Aviation Safety Investigation Report 198901556

Kavanagh D105 Hot Air Balloon

7 October 1989

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Occurrence Number: 198901556 **Occurrence Type:** Accident
Location: Bullengarook VIC
Date: 7 October 1989 **Time:** 740
Highest Injury Level: Serious
Injuries:

	Fatal	Serious	Minor	None
Crew	0	1	0	0
Ground	0	0	0	-
Passenger	0	1	4	0
Total	**0**	**2**	**4**	**0**

Aircraft Details: Kavanagh D105 Hot Air Balloon
Registration: VH-HUZ
Serial Number: KB074
Operation Type: Charter
Damage Level: Substantial
Departure Point: Sidonia VIC
Departure Time: 0620
Destination: Woodend VIC

Approved for Release: 28th November 1990

Circumstances:

The balloon was one of two launched from Sidonia. The operator's Senior Pilot, who was the pilot of the second balloon, obtained a general Area Forecast and a Melbourne Terminal Area forecast by telephone from the Melbourne Flight Service Centre prior to the accident flight. The forecasts, which indicated that conditions would be suitable until an upper ridge passed through the area, were passed to the pilot of VH-HUZ. Conditions were forecast to deteriorate gradually after 0700. The Senior Pilot also contacted a resident in the local area who reported that conditions were clear and there was no wind. A number of weather observation balloons were released and observed by the two pilots and these confirmed their view that the weather was suitable for flight. The passengers were briefed on the flight including which landing positions to adopt however, some of the passengers have indicated that they were not clear about the contents of the briefing. Both balloons successfully completed one flight of approximately 40 minutes before landing. One of VH-HUZ's gas cylinders was changed and new passengers boarded for a second flight. After takeoff the balloon drifted slowly to the south west for approximately 10 kilometres. The pilot increased altitude to pick up an easterly drift in order to avoid flight over a forest and to drift in the general direction of suitable landing areas. At the completion of the manoeuvre the pilot noticed the ground speed had increased and the balloon was encountering turbulence. Some passengers noticed the trees below were "boiling". The pilot continued towards his selected landing site, which was the last suitable area prior to the balloon crossing thickly wooded countryside, and he advised the passengers to expect a hard landing. The pilot aimed to land beyond a fence line on the up slope of one of two clear hills. The landing area was acceptable and had been used on previous occasions. During the descent the pilot was forced to change his approach technique because of a powerline in the area. Turbulence on the final approach caused the balloon to loose height more rapidly then expected and it touched down hard 90 metres short of the fence. The basket skipped up the hill as the pilot pulled

the parachute vent rip cord in an attempt to spill hot air, deflate the envelope and bring the balloon to a stop. The balloon collided with a fence strainer post and the pilot was knocked unconscious by the post before he could complete his task. The balloon continued up the hill, struck a second fence, continued down the lee side of the hill and stopped when it became entangled in a large tree approximately 787 metres beyond the initial touchdown point. The forecast wind speed at 2000 feet, at the time of the first flights, was 35 knots and subsequent observations indicate that the forecast was essentially correct. The weather observation balloons did not indicate a high upper wind speed to the pilot although one of the passengers observed a balloon "whip" away once it had reached 1500 to 2000 feet. A weather observation balloon was not released prior to the second takeoff. When the passengers were advised by the pilot to prepare for a hard landing they adopted a squat position rather than the correct position of standing with their knees flexed or bent. The pilot was carrying a portable radio which was thrown from the basket during the landing. There was a delay in activating rescue procedures when the radio could not be located.

Significant Factors:

The following factors were considered relevant to the development of the accident

1. The forecast change in the wind and turbulence occurred more rapidly than the pilot had anticipated. The pilot's incorrect expectations partly resulted from his using incomplete weather information. Additional information would have been available had the pilot or his representative contacted the Duty Forecaster and obtained an up to date weather assessment prior to the flight.

2. A weather observation balloon was not released prior to DEPARTURE of the second flight although the forecast indicated that significant changes would occur after that time. Had a weather balloon been launched it is possible that the pilot of VH-HUZ would have become aware of the changes and cancelled the flight.

3. During the final stage of the landing the balloon was affected by turbulence and the pilot was unable to prevent a premature touchdown.

4. Although the passengers had been briefed on the correct landing position not all of them understood the briefing and in the rush of the landing they adopted a squat position which research indicates can lead to more serious injury.

5. The pilot's attempt to complete the landing sequence was terminated when he was knocked unconscious by a post.

6. The balloon's landing continued unattended until it became entangled in a tree.

Reccomendations:

1. The CAA should remind commercial balloon operators to ensure that their pilots take advantage of all the weather forecasting facilities that are available including a briefing from an officer of the Bureau of Meteorology prior to undertaking a commercial flight. Consideration should be given to launching additional weather observation balloons, between flights, if the forecast indicates that significant weather changes are likely to occur during the period of the next flight.

2. The CAA should remind commercial balloon operators to ensure that passengers have a clear understanding of the safety procedures covered during the briefing.

3. The CAA should examine the crashworthiness and survivability aspects of high speed balloon landings with special emphasis on the positioning and stance of passengers in such a landing.

4. The CAA should examine the need to develop regulations to require radio transceivers carried as mandatory equipment on commercial balloon flights to be secured so as to ensure availability at all times.