Aviation Investigation Final Report

Location:	Winter Park, Colorado	**Accident Number:**	DEN06FA107
Date & Time:	July 30, 2006, 07:00 Local	**Registration:**	N5232X
Aircraft:	American Champion 7KCAB	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to family members, the pilot had flown to the vicinity of the continental divide and camped out in preparation for a flight over the divide the next day. On the accident flight, witnesses related that they saw the airplane fly over the divide, into mountainous terrain, circle around the divide, and fly towards a local lake. One witness said the airplane was so low he thought it was going to land on the lake. Another witness saw the airplane enter a bank at low altitude, at which time "the nose turned down and the airplane went straight down like it was hit with a fly swatter." An additional witness reported that the nose went down with the nose facing opposite the original direction of flight. Discussions with other pilots and her former aerobatic instructor, disclosed that the pilot liked to perform aerobatics, and fly at a low altitude over steep terrain. Postaccident inspection of the airplane revealed impact signatures consistent with a loss of control and a stall/spin. No evidence of any preimpact mechanical anomaly was discovered.

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 adequate airspeed to avoid a stall while maneuvering at a low altitude in mountainous terrain. Factors associated with the accident are the pilot's performance of a low altitude flight maneuver, an inadvertent stall/spin, and the pilot's improper in-flight planning/decision.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. (F) LOW ALTITUDE FLIGHT/MANEUVER - PERFORMED - PILOT IN COMMAND
2. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND
3. (F) STALL/SPIN - INADVERTENT - PILOT IN COMMAND
4. (F) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
5. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On July 30, 2006, approximately 0700 mountain daylight time, an American Champion 7KCAB, N5232X, piloted by a commercial pilot, was destroyed when it impacted mountainous terrain 6 nautical miles northeast of Winter Park, Colorado. Visual meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under the provisions of Title 14 Code of Federal Regulations Part 91 without a flight plan. The pilot and her passenger, a commercial certificated flight instructor, sustained fatal injuries. The cross-country flight departed McElroy Field (20V), Kremmling, Colorado, approximately 0630, and was en route to Boulder Municipal Airport (1V5), Boulder, Colorado.

Family members reported that both pilots flew to Kremmling, camped under the wing of the airplane, and departed early the next morning in time to watch the sun rise over the continental divide. Both pilots were scheduled to be back at work at 0900 on the day of the accident.

Witnesses camped on the west end of Betty Lake on the morning of the accident observed the accident airplane. According to these witnesses, the accident airplane flew overhead, from the east, towards the continental divide. One witness observed the accident airplane come from "behind the continental divide, wrap around the mountain, and then fly back around towards the lake." Another witness thought the airplane was going to land on the lake and estimated the airplane height between 100 and 200 feet above the ground.

The airplane was observed to bank to the west at which time the "nose turned down and the airplane went straight down like it was hit with a fly swatter." One witness commented that the "airplane went down with the nose facing opposite the original direction of flight." Both witnesses could hear the engine and one noted that the engine was "loud." The airplane impacted trees and terrain approximately 200 yards from the campsite.

PERSONNEL INFORMATION

The pilot, age 19, held a commercial pilot certificate issued on May 23, 2006, with airplane single engine land, sea, and instrument ratings. She held a second class airman medical certificate issued on May 31, 2006. The certificate contained the limitation "holder shall wear correcting lenses while exercising the privileges of his/her airman certificate." At the time of medical certificate application, the pilot reported 740 hours total time; 40 of which had been logged in the past 6 months.

The pilot's family provided a copy of her logbooks for review by the National Transportation Safety Board (Safety Board) investigator-in-charge (IIC). A review of the logbook indicated that

the pilot had logged no less than 852 hours total flight time, 586 of which were as pilot in command, and 662 of which were in tailwheel airplanes. Her logbook indicated she received an endorsement to act as pilot in command in tailwheel airplanes on June 10, 2003, and a spin endorsement on March 9, 2002. The pilot's logbook did not reflect any prior experience in the make and model of the accident airplane.

