Aviation Investigation Final Report

Location:	Akron, Ohio	**Accident Number:**	IAD05LA034
Date & Time:	January 19, 2005, 09:13 Local	**Registration:**	N5DS
Aircraft:	Cessna 414	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane departed on an instrument flight rules flight plan. At 2,500 feet, the airplane entered the clouds and immediately "picked up real heavy ice." The wing, propeller, and windshield deicing systems were activated. The windshield's "weeping" alcohol system could not keep pace with the ice buildup, and the windshield blurred "within seconds." Ice accumulated on the wing deicing boots while they were inflated, and ice shedding from the propellers was heard throughout the flight. The pilot requested and was cleared for a localizer approach back to the departure airport. On short final, he could see the runway out the side window, but aborted the landing. The pilot continued to an alternate airport, and completed an airport surveillance radar approach to the airport. About 5 feet above the runway surface, the pilot reduced power, and the airplane "just fell from the sky." The airplane landed hard on all three landing gear simultaneously. An AIRMET was issued for the area surrounding the departure airport and along the intended route of flight for moderate icing in clouds and precipitation below 15,000 feet, with conditions continuing throughout the day. At takeoff, the weather reported at the departure airport included an overcast ceiling at 1,300 feet, with 2 ½ miles of visibility in light freezing rain and mist. The temperature was 21 degrees Fahrenheit, and the dewpoint was 17 degrees Fahrenheit. The freezing rain began around the time of departure. Prior to departure, the pilot did not receive a weather briefing from FAA flight service, nor did he check for pilot reports (PIREPS). Examination of delivery documents, and the airplane owner's manual, revealed that the airplane was not equipped with the option package that allowed for "flight in icing conditions as defined by the FAA."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to obtain a complete weather briefing, which resulted in an inadequate

weather decision, and flight into known icing conditions. A factor was the airplane not being equipped for flight in icing conditions.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CLIMB - TO CRUISE

Findings
1. (C) WEATHER CONDITION - ICING CONDITIONS
2. (C) WEATHER EVALUATION - INADEQUATE - PILOT IN COMMAND
3. (F) AIRCRAFT/EQUIPMENT INADEQUATE - PILOT IN COMMAND

Occurrence #2: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
4. TERRAIN CONDITION - RUNWAY

Factual Information

On January 19, 2005, at 0913 eastern standard time, a Cessna 414, N5DS, was substantially damaged during a hard landing at Akron-Canton Regional Airport (CAK), Akron, Ohio. The certificated private pilot and two passengers were not injured. Instrument meteorological conditions prevailed for the flight that originated from Akron-Fulton Airport (AKR), Akron, Ohio, at 0840. An instrument flight rules (IFR) flight plan was filed for the flight, destined for Reading, Pennsylvania, which was conducted under 14 CFR Part 91.

The pilot was interviewed by telephone. He explained that he filed his IFR flight plan by computer the night before the accident, and that the forecast called for below-freezing temperatures, an overcast ceiling at 3,000 feet, and blowing snow. The pilot re-checked the weather on the computer at the local fixed base operator prior to departure.

The airplane was boarded around 0830, and taxied by 0835. At takeoff, the pilot was instructed to fly the runway heading to 3,000 feet. The airplane entered the clouds at 2,500 feet and immediately "picked up real heavy ice." The wing, propeller, and windshield deicing systems were activated.

The windshield's "weeping" alcohol system could not keep pace with the ice buildup, and the windshield blurred "within seconds." Ice accumulated on the wing deicing boots while they were inflated, and ice shedding from the propellers was heard throughout the flight.

The pilot requested and was cleared for a localizer approach back to Akron-Fulton Airport. On short final, the pilot could see the runway out the side window, but aborted the landing. With zero forward visibility, he felt he could not safely complete the landing.

