Aviation Investigation Final Report

Location:	Huntsville, Arkansas	**Accident Number:**	CEN14FA014
Date & Time:	October 21, 2013, 14:06 Local	**Registration:**	N888TP
Aircraft:	Piper PA 32R-301	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Before departing for the flight, the noninstrument-rated pilot received weather briefings, which indicated that visual flight rules (VFR) conditions prevailed along the route of flight with no significant flight restrictions. While en route to the destination, the pilot requested and received VFR flight following services from air traffic control. The approach controller advised the pilot of moderate to heavy rain ahead along the route of flight, and the pilot replied, "vfr." About 6 minutes later, the controller again told the pilot about heavy precipitation along the route of flight and then gave the pilot a heading to deviate around the weather. The pilot confirmed the heading. Radar data indicated that the airplane started the expected right turn shortly later and then descended at a high rate of speed. The controller queried the pilot with no response, and no further transmissions from the accident pilot were received. The wreckage was located the next day based on the emergency locator transmitter. All major components of the airplane were accounted for at the accident site. No airframe or engine preimpact anomalies were detected that would have precluded normal operation.

A band of light-to-moderate intensity echoes about 15 miles wide existed along the flight track, and echoes of light intensity were over the accident site. Reflectivity images did not identify any strong convective echoes along the airplane's flightpath. The pilot likely flew into an area of known rain with reduced visibility, which resulted in his subsequent loss of airplane control.

Probable Cause and Findings

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

The noninstrument-rated pilot's continued flight into an area of known rain with reduced visibility and his failure to maintain airplane control while maneuvering the airplane after entering these conditions.

Findings

Personnel issues	Decision making/judgment - Pilot
Personnel issues	Aircraft control - Pilot
Environmental issues	Rain - Not specified
Personnel issues	Total instrument experience - Pilot
Personnel issues	Total experience w/ equipment - Pilot
Aircraft	(general) - Not attained/maintained

Factual Information

History of Flight

Enroute-cruise	Other weather encounter
Maneuvering	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On October 21, 2013, about 1406 central daylight time, a Piper PA-32R-301 airplane, N888TP, impacted trees and terrain during a descent from cruise near Huntsville, Arkansas. The pilot and passenger sustained fatal injuries. The airplane was destroyed. The airplane was registered to and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Day visual flight rules (VFR) conditions prevailed for the flight, which did not operate on a VFR flight plan. The flight originated from the Thomas C Russell Field Airport (ALX), near Alexander City, Alabama, about 1045, and was destined for the Claremore Regional Airport (GCM), near Claremore, Oklahoma.

Flight service station records revealed that on October 20, 2013, the pilot representing N888TP obtained a preflight outlook weather briefing for a VFR flight departing on October 21, 2013, from ALX to GCM with an estimated time en route of four hours. On October 21, 2013, the pilot representing N888TP additionally obtained a preflight pilot briefing for a VFR flight departing at 1000 with an estimated time en route of four hours.

According to the fueling records, the airplane's fuel tanks were serviced with 57.74 gallons of aviation gasoline on October 18, 2013, at ALX. Following that fueling, a lineman at ALX helped load one suitcase, two hanging bags, and one set of golf clubs into a car. The pilot subsequently returned on October 21, 2013, and tried multiple times to start the engine. He was able to start the engine and the lineman indicated that the engine started without any "sputtering or popping." Additionally, the lineman did not see any black smoke during the engine start.

A mechanic at ALX observed the passenger and pilot board the aircraft without the pilot making a pre-flight inspection, which he thought was unusual since the aircraft had been tied down over the weekend and had sat in the rain. He then observed the pilot make numerous attempts to start the engine, "which almost completely drained the battery." The pilot was able to get the engine started without an external power source. The mechanic then observed him taxi out to the runway and depart runway 18 without ever doing a run up and/or magneto check."

