Australian Government
Australian Transport Safety Bureau

Collision with terrain involving Eurocopter EC120B, VH-JDZ

Porepunkah aerodrome, Victoria, on 15 May 2025

ATSB Transport Safety Report
Aviation Occurrence Investigation (Short)
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Acknowledgement of Country and Traditional Owners
The Australian Transport Safety Bureau acknowledges the traditional owners of country throughout Australia, and their continuing connection to land, sea and community. We pay our respects to them and their cultures, and to elders both past and present.

Investigation summary

What happened

On 15 May 2025, a Eurocopter EC120B helicopter, registered VH-JDZ, was operated at Porepunkah aerodrome, with a pilot and one passenger on board. While lifting into a hover, left yaw was allowed to develop without correction. After turning 180° the pilot attempted to arrest the yaw with right pedal input. However, the yaw continued and the helicopter began to rotate, entering an uncontrolled turn. After about three quarters of a revolution the right skid contacted the ground while the helicopter continued to rotate. The helicopter then rolled over, resulting in substantial damage to the aircraft. Neither the pilot nor the passenger sustained injury and safely exited the aircraft.

What the ATSB found

Adequate control of the left yaw after hover was not achieved due to the insufficient application of opposing right pedal input to the tail rotor.

The pilot was highly experienced in rotary wing operations, though reported that they had not flown this type of helicopter (EC120B) for about 15 years. The EC120B is fitted with a Fenestron tail rotor which requires greater pedal response than conventional tail rotor helicopters to counter the torque effect. In this case the pilot had more recent experience flying helicopters with a conventional tail rotor system. Although they were a highly experienced helicopter pilot, the limited recent type-specific experience on the EC120B had degraded their ability to respond appropriately to the helicopter's different pedal requirements.

Safety message

Maintaining recent type-specific flight experience is vital to prevent degraded performance when transitioning between aircraft with differing control characteristics.

Understanding the aircraft's characteristics is important for helicopter pilots so that they can anticipate its response when becoming airborne and are not surprised by events. Controlling yaw in helicopters with a Fenestron tail rotor, as in this case, is an essential consideration. Airbus Helicopters and the European Union Aviation Safety Agency (EASA) provide specific guidance relating to this issue to assist pilots.

The investigation

The ATSB scopes its investigations based on many factors, including the level of safety benefit likely to be obtained from an investigation and the associated resources required. For this occurrence, the ATSB conducted a limited-scope investigation in order to produce a short investigation report, and allow for greater industry awareness of findings that affect safety and potential learning opportunities.

The occurrence

On 15 May 2025, a Eurocopter[1] (Airbus Helicopters) EC120B helicopter, registered VH-JDZ, was operated at Porepunkah aerodrome, Victoria, for planned private flight to Albury, about 38 NM to the north. On board were the pilot and a passenger, who was also licenced and qualified on the helicopter.

On arrival at the aerodrome, the pilot and passenger prepared the helicopter by moving it out of the hangar and conducting a visual inspection in preparation for flight. At about 1300, the pilot commenced engine start and a short time later began the take-off sequence and brought the helicopter into a hover. The pilot reported that the helicopter was initially slow to lift off but then rapidly rose and began an uncommanded 90° left yaw.[2] The pilot stated that although the yaw was not commanded, they intended to turn in that direction anyway so allowed the yaw to continue and planned to arrest it after it turned 180°.

The pilot then attempted to correct the left yaw with right pedal input while simultaneously pulling up the collective to gain more height. However, the yaw was not adequately countered and with additional torque, the left yaw increased. The helicopter then began to rotate and entered an uncontrolled turn.

The pilot was unable to regain control and the helicopter completed about three quarters of a revolution before the right aft skid contacted the ground, leading to a further rotation on the ground and a dynamic rollover.[3]

The helicopter came to a rest on its right side and the pilot immediatley checked on the welfare of the passenger and turned off the fuel. Noticing smoke and mindful of the potential fire risk, the pilot gave instructions to evacuate immediately.

With some difficulty, due to their wreckage position, both occupants removed their seat restraints, independently exited the helicopter and moved to an area a safe distance away from the wreckage.

As a result of the impact, the aircraft was substantially damaged (Figure 1).

