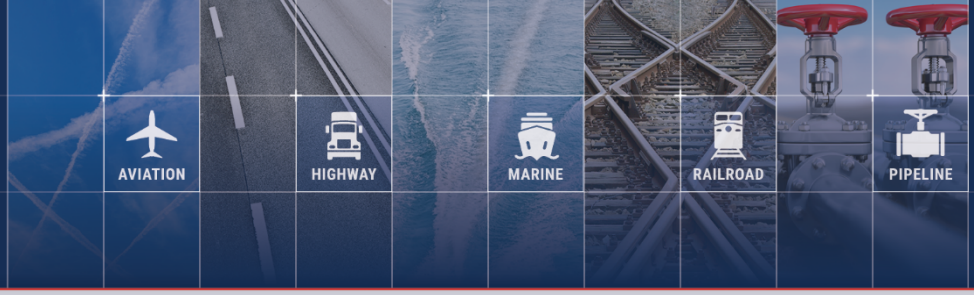

Aviation Investigation Final Report

Location:	Blairsville, Georgia	**Accident Number:**	ERA19FA070
Date & Time:	December 19, 2018, 19:36 Local	**Registration:**	N6143J
Aircraft:	Piper PA28	**Aircraft Damage:**	Substantial
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	3 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot was approaching the airport for landing following a local personal flight in night visual meteorological conditions when the airplane impacted 60 to 70-ft-tall trees about 1/2 mile from the end of the runway. Although the runway lights were illuminated at the time of the accident, the runway was not equipped with a precision approach path indicator (PAPI) or visual approach slope indicator (VASI) light system.

Examination of the airplane and the engine did not reveal any preaccident mechanical discrepancies that would have precluded normal operation. A review of the pilot's logbook revealed that the pilot had not flown at night in just over four months preceding the accident.

It is likely that, in the absence of a PAPI or VASI system by which to judge the airplane's approach path, the sparsely-lit terrain off the approach end of the runway may have created an illusion that resulted in the pilot's descent into terrain short of the runway.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain clearance from trees during a visual approach for landing in night visual meteorological conditions. Contributing to the accident was the pilot's lack of recent experience flying at night.

Findings

Personnel issues	Monitoring environment - Pilot
Aircraft	Altitude - Not attained/maintained
Environmental issues	Dark - Effect on operation
Personnel issues	Recent experience - Pilot

Factual Information

History of Flight

Approach-VFR pattern final	Controlled flight into terr/obj (CFIT) (Defining event)

HISTORY OF FLIGHT

On December 19, 2018, at 1936 eastern standard time, a Piper PA-28-181 airplane, N6143J, was substantially damaged when it was involved in an accident in Blairsville, Georgia. The private pilot and two passengers were fatally injured, and another passenger was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the passenger, who was seated in the front right seat, the takeoff from Blairsville Airport (DZJ) was normal, and they flew around the local area to look at Christmas lights before returning to the airport. As they got closer to the airport, the passenger could see the lighted runway in front of them. During the approach, the pilot described to the passenger that he needed to hit "markers" on the GPS he was using for navigation as the airplane approached the runway. She said that the pilot was relaxed and didn't seem to have any concerns about the flight. The airplane's engine was running fine and there were no unusual noises in the cockpit. Everything appeared normal. The next thing the passenger remembered was seeing rescue personnel.

A witness stated that she was on her front porch when she saw the lights of the airplane approaching the airport. The airplane's engine was running smoothly, but it sounded as if the airplane was "just too low." The witness heard the airplane impact trees and then the ground.

The pilot's handheld Garmin GPSmap 496 was located in the wreckage. The GPS began recording at 1847 when the airplane was taxiing to runway 8 for takeoff. The airplane departed about 1853, then the flight proceeded west and completed a local flight before returning to the airport.

A review of the last 18 seconds of GPS data revealed that, at 1936:02, the airplane was inbound for runway 8 on a heading of about 074° at a groundspeed of 63 knots at an altitude of about 2,076 ft msl. About 7 seconds later, the airplane had slowed to a groundspeed of 49 knots and had descended to an altitude of about 2,032 ft msl. At 1936:13, the airplane had descended to an altitude of about 1,986 ft msl and had suddenly turned to a heading of 023°, when it was about 1/2 mile from the end of the runway. The GPS stopped recording at 1936:20.

PERSONNEL INFORMATION

The pilot had owned the airplane since 2010 and was based at DZJ. The pilot's last recorded flight at night was on August 16, 2018, at which time he logged only one landing.

The pilot logged 15 instrument approaches in the 6 months preceding the accident; however, the types of approaches was not recorded.

