# Aviation Investigation Final Report

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| **Location:** | Cartersville, Georgia | **Accident Number:** | CEN19FA005 |
| **Date & Time:** | October 13, 2018, 14:30 Local | **Registration:** | N180QT |
| **Aircraft:** | Piper PA28 | **Aircraft Damage:** | Destroyed |
| **Defining Event:** | Fuel exhaustion | **Injuries:** | 1 Fatal |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The pilot departed on a cross-county flight in day visual meteorological conditions. According to the airplane's co-owner, who spoke with the pilot before he departed on the accident flight, the airplane had about 34 gallons of fuel onboard at the time of departure. Based on his experience, this was sufficient for about 2 hours 20 minutes of flight. He suggested that the pilot top off the airplane's fuel tanks before departure. When he watched the pilot taxi the airplane past the fuel facility and take off, he subsequently sent the pilot a text message stating, "Do hope you had a fuel stop planned." The pilot replied that he would stop if he needed to. GPS data indicated that the pilot did not land at any point between the departure airport and accident site, though he passed near one airport, and directly over another airport, both of which had fuel services available. A witness reported that the airplane's engine stopped then restarted. Another witness reported that the airplane's engine was surging. The airplane subsequently impacted power lines. The duration of the accident flight was 3 hours and 10 minutes.

Postaccident examination revealed that both fuel tanks were intact; the left wing tank was empty, and the right wing tank contained residual fuel. Examination of the fuel system and the engine revealed no anomalies. Given the absence of fuel in the airplane's fuel tanks at the accident site, the duration of the flight, and the known quantity of fuel onboard at the time of departure, the accident is consistent with a total loss of engine power due to fuel exhaustion. Although the pilot passed over two other airports with fuel available, he chose to continue the flight beyond the airplane's endurance given the fuel at departure.

## Probable Cause and Findings

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

The pilot's inadequate preflight and inflight fuel planning and his decision to continue flight without stopping for fuel, which resulted in a total loss of engine power due to fuel exhaustion.

## Findings

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| **Personnel issues** | Fuel planning - Pilot |
| **Personnel issues** | Decision making/judgment - Pilot |
| **Aircraft** | Fuel - Fluid management |
| **Aircraft** | Fuel - Fluid level |

# Factual Information

## History of Flight

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| **Prior to flight** | Preflight or dispatch event |
| **Enroute** | Fuel exhaustion (Defining event) |
| **Emergency descent** | Collision with terr/obj (non-CFIT) |

On October 13, 2018, about 1430 eastern daylight time, a Piper PA-28-180 airplane, N180QT, was destroyed when it was involved in an accident in Cartersville, Georgia. The pilot was fatally injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

A co-owner of the airplane reported that he spoke to the accident pilot before he departed from Gainesville Regional Airport (GNV), Gainesville, Florida. He and the pilot discussed the airplane's fuel load, which was about 34 gallons, and the pilot's flight plan to Tom B. David Airport (CZL), Calhoun, Georgia. Based on that conversation, he believed the pilot was going to add additional fuel to the airplane before departure; however, the pilot taxied past the airport's fuel facility and proceeded to take off. The co-owner subsequently texted the pilot , "Do hope you had a fuel stop planned." At 1243, the pilot replied, "If I need to, I'll stop in LaGrange."

GPS data from onboard the airplane indicated that the airplane departed GNV at 1119 and proceeded toward CZL. The airplane flew east of LaGrange-Callaway Airport (LGC), LaGrange, Georgia, and flew directly overhead Pauling Northwest Atlanta Airport (PUJ), Atlanta, Georgia; both airports had 100 low-lead aviation fuel available. As the airplane flew over PUJ, the flight track diverted north-northeast toward Cartersville Airport (VPC), Cartersville, Georgia.