Aerodrome staff and an ambulance arrived at the site shortly after the incident and conducted a medical assessment. It was determined that neither occupant had sustained serious injury.

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1 The EC120B Colibri was originally manufactured by Eurocopter in 1995. Eurocopter was purchased and became Airbus Helicopters in 2014. Airbus Helicopters ceased production of the EC120B in 2017.

2 Yaw: the motion of an aircraft about its vertical or normal axis.

3 Dynamic rollover: a helicopter is susceptible to a lateral rolling tendency. It begins when the helicopter starts to pivot laterally around its skid or wheel while in contact with the ground. Once the critical angle, typically around 5–8° is exceeded, the helicopter rolls over, often too quickly for any corrective pilot action.

Figure 1: VH-JDZ photographed after the dynamic rollover

Source: Owner

Context

Pilot information

The pilot held a commercial pilot licence (CPL-H) helicopter issued in September 1994. At the time of the occurrence the pilot's total flying experience was 11,257 flight hours and they were endorsed to fly the EC120B and had previously owned and operated a commercial helicopter business.

In the 12 months before the accident, the pilot had logged about 100 flight hours, primarily in a Robinson R44. They stated they had not flown an EC120B for about 15 years.

The pilot held a Class 1 aviation medical certificate and reported having a regular sleep pattern of about 7.5–8 hours nightly and had no feeling of fatigue on the day of the incident.

To exercise the privileges of a flight crew licence, the regulations require the pilot to have a valid helicopter flight review (HFR). The pilot last completed this on 6 October 2024 in a Robinson R44 while obtaining a low-level endorsement on the same date.

Aircraft information

The EC120B is a 5-seat, light utility helicopter, powered by a single turboshaft engine. It has a 3-blade main rotor head and a Fenestron anti-torque tail rotor (see *Fenestron tail rotor*).

The EC120B is powered by a Safran Helicopter engines Arrius 2F single gas turbine engine. VH-JDZ was manufactured in France in 2003 and was first registered in Australia on 24 June 2003. The current owner purchased the helicopter on 14 September 2021.

The helicopter's maintenance release showed the last daily inspection was completed on 2 May 2025 and showed the helicopter had accrued about 3,172 hours flight time.

Fuel, weight and balance

The pilot reported that the helicopter was carrying a full fuel load. The maximum take of weight (MTOW) is 1,715 kg, of which the fuel capacity is about 410 litres (326 kg) of aviation turbine fuel. With the pilot and passenger on board and full fuel tanks, the helicopter weighed about 1,560 kg which was below the MTOW and within balance.

Flight controls

The helicopter was fitted with standard primary flight controls: cyclic,[4] collective[5] and dual tail rotor anti-torque pedals. The pilot stated that the passenger (also a rated pilot) did not touch the controls. The aircraft was equipped with a single hydraulic system, which assisted main rotor control through 3 hydraulic servos. The tail rotor was not hydraulically assisted and dual controls were installed in the helicopter which are removable when not required. The pilot reported that they were not removed but had adjusted the pedals prior to flight on their side to suit their leg length.

Aircraft handling characteristics

Fenestron tail rotor

The EC120B is equipped with a Fenestron tail rotor or fan-in-fin system (Figure 2). The vertical fin or stabiliser was designed to provide aerodynamic directional stability in forward flight and is larger than those found on similar-sized helicopters with a conventional tail rotor (CTR). The fin was paired with a 0.75 m diameter, 8-bladed tail rotor. The tail rotor was mounted on stators[6] integrated into the vertical fin.

These features combined to change the aerodynamics of the tail rotor, and the relative effectiveness of the anti-torque pedals for a given range of movement, when compared with helicopters with a CTR. Because the tail rotor blades are located within a circular duct, the Fenestron design is considered a safety feature, reducing the risk of contact with people or objects.

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4 Cyclic: a primary helicopter flight control that is similar to an aircraft control column. Cyclic input tilts the main rotor disc, varying the attitude of the helicopter and hence the lateral direction.

5 Collective: a primary helicopter flight control that simultaneously affects the pitch of all blades of a lifting rotor. Collective input is the main control for vertical velocity.

6 Stators are the 'blades' that you can see inside the Fenestron duct that never move and are designed to direct airflow.

