



Australian Government

Australian Transport Safety Bureau

Wirestrike and collision with terrain involving Robinson R22, VH-LYW

88 km NE Roma, Queensland, 20 February 2016

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Addendum

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Wirestrike and collision with terrain involving Robinson R22, VH-LYW

What happened

On the morning of 20 February 2016, the pilot of a Robinson R22 helicopter, registered VH-LYW, was conducting aerial cattle mustering operations on a property about 88 km northeast of Roma, Queensland.

The pilot had mustered in that paddock several times previously, and was aware of a set of high voltage transmission wires that had been erected across the property in the previous 12 months.

Prior to commencing mustering, the pilot overflew the paddock, sighted the powerlines and formed a plan to muster the cattle from north to south, giving due consideration to the wires running east-west. The pilot then mustered the mob from north to south, and the helicopter remained above the wires during that time.

The pilot then saw two bullocks hidden in scrub, near a dam that was situated near to and just south of the powerlines, and returned to muster them up. The helicopter then descended below the level of the wires. The cattle would not turn back, so the pilot radioed a musterer on horseback to assist. The pilot turned the helicopter to leave the area as the horse and rider arrived. The pilot then saw another vegetated area near the dam, where cattle may be hidden from view, and flew the helicopter towards it.

While the pilot's focus was on searching for cattle in the scrub below, the helicopter neared the powerlines. The pilot's attention suddenly returned to the wires, and sighting them close in front at the same level, immediately commenced a near-vertical climb to try to avoid them. As the helicopter climbed, the pilot assessed that it was not going to clear the earth wire, and lowered the nose of the helicopter in an attempt to pass below the earth wire and above the other wires. The tail rotor blade struck the earth wire.

The helicopter was vibrating and the pilot turned it away from the wires. The tail rotor then failed and the helicopter yawed around. The helicopter descended rapidly and continued to rotate. The pilot entered an autorotation, and closed the throttle, overriding the governor. As the helicopter neared the ground, the low rotor revolutions per minute warning horn sounded, and the pilot raised collective¹ to try to cushion the landing. The helicopter collided with the ground nearly upright, and sustained substantial damage (Figure 1). The pilot was seriously injured.

Marking of overhead cables

The Australian Standard (AS) 3891.2-2008 *Air navigation – Cables and their supporting structures – Marking and safety requirements*, specified requirements for permanent and temporary marking of overhead cables and their supporting structure for visual warnings to pilots of aircraft involved in intentional and legal low-flying operations. The AS included examples such as powerlines in areas where aerial agricultural activities took place. An Appendix to the AS stated that markers should be installed where regular low-level flying operations take place, and that the responsibility for requesting their installation rests with the person requesting the planned low-level flying operations.

Additionally, other than for low-level flying, Part 1 of the AS 3891.1 *Permanent marking of overhead cables and their supporting structures for other than planned low level flying*, stipulated that any section of cable that had a height in excess of 90 m above a road, railway or navigable

¹ 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.

waterway should be marked. Cables above 90 m located in other places should be marked if they had a continuous span greater than 50 m.

Pilot comment

The pilot reported feeling substantial operational pressure to ensure no cattle were missed. They commented that this may have increased focus and attention on looking for cattle, and therefore momentarily lost awareness of the powerlines.

Figure 1: Accident site showing damage to VH-LYW



Source: Queensland Police

Safety message

Pilots and operators are reminded that they can ask the property owner and power company to have a wire marked if it presents a hazard to low-level operations, even if it is not required to be marked according to the Australian Standard due to its height and span.

ATSB research indicates that in 63 per cent of reported wirestrike incidents, pilots were aware of the position of the wire before they struck it. In this instance, the pilot was aware of the powerline, however, the pilot's attention was diverted to looking for cattle, and they did not maintain awareness of the wires.

The Aerial Agricultural Association of Australia suggests a way to keep focus is to ask yourself:

- Where is the wire now?
- What do I do about it?
- Where am I in the paddock?

For further risk management strategies for agricultural operations, refer to the [Aerial Application Pilots Manual](#).

The ATSB publication [Avoidable Accidents No. 2 – Wirestrikes involving known wires: A manageable aerial agricultural hazard](#), explains strategies to help minimise the risk of striking wires while flying. Pilots are reminded to avoid unnecessary distractions and to refocus when distracted. Distraction, combined with difficulty in seeing wires makes them extremely hard to avoid at the last minute.

General details

Occurrence details

Date and time:	20 February 2016 – 0808 EST	
Occurrence category:	Accident	
Primary occurrence type:	Wirestrike	
Location:	88 km NE Roma Aerodrome, Queensland	
	Latitude: 26° 04.98' S	Longitude: 149° 29.50' E

Helicopter details

Manufacturer and model:	Robinson Helicopter Company R22 Beta	
Registration:	VH-LYW	
Serial number:	4482	
Type of operation:	Aerial work – Aerial mustering	
Persons on board:	Crew - 1	Passengers - 0
Injuries	Crew - 1	Passengers - 0
Aircraft 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 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.