Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

AVIATION OCCURRENCE REPORT

A98Q0043

IMPACT WITH THE GROUND

HÉMISPH-AIR SERVICES LTD.

PIPER PA-34-200T, C-FCYV

QUÉBEC/JEAN-LESAGE INTERNATIONAL AIRPORT, QUEBEC

28 MARCH 1998

Canada

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Hémisph-Air Services Ltd.
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Summary

The pilot of the Piper PA-34-200T, registration C-FCYV, serial number 34-7870286, was making a night intrument flight rules flight between Montréal/Dorval Airport, Quebec, and Québec/Jean-Lesage International Airport, Quebec, with four passengers on board. At destination, the pilot made an approach on runway 06 with the instrument landing system (ILS), but the pilot could not land because of the weather conditions. The pilot made an overshoot, and undertook a second approach on the same runway. Taking into account the prevailing weather conditions, the pilot advised the Québec control tower of his intention to return to Dorval if he was unable to land. On short final, the pilot initiated a missed approach, but the aircraft struck the ground and came to a stop 3 342 feet from the threshold of runway 06. Only one occupant was slightly injured.

Ce rapport est également disponible en français.

Factual Information

The pilot was certified and qualified for the flight in accordance with existing regulations. He held a Class 4 instructor rating and an instrument rating. He had a total of some 630 hours' flight time, including 65 on the Piper PA-34-200T. He was making the flight to maintain his instrument proficiency. In fact, this was the last day before the six-month deadline prescribed in the regulations. He had obtained his instrument rating 18 months prior to the occurrence and had completed 63 hours of instrument time. Over the preceding six months the pilot had completed six hours of instrument time as an instructor and had himself flown one hour of instrument time.

Section 401.05 of the *Canadian Aviation Regulations* (CARs) entitled "Recency Requirements" states in paragraph 3(b) that:

> No holder of an instrument rating shall exercise the privileges referred to in section 401.47 unless the holder has
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> (*b*) within the six months preceding the flight, acquired six hours of instrument time and completed six instrument approaches to the minima specified in the *Canada Air Pilot* in an aircraft, in actual or simulated weather conditions, or in a Level B, C or D simulator of the same category as the aircraft.

The pilot had accessed the forecasts issued at 1207 local time and valid for the next 24 hours. For the planned flight period, the weather forecasts for the Québec area were for fluctuation between a ceiling of 1,200 feet above ground level (agl) with visibility of six statute miles and a ceiling of 800 feet agl in rain showers and fog with visibilities of two statute miles. An amendment issued at 1837 local time and valid for the next 24 hours reported for the estimated time of approach to Québec a temporary situation associated with visibility of one statute mile in fog and vertical visibility of 400 feet. The pilot did not have this information in hand on take-off.

The aircraft was certified, equipped and maintained in accordance with existing regulations and approved procedures. The investigation did not reveal any mechanical malfunction. The pilot had been authorized by the carrier to make the flight.

On initial contact with the Québec tower, the pilot was informed by the controller that the runway visual range (RVR) was 1 400 feet, the observed visibility was half a mile in fog, and the vertical visibility was 100 feet. Approaches are limited by the RVR. In fact, with few exceptions, no pilot is allowed to continue an instrument approach beyond the outer marker or the final approach fix to a runway equipped with RVR measuring equipment when the values detected are below the published minimum, or 1 200 feet in the case of Québec.

While the aircraft was approaching, the crew of a Boeing 727 announced that they were doing a missed approach and that they wanted to turn back to Montréal without attempting another approach. Later, during the approach, the pilot of the Piper PA-34-200T was informed that the RVR had fallen to 1 200 feet. At 200 feet, or the published minimum approach height, the pilot initiated a missed approach, nearly four minutes after the Boeing 727 had overshot. CARs section 602 specifies that landings are managed by the decision height (DH) or the minimum

descent altitude (MDA), and that no pilot is to continue the descent unless the required visual reference necessary to complete a safe landing has been established.

