Aviation Investigation Final Report

Location:	PELHAM, Alabama	**Accident Number:**	MIA00FA043
Date & Time:	December 8, 1999, 17:17 Local	**Registration:**	N39696
Aircraft:	Piper PA-32RT-300T	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The student pilot departed into weather observed as 2,000 feet overcast, 6 miles visibility in light rain, with a temperature-dew point spread of 1 degree C., sometime after 1630 and at about 1717 crashed into a 800-to 900-foot ridgeline about 10 miles southeast of his departure point. Witnesses near the crash site stated that localized land clearing fires contributed to worsening visibility, and that they could hear the airplane maneuvering overhead in a generally southeast heading. On site examination of the wreckage of the airframe, engine, and their respective components revealed no mechanical abnormalities.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The student pilot's decision to continue the visual flight rules flight into deteriorating visibility, and his failure to maintain altitude clearance with the terrain.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
1. TERRAIN CONDITION - MOUNTAINOUS/HILLY
2. WEATHER CONDITION - DRIZZLE/MIST
3. WEATHER CONDITION - HAZE/SMOKE

4. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND
5. (C) ALTITUDE/CLEARANCE - NOT OBTAINED/MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On December 8, 1999, about 1717 central standard time, a Piper PA-32RT-300T, N39696, registered to a private individual, operating as a Title 14 Part 91 personal flight, crashed while maneuvering near Pelham, Alabama. Instrument meteorological conditions prevailed and no flight plan was filed. The airplane was destroyed by impact and postcrash fire and the student pilot, the sole occupant, received fatal injuries. The flight departed Bessemer Airport, Bessemer, Alabama, at some time after 1630.

According to a witness, an FAA licensed pilot, between 1715 and 1725 he heard the airplane fly overhead his residence at a "much too low" altitude and at an "over revved" power setting on an easterly heading in a descent. As he ran onto his back porch, he noted the weather had deteriorated with fog and drizzle, and the ridge line east of his house was becoming obscured. He and his wife heard an impact, and saw the glow of a fire near the ridge line. He immediately called 911. He stated he heard no sounds of engine instability or malfunction. Other witness statements recounted that the engine sounds were of a smoothly running engine. See witness reports, attachments to this report.

PERSONAL INFORMATION

The pilot's flight logbook was not recovered, however, at the time of his application for a third class medical /student pilot certificate, on June 6, 1999, he listed his flight time as 300 hours, with 50 hours in the last 6 months. The pilot had on his person, a student pilot's license with a PA-32RT endorsement dated "7/1" by a CFI. Federal Air Regulation 61.87 states that an endorsement entered on a student pilot's license for a particular make and model of aircraft is valid for 90 days. The CFI was contacted and confirmed that his endorsement entry of "7/1" on the license was for the calendar year, 1999. He stated that he had probably flown 200 dual hours with the pilot over a period of two years, usually accompanying the pilot on his business trips because of the pilot's busy schedule. He added that he thought the pilot flew another 50 to 75 hours with another CFI, and had probably logged an additional 50 hours solo. He stated the pilot was becoming proficient at handling the airplane, but he said he had never flown in any weather. The CFI added that he had accompanied the pilot to Phoenix, Arizona, about 2 years before the accident when the airplane was purchased.

AIRCRAFT INFORMATION

The airframe and engine logbooks were not recovered. The pilot's daughter stated the logs would have been in a briefcase in the airplane. The only maintenance records recovered at the accident site were invoices from Bessemer Aviation, Bessemer, Alabama, who performed

an annual inspection on the airplane on September 3, 1999 at a tachometer time of 3892.8 hours. Copies of some aircraft maintenance log pages were attached to those invoices. Altimeter and static systems had been tested to 20,000 feet on August 8, 1997 by a certified repair station. Post crash examination of the wreckage revealed the airplane had been modified by installation of the following STC's: SA4345WE, (cowling cooling louvers), SA1401NM, (wingtip lights), SA4005NM, (pulse lights), SA609GL, (aileron-flap-stabilator gap seals), and SA1217GL, (wing root fairing). The CFI who accompanied the pilot during the airplane's purchase stated that the time on the engine, at that time, was 200 hours over recommended TBO.

METEOROLOGICAL INFORMATION

The Shelby County Airport, 1653 surface weather observation was 2,000 feet overcast, 6 sm in light rain, temperature 54 degrees F, dew point 52 degrees F, wind from 140 degrees at 5 knots. Witnesses stated the hill tops and ridge lines near the accident site were obscured in clouds, mist, and smoke. They stated that localized land clearing fires near the accident site worsened the already deteriorating visibility. Law enforcement personnel reported that it was raining during and after the accident. Sunset occurred at 1640, and civil twilight ended at 1707 on that day.

WRECKAGE AND IMPACT INFORMATION

The aircraft impacted densely wooded 2- to 10-inch diameter pine trees along a ridge line oriented generally northeast-southwest at about 825 feet elevation, at coordinates N33 15.44 and W086 45.39. The location is about 1 1/2 miles east of the entrance to the Olde Weatherly residential section of Pelham, Alabama, that was undergoing land clearing for home and golf course development. The general topography of the area is hilly and heavily forested. The wreckage path through the trees revealed an airplane attitude of about a 20-degree left bank and about 20 degrees of descent on a 360-degree heading. The distance from first tree impact to main wreckage was 164 feet, and the debris field extended another 200 feet. The main wreckage was consumed by postcrash fire. The engine separated and was found 96 feet beyond the main wreckage. Wing tank fuel spewed to the right of centerline of the wreckage path for about 150 feet, which also described the extent of the ground fire.

