



National Transportation Safety Board Aviation Accident Final Report

Location:	Walnut Grove, MO	Accident Number:	CEN11LA138
Date & Time:	01/03/2011, 1852 CST	Registration:	N1416F
Aircraft:	CESSNA 172H	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The accident occurred during the fourth leg of a visual flight rules cross-country flight. The pilot departed on the first leg of the trip shortly after sunrise, about 11 hours prior to the accident. The pilot made 3 intermediate stops during the day, where he purchased fuel. The accident flight was approximately 1 hour in duration and was conducted in night visual meteorological conditions. Radar track data depicted the airplane established on a west-southwest course and at a constant altitude. About 15 seconds prior to the accident, the airplane entered a descending left turn, and spiraled down, ultimately impacting an open field. A postaccident examination of the airplane did not reveal any anomalies consistent with a preimpact failure or malfunction. Postmortem toxicology testing was consistent with the prior use of a prescription anti-anxiety medication and marijuana. Due to limited samples, a determination could not be made as to when the substances were last used. Accordingly, no determination was made as to whether the pilot was impaired at the time of the accident. While the departure from controlled flight suggested spatial disorientation, and the extended duration of the trip likely contributed to pilot fatigue, the exact nature of the loss of control could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of control for undetermined reasons. Contributing to the accident was the pilot's fatigue.

Findings

Personnel issues	Aircraft control - Pilot (Cause) Alertness/Fatigue - Pilot (Factor)
Not determined	Not determined - Unknown/Not determined (Cause)

Factual Information

HISTORY OF FLIGHT

On January 3, 2011, about 1852 central standard time (cst), a Cessna 172H, N1416F, was substantially damaged during an in-flight collision with terrain near Walnut Grove, Missouri. The pilot was fatally injured. The airplane was registered to and operated by the pilot. The personal cross-country flight was being conducted under 14 Code of Federal Regulations Part 91 without a flight plan. Night visual meteorological conditions prevailed. The flight departed Waynesville-Forney Field Airport (TBN), Fort Leonard Wood, Missouri, about 1745. The intended destination was Bartlesville Municipal Airport (BVO), Bartlesville, Oklahoma.

A friend of the pilot reported that she drove him to Lancaster Airport (LNS), Lancaster, Pennsylvania, on the morning of the accident. They arrived at the airport about 0700 eastern standard time (est) and waited for the sun to rise. The pilot fueled the airplane and she watched him depart about 0750 est. She noted that the pilot called her about 1430 cst and 1730 cst that afternoon to check in. He reportedly stated that he was planning to spend the night in Oklahoma, and had arranged for a hangar for the airplane and a limousine to pick him up at the airport.

A receipt for several food and beverage items was recovered from the airplane. The receipt was dated the same day as the accident and included a time stamp of 0539 est.

Fueling records recovered from the airplane indicated that the pilot purchased fuel at: Pickaway County Memorial Airport (CYO), Circleville, Ohio, at 1158 est; Lawrenceville-Vincennes Airport (LWV), Lawrenceville, Illinois, at 1521 cst; and TBN about 1739 est.

Radar data recorded by the Springfield-National Airport (SGF) Air Traffic Control Tower (ATCT) appeared to depict the accident airplane in the vicinity of Lebanon, Missouri, about 1817. The radar target proceeded west-southwest. At 1839, the airplane was 19.5 nautical miles northeast (035 degrees) of SGF, at 3,300 feet mean sea level (msl). About 1851:55 (hhmm:ss), the airplane appeared to enter a left turn from 3,400 feet msl. About 5 seconds later, the airplane altitude was recorded as 3,100 feet msl. The final radar data point was recorded at 1852:05, about 0.10 nm south of the accident site.

A witness, who subsequently located the wreckage, reported hearing an airplane engine for about 2 seconds, followed by the sound of the impact.

The accident site was located in an open field about 11 miles north-northeast of SGF.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with a single engine land airplane rating. He was issued a third-class airman medical certificate without limitations on March 17, 2011. The pilot's most recent flight review endorsement was dated March 9, 2010.

The pilot had logged approximately 405 hours total flight time, with about 340 hours in Cessna 172 airplanes and 109 hours of total night flight experience. He had logged approximately 11 hours within the preceding 90 days.

AIRCRAFT INFORMATION

The accident airplane was a 1966 Cessna 172H, serial number 17254911. It was powered by a Continental O-300-D six-cylinder engine, serial number 34505-D-6-D, capable of producing

145 horsepower.

Maintenance records indicated that the most recent annual inspection was completed on January 27, 2010. The airframe had accumulated approximately 2,134 hours at the time of the accident, with about 71 hours since the inspection.

METEOROLOGICAL CONDITIONS

Weather conditions recorded by the Springfield-Branson National Airport (SGF) Automated Surface Observing System (ASOS), located approximately 11 miles south-southeast of the accident site, at 1852, were: Wind from 210 degrees at 5 knots, clear skies, and 10 miles visibility.