One witness reported that the airplane flew overhead heading in a north-northwesterly direction. It was flying normally when "all of a sudden the engine noise just stopped." The witness did not hear a sputter before or after it stopped, but "about 7 seconds later" the engine noise resumed, and the airplane appeared to fly normally along the same route. The witness added that she did not notice any other abnormalities after the engine noise stopped; the airplane "appeared to be gliding," it "did not appear to be losing altitude," and the "wings appeared to remain level." Another witness, who was located closer to the accident site, stated that the "airplane sounded loud when passing [overhead] with the engine surging." A pilot flying in the area heard a radio call stating "mayday, mayday, mayday, Cherokee [unintelligible]." He was unable to hear the end of the transmission clearly.

According Georgia Power, an impact to the high-tension powerline located adjacent to the accident site was recorded at 14:29:30.

## Pilot Information

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| **Certificate:** | Private | **Age:** | 70,Male |
| **Airplane Rating(s):** | Single-engine land | **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 With waivers/limitations | **Last FAA Medical Exam:** | August 7, 2017 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | August 20, 2018 |
| **Flight Time:** | 339 hours (Total, all aircraft), 262 hours (Total, this make and model) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Piper | **Registration:** | N180QT |
| **Model/Series:** | PA28 180 | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | 1967 | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 28-3891 |
| **Landing Gear Type:** | Tricycle | **Seats:** | |
| **Date/Type of Last Inspection:** | | **Certified Max Gross Wt.:** | 2400 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | | **Engine Manufacturer:** | Lycoming |
| **ELT:** | | **Engine Model/Series:** | O-360-A4A |
| **Registered Owner:** | | **Rated Power:** | 180 Horsepower |
| **Operator:** | On file | **Operating Certificate(s) Held:** | None |

The co-owner estimated that the airplane typically consumed  about 10 to 10.5 gallons per hour and believed the pilot could fly safely for 2 hours 20 minutes with the fuel onboard at the time of departure.

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | KVPC,763 ft msl | **Distance from Accident Site:** | 3 Nautical Miles |
| **Observation Time:** | 13:53 Local | **Direction from Accident Site:** | 13° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 30.01 inches Hg | **Temperature/Dew Point:** | 19°C / 10°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Gainesville, FL (GNV ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | Calhoun, GA (CZL ) | **Type of Clearance:** | VFR |
| **Departure Time:** | | **Type of Airspace:** | |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Destroyed |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 Fatal | **Latitude, Longitude:** | 34.078887,-84.861114 |

The airplane impacted the outboard bundle of high-tension wires and tree branches on the north side of an embankment. The initial impact point on the embankment contained pieces of the propeller spinner and windscreen. The main wreckage came to rest at the bottom of the embankment in a muddy ravine on a magnetic heading of 050º at an elevation of 1,020 feet mean sea level.

The left and right fuel tanks were intact and their fuel caps remained in place. There was no fuel observed in the left fuel tank, and a residual amount of fuel was observed in the right fuel tank. There was also a residual amount of fuel in the gascolator bowl and electric fuel pump. Fuel line continuity to the gascolator was confirmed with low-pressure air.

The flap lever was stowed, indicating 0° of flap extension. The magneto switch was in the "both" position. The throttle and mixture controls were in the full-forward positions, the primer was in the stowed position, and the electric fuel pump switch was in the "off' position. The fuel selector valve was in the left fuel tank position.

Examination of the engine revealed no evidence of preimpact malfunctions or anomalies. Compression and suction were observed from all four cylinders. Borescope examination of the cylinders revealed no

anomalies.

The propeller remained attached to the crankshaft flange. The spinner was fragmented. One propeller blade exhibited chordwise abrasions. The other blade was bent aft at mid-span about 10° and exhibited chordwise abrasions and twisting toward the blade face. No leading edge damage was observed on either blade.

The co-owner stated that he had flown the airplane about 2 weeks before the accident; during the flight, "the airplane and radios worked very well with no maintenance issues."

## Administrative Information

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| **Investigator In Charge (IIC):** | Liedler, Courtney |
| **Additional Participating Persons:** | John Palmer; FAA; Atlanta, GA<br>Michael Childers; Lycoming Engines; Atlanta, GA<br>Damian Galbraith; Piper Aircraft Inc; Vero Beach, FL |
| **Original Publish Date:** | September 23, 2020 |
| **Note:** | The NTSB traveled to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=98469 |