



Australian Government

Australian Transport Safety Bureau

Wirestrike involving Enstrom 480B, VH-VDC

Near Trida Victoria, 17 February 2013

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Addendum

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Wirestrike involving Enstrom 480B, VH-VDC

What happened

On 17 February 2013, an Enstrom 480B helicopter, registered VH-VDC (VDC), was engaged in Agricultural operations, spraying blackberry and ragwort weed near Trida, Victoria (Figure 1). The pilot was the only person on board and had commenced spraying the paddock at about 1200 Eastern Daylight-saving Time¹. On the 4th and final load of chemical to be applied to the paddock the Global Positioning System (GPS) lost reception during the application run. The pilot immediately aborted the run and climbed to about 400 ft above ground level and attempted to resolve the issue with the GPS.

Wirestrike - Enstrom 480B

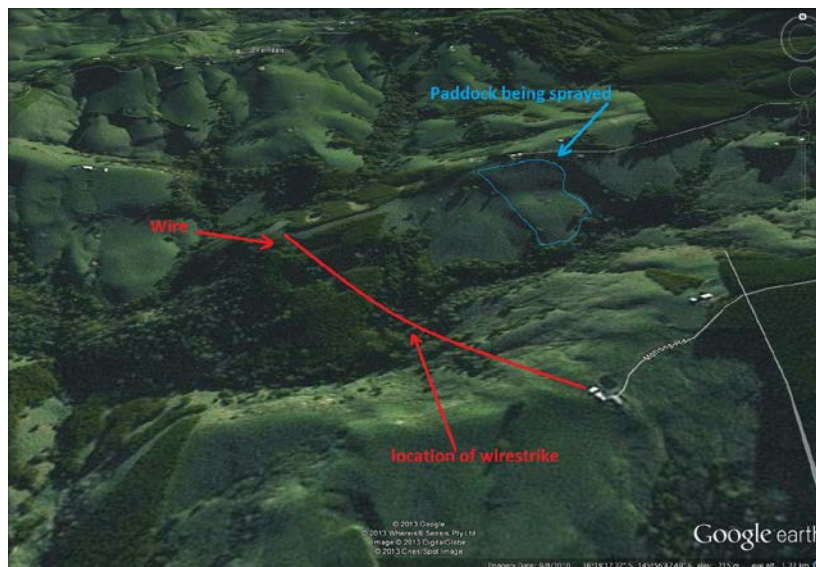


Source: Aircraft Operator

Once the GPS regained reception, the pilot commenced a left turn at about 50 knots indicated airspeed to return to the paddock and recommence the application run. The pilot then heard a loud bang and felt a shudder through the airframe.

The pilot performed a run on landing in the nearest clearing, as he had some difficulty in maintaining yaw control, because the tail rotor control cables had lost tension. The pilot was able to exit the helicopter without injury, however, the helicopter was substantially damaged.

Figure 1: Location of paddock and wire



Source: Google Earth

Pilot experience and comments

The pilot held a Commercial Pilot Licence (CPL) Helicopter and Aeroplane and Grade 1 Agricultural rating. He had about 18,500 hours total time, with about 6,000 hours in helicopters, the majority being in low level agricultural type operations. The pilot had previously completed a wire awareness course.

¹ Eastern Daylight-saving Time (EDT) was Coordinated Universal Time + 11 hours

The pilot commented that he aborted the application once he realised that there was a problem with the GPS. This was in accordance with the standard procedure, recommended by the Aerial Agricultural Pilots Association of Australia, not to attend to any problem below 300 ft above ground level other than flying the helicopter.

The pilot commented that he initially thought that he had an inflight failure, due to his height above ground level and did not consider a wirestrike, until he caught a glimpse of a wire falling away from the airframe. The pilot considered that the wire had impacted the right side of the helicopter in front of the door, before going up the mast and being severed by a main rotor blade.

The pilot added that in the event of a similar situation he would not only climb, but also turn and remain within the area previously surveyed for low level hazards while resolving the problem.

ATSB comment

The wire struck was a single, three strand 2.75mm galvanised steel wire with a voltage of 12.7 kv. The span of the wire was approximately 841.2 m with a height above ground that varied from 8.3 m (27 ft) at the lowest point to 106.3 m (348 ft) at the highest point.

Marking wires can enhance the visibility of wires. Wires that fall under certain criteria, such as in areas where regular low-level flying operations take place, are recommended² to be marked by the Australian Standards.³ Further, wires are recommended to be marked if any section of cable has a height greater than 90 m (295 ft) and a continuous span greater than 50 m.⁴

The owner of the wire advised the ATSB that the wire struck was marked with five marker discs. However, the pilot of VDC advised that the wire was unmarked at the time of the wirestrike. The ATSB was unable to independently confirm that the marker discs were still in place at the time of the wirestrike.

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.

Wire owner

The owner of the wire has advised the ATSB that they are taking the following safety action:

Wire marking

The broken cable was replaced to restore electricity supply as soon as possible and was replaced without new markers being installed. However, arrangements are being made to install markers on the line.

Safety message

Wirestrikes pose an on-going problem to aerial agricultural operations. There are 180 wirestrike accidents in the ATSB database for the period between 2001 and 2010. Of these, 100 involved agricultural flying.

² Standards are voluntary consensus documents that are developed by industry agreement and their application is by choice unless their use is mandated by government or called up in a contract.

³ Australian Standard 3891.2, 2008, Part 2: Marking of overhead cables for planned low level flying operations.

⁴ Australian Standard 3891.1, 2008, Part 1: Permanent marking of overhead cables and their supporting structures for other than planned low level flying.

Despite the advantages of marking a wire, not all wires are marked and it is simply not feasible to mark all wires. It is important that pilots and operators raise any concerns they may have about the visibility of a wire with the wire owner. Electricity distribution and transmission companies may install aerial markers on wires upon request. Land owners can request to have wires on their property marked and pilots who have a need to fly low-level near powerlines can also request wires to be fitted with markers.

General details

Manufacturer and model:	Enstrom 480 B	
Registration:	VH-VDC	
Type of operation:	Agricultural	
Occurrence category:	Accident	
Primary occurrence type:	Wirestrike	
Location:	18 km east of Ballarat, Victoria	
	Latitude: 38° 19.95' S	Longitude: 145° 54.27' E
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 Bureau 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.