

**AAIB Bulletin No:** 3/93

**Ref:** EW/G92/12/17

**Category:** 5

**Aircraft Type and Registration:** Cameron A-105 Hot Air Balloon, G-BTOH

**No & Type of Engines:** Cameron twin Mk 4 Super Burners

**Year of Manufacture:** 1991

**Date & Time (UTC):** 28 December 1992 at 1430 hrs

**Location:** Blackpool, Lancashire

**Type of Flight:** Public Transport

**Persons on Board:** Crew - 1                      Passengers - 5

**Injuries:** Crew - None                      Passengers - 1 minor

**Nature of Damage:** Envelope severely damaged

**Commander's Licence:** Commercial Pilot's Licence

**Commander's Age:** 56 years

**Commander's Flying Experience:** 1,325 hours (of which 125 were on type)  
Last 90 days - 9 hours  
Last 28 days - 3 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot and examination of balloon by the manufacturer

At take-off the wind was easterly at 8 kt, visibility was good and the air temperature was 0°C. Take-off was normal and about half a mile from the take-off point the balloon flew over a line of electricity pylons. The pilot was using the No 1 (left hand) blast valve and he became aware of a 'soft' flame around the area of the valve. He closed the valve and beat out the flames. He briefly re-opened the valve and a flame fanned out from the valve onto his chest but then quickly extinguished. Having closed the blast valve he isolated the line at the tank and started to use the No 2 burner. He then noticed a second set of pylons two or three hundred yards ahead at basket level and decided to land. Descending, the basket first contacted some treetops and then came to rest at the side of a frozen canal with the envelope hanging over the power lines. The occupants escaped without injury.

The balloon was returned to the manufacturer for investigation and repair. The manufacturer found no leak from the No 1 blast valve. This type of valve, the Bonanno Mk 4 Super, has two butyl nitrile stem seals with provision for venting any leakage which passes the first seal from the gallery between them through an integral duct into the burner can. The leak check had been carried out at workshop temperature and though this demonstrated that there was no mechanical defect in the valve the

manufacturer pointed out that it did not fully disprove the possibility of a transient leakage in the cold ambient conditions of the day and early in the flight when the valve had probably not been exercised many times. However, the manufacturer did detect a leak from a pipe union above the blast valve at the coil inlet. This was within the burner can but below the normal flame front and it was possible that leaking propane could have spilled out around the blast valve through an aperture in the base of the can. The union was not obviously loose but when it was tightened the leak stopped.