



**Australian Government**

**Australian Transport Safety Bureau**

# Loss of control and collision with terrain involving Aérospatiale (Airbus Helicopters) AS332L1, N368EV

41 km north-north-west of Hay aerodrome, New South Wales, on 22 November 2024

**ATSB Transport Safety Report**  
Aviation Occurrence Investigation (Short)  
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#### Addendum

Page	Change	Date

# Preliminary report

This preliminary report details factual information established in the investigation's early evidence collection phase and has been prepared to provide timely information to the industry and public. Preliminary reports contain no analysis or findings, which will be detailed in the investigation's final report. The information contained in this preliminary report is released in accordance with section 25 of the *Transport Safety Investigation Act 2003*.

## The occurrence

On 22 November 2024, at about 0828 local time, an Aérospatiale (Airbus Helicopters) AS332L1 Super Puma helicopter, registered N368EV, departed Broken Hill Airport, New South Wales for Albury with one pilot and a passenger on board. The flight was the final leg of a repositioning flight from Kuala Lumpur, Malaysia that started on 17 November 2024. The helicopter was being positioned at Albury for use as an aerial firefighting asset over the summer period.

At about 0955, while cruising at about 3,500 ft above mean sea level, the pilot noted a high frequency vibration through the airframe that was also apparent to the passenger. In response, the pilot lowered the collective control<sup>1</sup> and began a descent, noting that Hay aerodrome was about 22 NM (41 km) from their location. Recorded data showed the helicopter was descended at about 1,500 ft/min with an indicated airspeed of about 115 kt.

In interview with the ATSB, the pilot reported that, during the descent, they heard a loud thud, which was immediately followed by an uncommanded yaw<sup>2</sup> to the left. To control the yaw, the pilot established an autorotation<sup>3</sup> then indicated that they reduced the throttles to idle, however, inadvertently reduced the no 2 engine throttle beyond the idle gate position resulting in the engine shutting down.

With the reduction in power, the uncommanded yaw ceased, and the pilot initiated a straight-in approach towards the open fields below. On approaching the ground, the pilot reported that, during the final flare with reduced airspeed, application of the collective control<sup>4</sup> to cushion the landing resulted in the helicopter yawing again.

At about 0958, the helicopter landed heavily, initially impacting terrain in an upright attitude but facing in the opposite direction of flight, before rolling onto its right side. The emergency locator transmitter was activated in the impact and there was no post-impact fire. The pilot and passenger survived the impact but were seriously injured. The passenger, who was seated in the forward cabin, succumbed to their injuries. The helicopter was destroyed.

## Context

### **Pilot information**

The pilot held a United States Department of Transportation - Federal Aviation Administration Airline Transport Pilot Certificate (issued in 2023), with the necessary ratings to fly the helicopter.

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<sup>1</sup> 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. Raising or lowering the collective also increases or decreases engine power to maintain rotor RPM as the rotor drag changes.

<sup>2</sup> Yawing: the motion of an aircraft about its vertical or normal axis.

<sup>3</sup> Autorotation: Autorotation is a condition of descending flight where, following engine failure or deliberate disengagement, the rotor blades are driven solely by aerodynamic forces resulting from rate of descent airflow through the rotor. The rate of descent determined mainly by airspeed.

The pilot also held a Medical Certificate First Class, issued in November 2024. The pilot also held an Australian-issued Commercial Pilot Licence (issued 2016) with an AS322 type rating.

The pilot completed AS332 type rating training in April 2023 and had about 8,000 hours total aeronautical experience at that time. Since completing the training, the pilot had logged about 400 hours flight time on the AS332. The pilot reported completing annual recurrent training on the AS332 in May 2024.

## ***Helicopter information***

### ***General information***

The AS332L1 Super Puma is a utility helicopter developed and initially produced by Aérospatiale, and subsequently manufactured by successor companies Eurocopter and Airbus Helicopters. N368EV was manufactured in 1988 by Aérospatiale with the serial number 2179. The helicopter was fitted with 2 Turbomeca Makila 1A1 turboshaft engines.

