# Aviation Investigation Final Report

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| **Location:** | Greenwood, Mississippi | **Accident Number:** | ERA13LA257 |
| **Date & Time:** | May 23, 2013, 10:34 Local | **Registration:** | N9996N |
| **Aircraft:** | Cessna 180J | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Loss of engine power (partial) | **Injuries:** | 2 None |
| **Flight Conducted Under:** | Part 91: General aviation - Instructional | | |

## Analysis

The student pilot stated that, after performing a simulated engine failure about 300 feet above ground level, he advanced the throttle to full power, but the engine would not develop full power. The flight instructor took control of the airplane and maneuvered it for a forced landing to a nearby field. During the landing roll, the airplane nosed over and came to rest inverted. No evidence of preaccident mechanical malfunctions or abnormalities were found with the engine that would have precluded normal operation. A review of meteorological data revealed that the airplane was being operated in conditions conducive to serious carburetor icing at glide power. The investigation could not determine if carburetor heat was used during the simulated engine failure; however, it is likely that if carburetor heat was not used, serious carburetor icing could have accumulated, which resulted in a loss of engine power.

## Probable Cause and Findings

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

A partial loss of engine power due to carburetor icing.

## Findings

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| **Aircraft** | (general) - Malfunction |
| **Environmental issues** | Conducive to carburetor icing - Contributed to outcome |
| **Environmental issues** | (general) - Contributed to outcome |

# Factual Information

## History of Flight

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| **Maneuvering** | Simulated/training event |
| **Maneuvering** | Loss of engine power (partial) (Defining event) |
| **Emergency descent** | Off-field or emergency landing |
| **Landing-landing roll** | Nose over/nose down |

On May 23, 2013, about 1034 central daylight time, a Cessna 180J, N9996N, nosed over while making a forced landing in a field following a partial loss of engine power near Greenwood, Mississippi. The certificated flight instructor (CFI) and student pilot were not injured and the airplane sustained substantial damage. The airplane was registered to and operated by a private individual under the provisions of Title 14 Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions prevailed and no flight plan had been filed. The flight originated from Greenwood – Leflore Airport (GWO), Greenwood, Mississippi, about 1000.

According to the CFI, about 1,000 feet above ground level (agl), he simulated an engine failure by retarding the throttle to the idle position. Subsequently, the student pilot had performed the engine failure checklist, which included: carburetor heat to be "ON" and the mixture to be "RICH." About 300 feet agl, the CFI commanded a go-around and the student pilot advanced the throttle to full power; however, the engine backfired and would not develop full power. The CFI verified that the throttle was at the full power setting and the carburetor heat was off. He further stated that about one minute had elapsed from the beginning of the simulated engine failure until the airplane came to rest inverted.

According to a Federal Aviation Administration (FAA) inspector who responded to the accident location, the airplane came to rest inverted in a field with 4-foot-high wheat. The inspector also noted that visual inspection of the engine revealed no evidence of preimpact failure or malfunction. He further stated that local first responders reported to him that fuel was observed flowing out of the fuel vent located in each wing of the airplane. The airplane sustained substantial damage to the right wing forward spar, wing strut, and the vertical stabilizer.

The 1053 recorded weather observation at GWO, located about 5 miles from the accident location, included wind from 260 degrees at 3 knots, visibility 10 miles, clear skies, temperature 26 degrees C, dew point 19 degrees C; barometric altimeter 30.05 inches of mercury.

A review of the FAA Special Airworthiness Information Bulletin, CE-09-35, dated June 30, 2009, revealed that the temperature and dew point at the nearest weather reporting station were conducive to "Serious Carburetor icing at glide power."

## Flight instructor Information

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| **Certificate:** | Airline transport; Commercial; Flight instructor | **Age:** | 49 |
| **Airplane Rating(s):** | Single-engine land; Multi-engine land | **Seat Occupied:** | Right |
| **Other Aircraft Rating(s):** | Helicopter | **Restraint Used:** | 3-point |
| **Instrument Rating(s):** | Airplane; Helicopter | **Second Pilot Present:** | Yes |
| **Instructor Rating(s):** | Airplane multi-engine; Airplane single-engine; Helicopter; Instrument airplane; Instrument helicopter | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 2 With waivers/limitations | **Last FAA Medical Exam:** | February 13, 2013 |
| **Occupational Pilot:** | Yes | **Last Flight Review or Equivalent:** | November 1, 2012 |
| **Flight Time:** | 15800 hours (Total, all aircraft), 65 hours (Total, this make and model), 15350 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft) | | |

## Student pilot Information

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|---|---|---|---|
| **Certificate:** | Student | **Age:** | 33 |
| **Airplane Rating(s):** | None | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | 3-point |
| **Instrument Rating(s):** | None | **Second Pilot Present:** | Yes |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 3 Without waivers/limitations | **Last FAA Medical Exam:** | May 14, 2013 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 1 hours (Total, all aircraft), 1 hours (Total, this make and model) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Cessna | **Registration:** | N9996N |
| **Model/Series:** | 180J | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 18052651 |
| **Landing Gear Type:** | Tailwheel | **Seats:** | 6 |
| **Date/Type of Last Inspection:** | May 4, 2012 Annual | **Certified Max Gross Wt.:** | 2800 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 1224 Hrs as of last inspection | **Engine Manufacturer:** | CONT MOTOR |
| **ELT:** | C91A installed | **Engine Model/Series:** | O-470-RCS |
| **Registered Owner:** | On file | **Rated Power:** | 230 Horsepower |
| **Operator:** | On file | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | KGWO,133 ft msl | **Distance from Accident Site:** | 5 Nautical Miles |
| **Observation Time:** | 10:53 Local | **Direction from Accident Site:** | 70° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 3 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 260° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 30.04 inches Hg | **Temperature/Dew Point:** | 26°C / 19°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Greenwood, MS (GWO ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | Greenwood, MS (GWO ) | **Type of Clearance:** | VFR |
| **Departure Time:** | 10:00 Local | **Type of Airspace:** | |

## Airport Information

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| **Airport:** | GREENWOOD-LEFLORE GWO | **Runway Surface Type:** | |
| **Airport Elevation:** | 155 ft msl | **Runway Surface Condition:** | Vegetation |
| **Runway Used:** | | **IFR Approach:** | None |
| **Runway Length/Width:** | | **VFR Approach/Landing:** | Forced landing;Simulated forced landing |

## Wreckage and Impact Information

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| **Crew Injuries:** | 2 None | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 2 None | **Latitude, Longitude:** | 33.466667,-90.183334(est) |

## Administrative Information

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| **Investigator In Charge (IIC):** | Etcher, Shawn |
| **Additional Participating Persons:** | Micheal E Jones; FAA/FSDO; Jackson, MS |
| **Original Publish Date:** | March 24, 2014 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=87021 |