National Transportation Safety Board
Aviation Accident Final Report

Location:	Powder Springs, TN	**Accident Number:**	ERA09LA123
Date & Time:	01/03/2009, 1215 EST	**Registration:**	N43631
Aircraft:	PIPER PA-28-151	**Aircraft Damage:**	Substantial
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

After departing the traffic pattern and turning toward mountainous terrain, the airplane entered instrument meteorological conditions (IMC). The pilot had some training for his instrument rating but did not yet possess one. A witness who resided near the accident location heard the airplane traveling in a northerly direction and impact terrain. He reported that, the "weather was overcast," and he could not see the tops of the mountains. He estimated that the cloud base at the time was about 100 to 200 feet below the tops of the mountains. Review of a weather briefing which was obtained by the pilot revealed that he was advised that flight under visual flight rules was not recommended due to low ceilings and visibility along the route of flight and that the pilot had declined to file a flight plan. Additionally, no evidence was discovered that indicated the pilot had attempted to receive updated weather information prior to the accident flight, or that he had contact with air traffic control. Examination of the airplane revealed no evidence of any preimpact malfunctions or failures.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The non-instrument rated pilot's decision to continue under visual flight rules into an area of instrument meteorological conditions, which resulted in an in-flight collision with terrain.

Findings

Personnel issues	Decision making/judgment - Pilot (Cause)
	Use of policy/procedure - Pilot (Cause)
Environmental issues	Low ceiling - Effect on personnel
	Low visibility - Effect on personnel

Factual Information

HISTORY OF FLIGHT

On January 3, 2009, about 1215 eastern standard time, a Piper PA-28-151, N43631, was substantially damaged during impact with terrain, near Powder Springs, Tennessee. The certificated private pilot and the sole passenger were killed. Instrument meteorological conditions (IMC) prevailed for the flight that departed Gatlinburg-Pigeon Forge Airport (GKT), Sevierville, Tennessee, and was destined for Warsaw Municipal Airport (ASW), Warsaw, Indiana. No flight plan was filed for the personal flight conducted under Title 14 Code of Federal Regulations Part 91.

According to a witness who was outside of his house, the "weather was overcast," and he could not see the tops of the mountains. He heard an airplane traveling in a northerly direction, and heard the engine, "cutout, two to three times" prior to hearing the airplane "crash" into trees, and the engine "stop." He advised that he distinctly heard the trees "felled." He told his wife about what he heard and then called "911." He estimated that the ceiling at the time was about 100 to 200 feet below the tops of the mountains, which equates to 1,700 to 1,800 feet above sea level (msl).

PERSONNEL INFORMATION

According to Federal Aviation Administration (FAA) records, the pilot held a private pilot certificate with ratings for airplane single-engine land and did not possess an instrument rating. His most recent FAA third-class medical certificate was issued on June 26, 2007 at which time he reported 116 total hours of flight experience.

AIRCRAFT INFORMATION

The airplane was lent to the pilot by the owner. According to FAA and maintenance records, the airplane was manufactured in 1974. The airplane's most recent annual inspection was completed on February 1, 2008. At the time of the inspection, the airplane had accrued 5,017 total hours of operation.

METEOROLOGICAL INFORMATION

The recorded weather at McGhee Tyson Airport (TYS), Knoxville, Tennessee, approximately 21 nautical miles southwest of the accident site, at 1153, included: wind 010 degrees at 6 knots, visibility 3 miles in mist, overcast at 1,200 feet, temperature 7 degrees C, dew point 6 degrees C and an altimeter setting of 30.07 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The wreckage of the accident airplane was discovered about 27 miles northwest of GKT in an area of heavy timber and mountainous terrain.

Examination of the accident site by a FAA inspector revealed that the airplane had struck trees near the top of a mountain. The wings had separated from the fuselage, and the fuselage had come to rest on a magnetic heading of 328 degrees, approximately 1,932 feet msl, downhill from the initial impact point.

Examination of the wreckage by the NTSB did not reveal any evidence of any preimpact malfunction of the airplane or engine and control continuity was established from the flight controls to the breaks in the cables which made up the system and exhibited tensile overload.

The wings were fragmented and exhibited numerous impact depressions. The stall vane was impact damaged, the pitot tube was unobstructed, and both the fuel screens and fuel vent were free of blockage. The left aileron had separated from its mounting location, and the right aileron was partially separated from its mounts.

The vertical stabilizer and rudder were still attached to their mounting locations but displayed impact damage to the tip areas. The rudder was partially separated and the stabilizer was bent aft. The rudder sector, stop bolts and control cables were in place and secure. The rudder control cables were continuous to the rudder bar. The rudder tip and balance weight had separated and were not recovered. The horizontal stabilator hinge and stop bolts were in place and secure. The left side of the stabilator displayed impact damage to the leading edge. The tip was separated and also displayed similar impact damage. The right side was separated near the hinge and the skin was fragmented. The tip of the right side was recovered with a portion of the leading edge as well as the right side of the pitch trim tab. The balance tube was in place and the balance weight was secure. Both the upper and lower control cables were secure and continuous to the control wheel T bar assembly and the pitch trim drum inner shaft extension displayed five threads, which was consistent with a neutral trim setting.

