

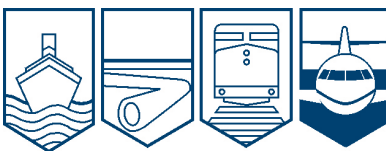
Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada

AVIATION INVESTIGATION REPORT

A09O0159



TREE STRIKE DURING CLIMB-OUT

CESSNA TU206G (AMPHIBIOUS), C-GGMG

TORRANCE, ONTARIO

03 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

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Summary

The privately owned Cessna TU206G amphibious aircraft (registration C-GGMG, serial number U2065768) was taking off from Lake Muskoka near Torrance, Ontario. On board were the pilot and one passenger. At approximately 1433 Eastern daylight time, the aircraft became airborne, climbed initially to approximately 30 feet above the lake, and then continued climbing to approximately 90 feet above the lake. Shortly thereafter, the aircraft overflew a train trestle and began clipping trees on the shoreline. Several large trees were struck, resulting in substantial break-up of the aircraft. The aircraft struck the ground in an inverted attitude. A fire erupted after the ground impact and the majority of the aircraft was consumed by the fire. The two occupants were fatally injured. The emergency locator transmitter was destroyed and did not activate.

Ce rapport est également disponible en français.

Other Factual Information

History of the Flight

The aircraft was fuelled three days before the accident at the Buttonville Airport, Ontario. The aircraft departed from the Buttonville Airport destined for the pilot's cottage near Torrance, Ontario, on Lake Muskoka, where it remained docked until the return flight three days later. Flight time to the cottage was such that the aircraft did not require re-fuelling for the return trip. The two flights followed visual flight rules (VFR) and no flight plans or itineraries were filed.

The floats were reportedly checked for water content by the pilot prior to the flight. At approximately 1433,¹ video evidence of the take-off and initial climb indicated a normal take-off in a southerly direction and the start of a shallow climb.

The aircraft was photographed close to a level attitude when it reached approximately 40 feet above the lake surface. This was the last observation until it struck the trees on the south shore of Coulter Narrows, an approximate distance of 5500 feet from where it became airborne and an estimated height of 90 feet above the lake surface (See Figure 1).



Figure 1. Estimated Flight Path

¹ All times are Eastern daylight time (coordinated universal time minus four hours).

Aircraft Information

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 two years – mostly flown between Buttonville and his lakefront cottage. The flights to and from the cottage were approximately 50 minutes in duration each way. On average, the aircraft was flown approximately 15 hours per year.

The aircraft was estimated to be within the allowable gross take-off weight and centre of gravity limits.

The aircraft was manufactured in 1980. In 2002, Wipline 3730 amphibious floats were installed at the Wipline factory (currently named Wipaire Inc.), as approved by Supplemental Type Certificate (STC) SA18GL. This equipment was not a factor in this occurrence.

The *Pilot Operating Handbook* (POH) Supplement for an Amphibian Cessna TU206G aircraft contains procedures for an airplane equipped with EDO Model 696-3500 amphibious floats, a float model different than those on this aircraft. The United States Federal Aviation Administration (FAA) approved supplement to the POH or *Airplane Flight Manual* (AFM) for STC SA18GL Wipline 3730 float installation indicates that the POH and AFM should be referenced regarding limitations, procedures, and performance information that are not contained within the supplement. Under Section IV – Performance, part 1 of the supplement, it states that aircraft performance with Wipline 3730 floats meets the required certification performance criteria and, therefore, the information is not published.

Pilot Information

Records indicate that the pilot was certified and qualified for the flight in accordance with existing regulations. The 75-year-old pilot was issued a private pilot's licence in February 1970. Subsequently, he was issued float, night, and multi-engine ratings. His current licence did not reflect the float or night ratings; however, this was an administrative oversight during a licensing re-issue.

In the two years prior to the accident, the pilot had accumulated approximately 30 flight hours in this aircraft. The pilot's total experience could not be determined due to a lack of documentation. It is also unknown whether the pilot met the recency requirements as set out in section 401.05 of the *Canadian Aviation Regulations*.

Based on the autopsy and medical records, there was nothing found to indicate that the pilot's performance was degraded by physiological factors.

Weather

The weather reported at the Muskoka Airport, approximately 13 statute miles (sm) southeast of the cottage, at the time of the accident was as follows: temperature 21°C, visibility 9 sm, overcast sky with a ceiling at 9100 feet above ground level, wind speed 10 knots from the south. The local weather was determined to be similar to this weather report and was not considered a factor in this occurrence.

Wreckage Examination

The aircraft was destroyed by impact forces and a fuel-fed post-crash fire.

The propeller blades were extensively twisted and bent. Several small trees measuring up to six inches in diameter and located along the wreckage trail displayed evidence of having been cut by the propeller blades. Near the shoreline, several freshly cut tree top clippings were found, and the diameter of broken tree limbs increased as the main wreckage site was approached.

The aircraft struck the trees in a wings-level, very slightly nose-high attitude. Several sections of wing tips and a large section of the right wing were found in the earlier segment of the wreckage trail.

The wing flap position was checked and verified to be at the POH-recommended extension (20°) for take-off. Based on POH performance charts for the conditions that were present, the take-off water run required 1500 feet and, when airborne, an additional 2400 feet to clear a 50-foot obstacle. The POH also indicates that the aircraft's expected rate of climb should have been approximately 800 feet/minute.

Analysis

The investigation attempted to determine why the aircraft struck the trees after successfully becoming airborne and maintaining level flight. Photographic evidence did not reveal any abnormalities during the take-off run or initial climb, and propeller damage is consistent with considerable power being produced by the engine at the time of impact. Although the aircraft was substantially damaged by the impact and post-crash fire, the examination that was performed on the wreckage did not reveal any pre-impact failures.

The aircraft appeared to be properly configured for flight as per the recommended procedures in the POH. There was no evidence found related to a flight control problem that might have prevented the pilot from avoiding a collision with the trees. The aircraft was airborne approximately 5500 feet before the shoreline, a distance that is within its performance capability to continue a climb that would have avoided the tree impact. The investigation revealed no evidence that either an internal or external distraction diverted the pilot's attention away from controlling the aircraft. It is possible that the pilot, with limited flight time in this aircraft during the past two years, misjudged the height of the trees along the shoreline. If the aircraft had developed a mechanical abnormality shortly after lift-off that would have affected its climb performance, the pilot would have had sufficient lake surface remaining to land the aircraft.

The following TSB Laboratory report was completed:

LP 110/2009 – Global Positioning System (GPS) Analysis

This report is available from the Transportation Safety Board of Canada upon request.

Findings as to Causes and Contributing Factors

1. The aircraft struck the trees for undetermined reasons.
2. A fire erupted after the ground impact, consuming most of the aircraft.

Other Finding

1. Transport Canada did not indicate a float endorsement on the current pilot's license although it had remained valid from the previous license issuance.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 06 May 2010.

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