



National Transportation Safety Board Aviation Accident Preliminary Report

Location:	Deland, FL	Accident Number:	ERA19FA283
Date & Time:	09/29/2019, 1600 EDT	Registration:	N731PF
Aircraft:	Cessna 421	Injuries:	3 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

On September 29, 2019, about 1600, eastern standard daylight time, a Cessna 421, N731PF, was substantially damaged when it impacted trees and terrain near Deland, Florida. The commercial pilot, pilot-rated passenger, and aft-seated passenger were fatally injured. Visual meteorological conditions prevailed at the time and no flight plan was filed for the Title 14 *Code of Federal Regulations* Part 91 personal flight. The flight originated from DeLand Municipal Airport-Sidney H Taylor Field (DED), Deland, Florida about 1542.

According to the owner of the airplane, he purchased the airplane on June 21, 2019, with plans to make repairs before selling it. The airplane was base at DED at the time of purchase and had not had an annual inspection for several years. The owner hired a mechanic to make necessary repairs and conduct an annual inspection on the airplane. During the inspection of the airplane, the mechanic informed the owner that the left tachometer generator and the fuel gauges did not work, along with other items that needed repair and replacement. The owner planned that once all of the work was done and the annual was signed off, the mechanic would find a pilot to transport the airplane to Texas, where he resided. The mechanic subsequently told the owner that he found a flight instructor that was able to fly the airplane back to Texas (the pilot-rated passenger). The owner stated that he did not know the pilot nor the other passenger onboard the airplane, and was not aware that the airplane was being flown by anyone when the accident occurred.

The mechanic he stated that he had not completed the necessary repairs to the airplane, nor had he signed off the airplane's annual inspection at the time of the accident.

According to air traffic control (ATC), a review of radar data revealed that the flight departed DED and proceeded to a point about 17 miles southwest of DED. The airplane was observed on radar conducting flight maneuvers at 2,500 ft. After the flight maneuvers were completed the airplane was observed heading back to DED. While returning to DED, the airplane descended until it reached 1,000 ft, then made a left turn before radar contact was lost. There were no ATC services and no voice communications with ATC.

According to a witness in the area at the time of the accident, he heard the airplane fly over at an altitude about 2,000 ft, and described the engine(s) sound as "rough." About 10 minutes

later he observed the airplane coming back at an altitude of 1,000 ft and the engine sounds included "sputtering and backfiring." He was able to identify the airplane as a twin-engine Cessna and white in color. He did not see any smoke or fire emitting from the airplane when it flew over but continued to observe the airplane as it descended below the tree line. The witness did not see or hear the crash, but later that evening he heard about it on the local news and contacted the local authorities to report what he saw and heard.

According to another witness, about a mile away from the accident site, he was in his garage and heard the accident airplane flying over. It sounded very loud so he walked out of his garage and down his driveway to see. He said both engines were running, but they seemed to be running at idle. As he continued to watch the airplane, he said that it was flying "very slow and very low", and the flaps and landing gear was retracted. Suddenly the airplane rolled to the left and began to "spiral downward" three times before descending below the tree line. As the airplane spiraled to the ground the engines made "two popping" sounds before crashing into a wooded area. No smoke was seen emitting from the airplane during the descent. He report what he saw to the local authorities, and the local authorities responded shortly afterwards.

The pilot, age 27, held a commercial pilot certificate with ratings for single-engine land, multi-engine land, and instrument airplane. The pilot also held a flight instructor certificate with an airplane single engine rating. His Federal Aviation Administration (FAA) first-class medical certificate was issued June 4, 2018. A review of the pilot's logbook revealed that the last entry was dated May 29, 2019. The total pilot in command time entered was 500 hours, including approximately 40 hours of multiengine flight time. Of the 500 hours, approximately 185 hours was flight instruction given in single engine airplanes. The logbook did not show that the pilot had received any instruction or had logged any previous flight experience in the Cessna 421.

The pilot-rated passenger, age 32, held a private pilot certificate with a rating for airplane single-engine land. His most-recent FAA third-class medical certificate was issued on April 12, 2019. A review of the pilot logbook revealed a total of 155 flight hours, all in single-engine airplanes.

The airplane was manufactured in 1968. It was powered by two Continental GTSIO-520-D engines each rated at 375 horsepower. The engines were each equipped with a McCauley three-blade, controllable-pitch propeller. Review of the maintenance records revealed the airplane was last inspected in accordance with an annual inspection on February 15, 2014, at a Hobbs meter time of 858 hours. The current Hobbs reading at the time of the examination was 862 hours.

The DED weather at 1555 was reported as wind from 060° at 7 knots, 10 miles visibility or greater, a scattered ceiling at 3,100 ft above ground level (agl), broken skies at 4,800 ft agl, temperature of 29° Celsius (C), dew point temperature of 23° C, and an altimeter setting of 30.08 inches of mercury.

The airplane crashed in a heavy wooded area; the main wreckage was located approximately 4 nautical miles from DED on a 230 magnetic degree heading. The wreckage path was about 75 ft in length from the first broken tree branch, which was about 75ft high from where the airplane came to rest.

Examination of the accident site revealed the airplane was at the base of a tree in a upright position. There were freshly cut branches at the wreckage site. All flight control surfaces were located at the accident site. The cockpit section of the airplane was crushed and a tree trunk extended from the bottom of the fuselage through the top of the right side of the cockpit. The fuselage exhibited crush damage to the aft pressure bulkhead. The empennage was broken away from the fuselage at the aft pressure bulkhead and remained partially attached by flight control cables. The vertical and horizontal stabilizers remained attached to the empennage. The vertical stabilizer was buckled and the rudder was attached at the lower attachment points. The rudder was broken in two parts, the lower section containing the rudder trim was buckled. The upper section of the rudder was also buckled and partially attached to the remainder of the rudder assembly.

