

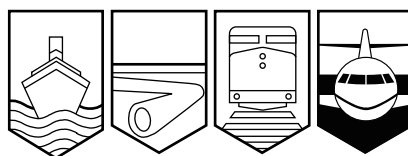
Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada

AVIATION INVESTIGATION REPORT

A04C0162



FLIGHT INTO ADVERSE WEATHER – COLLISION WITH TERRAIN

OLDS-DIDSBURY FLYING ASSOCIATION

PIPER PA-28-235 C-FYRJ

ASHERN, MANITOBA, 15 nm SW

26 AUGUST 2004

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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Olds-Didsbury Flying Association

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Summary

The Piper PA-28-235 aircraft (registration C-FYRJ, serial number 28-10005) departed Roblin, Manitoba, at 2025 central daylight time on a visual flight rules flight to Gimli, Manitoba. The initial portion of the flight was in daylight, the latter portion at night. The flight took place in uncontrolled airspace, and there was no record of any communication with air traffic services during the flight. The aircraft crashed in an open field at 2140. The pilot, the sole occupant of the aircraft, sustained fatal injuries, and the aircraft was destroyed by the impact and a post-impact fire.

Other Factual Information

The pilot was a member of the Olds-Didsbury Flying Association and rented the aircraft for a flight from Olds-Didsbury, Alberta, to Gimli, Manitoba, to visit a close friend who was returning to Alberta the next day (August 27), and also to attend a wedding on August 28. At 1014 central daylight time,¹ the pilot phoned the Edmonton Flight Information Centre (FIC) for a weather briefing for a visual flight rules (VFR) flight from Old-Didsbury to Yorkton, Saskatchewan, and onward to Gimli. The weather at Yorkton was unsuitable for VFR but was forecast to improve later in the day, and the weather in Gimli would be unsuitable for VFR until late that night. The weather was suitable for a VFR flight to Kindersley, Saskatchewan.

The pilot departed Olds-Didsbury at 1130 and arrived at Kindersley at 1305. At 1337, the pilot received a weather briefing from Edmonton FIC for a flight to Yorkton; the weather en route and at Yorkton was suitable for VFR. The pilot filed a VFR flight plan, departed Kindersley at 1405 and arrived at Yorkton at 1610.

During the stopover in Yorkton, the pilot phoned his friend in Gimli and filed a VFR flight itinerary to Gimli, with the friend as the responsible person. The friend had no aviation experience and was not briefed on the need to initiate search and rescue (SAR) action in the event the flight became overdue. The pilot had the aircraft refuelled, and, at 1700, received a weather briefing from Edmonton FIC for Winnipeg, Dauphin and the Gimli area. The most recent weather for Winnipeg, 1651, was as follows: ceiling 900 feet above ground level (agl) and visibility 3 statute miles (sm) in light drizzle. The weather for Dauphin at 1647 was as follows: ceiling 700 feet agl and visibility 9 sm in light rain. There were no weather reports available for Gimli. The poor weather conditions in the area were associated with a low-pressure system slowly moving eastward. Conditions were worse than forecast but expected to improve throughout the evening as the system moved out of the area. Ceilings were expected to improve to around 2000 feet agl, with the visibility improving when the rain stopped.

During the departure from Yorkton, the pilot contacted the Edmonton FIC and advised them of the VFR flight itinerary, with an eastbound departure toward Dauphin. No mention was made of Gimli as the intended destination. The last recorded radio contact with the FIC was at 1720 when the pilot reported clear of the Yorkton zone to the east and was given the Dauphin altimeter setting.

At 1846, the pilot's friend received a cellular phone text message indicating that the pilot was unable to continue to Gimli and was diverting to Roblin. The pilot arrived at Roblin at 1855. During the stopover at Roblin, the pilot refuelled the aircraft and, at 2005, received a weather briefing from the Winnipeg FIC for a VFR flight, requesting the Dauphin and Winnipeg weather. The weather for Dauphin at 2000 was a ceiling of 1300 feet agl and visibility of 9 sm. The weather for Winnipeg at 2000 was a ceiling of 700 feet agl overcast, with visibility of 3 sm in light rain and mist. The Winnipeg forecast was for a ceiling of 800 feet and visibility of 4 sm until 0100, with the ceiling decreasing to 500 feet after 0100 until 1000 the next morning.

