Aviation Investigation Final Report

Location:	Aurora, Colorado	**Accident Number:**	CEN14FA163
Date & Time:	March 19, 2014, 16:50 Local	**Registration:**	N90464
Aircraft:	Smith AEROSTAR 601P	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot's friend reported that the pilot planned to fly his recently purchased twin-engine airplane over his friend's home to show it to him and another friend. The pilot's friends and several other witnesses reported observing the pilot performing low-level, high-speed aerobatic maneuvers before the airplane collided with trees and then terrain.

A 1.75-liter bottle of whiskey was found in the airplane wreckage. A review of the pilot's Federal Aviation Administration medical records revealed that he had a history of alcohol dependence but had reportedly been sober for almost 4 years. Toxicological testing revealed that the pilot had a blood alcohol content of 0.252 milligrams of alcohol per deciliter of blood, which was over six times the limit (0.040) Federal Aviation Regulations allowed for pilots operating an aircraft.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's operation of the airplane while intoxicated, which resulted in a loss of airplane control.

Findings

Personnel issues	Alcohol - Pilot
Personnel issues	Aircraft control - Pilot
Personnel issues	Decision making/judgment - Pilot

Factual Information

History of Flight

Maneuvering-aerobatics	Collision with terr/obj (non-CFIT)
Maneuvering-aerobatics	Loss of control in flight (Defining event)

On March 19, 2014, at 1650 mountain daylight time, N90464, a Smith Aerostar 601P twin engine airplane was destroyed when it collided with terrain while conducting low level aerobatics near Aurora, Colorado. The airline transport rated pilot/registered owner was fatally injured. Visual meteorological conditions prevailed for the personal flight conducted under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The time and location of where the airplane departed was not determined.

A witness stated that the pilot planned to fly over his home that afternoon to show him and another mutual friend the airplane, which he had recently purchased. The witness, who was a retired military pilot, said he was standing outside his home about ¼-mile from the accident site, when he first saw the airplane approach from east to west. The airplane flew over a set of power lines and cleared them by about five feet at an estimated speed of 200-230 knots. The witness said the airplane then made a sharp right hand turn toward the north before it pitched straight up with the nose of the airplane going "pure vertical" and performed a "hammerhead stall." The witness said the pilot kicked full right rudder, descended, and recovered from the dive about 20 feet at above the ground. The airplane then headed toward the south and flew over the witness's home at a height of 20 feet above the roof. The witness said that as the airplane flew over his home, he was yelling out loud to the pilot to "Just stop!" He said the pilot then made two more "extremely low" passes. On the fifth and final pass, the pilot again flew east to west and cleared the witness's home by about 5 feet, before making a right 90 degree turn to the north. The witness said he then ran around the side of his home, when he heard a shotgun-like sound followed by an explosion. He thought the pilot had overstressed the airplane. The witness then saw smoke, realized the airplane had crashed and responded to the accident site.

Another witness stated he was a retired military pilot and was currently employed as a professional airline pilot. It was about 1645, when he observed the airplane from his home that was located about 1/8th-mile from the accident site. The witness said the airplane was making low altitude, high-bank turns, and "wing-over" maneuvers for about five minutes before it impacted terrain. He said the airplane was continually operating in a "high kinetic energy" manner where each maneuver went immediately into another maneuver. The witness thought the pilot had to have been a very experienced aerobatic pilot to maneuver the airplane the way he did. He said the pilot flew from one maneuver directly into another maneuver and the power was at a high RPM the entire time. There was no "relaxing" between maneuvers and he estimated the degree of bank during the turns was between 80-110 degrees. The witness said that when the airplane recovered from the wing-over maneuvers, it leveled about 50 to 70-feet-high above the ground. On the last wing-over he saw the airplane going nose down and thought the airplane would not have sufficient altitude to recover. The nose kept pointing down and as the pilot started to pull up, the witness saw the wings roll level then rock about 15 degrees to the right, then back to level, then it dropped behind a ridge where it impacted terrain. The witness said, that based on his flight experience, he thought the airplane may have encountered an accelerated stall due to excessive

wing loading.

Numerous other witnesses reported the pilot flying low and erratically over their neighborhood and called 911. Several of these witnesses recorded the airplane as it maneuvered over the area prior to the accident. A review of some of these videos revealed the airplane was flying low and making steep turns over a residential area before it impacted terrain.