The pilot-rated passenger, age 30, held a commercial pilot certificate with airplane single engine land and instrument ratings which was issued on February 10, 2005. In addition, he held a flight instructor certificate with an airplane single engine rating issued on December 17, 2004. He also held a second class airman medical certificate issued on April 25, 2006. The certificate contained no limitations. At the time of medical certificate application, the passenger reported 950 hours total time; 120 of which has been logged in the past 6 months.

The passenger's family provided a copy of his logbooks for review by the Safety Board IIC. A review of the logbook indicated that the passenger had logged no less than 1,146 hours of total flight time, 1,084 of which were as pilot in command. His logbook indicated that he received an endorsement to act as pilot in command in tailwheel airplanes on February 19, 2003, and a spin endorsement on December 5, 2004. According to the owner of the airplane, the passenger had logged approximately 120 hours in the accident airplane.

AIRCRAFT INFORMATION

The accident airplane, an American Champion 7KCAB (serial number 210), was manufactured in 1969. It was registered with the Federal Aviation Administration on a standard airworthiness certificate for normal operations. The airplane was equipped with a Textron Lycoming IO-320-E2A engine rated for 150 horsepower at 2,700 rpm. The engine was equipped with a 2-blade, McCauley propeller.

The airplane was registered to a private individual, and was maintained under an annual inspection program. A review of the maintenance records indicated that an annual inspection had been completed on December 7, 2005, at an airframe total time of 3,841.3 hours. The airplane had flown approximately 51.3 hours between the last inspection and the accident and had a total airframe time of 3,892.6 hours.

METEOROLOGICAL INFORMATION

The closest official weather observation station was Copper Mountain (KCCU) Automated Weather Observation Station, located 35 nautical miles (nm) southwest of the accident site. The elevation of the weather observation station was 12,074 feet mean sea level (msl). The routine aviation weather report (METAR) for KCCU, issued at 0710, reported, winds, 290 degrees at 3 knots, visibility, 10 statute miles; sky condition, clear; temperature 11 degrees Celsius (C); dewpoint, 04 degrees C; altimeter, 30.50 inches.

According to two pilots flying over Rollins Pass around the time of the accident, the visibility

was good. They experienced "very little turbulence" and stated there were no significant downdrafts. They stated that the airplane display indicated the winds were out of the west with a velocity no greater than 15 knots.

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board investigator-in-charge (IIC) arrived on scene approximately 1600 on July 30, 2006. The accident site was located in the Roosevelt National Forest, in sloping, mountainous terrain, 4,700 feet north of Rollins Pass. Willow bushes and coniferous spruce trees vegetated the area. A global positioning system receiver recorded the coordinates of the main wreckage as 39 degrees, 56 minutes, 49.4 seconds north latitude, and 105 degrees, 40 minutes, 49.8 seconds west longitude. The accident site was at an elevation of 11,380 feet msl and the airplane impacted on a magnetic heading of 240 degrees.

The wreckage consisted of the left and right wings, empennage, fuselage, and engine assembly, which were all located at the scene. The airplane came to rest in a nose down, left wing low attitude. The right wing was folded to the left, over the fuselage. The empennage was twisted 180 degrees, and folded towards the fuselage.

The left wing, to include the left aileron, remained attached to the fuselage. The fabric on the wing was torn, and the paint chipped. The wing was twisted and exhibited accordion crushing along the entire leading edge. The left fuel tank was dripping fuel and a blue fuel stain was observed on the fabric near the fuel cap. Control continuity to the left aileron was confirmed.

The right wing, to include the right aileron, remained attached to the fuselage. The wing was twisted and bent towards the fuselage. The fabric on the wing was torn, and the paint chipped. The fuel tank was compromised. Control continuity to the right aileron was confirmed.

