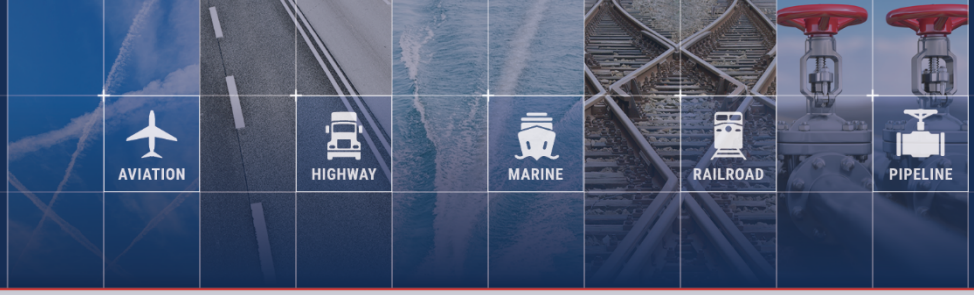


# Aviation Investigation Final Report

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|---|---|---|---|
| **Location:** | Cordele, Georgia | **Accident Number:** | ERA15FA017 |
| **Date & Time:** | October 16, 2014, 12:30 Local | **Registration:** | N946DR |
| **Aircraft:** | Aeronca 7EC | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Loss of control in flight | **Injuries:** | 1 Fatal, 1 Serious |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

After a planned refueling stop, the pilot taxied to a runway intersection and began his takeoff roll. Witnesses reported that when the airplane was about 200 feet above ground level, it entered a gradual left turn, which progressed into a steep left turn. The airplane lost altitude during a 180 degree turn and then impacted the ground. An examination of the wreckage revealed no evidence of any preimpact mechanical anomalies that would have precluded normal operation. The pilot's autopsy noted mild coronary atherosclerosis; however, it is unlikely that this would have resulted in preaccident incapacitation of the pilot.

## Probable Cause and Findings

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

An in-flight loss of control for reasons that could not be determined based on the available evidence.

### Findings

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| **Not determined** | (general) - Unknown/Not determined |

# Factual Information

## History of Flight

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| **Initial climb** | Loss of control in flight (Defining event) |
| **Uncontrolled descent** | Collision with terr/obj (non-CFIT) |

On October 16, 2014, about 1230 eastern daylight time, an Aeronca Champ 7EC airplane, N946DR, was substantially damaged when it impacted terrain shortly after takeoff from Crisp County Cordele Airport (CKF), Cordele, Georgia. The private pilot was fatally injured and the passenger received serious injuries. Visual meteorological conditions prevailed and no flight plan was filed. The planned cross-country flight departed from CKF at 1230 and was destined for Peach State Airport (GA2), Williamson, Georgia. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

After an uneventful 200 nautical mile cross-country trip, the accident airplane landed at CKF with three other airplanes and the pilot purchased about 13.3 gallons of fuel. The accident airplane was the first of the four airplanes that then departed in sequence from the mid-field point of runway 28, a 5,001-foot-long, 150-foot-wide, asphalt runway. After making a radio call to announce that the group was departing on a northerly heading, the pilot initiated a takeoff roll. The airplane lifted off from the runway and entered a climb. After reaching about 200 feet above ground level, the airplane entered a gradual left turn that progressed into a steep turn and slight descent. The airplane then entered a nose-down attitude before it impacted the ground, spun around and came to rest.

Each member of the group used a GPS device to navigate each leg. A handheld Garmin 496 GPS receiver was recovered from the cockpit of the accident airplane and forwarded to the NTSB Vehicle Recorder Laboratory, Washington, DC. Examination of the downloaded data revealed that the accident flight was not recorded; however, the data corroborated the group members' recount of the cross-country flight to GA2.