The sun and the moon were both below the horizon at the time of the accident. Sunset occurred at 1709 and civil twilight ended at 1738. The moon had set at 1641, with a new moon occurring at 0303 the following morning (January 4th).

WRECKAGE AND IMPACT INFORMATION

The airplane impacted an open field about 10.5 nm north-northeast of SGF. The main wreckage was located about 12 feet north of the ground impact crater. The impact crater measured about 6 feet in diameter and 3 feet deep, and was oriented on an approximate 350-degree (north) bearing. A debris field, emanating from the impact crater, was approximately 150 feet long by 75 feet wide. Small debris was located up to 200 feet from the main wreckage.

The airplane was fragmented. The nose landing gear separated and was located at the ground impact crater. The cockpit/cabin area was compromised. The cabin entry doors separated from the fuselage. The seats, with portions of the seat tracks attached, were separated from the airframe. The wings were separated and deformed. Portions of both ailerons remained attached to the wings. The empennage was located with the main wreckage. The horizontal and vertical stabilizers, with attached portions of the rudder and elevators, were deformed. Rudder and elevator control cables remained attached to their respective control surface bellcranks, as well as to their respective cockpit controls. Separations in the rudder and elevator cables appeared consistent with overload failures. The aileron control cables exhibited continuity at the aileron bellcranks and the cockpit control yoke. Separations in the aileron control cables between the cockpit and the wings appeared consistent with overload failures.

The engine separated from the airframe and was embedded into the ground. The propeller had separated from the engine. The crankcase was fractured and portions of 2 cylinders were separated consistent with impact damage. The separated cylinder sections were recovered at the accident site.

A postaccident examination of the airplane did not reveal any anomalies consistent with a preimpact failure or malfunction.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was performed at the Greene County, Missouri, Medical Examiner's office on January 4, 2011. The cause of death was attributed to blunt force trauma sustained in the accident.

The Federal Aviation Administration (FAA) forensic toxicology testing report stated:

0.131 (ug/ml, ug/g) Nordiazepam detected in Liver

0.072 (ug/ml, ug/g) Nordiazepam detected in Kidney
 1.976 (ug/ml, ug/g) Tetrahydrocannabinol (Marijuana) detected in Lung
 0.122 (ug/ml, ug/g) Tetrahydrocannabinol (Marijuana) detected in Kidney
 0.2494 (ug/ml, ug/g) Tetrahydrocannabinol Carboxylic Acid (Marijuana) detected in Liver
 0.2081 (ug/ml, ug/g) Tetrahydrocannabinol Carboxylic Acid (Marijuana) detected in Kidney
 0.0372 (ug/ml, ug/g) Tetrahydrocannabinol Carboxylic Acid (Marijuana) detected in Lung
 No ethanol was detected in tissue samples tested.

No history of substance dependence or abuse was noted by the pilot on any of his FAA airman medical certificate applications.

ADDITIONAL INFORMATION

According to local law enforcement, 12 bags, each containing approximately 1 ounce of marijuana, were recovered from the airplane after the accident.

History of Flight

Enroute-cruise	Loss of control in flight (Defining event) Collision with terr/obj (non-CFIT)
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Pilot Information

Certificate:	Private	Age:	45, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
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:	03/17/2011
Occupational Pilot:	No	Last Flight Review or Equivalent:	03/09/2010
Flight Time:	405 hours (Total, all aircraft), 340 hours (Total, this make and model), 11 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N1416F
Model/Series:	172H	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal; Utility	Serial Number:	17254911
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	01/27/2010, Annual	Certified Max Gross Wt.:	2300 lbs
Time Since Last Inspection:	71 Hours	Engines:	1 Reciprocating
Airframe Total Time:	2134 Hours	Engine Manufacturer:	CONT MOTOR
ELT:	Installed, not activated	Engine Model/Series:	0-300 SER
Registered Owner:	On file	Rated Power:	145 hp
Operator:	On file	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	SGF, 1268 ft msl	Observation Time:	1852 CST
Distance from Accident Site:	11 Nautical Miles	Condition of Light:	Night
Direction from Accident Site:	300°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	1°C / -6°C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	5 knots, 210°	Visibility (RVR):	
Altimeter Setting:	30.01 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ft Leonard Wood, MO (TBN)	Type of Flight Plan Filed:	None
Destination:	Bartlesville, OK (BVO)	Type of Clearance:	None
Departure Time:	1745 CST	Type of Airspace:	

Airport Information

Airport:	Springfield-Branson National (SGF)	Runway Surface Type:	
Airport Elevation:	1268 ft	Runway Surface Condition:	
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	Timothy Sorensen	Adopted Date:	10/17/2011
Additional Participating Persons:	Marvin L Moore; FAA -- Kansas City FSDO; Kansas City, MO Henry J Soderlund; Cessna Aircraft Company; Wichita, KS		
Publish Date:	10/17/2011		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=78089		

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