

Lear-24, N888TW

AAIB Bulletin No: 9/98 Ref: EW/G98/06/08 Category: 1.1

Aircraft Type and Registration: Lear-24, N888TW

No & Type of Engines: 2 General Electric CJ610-6 turbofan engines

Year of Manufacture: 1974

Date & Time (UTC): 7 June 1998 at 1045 hrs

Location: FL300 - 50 nm north of Cardiff, Wales

Type of Flight: Positioning

Persons on Board: Crew - 2 - Passengers - None

Injuries: Crew - None - Passengers - N/A

Nature of Damage: None

Commander's Licence: Airline Transport Pilot's Licence

Commander's Age: 32 years

Commander's Flying Experience: 3,190 hours (of which 1,150 were on type)

 Last 90 days - 166 hours

 Last 28 days - 52 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and enquiries of the aircraft maintenance company

The aircraft had departed from Cardiff to return to the United States having performed a freight delivery to the UK. Climbing through FL300 the pilot reports that he experienced a rapid depressurisation which the emergency procedures were unable to control so he contacted Air Traffic Control, declaring an emergency and asking to return to Cardiff. He was given vectors to an uneventful landing on Runway 30.

The maintenance company who performed diagnostic and rectification work on the aircraft advised that the pilot reported to them that there was a sudden loud noise and 'mist' appeared in the cabin. He immediately began an emergency descent, reportedly reaching about 13,000 feet per minute rate of descent. He was asked what the cabin differential pressure was reading at the time of the incident

and he replied that it was about 10 psi. Maximum cabin differential pressure on this aircraft is 9.75 psi.

The maintenance company checked the aircraft pressurisation system and found that the outflow valve was dirty and the inlet air pipe was loose. They also found a crack in the plastic case of the Altitude Selector unit, Part No 102976-6, where an air pipe union was attached. Following replacement of the unit a ground pressurisation check confirmed that the system was now serviceable and the aircraft departed for the USA. A subsequent letter from the pilot reported that no further problems were encountered.

The engineer who performed the work on the aircraft believes that the cracked selector unit caused loss of pressurisation control as cabin air pressure leaked into the unit. What the pilot believed was a pressurisation failure was actually the opening of the Safety Valve, which is similar to the normal outflow valve but is designed to open about 0.5 psi above maximum differential pressure.