INCIDENT

Aircraft Type and Registration:	Cameron Z-275 Balloon, G-TCAS
No & Type of Engines:	Cameron Stealth and Shadow triple burners
Year of Manufacture:	2003
Date & Time (UTC):	8 April 2007 at 1858 hrs
Location:	Souldrop, Bedfordshire
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 1 Passengers - 12
Injuries:	Crew - 1 (Serious) Passengers - 1 (Minor)
Nature of Damage:	None
Commander's Licence:	Commercial Pilot's Licence
Commander's Age:	58 years
Commander's Flying Experience:	1,659 hours (of which 1,500 hours were on type) Last 90 days - 6 hours Last 28 days - 6 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The pilot made a normal approach to a suitable landing area in a large field. The surface wind was 6 to 10 mph and in order to minimise the dragging of the passenger basket across the field, the pilot used the rapid deflation line to deflate the envelope. On touchdown the pilot was ejected from the basket, which passed over him causing serious injuries. The pilot had not connected his safety harness to the restraint line; he was therefore not secured to the basket and was particularly vulnerable when operating the rapid deflation line.

History of the flight

The flight was planned to depart from a hotel near Northampton and to last for approximately one hour, with the possibility of landing at the Santa Pod Raceway. The weather conditions were generally good with the visibility in excess of 10 km and small amounts of cloud at about 5,000 ft. The surface wind was estimated to be gusting between 6 to 10 mph and the 2,000 ft wind was forecast to be westerly at 12 to 15 kt.

The pilot completed the passenger flight and safety briefing and after a short delay the balloon was inflated. The pilot and passengers boarded the basket and the balloon departed at 1800 hrs. Despite limited steerage between the surface and 1,800 ft the balloon generally followed a direct track to the Santa Pod Raceway and the pilot commenced an approach. During the approach, he was contacted on the balloon radio frequency by Santa Pod to confirm that he was permitted to land but he was

warned that cars were using the competition area. The balloon was tracking directly towards the end of the competition area and with the limited steerage available the pilot decided not to land at Santa Pod.

During the approach the pilot had noted a suitable landing area in a large field approximately 0.5 nm beyond Santa Pod and he climbed the balloon to about 100 ft to assess it. The pilot briefed the passengers to prepare for landing and warned them that the landing would be firm with a possibility of the basket tilting and dragging. The passengers adopted their briefed landing position with their backs towards the direction of travel and their knees bent. They all held on to the hand holds provided on the sides of the basket.

The pilot completed the approach, easing the rate of descent as the balloon neared the ground. At about 10 ft agl, he pulled the red deflation line using both hands. This causes the parachute valve within the balloon envelope to invert, leading to a rapid loss of the hot air and deflation of the balloon envelope. Whilst this action commits the balloon to a landing it reduces the landing distance and the associated dragging of the basket. When the balloon touched down the basket tilted onto its front and the pilot was ejected. The basket passed over the pilot causing him serious injuries. Nevertheless, he was able to retain a hold on the red deflation line until the balloon stopped moving. The basket was dragged approximately 35 m across the field before coming to rest.

Pilot technique

The pilot had aimed for a touchdown point approximately one third of the distance into the field. This allowed the balloon to clear the trees on the approach and minimise any crop damage. The earthen surface of the field was smooth, dry and hard providing no cushioning for the landing and allowing significant dragging of the basket by the balloon envelope. In order to minimise the dragging, the pilot activated the rapid deflation system just prior to touchdown. Whilst this increases the rate of descent of the balloon, causing a firmer touchdown, it also minimises the distance over which the basket is likely to be dragged.

Operational requirements

The pilot is required to wear a safety harness which he attaches to a strap secured to the floor of the basket. This permits him to move around but prevents him falling out of the basket. This equipment must be worn and connected during public transport flights.

The Operations Manual sets out the requirement as follows:

> '**Restraint Harnesses**
>
> *All pilots must now use the pilot restraint harnesses that are fitted to all our balloons. It must be worn and attached before the balloon restraint is released, worn throughout the flight and not be released until the end of the flight and you are completely sure the balloon has come to a complete and final standstill. There must be no chance of a gust of wind or thermal lifting the balloon off the ground without you aboard.'*

Analysis

Whilst the landing was firm and the basket tilted onto its front none of the passengers were ejected from the basket. They had adopted the landing positions as briefed and were holding onto the hand holds provided. Although the pilot was prepared for the landing his safety harness

was not attached to the safety strap. He was therefore not secured to the basket and was particularly vulnerable when operating the rapid deflation line with both hands. He could not recall why he had not attached the safety harness to the strap since he was normally conscientious in doing so.