



Australian Government

Australian Transport Safety Bureau

Loss of control and in-flight break-up involving Robinson R66, VH-KFT

near Hawks Nest, New South Wales, on 26 October 2023

ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2023-051
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Addendum

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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 26 October 2023 at about 0850 (local), the pilot and sole occupant of a Robinson Helicopter Company R66, registered VH-KFT, departed on a private flight from Cessnock Airport to Wallis Island Airport, NSW. The flight initially tracked easterly toward Newcastle (Figure 1). Onboard video¹ showed the helicopter flying close to the cloud base at heights between 500 ft and 1,000 ft above ground level. Light rain was visible on the windshield. Small deviations in attitude and direction were also shown in the video, consistent with the presence of light turbulence.

On approach to the coast, the pilot requested and received clearance from Williamtown air traffic control (ATC) to transit Williamtown restricted airspace northbound at 500 ft above mean sea level (AMSL) via the coastal visual flight rules (VFR) route until reaching Anna Bay. On reaching Anna Bay, Williamtown ATC provided further clearance below 2,000 ft AMSL for the remainder of the coastal VFR route (Figure 1). At this time the onboard video showed the pilot had the autopilot² system engaged, with heading hold, and altitude hold modes selected.

Figure 1: Accident flight of VH-KFT



Source: Google Earth and Geoscience Australia. Annotated by the ATSB

The following sequence of events was identified from the onboard video after the helicopter had passed overhead Anna Bay and was tracking toward Hawks Nest (Figure 2):

- At 0920:10 the helicopter passed over the south shoreline of Yacaaba Headland, to the west of Mount Yacaaba, at about 900 ft AMSL.
- Between 0920:12 – 0920:16 the helicopter rolled right about 4 degrees, started to climb, and pitched nose down. From this point on the pilot made several cyclic inputs, overriding the autopilot.

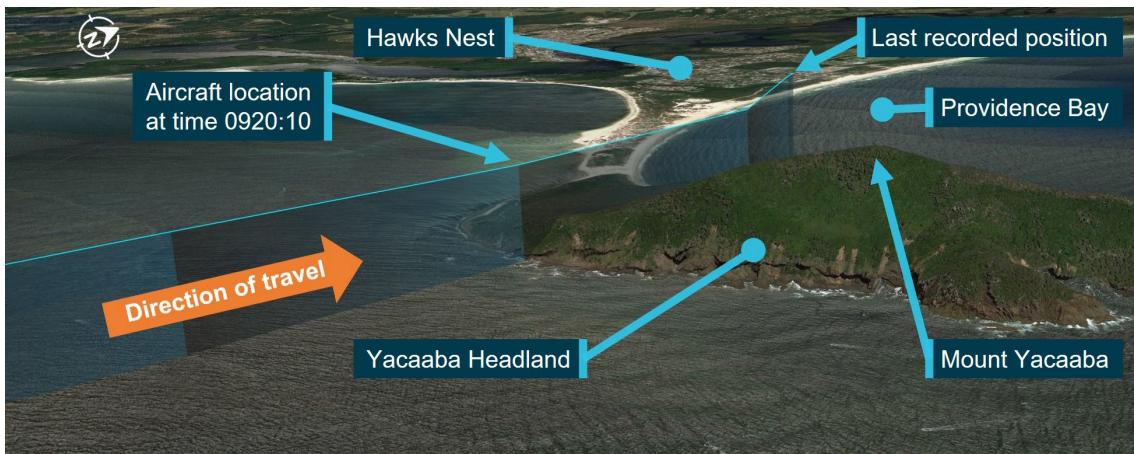
¹ The onboard video camera was a standard factory inclusion for R66 helicopters.

² Primary stability augmentation mode from the autopilot system maintains a steady helicopter attitude by applying corrective inputs to the cyclic. Additional modes provide heading hold, altitude, back course, and navigation functionality.

- Between 0920:19 – 0920:21 the helicopter rolled 25 degrees to the left, pitched nose up to about 10 degrees, and yawed to the left. The helicopter then climbed through about 1,000 ft AMSL and rolled to level.
- Between 0920:22 – 0920:26 the helicopter passed north of Yacaaba Headland and over Providence Bay. The helicopter rolled left slightly, then right and left to bank angles of about 10 to 15 degrees. During this time, the nose remained pitched up at about 6 degrees and the helicopter climbed to about 1,100 ft AMSL.
- Between 0920:26 – 0920:29 the helicopter nose had pitched down and it had rolled to the right to become completely inverted (180 degrees), then continued to roll right to about 270 degrees.

