Australian Government
Australian Transport Safety Bureau

Ground strike and loss of control involving R22, VH-HAY

near Fitzroy Crossing Aerodrome, Western Australia,18 May 2014

ATSB Transport Safety Report
Aviation Occurrence Investigation
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Addendum

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Ground strike and loss of control involving R22, VH-HAY

What happened

On 18 May 2014, a Robinson Helicopter Company R22 Beta aircraft, registered VH-HAY, was being operated to conduct cattle mustering on GoGo Station, near Fitzroy Crossing, Western Australia. The pilot was the sole person on board.

Nearing the end of the day, at about 1645 Western Standard Time (WST), as the pilot was manoeuvring the helicopter at low level to muster the cattle into a yard; the tail rotor struck the ground.

VH-HAY

Source: Operator

The helicopter commenced a severe right yaw. The pilot kept the helicopter in a clear area, while it rapidly completed about four full 360° rotations to the right. During this process it gained height to about 50 ft above the ground.

To arrest the yaw, the pilot immediately closed the throttle, resulting in a rapid rate of descent. In an attempt to lessen the rate of descent, the pilot raised the collective. The helicopter struck the ground heavily, and then rolled onto the right side. The pilot sustained serious injuries and the helicopter was substantially damaged (Figure 1).

Pilot comments

The pilot reported that the movement of the cattle in the yard made the conditions very dusty. This, along with the operation being toward the end of daylight, reduced the visibility.

Operator comments

The operator advised that the helicopter was operating a little too close to the ground. Also, as the pilot initiated the turn just prior to the tail strike, the tail rotor was too close to the ground.

Tail rotor anti-torque system

On United States designed single rotor helicopters such as the Robinson R22, the main rotor rotates counter clockwise as viewed from above. The torque to drive the main rotor causes the fuselage of the helicopter to rotate in the opposite direction (nose right). The anti-torque system (tail rotor) provides thrust, which counteracts this torque and provides directional control.

In this accident, once the tail rotor struck the ground, the helicopter was without this anti-torque system, resulting in the helicopter fuselage yawing nose right.

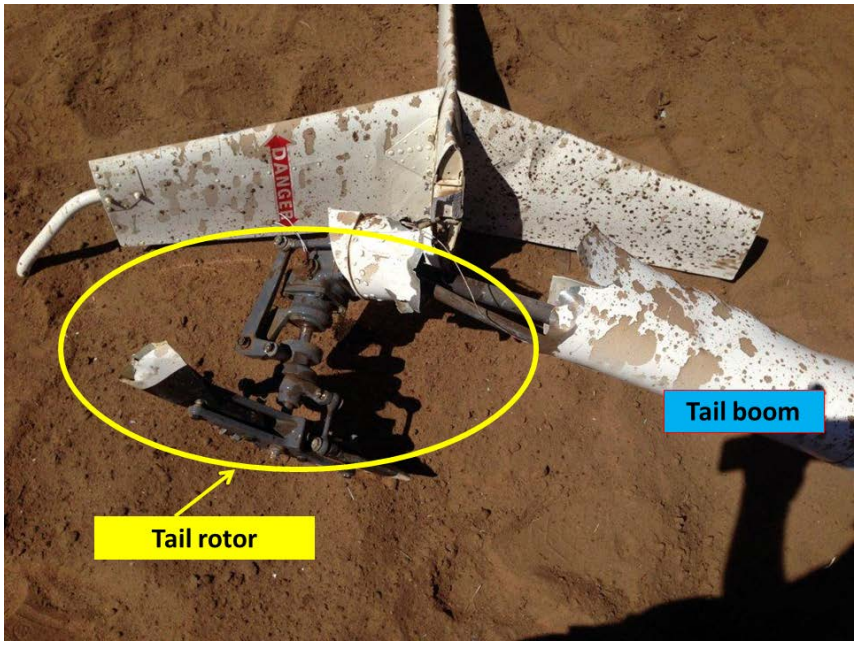
ATSB comment

The risks in low level mustering are well known. Low level operations leave little margin for error. The added risk factors of operating in a dusty environment, and in the hour before last light would have reduced that margin.

Figure 1: VH-HAY damage

Source: WA Police

Figure 2: Tail rotor damage



Source: WA Police

General details

Occurrence details

Date and time:	18 May 2014 – 1645 WST	
Occurrence category:	Accident	
Primary occurrence type:	Ground strike	
Location:	Fitzroy Crossing Aerodrome 168° T 37 km	
	Latitude: 18° 10.92.' S	Longitude: 125° 33.52' E

Aircraft details

Manufacturer and model:	Robinson Helicopter Company - R22 BETA	
Registration:	VH-HAY	
Serial number:	4412	
Type of operation:	Aerial work - mustering	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Serious	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.