No: 9/90 **Ref: EW/G90/06/25** **Category: 1b**

Aircraft Type and Registration:	Pilatus Britten-Norman BN2T Islander, G-TEMI
No & Type of Engines:	2 Allison 250-B17C turbine engines
Year of Manufacture:	1982
Date and Time (UTC):	27 June 1990 at 1320 hrs
Location:	Bembridge, Isle of Wight
Type of flight:	Private (flight test)
Persons on Board:	Crew - 2 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Tailplane, fuselage and right wing buckled, main landing gear broken
Commander's Licence:	Commercial Pilot's Licence
Commander's Age:	34 years
Commander's Total Flying Experience:	2,729 hours (of which 930 were on type)
Information Source:	Aircraft Accident Report Form submitted by the pilot

A flight test was being carried out in wind conditions of 220°/17 kt, with slight gusts which had not been mentioned in the forecast. The first task was to demonstrate compliance with the requirements of BCAR K2-7 para 3.3, which states that "In the event of sudden failure of the Critical Engine at any point in the take-off conducted in accordance with the recommended technique at any speed up to V_2 it shall be possible to prevent a lateral divergence from the intended take-off path of more than 9.1 m (30 feet)". Paragraph 3.4 goes on to state that "Where the aircraft is airborne at speeds below V_2, it shall be possible.....to re-land without the display of undue skill on the part of the pilot". V_2 had been calculated on this occasion as 60 Knots Air Speed Indicator Reading (KASIR) and the pilot had decided to demonstrate compliance by using $V_2 \pm 5$ KASIR. Engine failure, for the purpose of the demonstration, was achieved by closing the low pressure fuel cock at a speed which was judged as likely to produce the (seconds later) engine run-down at the chosen speed (60 KASIR, in this case $\pm$ 5 kt).

Failure of the left engine was demonstrated to be satisfactory, with the engine run-down occurring at 63 KASIR and with a lateral divergence of 3 m to the left.

A similar demonstration was carried out with a right engine failure but, on this occasion, the engine run-down occurred at about 70 KASIR (V_2 +.10). Immediately prior to the run-down, the aircraft became airborne, stated by the pilot to be caused by a gust of wind, and drifted further to the right of the runway centreline than would have been induced by the run-down alone. At a height of 35-40 feet and 25-30 feet right of the centreline, the commander decided that there was insufficient distance remaining to accomplish a stop within the TODA. He therefore continued the take-off, believing that the weight of the aircraft would allow an adequate climb performance. However, the airspeed decayed, perhaps as the gust died down, and, despite the use of full power and flap retraction, the aircraft continued to sink to the ground. The height was too low to allow recovery of the airspeed and the aircraft descended in a high nose attitude, which the commander had maintained in order to increase survivability, and impacted with the ground at about 55 KASIR, beyond and to the right of the runway.

There was no fire and having made the aircraft safe the crew vacated it.