Australian Government
Australian Transport Safety Bureau

Wirestrike involving an Air Tractor AT-502, VH-CJY

near Temora aerodrome, New South Wales, 15 October 2013

ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2013-180
Final – 10 December 2013

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

Publishing information

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Addendum

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Wirestrike involving an Air Tractor AT-502, VH-CJY

What happened

Damage to VH-CJY

Source: NSW Police Force

On 15 October 2013, the pilot of an Air Tractor AT-502 aircraft, registered VH-CJY, was preparing to conduct aerial spraying operations about 33 km west of Temora, New South Wales.

The owner of the property had provided the pilot with a map of the area to be sprayed, which included powerlines (Figure 1).

Prior to commencing spraying, the pilot overflew the paddock twice, to formulate a spraying plan. The pilot identified the powerlines marked on the map and looked for others that may not have been depicted. The pilot reported that, as wires are generally difficult to see, he looked for clues that would indicate the presence of powerlines, such as poles, houses, cross arms and insulators. He observed a derelict homestead to the south of the paddock, but assessed that it was unlikely there would be any associated powerlines, and did not see any indications of other wires in the area.

The pilot elected to spray the paddock using a north-south pattern and set up the aircraft's global positioning system (GPS) to fly a race-track pattern over the paddock.

There was a road and a row of trees to the south of the paddock, with double power lines (as marked on the map) about 130 m north of the tree-line (Figure 2). The pilot planned to fly over the trees and under the power lines on each leg, before turning to commence the next run.

At about 1730 Eastern Daylight-saving Time (EDT),[1] when to the south of the paddock at about 15-20 ft above ground level (AGL), after turning to commence the next run, the pilot saw a cross arm indicating the presence of a wire attached to the derelict homestead (Figure 2). He decided not to climb the aircraft as it would have collided with the larger double power lines. The pilot then heard a bang, with the aircraft's propeller spinner contacting the wire.

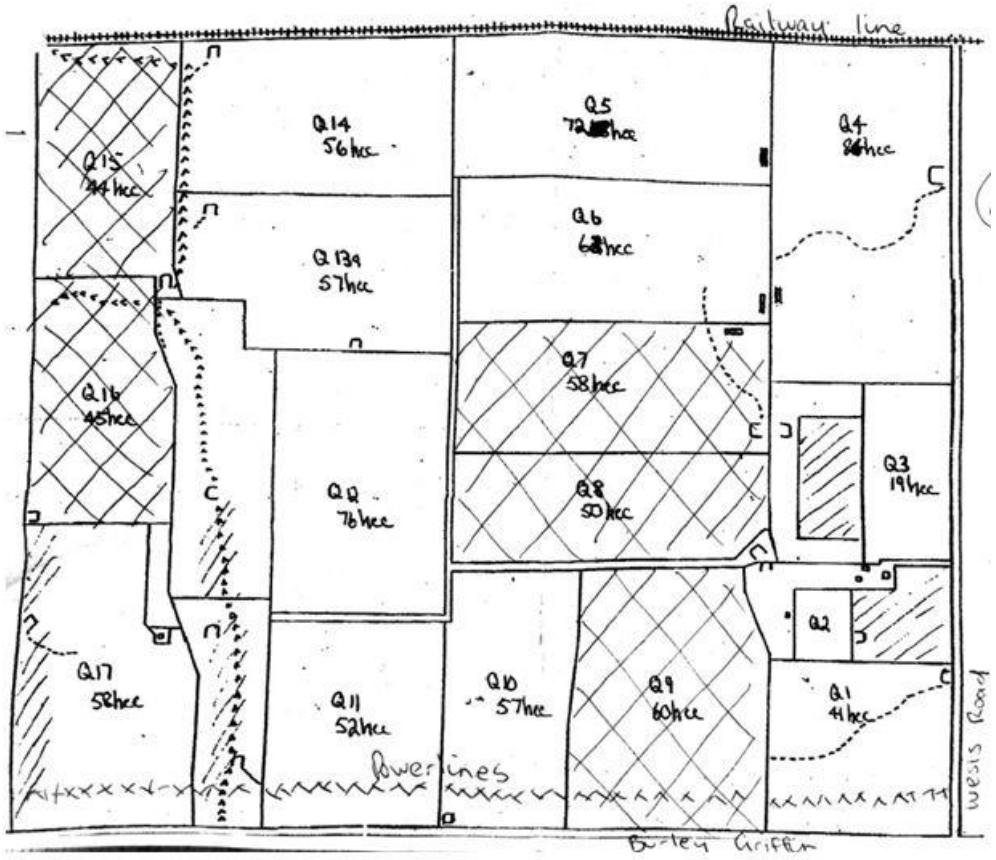
The pilot flew the aircraft under the double power lines and climbed to about 150 ft AGL. The engine was vibrating, but continued to produce power. The pilot elected to continue towards the airstrip and not to release the chemical load to minimise the environmental impact.

