



National Transportation Safety Board Aviation Accident Final Report

Location:	Crookston, MN	Accident Number:	CHI07FA032
Date & Time:	12/01/2006, 1830 CST	Registration:	N9850G
Aircraft:	CESSNA	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airplane took off in deteriorating meteorological conditions and impacted the ground about 1 mile from the departure airport, fatally injuring both occupants. The pilot held a private pilot certificate and had accumulated 102.5 hours of total flight experience but only 4.6 hours of simulated instrument experience; he had no actual flying experience in instrument conditions. Near the time of the accident, the weather was reported as a ceiling of 200 feet above the ground with snow and 1 mile of visibility. It is likely that the non-instrument rated private pilot's decision to take off in deteriorating weather conditions was due to his lack of flying experience; once he took off into the instrument meteorological conditions, he became spatially disoriented and was unable to maintain control of the airplane. Examination of the airplane revealed no pre-impact anomalies.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadvertent flight into instrument meteorological conditions which led to his spatial disorientation and subsequent loss of control. Factors were the snow, the low ceiling, and the pilot's lack of instrument flight experience.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: MANEUVERING

Findings

1. (F) WEATHER CONDITION - SNOW
2. (C) VFR FLIGHT INTO IMC - INADVERTENT - PILOT IN COMMAND
3. (F) WEATHER CONDITION - LOW CEILING

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings

4. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
5. (C) SPATIAL DISORIENTATION - PILOT IN COMMAND
6. (F) LACK OF EXPERIENCE - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

7. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On December 1, 2006, about 1830 central standard time, a Cessna 172L, N9850G, piloted by a private pilot, was destroyed when it impacted terrain near Crookston, Minnesota. The 14 CFR Part 91 personal flight was operating in instrument meteorological conditions without a flight plan. The local flight originated from the Crookston Municipal Airport-Kirkwood Field (CKN), about 1815.

A witness reported seeing two people removing the accident airplane from a hangar at 1800. He stated that he saw the accident airplane outside of the hangar and that the two people were pushing another airplane back into the hangar. He reported that he did not see the people board the airplane, nor did he see the airplane take off.

At 1850, an emergency locator transmitter signal was detected by the Air Force Rescue and Coordination Center. The Civil Air Patrol, local authorities, and the CKN airport manager were contacted regarding the ELT signal. A ground search was begun and the airplane was located about 0300 on December 2, 2006. The aircraft was located in a harvested farm field about 1 mile southwest of CKN.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with a single engine land rating issued on July 1, 2006. The pilot also held a third class medical certificate that was issued on December 23, 2004. No limitations were listed on the medical certificate.

Examination of the pilot's flight logbook revealed that he had accumulated 102.5 total hours of flight experience including 30.3 hours in Cessna 172 airplanes, 19.7 hours in the previous 90 days and 5.0 hours in the previous 30 days. The pilot's logbook showed that he had accumulated 4.6 hours of simulated instrument flight time and no flight experience in actual instrument conditions.

The right seat passenger held a student pilot certificate and first class medical certificate issued on July 27, 2006.

Examination of the passenger's flight logbook revealed that he had accumulated 42.9 hours of total flight experience. No flight time in Cessna aircraft was listed in the passenger's logbook.

AIRCRAFT INFORMATION

The airplane was a 1971 Cessna 172L airplane, serial number 17259750. It was a single engine, strut braced, high-wing monoplane of predominately aluminum construction. The airplane had a fixed tricycle landing gear. It was powered by a Lycoming O-320-E2D engine, serial number L-36326-27A, rated to produce 160 horsepower. This engine had been installed on the airplane in accordance to a supplemental type certificate.

Examination of the aircraft maintenance records indicated that the airplane had been inspected in accordance with an annual inspection on July 17, 2006, at a recording tachometer reading of 6,099.6 hours. The records also showed that the airplane was inspected in accordance with a 100 hour inspection on October 26, 2006, at a recording tachometer time of 6,196.6 hours. The records indicated that the airplane had accumulated 10,495.8 hours total

time, and the engine had accumulated 1,304.3 hours since its most recent overhaul as of the date of the 100 hour inspection. The engine's most recent overhaul was performed on January 7, 2003.