The helicopter was registered in the United States and was issued a Certificate of Airworthiness by the Department of Transportation - Federal Aviation Administration in the transport category on 26 January 2011. The type certificate holder was Airbus Helicopters.

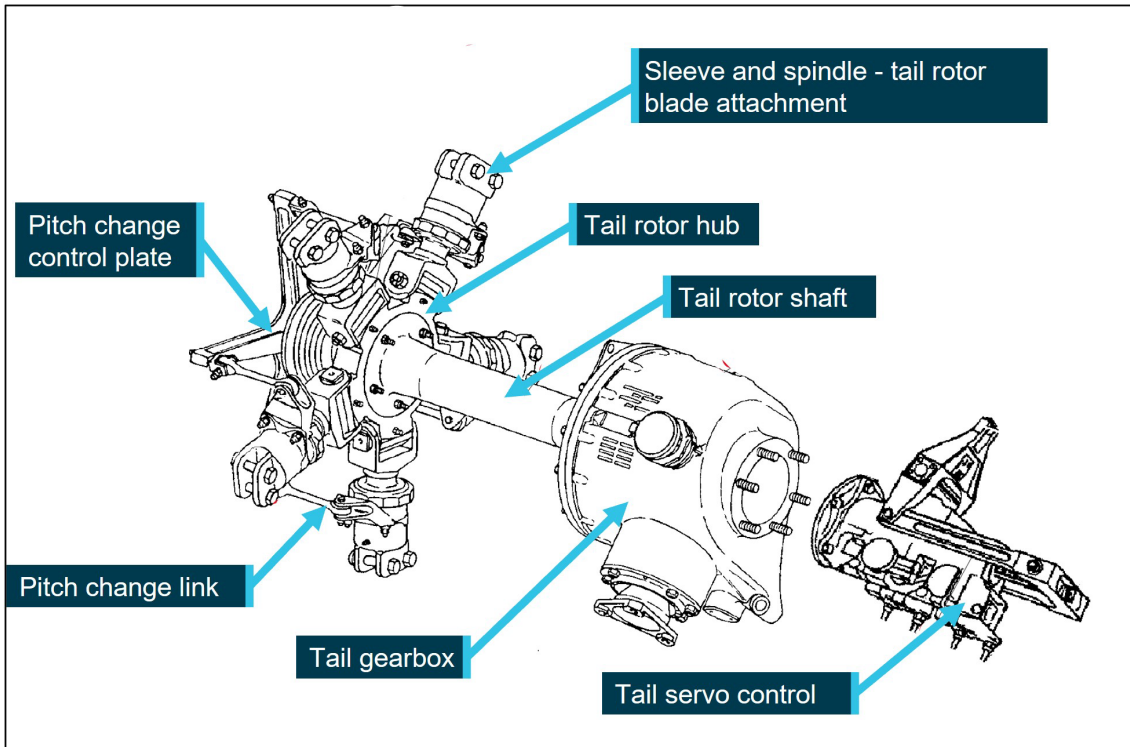
At the time of the accident, the helicopter had accrued about 28,323 hours total time in service.

### ***Tail rotor system***

The AS332 tail rotor system comprises a 5-bladed tail rotor assembly that rotates in a counter-clockwise direction. The tail rotor blades mount to the tail rotor hub and are driven by the tail gearbox via the inclined tail rotor shaft.

Tail rotor blade pitch control occurs in response to the pilot's tail rotor pedal inputs via mechanical connection to the servo control. The servo control actuates a pitch change control rod located within the hollow tail rotor shaft and is connected to the pitch change control plate. The pitch change control plate is mounted to and supported by a splined sleeve that slides laterally in a guide located within the tail rotor shaft (Figure 1 and Figure 2).

**Figure 1: Tail rotor gearbox and related components**



Source: Airbus Helicopters, annotated by the ATSB

### ***Meteorological information***

The Bureau of Meteorology’s forecast conditions for Broken Hill and Albury airports were described as CAVOK<sup>5</sup> for the duration of the flight. Recorded weather observations for Hay aerodrome showed the mean wind speed varying between 12 kt and 15 kt from the north around the time of the accident.

