



Australian Government

Australian Transport Safety Bureau

Collision with terrain involving a Robinson R22 helicopter, VH-WDB

90 km N of Bourke, New South Wales, 23 May 2014

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Addendum

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Collision with terrain involving a Robinson R22 helicopter, VH-WDB

What happened

On 23 May 2014, at about 1100 Eastern Standard Time (EST), the pilot of a Robinson R22 helicopter, registered VH-WDB, conducted a local flight on a property about 90 km north of Bourke, New South Wales. The pilot flew the helicopter to a cleared landing area adjacent to a stock yard. From about 600 ft above ground level (AGL), he commenced the descent to the landing site, aiming to approach quietly and slowly to minimise disturbance to stock grazing nearby. When at about 9-15 ft AGL, he commenced a left turn into a light breeze, then at his 11 o'clock¹ position, and entered the hover.

As the helicopter turned left, the pilot felt a violent shudder through the cyclic² control. The pilot reported that the helicopter continued to yaw³ and he applied opposite pedal in an attempt to counteract the yaw, however the pedal was ineffective and the yaw accelerated. The pilot rolled the throttle off, moved the cyclic forward and lowered the collective⁴. As the helicopter descended rapidly, the pilot then raised the collective to cushion the landing. The right skid touched down first and the helicopter rolled to the right, coming to rest on the right side (Figure 1).

Accident site



Source: Owner

Figure 1: Damage to WDB



Source: Owner

The helicopter was substantially damaged and the pilot was uninjured.

¹ The clock code is used to denote the direction of an aircraft or surface feature relative to the current heading of the observer's aircraft, expressed in terms of position on an analogue clock face. Twelve o'clock is ahead while an aircraft observed abeam to the left would be said to be at 9 o'clock.

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.

³ Yaw is the term used to describe motion of an aircraft about its vertical or normal axis.

⁴ The collective pitch control, or collective, is a primary flight control used to change the pitch angle of the main rotor blades. Collective input is the main control for vertical velocity.

Pilot comments

The pilot had bought the helicopter new in January 2014 and it had completed a total of 187.4 hours at the time of the accident. The rotor drive belts had been replaced twice, the first time after only 26 hours. He had been advised to leave the clutch engaged while the helicopter was parked at night to stretch the belts. He had to jump start the helicopter each morning due to the tightness of the belts.

Initially following the accident, the pilot reported that the helicopter had yawed rapidly to the right, which he had attempted to counteract with left pedal; however he later reported that the helicopter had yawed rapidly to the left, and he had attempted to apply right pedal but was unsuccessful in counteracting the yaw.

Engineering inspection

The engineering inspection conducted after the accident found the following:

- Damage to the helicopter was consistent with high vertical impact loads.
- Damage to the skid attach points was consistent with the aircraft rotating at touchdown.
- No aircraft unserviceabilities, including in the tail rotor control system were found other than those sustained in the accident.
- The drive belts were found intact and had moved forward one groove on the upper sheave consistent with a power-on main rotor strike.

General details

Occurrence details

Date and time:	23 May 2014 – 1120 EST	
Occurrence category:	Accident	
Primary occurrence type:	Collision with terrain	
Location:	90 km N Bourke, New South Wales	
	Latitude: 29° 14.32' S	Longitude: 146° 06.47' E

Helicopter details

Manufacturer and model:	Robinson Helicopter Company R22	
Registration:	VH-WDB	
Serial number:	4629	
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.