Aviation Investigation Final Report

Location:	Huntsville, Texas	**Accident Number:**	CEN17FA167
Date & Time:	April 25, 2017, 10:38 Local	**Registration:**	N421TK
Aircraft:	Cessna 421C	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Flight test		

Analysis

While conducting a postmaintenance test flight in visual flight rules conditions, the private pilot of the multi-engine airplane reported an oil leak to air traffic control. The controller provided vectors for the pilot to enter a right base leg for a landing to the south at the nearest airport, about 7 miles away. The pilot turned toward the airport but indicated that he did not have the airport in sight. Further, while maneuvering toward the airport, the pilot reported that the engine was "dead," and he still did not see the airport. The final radar data point recorded the airplane's position about 3.5 miles west-northwest of the approach end of the runway; the wreckage site was located about 4 miles northeast of the runway, indicating that the pilot flew past the airport rather than turning onto a final approach for landing. The reason that the pilot did not see the runway during the approach to the alternate airport, given that the airplane was operating in visual conditions and the controller was issuing guidance information, could not be determined. Regardless, the pilot did not execute a precautionary landing in a timely manner and lost control of the airplane.

Examination of the airplane's left engine revealed that the No. 2 connecting rod was broken. The connecting rod bearings exhibited signs of heat distress and discoloration consistent with a lack of lubrication. The engine's oil pump was intact, and the gears were wet with oil. Based on the available evidence, the engine failure was the result of oil starvation; however, examination could not identify the reason for the starvation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to identify the alternate runway, to perform a timely precautionary landing, and to maintain airplane control. Contributing to the accident was the failure of the left engine

due to oil starvation for reasons that could not be determined based on the postaccident examination.

Findings

Aircraft	Quantity - Not serviced/maintained
Aircraft	Oil - Fluid level
Not determined	(general) - Unknown/Not determined
Personnel issues	Monitoring environment - Pilot
Personnel issues	Lack of action - Pilot
Personnel issues	Aircraft control - Pilot
Aircraft	(general) - Not attained/maintained

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (total) (Defining event)
Approach	Loss of control in flight
Maneuvering	Collision with terr/obj (non-CFIT)

On April 25, 2017, about 1038 central daylight time, a Cessna 421C airplane, N421TK, impacted trees and terrain near Huntsville, Texas. The commercial pilot was fatally injured, and the airplane was destroyed by impact forces and a postcrash fire. The airplane was registered to Klass Enterprises, LLC, and operated by the pilot under the provisions of 14 *Code of Federal Regulations* Part 91. Day visual meteorological conditions (VMC) prevailed and no flight plan was filed for the postmaintenance test flight, which originated from Lone Star Executive Airport (CXO), Conroe, Texas, about 0952.

The pilot was receiving visual flight rules (VFR) flight-following services from Houston Terminal Radar Approach Control (TRACON) and intended to conduct a practice RNAV approach at CXO. At 1030, about 38 minutes after departure, at an altitude about 2,400 ft mean sea level (msl), the pilot reported an oil leak and requested to proceed directly to the airport. The controller advised that Huntsville Municipal Airport (UTS), Huntsville, Texas, was closer, and the pilot elected to proceed to UTS. The controller then issued a heading to position the airplane for a right base leg for runway 18 and stated that the airport was at the pilot's 1-o'clock position, 7 miles away. The pilot acknowledged and turned the airplane onto the issued heading. Radar data indicated that, about 1030:05, the airplane began a left turn to a heading about 70°. This heading would have taken the airplane about 2 miles north of the approach end of runway 18 at UTS. During the turn, the airplane began to descend, with the final radar data point recorded at 1032:39 about 3.5 miles and 290° from UTS. The final recorded pressure altitude was 2,000 ft msl.

At 1033, the controller told the pilot that he was vectoring the airplane north of the airport for landing on runway 18. The pilot stated that he did not have the airport in sight; the controller replied that it was at his 2-o'clock position and 3 miles. The pilot again reported that he did not have the airport in sight.

At 1035, the controller lost communication and radar contact with the accident airplane. After losing communications, the controller used another aircraft to relay to the accident pilot that he had flown past UTS. The accident pilot reported via the relay aircraft that he did not have the airport in sight and that his airplane's engine was "dead." The relay aircraft made several subsequent attempts to communicate with the accident pilot but was unsuccessful.

A witness, who was an off-duty police officer, reported seeing the airplane flying in a westerly direction about 150 ft above the ground. He said that the airplane banked left about 45° and he noticed that the left propeller was not turning and that the airplane was losing altitude. Suspecting a problem, the officer got into his car; he then heard the operating engine either "idle down" or shut off completely. The airplane then went out of sight behind a tree line and the officer saw a large plume of smoke. The officer added that, when the airplane passed over his residence, the wing flaps appeared to be retracted or at a very

low angle, and the landing gear was in the retracted position. He noted that the right engine did not sound as though it was sputtering or experiencing difficulties until he heard the engine sound decrease. He further noted that he did not see any smoke coming from the airplane as it passed overhead.

