Aviation Investigation Final Report

Location:	Sutton, Alaska	**Accident Number:**	ANC13FA090
Date & Time:	August 29, 2013, 13:00 Local	**Registration:**	N9624S
Aircraft:	Champion 7ECA	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot and passenger were reported to be scouting for locations to hunt moose. When the pilot did not return home at his specified time, a search was initiated for the airplane. The wreckage was located in an area of heavy alder brush, about 250 yards upslope of the floor of about a 3-mile-wide mountain valley. The area surrounding the accident site was interlaced with game trails, and numerous moose tracks and signs were in the area. A large herd of moose was also spotted in the same valley in the days after the accident.

The airplane collided with the ground in a nose-low attitude, and impact damage was consistent with a near-vertical descent, indicating that an aerodynamic stall occurred. A postaccident examination revealed no evidence of a mechanical malfunction or failure with the airframe or engine before impact.

Toxicology tests on the pilot were found positive for metabolites of marijuana within the blood and lung tissue. Most behavioral and physiological effects return to baseline levels within 3 to 5 hours after drug use, although some residual effects on specific behaviors, such as complex divided attention tasks, have been demonstrated up to 24 hours after use. Psychomotor impairment can persist after the perceived high has dissipated. Based on the toxicology results, it is likely that the pilot used marijuana on the day of the accident. Although the pilot's use of marijuana likely affected his ability to successfully manage this flight, the exact degree of impairment in cognition, judgment, and motor function 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 failure to maintain airplane control while maneuvering at low altitude, which resulted in an aerodynamic stall/spin and collision with terrain. Contributing to the accident was the pilot's use of marijuana, which likely degraded his psychomotor ability.

Findings

Personnel issues	Task monitoring/vigilance - Pilot
Personnel issues	Aircraft control - Pilot
Aircraft	Airspeed - Not attained/maintained
Aircraft	Angle of attack - Not attained/maintained
Personnel issues	Illicit drug - Pilot

Factual Information

History of Flight

Maneuvering-low-alt flying	Aerodynamic stall/spin (Defining event)
Maneuvering-low-alt flying	Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On August 29, 2013, about 1300 Alaska daylight time, a Champion 7ECA (Citabria) airplane, N9624S, sustained substantial damage following a collision with terrain about 7 miles north of Sutton, Alaska. The private pilot and one passenger were fatally injured. The airplane was registered to, and operated by the pilot as a visual flight rules personal local flight under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed, and no flight plan was filed. The flight originated from the Wolf Lake Airport, Palmer, Alaska, around 1200.

According to a family member of the pilot, the purpose of the flight was to scout for locations to hunt moose, and the pilot said that they would return later that afternoon.

When the airplane did not return to Wolf Lake, a family member of the passenger reported the airplane overdue to the 11th Air Force's Rescue Coordination Center (RCC) about 1930. The RCC initiated a search for the missing airplane along its supposed route of flight. In the early morning hours of August 30, an Air National Guard C-130 Hercules was able to locate the wreckage. Rescue personnel aboard a HH-60G helicopter were able to reach the site later that morning, and confirmed the pilot and passenger were deceased.

Pilot Information

Certificate:	Private	**Age:**	30
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	October 15, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 85 hours (Total, all aircraft)		

The pilot, age 30, held a private pilot certificate with a rating for airplane single engine land. He was issued a third class airman medical certificate on October 15, 2012.

No personal flight records were located for the pilot, and the aeronautical experience listed on page 3 of

this report was obtained from Federal Aviation Administration (FAA) airman records on file in the Aerospace Medical Certification Division in Oklahoma City, Oklahoma. On the pilot's most recent application for a medical certificate, he indicated his total aeronautical experience was 84.2 hours, of which 1 hour was in the previous 6 months. Additional time logs found in the accident airplane indicated a total additional flight time since the pilot's last medical of approximately 40 hours.

Aircraft and Owner/Operator Information

Aircraft Make:	Champion	**Registration:**	N9624S
Model/Series:	7ECA	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	169
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	C91A installed, activated, aided in locating accident	**Engine Model/Series:**	O-235 SERIES
Registered Owner:	On file	**Rated Power:**	115 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The two-seat, high-wing, fixed-gear airplane, serial number (S/N) 169, was manufactured in 1966. It was powered by a Lycoming O-235-C1 engine, rated at 115 horsepower, driving a two-bladed metal fixed pitch propeller. The aircraft logbooks were not located during the investigation.