At 2008, the pilot phoned the friend in Gimli, who relayed to the pilot an unofficial weather

¹ All times are central daylight time (Coordinated Universal Time minus five hours).

observation taken by a second friend, who was also a pilot. It was estimated that there were scattered clouds at 500 feet agl and overcast clouds at 1000 feet agl. At 2015, the pilot's friend phoned the pilot and reported that there was rain and lightning in the Gimli area.

The pilot departed Roblin at 2025. Sunset at the accident site was at 2032 and evening civil twilight ended at 2108. At 2130, the aircraft was seen outlined against the clouds, flying eastward just west of Lake Manitoba Narrows. The weather at the time was described as overcast with low clouds and drizzle, and the sky was very dark, with only a trace of light remaining on the western horizon. The aircraft crashed in an open field 50 feet south of provincial highway 68 and 3 miles east of Lake Manitoba Narrows. The accident was witnessed by vehicle drivers on the adjacent highway, who called emergency response services and searched for survivors. When the pilot did not arrive in Gimli, the friend who had received the flight itinerary did not initiate SAR action.

The aircraft struck the ground in a shallow left bank with a slightly nose-up attitude, on a heading of 280° Magnetic. After the impact with the ground, the aircraft struck a 550-kilogram hay bale, which tore off the left wing. The impact moved the hay bale 21 feet and rotated it 90°. The wreckage trail extended 540 feet from the initial point of ground impact. The pilot's seat and body were ejected from the cockpit and came to rest in different locations. The pilot's seat was equipped with a seatbelt without a shoulder harness; the seatbelt failed from the impact forces. An intense post-impact fire destroyed the fuselage and right wing. The emergency locator transmitter was destroyed by the fire.

Examination of the aircraft and ground scars revealed that the engine was operating and producing substantial power at the time of impact. All control surfaces were present and continuity of controls was verified by investigators. There was no indication of any pre-impact aircraft malfunction. The aircraft journey logbook was destroyed in the fire; however, examination of other aircraft records indicated that, with one exception, the aircraft was certified, equipped and maintained in accordance with current regulations. The one exception was the installation of a Garmin model 150 Global Positioning System, which was not recorded in the aircraft technical logs; it is possible that this avionics installation had been recorded in the destroyed journey log. The aircraft was equipped with an attitude indicator and directional gyro that were reported to be serviceable. The aircraft was not certified for instrument flight.

The pilot held a private pilot licence issued 27 August 1998, endorsed with a night rating that was issued 8 January 2004, as well as a glider pilot licence endorsed with a glider instructor rating. The licences were validated by a Category 3 medical certificate. The pilot's flight logbook was destroyed in the fire; however, examination of other records revealed the pilot had accumulated about 140 hours total flight time, including about 23 hours at night.

The pilot's training included ground instruction in pilot decision making and 10 hours of dual instrument training. The goal of pilot decision-making training "is to help pilots make better decisions by introducing them to the concepts, principles and practices of good

decision-making.”² The decision-making training provided to the pilot included an emphasis on departure go-no-go decisions based on weather conditions and the need to turn around when encountering poor weather.

Dual instrument training is required for the private pilot licence and also for the night rating. This training is primarily intended to provide basic instrument flying abilities to enable VFR pilots to reverse course if unsuitable weather conditions are encountered. The pilot received the required amount of dual instrument training during both the private pilot and night rating courses.

The decision to depart from Roblin for Gimli despite the weather conditions was considered by all the pilot’s acquaintances to be a significant departure from his usual behaviour.

Autopsy results indicate the pilot was fatally injured on impact. The autopsy and toxicology tests did not reveal any pre-existing condition or substance that could have affected the pilot’s performance.

Dauphin Airport is 52 nautical miles (nm) east of Roblin and 51 nm west of the accident site, situated exactly on a direct track between the two points, and is the location closest to both for which aviation weather observations are available. The pilot would have flown past the Dauphin area at about 2100, at which time the weather at Dauphin was as follows: wind 360° True (T) at 9 knots, visibility 9 sm, sky condition overcast at 1300 feet, temperature 13°C, dew point 12°C, altimeter setting 29.88. At 2129, 11 minutes before the accident, the Dauphin weather was as follows: wind 340° T at 8 knots; visibility 9 sm; sky condition of a few clouds at 2700 feet, a few clouds at 3900 feet, broken clouds at 5800 feet; temperature 13°C; dew point 12°C; and altimeter setting 29.89.

