

AIRCRAFT ACCIDENT REPORT No 2/2006

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**REPORT ON THE ACCIDENT TO
PILATUS BRITTEN-NORMAN BN2B-26 ISLANDER, G-BOMG
WEST-NORTH-WEST OF CAMPBELTOWN AIRPORT, SCOTLAND
ON 15 MARCH 2005**

Registered Owner and Operator:	Loganair Limited
Aircraft Type:	Pilatus Britten-Norman BN2B-26 Islander
Nationality:	British
Registration:	G-BOMG
Place of Accident:	7.7 nm west-north-west of Campbeltown Airport, Argyll, Scotland Latitude: 55° 29.2' N Longitude: 005° 53.7' W
Date and Time:	15 March 2005 at 0018 hrs All times in this report are UTC

Synopsis

The watch supervisor at the Scottish and Oceanic Area Control Centre notified the accident to the Air Accidents Investigation Branch (AAIB) at 0115 hrs on 15 March 2005.

The Glasgow based Islander aircraft was engaged on an air ambulance task for the Scottish Ambulance Service when the accident occurred. The pilot allocated to the flight had not flown for 32 days; he was therefore required to complete a short flight at Glasgow to regain currency before landing to collect a paramedic for the flight to Campbeltown Airport on the Kintyre Peninsula.

Poor weather at Campbeltown Airport necessitated an instrument approach. There was neither radar nor Air Traffic Control Service at the airport, so the pilot was receiving a Flight Information Service from a

Flight Information Service Officer in accordance with authorised procedures. After arriving overhead Campbeltown Airport, the aircraft flew outbound on the approach procedure for Runway 11 and began a descent. The pilot next transmitted that he had completed the 'base turn', indicating that he was inbound to the airport and commencing an approach.

Nothing more was seen or heard of the aircraft and further attempts at radio contact were unsuccessful. The emergency services were alerted and an extensive search operation was mounted in an area based on the pilot's last transmission. The aircraft wreckage was subsequently located on the sea bed 7.7 nm west-north-west of the airport; there were no survivors.

The investigation identified the following causal factors:

1. The pilot allowed the aircraft to descend below the minimum altitude for the aircraft's position on the approach procedure, and this descent probably continued unchecked until the aircraft flew into the sea.
2. A combination of fatigue, workload and lack of recent flying practise probably contributed to the pilot's reduced performance.
3. The pilot may have been subject to an undetermined influence such as disorientation, distraction or a subtle incapacitation, which affected his ability to safely control the aircraft's flightpath.
4. There was no evidence of pre-impact failure in any of the aircraft's systems and the aircraft was intact when it hit the sea.
5. The aircraft's elevator trim setting would have resulted in a hands-off trim speed of 110 to 120 KCAS using an approach or cruise power setting.
6. Fuselage and wing sections showed damage consistent with the aircraft having struck the sea in a controlled flight attitude, at a typical operating speed and with symmetric engine power.
7. No evidence of a technical fault was found that might have contributed to the accident.
9. The HSI and OBI settings were not consistent with the aircraft's position in the approach procedure.

Three safety recommendations have been made.

Findings

3.1.1 The aircraft

1. The aircraft was certified, equipped and maintained in accordance with existing regulations and approved procedures. With the exception of a single non-airworthiness item, concerning the stretcher assembly, the aircraft was free of recorded defects.
2. The aircraft's weight and centre of gravity were within limits during the accident flight.
3. The aircraft had been refuelled to full on the evening of 14 March 2005, and the aircraft's wing fuel tanks contained a substantial amount of fuel at the time of the accident.

10. The altimeters were set to within 1 hPa of the reported QNH, corresponding to a maximum display error of about 28 ft.
11. The primary attitude indicator was probably capable of displaying reliable attitude information at the time of the accident.

3.1.2 Flight operations

- 1 The air ambulance task by SAS was legitimate and conformed to standard procedures detailed in the operator's operations manual. The operator was responsible for operational control of the flight.