AICRAFT INFORMATION

METEOROLOGICAL INFORMATION

Sunset was at 1727, and the end of civil twilight was 1755. The moon phase was waxing gibbous and 87% visible.

AIRPORT INFORMATION

Runway 8 was equipped with medium intensity runway lights (MIRL). No visual approach slope indicator (VASI) or precision approach path indicator (PAPI) system was installed.

According to the airport manager, installation of the new PAPI system had been on the airport's capital improvement projects list since 2016, but installation was delayed due to trees, buildings, and land acquisition.

The published inbound course for the RNAV (GPS) RWY 8 instrument approach was 076° magnetic, and the minimum descent altitude was 2,940 ft above mean sea level (msl). The crossing altitude at JIVIM was 6,400 ft msl, and at ZOTMI, it was 4,200 ft msl. The distance between JIVIM and ZOTMI was 7 nautical miles. The distance between ZOTMI and the missed approach point, which was located at the end of runway 8, was 7 nautical miles. The airport elevation was 1,909 ft msl.

The RNAV (GPS) RWY 8 instrument approach plate stated that the approach was not authorized at night.

WRECKAGE AND IMPACT INFORMATION

The initial impact point (IIP) was a stand of 60 to 70-ft-tall trees located about 1/2 mile from the end of the runway at an elevation of about 1,986 ft msl. The airplane's right wing tip was found at the base of these trees. The airplane continued to impact trees as it descended before it came to rest upright on a magnetic heading of about 142° about 262 ft from the IIP. An on-scene examination revealed that all major components of the airplane were located at the accident site and there was no post-impact fire.

The airplane sustained substantial damage to the fuselage, both wings, and the tail section. The left wing exhibited leading edge impact damage and remained attached to the airframe via aileron cables. The flap had separated and the aileron remained partially attached to the wing. The right wing remained secure to the fuselage and exhibited leading edge impact damage. The flap and aileron remained attached to the wing and appeared undamaged. Both left and right wing fuel tanks were breached. The vertical stabilizer exhibited some leading edge impact damage and the left side of the horizontal stabilator was displaced up. The stabilator trim tab was damaged, but the trim actuator was in the "neutral" position. The flap lever was in the fully extended position, which corresponded to the position of the flap torque tube arms and the flap chain position. Flight control continuity was established from all major flight control surfaces to the cockpit area.

Examination of the cockpit revealed that the altimeter setting was 30.00 inches Hg. The throttle lever was in the idle position and bent to the left and the mixture lever was in the full lean position. The carburetor heat was in the "on" position. The engine primer was locked, and the cabin heat was in the "off" position.

The pilot's seat remained attached to the seat tracks with its frame deformed downward and canted to the left. Its lap belt assembly remained attached to the fuselage and functioned when manually tested. The pilot's shoulder harness remained attached to the fuselage; however, its webbing was cut for occupant recovery and its lap belt attach point grommet was not located. Impact damage to its reel assembly precluded field testing.

The front right seat remained attached to its seat tracks and its frame exhibited left and downward deformation. Its seat back was separated from the assembly and was observed outside of the fuselage at the accident site. The lap belt assembly and shoulder harness remained attached to the fuselage and functioned normally when manually tested.

The No. 3 seat was separated from its mounts. The attach points were fractured, and the seat back was deformed aft. Impact damage was observed to the centerboard. The lap belt assembly remained attached to the fuselage and functioned when manually tested. There was no shoulder harness installed for this seat.

The No. 4 seat was partially separated from its mounts. The forward inboard attach point was fractured, and its seat back was deformed aft. Impact damage was observed to the centerboard. The lap belt assembly remained attached to the fuselage and functioned when manually tested. There was no shoulder harness installed for this seat.

The fuel selector cover exhibited impact damage and the fuel selector handle was positioned between the left and right fuel tank positions. The fuel selector valve was removed and tested. Fuel was observed within the fuel lines during removal of the valve. The valve moved smoothly to each detent. Low-pressure air was blown through each detent and all ports were absent of debris.

The gascolator bowl was dislodged from its receptacle and its filter screen was not observed within the recovered wreckage. The gascolator bowl was absent of debris. The electric fuel pump's filter was absent of debris, and fuel was observed within the fuel pump and attaching fuel lines.

The engine and the two-bladed propeller also sustained impact damage but remained attached to the airframe. One propeller blade was bent forward about 20°, exhibited a slight twist, chordwise scoring, and leading-edge gouges. The other blade was fractured about 20 inches outboard of the center of the hub. The separated section of blade was not located with the wreckage. The fractured end of the blade exhibited features consistent with overload.