The pilot reported that, following the departure from Broken Hill, and while cruising at about 3,500 ft, they were experiencing smooth flying conditions and had a tailwind of about 10–15 kt.

### ***Recorded data***

The helicopter was not fitted with a cockpit voice recorder or flight data recorder. A recent modification included the installation of a helicopter usage and monitoring system from which preliminary flight data was extracted by the ATSB.

The helicopter was also equipped with a Tracplus RockAIR portable tracking device. Additional navigational equipment was retained for further examination.

### ***Wreckage and impact information***

The helicopter impacted grass covered, flat terrain, in a slight left side down, but generally upright attitude facing about 320° (magnetic). The fuselage and belly sections were heavily compressed during the impact sequence, with the aft fuselage structure collapsing, resulting in the tail boom striking the ground. The tail boom ground strike then resulted in the vertical fin, with the tail gearbox and horizontal stabiliser attached, to separate from the tail boom. Following the ground contact and compression damage to the fuselage and tail boom, the helicopter rolled onto its right

<sup>5</sup> Ceiling and visibility okay (CAVOK): visibility, cloud and present weather are better than prescribed conditions. For an aerodrome weather report, those conditions are visibility 10 km or more, no significant cloud below 5,000 ft, no cumulonimbus cloud and no significant weather.

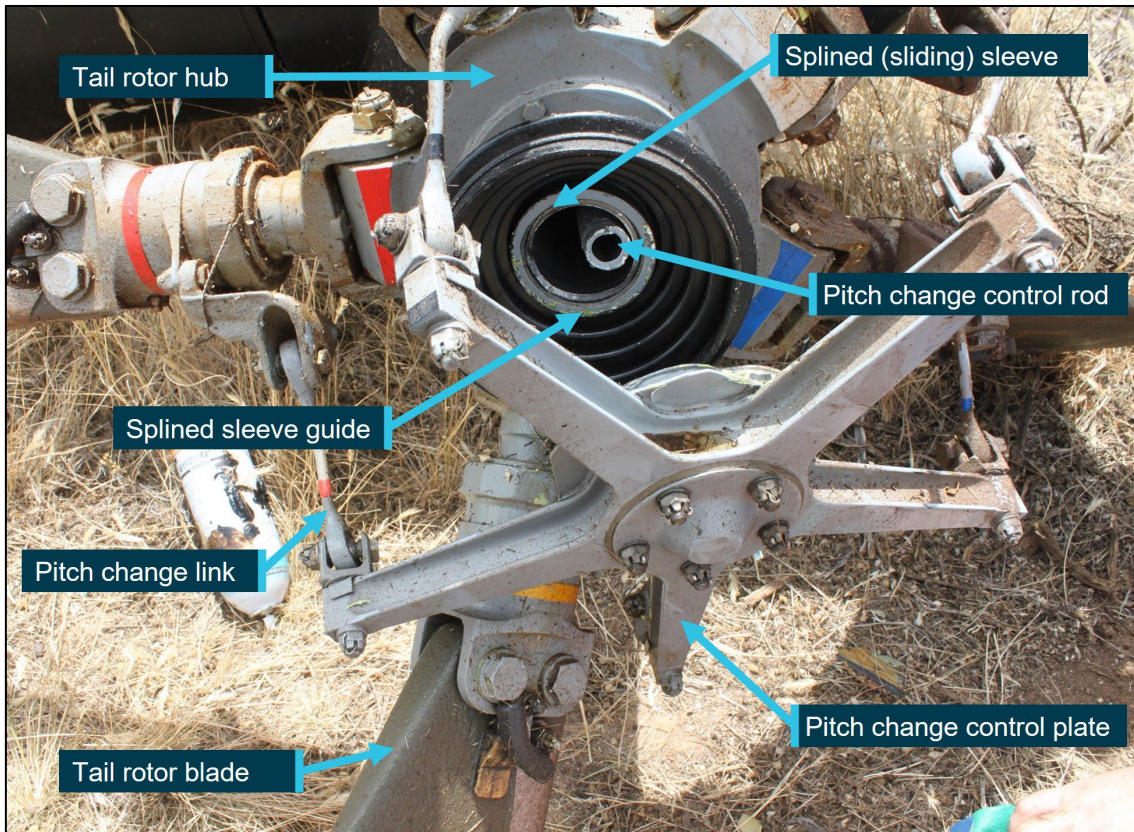
side. The wreckage was contained within the immediate area of the impact point and minimal forward projection of debris was noted.

