Aviation Safety Investigation Report 198902581

Kavanagh D-77

11 October 1989

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Occurrence Number: 198902581 **Occurrence Type:** Accident
Location: 11 km NW Mudgee NSW
Date: 11 October 1989 **Time:** 647
Highest Injury Level: Fatal
Injuries:

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

Aircraft Details: Kavanagh D-77
Registration: VH-HVC
Serial Number: KBO73
Operation Type: Charter
Damage Level: Destroyed
Departure Point: 7 km NW Mudgee NSW
Departure Time: 0600
Destination: Local Area

Approved for Release: 3rd October 1990

Circumstances:

Prior to landing in a large paddock, the pilot advised the passengers that the balloon would touch down after it passed a dead tree about half way along. The passengers assumed the pre-briefed crouched position and braced themselves for the landing. Just after the balloon passed the dead tree one of the passengers observed two power cables running across the flight path five metres in front of the balloon. The pilot was alerted and almost simultaneously, the balloon's suspension cables struck the power line. After contact the balloon slid along the conductors for approximately 30 metres, pulling them downwards, until the basket contacted the ground. One passenger reported receiving an electric shock causing the pilot to order an evacuation and he and two passengers left the basket. The pilot was later observed reaching towards the balloon from outside the basket. Both the pilot and the passenger, who had remained in the basket, were electrocuted. Fire subsequently destroyed the balloon. The power cables ran across the paddock in a single span with a distance between the poles of 366 metres. The supporting poles were in adjoining paddocks and hidden by trees. The type and layout of the cables made them very difficult to see. Evidence indicates the pilot was not aware of the location of the power line prior to the flight, and he did not see them until just prior to impact and at that point it was too late to avoid them. The retrieval crew were following the balloon and did not arrive at the landing site until after the accident. The power cables made contact with the uninsulated, inadequately bonded envelope suspension cables attached to the two forward corners of the basket. There was some evidence that a lack of bonding may have caused an electrical potential difference across the basket which in turn led to the shock reported by the passenger. It could not be determined which of the metal components the pilot and passenger were touching when they were electrocuted. Injuries received by the pilot and damage to the fabric covered metal parachute vent line, indicated that it was probable that the pilot touched the vent line allowing the current to flow to ground. The fabric cover on the vent line was insufficient insulation for the magnitude of the current involved. Each of the power cables was protected by a fuse and although both these fuses

worked, the failure sequence did not prevent the two fatalities. Had both cables been earthed earlier in the sequence, it is probable that the fuses would have blown thus protecting the balloon's occupants. The actions of the pilot and passengers indicated a lack of knowledge of safety practices to be used when in the vicinity of high voltage power cables.

Significant Factors:

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

1. The pilot was unfamiliar with the area where he intended to land and he was not aware of all the potentially dangerous obstructions, such as power lines.

2. The pilot did not see the power cables until it was too late to avoid them.

3. Inadequately insulated and bonded balloon components which came into contact with live power cables and a lack of a suitable method of safely grounding the balloon after power line contact.

4. There was a lack of adequate knowledge of safety practices to be used when in the vicinity of high voltage power cables.

Reccomendations:

It is recommended that the Civil Aviation Authority, in conjunction with the Australian Ballooning Federation and Commercial Balloon Operators, reassess existing requirements for commercial balloon operations and surveillance of standards and in particular give consideration to

1. Introducing a requirement that operators of fixed duration flights, be required to have adequately surveyed all proposed landing sites within its area of operations.

2. Ensuring as far as practicable, that at least one member of the retrieval crew is either present at the proposed landing site, or in such other position as to be able to brief the pilot on obstacles and assist with rapid deflations and evacuations as required.

3. Introducing a safety education program which provided pilots with advice on electrical contact safety procedures.

4. Redefining the Flight Manual Emergency Landing procedures concerning the briefing of passengers before ground contact, with particular emphasis on orderly basket evacuation and electrical contact safety procedures.

5. Initiating manufacturer approved methods, of reducing the amount of exposed metal and providing electrical bonding of all metal components, to achieve neutral electrical potential difference between any two components.

6. Initiating a research and development program into on-board, electronic, directional, power line detection devices.

7. Initiating a research program into whether or not a pre-touchdown electrical grounding device should be fitted to all balloons.