



Australian Government

Australian Transport Safety Bureau

Wirestrike involving Kavanagh G-450 balloon, VH-RUW

Mareeba, Queensland, 7 February 2016

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Addendum

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Wirestrike involving Kavanagh G-450 balloon, VH-RUW

What happened

On 7 February 2016, the pilot of a Kavanagh G-450 balloon, registered VH-RUW, conducted a 30-minute scenic flight from Mareeba, Queensland with 18 passengers on board.

Shortly before 0627 Eastern Standard Time (EST), the balloon approached the target landing area. The pilot referred to his iPad, which showed the location of the balloon and a set of powerlines strung across the paddock. The balloon was then about 30 ft above ground level, travelling at a ground speed of 7 kt, with a descent rate of 50 ft per minute. The pilot confirmed that all the passengers were in the correct landing position.

The pilot sighted two power poles either side of the landing area, but was unable to see the wires. The pilot estimated where the wires would be based on the crossbars on the poles, and assessed that the balloon had sufficient height to pass over the powerlines. The pilot then sighted the powerlines, about half a metre ahead of and below the basket. The pilot applied all four burners to try to climb and avoid the powerlines, but the left side of the basket contacted one wire, breaking it. The pilot heard a loud fizzing noise and immediately realised they had struck a powerline.

The pilot checked that the passengers were all ok and still in the landing position, and checked that there was no evidence of fire. Due to the amount of heat in the balloon, the balloon was climbing. The pilot then conducted a normal controlled descent and landing into a paddock about 500 m beyond the original planned landing site. The balloon landed without further incident and no one was injured. The wicker basket sustained scorching (Figure 1) and a stainless steel cable fixed to the underside of the basket sustained arc damage.

Figure 1: Scorch marks on wicker basket



Source: Balloon operator

Landing site

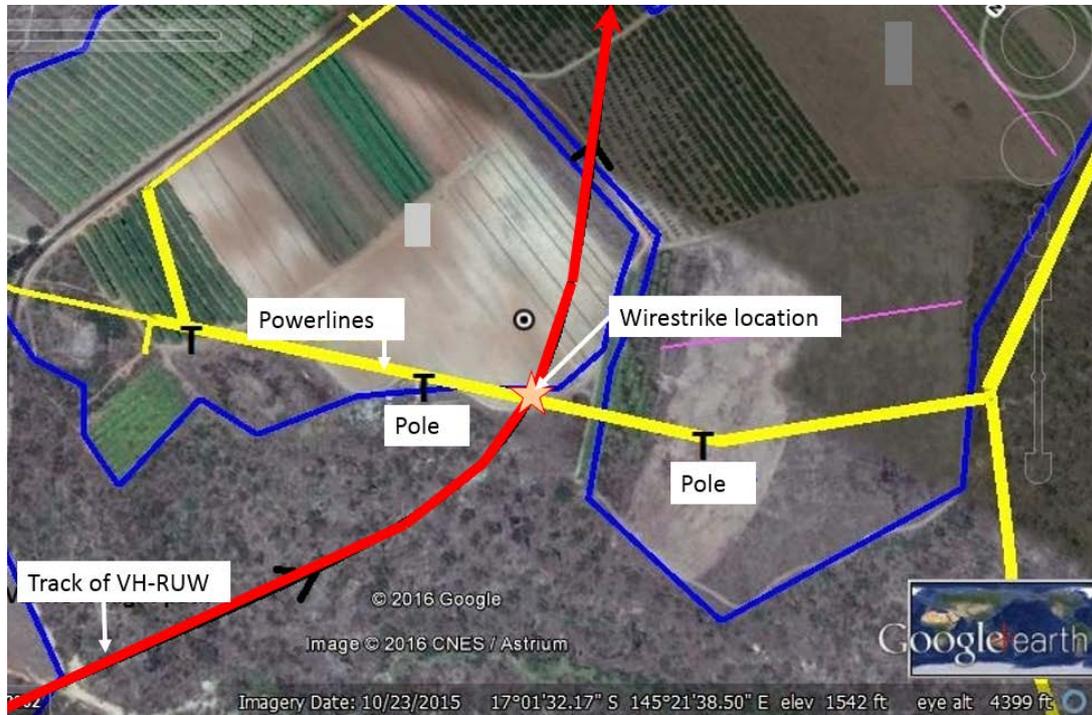
The balloon operator and the pilot had used the paddock on many occasions for both launching and landing.

The balloon's track crossed the powerlines at an angle (Figure 2). As the balloon approached the wires, the pilot lost sight of the pole to the left and used the pole on the right to gauge their height. However, the left pole was situated on a hill and higher than the right pole, and the wires sloped

upwards from the right pole to the left. The pilot’s assessment of sufficient height was based on the lower pole; consequently, the left side of the basket struck the wires to the high side.

The powerlines were difficult to see as the area was heavily vegetated. The sun was to the right of the balloon and did not affect the pilot’s vision of the wires.

Figure 2: Balloon track and location of powerlines



Source: Balloon operator

Powerlines and markings

The balloon operator used the following strategies to improve powerline awareness:

- The operator had developed an iPad application which pilots used in-flight as an early powerline warning system, which showed all of the powerlines on a google earth map, and the balloon’s current location. The energy company provided updates to the location of the powerlines at six monthly intervals.
- The operator maintained a map of powerlines identified by the company pilots to be of low visibility. These were highlighted on the application to draw pilots’ attention.
- Company pilots were required to visit the site of identified low-visibility powerlines to familiarise themselves with the location of the lines.
- In addition, ground personnel were expected to identify from the ground any powerlines in the balloon’s flight path, which may pose a risk to the balloon on approach to land, and to confirm that the pilot was aware of the lines and their location.
- The balloon operator had designated the powerlines at the site to be low-visibility, and had paid the energy provider to fit white marker flags with a reflective green centre to the wires to increase the pilot’s ability to see the lines (or flags). Despite being clearly visible from the ground, the pilot was unable to see the flags. This may have been due to the effect of the wind deflecting the flags at an angle, and possibly their colour.

Pilot comments

Two other balloons had already landed in the paddock. The pilot elected to fly on rather than conduct an emergency descent after the wirestrike, because a high rate of descent from that

height carried a risk of injury to the pilot and passengers, and to avoid a collision with the balloons that had landed ahead.

Safety action

Balloon operator

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

Review of powerline markings

The operator is investigating the installation of more visible three dimensional powerline markings such as balls.

Communication to company pilots

The operator will circulate a copy of their investigation report and findings to all company pilots. Pilots are reminded to consider the possibility of sloping powerlines and apply an appropriate clearance margin when overflying them.

Safety message

The ATSB research report, [Wirestrikes involving known wires: A manageable aerial agriculture hazard](#), explains a number of strategies to assist pilots manage the risk of wirestrikes. These include:

- ensure you are fit to fly
- prioritise safety
- conduct thorough pre-flight planning
- avoid unnecessary distractions
- don't rely on your ability to react in time to avoid a wire
- have a systematic approach to safely managing wires.

The [Australian Ballooning Federation](#) produced safety advisory notice pilot circular number 18 in 2012, detailing strategies to avoid wirestrikes.

General details

Occurrence details

Date and time:	7 February 2016 – 0640 EST	
Occurrence category:	Serious incident	
Primary occurrence type:	Wirestrike	
Location:	Mareeba, Queensland	
	Latitude: 17° 01.40' S	Longitude: 145° 21.40' E

Balloon details

Manufacturer and model:	Kavanagh Balloons G-450
Registration:	VH-RUW
Serial number:	G450-401
Type of operation:	Ballooning

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.