No: 11/87 **Ref: 1b**

Aircraft type and registration:	Pilatus Britten-Norman BN2B-27 Islander G-BLDX
No & Type of engines:	2 Lycoming O-540-E4C5 piston engines
Year of Manufacture:	1985
Date and time (UTC):	21 August 1987 at 0530 hrs
Location:	Ainsdale Sands, Merseyside
Type of flight:	Datapost
Persons on board:	Crew — 1 Passengers — None
Injuries:	Crew — None Passengers — N/A
Nature of damage:	Substantial damage to right and nose undercarriage with associated damage to right wing centre section and nose area. Left undercarriage and tailplane damaged in recovery attempt. Aircraft totally immersed in sea water.
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	53 years
Commander's Total Flying Experience:	11,792 hours (of which 17 were on type)
Information Source:	AIB Field Investigation

On Thursday 20 August, the aircraft departed Manchester Airport at 1705 hrs for Barrow (Walney Island) Airport. The commander recalled feeding both engines from the right main fuel tank during this sector. After landing, the aircraft was refuelled to 340 litres, 209 litres filling both tip tanks and the remainder evenly disposed in the two main tanks. It was company policy to check the fuel load by dipping the tanks. To allow for differing aircraft attitudes when refuelling, the dipstick was calibrated so that the amount registered would be the minimum quantity in tank. It was thought possible to have up to 20 litres more in the main tanks than the value shown on the dipstick. This would imply that there could have been as much as 85 litres in each main tank before the aircraft took off at 1809 hrs and flew to Manchester, where it landed at 1846 hrs. The expected fuel consumption on this sector would have been about 60 litres. The aircraft was parked overnight awaiting a scheduled departure, with a new commander, at 0500 hrs the following morning. The purpose of the flight was to carry mail to Ronaldsway Airport, Isle of Man.

The commander arrived at the aircraft at about 0345 hrs on the morning of Friday 21 August. As it was dark, the internal checks were done in normal cockpit lighting and, having completed the usual preflight administration, he was ready to start engines at about 0450 hrs. The aircraft took off at 0509 hrs, on a Special Visual Flight Rules Clearance, turned right onto a north-westerly heading, and climbed to an initial cruising altitude of 1000 feet

At 0515 hrs, the commander changed frequency to Liverpool Approach. At 0518 hrs he requested clearance to climb to 2000 feet. Just prior to crossing the coast, as conditions were conducive to the formation of carburettor icing, the commander selected HOT air on both engines for 30 seconds. At this stage the aircraft was cruising at an altitude of 2000 feet at between 120 and 130 knots (kt) with both engines set at 24 inches manifold pressure and 2300 revolutions per minute. When the aircraft was about 2 nautical miles out to sea, the port engine appeared to surge and then stopped. Shortly afterwards, the starboard engine did the same thing. At 0528 hrs the commander informed Liverpool Approach that he had a problem and was going to attempt a forced landing at Woodvale Airfield. Having turned back towards the shore, the commander selected the TIP/MAIN switch to TIP and reduced the indicated airspeed to about 65 kt in the descent. The aircraft did not reach Woodvale and a forced landing was carried out on the beach. It was while the commander was making the aircraft safe that he noticed that the main fuel cock selectors were positioned such that both engines had been feeding from the right fuel tank. Both fuel cocks were then selected to OFF and, when the shutdown had been completed, the commander vacated the aircraft uninjured.

The aircraft had landed on flat sand, but had struck a soft patch; this had resulted in the collapse of the nose and right main undercarriage, and damage to the nose and the wing centre section. A drawing, made by the Merseyside Police, show the indentations made on touchdown and indicate a heading of approximately 110°.

Recovery attempts by local services had severely damaged the tailpane and had probably caused the sideway failure of the left undercarriage. The aircraft was totally submerged during the subsequent high tide and was moved onto a northerly heading.

Examination of the aircraft, before it was recovered from the beach, showed no evidence of any pre-impact failure in the engine or flying controls. The fuel state was approximately 289 litres and was distributed as follows:

Left tip tank —	104.5 litres (full)
Left main tank —	80 litres (approximately)
Right main tank —	empty
Right tip tank —	104.5 litres (full)

A sample taken through the water drain valve on the left main tank contained a few millilitres of sea water. The other tanks were effectively free of water. Both fuel systems were empty of fuel between the gascolators and the carburettors. Sea water was found in both carburettor bowls, which were vented to atmosphere. Both main 3-way fuel cocks were found in the OFF position; TIP/MAIN selectors were to TIP and both electrical actuators had moved to the TIP position; both electrical fuel pump switches were selected to OFF. With TIP selected and the fuel pump OFF on both systems, appropriate selection of the main 3-way cocks resulted in an unrestricted flow of fuel to the engine driven pump inlets, although it took some time for the flow to become established.