



Wirestrike - 25km NW Leongatha Aerodrome, Vic. 25 December 2008

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INFRA-08487

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Abstract

On 25 December 2008, at about 0845 Eastern Daylight-saving Time, a Cessna Aircraft Company 172M aircraft, registered VH-ROO, struck a powerline that was located on a property at Kernot, 25 km north-west of Leongatha Aerodrome, Vic.

The aircraft impacted the ground about 100 m from the powerline and caught fire. The pilot, who was the sole occupant, was fatally injured.

Examination of the wreckage did not identify any mechanical defects that would have affected the safe operation of the aircraft.

FACTUAL INFORMATION

The information presented below, including any analysis of that information, was prepared principally from information supplied to the Bureau.

History of the flight

On the morning of the 25 December 2008, the owner-pilot of a Cessna Aircraft Company 172M aircraft, registered VH-ROO, departed his property at 'The Gurdies', 33 km to the north-west of Leongatha, Vic. The pilot was conducting a private visual flight rules (VFR) flight to Tyabb Airport to refuel the aircraft. The pilot then flew to a property at Kernot (Figure 1), which was located about 3.0 km from his own. The pilot was the sole occupant of the aircraft.

At approximately 0845 Eastern Daylight-saving Time¹, residents inside the house at the Kernot property heard an aircraft '...flying very low over the house.' Shortly after, they looked out and saw an aircraft that appeared to have landed on a nearby hill.

A number of the residents who were proceeding to the aircraft noticed that it had caught fire. Upon arrival at the scene, they discovered that the pilot had received fatal injuries and that the aircraft was seriously damaged.

It was determined that after over flying the house, the aircraft proceeded in a south-easterly direction, before striking powerlines that were located about 600 m from the house.

Pilot information

The pilot held a Private Pilot (Aeroplane) Licence that was issued on 3 September 2003, was appropriately endorsed for VFR flight and had a valid Class 2 medical certificate. The pilot had an estimated² 600 hours total flight time, but did not have any low-level ratings or endorsements.

- 1 The 24-hour clock is used in this report to describe the local time of day, Eastern Daylight-saving Time as particular events occurred. Eastern Daylight-saving time is Coordinated Universal Time (UTC) + 11 hours.
- 2 The pilots flying logbook was not located. This value was obtained from documentation associated with his last medical, which was carried out on 17 September 2008.

Figure 1: Flight area



Information from a number of witnesses, including residents at the Kernot property, suggested that the pilot had a history of low flying, and in particular, over the property at Kernot every Christmas. In addition, the pilot was reported to the Civil Aviation Safety Authority (CASA) for low flying by residents in 'The Gurdies' area on at least two occasions in the period February 2006 to December 2007. CASA counselled the pilot and, after further similar reports, commenced an investigation.

Safety reporting system records from a local flying club included a number of reports that related to a variety of unsafe acts by the pilot.

At the time of writing this report, the post mortem results for the pilot were not available.

Aircraft information

The aircraft, serial number 17266828, was manufactured in the US in 1976. It was equipped with a Lycoming O-320 engine.

Maintenance records for the aircraft were reported to have been on board the aircraft at the time of the accident and were destroyed.

Meteorological information

The Bureau of Meteorology (BoM) reported that, based on the observations at the two recording stations closest to the accident site (Wonthaggi and Phillip Island), mild conditions prevailed in the Kernot area at the time of the accident. The temperature was 17.7° C, with the relative humidity from 69 to 75%. The winds were reported to be west to south-west between 11 and 24 km/hr.

The position of the sun at the reported time of the accident was determined from the Geoscience Australia website. The sun's azimuth³ at that time was 087 degrees, and its altitude⁴ 42 degrees.

3 The clockwise horizontal angle from the sun to true north, measured in degrees, minutes and seconds.

4 The vertical angle to the sun from an ideal horizon, measured in degrees, minutes and seconds.

Wreckage information

The aircraft wreckage was found in an upright position facing in a south-south-easterly direction.

Examination of the wreckage, by a Licensed Aircraft Maintenance Engineer (LAME) who was assisting the Coroner, did not identify any engine or flight control defect that would have affected the safe operation of the aircraft.

There were powerline contact marks 3 m from the left wing root and a double strand section of severed powerline cable was caught between the horn balance on the starboard elevator and the adjacent horizontal stabiliser (Figures 2 and 3).

The nosewheel was separated from the aircraft during the ground impact. The fire destroyed the instrument panel and cabin area.

Figure 2: Powerline contact marks on the left wing



Figure 3: Horizontal stabiliser



Powerline information

The powerline consisted of two parallel cables that were set at a height of about 27 m (approximately 86 ft) above the ground, running in an east-west direction.

Evidence from a number of sources suggested that the pilot was aware of the location of the powerline and was familiar with the area.

