Australian Government
Australian Transport Safety Bureau

Wirestrike involving a Robinson R44, VH-HJT

28 km S of Cootamundra aerodrome, New South Wales, 17 December 2013

ATSB Transport Safety Report
Aviation Occurrence Investigation
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Addendum

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Wirestrike involving a Robinson R44, VH-HJT

What happened

On 16 December 2013, the pilot of a Robinson R44 helicopter, registered VH-HJT, had completed a full day of aerial agricultural work, after which he reported feeling dehydrated and tired from the time pressures involved with the operation. He then attended a briefing for the next day's operations with the land owner, which involved aerial spraying of weeds on three properties. The briefing specified the areas to be sprayed; however, no maps or detailed information regarding the operation were provided to the pilot.

The next day, due to a series of delays, operations commenced at about 0800 Eastern Daylight-savings Time (EDT).[1] The pilot reported that he felt well and rested, but that at that time, he was feeling time pressure to complete the job and frustrated at the inadequacy of the preparations.

After completing five loads of spraying, the pilot elected to land the helicopter to discuss the remaining areas to be sprayed with the land owner. He was reminded of a rocky gully with blackberries that needed to be sprayed, which was away from the area he had been working on earlier. He did not recall that gully being mentioned at the briefing the night before and he was not alerted to the existence of any power lines. The pilot then overflew the gully and did not observe any power lines or power poles.

The pilot then commenced spraying the gully, which required looking out of the helicopter window and door towards the ground. He then sighted power lines (Figure 1) just as the helicopter main rotor disc struck the wires. The pilot immediately conducted a precautionary landing. The helicopter sustained substantial damage to the main rotor blades (Figure 2). The pilot was uninjured. The strike also resulted in insulators being detached from the 22,000 volt power lines.

Figure 1: Unknown powerline

Source: Pilot

Figure 2: Damage to VH-HJT

Source: Pilot

[1] Eastern Daylight-savings Time (EDT) was Coordinated Universal Time (UTC) + 11 hours.

Pilot comments

The pilot believed that a series of factors contributed to the accident and that delaying operations until these had been resolved may have averted it. These factors included:

- He had not been feeling well at the briefing, but was unable to defer it until the following day.
- There was insufficient information and documentation regarding the operation provided at the briefing.
- There was a discrepancy between the planned and actual chemical load required for the operation, resulting in insufficient chemical remaining to complete the required areas. The pilot therefore elected to land and discuss the rest of the spraying operation with the land owner.
- He was conducting 'spot' spraying, which required him to focus more on the ground below, rather than to the front as for large area spraying.
- The pressure he felt to complete the job was largely self-imposed.

Safety action

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Helicopter operator

As a result of this occurrence, the operator has advised the ATSB that they are taking the following safety actions:

- purchasing a computer and printer to be used for planning operations to ensure all maps and overlays are available for the briefing and can be printed for the pilots
- obtaining maps and global positioning system (GPS) data from the power company regarding the location of power lines
- GPS units are being upgraded to enable power wires and obstacles to be depicted on the GPS screen used by company pilots. Training will also be provided in the use of the technology.
- ensuring sufficient and accurate information is provided to pilots prior to commencing spraying operations
- the operator will emphasise to pilots the importance of conducting a thorough inspection prior to application of chemical and at any time during the application as required.

Safety message

Research conducted by the ATSB identified 180 wirestrike accidents between 2001 and 2010. Of these, 100 occurred during agricultural operations.

The research report advises pilots to have an up-to-date and detailed map with powerlines and other hazards clearly marked. Pilots of some wirestrike accidents reported to the ATSB that the maps they received from clients did not have powerlines clearly marked on the map. The report further cautioned pilots not to rely on the maps solely and to conduct an aerial reconnaissance to confirm wire locations and other hazards. Having a plan and a procedure to minimise the risk of wirestrike is a valuable mitigation strategy. The ATSB report *Wirestrikes involving known wires: A manageable aerial agriculture hazard* is available at www.atsb.gov.au/publications/2011/avoidable-2-ar-2011-028.aspx.

For further risk management strategies for agricultural operations, the Aerial Application Pilots Manual is available from www.aerialag.com.au/Home.aspx.

This incident highlights the importance of thorough planning. The use of all available resources and technologies in planning can reduce the pilot's workload and risk of an event. A combination

of factors such as poor planning, time pressure and local conditions may lead a pilot to believe there is increased risk in an operation. Delaying the operation until these have been resolved may reduce the associated risk to an acceptable level.

General details

Occurrence details

Date and time:	17 December 2013 – 1005 EDT	
Occurrence category:	Accident	
Primary occurrence type:	Wirestrike	
Location:	28 km S of Cootamundra aerodrome, New South Wales	
	Latitude: 34° 51.23' S	Longitude: 148° 00.13' E

Helicopter details

Manufacturer and model:	Robinson Helicopter Company, R44 II	
Registration:	VH-HJT	
Serial number:	10422	
Type of operation:	Aerial work	
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.