The helicopter sustained an in-flight break-up and impacted the waters of Providence Bay, near Hawks Nest. The pilot was fatally injured.

Figure 2: VH-KFT flight path



Source Google Earth. Annotated by the ATSB.

Context

Pilot information

The pilot held a private pilot licence (helicopter), with the required ratings and endorsements to operate the accident helicopter. The pilot held a class 2 aviation medical certificate. Prior to the accident, the pilot had a total flying time of 1,119 hours. These hours included 93 hours in the R66 and 1,007 hours in R44 and R22 helicopters.

The pilot had completed a flight review in September 2022, which was valid until September 2024.

Aircraft information

VH-KFT was a Robinson Helicopter Company R66, serial number 1138. It was manufactured in the United States in 2022 and in June 2022 was registered in Australia. The helicopter was fitted with a Rolls-Royce 250-C300/A1 gas turbine engine. VH-KFT underwent its first 100 hour annual inspection on 24 August 2023 at a total time in service of 97.84 hours. At the time of the accident, the hour meter showed a total time in service of 117.64 hours.

The helicopter was fitted with a Genysis Helisas 2 channel autopilot to provide stability augmentation that controlled cyclic pitch and roll with heading, altitude, navigation, vertical navigation, and backcourse modes.³

³ Backcourse mode is a reverse course deviation indicator to enable backcourse approaches.

Meteorological information

The closest Bureau of Meteorology (BoM) weather station to the accident site was about 3.9 km to the south-west at Nelson Bay. The observations at 0900 (20 minutes before the accident) showed a southerly wind at 8 knots (kt), an air temperature of 14.4 °C, and 8/8⁴ cloud cover.

Selected information from aerodrome weather reports (METAR/SPECI) released for Williamtown at 0900 and 0930 are shown in Table 1.

Table 1: Information from meteorological reports (METAR/SPECI) released for Williamtown at 0900 and 0930 on 26 October 2023

METAR/SPECI release time	0900	0930
Wind direction and speed	190°T at 12 kt	180°T at 15 kt
Visibility	8,000 m	9,000 m
Weather phenomena	Light showers of rain	Light showers of rain
Cloud	Broken 1,100 ft, broken 2,500 ft	Scattered 1,000 ft, Broken 2,500 ft
Ceiling	1,100 ft	2,500 ft

The BoM weather station at RAAF Base Williamtown, located about 35 km southwest of the accident site, recorded observations every 30 minutes. The weather reported at 0930 (10 minutes after the accident) showed a southerly wind at 15 kt, gusting to 23 kt, an air temperature of 14.7 °C, and a dew point temperature of 13.2 °C. 0.4 mm of rainfall was measured since 0900 that morning.