The empennage, to include the elevator, horizontal stabilizer, vertical stabilizer, and rudder, was twisted and bent to the left, and partially separated from the fuselage. Control continuity to the elevator and rudder was confirmed. The fuselage, to include the engine and propeller assembly, the cabin, and instrument panel, was crushed. The instrument panel was crushed aft and destroyed and the occupiable space within the cabin was reduced.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy was performed on the pilot and pilot rated passenger by the Boulder County Coroner on July 31, 2006, as authorized by the Boulder County Coroner's office. The autopsies revealed "the cause of death attributed to multiple blunt force traumatic injuries."

During the autopsy, specimens were collected for toxicological testing to be performed by the FAA's Civil Aerospace Medical Institute, Oklahoma City, Oklahoma (CAMI Reference #200600175001 and 200600175002). Tests were negative for carbon monoxide, cyanide, ethanol, and drugs.

ADDITIONAL INFORMATION

According to an acquaintance, the pilot was learning to "granite surf" over the continental divide. The pilot stated to her acquaintance that it was something she really enjoyed. Several other acquaintances mentioned the activity of granite surfing; however, no one could elaborate as to the details of this activity.

According to the pilot's logbook, she began acrobatic training in a Christen Eagle II on June 11, 2006, and had logged 11 flights. The last instructional flight was logged on July 20, 2006. The remarks section of the first entry stated, "divide ride, basic aerobatics, high performance, tailwheel intro." The remarks section of the other logbook entries included "divide ride, amazing ride," "loops, rolls, hammerheads, Cuban 8, divide ride, CTS," and "inverted flight, spins." One remarks section entry stated "amazing divide ride with clouds" and another entry stated "even more amazing cloud dancing, acro."

The flight instructor for these 11 flights was contacted for an interview. When asked about cloud dancing, he stated this refers to using clouds as a reference during the performance of an aerobatic maneuver. With regards to a divide ride, he stated that this referred to flying in the mountains, along the continental divide. He stated further that he was training the pilot on mountain flying techniques such as how to cross ridgelines. When asked about granite surfing, he stated that it was similar to a divide ride, flying in the mountains at an altitude of 100 to 500 feet above ground level.

In addition to the pilot's logbook, the family provided the Safety Board IIC a copy of a DVD, entitled "The Best of Bug Smashing," on September 7, 2006. This video exhibited acrobatics in airplanes (including the accident airplane) and skydiving from several airplanes and a helicopter. In addition, an airplane appearing to be a Christen Eagle was recorded performing low-level acrobatics over the mountains and a lake and low-level flight near the accident location.

Parties to the investigation included Textron Lycoming Engines, and the FAA represented through an operations inspector with the Denver, Flight Standards District Office. The wreckage was released to a representative of the insurance company in December of 2006.

Pilot Information

Certificate:	Commercial	**Age:**	19,Female
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	May 1, 2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 1, 2006
Flight Time:	852 hours (Total, all aircraft), 586 hours (Pilot In Command, all aircraft), 115 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Information

Certificate:	Commercial; Flight instructor	**Age:**	30,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	April 1, 2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1146 hours (Total, all aircraft), 1085 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	American Champion	**Registration:**	N5232X
Model/Series:	7KCAB	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	210
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	December 1, 2005 Annual	**Certified Max Gross Wt.:**	1650 lbs
Time Since Last Inspection:	51.3 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3892.6 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-320-E2A
Registered Owner:	On file	**Rated Power:**	150 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	CCU,12073 ft msl	**Distance from Accident Site:**	35 Nautical Miles
Observation Time:	07:10 Local	**Direction from Accident Site:**	220°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.5 inches Hg	**Temperature/Dew Point:**	11°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kremmling, CO (20V)	**Type of Flight Plan Filed:**	None
Destination:	Boulder, CO (1V5)	**Type of Clearance:**	None
Departure Time:	06:30 Local	**Type of Airspace:**	

Airport Information

Airport:	NA	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	39.934444,-105.667778

Administrative Information

Investigator In Charge (IIC):	Kaiser, Jennifer
Additional Participating Persons:	Al Hankins; FAA Flight Standards District Office; Denver, CO Troy Helgeson; Lycoming Engines; Williamsport, PA
Original Publish Date:	March 26, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=64221