Figure 2: Illustration of the design difference between the Fenestron tail rotor and a conventional tail rotor

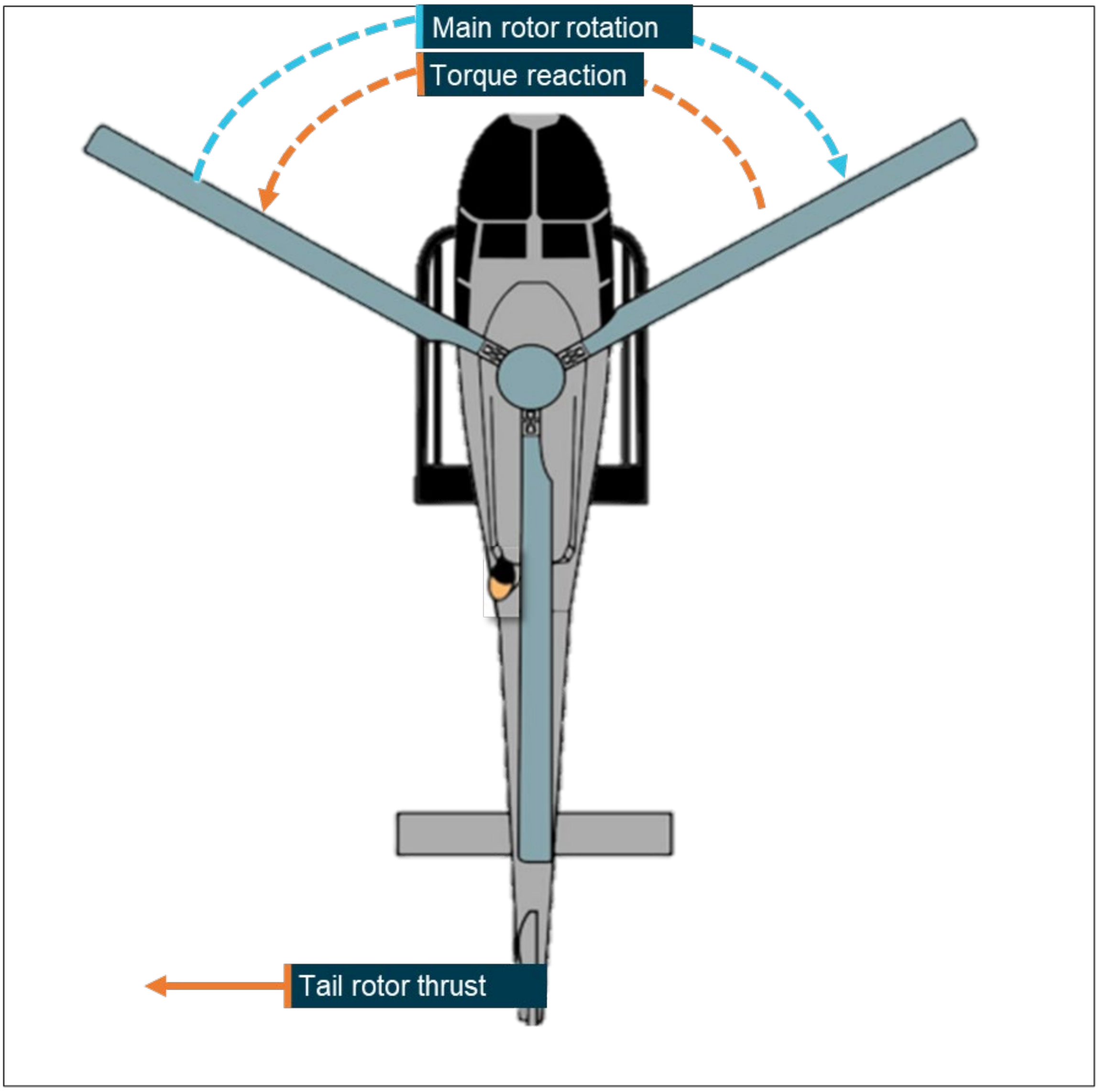
Source: ATSB

Anti-torque pedals

The main rotor on the EC120B rotated clockwise (as viewed from above). The main rotor is driven from a central point, resulting in a torque reaction which causes the fuselage of the helicopter to yaw in the opposite direction to the main rotor's rotation (Figure 3). In the case of the EC120B, this torque reaction means the helicopter will yaw to the left when power is applied. The force to resist and balance the yaw is produced by the tail rotor and is controlled by the anti-torque pedals in the cockpit. Tail rotor thrust can be increased by pushing the right anti-torque pedal to force the nose to yaw to the right. When a pilot demands power from the engine to increase lift, or as a result of lifting the collective (increasing main rotor blade angle), the torque reaction and yaw to the left will increase.