The engine was removed from the airframe and partially disassembled to facilitate the examination. The engine was rotated by hand at the propeller and valve train continuity and compression were established on all four cylinders. Borescope examination of the cylinders revealed no anomalies.

The carburetor was partially disassembled, and no damage was noted to the brass floats or other internal components. Fuel was observed in the carburetor float bowl; no water was observed in the fuel. The carburetor fuel inlet screen contained a small amount of debris, but was unobstructed.

The engine-driven fuel pump remained attached to the engine and no damage was noted. Fuel drained from the pump when it was removed; the fuel was absent of water and debris. The pump produced air at the outlet port when was actuated by hand. The pump was partially disassembled and no damage was noted to the rubber diaphragms or internal check valves.

Both magnetos were undamaged and remained attached to the engine. Both produced spark from all ignition towers when manually tested.

The spark plugs were light gray in color, consistent with normal operation per the Champion Check-A-Plug chart. The No. 2 bottom spark plug was oil-soaked.

The vacuum pump remained attached to the engine and no damage was noted. The composite drive assembly, carbon rotor, and carbon vanes were intact.

Oil was observed in the engine. No debris was observed in the oil pump suction screen or on the oil filter element.

No mechanical anomalies were noted with the airframe or engine that would have precluded normal operation at the time of the accident.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was conducted on the pilot by the Georgia Bureau of Investigation. The cause of death was determined to be "multiple blunt force injuries."

Toxicological testing performed at the FAA Forensic Sciences Laboratory detected Alfuzosin, a drug to treat an enlarged prostate, in the pilot's blood and urine. The medication is generally not considered to be impairing.

ADDITIONAL INFORMATION

A photo taken by the front seat passenger during the approach showed that the runway lights were turned on. Some of the surrounding city lights were visible north and east of the runway; few lights were observed on the final approach path.

According to the FAA Airplane Flying handbook (FAA-H-8083-3B), Chapter 10:

A black-hole approach occurs when the landing is made from over water or non-lighted terrain where the runway lights are the only source of light. Without peripheral visual cues to help, orientation is difficult. The runway can seem out of position (down-sloping or up-sloping) and in the worst case, results in landing short of the runway.

If an electronic glide slope or visual approach slope indicator (VASI) is available, it should be used. If navigation aids (NAVAIDs) are unavailable, use the flight instruments to assist in maintaining orientation and a normal approach. Anytime position in relation to the runway or altitude is in doubt, execute a go-around.

Bright runway and approach lighting systems, especially where few lights illuminate the surrounding terrain, may create the illusion of being lower or having less distance to the runway. In this situation, the tendency is to fly a higher approach. Also, flying over terrain with only a few lights makes the runway recede or appear farther away. With this situation, the tendency is to fly a lower-than-normal approach. If the runway has a city in the distance on higher terrain, the tendency is to fly a lower-than-normal

approach. A good review of the airfield layout and boundaries before initiating any approach helps maintain a safe approach angle.

Pilot Information

Certificate:	Private	**Age:**	56,Male
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 Without waivers/limitations	**Last FAA Medical Exam:**	April 1, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 19, 2017
Flight Time:	822.9 hours (Total, all aircraft), 752.5 hours (Total, this make and model), 778 hours (Pilot In Command, all aircraft), 133 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N6143J
Model/Series:	PA28 181	**Aircraft Category:**	Airplane
Year of Manufacture:	1976	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	28-7690352
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	January 20, 2017 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	93 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4481.19 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	C91 installed, not activated	**Engine Model/Series:**	O-360-A4M
Registered Owner:		**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:**	Night
Observation Facility, Elevation:	KDZJ,1909 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	19:35 Local	**Direction from Accident Site:**	95°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	100°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	9°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Blairsville, GA (DZJ)	**Type of Flight Plan Filed:**	None
Destination:	Blairsville, GA (DZJ)	**Type of Clearance:**	None
Departure Time:	18:53 Local	**Type of Airspace:**	Unknown

Airport Information

Airport:	Blairsville DZJ	**Runway Surface Type:**	Asphalt
Airport Elevation:	1907 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	08	**IFR Approach:**	Global positioning system;RNAV;Visual
Runway Length/Width:	5004 ft / 100 ft	**VFR Approach/Landing:**	Full stop;Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Fatal, 1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal, 1 Serious	**Latitude, Longitude:**	34.8525,-84.015556(est)

Administrative Information

Investigator In Charge (IIC):	Read, Leah
Additional Participating Persons:	Zachary Andrade; FAA/FSDO; Atlanta, GA Damien Galbraith; Piper Aircraft Company; Vero Beach, FL James M Childers; Textron Lycoming; White, AL
Original Publish Date:	July 13, 2020
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98789