Pilot Information

Certificate:	Airline transport	**Age:**	53
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	March 8, 2014
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 26000 hours (Total, all aircraft)		

The pilot held an airline transport rating for single and multi-engine airplane. His last Federal Aviation Administration (FAA) first class medical was issued on March 8, 2014. At that time, the pilot reported a total of 26,000 flight hours. The pilot was also an FAA certified airframe and power plant mechanic.

Aircraft and Owner/Operator Information

Aircraft Make:	Smith	**Registration:**	N90464
Model/Series:	AEROSTAR 601P P	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	61P-0261-051
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	December 30, 2013 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	1975 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	TSIO-540-AA1A
Registered Owner:	Gregory D. Pelley	**Rated Power:**	
Operator:	Gregory D. Pelley	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BKF,5664 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	16:55 Local	**Direction from Accident Site:**	330°
Lowest Cloud Condition:	Scattered / 22000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.96 inches Hg	**Temperature/Dew Point:**	12°C / -18°C
Precipitation and Obscuration:			
Departure Point:		**Type of Flight Plan Filed:**	None
Destination:	Aurora, CO	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Weather reported at Buckley Air Force base at 1655, about 2 miles northwest of the accident site, was reported as wind from 240 degrees at 6 knots, scattered clouds at 22,000 feet, visibility 10 miles, temperature 12 degrees C, dewpoint -18 degrees C, and a barometric pressure setting of 29.97.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	39.670731,-104.70057(est)

The airplane wreckage was examined at the site on March 20, 2014. All major components of the airframe were accounted for at the site. The airplane came to rest in a rolling and partially wooded field on a heading of 360 degrees, at a ground elevation of 6,154 feet mean sea level (msl).

The initial impact point was a tree that was about 100-feet-tall. As the airplane continued to travel forward along the wreckage path it continued to impact trees before impacting the ground. Numerous broken tree limbs were found along the wreckage path and some exhibited 45-degree angular cuts with black paint transfer marks.

At the point where the airplane impacted the ground, there were two impact craters in direct line with each other. Embedded in the first impact crater was the right propeller assembly and in the second crater was the left propeller assembly. All three blades remained attached to their respective hubs. Several slash marks were also observed on the south edge of each impact crater. Just to the south of the first impact crater was a long ground scar consistent with the length/ width of the airplane's wing. Embedded in the dirt near the end of this scar were pieces of green navigational lens.

The main wreckage came to rest several hundred feet forward of the ground impact scars. From the initial impact point with trees to where the main wreckage came to rest was about 1,100 feet. The main wreckage consisted of the empennage, the center section of the fuselage, both wings and the cockpit. The center section was inverted and the main landing gear was retracted. The center section sustained extensive impact and post-accident fire damage.

The empennage sustained impact damage but no fire damage. It remained partially connected to the center section via control cables. Flight control continuity was established for the elevator and rudder to the center section; however, due to extensive impact damage, flight control continuity was not established for the ailerons or flaps.

Examination of both engines revealed there were no mechanical anomalies that would have precluded normal operation of either engine prior to impact.

Medical and Pathological Information

An autopsy was conducted on the pilot by a forensic pathology consultant on March 20, 2014. The cause of death was determined to be "severe blunt force trauma, which was sustained during a small aircraft accident. Acute ethanol intoxication and poor decision making contributed to the accident. The manner of death is accident."

A review of the pilot's FAA medical records and supporting documentation revealed a history of alcohol dependence. He received treatment for his alcoholism and was reportedly sober since June 2010. Toxicological samples, including vitreous fluid, taken during the autopsy were sent to an independent lab for testing. The results were positive for ethanol in the liver at 340 mg/100 g and the vitreous fluid at 252 mg/dL . The amount of ethanol found in the vitreous fluid was consistent with a blood alcohol count (BAC) of .252. This level exceeded the FAA's allowable limit of .040 (Federal Aviation Regulation 14 CFR 91.17) while operating an aircraft.

FAA toxicological testing conducted by the FAA's Toxicological Laboratory in Oklahoma City, Oklahoma, was negative for all drugs tested. However, ethanol was positive in liver, heart, muscle and lung tissue, including 1,660 (mg/dL) in the gastric contents of the stomach. No vitreous fluid samples were sent to the FAA to be tested.

A 1.75 liter bottle of Highland Mist whisky was found in the airplane wreckage. A friend of the pilot confirmed that the pilot drank this particular brand of whiskey prior to his remission.

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	Dave Lundgren; FAA; Denver, CO Troy Helgeson; Lycoming; Denver, CO
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