While both types of helicopters (Fenestron and CTR) may have the same methods of handling unanticipated yaw, the direction of rotation means that opposite pedal inputs are required and there are different requirements for the magnitude of pedal input and different expected performance (Airbus, 2020).

Figure 3: Direction of main rotor rotation for the EC120B showing corresponding torque reaction



Source: ATSB

Manufacturer's guidance on unanticipated yaw

Unanticipated yaw at low speed has previously been the subject of Safety Information Notices (SIN) published by Airbus Helicopters. In 2005, Eurocopter (prior to becoming part of the Airbus group) released Service Letter 1673-67-04 (*Reminder concerning the YAW axis control for all helicopters in some situations*). The service letter reminded pilots that Fenestron tail rotors required significantly more pedal travel than conventional tail rotors when transitioning from forward flight to a hover.

Airbus Helicopters issued SIN 3297-S-00 *Unanticipated left yaw (main rotor rotating clockwise), commonly referred to as LTE*[7] in 2019. This notice outlined a detailed explanation of the phenomenon of unanticipated yaw due to insufficient pedal application. The full notice is provided in SIN 3297-S-00 and details of some related accidents are provided in Appendix A of ATSB report AO-2018-026.

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[7] Loss of tail rotor effectiveness (LTE).

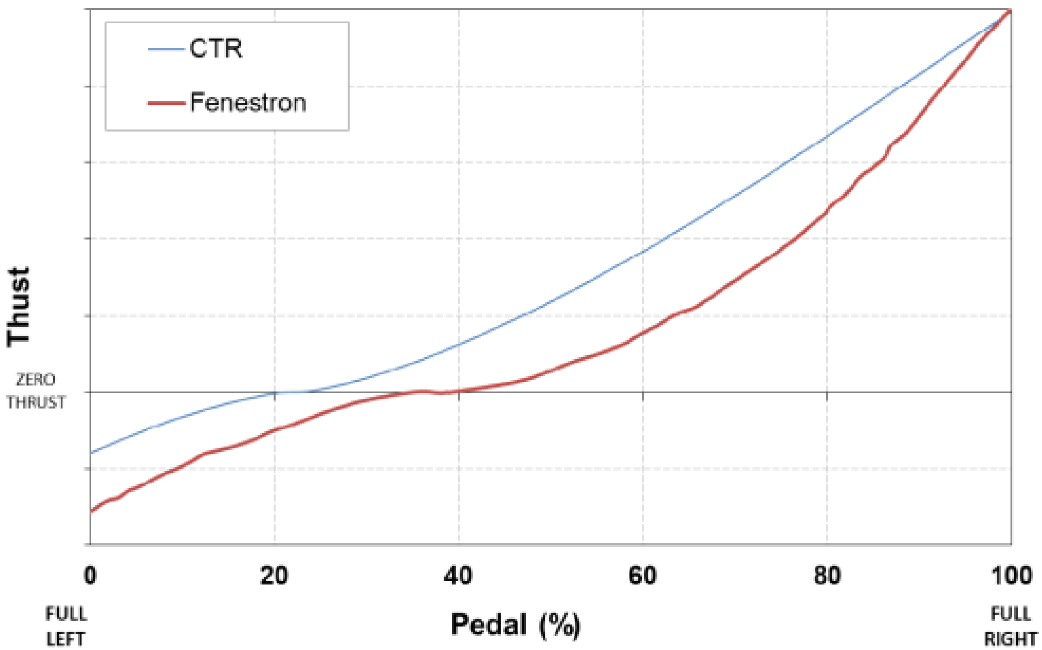
The Airbus notice defined unanticipated yaw as an 'uncommanded rapid yaw rate which does not subside of its own accord'. The notice also stated:

> Unanticipated yaw is a flight characteristic to which all types of single rotor helicopter (regardless of anti-torque design) can be susceptible at low speed, often dependent on the direction and strength of the wind relative to the helicopter…
>
> …Where this type of unanticipated yaw situation is encountered, it may be rapid and most often will be in the opposite direction of the rotation of the main rotor blades (i.e. left yaw where the blades rotate clockwise). Swift corrective action is needed in response otherwise loss of control and possible accident may result.
>
> However, use of the rudder pedal in the first instance may not cause the yaw to immediately subside, thus causing the pilot to make inadequate use of the pedal to correct the situation because he suspects that it is ineffective when, in fact, thrust capability of the tail rotor available to him remains undiminished. "Loss of tail rotor effectiveness" is not, therefore, a most efficient description as it wrongly implies that tail rotor efficiency is reduced in certain conditions.

Related to SIN 3297-S-00 and superseding Service Letter 1673-67-04, Airbus issued SIN 3539-I-00 in 2020 (*Fenestron versus Conventional Tail Rotor for helicopters equipped with a main rotor rotating clockwise when seen from above*). This notice identified some specific characteristics of the Fenestron design, especially when transitioning from a helicopter equipped with a CTR. SIN 3529-I-00 showed graphically how the thrust varies with the pedal position on a Fenestron and on a CTR in hover conditions (Figure 4). The notice stated:

> More negative thrust is required at 0% pedal position with a Fenestron to counterbalance the larger fin lateral lift in autorotation. The change of slope in the vicinity of zero thrust is more pronounced on the Fenestron curve than on the CTR curve. The CTR curve is more linear. The effect of a control input is almost constant in the whole pedal range, while it significantly varies for the Fenestron. The slope, and thus the perceived efficiency of the control, is much larger when coming close to full right pedal stop.

Figure 4: Comparison of Fenestron and conventional tail rotor in hover



Source: Airbus Helicopters

The pilot stated they were not aware of the information provided by Airbus, but were aware of the increased pedal input required to achieve tail rotor authority due to their previous flying experience on type.

Meteorological conditions

Meteorological conditions were not recorded at Porepunkah aerodrome, however during interview, the pilot and the passenger reported that no adverse weather conditions had been forecast or were observed. The pilot identified that there was very little wind directly before the incident as indicated by the windsock at the aerodrome. They estimated the wind to be very light as the pilot reported the windsock appeared to be wrapped around the flagpole.

General competency requirements

The Civil Aviation Safety Authority (CASA) recognises that skill decay occurs over time, and that checks are an ongoing measure and ensure that the licence competencies specified in the Civil Aviation Safety Regulation (CASR) Part 61 Manual of Standards continue to be met.

HFR is an opportunity for pilots to practise in-flight emergencies with an instructor and to demonstrate the required competence to safely operate a helicopter every 2 years. In discussing the aim of a flight review, CASA published Civil Aviation Advisory Publication (CAAP) 5.81-01 - *Flight crew licensing flight reviews*, which stated:

> ...With the passage of time and lack of practice some skills and knowledge can degrade. A flight review affords the opportunity to restore these degraded skills and gain new knowledge.
>
> The flight review must be seen in the context of a broader aviation safety philosophy. The flight review, although important (and required by legislation), is one process that contributes to continuing pilot proficiency and consequently the safety of flight. A flight review every two years does not, in itself, ensure safety. Safety is achieved when each pilot takes responsibility for a continuing process of hazard identification and risk management for their own aviation activities.

CASR Part 61.385 *Limitations on exercise of privileges of pilots licences – general competency requirement* states:

- The holder of a pilot licence is authorised to exercise the privileges of the licence in an aircraft only if the holder is competent in operating the aircraft to the standards mentioned in the Part 61 Manual of Standards for the class or type to which the aircraft belongs…

CASA recommends that pilots should refresh their knowledge before commencing their next flight.

The guidance acknowledges that while a flight review can restore degraded skills it should be seen within the broader context of aviation safety. Regulations alone cannot guarantee safe outcomes and do not remove the need for pilots to monitor and maintain their own level of competency before flying.

Skill decay

Skill decay, sometimes termed as skill fade, is a recognised phenomenon in aviation particularly when pilots have not flown a specific aircraft type for some time. Arthur and others (1998) defined skill decay as ‘the loss or decay of trained or acquired skills (or knowledge) after periods of non-use'. Wang and others (2013) note several factors that influence skill decay such as retention interval, task type, conditions of retrieval, training methods, individual ability.

