

**Aviation Safety Investigation Report
199100007**

Piper 28-161

24 February 1991

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Occurrence Number: 199100007
Location: Mt McKeahnie ACT
Date: 24 February 1991
Highest Injury Level: Fatal
Injuries:

Occurrence Type: Accident
Time: 1130

	Fatal	Serious	Minor	None
Crew	1	0	0	0
Ground	0	0	0	-
Passenger	3	0	0	0
Total	4	0	0	0

Aircraft Details: Piper 28-161
Registration: VH-XCB
Serial Number: 28-8216054
Operation Type: Private
Damage Level: Destroyed
Departure Point: Canberra ACT
Departure Time: 1045
Destination: Canberra ACT

Approved for Release: 16th October 1991

Circumstances:

The aircraft was operating on a pleasure flight in a mountainous area. The aircraft had been flown to the area at 6000 ft and was planned to operate below 5000 ft for 20 min before returning to Canberra. The aircraft was observed flying at low level following the floor of a valley. After completing a pass in a northerly direction, the aircraft continued tracking north-west to climb over a range. While over rising terrain, the aircraft struck a tree, the impact tearing the right wing from the airframe. The right wing remained lodged in the tree approximately 27 m above the ground while the aircraft descended through the trees and impacted the ground, on its right side, approximately 35 m beyond the first tree impact. The aircraft was destroyed by fire and the occupants received fatal injuries. Examination of the wreckage at the accident site and a subsequent strip examination of the engine did not reveal any technical defects that would have caused the accident. Examination of the propeller indicated that it was rotating as the aircraft descended through the trees but was stationary at the time of impact with the forest floor. Onsite examination of the engine revealed the throttle in the closed position and the mixture selected to 'Idle Cutoff'. However, damage to the right wing was consistent with a high speed impact, indicating that the aircraft possessed the necessary kinetic energy to maintain terrain clearance. The flap lever was found in the fully retracted position, a further indication that the initial impact with the tree was unexpected and did not result from the pilot attempting a forced landing in the treetops. The pilot was medically fit and endorsed on the aircraft type. The aircraft was serviceable at the time of the occurrence, but its gross weight was estimated to have been approximately 37 kg above the permissible maximum. The weather was clear and mild but the combination of high terrain and temperature produced density altitudes between 3900 and 5500 ft which would have adversely affected aircraft performance. Reduction of available engine power, coupled with high aircraft gross weight, would have degraded climb performance and aircraft manoeuvrability, both critical factors for low level operations in mountainous terrain. The pilot had not been formally trained in low level operations, his training having been limited to low level

circuits for landing in adverse weather. He was unlikely to have been fully conversant with the hazards of low level operations. Whether the initial impact was the result of the pilot misjudging his clearance from the treetops or from an attempted manoeuvre that was unsuccessful due to aircraft inertia cannot be determined.

Significant Factors:

The following factors were considered relevant to the development of this accident

1. The aircraft was flown at low level in mountainous terrain.
2. The pilot lacked the necessary experience for safe low level operations.
3. The aircraft gross weight was above the permissible maximum.
4. Density altitude degraded aircraft engine performance.
5. The combination of density altitude and high aircraft gross weight degraded aircraft manoeuvrability.
4. The pilot either misjudged clearance from treetops or under-estimated the effect of aircraft inertia on aircraft manoeuvrability.