

Australian Government Australian Transport Safety Bureau

Loss of control involving a Robinson R44, VH-YYS

near Mareeba aerodrome, Queensland, 2 March 2014

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Addendum

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Loss of control involving a Robinson R44, VH-YYS

What happened

On 2 March 2014, at about 1300 Eastern Standard Time (EST), the pilot of a Robinson R44 helicopter, registered VH-YYS, prepared for a private flight from Mareeba, Queensland.

The helicopter lifted off and the pilot reported all engine indications were normal and the blades appeared to be tracking normally. During the translation from hover to forward flight, the helicopter yawed to the left. The pilot raised collective¹ and rolled the throttle on and the helicopter then spun quickly about 90 degrees to the right. The pilot heard an Damage to VH-YYS



Source: Owner

increase in engine noise as a loud buzz. The helicopter then pitched up and down, and as he attempted to control it with the cyclic,² the helicopter yawed about 180 degrees to the left. The helicopter rolled to the left and the pilot noticed the main rotor blades flapping.

The pilot eased the collective into the ground and as the helicopter touched down, it started to roll to the left. He moved the cyclic right, reduced the throttle and the helicopter rocked from side to side and then settled. During the event, the rotor blades contacted the tail boom resulting in substantial damage (Figure 1).

Engineering report

A post-accident engineering inspection did not find any defects other than those resulting from the incident.



Figure 1: Damage to VH-YYS

Source: Owner

¹ The collective pitch control, or collective, is a primary flight control used to make change to the pitch angle of the main rotor blades. Collective input is the main control for vertical velocity.

² The cyclic pitch control, or cyclic, is a primary flight control that allows the pilot to fly the helicopter in any direction of travel: forward, rearward, left and right.

ATSB comment

The helicopter was appropriately maintained and no defects were found. The helicopter was loaded within the normal operating weight and balance limits. The pilot was trained and qualified for the flight. No local environmental or other factors were identified which may have contributed to the incident. The ATSB was unable to determine the factors contributing to the loss of control.

A representative from the Robinson Helicopter Company advised the ATSB that the R44 is an agile aircraft and the controllability of the tail rotor is excellent. However it does require the pilot to be proficient when operating the helicopter. During low speed flight and at hover, changes to one control (collective, cyclic and/or tail rotor), will require secondary inputs on the other controls which can easily lead to over-controlling of the aircraft. He reported that similar incidents have occurred when a pilot is concentrating on manoeuvring the helicopter close to the ground and no mechanical or aerodynamic failures have been found. While training does not appear to be a contributing factor, pilot experience and recency on type may have been relevant.

General details

Occurrence details

Date and time:	2 March 2014 – 1300 EST		
Occurrence category:	Accident		
Primary occurrence type:	Loss of control		
Location:	near Mareeba aerodrome, Queensland		
	Latitude: 17° 04.15' S	Longitude: 145° 25.15' E	

Helicopter details

Manufacturer and model:	Robinson Helicopter Company R44		
Registration:	VH-YYS		
Serial number:	1801		
Type of operation:	Private		
Persons on board:	Crew – 1	Passengers – Nil	
Injuries:	Crew – Nil	Passengers – Nil	
Damage:	Substantial		

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and 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 that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements. The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine 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.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.