The wings and empennage were sheared from the fuselage as it descended through the trees. The main landing gear, although retracted, received rearward stress from tree collision and broke free of their trunnion mounts and separated. The ground crater measured 8 feet long by 10 to 12 inches deep, and revealed evidence of intense postcrash fire. The propeller hub separated at the engine crankshaft flange, and the heavily damaged blades revealed numerous chordwise gouges and rippling, and when viewed spanwise, displayed "S" shaped bending. Both blades had broken loose from their pitch control links and rotated freely within the hub. Several tree branches were severed in a cleanly cut helix pattern consistent with a propeller strike. The propeller spinner was rotationally crush-molded to the propeller dome and had to be incrementally cut away. The engine separated from the airframe and the core was

located 96 feet forward of the main wreckage, 12 feet left of centerline. Fragments of oil sump, induction sump, accessory case, accessories, and their drive gears littered the wreckage path from main crater to the core engine.

Complete flight control continuity was verified in all axes, except the left aileron whose control cable was separated near the left wing root. The cable separation site's appearance was consistent with tension overload. Examination of the stabilator trim drum revealed a shaft extension corresponding to a pitch trim tab setting of about 45 percent of full nose down travel. Main wreckage fire precluded extracting most data from the radios, instruments, or cockpit controls.

Tear down examination of the engine revealed valve train continuity and compression at all cylinders. The oil sump, induction sump, and accessory case were crushed and separated at impact and accessory drive continuity could not be confirmed. A small amount of engine oil in the rocker arm areas appeared uncontaminated. The accessory drive gears and metal pieces of the crankcase, accessories, and magnetos were spread throughout the debris field. The oil finger screen revealed no contamination or metal particles. Both magnetos were separated and destroyed. Examination of the vacuum pump revealed worn but functional vanes and housing. The rotor was fractured in a manner consistent with impact forces. The oil pump revealed oil film on the gears, and appeared functional. The turbocharger induction impeller revealed rotational blade damage that matched scoring on the housing. The fuel injector assembly and the inlet screen revealed no fuel contamination. Only 2 of 12 spark plug electrodes could be removed and examined, and they revealed normal coloring per Champion Spark Plugs Check-A-Plug Chart AV-27.

A defaced directional gyro instrument was recovered and disassembly examined for proper precrash operation. The gyro bearings functioned smoothly. The rotor component of the gyro revealed rotational scoring.

MEDICAL AND PATHOLOGICAL INFORMATION

Post-mortem examination of the pilot was performed on December 9, 1999, at the Cooper Green Hospital, Jefferson County, Alabama Department of Forensic Sciences, by Joseph H. Embry, M.D., and revealed cause of death to be multiple blunt force injuries. No findings that could be considered causal were noted. Toxicological tests were conducted at the Federal Aviation Administration Research Laboratory, Oklahoma City, Oklahoma. Positive results for ethanol and acetaldehyde were detected in the kidney and muscle; however, the report stated that the ethanol found in this case may potentially be from postmortem ethanol formation and not from ingestion of ethanol.

TESTS AND RESEARCH

According to transcripts of a telephone conversation between the pilot of N39696 and the FAA Anniston Flight Service Station at 1145 on the day of the accident, the pilot inquired

about en route weather between Bessemer, Alabama, and Chattanooga, Tennessee, for the time period, 4 to 5 o'clock of that day, at an altitude between 3,000 and 5,000 feet. The pilot also inquired about weather for the same route the next day, and then bid the briefer goodbye without stating his intentions. See the transcript, an attachment to this report under "Reports from Other Federal Agencies".

According to the pilot's daughter, the pilot left a telephone message on his former wife's message machine at 1630 on the day of the accident, and stated that he was still on the ground at the Bessemer airport. She stated she was aware that he was planning a trip to Chattanooga, but also stated, "Dad doesn't fly in weather". Witnesses to the flight's departure could not be found. There were no recent fuel purchase receipts for N39696 according to personnel at Bessemer Aviation, the airport's fixed-base operator.

ADDITIONAL INFORMATION

The wreckage, except some original invoices for maintenance performed by Bessemer Aviation and attached aircraft logbook page copies, retained by the FAA FSDO, Birmingham, was released to Mr. Patrick Dent, owner and operator of Dent Aviation Services, LLC, at the Shelby County Airport, Alabaster, Alabama, on December 10, 1999. The maintenance invoices were returned to a representative of the estate by the FAA on May 3, 2000.

Pilot Information

Certificate:	Student	**Age:**	58,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	June 29, 1999
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	300 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N39696
Model/Series:	PA-32RT-300T PA-32RT-30	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	32R-7887147
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	October 20, 1999 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3900 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	TIO-540-S1AD
Registered Owner:	HENRY A. DANIEL	**Rated Power:**	300 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	EET ,584 ft msl	**Distance from Accident Site:**	7 Nautical Miles
Observation Time:	16:53 Local	**Direction from Accident Site:**	193°
Lowest Cloud Condition:		**Visibility**	6 miles
Lowest Ceiling:	Overcast / 2000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	140°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	12°C / 11°C
Precipitation and Obscuration:	N/A - None - Smoke		
Departure Point:	BESSEMER , AL (EKY)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class E

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	33.300666,-86.789939(est)

Administrative Information

Investigator In Charge (IIC):	Stone, Alan
Additional Participating Persons:	MIKE MORGAN; BIRMINGHAM , AL DAVID C MOORE; WILLIAMSPORT , PA MICHAEL MCCLURE; VERO BEACH , FL
Original Publish Date:	May 9, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47890