While the aircraft was pulling up, the Québec terminal controller reviewed with the pilot the published missed approach procedure for runway 06. The procedure specifies that the pilot must climb on a heading of 063 degrees, which is the extension of the runway centre line, to an altitude of 3 300 feet, and then make a right turn to intercept inbound radial 090 from Québec very high frequency omnidirectional radio range (VOR). Shortly after initiating the missed approach, before reaching the altitude of 3 300 feet, the pilot began a right turn that did not allow him to intercept radial 090, but caused him, instead, to pass the intercept heading, so that the aircraft flew back over the airport. The controller intervened, using the radar to guide the pilot for a second approach on runway 06. The airport, whose altitude is 244 feet above sea level (asl), is bound on the north side by mountains rising to 2 091 feet asl.

At the time of the second approach, the Québec tower controller told the pilot that the RVR was then 1 200 feet. About two minutes later, when the pilot had just crossed the final approach fix, the RVR had dropped to 1 100 feet. An aircraft can legally continue its approach if the RVR is received after the aircraft has crossed the final approach fix. The pilot acknowledged the message and continued the descent. At the minimum approach altitude, the pilot initiated the missed approach procedure by overshooting, but the aircraft struck the ground and slid 243 feet before coming to a stop 3 342 feet from the runway threshold. The radar data indicates that the aircraft accelerated and that its rate of descent did not change until impact.

The landing gear separated from the aircraft on impact. The two propellers separated from the engines and were found lying along the wreckage trail. The tail assembly separated from the fuselage and left a gaping hole at the rear of the aircraft. The flaps were extended at 25 degrees. During a missed approach, a gradual transition should normally be made towards zero-degree flaps. According to the pilot, all the navigation systems were operating normally except for the VOR number two (NAV 2). Examination of the altimeter did not reveal any malfunction.

Analysis

The aircraft was certified and maintained in accordance with existing regulations. All the aircraft's systems were operating normally. The pilot was qualified for the flight, but had flown only one hour in instrument flight conditions during the past six months.

When the pilot planned the flight to Québec, the weather information led him to believe that the ceiling was going to remain at acceptable levels. On approach, however, the weather conditions had deteriorated to the point where landing became hardly possible. In fact, a Boeing 727 that preceded the Cessna by four minutes had made a missed approach and had not requested a new approach for Québec.

At the time of the overshoot, the pilot did not follow the missed approach procedure. The controller had to intervene to bring him back to the south of the airport and eventually on a heading for a second approach. The ILS missed approach procedure for runway 06 at Québec is not complicated, because the first part of the procedure simply requires staying on the centre line of the runway and climbing to 3 300 feet, which allows the pilot to contact air traffic services

and prepare for the second part of the procedure. Although this procedure is simple, things quickly become complicated if the workload increases, which is the case during a missed approach. The situation can further deteriorate if the pilot has little experience and training and is the only crew member.

The pilot also performed a missed approach procedure on the second approach. The radar data indicates that the aircraft's speed increased while its altitude continued to drop. The pilot did not modify the aircraft's attitude to begin a pull-up after the overshoot, and the aircraft crashed.

Findings

1. The pilot was qualified for the flight, and the aircraft was maintained in accordance with existing regulations.

2. On the first approach, the weather conditions had deteriorated, and the landing became hardly feasible.

3. The controller intervened because the pilot was not following the missed approach procedure.

4. The pilot had little instrument flight experience or training.

5. The pilot was the sole crew member.

6. The aircraft crashed shortly after the pilot initiated a missed approach.

7. The pilot did not modify the aircraft's attitude after initiating the missed approach procedure.

Causes and Contributing Factors

During the missed approach, the pilot, due to insufficient instrument flight experience and lack of training, did not modify the aircraft's attitude to initiate the climb, and the aircraft continued its descent and struck the ground.

Safety Action

Since the accident, the air carrier has established a clear policy on the use of aircraft for personal purposes. This policy details the kind of authorization that must be obtained from the management and the weather conditions required for such flights.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 9 March 2000.