

Transportation Safety Board  
of Canada



Bureau de la sécurité des transports  
du Canada

## AVIATION INVESTIGATION REPORT

A05W0137



### COLLISION WITH TERRAIN

**B. ALLISON FLYING SERVICES**

**PIPER PA-18 C-FJYS**

**ANDREW, ALBERTA 9 nm W**

**06 JULY 2005**

**Canada**

The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

## Aviation Investigation Report

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### *Summary*

The pilot of the B. Allison Flying Services Piper PA-18 aircraft (registration C-FJYS, serial number 18-4734) departed Cooking Lake Airport, Alberta, at approximately 1130 mountain daylight time and landed at the Chipman airfield, where a passenger boarded. They departed at 1212 for the last day of two weeks of aerial photography. The weather was observed to be clear and the winds nearly calm when C-FJYS departed Chipman.

At approximately 1810, the aircraft wreckage was found by a farmer in a hay field 9 nautical miles west of Andrew, Alberta. The aircraft had struck the ground at an extreme nose-down, left-wing-low attitude, and was substantially damaged. Both occupants sustained fatal injuries. There was no post-impact fire.

*Ce rapport est également disponible en français.*

## *Other Factual Information*

The pilot held a valid commercial licence and was qualified for the flight. As of 03 June 2005, he had logged a total of 1043 flight hours, mostly in single-engine aircraft.

The aircraft crashed approximately 90 km east-northeast of Edmonton City Centre Airport (CYXD), the nearest airport with weather reports. At 1200 mountain daylight time,<sup>1</sup> about 30 minutes prior to the accident, the weather report for CYXD was as follows: wind 070° True at 7 knots, visibility 9 statute miles, sky clear, temperature 25°C, dew point 15°C, altimeter setting 29.50. A thunderstorm passed through the area at about 1600, well after the time of the accident.

Records indicate the aircraft was certified, equipped, and maintained in accordance with existing regulations and approved procedures for Canadian Aviation Regulation (CAR) 703 Air Taxi Operations. The aircraft had no known deficiencies before the first flight of the day, and the aircraft weight and centre of gravity were calculated to be within approved limits at the time of the occurrence.

The passenger's camera was recovered from the wreckage, complete with exposed film. Photos taken by the passenger immediately prior to the accident indicated that the sky was clear. A photogrammetric analysis, by the Transportation Safety Board (TSB), of the photographs taken near the accident site determined that while manoeuvring near a farmstead, the aircraft was operating between 225 and 270 feet above ground level.

Based on the departure time from Chipman, the aircraft Hobbs meter reading, and the measurement of sun shadows in photographs taken from the passenger's camera, it was determined that the accident occurred at approximately 1230.

An examination of the wreckage indicated that, at the time of the accident, the pilot was wearing a full, four-point harness and the passenger was wearing a lap-belt, but the two shoulder harnesses were not buckled. One propeller blade had sliced into the ground at a 70° angle from vertical. The tip was bent forward, indicating that the engine was generating some power at impact. The other propeller blade was bent backward from the root area. All flight controls were connected and continuous. The rear control stick had been removed, and no stub cover was found in the wreckage. The rear-seat rudder pedals were operable by the passenger.

The engine showed no abnormalities that could have contributed to the accident. The airspeed, vertical speed indicator, and engine oil-pressure and rpm gauges were sent to the TSB Engineering Branch for examination. Impact marks on these instruments indicated that the engine was developing nearly full power at impact, and two marks were found on the airspeed indicator, at 0 knot and 79 knots.

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<sup>1</sup> All times are mountain daylight time (Coordinated Universal Time minus six hours).

The left fuel tank contained no fuel, and there was no fuel odour detected by TSB investigators when they arrived on the scene. The left-tank filler neck broke at impact, and there was a small crack on the forward seam of the tank. The belly tank (STC #SA02068AK) had broken open and contained no fuel. The right tank, which was slightly deformed, was estimated to be three-quarters full at the time of impact. Fuel lines from the right tank, through the fuel selector and the firewall-mounted gascolator, contained fuel. The line from the gascolator to the carburetor was destroyed and could not be checked for fuel. The fuel selector was set on the left tank; however, it is possible that the setting may have been changed at impact. A fuel entry of 25 US gallons in the company fuel log of 06 July was unsigned, and since it could not be attributed to any other aircraft, the entry was likely made by the pilot of C-FJYS.