The landing gear was found in the down position with the nose and left main gear sustaining significant damage. The compression of the belly resulted in considerable release of fuel from the fuselage belly tanks. The cabin-fitted ferry fuel tanks were dislodged from the floor mounts in the impact but remained intact.

During the impact sequence, fractures occurred on the main and tail rotor systems, including an associated loss of blade material consistent with a ground strike. However, each of the blades remained securely attached to their respective attachment point.

Examination of the wreckage found that the tail rotor pitch change control plate was detached from the tail rotor gearbox assembly and was the likely reason for the uncommanded yaw. Closer examination showed that the splined sleeve supporting the pitch change control plate had fractured at the mounting flange and the pitch change control rod was also fractured (Figure 2).

**Figure 2: Tail rotor assembly with separation of pitch change control plate from gearbox**



Source: ATSB

## **Component examination**

### **Introduction**

The fractured splined sleeve was examined at the ATSB's technical facilities in Canberra, in the presence of representatives from the French Bureau d'Enquêtes et d'Analyses and Airbus Helicopters.

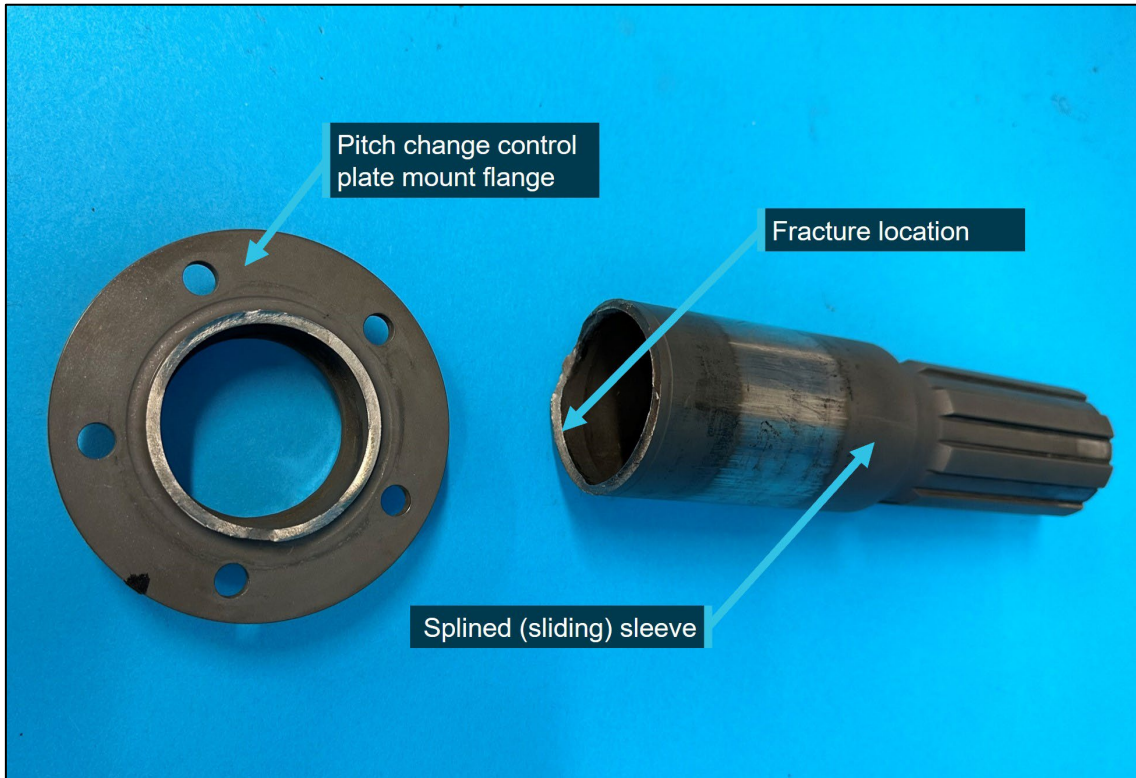
The manufacturer advised that the splined sleeve had no safe life limit,<sup>6</sup> and its serviceability was determined by on-condition maintenance requirements. The continuation in service of the component was contingent on the absence of corrosion or surface scratches as determined by visual inspection at specified intervals.