## Pilot Information

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| **Certificate:** | Private | **Age:** | 62 |
| **Airplane Rating(s):** | Single-engine land | **Seat Occupied:** | Front |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | 4-point |
| **Instrument Rating(s):** | None | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | Yes |
| **Medical Certification:** | Class 2 With waivers/limitations | **Last FAA Medical Exam:** | December 11, 2013 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | April 3, 2014 |
| **Flight Time:** | 3271.8 hours (Total, all aircraft), 377.5 hours (Total, this make and model), 3147.3 hours (Pilot In Command, all aircraft), 40 hours (Last 90 days, all aircraft) | | |

The pilot, age 62, held a Federal Aviation Administration (FAA) private pilot certificate that was issued on June 18, 1998, with a rating for airplane single-engine land. His most recent FAA second-class medical certificate was issued on December 11, 2013. According to the pilot's logbook, as of July 31, 2014 he had accumulated a total of 3,263 flight hours; of which, 347.5 hours were in the accident airplane make and model.

The pilot's wife and surviving passenger stated that the pilot accumulated about 30 hours of additional flight experience from August 2014 to September 2014.

## Aircraft and Owner/Operator Information

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|---|---|---|---|
| **Aircraft Make:** | Aeronca | **Registration:** | N946DR |
| **Model/Series:** | 7EC | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | 1946 | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 7AC-4835 |
| **Landing Gear Type:** | Tailwheel | **Seats:** | 2 |
| **Date/Type of Last Inspection:** | March 1, 2014 Annual | **Certified Max Gross Wt.:** | 1450 lbs |
| **Time Since Last Inspection:** | 77 Hrs | **Engines:** | Reciprocating |
| **Airframe Total Time:** | 2711.8 Hrs at time of accident | **Engine Manufacturer:** | Continental Motors, Inc. |
| **ELT:** | C91A installed, activated, did not aid in locating accident | **Engine Model/Series:** | C-90-12F |
| **Registered Owner:** | ST JULIEN JANICE C | **Rated Power:** | 90 Horsepower |
| **Operator:** | ST JULIEN JANICE C | **Operating Certificate(s) Held:** | None |

The two-seat, tandem, high-wing, conventional gear airplane was manufactured in 1946, and equipped with a Continental Motors C-90-12F, 90-horsepower engine. The airplane was constructed of welded tube covered by fabric. The fabric covered wings contained a wood spar with hydro-formed aluminum alloy ribs. Both the flight and engine controls could be manipulated by both the front and rear seated occupants.

According to the airport manager, the airplane was fully fueled at CKF prior to takeoff.

The airplane's total time could not be confirmed due to the condition of the hobbs meter. Based on the pilot's logbook and estimated time provided by the pilot's wife. At the time of the accident, the airplane had accumulated about 76.8 hours since its last annual inspection, which was completed on March 1, 2014. The airplane had accumulated 2,635 total flight hours at its last inspection and the engine had accumulated 572 hours since its previous overhaul, which was completed on September 15, 2004.

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | CKF,310 ft msl | **Distance from Accident Site:** | 0 Nautical Miles |
| **Observation Time:** | 12:15 Local | **Direction from Accident Site:** | |
| **Lowest Cloud Condition:** | Scattered / 4200 ft AGL | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 8 knots / | **Turbulence Type Forecast/Actual:** | / None |
| **Wind Direction:** | 280° | **Turbulence Severity Forecast/Actual:** | / N/A |
| **Altimeter Setting:** | 29.96 inches Hg | **Temperature/Dew Point:** | 22°C / 11°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | CORDELE, GA (CKF ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | WILLIAMSON, GA (GA2 ) | **Type of Clearance:** | None |
| **Departure Time:** | 12:30 Local | **Type of Airspace:** | |

The reported weather at CKF, at 1235 included wind from 280 degrees at 8 knots; visibility 9 statute miles; scattered clouds at 4,400 feet; temperature 22 degrees Celsius (C); dew point 10 degrees C; altimeter 29.96 inches of mercury.

