

No: 5/83

Ref: EW/G83/03/08

Aircraft: Pilatus Britten-Norman Islander B-N2A  
G-AXXH (light twin engine fixed wing  
aircraft)

Year of manufacture: 1970

Date and time (GMT) 21 March 1983 at 1042 hrs

Location: Eday, Orkney Islands

Type of flight: Positioning flight

Persons on board: Crew - 1 Passengers - Nil

Injuries: Crew - Nil Passengers - Nil

Nature of damage: Aircraft undamaged

Commander's Licence: Airline Transport Pilot's Licence

Commander's age: 33 years

Commander's total flying experience: 4300 hours, (2750 hours were on type)

The aircraft was based at Kirkwall and had been engaged for a charter flight from Wick to Fair Isle. Aviation gasoline was not available at either Wick or Fair Isle so sufficient fuel had to be up-lifted at Kirkwall for the flights to Wick, Fair Isle and return to Kirkwall. At the time that the Commander calculated the fuel requirement for the flights, he was unaware of the exact load to be carried to Fair Isle, so he restricted the fuel to a minimum so as not to prejudice the payload on this flight. The fuel uplift was calculated as 120 kgs but the Commander requested the fuel company to onload 120 litres of fuel. As a result of this error, the aircraft departed with 34 kgs of fuel less than the calculated minimum requirement.

The meteorological aftercast shows that at the time of the flights, a cold occlusion was lying through Shetland and was moving away to the northeast. An unstable cyclonic southwesterly airstream was established over the area, the wind at 1000 ft being 260°/28kts. The air temperatures and humidity levels were such that carburettor intake icing could be expected.

After the passengers had disembarked from the aircraft at Fair Isle, the Commander completed the aircraft's technical log, recording the fuel state as 27 US gallons. Using the data in the company's Operations Manual, the minimum fuel requirement for this flight, assuming a headwind of 25 kts, would be 44 US gallons.

As the aircraft passed southeast of Start Point, the port engine lost power and the fuel pressure indication fell to zero. The Commander selected full carburettor heat on both engines, switched on the auxiliary fuel pumps, turned the aircraft towards the island of Sanday and advised Kirkwall ATC that he had a fuel problem with the port engine. When he was about one mile from the land, the starboard engine also faltered and the Commander transmitted a 'Mayday' call; this was acknowledged by Kirkwall ATC who alerted the Coastguard and the Rescue Co-ordination Centre at Edinburgh.

Both engines then recovered power and the Commander decided to continue the flight towards Kirkwall, believing that the power losses had been caused by carburettor icing since both fuel gauges indicated about eight gallons. Five minutes later the port engine again lost power, so he carried out a precautionary landing on the island of Eday. There were no refuelling or engineering facilities at the landing strip on Eday, so the Commander checked the engines by ground running and then he 'dipped' the fuel tanks using a broomstick. The port tank was found to be almost empty and the starboard tank to contain an estimated 10-12 US gallons. He judged this to be sufficient for the fifteen mile flight to Kirkwall and flew with the cross-feed open so as to supply both engines from the starboard tank.

After landing at Kirkwall the aircraft was refuelled, 129 US gallons were uplifted; the total usable capacity of the fuel tanks was 130 US gallons.