METEOROLOGICAL INFORMATION

The automated weather observing system (AWOS) located at CKN recorded the weather conditions on the evening of the accident flight as follows:

At 1755, winds 340 degrees at 7 knots, 10 statute miles (sm) visibility, light snow, scattered clouds at 1,000 feet above ground level (AGL), broken clouds at 2,200 feet AGL, overcast clouds at 2,600 feet AGL, temperature -6 degrees Celsius (C), dew point -8 degrees C, altimeter setting 29.88 inches of mercury (in-Hg).

At 1815, winds 320 degrees at 9 knots, 5 sm visibility, light snow, scattered clouds at 1,300 feet AGL, broken clouds at 1,900 feet AGL, overcast clouds at 3,400 feet AGL, temperature -6 degrees C, dew point -9 degrees C, altimeter setting 29.89 in-Hg.

At 1835, winds 320 degrees at 11 knots gusting to 16 knots, 1 sm visibility, snow, overcast clouds at 200 feet AGL, temperature -7 degrees C, dew point -8 degrees C, altimeter setting 29.90 in-Hg.

At 1855, winds 330 degrees at 9 knots, 2 sm visibility; light snow, broken clouds at 400 feet AGL, overcast clouds at 800 feet AGL, temperature -7 degrees C, dew point -9 degrees C, altimeter setting 29.91 in-Hg.

Weather radar images for the Grand Forks Doppler radar site showed precipitation near CKN at the time of the accident. The images showed the base reflectivity of the radar returns near CKN of 5-10 dBZ at 1702 which increased to 20-25 dBZ at 1732, and then to 25-30 dBZ at 1825.

COMMUNICATIONS

At 1602, on the day of the accident, a call was placed to the Princeton, Minnesota, Automated Flight Service Station. The caller requested a standard weather briefing for a local flight from CKN, and identified N9850G as the aircraft. The briefer informed the caller of an approaching frontal boundary and scattered snow showers near CKN. The forecast for Grand Forks, North Dakota, that the briefer gave the caller was for ceilings of 6,000 feet broken for one hour followed by 4,000 feet overcast with areas of light snow. The briefer stated that the forecast was expected to run through the night and that visibilities were expected to remain 7 miles or better. The briefer continued with the area forecast for northwestern Minnesota, which called for 1,500 feet scattered clouds, 5,000 foot broken ceilings with occasional visibilities of 5 miles and snow development.

No records of radio communications with the accident airplane during the accident flight were found.

AIRPORT INFORMATION

CKN is an uncontrolled airport located in northwestern Minnesota and is served by three intersecting runways. Runway 13/31 is 4,300 feet by 75 feet, asphalt; runway 17/35 is 2,978 feet by 202 feet, turf; and runway 6/24 is 2,089 feet by 202 feet.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest at coordinates 47 degrees, 49.760 minutes north latitude, 96 degrees,

38.229 minutes west longitude. An impact mark was located about 170 feet and 60 degrees from the main wreckage. All aircraft components were located along a line extending 240 degrees from the initial impact mark.

The main wreckage consisted of the fuselage, empennage and wings. All flight control surfaces remained attached to the main wreckage with the exception of the outboard section of the right aileron. The detached portion of the right aileron was found about 20 feet from the main wreckage. The fuselage was crushed rearward and the aft fuselage was buckled aft of the main cabin. The aft fuselage was folded up over the cabin section. The empennage remained attached to the aft fuselage. The elevators and rudder remained attached to their respective surfaces. The wings remained partially attached to the cabin section. The engine was separated from the fuselage and was found about 40 feet from the main wreckage. The propeller was detached from the engine and was found between the initial impact mark and the main wreckage.

The airplane was moved to a hangar at CKN where a layout of the aircraft components was conducted.

The right wing exhibited upward and rearward crushing from a position outboard of the fuel tank to the tip. The upward crush angle was about 45 degrees relative to the longitudinal axis of the airplane. Examination of the right aileron control system confirmed control cable continuity from the aileron to the cockpit yoke assembly and to the left aileron.

