

**Aviation Safety Investigation Report
199701830**

**Cessna Aircraft Company
Cardinal**

03 June 1997

Readers are advised that the Australian Transport Safety Bureau investigates for the sole purpose of enhancing transport safety. Consequently, Bureau reports are confined to matters of safety significance and may be misleading if used for any other purposes.

Investigations commenced on or before 30 June 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with Part 2A of the Air Navigation Act 1920.

Investigations commenced after 1 July 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with the Transport Safety Investigation Act 2003 (TSI Act). Reports released under the TSI Act are not admissible as evidence in any civil or criminal proceedings.

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: 199701830 **Occurrence Type:** Accident
Location: French Island, (ALA)
State: VIC **Inv Category:** 4
Date: Tuesday 03 June 1997
Time: 1430 hours **Time Zone:** EST
Highest Injury Level: None

Aircraft Manufacturer: Cessna Aircraft Company
Aircraft Model: 177
Aircraft Registration: VH-DZC **Serial Number:** 17700019
Type of Operation: Charter Passenger
Damage to Aircraft: Destroyed
Departure Point: French Island Vic
Departure Time: 1430 EST
Destination: Moorabbin Vic

Crew Details:

Role	Class of Licence	Hours on	
		Type	Hours Total
Pilot-In-Command	Commercial	116.0	1142

Approved for Release: Wednesday, August 6, 1997

The pilot was conducting a charter flight from Moorabbin to French Island and return. He was carrying 3 passengers with light luggage. On arrival at French Island, he landed to the east on the grass strip. While taxiing after landing the nose wheel became bogged in sandy soil near the eastern end of the airstrip. The pilot shut down the engine and the passengers helped him push the aircraft to a parking position facing west at the eastern end of the strip. This location enabled the pilot to use the full length of the grass strip for a takeoff to the west later in the day.

Later, when the group returned to depart the outside air temperature was approximately 14 degrees Celsius, the wind was calm and the QNH was approximately 1021 mb. The airstrip surface was slashed grass and much of the soil underlying the grass surface was sandy loam. In the takeoff direction the strip was slightly up hill until about midway, and then slightly down hill. The airfield was approximately 131 ft above sea level and the surrounding terrain was gently undulating.

The pilot applied full power and held the aircraft on the brakes before commencing the takeoff roll. The passengers reported that the aircraft accelerated normally for about 100 metres, after which the rate of acceleration slowed. As the aircraft neared the western end of the strip and the pilot rotated the aircraft to become airborne the passengers advised that they heard a noise which they believed was caused by the tail of the aircraft striking the ground.



The pilot did not recall a noise as the aircraft rotated but said that he noticed a slight change in engine note soon after lift off. The aircraft climbed to about 20 ft, banked slightly left and then settled back onto the ground approximately 70 m from the point of lift-off. It skidded down a gentle slope through light foliage and logs, slewed to the left and came to rest about 135 metres beyond the end of the strip. As the aircraft stopped, the pilot and passengers saw flames in the cabin. The pilot's door had jammed shut because of fuselage damage, therefore all occupants evacuated quickly through the right door. Within seconds the aircraft was engulfed in flames.

None of the passengers reported hearing the stall warning horn at any stage. They reported that the engine sounded as though it was producing takeoff power even after they heard the tail hit the ground.

Although the aircraft was substantially damaged by fire no pre-existing fault was found with the aircraft. Because of the fire damage, the stall warning system could not be tested. The maintenance release was issued for operation in the aerial work category which did not embrace the requirements for this charter flight.

The pilot reported that he had selected 1/4 flap for the takeoff. The flaps were found in the up position after the accident; the flap selector may have been knocked up during the impact. The pilot estimated that the takeoff weight was 1006 kg, which included 36 litres of AVGAS. Subsequent calculations showed that the takeoff weight was 1017 kg, which was 49 kg below the maximum allowable weight. The pilot reported that he had checked the aircraft performance data before the flight and assessed that a 600 metre strip would be adequate for taking off over a 50 ft obstacle in nil wind conditions. None of the performance charts included factors for degradation of aircraft performance due to wear and tear, or for the slowing affects of sandy loam underlying a grass surface.

The operator reported that prior to conducting charter operations on French Island, two company pilots had measured the strip using vehicle odometers and recorded a length of 600 metres in the company's authorised landing area register. Using a calibrated wheel after the accident, the strip was re-measured and found to be only 500 metres long.

