Australian Government
Australian Transport Safety Bureau

Collision with terrain involving a Robinson R44, VH-YYF

near Hughenden, Queensland, on 1 February 2015

ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2015-014
Final – 22 April 2015

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Publishing information

Published by: Australian Transport Safety Bureau
Postal address: PO Box 967, Civic Square ACT 2608
Office: 62 Northbourne Avenue Canberra, Australian Capital Territory 2601
Telephone: 1800 020 616, from overseas +61 2 6257 4150 (24 hours)
Accident and incident notification: 1800 011 034 (24 hours)
Facsimile: 02 6247 3117, from overseas +61 2 6247 3117
Email: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

Addendum

Page	Change	Date

Collision with terrain involving a Robinson R44, VH-YYF

What happened

On 1 February 2015, the pilot of a Robinson R44 helicopter, registered VH-YYF, prepared for a local flight at Warwombie Station, near Hughenden, Queensland. The pilot did not observe any abnormalities during the pre-flight inspection, with oil quantity within the normal range, about 80 L of fuel on board, and no water or other contaminants found during a fuel drain and check. The helicopter was loaded within the normal operating weight and balance limitations. The temperature was 20 °C, the sky clear of cloud and the wind was calm.

At about 0800 Eastern Standard Time (EST), the helicopter lifted off normally. At about 20 ft above ground level, the pilot lowered the nose of the helicopter in attempt to gain forward speed and transition from hover to forward flight. The helicopter then sank quickly and the rotor rpm decayed. The pilot pulled back on the cyclic[1] control in an attempt to flare and reduce the rate of descent, prior to contacting the ground. The left skid contacted the ground first and then the helicopter spun to the right. The rear of the right skid dug into the ground and the helicopter rolled onto the right side. The pilot selected the master switch off before exiting the helicopter uninjured. The helicopter sustained substantial damage (Figure 1).

Pilot comments

The pilot had about 9,000 hours total helicopter aeronautical experience. He had practiced autorotations often and believed that his experience enabled him to escape uninjured. The incident had happened very quickly and he was unsure what had caused the helicopter to sink and lose rotor rpm.

Figure 1: Damage to VH-YYF

Source: Daniel Cook

[1] A primary helicopter flight control that is similar to an aircraft control column. Cyclic input tilts the main rotor disc varying the attitude of the helicopter and hence the lateral direction.

Safety message

The Robinson Helicopter Company Safety Notice SN-24 stated that rotor stall due to low RPM causes a very high percentage of helicopter accidents. These mostly occur close to the ground during take-off and landing. Safety Notice SN-10 reminds pilots to have their 'reflexes conditioned so they will instantly add throttle and lower collective to maintain RPM in any emergency'.

The pilot in this incident had completed significant number of practice autorotations. The avoidance of injury highlights the benefits of practice. The following links provide information regarding practice autorotations:

• www.ainonline.com/aviation-news/hai-convention-news/2012-02-13/instructor-pilots-give-guidance-autorotation-training

• www.ainonline.com/aviation-news/aviation-international-news/2013-05-01/astar-accident-shines-light-autorotation-training

• www.aviationtoday.com/rw/training/specialty/Flight-Training-Tips-Dancing-With-the-Devil_13632.html

• www.faa.gov/documentLibrary/media/Advisory_Circular/AC_61-140.pdf

• www.faasafety.gov/files/gslac/library/documents/2011/Aug/56414/FAA%20P-8740-71%20Planning%20Autorotations%20[hi-res]%20branded.pdf

General details

Occurrence details

Date and time:	1 February 2015 – 0800 EST	
Occurrence category:	Accident	
Primary occurrence type:	Collision with terrain	
Location:	near Hughenden Aerodrome (Warwombie Station), Queensland	
	Latitude: 20° 48.90' S	Longitude: 144° 13.52' E

Helicopter details

Manufacturer and model:	Robinson Helicopter Company R44	
Registration:	VH-YYF	
Serial number:	2090	
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.