The Australian Standards for marking powerlines and their supporting structures have been discussed in a number of Australian Transport Safety Bureau (ATSB) investigation reports (most recently AO-2008-058, available at www.atsb.gov.au). In general, there was no requirement for the marking of powerlines with a height of no greater than 90 m (295 ft). As such, the powerline that was struck by the aircraft did not require marking in accordance with those standards.

Organisational information

Low flying

Civil Aviation Regulation (CAR) 157 stated, in part, that:

The pilot in command of an aircraft must not fly the aircraft over:

- (a) any city, town or populous area, at a height lower than 1,000 feet; or
- (b) any other area at a height lower than 500 feet.

Those requirements did not apply if the aircraft was in the course of taking off or landing, or as a result of any other unavoidable cause where it was essential that a lower height be maintained – for example, due to weather.

Day VFR Syllabus Aeroplanes- low flying competencies

The Day VFR Syllabus Aeroplanes⁵ defined the flying and ground standards necessary to exercise the privileges, with relevant restrictions, of the Student, Private and Commercial pilot licences in Day VFR operations. Pilots receive limited exposure to low-level operations and the associated hazards via the content of the flying and aeronautical training components of that syllabus, including:

- the ability to recall the requirements relating to the minimum heights for flights over populous and other areas (CAR 157)

⁵ Issue 4.1 – Effective 1 October 2008.

- takeoff, fly a low-level circuit not above 500 ft above ground level (AGL), approach and land
- a knowledge of human factors and their impact on pilot performance in the low-level environment, including; the limitations of the eye with respect to the ability to discern objects during flight (other aircraft, transmission lines and so on), spatial disorientation and illusions.

Wirestrike accidents and incidents

The ATSB report *Wire-strike Accidents in General Aviation: Data Analysis 1994 to 2004*⁶, examined the reported wirestrike accidents in general aviation in Australia for that period.

The report highlighted the dangers associated with low-level operations, especially for pilots who have not received specialised training in that environment.

Of the 119 wirestrike accidents that were reported to the ATSB between 1994 and 2004, 18 involved private/business operations, of which seven, or 39% involved low-level operations that were remote from a landing area or aerodrome. Of note, the report identified that 63 % of pilots were aware of the wire hazard before they sustained the wirestrike.

Subsequently, in the period 1 January 2005 to 10 November 2007 inclusive, there were an additional six reported private/business wirestrike accidents.

ANALYSIS

The witness and aircraft evidence was consistent with the aircraft striking a powerline while heading in a south-easterly direction.

There was evidence that the pilot had a history of conducting low flying, and in particular, over the property at Kernot every Christmas. In addition, the pilot had previously been reported to CASA for low flying, resulting in him being counselled by CASA. Further similar reports of low flying resulted in CASA commencing an investigation, which was still in progress at the time of the accident.

There was no operational reason, such as adverse weather or for takeoff or landing, for the pilot to be below 500 feet above ground level (AGL) at the time of the accident. Based on the reports of the pilot's previous low flying, which included overflying the Kernot property, it was likely that the pilot made a deliberate decision to overfly that property at a 'very low' level on this occasion.

In the presence of powerlines or other cables, deficiencies in aircraft performance and control at low level can lead to a wirestrike. In this case, there was no evidence of any engine or flight control failure of the aircraft prior to the wirestrike.

Although the pilot probably knew about the powerline, it is apparent that he did not see it in enough time to avoid the wirestrike. Powerlines are inherently difficult to see, especially when unmarked as they were in this case. Compounding the problem can be factors such as sun glare and windscreen visibility. However, given the position of the sun at the time of the accident and the pilot's southerly track, it was unlikely that sun glare was a factor. Windscreen visibility was unable to be established.

This accident reinforces the inherently hazardous nature of low-level flying.

FINDINGS

From the evidence available, the following findings are made with respect to the wirestrike involving VH-ROO that occurred 25km north-west of Leongatha Aerodrome, Vic. on 25 December 2008 and should not be read as apportioning blame or liability to any particular organisation or individual.

Contributing safety factors

- The pilot overflowed a property at Kernot at very low level and did not see powerlines that were located about 600 m from the house in sufficient time to avoid a wirestrike.
- After breaking the powerlines, the aircraft impacted the ground and caught fire.

⁶ ATSB Aviation Research and Analysis Report B2005/0055, see <http://www.atsb.gov.au/publications>

SOURCES AND SUBMISSIONS

Sources

The sources of information during the investigation included:

- the Victorian Police Force
- the State Coroner's Office of Victoria
- the Civil Aviation Safety Authority (CASA)
- witness and other interviews
- Google Earth for Figure 1.

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the Transport Safety Investigation Act 2003, the Executive Director may provide a draft report, on a confidential basis, to any person whom the Executive Director considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the Executive Director about the draft report.

A draft of this report was provided to the Victorian Police, the State Coroner's Office of Victoria, CASA and the pilot's next of kin. No submissions on the report were received by the ATSB.