

**Aviation Safety Investigation Report
199700051**

**Cessna Aircraft Company
182F**

08 January 1997

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Occurrence Number: 199700051 **Occurrence Type:** Accident
Location: 22km SSE Proserpine, Aerodrome
State: QLD **Inv Category:** 3
Date: Wednesday 08 January 1997
Time: 0856 hours **Time Zone** EST
Highest Injury Level: Fatal
Injuries:

	Fatal	Serious	Minor	None	Total
Crew	1	0	0	0	1
Ground	0	0	0	0	0
Passenger	0	0	0	0	0
Total	1	0	0	0	1

Aircraft Manufacturer: Cessna Aircraft Company
Aircraft Model: 182F
Aircraft Registration: VH-CNG **Serial Number:** 182-54642
Type of Operation: Non-commercial Pleasure/Travel
Damage to Aircraft: Destroyed
Departure Point: Mackay QLD
Departure Time: 0832 EST
Destination: Shute Harbour QLD

Crew Details:

		Hours on	
Role	Class of Licence	Type	Hours Total
Pilot-In-Command	Private	710.7	1110

Approved for Release: Friday, September 26, 1997

FACTUAL INFORMATION

Sequence of events

The aircraft departed Mackay for Hamilton Island. However, immediately after departure the pilot requested and was given an amended clearance for Shute Harbour. Nine minutes after departing Mackay, the pilot gave an all-stations report on the Brisbane Centre frequency, stating that the aircraft was maintaining 2,500 ft to the west of Cape Hillsborough and was tracking coastal to Shute Harbour. This was the last known radio transmission from the aircraft.

The aircraft struck a powerline and crashed adjacent to the Bloomsbury airstrip (about 22 km south-east of Proserpine) at 0856 EST. The powerline was one of two three-strand, 12 gauge high tensile steel lines which was about 15 m above ground level. The wire had wound around the outer portion of the left wing.

The left wing tip fairing fell to the ground 65 m beyond the line of the wire, and the main aircraft wreckage came to rest at the edge of a dam, a further 125 m beyond the wingtip fairing. The cabin was consumed by fire.

Pilot-in-Command

The pilot held a valid class 2 medical certificate for a private pilot licence. There was no known medical condition which could have contributed to the accident.

The pilot was adequately rested prior to the accident.

Of his 1,110 flying hours, the pilot had completed 710 on this type of aircraft. He had flown 32 hours in the previous 90 days, all on this type of aircraft. Most of the 32 hours had been flown on another Cessna 182 which the pilot owned, with most of the flying being parachute-drop operations.

The last biennial flight review for the pilot was conducted on 3 December 1995. As part of the review, the pilot was assessed for short-field operations, crosswind operations, stall recovery, go-arounds, unusual attitudes and practice forced landings. He was considered by the instructor pilot to be competent in normal operations.

Meteorology

Proserpine was the nearest location to Bloomsbury where meteorological observations were taken close to the time of the accident. At 0900, the Proserpine observation was for a wind of 9 kts at 320 degrees, temperature of 29 degrees Celsius and dew point of 22 degrees Celsius, relative humidity of 68%, QNH 1007, visibility of 20 km and no cloud.

Witnesses at Bloomsbury stated that the conditions there were very similar to the Proserpine observation.

Communications

The transmission from the pilot to the west of Cape Hillsborough at 0841 was the last recorded from the aircraft. The pilot did contact his wife by mobile phone probably soon after this last radio transmission. The mobile phone conversation was of a private nature and had no bearing on the flight.

Radar data indicates that the aircraft tracked almost directly to a point about 13 km south east of the Bloomsbury airstrip, with the last radar indication of the aircraft at 0852. The radar showed the aircraft flying parallel to the coast but remaining within 15 km west of the coast.

Wreckage and impact

Witnesses gave conflicting information about the aircraft prior to the wire strike. One witness located inside a hangar stated that he heard the aircraft pass over the eastern end of the strip with the engine cutting in and out. Other witnesses who were outside, either by the dam or on the airfield, first became aware of the aircraft as it struck the powerline. The engine sound was then noticed to increase and decrease and the aircraft was seen to become unstabilised in pitch and roll.

After impacting the wire, the aircraft travelled 65 m to the dam wall where the first section of wreckage, the left wingtip fairing, was deposited. The aircraft was descending at about a 10-degree angle throughout this stage of the sequence and it was in a left roll. The roll continued through 270 degrees with a descent angle of 17 degrees and the right wingtip cut a furrow through the vegetation growing in a small inlet of the dam.

The aircraft then struck the bank of the inlet just above the water line. At this point, the outer left wing was torn from the aircraft by the power line and impact forces. About 130 m of powerline was still attached to the wing. The aircraft, still rolling to the left, commenced to cartwheel over a small section of higher ground protruding into the water. The aircraft continued to break up, finally coming to rest on the far side of the higher ground. The aircraft was resting on the water's edge with the tail on a small, open boat; it was upright and had turned through 180 degrees from the direction of the impact marks.