The left wing exhibited upward and rearward crushing from about mid-span to the wing tip. The upward crush angle was about 45 degrees relative to the longitudinal axis of the airplane. Examination of the left aileron control system confirmed control cable continuity from the aileron to the cockpit yoke assembly and to the right aileron.

The vertical tail and rudder remained attached to the aft fuselage. Control cable continuity was confirmed from the rudder to the cockpit rudder pedals.

The horizontal tail and elevator remained attached to the aft fuselage. The left stabilizer and elevator were bent upward at about mid-span. The elevator trim tab remained attached to the elevator. Control system continuity was confirmed from the elevator to the cockpit yoke assembly.

Examination of the engine confirmed rotation and continuity of the accessory section and valve train. When rotated, the engine produced suction and compression in each cylinder. One magneto remained attached to the engine and produced spark from each position of the plug wire cap when rotated by hand. The other magneto was not located during the investigation. The upper spark plugs were removed and no defects were noted. The oil screen was removed and was found to be free of contaminants. Examination of the dry vacuum pump revealed that the core was fractured, and the drive coupling was intact.

No anomalies were found with respect to the airframe, engine, or airplane systems that could be determined to have existed prior to impact.

The recording hour-meter that was in the airplane read 4,166.8 hours, and the recording tachometer read 6,226.9 hours during the wreckage examination. A flight log sheet that was found showed that the accident pilot signed out the airplane on the day of the accident and that the starting hour-meter and recording tachometer readings were 4,166.6 hours 6,226.7 hours respectively.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the Ramsey County Medical Examiner's office.

The Federal Aviation Administration (FAA) prepared final Forensic Toxicology Fatal Accident Reports for the pilot and passenger. The results for both were negative for all tests performed.

ADDITIONAL INFORMATION

The FAA, Cessna Aircraft Company, and Textron Lycoming were parties to the investigation.

The wreckage was released to a representative of the insurance company.

Pilot Information

Certificate:	Private	Age:	18, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Without Waivers/Limitations	Last Medical Exam:	12/01/2004
Occupational Pilot:	No	Last Flight Review or Equivalent:	07/01/2006
Flight Time:	103 hours (Total, all aircraft), 30 hours (Total, this make and model), 20 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N9850G
Model/Series:		Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal; Utility	Serial Number:	17259750
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	10/01/2006, 100 Hour	Certified Max Gross Wt.:	2300 lbs
Time Since Last Inspection:	30 Hours	Engines:	1
Airframe Total Time:	10526 Hours	Engine Manufacturer:	
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	
Registered Owner:	Miller Aircraft Services, Inc	Rated Power:	
Operator:	Miller Aircraft Services, Inc	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	CKN, 899 ft msl	Observation Time:	1835
Distance from Accident Site:	1 Nautical Miles	Condition of Light:	Night/Dark
Direction from Accident Site:	0°	Conditions at Accident Site:	Instrument Conditions
Lowest Cloud Condition:	Unknown	Temperature/Dew Point:	-7° C / -8° C
Lowest Ceiling:	Overcast / 200 ft agl	Visibility	1 Miles
Wind Speed/Gusts, Direction:	11 knots/ 16 knots, 320°	Visibility (RVR):	
Altimeter Setting:	29.9 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Moderate - Snow		
Departure Point:	Crookston, MN (CKN)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1815 CST	Type of Airspace:	

Airport Information

Airport:	CROOKSTON MUNI KIRKWOOD FLD (CKN)	Runway Surface Type:	Asphalt
Airport Elevation:	899 ft	Runway Surface Condition:	Unknown
Runway Used:	31	IFR Approach:	None
Runway Length/Width:	4300 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal		

Administrative Information

Investigator In Charge (IIC):	John M Brannen	Adopted Date:	01/31/2008
Additional Participating Persons:	Scot Thompson; FAA, Minneapolis FSDO; Minneapolis, MN Jan Smith; Cessna Aircraft; Wichita, KS Mark Platt; Textron Lycoming; Van Nuys, CA		
Publish Date:	07/15/2010		
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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