Pilot Information

Certificate:	Commercial	**Age:**	62,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	July 27, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1567 hours (Total, all aircraft), 219 hours (Total, this make and model)		

The 62-year-old pilot held a commercial pilot certificate with airplane single-engine land and instrument airplane ratings. The certificate also listed airplane multi-engine land and rotorcraft-helicopter ratings limited to private pilot privileges. The pilot was issued a Federal Aviation Administration (FAA) third-class airman medical certificate on July 27, 2016, with a restriction for corrective lenses.

The pilot had logged about 1,567 total hours of flight experience, with about 219 hours in the accident airplane. The pilot's logbook indicated that he had received 8.8 hours of instruction in a Cessna 421C simulator at SIMCOM Aviation Training Center. The logbook also indicated that he met the requirement for a flight review based on successful completion of the helicopter private pilot practical test on February 22, 2017.

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N421TK
Model/Series:	421C C	**Aircraft Category:**	Airplane
Year of Manufacture:	1979	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	421C0601
Landing Gear Type:	Retractable - Tricycle	**Seats:**	8
Date/Type of Last Inspection:	April 24, 2017 Annual	**Certified Max Gross Wt.:**	7500 lbs
Time Since Last Inspection:	0 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	7647 Hrs	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed	**Engine Model/Series:**	GTSIO-520-L
Registered Owner:	On file	**Rated Power:**	375 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The accident airplane was a 1979 Cessna 421C, serial number 421C0601. It was an eight-place, low-wing, twin-engine airplane with retractable tricycle landing gear. The airplane was issued an FAA normal category standard airworthiness certificate on September 27, 1978. The airplane was powered by two 375-horsepower Continental Motors GTSIO-520L six-cylinder, turbo-supercharged reciprocating engines.

According to the airplane maintenance records, the airframe had accumulated 7,647.3 hours total time in service at the time of the most recent annual inspection dated April 24, 2017. The left engine, serial number 276375, had accumulated 3,606.1 hours total time in service and 132.0 hours since overhaul as of the most recent annual inspection. The right engine, serial number 808287, had accumulated 2,627.4 hours total time in service and 381.4 hours since overhaul as of the most recent annual inspection. The annual inspection was the last recorded maintenance performed on the airplane.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KUTS	**Distance from Accident Site:**	4 Nautical Miles
Observation Time:	15:53 Local	**Direction from Accident Site:**	40°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	Broken / 2700 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots / 17 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.69 inches Hg	**Temperature/Dew Point:**	24°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Conroe, TX (CXO)	**Type of Flight Plan Filed:**	None
Destination:	Conroe, TX (CXO)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

The 1053 weather conditions recorded by the UTS Automated Surface Observing System, located about 4 miles southwest of the accident site, included: wind from 170° at 12 knots gusting to 17 knots, visibility 10 miles, clear skies, temperature 24°C, dew point 18°C, and an altimeter setting of 29.69 inches of mercury.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	30.794166,-95.53833

The airplane impacted trees and terrain before coming to rest inverted in a shallow ranch pond. The lower portion of the fuselage and the wings remained above the surface of the water and showed evidence of fire damage. Based on the initial tree impact and the resting place of the wreckage, the airplane was traveling in a southerly direction when the impact occurred. On-scene examination of the airplane was not possible due to its location in the pond, and further examination was conducted after removal from the accident site.

The subsequent examination of the airframe and the right engine did not reveal any anomalies consistent with a preimpact failure or malfunction. The left engine exhibited a protruding bulge in the engine case.

Subsequent teardown examination of the left engine revealed that the No. 2 connecting rod had separated from the crankshaft. The connecting rod journal on the crankshaft had heat damage and discoloration. Crankshaft rod journals Nos. 1, 3, and 4 exhibited heat discoloration, but their respective connecting rods remained attached to the crankshaft. The engine oil pump was intact and was disassembled; the gears were covered with oil. No source for an oil leak was discovered, and no additional anomalies consistent with a preimpact failure or malfunction were found.

Medical and Pathological Information

The Montgomery County Forensic Services Department, Conroe, Texas, performed an autopsy on the pilot. The cause of death was attributed to injuries received in the accident.

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicology testing on specimens of the pilot. Atorvastatin, a non-impairing prescription medication used to treat high cholesterol, was detected in urine and blood specimens.

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	Peter Brandon; FAA - Houston FSDO; Houston, TX Henry Soderlund; Textron Aviation; Wichita, KS John Kent; Continental Motors; Mobile, AL
Original Publish Date:	July 16, 2018
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=95061