

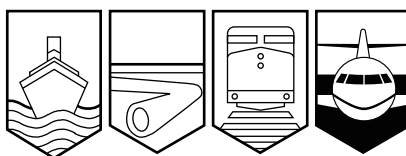
Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada

AVIATION INVESTIGATION REPORT

A99Q0134



LOSS OF CONTROL / IMPACT WITH THE GROUND

COSMOS U.L.M. INC.

COSMOS PHASE II ES C-IFEK

SAINT-MATHIAS-DE-RICHELIEU, QUEBEC

11 JULY 1999

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 / Impact with the Ground

Cosmos U.L.M. Inc.
Cosmos Phase II ES C-IFEK
Saint-Mathias-de-Richelieu, Quebec
11 July 1999

Report Number A99Q0134

Summary

The aircraft, a Cosmos Phase II ES ultralight, registration C-IFEK, serial number 21221, took off from a private gravel runway at Saint-Mathias-de-Richelieu, Quebec, for a familiarization flight with one passenger on board as part of an air show. Shortly after take-off, around 1730 local time, the pilot departed from the circuit that had been used since the beginning of the show's activities. The aircraft was flying at low altitude when it banked sharply and struck the ground. The pilot and the passenger sustained fatal injuries.

Ce rapport est également disponible en français.

Other Factual Information

The pilot held an ultralight aircraft licence with an instructor rating valid until May 2004. He had accumulated almost 60 hours' flying time, all on the Cosmos Phase II ES. As an instructor, he could give dual training on ultralight aircraft.

Based on the autopsy and toxicological test results, there is no indication that physiological factors affected the pilot's performance.

Specific procedures had been established for the circuit for the show. After taking off from runway 13, the instructor was to proceed towards Chambly Basin, west of the airport, and then turn left to fly over highway 10 until he joined the base leg for runway 13. The trip was to last about 15 minutes, during which the instructor was to initiate the passenger into flying an ultralight aircraft by demonstrating manoeuvres normally performed as part of a familiarization flight, such as the various aircraft attitudes. The term "familiarization flight" is borrowed here from the instructor's guide for conventional aircraft, because the term is not defined and the lessons are not structured in the ultralight field.

Several persons made ultralight flights at a preset rate during the weekend festivities. The purpose of these flights was to introduce the passengers to ultralight flying and possibly get them to enrol in a complete training course at the Cosmos U.L.M. Inc. training centre. The purpose of the flights, among other things, was to recruit new students.

At the time of the occurrence, the sky was clear. At 1700 local time, at the Saint-Hubert airport, Quebec, located about 10 miles northwest of the town, the winds were from 280 degrees magnetic at 9 knots gusting to 18 knots. At 1800 local time, the winds were from 270 degrees magnetic at 14 knots. Such winds can produce low-level mechanical turbulence.

Shortly before the flight, a company maintenance engineer made a check and indicated that everything was normal. The aircraft took off normally, proceeded away from Chambly Basin, flew over a hangar, and crashed near a heavy vehicle. Nearby, there were large fields bordered by big trees. The investigation revealed that the minimum descent gradient at the time of impact would have been greater than 45 degrees and that the engine was producing power at the time of impact.

These motorized ultralights are manufactured by the French company Cosmos, which provides a considerable amount of information on its product and makes technical manuals available to its clients. The manufacturer suggests assembly procedures, with information on techniques and the sequence of assembly. The user's manual provides the aircraft's performance data and available options. The maintenance manual also provides the aircraft's performance data and its handling characteristics. In addition, the manual sets out a schedule of maintenance and inspections to be carried out at various intervals. It was not possible to determine whether the flying school followed this maintenance schedule, because no relevant records were found. Canadian regulations do not require operators of ultralight aircraft to keep such records.

Several aircraft parts were sent to the TSB Engineering Branch Laboratory to determine whether the fractures identified were caused by the impact with the ground or whether the fractures had

occurred before impact. A microscopic examination of the attachments and the fractures identified on some parts was carried out at the TSB Laboratory. The examination revealed that the fractures were attributable to the violent impact with the ground.

Analysis

The damage to the ultralight was attributed to the impact with the ground. There is no indication that the aircraft experienced a malfunction before the accident. The tests performed on the parts sent to the TSB Engineering Branch Laboratory ruled out the possibility of a structure break-up in flight.

The passengers who boarded the ultralight aircraft were to receive training as part of a familiarization flight. Such ultralight flights are neither supervised nor defined as they are for an aeroplane. It is therefore hard to distinguish between a familiarization flight and a simple ultralight tour.

The prevailing conditions in terms of winds and terrain profile were conducive to low-level mechanical turbulence. The pilot probably encountered turbulence conditions that he was unable to manage, resulting in loss of control of the aircraft.

The following laboratory report was completed:

LP 81/99 - Wing Structure.

Findings as to Causes and Contributing Factors

1. The winds were blowing at 9 to 18 knots, possibly causing low-level mechanical turbulence.
2. The pilot probably encountered turbulence conditions that could have caused a loss of control.

Other Findings

1. A familiarization flight is neither defined nor supervised for ultralights.
2. It is hard in this kind of operation to distinguish between a so-called familiarization flight and an ultralight tour.

Safety Action

In the document *Flight 2005 Implementation Plan*, Transport Canada indicates that it intends to bring about a 10-per-cent reduction in the accident rate and loss of life in recreational aviation by 2005. To achieve its objectives, Transport Canada wants to improve ultralight training by developing a ground and flight instruction program, developing guides and manuals, and developing a refresher training program for recreational flight instructors.

On 17 March 2000, the Quebec Region of Transport Canada's Civil Aviation Directorate held a symposium for ultralight flight instructors. A stakeholder working group was set up to develop a ground and flight training program. This exercise is being conducted nationwide.

Several notices of proposed amendment are under review by Transport Canada with a view to introducing a new qualification allowing the carriage of passengers on board ultralight aircraft.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 07 March 2001.