The pilot continued to Akron-Canton Regional Airport, and completed the airport surveillance radar (ASR) approach to runway 19. At 110 knots indicated, and 5 feet above the runway, the pilot reduced power and the airplane "just fell from the sky." The airplane landed hard on all three landing gear simultaneously.

The pilot taxied from the runway, and the damage to the airplane was discovered during the postflight inspection. The pilot noted 1/2 to 3/4 of an inch of ice on the nose and the lifting surfaces of the airplane.

The pilot held a private pilot certificate with ratings for airplane single engine land, multi-engine land, and instrument airplane. He was issued a Federal Aviation Administration (FAA) second-class medical certificate on February 20, 2003.

The pilot reported approximately 1,400 hours of total flight experience, of which 90 hours were

in multi-engine airplanes, and 70 hours were in make and model.

The pilot stated there were no mechanical deficiencies with the airplane. Examination of delivery documents, and the Cessna 414 Owner's Manual, revealed that the airplane was not equipped with the option package that allowed for "flight in icing conditions as defined by the FAA." A note in the manual stated, "The aircraft is not approved for flight in icing conditions...."

Prior to departure, the pilot did not receive a weather briefing from FAA flight service, nor did he check for pilot reports (PIREPS).

At 0334, AIRMET Zulu was issued for the area surrounding the departure airport, and along the intended route of flight, for moderate icing in clouds and precipitation below 15,000 feet, with conditions continuing through 1600.

Between 0701, and 0934, several pilots of aircraft operating in the Akron area between 3,200 and 7,000 feet reported icing. The types and severity varied between rime and mixed icing, and light to moderate accumulations. The airplanes reporting the ice varied from light, twin-engine airplanes to transport category jet airplanes.

At 0836, the weather reported at Akron-Fulton Airport included an overcast ceiling at 1,300, with 2 ½ miles of visibility in light freezing rain and mist. The wind was from 200 degrees at 15 knots. The temperature was 21 degrees Fahrenheit, and the dewpoint was 17 degrees Fahrenheit. The freezing rain began at 0833.

At 0937, the weather reported at Akron-Canton Regional Airport included an overcast ceiling at 800 feet, with 2 miles of visibility in light snow and mist. The wind was from 200 degrees at 15 knots, gusting to 23 knots. The temperature was 21 degrees Fahrenheit, and the dewpoint was 17 degrees Fahrenheit.

Pilot Information

Certificate:	Private	**Age:**	51,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	February 1, 2003
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 1, 2004
Flight Time:	1403 hours (Total, all aircraft), 70 hours (Total, this make and model), 1337 hours (Pilot In Command, all aircraft), 22 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N5DS
Model/Series:	414	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	414-0486
Landing Gear Type:	Retractable - Tricycle	**Seats:**	7
Date/Type of Last Inspection:	January 1, 2005 Annual	**Certified Max Gross Wt.:**	6350 lbs
Time Since Last Inspection:	20 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	4086 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520
Registered Owner:	Jerold P. Ramsey	**Rated Power:**	300 Horsepower
Operator:	Jerold Ramsey	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	CAK,1228 ft msl	**Distance from Accident Site:**	
Observation Time:	09:37 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:		**Visibility**	2 miles
Lowest Ceiling:	Overcast / 800 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots / 23 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.92 inches Hg	**Temperature/Dew Point:**	-7°C / -8°C
Precipitation and Obscuration:	Light - Freezing - Snow		
Departure Point:	AKRON, OH (AKR)	**Type of Flight Plan Filed:**	IFR
Destination:	READING, PA (RDG)	**Type of Clearance:**	IFR
Departure Time:	08:40 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	AKRON-CANTON REGIONAL CAK	**Runway Surface Type:**	Asphalt
Airport Elevation:	1228 ft msl	**Runway Surface Condition:**	
Runway Used:	19	**IFR Approach:**	ASR
Runway Length/Width:	7000 ft / 150 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	41.037498,-81.466941

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Rob Dale; FAA; Cleveland, OH
Original Publish Date:	February 28, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60920