Aviation Investigation Final Report

Location:	Salt Lake City, Utah	**Accident Number:**	WPR10FA315
Date & Time:	June 26, 2010, 17:00 Local	**Registration:**	N7700V
Aircraft:	Aero Commander CallAir	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Banner tow		

Analysis

Company personnel reported that the pilot had been towing banners for 3 months and had just recently switched to the accident airplane, which had better performance during the summer months. The pilot had accumulated approximately 10 hours in the accident airplane. The ground crewman reported that the 280-foot banner was aligned on the ground for the pilot to pick up while flying directly into the wind. The ground crewman said the pilot missed his first two pickup attempts, but was successful on the third attempt, and the pickup appeared normal. As the airplane climbed to about 200 feet and started a left crosswind turn, the crewman radioed to the pilot that he appeared slow. A moment later, the pilot released the banner, but the airplane's nose and left wing dropped. The airplane descended and impacted the ground in a nearly vertical attitude. Postimpact fire consumed the airplane. Post accident inspection of the engine and airframe found no mechanical anomalies that would have precluded normal operation.

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 airspeed, which resulted in a stall/spin to the ground.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Total experience w/ equipment - Pilot

Factual Information

History of Flight

Maneuvering	Loss of control in flight (Defining event)

HISTORY OF FLIGHT

On June 26, 2010, about 1700 mountain daylight time, an Aero Commander CallAir A-9B, N7700V, was substantially damaged when it impacted terrain following a loss of control in flight at South Valley Regional Airport (U42), Salt Lake City, Utah. The commercial pilot, the sole occupant of the airplane, was fatally injured. Aerial Ads LLC, Midway, Utah, was operating the airplane under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed for the banner towing flight, which had originated from Salt Lake City International Airport approximately 20 minutes before the accident. A flight plan had not been filed.

The pilot was late for a local banner towing mission, which was scheduled to start at 1600. During preflight preparations, the pilot discovered that there was no fuel available at the U42 airport. He flew 10 nautical miles to Salt Lake City International Airport and purchased 46.5 gallons of fuel, which gave him a total of about 82 gallons.

Upon his return to the U42 airport, the pilot released the airplane's grappling hook in preparation for banner pickup. The grappling hook was attached to a line about 20-foot-long secured to the airplane's tow hook. The owner of the company said the banner was 280 feet long and 30 feet high. The lead end of the banner had a bridle of five lines tied to a "D" ring. In turn, a 300-foot tow line was attached, which the pilot snags with the airplane's grappling hook. The ground crewmember said the procedure was to fly into the wind about 20 feet above the ground at an airspeed of about 100 miles per hour (mph). (A headwind reduces the ground speed of the approach and assists in keeping the banner aligned behind the airplane.) The wind at the time of the pickup was from 350 degrees at 10 knots with gusts to 16 knots.

The manager of the company explained that the pilot initiates the banner pickup by pitching the airplane's nose up and starting a climb about 25 to 50 feet before reaching the tow line, which is suspended from two 12-foot-tall poles. When the grappling hook catches the tow rope, the pilot climbs to about 300 feet above the ground and levels off. Moments later he should feel the weight and drag of the banner as it is transferred to the airplane. This weight transfer is to the tail wheel area of the airplane and will make the nose of the airplane pitch-up. At that moment, the pilot must push forward on the control stick and add 10 to 24 degrees of flaps to counteract this upward pitching tendency. Additionally, the pilot must maintain 65 to 70 mph airspeed. The accident airplane will stall at 55 mph with full flaps.

The ground crewmember said he prepared the banner for pickup by laying it out on the ground and aligning it northbound into the wind. He said that the pilot missed his first two pickup attempts, but the third one was successful; everything looked normal. The airplane started "zooming" up just before snagging the tow rope. The crewmember said the airplane appeared to reach about 200 feet above the ground and the banner about 50 feet off the ground.

Then the crewmember observed the airplane begin a standard left crosswind turn to the west, for a crosswind traffic pattern leg and noise abatement over an adjacent residential subdivision. He thought the airplane looked sluggish and he transmitted to the pilot on a handheld radio that his airspeed looked slow. A second later, the now westbound airplane released the banner, and almost immediately its nose and left wing dropped. The airplane impacted the ground in a nearly vertical attitude; postimpact fire consumed the aircraft.