The pilot was en route to GCM where he requested and was given VFR flight following. According to a transcript of recorded communications involving the Federal Aviation Administration (FAA) Razorback East radar approach control frequency, the pilot checked on with an approach controller about 1354. The controller advised the pilot of the current local altimeter setting and queried his altitude. The pilot replied he was at 5,800 feet. About 1357, the pilot advised the controller that the flight was descending to 4,500 feet.

At 1357:42, the controller said, "november nine eight eight tango papa roger maintain v f r altitude your discretion i'm showing moderate to to heavy rain uh at your twelve o'clock and approximately uh two miles it's uh just south along your route of flight and then there's a heavier area uh approximately fifteen miles uh west along your route of flight."

At 1358:01, the pilot replied, "eight eight eight tango papa v f r."

At 1404:18, the controller said, "november eight eight eight tango papa the uh weather that i'm showing is at your twelve o'clock and er precipitation returns are just at your twelve o'clock and about uh six miles uh about eight miles into that it uh uh is showing um heavy precipitation that's uh developing and building uh to the east."

At 1404:38, the pilot replied, "roger eight eight eight tango papa reckon we oughta do a one eighty."

At 1404:43, the controller said, "no sir eight eight eight tango papa if you uh take you to the north if you'd like vectors through it suggest heading three five zero towards huntsville and then once you get uh just uh west of huntsville i can turn you back to the west.

At 1405:54, the pilot replied, "alright eight eight eight tango papa three five zero."

At 1405:34, the controller said, "lance eight tango papa fly heading three six zero i'm going to leave you north bound for about uh five miles then i'll turn you back to the north west to get you clear of that weather."

At 1406:47, the pilot replied, "three six zero eight tango pop."

The controller queried the flight and no further transmissions from the accident pilot were recorded. The transcript is appended to the docket material associated with this investigation.

The airplane was observed on radar to descend at a high rate of speed following the turn and the Madison County Sheriff's Office was subsequently advised of coordinates for a possible airplane down. A search was conducted and responders using an emergency locator transmitter detector located the wreckage about 0845 on October 22, 2013.

Pilot Information

Certificate:	Private	**Age:**	63
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	January 23, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	April 25, 2013
Flight Time:	(Estimated) 224.6 hours (Total, all aircraft), 36 hours (Total, this make and model)		

The pilot held a FAA private pilot certificate with an airplane single engine land rating which was issued on April 25, 2013. The pilot took an initial check ride for his private pilot certificate on April 21, 2013. He did not pass that check ride and was given a notice of disapproval of application. The pilot was subsequently reexamined on the areas failed on that check ride, which were takeoffs, landings, and go-arounds, slow flight and stalls, and emergency operations. He held a FAA Third Class Medical Certificate dated January 23, 2013, with a limitation to wear corrective lenses. The pilot reported on the application for that medical certificate that he had accumulated 45 hours of total flight time and 5 hours of flight time in the previous six months. The pilot reported to his airplane's insurance company that he had accumulated 204 hours of total flight time and accumulated 16 hours of flight time in the PA-32R-301 as of October 3, 2013. According to the pilot's logbook, he recorded that he had accumulated 224.7 hours of total flight time, 8.1 hours of simulated instrument flight time, 1.9 hours of actual instrument flight time, and 36.1 hours of flight time in the same make and model airplane as the accident airplane.

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N888TP
Model/Series:	PA 32R-301	**Aircraft Category:**	Airplane
Year of Manufacture:	1997	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	3246090
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	September 16, 2013 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2325 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	C91A installed, activated, aided in locating accident	**Engine Model/Series:**	IO-540-K1G5
Registered Owner:	On file	**Rated Power:**	300 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

