particular, it focuses on situations in which people's personal safety is dependent on third parties, such as the government or companies. In certain cases the Board is under an obligation to carry out an investigation. Its investigations do not address issues of blame or liability.

Recently the Dutch Safety Board reported about the air traffic safety at Amsterdam Schiphol, about earthquake risks in Groningen and about a lifting accident at a building site in the city centre of The Hague.

2

What is the Dutch Safety Board?

The Safety Board is an 'independent administrative body' and is authorised by law to investigate incidents in all areas imaginable. In practice the Safety Board currently works in the following areas: aviation, shipping, railways, roads, defence, human and animal health, industry, pipes, cables and networks, construction and services, water and crisis management & emergency services.

3

Who works at the Dutch Safety Board?

The Safety Board consists of three permanent board members. The chairman is Tjibbe Joustra. The board members are the face of the Safety Board with respect to society. They have extensive knowledge of safety issues. They also have wide-ranging managerial and social experience in various roles. The Safety Board's office has around 70 staff, of whom around two-thirds are investigators.

4

How do I contact the Dutch Safety Board?

For more information see the website at www.safetyboard.nl
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Credits

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.

May 2017

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

Sources photos frontpage:
photo 1: Dutch Safety Board
photo 2: Dutch Safety Board
photo 3: Aviation Police