The horizontal stabilizer remained attached to the empennage and was buckled. The elevators were buckled remained attached to the horizontal assembly. Flight control cable continuity was established from the control yoke, rudder pedals and the trim actuator; to the rudder, rudder trim tab, elevator assemblies.

An examination of the left wing assembly revealed that a post-crash fire destroyed the wing assembly outboard of the engine nacelles. The left engine and nacelle exhibited fire and impact damage, and the inboard section of the wing remained attached to the fuselage at the wing root. The left landing gear was found in the extended position and the flaps were retracted. The left main and auxiliary fuel tanks were destroyed by post-crash fire. Flight control cables were found within the left wing assembly and extended outboard to fire damaged wing area. Flight control continuity was established from the aileron, aileron trim tab cables, to the control yoke and trim actuator.

Examination of the right wing assembly revealed that a post-crash fire destroyed the wing assembly outboard of the engine nacelles. The right engine and nacelle exhibited fire and impact damage, and the inboard section of the wing remained attached to the fuselage at the wing root. The right landing gear was found in the extended position and the flaps were retracted. The right main and auxiliary fuel tanks were destroyed by post-crash fire. Flight control cables were found within the right wing assembly and extended outboard to fire damaged wing area. Flight control continuity was established from the aileron, cables to the control yoke.

Examination of the right engine revealed that the crankcase remained intact and displayed impact and thermal damage signatures. There were no holes in the case that would indicate a catastrophic internal engine failure. The propeller flange remained attached to the rest of the propeller flange; the flange displayed impact damage and was bent. The propeller shaft gear was partially visible after removing the alternator; the gear displayed normal operating signatures. The propeller shaft was rotated using a hand tool; continuity was established between the propeller shaft, reduction gear, quill shaft, crankshaft, camshaft, connecting rods, and associated components. All six cylinders remained attached to their cylinder bays and displayed varying amounts of impact and thermal damage.

The cylinders were inspected using a lighted borescope. The piston faces, cylinder bores and valve heads displayed normal operating and combustion signatures. While rotating the

propeller shaft it was noted that all six cylinders displayed thumb compression and suction. During rotation it was noted that all the rocker arms and valves moved accordingly.

Examination of the right propeller assembly revealed the three blade, constant speed propeller remained partially attached to the propeller flange and displayed impact damage signatures. The propeller blade marked "A" displayed minor damage to the rubber boot. The propeller blade marked "B" displayed minor impact damage near the root of the blade. Propeller blade marked "C" displayed minor S-bending as well as significant aft bending deformation. During the on scene portion of the investigation several tree branches were found with clean approximate 45 degree angle cuts and appeared to have black paint transfer on the right side of the airplane.

Examination of the left engine revealed that the crankcase remained intact and displayed impact and thermal damage signatures. There were no holes in the case that would indicate a catastrophic internal engine failure. The propeller flange remained attached to the rest of the propeller flange; the flange displayed impact damage and was bent. The propeller shaft gear was partially visible after removing the alternator; the gear displayed normal operating signatures. The propeller shaft was rotated using a hand tool; continuity was established between the propeller shaft, reduction gear, quill shaft, crankshaft, camshaft, connecting rods, and associated components. The crankshaft gear was visible after removing the starter adapter; the gear remained intact and was undamaged. All six cylinders remained attached to their cylinder bays and displayed varying amounts of impact and thermal damage. The cylinders were inspected using a lighted borescope; the piston faces, cylinder bores, and valve heads displayed normal operating and combustion signatures. While rotating the propeller shaft all cylinders displayed thumb compression and suction and all of the overhead valve components moved accordingly.

Examination of the left propeller assembly revealed the three blade, constant speed propeller remained partially attached to the propeller flange and displayed impact damage signatures. The propeller blade marked "A" displayed minor impact damage to the root and was not bent. The propeller blade marked "B" displayed S-bending, twisting, and aft bending deformation as well as significant polishing of the cambered side. The propeller blade marked "C" displayed aft bending deformation and leading edge polishing near the tip. During the on scene portion of the investigation several tree branches were found with clean approximate 45 degree angle cuts and appeared to have black paint transfer on the left side of the airplane.

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N731PF
Model/Series:	421 Undesignat	Aircraft Category:	Airplane
Amateur Built:	No		
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	DED, 79 ft msl	Observation Time:	1555 EDT
Distance from Accident Site:	4 Nautical Miles	Temperature/Dew Point:	29° C / 23° C
Lowest Cloud Condition:	Scattered / 3100 ft agl	Wind Speed/Gusts, Direction:	7 knots / , 60°
Lowest Ceiling:	Broken / 4800 ft agl	Visibility:	10 Miles
Altimeter Setting:	30.08 inches Hg	Type of Flight Plan Filed:	None
Departure Point:	Deland, FL (DED)	Destination:	Deland, FL (DED)

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	2 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Fatal	Latitude, Longitude:	29.024444, -81.344167

Administrative Information

Investigator In Charge (IIC):	Eric Alleyne
Additional Participating Persons:	Antonia Gonzalez; FAA/FSDO; Orlando, FL Kurt Gibson; Continental Motors; Mobile, AL Casey J Love; Textron Aviation; Wichita, KS
Note:	The NTSB traveled to the scene of this accident.