N888TP was a 1997 Piper PA-32R-301 airplane with serial number 3246090. The airplane was a low-wing, all-metal, single-engine, six-place monoplane. It had a retractable tricycle landing gear configuration, and was powered by a fuel injected, six-cylinder, Lycoming IO-540-K1G5 engine, bearing serial number L-26058-48A, and was marked as producing 300-horsepower at 2,700 rpm. An airplane logbook endorsement showed that the airplane's last annual inspection was completed on September 16, 2013, and that the airplane had accumulated 2,325.3 hours of total time.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KFYV,1259 ft msl	**Distance from Accident Site:**	21 Nautical Miles
Observation Time:	18:53 Local	**Direction from Accident Site:**	289°
Lowest Cloud Condition:	Scattered / 800 ft AGL	**Visibility**	5 miles
Lowest Ceiling:	Broken / 1800 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	10°C / 9°C
Precipitation and Obscuration:	N/A - None - Mist		
Departure Point:	ALEXANDER CITY, AL (ALX)	**Type of Flight Plan Filed:**	None
Destination:	CLAREMORE, OK (GCM)	**Type of Clearance:**	VFR flight following
Departure Time:	10:45 Local	**Type of Airspace:**	

A National Transportation Safety Board (NTSB) senior meteorologist reviewed weather documents to include flight service station briefings given to the pilot representing N888TP. Those briefings indicated the pilot should expect VFR conditions to prevail along the route of flight with no significant flight restrictions. The meteorologists review revealed that National Weather Service (NWS) surfact analysis for 1300 depicted a cold front over the planned route of flight and immediately east of the accident site. The chart depicted overcast clouds with light continuous rain behind the front.

The NWS National radar mosaic for 1400 depicted a band of weather echoes from southern Missouri southwestward across northern Arkansas into eastern Oklahoma. The band of echoes was along the route of flight and over the accident site.

The closest weather reporting location, about 21 miles and 289 degrees from the accident site, at the Drake Field Airport (FYV), near Fayetteville, AR, reported a wind shift associated with the cold front passage with marginal VFR (MVFR) to temporary instrument flight rules (IFR) conditions in light to moderate rain behind the front. At 1353, the recorded weather at FYV was: wind calm; visibility 5 statute miles; present weather rain, mist; sky condition scattered clouds 800 feet, broken clouds 1,800 feet, overcast clouds 5,000 feet; temperature 10 degrees C; dew point 9 degrees C; altimeter 30.08 inches of mercury. The next closest reporting stations at the Springdale Municipal Airport, near Springdale, and the Boone County Airport, in Harrison, Arkansas, both reported VFR conditions with broken to overcast sky conditions with surrounding light rain.

The North American Mesoscale model sounding for 1300 over the accident site indicated a potential cloud base at 1,000 feet above ground level. The sounding was stable and supported nimbostratus type clouds capable of producing rain showers.

The Geostationary Operational Environmental Satellite (GOES) no. 13 infrared satellite imagery at 1402

depicted an extensive band of low to mid-level clouds over the region associated with the frontal system. The GOES-13 visible image for 1402 also depicted an overcast cloud cover over the accident site with nimbostratus type clouds. The satellite and radar imagery, and lightning data did not identify any cumulonimbus clouds or thunderstorms in the immediate vicinity of the accident site.

The NWS Weather Surveillance Radar 0.5 degree base reflectivity images for 1401 and 1407 depicted a band of light to moderate intensity echoes approximately 15 miles wide along the flight track. Over the accident site, the echo intensity was only 20 to 25 dBZ or light intensity echoes. The reflectivity images did not identify any strong convective echoes along the flight path of the accident airplane.

A review the lightning network indicated that there were no in-cloud or cloud-to-ground lightning activity in an approximate 20 mile radius and a 45 minute period surrounding the time of the accident.

The NWS Terminal Aerodrome Forecast (TAF) for FYV available at the time of preflight planning expected VFR conditions prevailing with a broken ceiling at 4,000 feet and light rain showers. The TAF for Tulsa International Airport, closest forecast to the destination, also expected VFR conditions to prevail with rain showers and a ceiling broken at 5,000 to 6,000 feet.

