

No: 4/87

Ref: 1b

Aircraft type and registration: Britten-Norman Trislander, BN 2A Mk III-I, G-OCME

No & Type of engines: 3 Lycoming O-540-E4C5 piston engines

Year of Manufacture: 1970

Date and time (UTC): 9 February 1987 at 0906 hrs

Location: 1.8 nm east of Liverpool Airport (Speke)

Type of flight: Public Transport

Persons on board: Crew — 1 Passengers — None

Injuries: Crew — None Passengers — N/A

Nature of damage: Aircraft damaged beyond economical repair

Commander's Licence: Commercial Pilot's Licence

Commander's Age: 27 years

Commander's Total Flying Experience: 1800 hours (of which 130 were on type)

Information Source: AIB Field Investigation.

The aircraft was engaged upon a contracted freight (mail) flight, from Liverpool to the Isle of Man, and was planned to depart Liverpool at 0720 hrs. Accordingly, at 0650 hrs, the commander collected the meteorological information and began the pre-flight briefing. The company engineers had already completed and signed for the pre-flight inspection of the aircraft.

The nominated diversion for the Isle of Man was the RAF airfield at Valley, Anglesey, the meteorological conditions for which, being a military airfield, are not reported on the normal civil network. It was therefore necessary to acquire the "present weather" and forecast by telephone. This was not done.

The meteorological conditions for the Isle of Man were:

Present weather: 0620 hrs: 090/9 kt, 3500 M, 8 oktas/200 feet

0650 hrs: 070/11 kt, 3000 M, Rain, 1 okta/600 feet, 5 oktas/900 feet,..
Tempo, 6 oktas/300 feet.

Forecast: 0700— 100/15 kt, Gradu 1000—1300 hrs, 170/18—28 kt, 3000 M, 62 rain,
1600 hrs: 5 oktas/200 feet, 7 oktas/500 feet, Prob. 30 Tempo 0800-1600 hrs,
500 M, 5 oktas/000 feet, 7 oktas/200 feet.

From the above information, the commander decided that the conditions were adequate, or likely to become so, for the flight to depart as planned.

The aircraft had returned from Dublin at 0040 hrs that morning, and it was noted in the technical log that 80 Imperial Gallons (IG) of fuel, 40 in each main wing tank, remained aboard

the aircraft after that flight. The fuel gauges indicated between 80 and 85 IG. As the required fuel for the planned flight was 82 IG, the aircraft was not refuelled. However, subsequent calculations of the fuel used since the tanks were last filled to capacity, showed the actual quantity aboard to be two or three gallons less than the declared 80 IG. It was not customary for either the engineers or the commander to dip-check the quantity of fuel in the tanks. They were, however, fairly regularly filled to capacity.

The aircraft took off at 0729 hrs and, after an uneventful flight, made a radar approach to runway 09 at the Isle of Man airport, Ronaldsway. Having failed to see the runway by "decision height", 460 feet, the commander carried out a "go-around" procedure and returned to the VOR approach beacon before departing on course to the selected diversion. He has subsequently stated that he considered that the wind, which he found on the outbound flight to be 220/35 kt, made a return to Liverpool (86 nm) a more viable proposition than a diversion to Valley (51 nm). Belfast (52 nm) or Blackpool (65 nm) were not considered as diversions by the commander. When abeam the Wallasey VOR, 15 nm from Liverpool airport, the aircraft was positioned, by radar, downwind for an approach to runway 27. Had the commander declared a fuel emergency, positioning for a straight-in approach to runway 09 would have been possible.

As the aircraft turned onto the final approach path, the right engine lost power but, in the opinion of the commander, the amount of corrective rudder needed was less than that which he believed would be necessary in the case of a total engine failure. He therefore did not feather the propeller, in the belief that the engine was still producing some power. As the rate of descent increased, he applied full throttle to all three engines but, despite this and the selection of the speed necessary to achieve the optimum climb rate, the aircraft continued to descend at a rate which made a landing considerably short of the runway inevitable.

The commander made a truncated MAYDAY call and firmly placed the aircraft in a convenient open field below and slightly to the north of the normal approach path. His upper torso restraint held on impact and there was no fire. The first of the emergency services to arrive was the Airport Fire Service and this was quickly followed by all three Local Authority services.

The accident site was a low lying field of winter crop that was subject to tidal flooding. Approximately halfway across the field there was a 2.4 metre wide by 2.4 metre deep drainage ditch, which ran at 45 degrees to the direction of travel of the aircraft. The initial touchdown was some 76 metres to the east of the ditch, on a heading of 270 degrees magnetic. Just after initial touchdown, the right main landing gear failed rearwards and the aircraft continued on its nose and left landing gear, until a collision with an embankment bordering the ditch caused the remaining landing gears to collapse. The aircraft finally came to rest with its fuselage in the drainage ditch, supported by the wings which were resting on the embankments either side.

Examination of the wreckage showed that neither the right or centre engines and propellers had suffered any impact damage, but the left propeller had damage consistent with not being under power but slowly rotating at impact. None of the propellers showed any indications of having been feathered at impact. With the aircraft approximately level and the battery master switch selected ON, the fuel contents gauges indicated 2.5 IG in the right tank and 0.5 gallons in the left tank. The fuel contents were drained and 3 IG were found in the left tank and just under 1 IG in the right. The indications on the fuel contents gauges then, however, remained the same as they did before the fuel was drained. Examination of the aircraft, internally and externally, did not reveal any evidence of a fuel leakage. Furthermore, all the engine exhausts showed evidence of having run, prior to them stopping or being shut down, on a lean fuel/air mixture. The carburettors and fuel lines to each of the engines contained only very small amounts of fuel.

Examination of the flight profile, and associated flight times, showed that all the fuel aboard the aircraft would have been consumed and, therefore, the likely reason for the lack of response to full throttle, when the right engine failed, was a previous or simultaneous failure of the centre engine due to fuel starvation.