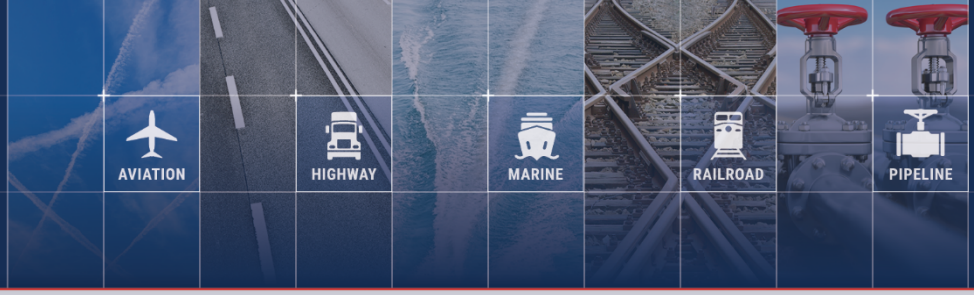


# Aviation Investigation Final Report

| | | | |
|---|---|---|---|
| **Location:** | Shelbyville, Illinois | **Accident Number:** | CHI05CA172 |
| **Date & Time:** | August 7, 2005, 11:15 Local | **Registration:** | N7446 |
| **Aircraft:** | Waco CTO | **Aircraft Damage:** | Substantial |
| **Defining Event:** | | **Injuries:** | 1 None |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The tailwheel airplane sustained substantial damage on impact with crops and terrain during a forced landing following an in-flight loss of engine power. The pilot stated, "There were only wooded areas and farm fields with near mature crops in the vicinity. My only practical choice of terrain for landing was either a generally level soy bean field or a corn field. I decided to land on a farm in a soy bean field. I made a slow landing which was appropriate to the soft and "grabby" nature of the vegetation. The landing rollout was approximately 100 feet and was straight, but at the end with the beans being full and of different heights, some around four feet tall, the uneven drag on the wings caused the plane to slowly turn to the left with the right lower wring becoming entangled in the beans. Both upper and lower wings are attached to each other through brace wires and struts and both right wings and right side of the center section were damaged. ... The airplane did not tumble, but simply stopped right side up in a slight nose down attitude. I was wearing both the seat belt and shoulder harness installed in the airplane and was not injured ... ." An examination of wreckage revealed no pre-impact anomalies. The temperature and dew point at an airport in the area was: Temperature 28 degrees C; dew point 17 degrees C. The temperature and dew point were plotted on a Transport Canada icing chart and their intersection fell in the serious icing - descent power area of the chart.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power during cruise due to carburetor ice. A factor was conditions conducive to carburetor icing.

## Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: CRUISE

Findings
1. (C) FUEL SYSTEM,CARBURETOR - ICE
2. (F) WEATHER CONDITION - CARBURETOR ICING CONDITIONS
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Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING
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Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
3. (F) TERRAIN CONDITION - CROP
4. (C) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - ENCOUNTERED - PILOT IN COMMAND

## Factual Information

On August 7, 2005, about 1115 central daylight time, a Waco CTO, N7446, piloted by a commercial pilot, sustained substantial damage on impact with crops and terrain during a forced landing following an in-flight loss of engine power near Shelbyville, Illinois. The personal flight was operating under 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time of the accident. No flight plan was on file. The pilot reported no injuries. The local flight originated from the Shelby County Airport, near Shelbyville, Illinois, about 1100.

The pilot's accident report, in part, stated:

> I climbed to approximately 1000 feet [above ground level]. Approximately fifteen minutes later, just to the west of Kirksville, Illinois I noticed the engine showed signs of losing power and the oil pressure was low. I did not believe that I had any reasonable choice but to land the airplane immediately. There were only wooded areas and farm fields with near mature crops in the vicinity. My only practical choice of terrain for landing was either a generally level soy bean field or a corn field. I decided to land on a farm in a soy bean field. I made a slow landing which was appropriate to the soft and "grabby" nature of the vegetation. The landing rollout was approximately 100 feet and was straight, but at the end with the beans being full and of different heights, some around four feet tall, the uneven drag on the wings caused the plane to slowly turn to the left with the right lower wring becoming entangled in the beans. Both upper and lower wings are attached to each other through brace wires and struts and both right wings and right side of the center section were damaged. The lower left wing had a minor tear in the fabric. The landing gear and right wheel were damaged. The propeller tips were slightly bent. There was some minor non-structural damage to the left front fuselage. All parts stayed with the plane as it came to rest and were not distributed separately from it. The airplane did not tumble, but simply stopped right side up in a slight nose down attitude. I was wearing both the seat belt and shoulder harness installed in the airplane and was not injured and climbed out of the open cockpit of the airplane without assistance.

A Federal Aviation Administration Inspector examined the wreckage. No pre-impact anomalies were detected with the airframe and engine.

At 1054, the recorded weather observation at the Decatur Airport, near Decatur, Illinois, was: Wind 040 degrees at 5 knots; visibility 10 statute miles; sky condition clear; temperature 28 degrees C; dew point 17 degrees C; altimeter 30.14 inches of mercury.

A copy of a Transport Canada Carburetor Icing chart was reviewed. The temperature and dew point were plotted on the chart and their intersection fell in the serious icing - descent power area of the chart. The icing chart is appended to the docket material associated with this case.

## Pilot Information

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|---|---|---|---|
| **Certificate:** | Commercial | **Age:** | 65,Male |
| **Airplane Rating(s):** | Single-engine land; Single-engine sea; Multi-engine land | **Seat Occupied:** | Rear |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 3 With waivers/limitations | **Last FAA Medical Exam:** | May 1, 2005 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | May 1, 2005 |
| **Flight Time:** | 3000 hours (Total, all aircraft), 180 hours (Total, this make and model), 3000 hours (Pilot In Command, all aircraft) | | |

## Aircraft and Owner/Operator Information

| | | | |
|---|---|---|---|
| **Aircraft Make:** | Waco | **Registration:** | N7446 |
| **Model/Series:** | CTO | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | A-19 |
| **Landing Gear Type:** | Tailwheel | **Seats:** | 3 |
| **Date/Type of Last Inspection:** | August 1, 2005 Annual | **Certified Max Gross Wt.:** | 2600 lbs |
| **Time Since Last Inspection:** | 0.25 Hrs | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 2122.05 Hrs at time of accident | **Engine Manufacturer:** | Wright |
| **ELT:** | Installed, not activated | **Engine Model/Series:** | J4-B |
| **Registered Owner:** | Robert Kerr Howie Jr | **Rated Power:** | 200 Horsepower |
| **Operator:** | | **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:** | DEC,682 ft msl | **Distance from Accident Site:** | |
| **Observation Time:** | 10:54 Local | **Direction from Accident Site:** | |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 5 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 40° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 30.13 inches Hg | **Temperature/Dew Point:** | 28°C / 17°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Shelbyville, IL (2H0 ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | | **Type of Clearance:** | None |
| **Departure Time:** | 11:00 Local | **Type of Airspace:** | |

## Wreckage and Impact Information

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|---|---|---|---|
| **Crew Injuries:** | 1 None | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 None | **Latitude, Longitude:** | 39.410556,-88.845558 |

## Administrative Information

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|---|---|
| **Investigator In Charge (IIC):** | Malinowski, Edward |
| **Additional Participating Persons:** | Dave Slaybaugh; Springfield, IL, FSDO |
| **Original Publish Date:** | October 27, 2005 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | This accident report documents the factual circumstances of this accident as described to the NTSB. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=62264 |