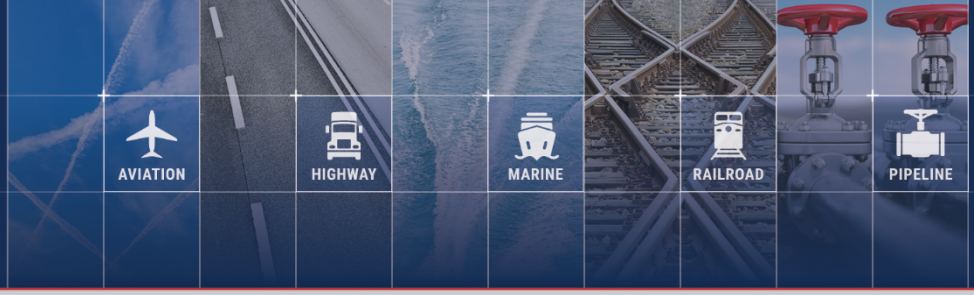

Aviation Investigation Final Report

Location:	Moyock, North Carolina	**Accident Number:**	ERA12FA008
Date & Time:	October 5, 2011, 18:25 Local	**Registration:**	N11HU
Aircraft:	AVIAT INC A-1	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The non-certificated pilot was maneuvering his airplane over his farm fields at a low altitude; a witness observed the wings become perpendicular to the ground and the airplane's nose, which was low when the turn began, lowered further. The airplane maintained the nose-low turn until it impacted the ground, consistent with an aerodynamic stall. A witness, who had previously seen and heard the airplane flying overhead on many occasions, stated that the engine sounded "normal," with no sputtering or backfires. Onscene examination of the airplane revealed no preexisting mechanical anomalies that would have precluded normal operation. The airplane's logbooks could not be located; however, duplicate entries provided by a maintenance facility confirmed that an annual inspection was completed about 4 months earlier.

Pilot logbooks also were not located; however, other records indicated that the pilot previously held a student pilot certificate that expired in 2003. Any subsequent training could not be ascertained. The pilot acquired the airplane in 2002, and associates indicated that he flew it regularly, as often as several times a week. Autopsy results indicated that the pilot died of blunt trauma; however, the autopsy also indicated an enlarged heart, at least two and possibly three coronary bypasses, and severe coronary artery disease which could have resulted in a sudden loss of consciousness. Toxicological testing revealed the presence of a sedating antihistamine, but the quantity could not be determined. It also revealed inactive cocaine metabolites that indicated previous usage, but which likely did not contribute to the outcome. The extent to which the pilot's medical issues may have contributed to the accident (if they did at all) could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The operation of the airplane by a non-certificated pilot, and his failure to maintain adequate airspeed while maneuvering, which resulted in an aerodynamic stall.

Findings

Aircraft	Airspeed - Not attained/maintained
Personnel issues	Incorrect action performance - Pilot

Factual Information

History of Flight

Maneuvering-low-alt flying	Low altitude operation/event
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)

HISTORY OF FLIGHT

On October 5, 2011, about 1825 eastern daylight time, an Aviat A-1, N11HU, was substantially damaged when it impacted terrain in Moyock, North Carolina. The non-certificated pilot was fatally injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local personal flight, which originated at the pilot's property. The local personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

According to a witness, he was in his pickup truck when he noted the airplane flying over several fields, at an altitude about two to three times the height of the surrounding trees. The airplane flew by the witness, still high in the air, when a wing dipped. The witness briefly took his eyes off the airplane, and the next thing he saw was the airplane hitting the ground and turning until it faced north. The witness also stated that he was accustomed to the sounds of the engine, as the airplane had over flown the fields often. When the airplane flew over him just prior to the accident, with the pickup truck window partially open, the engine sounded "normal," with no sputtering or backfires.

Another witness stated that he was driving south on a nearby paved road when he saw the airplane during its last 5 seconds of flight. When he first saw the airplane, it was above the tree line, and wings "went vertical." The wings were then perpendicular to the ground, and the nose, which was low when the wings went vertical, continued lower in the turn until it was about 45 degrees below the horizon. The airplane then maintained the nose-low turn until it impacted the ground.

AIRCRAFT INFORMATION

No airplane logbooks were located. Associates of the pilot indicated that they were likely consumed in an automobile fire earlier in 2011. Duplicate logbook computer printouts provided by a maintenance facility revealed that the airplane had undergone an annual inspection on June 6, 2011. At the time, the tachometer indicated 346.2 hours; however, total actual time on the airframe and engine could not be determined.

PERSONNEL INFORMATION

The pilot, age 59, did not hold a Federal Aviation Administration (FAA) pilot certificate. A review of FAA records indicated that he held a student pilot certificate from August 2001 through August 2003.

Associates of the pilot believed that the pilot's logbook was destroyed in the same automobile fire that destroyed the airplane's logbooks. Although flight hours could not be determined, witnesses stated that the pilot would fly over the fields of his farm up to several times a week.