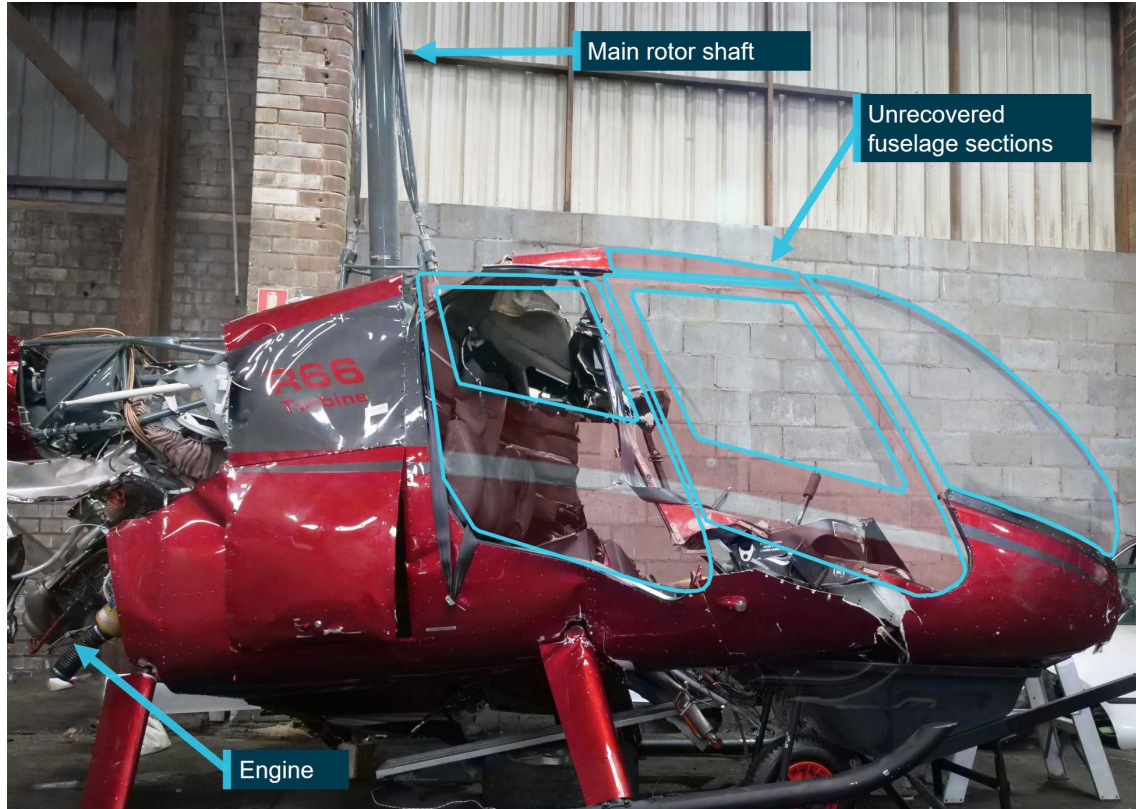
Wreckage

On 28 October 2023, NSW police divers located the helicopter’s cabin and tail boom on the sea floor in Providence Bay at a depth of about 5 m (Figure 2). The wreckage was recovered to a secure facility in Newcastle for examination by the ATSB. The entire windshield and forward cabin roof section, as well as the main rotor head and both main rotor blades, were not located from the sea search operation (Figure 3).

ATSB’s examination of the recovered helicopter structure indicated that a main rotor blade had likely impacted the right side of the cabin. The examination identified that the tail boom had separated from the fuselage aft of the engine fairing from a main rotor blade contact, prior to impacting the water. Damage to the fuselage was consistent with the fuselage impacting the water on the left side. The on-site inspection of the recovered wreckage did not identify any pre-existing faults or defects.

⁴ Cloud cover is measured visually by estimating the fraction (in eighths or oktas) of the dome of the sky covered by cloud. A completely clear sky is recorded as zero okta, while a totally overcast sky is 8 oktas. The presence of any trace of cloud in an otherwise blue sky is recorded as 1 okta, and similarly any trace of blue in an otherwise cloudy sky is recorded as 7 oktas.

Figure 3: Wreckage examination



The image has been annotated to highlight areas of missing cabin structure.

Source: ATSB.

Recorded data

The helicopter was equipped with an onboard video camera that was attached to a roof panel inside the cabin. The camera recorded the in-cabin visual and audio environment. Also captured by the system were GPS position, acceleration, and rotational speed. The roof panel and camera were found on the beach near the accident site by a member of the public and provided to the NSW Police.

The video files and other recorded data were subsequently extracted from the camera memory module at the ATSB's technical facilities in Canberra.

Williamtown air traffic control radar and radio communications between the helicopter have been retained by the ATSB for analysis.

Further investigation

To date, the ATSB has:

- examined the recovered wreckage
- collected meteorological data from the Bureau of Meteorology
- collected pilot and helicopter records
- conducted interviews with relevant parties
- collected recorded data from Williamtown air traffic control
- liaised with the NSW Police Force.

The investigation is continuing and will include consideration of the following:

- analysis of meteorological conditions
- analysis of the recovered onboard video and other recorded data
- flight planning
- helicopter performance
- pilot qualifications, experience, and medical information
- helicopter maintenance
- examination of recovered components.

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.

Acknowledgements

The ATSB gratefully acknowledges the assistance provided by NSW Police Force Marine Area Command in the search and recovery efforts, and subsequent information collection.

General details

Occurrence details

Date and time:	26 October 2023 – 0920 EDT	
Occurrence class:	Accident	
Occurrence categories:	In-flight break-up	
Location:	35 km NE of Newcastle Airport (Williamstown Airport)	
	Latitude: 32° 41.285' S	Longitude: 152° 11.603' E

Aircraft details

Manufacturer and model:	Robinson Helicopter Company R66	
Registration:	VH-KFT	
Operator:	Private	
Serial number:	1138	
Type of operation:	Part 91 General operating and flight rules	
Activity:	General aviation	
Departure:	Cessnock Airport	
Destination:	Wallis Island (Forster) Airport	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – 1 fatal	Passengers – 0
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.