The NWS Area Forecast for the route forecast expected broken clouds at 6,000 feet above mean sea level with tops to 20,000 feet with isolated rain showers. The forecast was consistent with the TAFs issued across the region. There were no amending Airmen's Meteorological Information (AIRMET) for IFR conditions. No advisories were current for any large areas of IFR conditions or thunderstorms across the region. The Senior Meteorologist's Factual Report is appended to the docket associated with this investigation.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	35.896389,-93.760559

The airplane wreckage was found about 13 miles south of Huntsville, Arkansas. It was situated about 1.4 miles and 305 degrees from the intersection of Madison County Road 5320 and Arkansas Highway 23. The wreckage was fragmented in an area that was tree covered, hilly, and had rocky terrain. The first observed impact to trees was found below the crest of a hill and the wreckage debris path extended down the hill about 450 feet to the hill's base. The debris pattern exhibited a general heading of approximately 255 degrees from the initial tree impact. Trees that were struck during the impact sequence exhibited witness marks to include broken branches, uprooted bases, and toppled over trunks in the direction of the debris pattern.

A postaccident on-scene investigation was conducted. All major components of the airplane were

accounted for at the accident site. The left wing and right wings were fragmented during the impact sequence. Components from both wings to include their wingtip, aileron, flap, landing gear, and control cables were found along the debris field. All damage and separations were consistent with overload. Control cable separations exhibited a broomstrawed appearance consistent with overload separation. All fuel tanks were fragmented and no fuel was noted. Trees and ground areas exhibited discoloring and charring consistent with post impact ground fires.

The empennage was found fragmented along the debris path. The largest section consisted of sections of the horizontal stabilator, vertical stabilizer, and the lower portion of the rudder. The left side of the stabilator and outboard portion of the right side were separated and were found along the debris path. Both stabilator control cable attach fittings were noted. One cable had separated from the swaged ball on the end of the cable and the other cable had a broomstrawed separation. Both rudder cables were secure to the rudder bellcrank and continuous to the forward fuselage area where both had broomstrawed separations. The stabilator hinge and stop bolts were in place and secure. The balance tube was in place with weights secure. The rudder bellcrank was partially separated from the rudder. The lower hinge bolt and stop bolts were in place and secure. The pitch trim drum showed three threads upper extension, which would have been consistent with a trim tab position of about two degrees of the available five degrees nose down trim. The fuselage was fragmented by multiple impacts with trees and terrain. Airplane fuselage parts and contents to include seats, instrument panels, luggage, window and door openings, and control cables were found along the debris path. The instrument panel's instruments were fragmented. The airspeed indicator's face was the only remaining instrument in the panel and its needle was resting near 200 knots.

The engine was separated from its engine mount and the engine was found near the bottom of the hill by the end of the debris path. The propeller and the rear-mounted accessories were separated from the engine. Both magnetos were found in the debris path. One magneto exhibited spark when its impulse coupling was rotated by hand. The other magneto did not produce spark when rotated by hand and disassembly revealed a separation in the distributor gear. That gear separation was consistent with impact damage. The engine crankshaft was rotated using a pry-bar and the crankshaft's continuity was verified. The camshaft gear was also rotated by pry-bar and movement of some of its valves was observed. Impact damage to some push rods precluded full camshaft rotation.

Portions of the propeller hub and its two retained blades were buried in the ground with a tree trunk covering one blade. One blade was separated from the hub and the blade was found down the hill in the debris path. The propeller blades exhibited s-shaped bending. The propeller attach studs remained in the crankshaft flange. The propeller hub boltholes were deformed in a pattern that was opposite the direction or rotation.

No airframe or engine pre-impact anomalies were detected that would have precluded normal operations.

Medical and Pathological Information

The Medical Examiner Office at the Arkansas State Crime Laboratory performed an autopsy on the pilot

on October 24, 2013. The cause of death was listed as blunt force injury.

The FAA Civil Aerospace Medical Institute prepared a Final Forensic Toxicology Accident Report on specimens from the pilot's autopsy. The report was negative for the tests performed.

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	Karen D Gattis; Federal Aviation Administration; Little Rock, AR Michael C McClure; Piper; McKinney, TX John Butler; Lycoming; Williamsport, PA Dan Boggs; Hartzell Propellers; Piqua, OH
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