FAA records also revealed that the pilot registered the airplane on March 5, 2002.

METEOROLOGICAL INFORMATION

Weather conditions, recorded at an airport about 10 statute miles (sm) to the northwest, at 1835, included calm wind, clear skies, visibility 10 sm, temperature 22 degrees C, dew point 12 degrees C, and an altimeter setting of 30.15 inches Hg.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located in a recently-planted farm field the vicinity of 36 degrees, 29.76 minutes north latitude, 076 degrees, 14.06 minutes west longitude. Ground scarring, about 5 feet in length, and the presence of red plastic lens material were consistent with the left wing tip having struck the ground first in a direction of about 080 degrees magnetic. There was then an absence of ground scarring for an estimated 30 feet, followed by a ground scar oriented roughly perpendicular to the initial ground scar, consistent with the airplane having turned by that point about 90 degrees. There was then another lack of ground scarring for about another 30 feet, followed by ground scars consistent with the airplane sliding sideways until it stopped.

The bottom front part of the nose cowling of the airplane was pushed upwards about 30 degrees. All flight control surfaces were accounted for at the scene, and control continuity was confirmed to all control surfaces except for the right aileron, which was jammed by bent metal. The flaps were down.

The tachometer indicated the same hours, 346.2, as were noted during the annual inspection 4 months earlier.

There were no anomalies found that would have precluded normal engine operation. The ignition had been turned off by an initial responder. Fuel, light blue in color and absent of debris, was found in both fuel tanks, and light blue fuel was drained from the carburetor. Engine crankshaft continuity was confirmed, cylinder compression confirmed, and top spark plug electrodes were light gray in color. The magnetos could not be removed from the back of the engine due to engine compression against the firewall; however, when the crankshaft was rotated, "snapping" was heard from both magnetos.

The propeller exhibited little leading edge blade damage; however, the terrain consisted of soft, damp peat. The back sides of both propeller blades exhibited chordwise staining, with the backside of one blade exhibiting a small area of chordwise scratching.

MEDICAL AND TOXICOLOGICAL INFORMATION

An autopsy was performed on the pilot at the Eastern Carolina University Brody School of Medicine, Greenville, North Carolina. According to the medical examiner's findings, the cause of death was "blunt trauma to head due to airplane crash."

The autopsy report also noted that the pilot's heart was "markedly hypertrophied" and that there was a 95 percent stenosis of the left anterior descending coronary artery, 80 percent stenosis of the right coronary artery, 95 percent stenosis of the circumflex coronary artery, and 60 percent stenosis of the left coronary artery.

Subsequent toxicological testing was performed by the FAA's Forensic Toxicology Research Team, Oklahoma City, Oklahoma, with:

0.111 ug/ml of Benzoylecgonine detected in urine, but not detected in blood.
Ecogonine Methyl Ester detected in urine, but not detected in blood.
Cetirizine detected in urine and in blood.
Diphenhydramine detected in urine, but not detected in blood.
Ibuprofen detected in urine.
Lidocaine detected in blood.

According to the FAA Aerospace Medical Research, Forensic Toxicology Research Team website, under "Drug Information:"

Benzoylecgonine is the predominant cocaine metabolite. It is not biologically active but is used as an indicator of cocaine use. It persists in urine at detectable concentrations from 2-4 days. Chronic, heavy use of cocaine can result in detectable amounts of benzoylecgonine in urine for up to 10 days following a binge.

Ecgonine methyl ester is an inactive minor metabolite of cocaine.

Cetirizine is used to temporarily relieve allergy symptoms and may cause drowsiness.

Diphenhydramine is an over-the-counter antihistamine used in the treatment of the common cold and hay fever. It may impair mental and/or physical ability required for the performance of potentially hazardous tasks.

Ibuprofen is a non-narcotic analgesic and anti-inflammatory agent available in nonprescription forms.

Lidocaine is used as a local anesthetic and the treatment of ventricular arrhythmias.

The medical examiner stated in his report that the drugs found "did not likely contribute to the crash."

Pilot Information

Certificate:	None	**Age:**	59,Male
Airplane Rating(s):	None	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	None	**Last FAA Medical Exam:**	August 1, 2001
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	AVIAT INC	**Registration:**	N11HU
Model/Series:	A-1	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1312
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	June 6, 2011 Annual	**Certified Max Gross Wt.:**	1800 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	0-360-A1D
Registered Owner:	On file	**Rated Power:**	180 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:	CPK,7 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	18:35 Local	**Direction from Accident Site:**	340°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	22°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Moyock, NC (None)	**Type of Flight Plan Filed:**	None
Destination:	(None)	**Type of Clearance:**	None
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:**	36.496112,-76.234443

Administrative Information

Investigator In Charge (IIC):	Cox, Paul
Additional Participating Persons:	Kenneth Humphries; FAA/FSDO; Greensboro, NC
Original Publish Date:	January 22, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=81996