Skill decay is particularly salient in situations where individuals receive training on information and skills that they may not be required to use for extended periods of time. Previous research identified that there is a negative relation between skill retention and the length of non-use, starting from the day of training, with participants showing a 92 per cent reduction in performance when more than 365 days elapse between training and performing the skill again (Arthur and others 1998).

The pilot had logged nearly 12,000 hours on rotary aircraft but had not piloted an EC120B for over a decade.

Related occurrences

There have been a considerable number of accidents resulting from unanticipated yaw in helicopters at low height and low airspeed, both nationally and internationally. This is illustrated in the following cases drawn from other investigation reports.

Accident involving EC130 at Mansfield, Victoria, on 19 January 2019

The helicopter rolled on its side during take-off, resulting in substantial damage to the helicopter and minor injuries to the pilot. The ATSB report AO-2019-005 stated:

> On the morning of 19 January 2019, a Eurocopter EC130 helicopter, registered VH-YHS, conducted a private flight from Moorabbin Airport to an authorised landing area (ALA) near Mansfield, Victoria with the pilot and two passengers on board. A return flight to Moorabbin was planned for later that afternoon. At about 1500… the pilot and passengers boarded the helicopter at the ALA for the return flight. The pilot prepared for take-off and lifted off the helicopter more rapidly than he normally did. As the helicopter became airborne, it began to rotate counterclockwise (yaw to the left). The pilot tried to control the yaw but the helicopter quickly turned through 360° and, unable to control it, he made a decision to land the helicopter. The left skid of the descending helicopter subsequently contacted the ground, resulting in a rolling movement that led to the main rotor blades striking the ground… The investigation did not identify any airworthiness issues with the helicopter and it was considered that the loss of control was not attributable to a mechanical issue. It was also determined that the prevailing light winds did not contribute to the loss of control. The pilot reported that he did not lift the helicopter into a balanced hover and tried controlling its yaw mainly with the cyclic control instead of through the full application of opposing right, tail rotor pedal. Management of unanticipated yaw in helicopters with shrouded tail rotors (Fenestron) is the subject of the manufacturer's guidance and learnings from similar accidents.

The pilot had 315 total flight hours, including 227 hours on the EC130.

Accident involving EC120B at Ballina, New South Wales, on 8 December 2013

The EC120B helicopter rolled onto its side during landing, resulting in substantial damage to the helicopter. The ATSB AO-2018-026 report stated:

> On 8 December 2013, … [an EC120B] helicopter, registered VH-VMT, departed from a property 16 km north of the Ballina/Byron Gateway Airport, New South Wales for a local flight. On board the helicopter were the pilot and two passengers. At about 1555, the helicopter returned to the property from the north, overflew and approached to land on a heading of about 340º. The pilot reported that the wind was from the north, at about 20 kt. When about 3 ft above ground level, the pilot reported that he entered the hover with an

> airspeed of less than 10 kt and with full engine power selected. Immediately after, the helicopter began to yaw to the left. The pilot applied right anti-torque pedal to counteract the yaw and reduced the engine power to idle. The helicopter continued to yaw left and the pilot applied full right anti-torque pedal but was unable to arrest the rotation. The helicopter rotated left about 90° before the left skid lowered and contacted the ground. It continued to rotate and rolled onto its right side. The helicopter was substantially damaged and the pilot and passengers were able to evacuate uninjured…

The pilot had 550 total flight hours, including 280 hours on the EC120B. The pilot reported that they had recently been operating a Eurocopter AS350 helicopter, which required less anti-torque pedal input than the EC120B.

Accident involving EC130 at Deer Isle, United States, on 1 August 2009

The EC130 helicopter was substantially damaged during a forced landing. The NTSB report ERA09LA436 stated:

> The helicopter departed a private yacht and was flying along an island shoreline at approximately 400 feet above mean sea level when the pilot entered an out-of-ground effect hover and initiated a left pedal turn. The helicopter started turning faster than commanded, and the pilot was unable to regain control. The helicopter subsequently lost altitude and impacted the water. Prior to impacting the water, the pilot deployed the emergency skid mounted floats to prevent sinking. According to the pilot, "the accident was totally pilot error with no mechanical malfunction." Examination of the wreckage confirmed no evidence of any mechanical malfunction or failure… The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of directional control during an out-of-ground-effect hover.

