

Canadair CL600-2B19, G-MSKK

AAIB Bulletin No: 8/99 Ref: EW/G99/01/17 Category: 1.1

INCIDENT

Aircraft Type and Registration: Canadair CL600-2B19, G-MSKK

No & Type of Engines: 2 CF34-3B1 turbofan engines

Year of Manufacture: 1998

Date & Time (UTC): 28 January 1999 at 1025 hrs

Location: On route Birmingham to Belfast

Type of Flight: Public Transport (Passenger)

Persons on Board: Crew - 5 - Passengers - 25

Injuries: Crew - Nil - Passengers - Nil

Nature of Damage: Multiple cracks in right hand front windscreen

Commander's Licence: Airline Transport Pilot's Licence

Commander's Age: 38 years

Commander's Flying Experience: 2,900 hours (of which 55 were on type)
Last 90 days - 134 hours
Last 28 days - 67 hours

Information Source: Aircraft Accident Report Form submitted by the pilot

The aircraft was climbing through FL 200 at 240 kt, with the captain flying and the autopilot engaged, when the central glass ply of the right hand main windscreen failed with a loud crack. The remaining plies of the windscreen maintained their integrity and the aircraft pressurisation was unaffected.

The aircraft was immediately levelled off, and the FO declared a PAN and requested vectors to return to Birmingham. The captain handed control to the FO; carried out the QRH drills for a shattered windscreen, and informed the passengers of their return to Birmingham where an uneventful landing was carried out.

This operator has had three windscreen centre ply failures on main and side windscreens since November 1998; at least 18 other operators have been affected since 1994, some reporting high

failure rates. The problems have involved both main and side windscreens, and outer and central plies.

The failures were originally attributed to incorrectly applied Teflon tape exposing the glass edge seam, and to drilling operations during manufacture. Subsequently the problems were ascribed to disbonds and voids within the laminated screen. All issues have been addressed in new windscreens, and the defect rate has reduced, however some windscreens continue to fail.

Bombardier's records show that 190 CRJ windscreens have been removed from in-service aircraft, and that none of the units changed had caused depressurisation. Bombardier Aerospace has stated that both they, and the windscreen manufacturers introduced, very early on, a comprehensive investigation into the apparent 'Infant Mortality' being experienced on this equipment. That investigation and research is continuing today. No correlation has been found between the failures and specific operators, time of year, geography, window position, or aircraft age.

The windscreen manufacturer has carried out pressure testing on a windscreen in which each ply, Inner, Centre and Outer was broken in turn as the pressure differential was slowly increased. The unit remained in place, without leakage and, at the test conclusion, the pressure differential was 15 psi, almost twice the maximum pressure differential allowed on the aircraft. Further testing is planned to start in August to determine what effect thermal and cyclic stresses are having on the unit.