The fuselage exhibited impact damage to the front and sides of the cabin area and the aft fuselage was partially separated from the forward section. The engine was in place but the propeller was separated. The nose landing gear was impact separated from the upper portion of the strut. The gascolator was separated and found near the front of the airplane at the crash site. The electric fuel pump filter was removed and was free of debris.

Examination of the cabin revealed that the cabin door had been closed and latched, the navigation lights were selected on, the panel lights were selected on, and the emergency locator transmitter was armed.

Both front seats had been removed for extrication of the occupants. The left front seat belt had been cut and the right front seat belt was not fastened. Neither the left or right shoulder harness was fastened to the lap belts.

The fuel selector valve was positioned in the left tank position. The flap handle and flap torque tube were in the retracted flap position. The magneto switches, as well as the master switch, had been placed in the "OFF" position by rescue personnel.

Examination of the directional gyro and artificial horizon revealed that, the interior gimbaled assemblies were intact and rotated freely and the gyros exhibited light rotational scoring.

The propeller was separated from the engine. The spinner was in place over the hub and displayed rotational signatures with compression wrinkling on the front side of both the blades as well as the hub bolts. Both propeller blades were twisted toward low pitch and exhibited leading edge gouging and chordwise scratching.

The engine's crankshaft was rotated through the crankshaft propeller flange. Crankshaft continuity was confirmed to the accessory drive, and valve train continuity was confirmed to all cylinders. Thumb compression and suction was confirmed for all of the cylinders, and the spark plugs were intact, appeared normal, and were dark gray in color. Both the left and right magnetos produced spark from all towers when rotated by hand.

Oil was present in the oil filter, on the oil suction screen, and valve springs. The interiors of all

of the cylinders were examined with a lighted borescope, and no damage was noted to the piston domes or valves.

The fuel pump was fractured and separated from the engine. The carburetor was also separated from the engine and fragmented. The brass floats were crushed, the float bowl was fragmented, and the fuel inlet screen was exposed.

TESTS AND RESEARCH

Global Positioning System (GPS) Information

According to data extracted from a handheld Lowrance 600C GPS receiver that was recovered from the wreckage, after departure from runway 10 at GKT the pilot turned out on a right crosswind, then turned right again and joined the downwind paralleling the runway until clearing the traffic pattern. The airplane then turned in a northerly direction. The last data point recorded was approximately 20 nautical miles south of the accident site.

Flight Service and Air Traffic Control Information

Information provided by Lockheed Martin Flight Service revealed that, the pilot had received a pre-flight weather briefing for the flight from GKT to ASW and was advised that flight under visual flight rules was not recommended due to low ceilings and visibility along the route of flight. The information provided also revealed that the pilot declined to file a flight plan. Additionally, no evidence was discovered that indicated the pilot had attempted to receive updated weather information prior to the accident flight or that he had contact with air traffic control.

ADDITIONAL INFORMATION

According to an interview conducted with an employee at the Warsaw Flying Club, around the time of the accident, the pilot had been "working on his instrument rating."

History of Flight

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

Pilot Information

Certificate:	Private	**Age:**	64, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without Waivers/Limitations	**Last Medical Exam:**	06/26/2007
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	12/10/2008
Flight Time:	(Estimated) 116 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	PIPER	**Registration:**	N43631
Model/Series:	PA-28-151	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	28-7415545
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	02/01/2008, Annual	**Certified Max Gross Wt.:**	2325 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	5017 Hours	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-320-E3D
Registered Owner:	Warrior Aviation LLC	**Rated Power:**	150 hp
Operator:	Warrior Aviation LLC	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	TYS	**Observation Time:**	1153 EST
Distance from Accident Site:	21 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:	230°	**Conditions at Accident Site:**	Instrument Conditions
Lowest Cloud Condition:		**Temperature/Dew Point:**	7°C / 6°C
Lowest Ceiling:	Overcast / 1200 ft agl	**Visibility**	3 Miles
Wind Speed/Gusts, Direction:	6 knots, 10°	**Visibility (RVR):**	
Altimeter Setting:	30.07 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	Moderate - Mist		
Departure Point:	Sevierville, TN (GKT)	**Type of Flight Plan Filed:**	Unknown
Destination:	Warsaw, IN (ASW)	**Type of Clearance:**	
Departure Time:		**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal		

Administrative Information

Investigator In Charge (IIC):	Todd G Gunther	**Adopted Date:**	12/20/2010
Additional Participating Persons:	Kenneth A Owens; FAA/FSDO; Nashville, TN Michael C McClure; Piper Aircraft Inc.; Vero Beach, FL James M Childers; Textron Lycoming; Williamsport, PA		
Publish Date:	12/30/2010		
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		