The aircraft wreckage trail was on a bearing of 210 degrees magnetic and followed the southern bank of the dam. The dam is situated about 150 m north of Bloomsbury airstrip. The airstrip is about 1,100 m long, with runway directions of 220 and 040 degrees magnetic.

A small fire had burnt itself out around the right-wing root which had separated 15 m before the final resting place. A larger fire had burnt out the cabin, engine and remainder of the left wing. The tail was largely intact and resting on the undamaged boat.

Engine and airframe

All essential aircraft elements were found at the site apart from one propeller blade. This blade was probably thrown into the dam during the accident sequence. No evidence of in-flight blade separation was found.

The aircraft's structural damage was consistent with a collision with powerlines, impact with the ground, and subsequent fire. No evidence was found of any pre-existing defect of the aircraft's structure.

All control cables were checked as far as possible to determine control integrity. No evidence was found of any pre-existing defect or malfunction of any of the flight control systems. It was determined that the electrically operated wing flaps were not extended.

The engine and its systems were checked thoroughly in a strip inspection. The inspection revealed no discrepancies which could have led to an in-flight engine problem. The engine had been submerged in an earlier accident, but had undergone a salt-water immersion inspection and repair in accordance with the manufacturer's procedures before installation in this aircraft.

Cracks found in the propeller flange of the crankshaft indicated that the propeller was being driven under considerable power at impact.

The aircraft was using Mogas (super grade automotive petrol). Carburettor icing is more likely with Mogas due to its higher volatility (and possibly higher water content) than Avgas (aviation gasoline). Although there were administrative errors in issuing the authorisation for this aircraft to use Mogas, the intent was for the aircraft to be so authorised.

Weight and balance

At the time of the accident, the aircraft's cabin was fitted only with the pilot's seat and a mattress in the rear. Witness evidence indicated that it was carrying about 55 kg of fuel. The weight of the aircraft estimated at the accident site was about 850 kg, which is within the Approved Flight Manual and Pilot's Operating Handbook limits.

Load distribution was estimated to be within the centre of gravity moment envelope.

Aircraft documentation

The current maintenance release was not found at the accident site; however, a copy of the maintenance release was provided by the maintenance organisation. Previous maintenance releases and aircraft logbooks indicated that all relevant engine and airframe airworthiness directives were incorporated and that the aircraft should have been serviceable for the flight.

The current maintenance release was due to expire at 4,485.4 hours. The aircraft tachometer indicated the total time in service was 4,487.25 hours. The aircraft had therefore flown 1.85 hours beyond that authorised in the maintenance release.

Emergency locator beacon

The emergency locator beacon (ELT) had been removed from the aircraft while it was involved in parachute-dropping operations. At the time of the accident, an ELT was not fitted.

ANALYSIS

As the pilot had not flown this particular aircraft for some time, it is possible that he first noticed that the aircraft was overdue for a periodic inspection during the departure from Mackay. He may then have decided to change his destination to Shute Harbour where maintenance facilities were available.

Although it was expected that the aircraft would transit from Mackay to Shute Harbour, a landing at Bloomsbury would not have been unexpected. The pilot owned a block of land adjacent to the strip and his daughter was staying at the airfield.

The pilot was familiar with the airstrip and the witnesses said his usual procedure was to fly over the dam to the north of the strip from the east at about 200 ft to check the strip for wind and cattle. It would have been unusual for the pilot to approach the strip low enough to hit the powerline.

One witness did report hearing unusual engine sounds before the wire impact. This raises the possibility of some type of in-flight emergency. However, other witnesses noted nothing unusual until the wire impact.

The Proserpine weather observation at 0900 indicated the possibility of carburettor icing, particularly during a descent. Witness evidence indicated that the aircraft was probably operating on close to 100% Mogas. The aircraft's approved flight manual does warn that when using automotive fuel the onset of carburettor ice may occur earlier under the same atmospheric conditions than with Avgas.

It is possible that the engine partially failed due to carburettor icing during the descent. The engine sounds before wire impact described by one witness could have indicated partial carburettor icing followed by a freeing of the ice. Engine power would then have been available, but too late for the aircraft to clear the powerline. However, no physical evidence of carburettor icing, such as sooty spark plugs, was found. Such evidence is not always available. Cracking of the crankshaft propeller flange in multiple locations was indicative of sudden stoppage of the propeller while under power.

The discrepancies in the administration of the Mogas approval were not considered to be a factor.

The aircraft seems to have struck the powerline at a relatively high speed, considering the length of wire attached to it and the distance travelled by the aircraft after striking the wire. This combination of relatively high speed, wing-flap setting, low level and failure of most witnesses to hear the aircraft prior to the wire strike, indicates a possible intention by the pilot to overfly the Bloomsbury area in a high-speed, low-level pass.

The reason the aircraft was flown at a low level, struck a powerline and became uncontrollable could not be determined.