The pilot had 680 total flight hours in rotorcraft, and 55 hours on the EC130.

Accident involving EC120B at Skogn Airport, Norway, on 25 May 2018

The EC120B helicopter rolled over during landing, resulting in substantial damage. The Accident Investigation Board Norway (AIBN) published an English summary, which stated:

> The helicopter came out of control in connection with landing. It rotated uncontrolled before it ended up on the side, after the left skid had first hit the ground. There were two people on board. The commander was uninjured while the passenger suffered minor cuts. The helicopter was substantially damaged. Examinations of the helicopter have not revealed technical findings that can explain the loss of control. The Accident Investigation Board Norway finds it probable that the phenomenon of Loss of Tail rotor effectiveness (LTE) may have occurred after the commander failed to correct the helicopter using the right pedal. The AIBN believes that the commander's low experience level contributed to the situation, which was not interrupted in time.

Additional information from the full report (in Norwegian) included:

- The pilot had 143 total flight hours and 8 flight hours on the EC120B (3 hours in command). The pilot’s other experience was on the Robinson R44.
- The pilot reported applying full right pedal input to oppose the left yaw and then lifted the collective, which required additional power and increased the yaw to the left.

Safety analysis

On 15 May 2025, an Airbus EC120B helicopter was operated at Porepunkah aerodrome, Victoria, for planned private flight to Albury with the pilot and one passenger on board. During take-off into a hover the helicopter entered a left yaw. Attempts by the pilot to correct the yaw with the right pedal were ineffective and the helicopter entered an uncontrolled spin. The right skid struck the ground leading to a dynamic rollover. Both occupants evacuated without serious injury. The following analysis examines how a limited recency on type and skill decay contributed to the loss of control during take-off.

Skill decay

Aircraft type specific handling skills can deteriorate after periods of non-use (Childs and others, 1986; Wang and others, 2013). This effect has been shown in studies conducted during the COVID 19 pandemic which found that pilots underestimated skill decline after a period of extended absence (Mizzi and others, 2024). A similar underestimation is likely to have influenced the pilot's expectation of yaw response in the EC120B.

In contrast to procedural skills for simple tasks, more complex tasks such as monitoring, detecting changes and predicting system behaviour typically take longer to acquire and may decay faster (Klostermann and others, 2022). The pilot reported completing a pre-flight pedal check and was aware significant pedal input was required, however the pilot's expectations of the aircraft yaw response were likely shaped by the handling characteristics of CTR aircraft, with lower anti-torque pedal demands.

In response to the yaw, the pilot attempted to gain height and reported increasing the collective. This action led to a corresponding rise in engine power. The increased power output and increased main rotor blade angle amplified the reaction torque and therefore the rotation in yaw to the left.

With more power to the main rotor, less was available to the tail rotor and therefore the effectiveness of the right pedal input was reduced, allowing the continued helicopter rotation that resulted in ground contact and dynamic rollover.

When the pilot increased the collective on the accident flight, it is almost certain that the range of pedal movement required to arrest the unanticipated yaw outpaced the pilot's input.

Recency

Although the pilot had extensive helicopter flying experience and was licenced to operate the aircraft, the pilot had not flown an EC120B aircraft type for about 15 years. Having recency on the Robinson R44 helicopter, the yaw control characteristics of the EC120B were sufficiently different to produce effects in excess of the pilot's expectations. The EC120B yawed to the left, rather than the right, on application of power and required a larger opposite pedal input to arrest the yaw. Being highly experienced in rotary wing operations, this likely increased the pilot's perception of their ability to operate the helicopter type, even though they had not operated the aircraft type for several years.

It is likely that the lack of recency on the EC120B led to a degradation in the skill required to counter unanticipated yaw in an aircraft, where the pedal input required was much greater due to the Fenestron design.

Findings

ATSB investigation report findings focus on safety factors (that is, events and conditions that increase risk). Safety factors include 'contributing factors' and 'other factors that increased risk' (that is, factors that did not meet the definition of a contributing factor for this occurrence but were still considered important to include in the report for the purpose of increasing awareness and enhancing safety). In addition 'other findings' may be included to provide important information about topics other than safety factors.

