Aviation Investigation Final Report

Location:	Clayton, Georgia	**Accident Number:**	ERA14FA359
Date & Time:	July 26, 2014, 08:50 Local	**Registration:**	N248SP
Aircraft:	Piper PA-46-310P	**Aircraft Damage:**	Destroyed
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was departing the private, fly-in community airport on a personal flight. He was familiar with the airport/fly-in community and was instrumental in its development. Fog was present at the time, and, according to witnesses, it was "rolling up the valley," which was a frequent event at the airport. The witnesses observed the airplane lift off the runway, drift to the left, and disappear into the fog with the landing gear extended. They heard the engine running normally, with no change in sound, until the crash. They heard two distinct "booms" about 4 to 6 seconds apart. They ran down to the departure end of the runway to look for a crash site and could not see the wreckage or any smoke or fire due to the fog. The wreckage was located on elevated terrain in a heavily wooded area, about 1,500 feet north of the departure end of the runway. The elevation at the crash site was about 250 feet higher than the elevation at the departure end of runway. A swath through the treetops leading to the main wreckage was indicative of a near-level flight path at impact. An examination of the airframe and engine did not reveal any evidence of a preexisting mechanical malfunction or failure. A review of the weather by a NTSB meteorologist revealed that the departure airport was at the edge of an area of low-topped clouds. Airport remarks included "Mountainous terrain all quadrants."

Probable Cause and Findings

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

The pilot's decision to begin a flight with fog and low clouds present at the airport, which resulted in an encounter with instrument meteorological conditions immediately after takeoff and a controlled flight into terrain.

Findings

Personnel issues	Decision making/judgment - Pilot
Environmental issues	Clouds - Decision related to condition
Environmental issues	Fog - Decision related to condition
Aircraft	Altitude - Not attained/maintained
Environmental issues	Fog - Effect on operation
Environmental issues	Clouds - Effect on operation

Factual Information

History of Flight

Initial climb	VFR encounter with IMC
Initial climb	Controlled flight into terr/obj (CFIT) (Defining event)

HISTORY OF FLIGHT

On July 26, 2014, about 0850 eastern daylight time (EDT), a Piper PA-46-310P, N248SP, impacted trees and terrain shortly after takeoff from Heaven's Landing Airport (GE99), Clayton, Georgia. The private pilot was fatally injured and the airplane was destroyed by impact forces and a post-crash fire. The airplane was registered to a corporation and was operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Day, instrument meteorological conditions prevailed for the flight, and an instrument flight rules flight plan was filed. The flight was originating at the time of the accident and was en route to Aurora, Illinois (ARR).

Two witnesses were standing outside on the ramp and observed the accident airplane prior to departure. The preflight, engine start, and taxi appeared to be routine. There was fog present at the time, and it was "rolling up the valley," which was a frequent event at the airport. The lateral visibility was about 1,000 feet below the fog layer and obscured above. The elevated terrain surrounding the airport was obscured in the fog. The pilot back-taxied to runway 5 and initiated the takeoff. The airplane became airborne about 2,000 feet down the 5,062-foot-long runway. They observed the landing gear extended and the airplane seemed to drift to the left after takeoff. They observed the airplane disappear into the fog. They heard the engine running normally, with no change in the sound, until the crash. They heard two distinct "booms" about four to six seconds apart. They ran down to the departure end of the runway to look for a crash site, and could not see the wreckage, or any smoke or fire, due to the fog.

PERSONNEL INFORMATION

The pilot possessed a private pilot certificate with airplane single engine land and instrument airplane ratings. Reportedly, he lived at the fly-in community surrounding the airport and was instrumental in its development. He reported 4,200 hours of total flight time on his third class medical application, dated March 5, 2014. According to the pilot's logbook, he accomplished a flight review and instrument proficiency check on May 31, 2014 in a Cessna 172 airplane.

AIRCRAFT INFORMATION

The airplane was a Piper PA-46-301P that was manufactured in 1984. It was equipped with a Continental TSIO-520-BE engine rated at 310 HP and a Hartzell constant-speed, composite three-bladed propeller. The airplane was equipped with retractable tricycle landing gear.

The aircraft maintenance records were provided to the investigation team shortly after the accident. According to the records, annual inspections of the airframe, engine, and propeller were completed on

June 11, 2014, at a total airframe time of 3,593 hours. At the time of the annual inspection, the engine had accumulated 532 hours since the last major overhaul. The annual inspection was the last entry in the logbooks.

AERODROME INFORMATION

GE99 was a private, uncontrolled airport located about 4 miles northwest of Clayton, Georgia. The airport elevation was 2,724 feet above mean sea level (msl). The concrete runway, which was 5,062 feet long and 50 feet wide, had a 1.0 percent upslope in the direction of runway 5. Airport remarks included, "Mountainous terrain all quadrants."

METEOROLOGICAL INFORMATION

GE99 was not equipped with weather observation capabilities. The closest weather observation facility to the accident site was Macon County Airport (1A5), Franklin, North Carolina, located about 19 nm north of GE99. The 0855 EDT surface weather observation included overcast clouds at 300 feet above ground level, wind calm, visibility 5 statute miles with mist, temperature 15 degrees C, dew point 15 degrees C, and altimeter setting 30.15 inches of mercury.

According to satellite imagery, the accident site was located near the edge of an area of low-topped clouds. The cloud ceiling height was not available. According to a staff meteorologist with the NTSB, the imagery was taken at 0849 EDT. The copy of the imagery is included in the public docket for this accident investigation.