Gimli Airport is 70 nm southeast of the accident site, and is equipped with an automatic weather observation system, not certified for aviation use. The weather at Gimli at 2000, minutes before the briefing provided by the Winnipeg FIC, was as follows: wind 340°T at 17 knots, visibility 4 sm with light rain, a sky condition of broken clouds at 700 feet, overcast clouds at 2500 feet, temperature 14°C, dew point 14°C, altimeter setting not available. At 2125, 15 minutes before the accident, the Gimli weather was as follows: wind 340° T at 15 knots, visibility 6 sm with moderate rain, a sky condition of broken clouds at 900 feet, overcast clouds at 3000 feet, temperature 14°C, dew point 14°C, altimeter setting not available.

The terrain around the accident site is quite flat. There are no communities in the immediate vicinity, and the only lights on the surface are at local farms and a hotel.

Canadian Aviation Regulations (CARs) require that aircraft be operated at an altitude not less than 500 feet from any person, vehicle or structure outside of built-up areas. CARs also require that, for VFR flights in uncontrolled airspace where the aircraft is operated at less than 1000 feet agl at night, the aircraft be operated with visual reference to the surface, clear of cloud, and in flight visibility of not less than three miles.

² *Pilot Decision-making*, TP 13897E (CD), Transport Canada (02/2002).

CARs require pilots to file a flight plan or flight itinerary for flights conducted more than 25 nm from the departure aerodrome. If a flight itinerary is filed, it shall be filed with a responsible person, an air traffic control unit, a flight service station or a community aerodrome radio station. A responsible person is one who has agreed with the person filing the flight itinerary to ensure that air traffic services or a rescue coordination centre are notified within a time specified by the pilot, or within 24 hours after the last reported estimated time of arrival, that the aircraft is overdue.

Analysis

The pilot was flying to Gimli for two purposes. Although he could have spent the night at one of the en route stops and could still have attended the wedding on August 28, an overnight stop would have prevented him from seeing his friend in Gimli, who was leaving the next day. The pilot was aware that weather conditions deteriorated en route from Roblin to Gimli, but attempted the flight in spite of the poor weather.

Weather conditions on the night of the accident would have permitted operation at least 500 feet agl and clear of cloud with visibility of at least three miles. However, the combination of nighttime darkness, limited surface lighting, low overcast clouds and reduced visibility in drizzle would have made it very difficult for the pilot to maintain visual reference with the surface. The aircraft crashed on a westward heading, indicating the pilot had probably decided to reverse course because of the deteriorating weather conditions.

The aircraft struck the surface in a slightly nose-up attitude, indicating the aircraft was still under control at the time of impact. Given the darkness and weather conditions, the pilot would have needed to revert to instrument flight to make the course reversal turn. Although the aircraft was not certified for instrument flight, it was equipped with instruments suitable for emergency use. Instrument flying requires the use of skills, acquired through training and experience, that deteriorate with disuse. The pilot had limited instrument experience, acquired during his pilot private licence training in 1998 and the more recent night-rating training. The pilot most likely inadvertently descended while making the course reversal turn and did not detect and arrest the descent in time to prevent impact with the surface.

The pilot had filed a flight itinerary with the friend as per regulations. The pilot did not ensure that the friend understood the SAR-notification requirements of the flight itinerary. In this occurrence, emergency response services, including SAR resources, were notified immediately by witnesses to the accident. However, the failure of the pilot to ensure the designated responsible person understood the flight-itinerary, SAR-notification requirements presents a risk that SAR resources might not have been activated in a timely manner.

Findings as to Causes and Contributing Factors

1. The pilot continued a series of VFR flights at night into an area of limited surface lighting with known adverse weather conditions.

2. The pilot's instrument flying skills were most likely not adequate to safely complete the course reversal turn, resulting in an inadvertent descent that was not detected and corrected in time to prevent impact with the surface.

Finding as to Risk

1. The pilot did not ensure that the responsible person who received the flight itinerary understood the SAR-notification requirements.

Safety Action

On 25 January 2005, the TSB sent a safety advisory to Transport Canada, suggesting that the department may wish to consider action to improve awareness among pilots of the need to ensure that persons responsible for flight itineraries understand their obligations concerning SAR notification.

On 14 April 2005, Transport Canada published an article in Issue 2/2005 of the *Aviation Safety Letter*, which is sent to all Canadian licenced pilots. The article summarized the occurrence and emphasized the need for pilots to ensure that persons responsible for the flight itinerary fully understand the SAR-notification requirements.

The Olds-Didsbury Flying Association has introduced pilot training sessions, which are conducted every three months. It is mandatory for any pilot renting the club's aircraft to attend these sessions.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 25 April 2005.

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