A note found inside the airplane revealed that, on August 27, 2013, the airplane had an oil and filter change, new wheels installed, and a new starter installed. The tachometer time for this maintenance was recorded at 112.0 hours. The tachometer time recorded at the accident site was 112.8 hours.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PAAQ	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:		**Direction from Accident Site:**	189°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 10000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.71 inches Hg	**Temperature/Dew Point:**	14°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Palmer, AK (4AK6)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

The closest weather reporting facility is the Palmer Airport, about 14 miles south of the accident site. At 1353, an Aviation Routine Weather Report (METAR) was reporting, in part: Wind, 060 degrees (true) at 6 knots; visibility, 10 statute miles; clouds and sky condition, overcast at 10,000 feet; temperature, 57 degrees F; dew point, 48 degrees F; altimeter, 29.73 inches.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	61.79111,-149.013885

The National Transportation Safety Board investigator-in-charge (IIC) along with an additional NTSB investigator reached the accident site on the morning of August 31. The wreckage was located in an area of heavy alder brush, about 250 yards upslope of the floor of about a three mile wide mountain valley. The area surrounding the accident site was interlaced with game trails, and there were numerous moose tracks and sign in the area. A large herd of moose was also spotted in the same valley in the days after the accident.

The airplane came to rest upright, in a nose-low attitude, and was resting on several toppled and broken

trees. The tail was against a tree supported by the vertical stabilizer.

All control surfaces were identified at the accident site, and flight control continuity was verified from all of the flight control surfaces to the cockpit.

Both wings had spanwise leading edge crushing.

The empennage was mostly free of impact damage. The right elevator was resting against a tree and the trailing edge was crushed and bent upward.

The engine and propeller were partially buried in soft terrain; however the visible portions of the engine showed no anomalies to the case or accessories. The visible portion of one propeller blade was relatively free of impact damage.

Both main landing gear were bent upward and aft from their connecting points and exhibited signs of left-side loading.

The cockpit area was extensively damaged. The engine and firewall were displaced upward and aft, and the instrument panel was displaced upward, almost to the top of the windscreen. The mixture control was found in the full-forward position. The carburetor heat was in the off position. Throttle position could not be determined due to damage to the throttle lever. The master switch was in the on position, and the both magneto switches were in the "ON" position.

Medical and Pathological Information

A postmortem examination was conducted under the authority of the Alaska State Medical Examiner, Anchorage, Alaska, on September 3, 2013. The cause of death for the pilot was attributed to multiple blunt force injuries.

The FAA's Civil Aeromedical Institute performed toxicological examinations for the pilot on October 7, 2013. The tests were negative for carbon monoxide and alcohol, and positive for the following drugs:

0.2044 (ug/ml, ug/g) Tetrahydrocannabinol (Marihuana) detected in Lung

0.0871 (ug/ml, ug/g) Tetrahydrocannabinol (Marihuana) detected in Liver

0.0094 (ug/ml, ug/g) Tetrahydrocannabinol (Marihuana) detected in Blood

0.2495 (ug/ml, ug/g) Tetrahydrocannabinol Carboxylic Acid (Marihuana) detected in Liver

0.0146 (ug/ml, ug/g) Tetrahydrocannabinol Carboxylic Acid (Marihuana) detected in Urine

0.012 (ug/ml, ug/g) Tetrahydrocannabinol Carboxylic Acid (Marihuana) detected in Blood

0.0055 (ug/ml, ug/g) Tetrahydrocannabinol Carboxylic Acid (Marihuana) detected in Lung

Tetrahydrocannabinol (THC) is the psychoactive compound found in marijuana with therapeutic levels as low as 0.001 ug/ml. THC has mood altering effects causing euphoria, relaxed inhibitions, sense of well-being, disorientation, image distortion, and psychosis. The ability to concentrate and maintain attention is decreased during marijuana use, and impairment of hand-eye coordination is dose-related over a wide range of dosages. Impairment in retention time and tracking, subjective sleepiness, distortion of time and distance, vigilance, and loss of coordination in divided attention tasks have all been reported. Users may be able to "pull themselves together" to concentrate on simple tasks for brief periods of time. Significant performance impairments are usually observed for at least one to two hours following marijuana use, and residual effects have been reported up to 24 hours.

Tetrahydrocannabinol carboxylic acid is the inactive metabolite of tetrahydrocannabinol.

Administrative Information

Investigator In Charge (IIC):	Shaver, Christopher
Additional Participating Persons:	Christina Bryant; FAA Anchorage FSDO; Anchorage, AK
Original Publish Date:	April 22, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=87921