WRECKAGE AND IMPACT INFORMATION

The airplane crashed into elevated terrain, in a heavily wooded area, about 1,500 feet north of the departure end of runway 5. The elevation at the crash site was about 250 feet higher than the elevation at the departure end of runway 5. The linear distance of the wreckage debris field was about 150 feet in length, including the first trees struck by the airplane. A majority of the wreckage was consumed in a post-crash fire. All major structural components of the airplane were accounted for within the wreckage debris path. A swath through the tree tops leading to the main wreckage was indicative of a near-level flight path at impact. Numerous tree limbs were scattered along the debris path with smooth, angular cuts through the limbs.

The cockpit and cabin sections were consumed by a post-crash fire. The instrument panel, flight and performance instruments, avionics, and autopilot were destroyed, and no useful information could be recovered.

All three landing gear were found in the extended positions. The position of the wing flaps could not be determined due to fire and impact damage.

Flight control continuity was established from the cockpit controls to the flight control surfaces. All breaks in the flight control cables exhibited broom-straw signatures consistent with tension overload.

The fuel tanks in the left and right wings were breached from impact forces and a post-crash fire. The fuel caps were located and were fire-damaged.

All three propeller blades were separated from the propeller hub near their shanks and were located within the wreckage debris path. Chord-wise scratches were observed on the surfaces of the blades. The hub remained attached to the crankshaft.

The engine was separated from the aircraft and came to rest adjacent to the firewall, inverted. The number 5 cylinder exhibited impact damage. The cylinder head was fractured and displaced aft, into the cooling fins of the number 3 cylinder. The cylinder barrel was bent inward on the front side. The internal components exhibited normal operating signatures.

The remaining cylinders were found secured to the engine with no external signs of operations distress noted. Borescope examination of the cylinder barrels, pistons, cylinder heads, valves, and valve seats showed normal signatures and deposits.

Crankshaft continuity was confirmed from the propeller flange aft to the accessory section and to the pistons by manual manipulation of the propeller hub. Complete rotation of the crankshaft could not be accomplished due to the impact damage on the number 5 cylinder. The crankcase showed no signs of holes or other damage.

Both magnetos were securely attached at their mounting pads. The units were removed and tested by rotating their drive shafts with a power drill. When rotated, both magnetos produced a strong, blue spark on all ignition leads. Other than impact or oil soaking, all spark plugs were observed to be in near-new condition.

The engine was fitted with twin turbochargers. The left turbocharger remained attached to the left-side exhaust manifold. The unit remained intact and the turbine and impeller could be rotated manually without restriction. The right turbocharger exhibited impact damage and remained attached to the firewall and airframe engine mount. The impeller shroud was separated from the turbocharger and was found within the debris field. The shroud displayed rotational scoring at the 90-degree transition. The impeller blades were gouged, displaced, bent opposite the direction of rotation, and some were fractured.

The engine-driven fuel pump, throttle body metering unit, fuel manifold valve, fuel injection nozzles and lines, and oil pump were examined; no signs of pre-accident anomalies were found. When the fuel line between the metering unit and the fuel manifold was removed, fuel was observed inside the line.

The engine-driven vacuum pump remained attached to the engine. The drive shaft was intact; however, the drive coupling was partially melted. Disassembly of the unit revealed no anomalies with the rotor or vanes. The secondary vacuum pump was separated from its motor and sustained thermal damage. Disassembly of the unit revealed no anomalies with the rotor or vanes.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was performed at the offices of the Georgia Bureau of Investigation, Division of Forensic Sciences, Decatur, Georgia on July 28, 2014. The autopsy report noted the cause of death as "Blunt impact and thermal injuries with smoke and soot inhalation" and the manner of death was "Accident."

Forensic toxicology testing was performed on specimens of the pilot by the Federal Aviation Administration (FAA) Bioaeronautical Sciences Research Laboratory (CAMI), Oklahoma City,

Oklahoma. The CAMI toxicology report indicated no carbon monoxide testing was accomplished; the blood was unsuitable for analysis. Testing for cyanide was not performed. There was no ethanol detected in the urine. Acetaminophen was detected in the urine (18 ug/g). Testing for all other drugs was negative.

Pilot Information

Certificate:	Private	**Age:**	62
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	March 5, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 31, 2014
Flight Time:	4200 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N248SP
Model/Series:	PA-46-310P	**Aircraft Category:**	Airplane
Year of Manufacture:	1986	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	46-8608024
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	June 11, 2014 Annual	**Certified Max Gross Wt.:**	4101 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3593 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	C91 installed, not activated	**Engine Model/Series:**	TSIO-520-BE
Registered Owner:	On file	**Rated Power:**	310 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	1A5,2034 ft msl	**Distance from Accident Site:**	19 Nautical Miles
Observation Time:	08:55 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:		**Visibility**	5 miles
Lowest Ceiling:	Overcast / 300 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	15°C / 15°C
Precipitation and Obscuration:	N/A - None - Mist		
Departure Point:	Clayton, GA (GE99)	**Type of Flight Plan Filed:**	IFR
Destination:	Aurora, IL (ARR)	**Type of Clearance:**	None
Departure Time:	08:50 Local	**Type of Airspace:**	

Airport Information

Airport:	Heaven's Landing GE99	**Runway Surface Type:**	Concrete
Airport Elevation:	2724 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	05	**IFR Approach:**	None
Runway Length/Width:	5062 ft / 50 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	Unknown
Total Injuries:	1 Fatal	**Latitude, Longitude:**	34.923889,-83.45333

Administrative Information

Investigator In Charge (IIC):	Hicks, Ralph
Additional Participating Persons:	Danny Cox; FAA/FSDO; Atlanta, GA Ron Maynard; Piper Aircraft; Vero Beach, FL Nicole Charnon; Continental Motors; Mobile, AL
Original Publish Date:	January 27, 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=89739