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

From the evidence available, the following findings are made with respect to the collision with terrain involving Eurocopter EC120B, VH-JDZ, at Porepunkah aerodrome, Victoria, on 15 May 2025.

Contributing factors

- The pilot did not anticipate the performance of the design difference of the EC120B. Almost immediately after lifting off, the pilot was unable to counter the helicopter's left yaw resulting in ground contact and dynamic rollover.
- Limited recent flying experience on this helicopter type degraded the pilot's ability to manage the controls effectively. The pilot was unaware that this lack of currency had diminished their competence to safely operate the aircraft type.

General details

Occurrence details

Date and time:	15 May 2025 13:18 Aus Eastern Standard time	
Occurrence class:	Accident	
Occurrence categories:	Collision with terrain, Loss of control	
Location:	Porepunkah aerodrome, Victoria	
	Latitude: 36.7178° S	Longitude: 146.8900° E

Aircraft details

Manufacturer and model:	Eurocopter France EC120B	
Registration:	VH-JDZ	
Operator:	Dewpoint Investments Pty Ltd	
Serial number:	1352	
Type of operation:	Part 91 General operating and flight rules	
Activity:	General aviation / Recreational-Sport and pleasure flying-Pleasure and personal transport	
Departure:	Porepunkah Aircraft Landing Area, VIC	
Destination:	Albury aerodrome, NSW	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – 0	Passengers – 0
Aircraft damage:	Substantial	

Sources and submissions

Sources of information

The sources of information during the investigation included the:

- pilot of the accident flight
- passenger on board at time of accident
- Civil Aviation Safety Authority
- aircraft manufacturer
- maintenance organisation for VH-JDZ
- Bureau of Meteorology.

References

Airbus (2020). Fenestron versus Conventional Tail Rotor (CTR) for helicopters equipped with a main rotor rotating clockwise when seen from above. (Safety Information Notice 3539-I-00). Airbus S.A.S. Retrieved from Microsoft Word - 3539-I-00-Rev-0-EN.doc

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Childs, J., & Spears, W. D. (1986). Flight-skill decay and recurrent training. Perceptual and motor skills, 62(1), 235-242.

Klostermann, M. C., Conein, S., Felkl, T., & Kluge, A. (2022). Factors influencing attenuating skill decay in high-risk industries: a scoping review. Safety, 8(2), 22.

Mizzi, A. L. Lohmann, G., & Carim Junior, G. (2024). The role of self-study in addressing competency decline among airline pilots during the COVID-19 pandemic. Human Factors, 66(3), 807-817.

Wang, X. D. (2013). Factors influencing knowledge and skill decay after training: A meta-analysis. In Individual and team skill decay. Individual and team skill decay , 68-116.

Submissions

Under section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. That section allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to the following directly involved parties:

- the pilot
- the passenger
- Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile
- Civil Aviation Safety Authority
- Airbus.

Submissions were received from:

- the pilot
- the passenger
- Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile.

The submissions were reviewed and, where considered appropriate, the text of the report was amended accordingly.

About the ATSB

The **Australian Transport Safety Bureau** is the national transport safety investigator. Established by the *Transport Safety Investigation Act 2003* (TSI Act), the ATSB is an independent statutory agency of the Australian Government and is governed by a Commission. The ATSB is entirely separate from transport regulators, policy makers and service providers.

The ATSB's function is to improve transport safety in aviation, rail and shipping through:

- the independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis, and research
- influencing safety action.

The ATSB prioritises investigations that have the potential to deliver the greatest public benefit through improvements to transport safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, international agreements.

Purpose of safety investigations

The objective of a safety investigation is to enhance transport safety. This is done through:

- identifying safety issues and facilitating safety action to address those issues
- providing information about occurrences and their associated safety factors to facilitate learning within the transport industry.

It is not a function of the ATSB to apportion blame or provide a means for determining liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings.

At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

The ATSB does not investigate for the purpose of taking administrative, regulatory or criminal action.

About ATSB reports

ATSB occurrence investigation reports are organised with regard to international standards or instruments, as applicable, and with ATSB procedures and guidelines.

An explanation of ATSB terminology used in this report is available on the ATSB website.