**Component examination**

Following the removal of its surface protective coating, the splined sleeve was identified as part number AS332A33 0070.20. The sleeve’s serial number was also identified to assist with determining the component manufacturing history.

Initial examinations of the fracture surface found that a fatigue crack had propagated around the majority of the splined sleeve’s circumference, leading to fracture of the sleeve in the section adjacent to the pitch change control plate mount flange. Further examination is to be conducted to determine the crack origin and identify the factors contributing to the cracking (Figure 3).

**Figure 3: Separation of the pitch change control plate mount flange from the splined sleeve**



Source: ATSB

**Safety action**

In response to this accident, Airbus Helicopters published safety related information, which included:

- Safety Information Notice 4082-S-64 on 29 November 2024 that highlighted tail rotor assembly maintenance tasks, specific to inspection and lubrication requirements.
- Alert Service Bulletin ASB AS332-64-20-003 on 23 December 2024 that specified an inspection for defects of the splined sleeve radius area of the control plate mount flange.

<sup>6</sup> Safe life limit: An airworthiness limitation that is applied to life limited parts, which have a predetermined lifespan after which they must be replaced to ensure safety.

## Further investigation

To date, the ATSB has:

- examined the wreckage
- collected items of evidence from the accident site
- collected pilot and aircraft records
- conducted interviews with relevant parties
- liaised with Airbus Helicopters and the French Bureau d'Enquêtes et d'Analyses
- conducted a preliminary examination of the splined sleeve.

The investigation is continuing and will include:

- a further review and detailed examination of the splined sleeve
- examination of the tail gearbox and components
- an assessment of accident survivability aspects
- a review of helicopter records and loading aspects
- a review of the pilot's qualifications and experience
- analysis of recorded data.

A final report will be released at the conclusion of the investigation. Should a critical safety issue be identified during the course of the investigation, the ATSB will immediately notify relevant parties so appropriate and timely safety action can be taken.



# General details

## Occurrence details

Date and time:	22 November 2024 - 0957 EDT	
Occurrence class:	Accident	
Occurrence categories:	Loss of control, collision with terrain	
Location:	41 km north-north-west of Hay aerodrome, New South Wales	
	Latitude: 34.2282° S	Longitude: 144.5825° E

## Helicopter details

Manufacturer and model:	Aérospatiale (Airbus Helicopters) AS332 L1 (Super Puma)	
Registration:	N368EV	
Operator:	Nomad Aviation Ltd	
Serial number:	2179	
Type of operation:	Part 91 General operating and flight rules-Other	
Activity:	General aviation/recreational-Other general aviation flying-Ferry flights	
Departure:	Broken Hill Airport, New South Wales	
Destination:	Albury, New South Wales	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – 1 (serious)	Passengers – 1 (fatal)
Aircraft damage:	Destroyed	

# Australian Transport Safety Bureau

## About the ATSB

The ATSB is an independent Commonwealth Government statutory agency. It is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers.

The ATSB's purpose is to improve the safety of, and public confidence in, aviation, rail and marine transport through:

- independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis and research
- fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia, as well as participating in overseas investigations involving Australian-registered aircraft and ships. It 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.

## Terminology

An explanation of terminology used in ATSB investigation reports is available on the ATSB website. This includes terms such as occurrence, contributing factor, other factor that increased risk, and safety issue.