# Piper PA-28-151 (Modified), G-BCIE

**AAIB Bulletin No: 12/99 Ref: EW/G99/05/41 Category: 1.3**

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| **Aircraft Type and Registration:** | Piper PA-28-151 (Modified), G-BCIE |
| **No & Type of Engines:** | 1 Lycoming O-320-D2A piston engine |
| **Year of Manufacture:** | 1974 |
| **Date & Time (UTC):** | 27 May 1999 at 1730 hrs |
| **Location:** | Perth Aerodrome, Scotland |
| **Type of Flight:** | Private |
| **Persons on Board:** | Crew - 1 - Passengers - 1 |
| **Injuries:** | Crew - None - Passengers - 1 Minor |
| **Nature of Damage:** | Left wing removed, aircraft beyond economical repair |
| **Commander's Licence:** | Private Pilot's Licence with Night Rating |
| **Commander's Age:** | 18 years |
| **Commander's Flying Experience:** | 126 hours (of which 16 were on type)<br>Last 90 days - 44 hours<br>Last 28 days - 43 hours |
| **Information Source:** | Aircraft Accident Report Form submitted by the pilot.<br>Telephone discussions with aircraft maintenance company.<br>Data supplied by UK met Office |

The pilot reported that he landed long on Runway 10 at Perth which has 466 metres Landing Distance Available, touching down about three quarters of the way along the asphalt surface. He elected to carry out a go around, retracted flap and applied power in the usual way. He recalled that some lag occurred when power was applied but the engine appeared to achieve normal take-off power. The aircraft climbed to between 50 and 100 feet agl at which point the engine power appeared to reduce to idle.

The pilot stated that he re-cycled the throttle in an attempt to restore power and lowered the nose to maintain airspeed, before making a quick check for an obvious cause of the failure. He applied carburettor heat and recycled the throttle again, then, with little height remaining, concentrated on landing safely.

As the area ahead was obstructed by a road, some houses and some trees, he turned to the left, but was faced with more trees and found it necessary to turn through a total of approximately 90 degrees. A mayday was transmitted during the turn. The pilot reported that the airspeed had then decayed to 60 kt and the aircraft had lost elevator authority. Consequently, the aircraft encountered the ground in a nose and left-wing down attitude. The impact removed the left wing and the aircraft came to rest inverted. The hatch opened during the impact and the occupants evacuated without external assistance having suffered minor injuries. The aircraft was equipped with lap and diagonal harnesses which are understood to have both been in use.

The engineering staff of the operating company reported that they found substantial amounts of fuel in both tanks and in the carburettor bowl of the aircraft. The engine turned correctly with appropriate compressions on all cylinders. All elements of the gear train at the rear of the engine turned correctly with the crankshaft. The magnetos and ignition harnesses were tested off the engine and produced appropriate sparks down to a very low rotational speed. No rational explanation for the power loss could be found.

Analysis of after-cast meteorological data for the place and time of the accident revealed that throughout the height band from the surface to 2,000 feet agl the ambient temperature and dew-point were such as to make carburettor icing a strong possibility. The conditions were most conducive to such icing at 2,000 feet, becoming less so as the surface was approached. Throughout that height band, however, conditions remained within the envelope which is known to produce serious icing at cruise power on some types of float carburettor. Hence at reduced power, during the descent, conditions would have favoured carburettor ice formation.

Although the aircraft reportedly gained significant height after power was applied, the possibility exists that ice, having formed at a benign location within the intake system, was shed sometime after climb power was applied. It may then have been ingested by the engine or re-deposited in an area where it had a more critical effect on induction system airflow. The slight hesitation noted by the pilot when he first applied power may have been evidence of the presence of significant intake ice.