Aviation Investigation Final Report

Location:	Saint Charles, Idaho	**Accident Number:**	WPR09FA379
Date & Time:	August 7, 2009, 11:45 Local	**Registration:**	N6905B
Aircraft:	Piper PA-22-150	**Aircraft Damage:**	Destroyed
Defining Event:	Collision with terr/obj (non-CFIT)	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot was on a visual flight rules personal cross-country flight during day visual meteorological conditions near mountainous terrain. Witnesses along the route of flight reported observing the airplane overfly their position at a low altitude on a course towards the accident site. There were no known witnesses to the accident sequence. The accident site was in an open area surrounded by rising terrain in three of the four quadrants. Examination of the wreckage revealed that impact damage signatures on the wings were consistent with right wing low impact with terrain. The fuselage, wings, and most of the empennage were consumed by a post-impact fire. No evidence of any pre impact mechanical anomalies was discovered with the engine or airframe. Using reported weather conditions near the accident site and the accident site elevation, the density altitude was calculated to be about 10,706 feet mean sea level. Toxicology testing on the pilot was positive for an unspecified amount of Famotidine within the blood and urine. Famotidine is an acid-reducing medication, used to treat heartburn or ulcer disease and is available through prescription or over the counter. Famotidine is commonly known by the trade name Pepcid.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain terrain clearance while maneuvering.

Findings

Aircraft	Altitude - Not attained/maintained
Environmental issues	Mountainous/hilly terrain - Effect on operation
Personnel issues	(general) - Pilot
Environmental issues	High density altitude - Effect on equipment

Factual Information

History of Flight

Maneuvering	Collision with terr/obj (non-CFIT) (Defining event)

HISTORY OF FLIGHT

On August 7, 2009, about 1145 mountain daylight time, a Piper PA22-150, N6905B, was destroyed when it impacted the ground while maneuvering near mountainous terrain near Saint Charles, Idaho. The airplane was registered to and operated by the pilot under the provisions of Title 14 Code of Federal Regulations Part 91. The private pilot and his passenger were killed. Visual meteorological conditions prevailed and no flight plan was filed for the personal flight. The cross-country flight originated from the Ogden-Hinckley Airport (OGD), Ogden, Utah, at 1102 with an intended destination of Alpine, Wyoming.

There were no known witnesses to the accident sequence; however, there were two witnesses in the area of the accident that observed an airplane similar to the accident airplane flying in a northerly direction. One witness, located at a recreational camping area about six miles south of the accident site, reported that the airplane flew overhead at an altitude of about 500 to 1,000 feet above ground level (agl). Using the witnesses reported location, it was estimated the witness was at an elevation of about 7,220 feet mean sea level (msl).

Another witness, located about 2.5 miles south of the accident site, reported that he was traveling north in a vehicle when he noticed an airplane traveling north about 300 feet above the tree line. Using the witnesses reported location, it was estimated that the witness was at an elevation of about 7,710 feet msl. About 30 minutes later, a group of people operating all terrain vehicles stopped the second witness and informed him that an airplane had crashed in the area.

Both witnesses did not report observing any abnormal flight patterns or smoke trailing from the airplane.

PERSONNEL INFORMATION

The pilot, age 57, held a private pilot certificate with an airplane single-engine land rating, which was issued on January 10, 2004. A third-class airman medical certificate was issued on May 12, 2009, with the limitation "must wear corrective lenses for near and distance vision." The pilot reported on his most recent medical certificate application a total flight time of 503 hours. The pilot's logbook was not located during the investigation.

AIRCRAFT INFORMATION

The four-seat, high-wing, fixed-gear airplane, serial number (S/N) 22-4179, was manufactured in 1956. It was powered by a Lycoming O-320 150-horse power engine, and equipped with a Sensenich fixed-pitch propeller. The airplane was also equipped with two 18-gallon fuel tanks. The airplane's maximum certificated gross weight was 2,000 pounds.

Review of copies of maintenance logbook records showed an annual inspection was completed on March 27, 2009, at a recorded tachometer reading and airframe total time of 2,578.13 hours. The engine underwent a 100-hour inspection on March 19, 2009, at a tachometer reading of 2,578.13 hours and 398.25 hours since major overhaul. The most recent airframe logbook entry stated that on August 6, 2009, at a tachometer reading and airframe total time of 2,605.0 hours, eight rubber engine mounts were replaced at all four engine mount locations. The tachometer was observed at the accident site; however, damage precluded determining the current reading.

According to a family member of the pilot, prior to the accident flight, the pilot had removed the rear seat to allow for additional baggage. They reported that the pilot had placed two sleeping bags, one emergency kit, and one tent within the airplane. The family member of the pilot estimated the total weight to be about 30 pounds. The family member further reported that the pilot had refueled the airplane prior to the accident flight with automotive fuel via fuel canisters at his hangar.