No emergency locator transmitter signal from C-FJYS was received by the Rescue Coordination Centre. The emergency locator transmitter was armed, but the antenna coaxial cable was pulled out of the terminal during impact. The cable had been installed tightly to ensure positive clearance of flight control cables, with no allowance for fuselage deformation during an impact.

There was a portable GPS unit in the aircraft; however, it was damaged and provided no useable data. The aircraft was not equipped with a flight data recorder (FDR) or a cockpit voice recorder, and neither was required by regulation. Aircraft typically used in CAR 703 operations are not fitted at the time of manufacture with the electrical infrastructure required to support an FDR, and the installation of FDRs in this category of aircraft would require extensive system upgrades.

A light-weight, comparatively inexpensive alternative to an FDR is a cockpit video digital recorder (CVDR). While CVDR technology exists to record the instrument panel and the view forward from an aircraft in flight, there is no regulatory requirement or schedule to have this equipment installed in any aircraft type. A functioning CVDR would have allowed investigators to have a better understanding of the circumstances that led to the accident.

A pilot self-dispatch system was used by the company. The pilot of C-FJYS did not file a NAV CANADA flight plan or a company flight itinerary, as required by the company operations manual, directives and bulletins. There is no record of the pilot having contacted any NAV CANADA facility before or during the flight. However, before the flight, he casually mentioned to one of the office administrative staff members that he was planning to return at about 1530 that afternoon. That staff member was a part-time employee and left the office about noon. There was no alerting service when the aircraft did not return to its base.

Both the operations manager and chief pilot were out of the province at the time of the accident, and although a senior pilot was present, he had not been delegated operational management duties. As a result, there was limited oversight of flight operations. An emergency response plan was published and posted prominently in the company's office. However, it did not include the delegation of responsibilities in the absence of key personnel. The senior pilot drove to the hangar at about 1900 and noticed that the pilot's car was still there, but he did not initiate search activity. His first knowledge that the aircraft was overdue was about four hours after its intended return.

The following TSB Engineering Branch reports were completed.

LP 070/2005 – Photo Analysis  
LP 071/2005 – Instrument Examination

These reports are available from the Transportation Safety Board of Canada upon request.

### *Finding as to Causes and Contributing Factors*

1. For undetermined reasons, the aircraft departed controlled flight and struck the ground.

### *Findings as to Risk*

1. The tight installation of the emergency locator transmitter (ELT) antenna cable resulted in the disconnection of the cable from the ELT at impact, and there was no effective ELT signal.
2. The pilot did not file a flight plan or a flight itinerary, with the result that the rescue of possible survivors would have been delayed.
3. Procedures for the delegation of management authority in the absence of key company personnel were incomplete, resulting in ineffective flight following and emergency response.

### *Other Findings*

1. Investigators were not able to determine why the aircraft departed from controlled flight. The aircraft was not fitted with a flight recording device, which may have allowed investigators to reconstruct the circumstances that led to the accident.
2. A rear control stub cover could not be found in the wreckage.

### *Safety Action Taken*

The company has developed a delegation system to ensure that there is always someone of authority available. Checklists have been drafted for the management positions, and they are to be used by delegated individuals in the absence of management personnel. These measures will ensure that acting managers are assigned on a consistent basis and that they are aware of their responsibilities.

The flight following system has been strengthened by informing pilots of the necessity to submit a comprehensive flight itinerary or flight plan before each flight. The telephone answering service will continue to serve as a message board for delegated individuals and will not be used as the primary flight following system. Acting managers will assume responsibility through use of the delegated duties checklist. Overdue alerting will be more rigidly followed.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 22 February 2006.*