PERSONNEL INFORMATION

The 38-year-old pilot held a commercial pilot certificate with airplane single and multiengine land ratings and an airplane instrument rating. His most recent first-class Federal Aviation Administration (FAA) medical certificate was issued on January 4, 2010. His employer estimated that the pilot had about 1,100 hours of flight experience at the time of the accident. The pilot's last flight review was on February 28, 2010.

The pilot had started with the banner towing company in March 2010; he was initially trained in a Husky A-1 airplane. As the summer weather conditions got warmer, he transitioned to the accident airplane because of its larger engine. The owner of the company estimated that at the time of the accident, the pilot had 10 hours of flight experience in the airplane.

AIRCRAFT INFORMATION

The single-engine, tail wheel, propeller-driven, single seat airplane was manufactured by Aero Commander in 1969. Its maximum gross takeoff weight was 3,000 pounds. It was powered by a Lycoming IO-540-G1C5 reciprocating, direct drive, air-cooled, fuel injected engine, which had a maximum takeoff rating of 300 horsepower. Maintenance records indicated the last annual inspection was performed on April 30, 2010. The airframe had 4,601 hours on it at the time of the accident.

The airplane had been modified by the installation of an additional 44-gallon fuel tank in the nose aerial application hopper. The owner said the airplane burned between 12 and 16 gallons per hour.

METEOROLOGICAL INFORMATION

At 1700, the weather conditions at the accident site were as follows: wind 350 degrees at 10 knots, gusting to 16 knots; visibility 10 statute miles; clear of clouds; temperature 82 degrees Fahrenheit; dew point 43 degrees Fahrenheit; altimeter setting 30.04 inches of Mercury. The

density altitude was 7,121 feet.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest inside the airport perimeter, upright and longitudinally aligned on a magnetic heading of approximately 315 degrees. The terrain was flat and grass covered. The airplane's propeller was found separated from the engine and buried in the ground. Both blades exhibited chordwise scoring with some leading edge polishing and gouging.

The airplane and its engine were found about 10 feet back from the propeller. Both wings were swept forward about 10 inches at their wing tips, and about 6 to 10 feet of their outboard fabric covering remained. The rest of the airplane was extensively thermal damaged. Postaccident examination of the fuselage found the manual flap lever at three notches, or 24 degrees.

On July 29, 2010, the National Transportation Safety Board Investigator-in-Charge examined the engine. The engine exhibited minor thermal damage. All six cylinders remained attached to the engine crankcase. The top spark plugs and rocker arm covers were removed. The engine crankshaft was manually rotated by hand, and rotational continuity was established throughout the engine and valve train. Thumb compression and suction was obtained on all six cylinders. All spark plugs exhibited normal wear.

No evidence was found of any preimpact mechanical anomalies with the engine, which would have precluded normal operation.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was conducted by the State of Utah, Department of Health, Office of the Medical Examiner, Salt Lake City, on June 27, 2010.

The FAA's Civil Aeromedical Institute (CAMI), Oklahoma City, Oklahoma, performed toxicology tests on the pilot. According to CAMI's report, the pilot's blood was tested for carbon monoxide, cyanide and drugs with negative results. Additionally, his vitreous fluid was tested for volatiles with negative results.

Pilot Information

Certificate:	Commercial	**Age:**	34,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	January 4, 2010
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 28, 2010
Flight Time:	1100 hours (Total, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aero Commander	**Registration:**	N7700V
Model/Series:	CallAir A-9B	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	1425
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	April 30, 2010 Annual	**Certified Max Gross Wt.:**	3000 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4601 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	IO-540-G1C5
Registered Owner:	Aerial Ads LLC	**Rated Power:**	300 Horsepower
Operator:	Aerial Ads LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SLC,4227 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	16:53 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Few / 10000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / 16 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	350°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	29°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salt Lake City, UT (SLC)	**Type of Flight Plan Filed:**	None
Destination:	Salt Lake City, UT (U42)	**Type of Clearance:**	None
Departure Time:	16:40 Local	**Type of Airspace:**	

Airport Information

Airport:	South Valley Regional Airport U42	**Runway Surface Type:**	
Airport Elevation:	4607 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	40.631668,-111.999168

Administrative Information

Investigator In Charge (IIC):	Struhsaker, James
Additional Participating Persons:	Bernard Connolly; Federal Aviation Administration FSDO; Salt Lake City, UT
Original Publish Date:	December 13, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=76441