



Aviation Investigation Final Report

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|--------------------------------|----------------------------|-------------------------|-------------|
| Location: | Memphis, Missouri | Accident Number: | CEN20CA320 |
| Date & Time: | July 31, 2020, 07:05 Local | Registration: | N90834 |
| Aircraft: | Cessna A188 | Aircraft Damage: | Substantial |
| Defining Event: | Miscellaneous/other | Injuries: | 1 Minor |
| Flight Conducted Under: | Part 137: Agricultural | | |

Analysis

The pilot reported that he had just started flying this airplane five days before the accident as a contract pilot. Over the past four days, the operator had the airplane on the "ready pad" with all of the tie-downs and gust locks already removed. On the day of the accident, the airplane was tied down with all of the gust locks still installed. Prior to takeoff, the pilot completed a preflight inspection but did not remove the rudder gust lock. During the takeoff roll, the pilot had to use the brakes to keep the airplane centered on the runway, which made for a much longer takeoff roll. The airplane dragged in the 10 ft high corn off the end of the runway and lost lift, so the pilot made a forced landing in a field. During the landing roll the airplane collided with a tree and sustained substantial damage to the fuselage, both wings, and empennage. The pilot reported that there were no mechanical malfunctions with the airplane. He stated that he should have completed a more thorough preflight inspection.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot did not remove the rudder gust lock during the preflight inspection, which resulted in a forced landing and collision with a tree.

Findings

Personnel issues

Preflight inspection - Pilot

Aircraft

Directional control - Attain/maintain not possible

Factual Information

History of Flight

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| Initial climb | Loss of control in flight |
| Initial climb | Collision during takeoff/land |
| Initial climb | Miscellaneous/other (Defining event) |
| Initial climb | Off-field or emergency landing |

Pilot Information

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|----------------------------------|---|--|-------------------|
| Certificate: | Commercial | Age: | 59, Male |
| Airplane Rating(s): | Single-engine land | Seat Occupied: | Single |
| Other Aircraft Rating(s): | None | Restraint Used: | 3-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 2 With waivers/limitations | Last FAA Medical Exam: | June 22, 2020 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | November 11, 2018 |
| Flight Time: | 2153 hours (Total, all aircraft), 153 hours (Total, this make and model), 2153 hours (Pilot In Command, all aircraft), 211 hours (Last 90 days, all aircraft), 159 hours (Last 30 days, all aircraft), 13 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|--------------------------------|---------------------------------------|-----------------------------|
| Aircraft Make: | Cessna | Registration: | N90834 |
| Model/Series: | A188 B | Aircraft Category: | Airplane |
| Year of Manufacture: | 1979 | Amateur Built: | |
| Airworthiness Certificate: | Restricted (Special) | Serial Number: | 18803322T |
| Landing Gear Type: | Tailwheel | Seats: | 1 |
| Date/Type of Last Inspection: | April 15, 2020 Annual | Certified Max Gross Wt.: | |
| Time Since Last Inspection: | | Engines: | 1 Reciprocating |
| Airframe Total Time: | 1531.5 Hrs at time of accident | Engine Manufacturer: | Continental Motors |
| ELT: | Not installed | Engine Model/Series: | IO-520-D |
| Registered Owner: | Woods Flying Service Llc | Rated Power: | 300 Horsepower |
| Operator: | Woods Flying Service Llc | Operating Certificate(s) Held: | Agricultural aircraft (137) |

Meteorological Information and Flight Plan

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|---|----------------------------------|---|-------------------|
| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | KIRK,965 ft msl | Distance from Accident Site: | 24 Nautical Miles |
| Observation Time: | 10:55 Local | Direction from Accident Site: | 223° |
| Lowest Cloud Condition: | Clear | Visibility | 10 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 10 knots / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 40° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.97 inches Hg | Temperature/Dew Point: | 25°C / 17°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Memphis, MO | Type of Flight Plan Filed: | None |
| Destination: | Memphis, MO | Type of Clearance: | None |
| Departure Time: | 07:03 Local | Type of Airspace: | Class G |

Wreckage and Impact Information

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|----------------------------|---------|-----------------------------|---------------------------|
| Crew Injuries: | 1 Minor | Aircraft Damage: | Substantial |
| Passenger Injuries: | | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 1 Minor | Latitude, Longitude: | 40.396945,-92.181663(est) |

Preventing Similar Accidents

Flight Control Locks (SA-048)

The Problem

Accidents have occurred after pilots omitted seemingly obvious procedures, such as removing flight control locks and performing flight control checks before takeoff. Errors of omission are frequently associated with interruptions, distractions, time pressures, divided attention, and complacency about standard operating procedures (SOPs).

What can you do?

- Pilots of all experience levels should follow SOPs and use checklists, which serve as a memory aid to help counteract human performance vulnerabilities. Do not rely on memory alone.
- Recognize that procedural omissions are also common in many other types of accidents, including those involving gear-up landings, fuel starvation, incorrect fuel pump settings, and flap misconfigurations.
- Be prepared to abort the takeoff if something does not seem right. When a pilot is confronted with a sudden, abnormal event, responses are more likely to be delayed or inappropriate. Having a plan will help reduce reaction time and can result in a safer response.

- When flying alone, read the checklist aloud and touch the applicable switch or control. Research has shown that touching an object while verbally communicating enhances the probability that an activity has been accomplished.
- Avoid using improvised control lock devices that may be inconspicuous and easily overlooked during preflight checks.

See <https://www.nts.gov/Advocacy/safety-alerts/Documents/SA-048.pdf> for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

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| Investigator In Charge (IIC): | Lindberg, Joshua |
| Additional Participating Persons: | Ryan McCarty; Federal Aviation Administration; St. Louis, MO |
| Original Publish Date: | February 2, 2021 |
| Last Revision Date: | |
| Investigation Class: | Class 4 |
| Note: | This accident report documents the factual circumstances of this accident as described to the NTSB. |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=101723 |

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).