



Aviation Investigation Final Report

Location:	Elbert, Colorado	Accident Number:	CEN09FA147
Date & Time:	February 1, 2009, 10:30 Local	Registration:	N7774M
Aircraft:	Mooney M20C	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

A local resident found the airplane wreckage in a ravine located between two pastures and alerted authorities. The airplane rested over a crater, with the forward fuselage and cabin broken but with the engine still attached to the fuselage. Ground impact marks were consistent with a left-wing-low and nose-down impact. Examination of the airplane, engine, and other systems showed no preimpact anomalies. An analysis of the airplane's radar track showed it conducting several back-and-forth maneuvers before disappearing from radar. Just prior to the loss of radar contact, the airplane appeared to be in a gentle right-hand turn at 7,900 feet mean sea level (about 1,300 feet above ground level) with a groundspeed of approximately 50 knots. The accident flight profile was consistent with a pilot proficiency flight and the maneuver preceding the crash that of practicing slow-flight maneuvering.

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 while maneuvering, which resulted in an aerodynamic stall and subsequent loss of control.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

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

HISTORY OF FLIGHT

On February 1, 2009, about 1030 mountain standard time, a single-engine Mooney M20C, N7774M, was substantially damaged upon impact with terrain following a loss of control while maneuvering near Elbert, Colorado. The private pilot, sole occupant of the airplane, was fatally injured. The airplane was registered to Alpha Aviation, Inc. and operated by the pilot. A flight plan was not filed for the Title 14 Code of Federal Regulations Part 91 flight. The local flight originated from the Centennial Airport (APA), Denver, Colorado.

There were no reported witnesses to the accident; however, a local resident noticed the aircraft wreckage and alerted authorities.

A review of the airplane's radar track shows the airplane conducting several "back-n-forth" maneuvers, working away from APA in a southeasterly direction. Prior to disappearing from radar at 1027, the airplane appeared to be conducting a "gentle" right-hand turn; the last radar hit had the airplane at 7,900 feet mean sea level (about 1,300 feet above ground level) with a groundspeed of approximately 50-knots.

PERSONNEL INFORMATION

The pilot held a private pilot certificate for airplane single-engine land with instrument airplane. His third class Federal Aviation Administration (FAA) medical was issued August 4, 2008. The pilot's log book was located, and the pilot had recorded about 412 total flight hours. The pilot's preceding flight was the day prior, (January 31, 2009), where he logged 1 hour with 3 take-off and landings. Prior to January's 31st flight, the previous flight was on October 2, 2008; he had logged approximately 31 hours of flight time for 2008.

AIRCRAFT INFORMATION

The airplane was a 1974 model Mooney M20C, which was a single-engine, low-wing, all-metal airplane, configured for four occupants, with retractable tricycle landing gear.

The last annual inspection was performed July 5, 2008, at a tach time of 6,855 hours. The time accrued on the airplane since the last annual inspection was approximately 87 hours.

The airplane was powered by a Lycoming O-360-A1A reciprocating engine, rated at 180 horsepower. The engine had accumulated about 595 hours since its last major overhaul, which was conducted in May, 2006.

METEOROLOGICAL INFORMATION

At 1055, the automated weather observing system at Colorado Springs, Colorado, reported winds from 350 degrees at 12 knots gusting to 17 knots, and varying from 330 to 170 degrees, 10 miles visibility, a clear sky, temperature 41-degrees Fahrenheit, dew point 7-degrees Fahrenheit, and an altimeter setting of 30.11 inches of Mercury

COMMUNICATIONS

The pilot was not in communication with air traffic control at the time of the accident and no distress calls were received.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest in a ravine with low vegetation, located between two pastures, on a measured heading of 182 degrees, and at altitude of about 6,550 feet. All major components of the airplane were accounted for at the accident site.

The left and right wings were found partially attached to the fuselage, with the wings forming a slight forward "V" arrangement. The entire leading edge of the left wing was crushed aft; about 4 feet of the inboard section and about a 2 foot section near the tip of the right wing was crushed aft. The forward cabin and engine areas were largely destroyed by the impact. The aft fuselage, just in front of the empennage, was crushed. The tail surfaces were attached in their respective positions, and exhibited only minor damage.

The main wreckage, with the engine still attached to the fuselage, was over a small crater. Additional impact marks or ground scars leading to the wreckage were not found. The impact marks were consistent with a left wing low and nose down attitude.

Both wing tanks and fuel lines had been breached by the impact. The flaps were in the retracted position, and the airplane's main landing gear appeared partly extended from the wheel wells. Control continuity to the flight controls was established up to the front cabin area.

The wreckage was removed and transported to a secure facility. The engine was removed from the airframe to facilitate an inspection. The top spark plugs were removed from the engine. The spark plug electrodes were gray in color, and appeared "normal." The engine would not rotate during an attempt to turn the propeller by hand. The engine was then partially disassembled, by removing the number two and four cylinders; lubrication was found throughout the engine with no evident of any heat distress. The internal section of the

crankshaft and the entire camshaft appeared intact. The engine displayed accident impact forces with the crankshaft propeller flange being largely separated/broken. The left and right magnetos were rotated by hand (ignition leads cut) and produced spark at all the magneto cap posts.

The propeller remained attached to the engine crankshaft flange. One propeller blade was curled approximately 180 degrees back starting about three-quarters span. The other blade was bent slightly back towards the cambered side, starting near the root of the blade.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on February 2, 2009, by the El Paso County Coroner, Colorado Springs, Colorado. The report lists the manner of death as "accident; ... as a result of multiple injuries."

Toxicological Testing was conducted by the FAA Toxicology Accident Research Laboratory. Oklahoma City, Oklahoma

Pilot Information

Certificate:	Private	Age:	53, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):		Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):		Toxicology Performed:	Yes
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	August 4, 2008
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	412 hours (Total, all aircraft), 1 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	Registration:	N7774M
Model/Series:	M20C	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	20-0020
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	July 5, 2008 Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:	87 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	6855 Hrs as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	C91A installed, not activated	Engine Model/Series:	O-360-A1A
Registered Owner:	ALPHA AVIATION INC	Rated Power:	180 Horsepower
Operator:	ALPHA AVIATION INC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KAFF	Distance from Accident Site:	
Observation Time:	10:55 Local	Direction from Accident Site:	
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots / 17 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.11 inches Hg	Temperature/Dew Point:	5°C / -14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Denver, CO (APA)	Type of Flight Plan Filed:	Unknown
Destination:	Denver, CO (APA)	Type of Clearance:	VFR
Departure Time:		Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	39.219608,-104.530738(est)

Administrative Information

Investigator In Charge (IIC):	Hatch, Craig
Additional Participating Persons:	Jack Muldoon; FAA FSDO; Denver, CO Troy Helgeson; Lycoming Aircraft Engines; Milliken, CO
Original Publish Date:	November 9, 2009
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=73302

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).