The engine then steadily lost power. The pilot secured the engine and conducted a forced landing in a paddock. During the landing, the aircraft ground-looped and the left wing contacted the ground. The aircraft was substantially damaged and the pilot was not injured.

The pilot did not see the wire at any stage, nor was it marked on the map provided by the property owner.

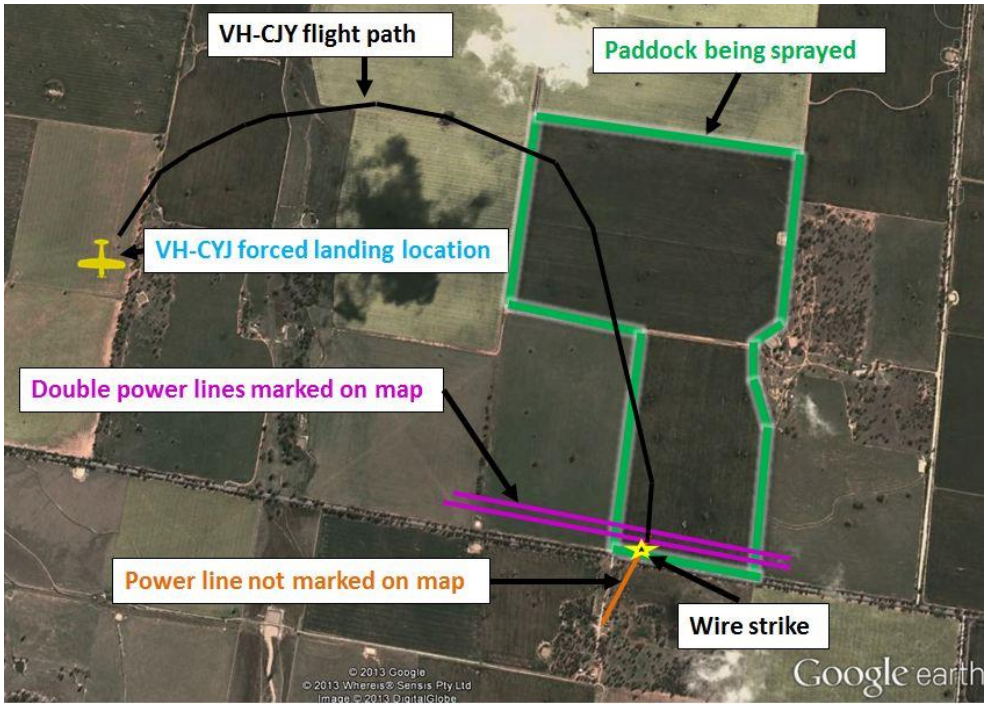
[1] Eastern Daylight-savings Time (EDT) was Coordinated Universal Time (UTC) + 11 hours.

Figure 1: Map of property to be sprayed



Source: Pilot

Figure 2: Property, location of wires and flight path of VH-CJY



Source: Google earth and pilot

Pilot comments

The pilot reported the following observations:

- His attention was divided between looking outside and watching the GPS.
- If he had released the chemical load after striking the wire, the aircraft may have had improved performance and sustained less damage on landing.
- Some operators provide the pilot with a Google Earth map and an overlay file provided by the energy company with all powerlines marked. Use of this technology improves the completeness of information provided to the pilot and reduces the risk of wirestrike.

In addition, the pilot reported that he had in excess of 22,000 hours of flying experience in agricultural aircraft and helicopters. He had devised a three-step procedure to minimise the risk of wire strike, which had been incorporated into wire awareness training courses:

1. ***F****ind the wires:* conduct a fly-around, look for indicators of wires.
2. ***F****ormulate a plan* to do the job and minimise exposure to the wires.
3. *Don't* ***F****orget them:* keep the wire hazards front-of-mind by using 'single-crew CRM'[2]: speak aloud as you cross the wire, brief yourself about the location of each wire.

Safety message

Research conducted by the ATSB identified 180 wirestrike accidents between 2001 and 2010. Of these, 100 occurred during agricultural operations. The research also found that 63 per cent of pilots were aware of the wire before they struck it. Not all wires are marked; with unmarked wires difficult to see with the naked eye.

The report advises pilots to have an up-to-date and detailed map with powerlines and other hazards clearly marked. Some power companies have coverage maps available to the public. 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.

It further cautions pilots not to rely on the maps 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.

[2] CRM: Crew resource management

General details

Occurrence details

Date and time:	15 October 2013 – 1800 EDT	
Occurrence category:	Serious incident	
Primary occurrence type:	Wirestrike	
Location:	near Temora Airport, New South Wales	
	Latitude: 34° 25.28' S	Longitude: 147° 30.70' E

Aircraft details

Manufacturer and model:	Air Tractor Inc.	
Registration:	VH-CJY	
Serial number:	5002-0093	
Type of operation:	Aerial work - agriculture	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Minor	

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.