

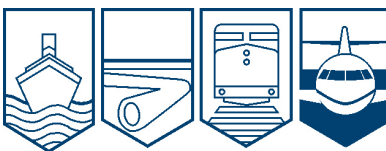
Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada

AVIATION INVESTIGATION REPORT

A09O0171



LOSS OF CONTROL AND COLLISION WITH TERRAIN

**CESSNA 150J, C-GPXN
COURTLAND, ONTARIO
12 AUGUST 2009**

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

Loss of Control and Collision with Terrain
Cessna 150J, C-GPXN
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Summary

The Cessna 150J aircraft (registration C-GPXN, serial number 15070885) departed from the pilot's private airstrip on 12 August 2009 at approximately 0740 eastern daylight time and was later reported overdue. A search was initiated by the Joint Rescue Coordination Centre and the aircraft was located in a nearby corn field approximately one-half nautical mile south of the airstrip. The aircraft had struck the ground in a steep nose-down and right-wing-low attitude. The aircraft was destroyed and the pilot was fatally injured. The emergency locator transmitter transmitted a signal on the frequency 121.5 megahertz.

Ce rapport est également disponible en français.

Other Factual Information

History of the Flight

On the morning of the occurrence, at approximately 0740,¹ the aircraft took off from the pilot's private grass airstrip in Courtland, Ontario, on a short sightseeing flight to Lake Erie and back. The aircraft departed in a northerly direction. Two or three minutes later, the aircraft flew back toward and directly over the pilot's house, located at the south end of the airstrip. The aircraft was in level flight at low altitude. At approximately 0745, the aircraft struck the ground in a corn field.

Aircraft Information

The aircraft was manufactured in 1969 and purchased by the pilot in May 2008. Records indicate that the aircraft was certified, equipped, and maintained in accordance with existing regulations and approved procedures.

The aircraft was sparingly used by the pilot/owner over the previous one and a half years, mostly flown from the pilot's private airstrip on local sightseeing flights. Most flights were approximately one hour in duration. Since purchasing the aircraft, the pilot had flown 39.5 hours, of which 8.7 hours were in year 2009.

The aircraft was equipped with standard range fuel tanks with a total usable capacity of 22.5 United States (U.S.) gallons. Records indicate that the aircraft was last fuelled in Tillsonburg, Ontario, on 05 July 2009, at which time the aircraft was topped-up with 15.3 U.S. gallons of 100 octane low-lead aviation fuel. At the start of the occurrence flight, the aircraft had flown a total of 2.2 hours since refuelling. Based on cruise performance numbers found in the *Cessna 150 Owner's Manual* for a density altitude of 2500 feet and a true airspeed of 108 mph, the aircraft would burn approximately 5.1 U.S. gallons per hour (4.4 hours endurance); therefore, the aircraft most likely had consumed half the fuel prior to the occurrence flight.

The weight and centre of gravity were estimated to be within the prescribed limits.

Pilot Information

Records indicate that the pilot was certified and qualified for the flight in accordance with existing regulations. The 82-year old pilot held a recreational pilot permit originally issued on 03 October 2001 valid for all piston-powered, single-engine, non-high performance, land aeroplanes designed for a maximum of up to four seats, one passenger only, day visual flight rules (VFR) only. The pilot had accumulated approximately 188 hours total flying time including 89 hours on the Cessna 150.

¹ All times are eastern daylight time (Coordinated Universal Time minus four hours).

According to TSB records, the pilot had been involved in two other accidents: on 27 May 2002 the pilot lost control of his Taylorcraft Incorporated BF12 (C-FRBK) while landing at the pilot's private airstrip and on 21 April 2007 the pilot lost control of his Cessna 150J (C-FXSI) when the aircraft inadvertently became airborne during a taxi run and the pilot had difficulty getting the aircraft back on the ground.

There was nothing to indicate that the pilot's performance was degraded by physiological factors.

Weather

The closest reporting weather station is in London, Ontario (CYXU), approximately 29 nautical miles west-northwest of Courtland. The 0800 aviation routine weather report (METAR) for London, was as follows: wind 330° True (T) at 5 knots, visibility 10 statute miles, overcast at 500 feet above ground level (agl), temperature 17°C, dew point 16°C, altimeter 30.05 inches of mercury. Locally, the ceilings were 200 to 300 feet agl with patchy fog, but the visibility was good below the ceiling and outside the fog.

Wreckage Examination

The aircraft struck the ground in approximately a 50° nose-down attitude with 40° of right bank. It came to rest in an inverted position 41 feet from the initial impact point, along the direction of flight. The pilot was still strapped into the aircraft by the lap strap and shoulder belt. The aircraft was substantially damaged during the impact, but an examination showed there were no signs of any pre-impact failure or system malfunction that could have contributed to this accident. Propeller blade damage and twist was consistent with considerable power being produced by the engine at the time of impact.

Spatial Disorientation

All humans are susceptible to spatial disorientation. In aviation, spatial disorientation can be defined as an aviator's failure to sense correctly the position, motion, or attitude of the aircraft or themselves with respect to the earth's surface and the gravitational vertical.

Studies conducted by aviation researchers at the University of Illinois in the 1990s estimated that, on average, it took 178 seconds for pilots to become spatially disoriented.² An article by Flight Safety Australia states, in part:

They took 20 VFR pilots and got them to fly into instrument meteorological conditions (IMC) in specially programmed flight simulators. All of the pilots in the study went into graveyard spirals that would have ended in uncontrolled flight into terrain or rollercoaster-like oscillations that became so intense that they would have resulted in structural failure of the aircraft.

² Paul Cummins and staff writers, "178 Seconds to Live VFR into IMC", [Flight Safety Australia](#). January-February 2006

Analysis

The investigation attempted to determine why the aircraft struck the ground after successfully becoming airborne and maintaining level flight. Although the aircraft was substantially damaged, the examination performed on the wreckage did not reveal any pre-impact failures. The damage marks on the propeller indicate that considerable power was being produced by the engine at the time of impact. The aircraft attitude at impact was consistent with uncontrolled flight into terrain.

There was nothing found to indicate that the pilot's performance was degraded by physiological factors.

Weather information indicated a low ceiling on the morning of the occurrence and patchy fog in the area. It is likely that the pilot overestimated ceiling height and underestimated the prevalence of fog and flew from visual meteorological conditions into IMC shortly after take-off. The pilot likely lost visual reference with the ground after take-off and became spatially disoriented, resulting in a loss of control of the aircraft and uncontrolled flight into the terrain.

Finding as to Causes and Contributing Factors

1. The pilot likely encountered instrument meteorological conditions shortly after take-off and became spatially disoriented, resulting in a loss of control of the aircraft and uncontrolled flight into the terrain.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 09 March 2010.

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