The Safety Board investigator-in-charge (IIC) examined the pilot’s hangar and observed six five-gallon fuel containers. One of the fuel containers was full of a liquid consistent with automotive fuel. Trace amounts of liquid consistent with automotive fuel was also observed within one of the remaining five fuel containers. The liquid was tested using water finding paste with negative results. No debris was observed within any of the fuel containers.

METEOROLOGICAL INFORMATION

A review of recorded weather data from the automated weather observation station at the Logan-Cache Airport, Logan, Utah, located 25 miles southwest of the accident site, at an of elevation 4,457 feet, revealed that at 1151, conditions were wind from 360 degrees at 5 knots, visibility 10 statute miles, sky clear, temperature 19 degrees Celsius, dew point 6 degrees Celsius, and an altimeter setting of 29.97 inches of Mercury. Using the reported weather conditions and the accident site elevation of 8,321 feet, the density altitude was calculated to be about 10,706 feet. The pressure altitude was calculated to be about 8,276 feet.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located in an open field with numerous large rocks spread throughout the area, adjacent to a heavily wooded area. The measured elevation of the accident site was 8,321 feet msl. Areas of rising terrain were observed to the north, east, and west of accident site. The wreckage energy path was about 50 feet in length, oriented on an approximate 320-

degree magnetic heading. The first identified point of contact was a ground scar, about two feet wide and about two feet in length. Fragments of green lens, consistent with the right wing navigation light and fragments of the outboard right wingtip were observed within the initial ground scar. A second ground scar, about 30-35 feet in length and about 5 feet in width extended from the initial ground scar. The second ground scar contained fragments of plexi-glass and the outside air temperature gauge.

Examination of the airframe revealed that it came to rest upright on an approximate heading of 220 degrees magnetic. The fuselage, wings, and empennage were mostly consumed by fire. All major structural components were present at the accident site. Flight control continuity was established from all primary flight controls to the cockpit control wheel. Examination of the airframe and flight control system revealed no evidence of pre impact mechanical malfunction.

The engine was recovered to a secure location for further examination.

Examination of the recovered engine revealed that all cylinders remained attached to the crankcase and exhibited thermal discoloration. All fuel and oil lines were fire damaged. The exhaust was intact and exhibited impact damage. All engine accessories remained attached to the engine except for the carburetor, which had separated below its respective mount. The top spark plugs, left and right magnetos, the vacuum pump, propeller, and rocker arm covers were removed. The engine crankshaft was manually rotated by hand using a drive tool at the accessory drive pad. Rotational continuity was established throughout the engine and valve train. Thumb compression and suction were obtained on all four cylinders. Equal lifting movement was observed on all intake and exhaust valve rocker arms.

The propeller remained attached to the engine crankshaft. The propeller blades were marked "A" and "B" for identification purposes. Propeller blade "A" was twisted opposite the direction of rotation from about 10 inches inboard of the propeller blade tip. Leading edge gouges were observed on the outboard 2 inches of the blade tip. Chordwise scratching was observed on the aft face of the propeller blade. Propeller blade "B" exhibited a slight "S" bend through the outboard three quarters of the blade. Chordwise scratching was observed from mid span of the blade and extended to the blade tip. Leading edge gouges and polishing was observed from about mid span to the blade tip.

Examination of the recovered engine revealed no evidence of pre impact mechanical malfunction.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy on the pilot was performed on August 8, 2009. The medical examiner determined that the cause of death was “blunt force trauma.”

The FAA's Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma, performed

toxicology tests on the pilot. According to CAMI's report, carbon monoxide, cyanide, volatiles, and drugs were tested, and had positive results for an unspecified amount of Famotidine within the blood and urine.

Pilot Information

Certificate:	Private	**Age:**	57,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	May 12, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	503 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N6905B
Model/Series:	PA-22-150	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-4179
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	March 27, 2009 Annual	**Certified Max Gross Wt.:**	2000 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2578 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	C91 installed, not activated	**Engine Model/Series:**	O-320
Registered Owner:	KEVIN CHAMBERS	**Rated Power:**	150 Horsepower
Operator:	KEVIN CHAMBERS	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LGU,4457 ft msl	**Distance from Accident Site:**	25 Nautical Miles
Observation Time:	11:51 Local	**Direction from Accident Site:**	200°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.96 inches Hg	**Temperature/Dew Point:**	19°C / 6°C
Precipitation and Obscuration:	Light - None -		
Departure Point:	Ogden, UT (OGD)	**Type of Flight Plan Filed:**	None
Destination:	Alpine, WY	**Type of Clearance:**	None
Departure Time:	10:00 Local	**Type of Airspace:**	

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	**Latitude, Longitude:**	42.110832,-111.38861(est)

Administrative Information

Investigator In Charge (IIC):	Cawthra, Joshua
Additional Participating Persons:	Kent Gibbons; Federal Aviation Administration; Salt Lake City, UT Mike McClure; Piper Aircraft Incorporated; Vero Beach, FL
Original Publish Date:	April 22, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=74420