Australian Government
Australian Transport Safety Bureau

Collision with terrain during mustering involving Robinson R22, VH-PFX

15 km S of Coen, Queensland, 18 September 2016

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Addendum

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Collision with terrain during mustering involving Robinson R22, VH-PFX

What happened

On 18 September 2016, at about 1355 Eastern Standard Time (EST), the pilot of a Robinson R22 helicopter, registered VH-PFX, commenced aerial mustering on a property about 15 km south of Coen, Queensland.

After successfully mustering one mob of cattle into a yard, the pilot started moving a second mob towards the north. The cattle started to move west instead of north, so the pilot descended closer to the cattle to encourage them to turn.

At about 1415, the helicopter was about 10 ft above the ground, at an airspeed of 40 to 50 kt, when a cow with long horns charged and reared up at the helicopter. The cow's horn went over the right skid of the helicopter, trapping the skid underneath it. The pilot applied full left cyclic[1] and raised the collective[2], but the helicopter rolled to the right. The main rotor blade struck the ground and the helicopter collided with the ground and slid about 10 m along a dirt road.

As the helicopter slid along the ground, it caught fire. The pilot exited with minor injuries and the helicopter was destroyed (Figure 1).

Figure 1: Accident site showing VH-PFX destroyed by post-impact fire

Source: Queensland Police

Pilot comments

Normally, the helicopter can remain at a higher altitude and mustering will still be effective as the noise moves the cattle in the intended direction. Very occasionally, when the area is clear, the only way to move the cattle is to get down low.

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1 Cyclic: 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.

2 Collective: a primary helicopter flight control that simultaneously affects the pitch of all blades of a lifting rotor. Collective input is the main control for vertical velocity.

Bladder-type fuel tanks

In July 2014, the Civil Aviation Safety Authority's (CASA) monthly update, *the CASA Briefing* included the section 'R22 operators urged to fit new fuel tanks'. CASA strongly recommended operators of R22 helicopters to install modified fuel tanks as early as possible. This was in response to Robinson Helicopter Company *R22 Service bulletin SB-109*, which required R22 helicopters with aluminium fuel tanks to be retrofitted with bladder-type tanks to improve the fuel system's resistance to a post-accident fuel leak. The retrofit was to be completed as soon as practical, but no later than the next 2,200-hour overhaul or 12-year inspection.

VH-PFX was not fitted with bladder fuel tanks. Although the bladder tanks could have been fitted at any time, as the aircraft had not yet reached the 2,200-hour overhaul or 12-year inspection period, it was not yet required to be fitted with bladder fuel tanks.

ATSB comment

Aerial mustering, as with other low-flying operations, carries an inherent level of risk. Elevated awareness and vigilance is necessary to fly an aircraft safely, monitor for the effects of environmental conditions such as wind direction and strength, and to scan for and avoid obstacles and other hazards. Operating at the height of the animals while mustering introduces additional risk as animals can act unpredictably, and should only be done as a last resort. At low level there is limited opportunity to react and respond to an abnormal situation.

General details

Occurrence details

Date and time:	18 September 2016 – 1415 EST	
Occurrence category:	Accident	
Primary occurrence type:	Animal strike	
Location:	15 km S of Coen, Queensland	
	Latitude: 14° 06.08' S	Longitude: 143° 10.13' E

Helicopter details

Manufacturer and model:	Robinson Helicopter Company R22 BETA	
Registration:	VH-PFX	
Serial number:	3464	
Type of operation:	Aerial mustering	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – 1 (Minor)	Passengers – 0
Aircraft damage:	Destroyed	

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 operations involving the travelling public.

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.