## Airport Information

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| **Airport:** | CRISP COUNTY-CORDELE CKF | **Runway Surface Type:** | Asphalt |
| **Airport Elevation:** | 310 ft msl | **Runway Surface Condition:** | Dry |
| **Runway Used:** | 28 | **IFR Approach:** | None |
| **Runway Length/Width:** | 5001 ft / 150 ft | **VFR Approach/Landing:** | None |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | 1 Serious | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 Fatal, 1 Serious | **Latitude, Longitude:** | 31.986389,-83.777496 |

The airplane came to rest in a grass area in a flat attitude, on a southerly heading about 350 feet from the runway. All major structural and flight control components were accounted for at the accident site. The wings remained attached to the fuselage; the right wing displayed both outboard and inboard leading edge crush damage and the inboard wood spar was broken at the fuselage. No damage was noted on the elevator and rudder control surfaces and the elevator trim tab was deflected toward an airplane nose-up position. Both propeller blades remained attached to the propeller hub and displayed chordwise scratches and leading edge polishing. One of the blades exhibited some curling and twisting at the rear of the blade, while the other blade exhibited a slight bend at the blade tip. Examination of the accident site and wreckage revealed that the airplane's right wing made contact with the ground before the airplane spun around 180 degrees and came to rest.

A representative of the fire department reported that the pilot's lap belt and shoulder harness had been cut by the first responder team.

The front seat flight control stick was broken at the control handle. Flight control continuity was traced from the cockpit controls to the primary flight control surfaces, with the exception of the right rudder pedal spring, which remained attached to the floor, but had separated from the right rudder pedal. According to the airframe manufacturer, the rudder pedal tension was spring loaded through a spring that connected to the rudder pedal and floor frame. A representative of the company that held the airplane's type certificate reported that the rudder pedal spring could be overridden by human force. Removal of a rudder spring might result in some discomfort, but would not inhibit rudder control.

The metal wing fuel tanks were intact and located in their respective wings. Both fuel caps were secure. Fuel system continuity was confirmed from the wing tanks, through the fuel distributor, to the engine.

The instrument panel was intact and contained most of the cockpit instruments. The electrical master, radio, and strobe switches were in the on position and none of the circuit breakers were extended.

Both of the engine's top and bottom spark plugs were removed and examined. The electrode wear and deposits were consistent with normal operating signatures. The right and left magnetos rotated freely by hand and exhibited normal sparking on all leads. Each spark plug produced a spark between its respective center and ground electrode when the magneto drives were rotated.

The carburetor had broken free from the engine and was impact damaged; however, the control arms remained attached to the carburetor and were capable of movement. The unit was disassembled, and the carburetor float and valve operated normally when actuated by hand and the fuel inlet screen was not blocked.

The cylinders were removed and the engine was disassembled. Crankshaft and valvetrain continuity were established and no anomalies were noted with the cylinders, valves, pushrods, rings, and pistons. The examination of the engine did not reveal any evidence of a pre-existing anomaly or malfunction.

## Medical and Pathological Information

An autopsy was performed on the pilot by the Georgia Bureau of Investigation, Division of Forensic Sciences Central Lab, Decatur, Georgia. The autopsy report listed the pilot/owner's cause of death as "multiple blunt force trauma" and "mild one vessel coronary atherosclerosis with associated hypoplasia of the left anterior descending coronary artery."

Forensic toxicology testing was performed on specimens of the pilot by the FAA Bioaeronautical Science Research Laboratory (CAMI), Oklahoma City, Oklahoma, which detected no ethanol in the pilot's vitreous and no drugs in the pilot's urine. According to the pilot's health care professional, he was diagnosed with dysphagia in January 2014 and was prescribed Omeprazole. According to the FAA Aerospace Medical Research Forensic Toxicology website, Omeprazole was a proton pump inhibitor that suppresses gastric acid secretion that is available over the counter.

## Administrative Information

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| **Investigator In Charge (IIC):** | Stein, Stephen |
| **Additional Participating Persons:** | Michael A Pupek; FAA/FSDO; Atlanta, GA<br>Kurt Gibson; Continental Motors, Inc.; Mobile, AL<br>Jerry K Mehlhaff; American Champion Aircraft; Rochester, WI |
| **Original Publish Date:** | November 5, 2015 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | The NTSB traveled to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=90263 |