2. For the purpose of air ambulance work, the operator had permission from the CAA and HIAL to operate non-scheduled public transport flights outside published aerodrome operating hours.
3. It is probable that when the pilot left the operations room for the flight he had seen only limited weather information for Glasgow and Prestwick.
4. The flight met the requirements for the provision of meteorological information.
5. Although the pilot had declared his intention to route to the west after takeoff rather than direct to Campbeltown, the actual route flown was unusually long, given the nature of the task.
6. Reliable VOR and NDB signal from Campbeltown would probably have been received as the aircraft passed ROBBO, and for the remainder of the flight.
7. The pilot appears to have been unaware of his precise position in relation to the 'MAC' when his route was queried by ATC.
8. At some stage prior to arriving at Campbeltown, the pilot had probably seen the 2320 hrs weather report, taken to the aircraft by the paramedic.
9. The pilot's stated intention was to fly the VOR/DME procedure to Runway 11, and then to circle to land on Runway 29.
10. The weather information available to the pilot indicated that the cloud base would very probably prevent a circling manoeuvre to Runway 29, and that even a landing on Runway 11 may not be possible. However, the pilot was permitted to commence an approach in the weather conditions that prevailed.
11. Visibilities were at or above the minimum required for landing on either runway.
12. Glasgow and Prestwick remained suitable as diversion airports, and the aircraft had sufficient fuel to divert to either if it was unable to land at Campbeltown.
13. The pilot descended the aircraft to 3,000 ft before reaching the 'MAC' VOR/DME, which was below SSA and contrary to procedures.
14. The 'MAC' VOR/DME was operating to specification at the time of the accident. The associated procedure was approved by the CAA for use by the operator, including outside of normal airport operating hours.
15. The aircraft established correctly on the 307° outbound radial, and the observed speed and rate of descent on the outbound leg were consistent with normal flight profiles.
16. The aircraft descended below the minimum outbound altitude of 1,540 ft with a steady rate of descent of about 1,000 ft/min. At the last recorded radar position it was 200 ft below the minimum altitude and still descending.
17. The autopilot was probably not in use in the final stages of the flight.

18. Had the aircraft simply 'dipped' below 1,540 ft and then climbed back up, it is probable that further radar returns would have been received.
19. The cloud base in the accident area was probably as low as 200 ft and the visibility approximately 2,000 m. There would have been few environmental cues to alert the pilot to the aircraft's very low altitude.
20. The location and orientation of the wreckage trail was consistent with the aircraft having descended at a more or less constant rate after it disappeared from radar, and having turned at the 9 DME point directly on to a heading to intercept the inbound course.
21. The presence of a second pilot may have prevented the accident.
22. Had the aircraft been equipped with a radio altimeter, or other electronic low height warning device, which was correctly set to warn of a low height situation, the accident may not have occurred.

3.1.3 Personnel

1. The pilot was correctly licenced and qualified to operate the flight.
2. The pilot was in compliance with the applicable flight and duty time limitations.
3. The pilot held an appropriate medical certificate. No psychological factors were likely to have played a part in the accident.

4. The pilot had undergone formal training in stress and fatigue issues as part of the company's recurrent training programme.
5. Although the pilot had flown a short currency flight on the night of the accident, he had not previously flown for 32 days and therefore lacked recent flying practise.
6. The pilot met the minimum requirements regarding currency in instrument approaches, but it is probable that he had flown comparatively few of these on the Islander.
7. It is probable that the pilot was suffering, at least to some extent, from the affects of fatigue.
8. The pilot may have been operating under high workload, or even overload, conditions in the latter stages of the flight, which may have degraded his situational awareness.
9. The paramedic was experienced as a passenger in the Islander aircraft, and had received appropriate training in safety procedures and equipment.

3.1.4 Survivability

1. The pilot's body showed no obvious external injuries and no internal injuries or fractures. A survivable space was preserved in the cockpit area and it is probable that the pilot survived the impact.
2. The paramedic was probably rendered unconscious in the impact when his head hit the pilot's seat in front due to the lack of upper torso restraint.

3. There was no operational or certification requirement for the aircraft to be fitted with shoulder harnesses on the passenger seats and, under the certification standards applicable to G-BOMG, there was no requirement relating to passenger head injury protection.
4. It was not normal practise for the pilot or paramedic to wear immersion protection or a lifejacket during such flights.
5. Average survival time in the sea, at a temperature of 9°C, would have been no more than one hour.

Safety Recommendations

The following safety recommendations were made:

Safety Recommendation 2006-101

The European Aviation Safety Agency and Joint Aviation Authorities should review the UK Civil Aviation Authority's proposal to mandate the fitment of

Upper Torso Restraints on all seats of existing Transport Category (Passenger) aeroplanes below 5,700 kg being operated for public transport, and consider creating regulation to implement the intent of the proposal.

Safety Recommendation 2006-102

Considering the unique circumstances of air ambulance flights, the Civil Aviation Authority, in conjunction with the Joint Aviation Authorities should review the circumstances in which a second pilot is required for public transport flights operating air ambulance services.

Safety Recommendation 2006-103

The Civil Aviation Authority, in conjunction with the Joint Aviation Authorities, should consider mandating the carriage of a radio altimeter, or other independent low height warning device, for public transport IFR flights operating with a single pilot.