



**Australian Government**

**Australian Transport Safety Bureau**

# Hard landing involving Kavanagh Balloons E-300 VH- LPG

near York, Western Australia, 16 July 2016

**ATSB Transport Safety Report**  
Aviation Occurrence Investigation  
AO-2016-080  
Final – 14 October 2016

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

#### **Publishing information**

**Published by:** Australian Transport Safety Bureau  
**Postal address:** PO Box 967, Civic Square ACT 2608  
**Office:** 62 Northbourne Avenue Canberra, Australian Capital Territory 2601  
**Telephone:** 1800 020 616, from overseas +61 2 6257 4150 (24 hours)  
Accident and incident notification: 1800 011 034 (24 hours)  
**Facsimile:** 02 6247 3117, from overseas +61 2 6247 3117  
**Email:** [atsbinfo@atsb.gov.au](mailto:atsbinfo@atsb.gov.au)  
**Internet:** [www.atsb.gov.au](http://www.atsb.gov.au)

© Commonwealth of Australia 2016



#### **Ownership of intellectual property rights in this publication**

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia.

#### **Creative Commons licence**

With the exception of the Coat of Arms, ATSB logo, and photos and graphics in which a third party holds copyright, this publication is licensed under a Creative Commons Attribution 3.0 Australia licence.

Creative Commons Attribution 3.0 Australia Licence is a standard form license agreement that allows you to copy, distribute, transmit and adapt this publication provided that you attribute the work.

The ATSB's preference is that you attribute this publication (and any material sourced from it) using the following wording: *Source:* Australian Transport Safety Bureau

Copyright in material obtained from other agencies, private individuals or organisations, belongs to those agencies, individuals or organisations. Where you want to use their material you will need to contact them directly.

#### **Addendum**

Page	Change	Date

# Hard landing involving Kavanagh Balloons E-300, VH-LPG

## What happened

On the morning of 16 July 2016, a Kavanagh Balloons E-300 hot-air balloon, registered VH-LPG, departed for a one-hour scenic flight from Irishtown, Western Australia (WA). On board were the pilot and 16 passengers.

The balloon departed at about 0700 Western Standard Time (WST), and reached a maximum altitude and speed of about 3,500 ft above mean sea level (AMSL) and 39 kt, respectively. The balloon tracked in a south-easterly direction. During the flight, the pilot instructed the ground crew to proceed to the racecourse at York, WA, to meet the balloon for the landing. After about 52 minutes of flight covering a distance of about 33 km, the pilot made an approach to a vacant paddock near York. The balloon made an initial ground contact with about 15 kt forward speed. When the balloon struck the ground, the pilot was ejected from the balloon basket. The basket was then dragged over the top of the pilot as the balloon envelope continued to deflate. The balloon envelope came to rest draped over trees and a fence with the basket lying on its side (Figure 1).

The pilot was seriously injured and air lifted to the Royal Perth Hospital. One passenger received a minor injury and the balloon sustained minor damage.

**Figure 1: Final resting position of VH-LPG**



Source: WAPOL

## Weather

The weather forecast for the area (ARFOR)<sup>1</sup> predicted wind at 3,000 ft AMSL to be from the north-north-west at 40 kt. The closest recorded aerodrome forecast (TAF)<sup>2</sup> or regular report (METAR)<sup>3</sup> was Cunderdin, about 49 km to the north-east. The forecast wind at Cunderdin was from the

<sup>1</sup> An area forecast issues for the purposes of providing aviation weather forecasts to pilots. Australia is subdivided into a number of forecast areas.

<sup>2</sup> Aerodrome forecasts are a statement of meteorological conditions expected for a specific period of time, in the airspace within a radius of 5 NM (9 km) of the aerodrome.

<sup>3</sup> Routine aerodrome weather report issued at fixed times, hourly or half-hourly.

north-north-west at 10 knots. At 0630 the recorded wind was north-north-easterly at 12 kt and at 0700 from the same direction at 6 knots.

### ***Kavanagh Balloons flight manual***

The procedures for the security of the pilot and passengers for a Kavanagh Balloon are incorporated into the *Kavanagh Balloons flight manual*, Section 4 – *Normal Procedures*.

- Paragraph 4.11.10 Pilot restraint harness, states ‘If a pilot restraint harness is fitted, it should be worn during take-off and for the duration of the flight including the landing... The restraining strap should be shortened to restrict the movement of the pilot within the compartment in preparation for the landing. This will maintain the correct pilot position during the landing.’
- Paragraph 4.12 Approach to landing, states ‘When horizontal landing speed is expected, passengers should be made aware that the basket may tip forward and they should take a lower than normal landing position to avoid being thrown forwards out of the basket.’

### ***Civil Aviation Regulation 251***

Civil Aviation Regulation (CAR) 251 details the circumstances in which pilots and passengers must wear a seat belt or safety harness, which includes during take-off and landing.

### ***Ballooning exemption***

Civil Aviation Order 95.53 section 3 Exemption 3.1 (f) specifically exempts manned balloons engaged in charter operations from CAR 251. However, the Civil Aviation Safety Authority have indicated that the use of a pilot restraint in passenger transport balloons is a proposal under consideration, which is subject to consultation.

## **ATSB comment**

The pilot of the balloon was seriously injured during this accident and therefore not able to participate in an interview. There was no pilot restraint harness fitted to the balloon on the incident flight.

## **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.

### ***Operator***

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

#### ***Pilot safety harnesses***

The operator has modified all their hot-air balloons and fitted them with pilot restraint harnesses.

## **Safety message**

Landing with forward speed in a balloon poses the risk of personnel thrown forwards out of the balloon basket, which can then place them in the path of the basket. Passengers are briefed about this risk and are able to use both hands to secure themselves to a handhold for landing. However, the balloon pilot is required to continue using their hands to control the balloon throughout the landing sequence and is therefore exposed to a higher risk of being thrown out of the balloon basket.

Installation and use of a pilot restraint harness, in accordance with the balloon and harness manufacturers’ recommendations, will reduce the risk of a pilot being thrown out of the balloon basket during landing.

## General details

### Occurrence details

Date and time:	16 July 2016 – 0752 WST	
Occurrence category:	Accident	
Primary occurrence type:	Hard landing	
Location:	Near York ALA, Western Australia	
	Latitude: 31° 52.42' S	Longitude: 116° 47.42' E

### VH-LPG

Manufacturer and model:	Kavanagh Balloons E-300	
Registration:	VH-LPG	
Serial number:	E300-361	
Type of operation:	Charter - passenger	
Persons on board:	Crew – 1	Passengers – 16
Injuries:	Crew – 1 Serious	Passengers – 1 minor
Aircraft 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 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.