



National Transportation Safety Board Aviation Accident Final Report

Location:	Warehouse Point, CT	Accident Number:	ERA15LA365
Date & Time:	09/19/2015, 1150 EDT	Registration:	N9018R
Aircraft:	CLARK 1000	Aircraft Damage:	Substantial
Defining Event:	Aerodynamic stall/spin	Injuries:	1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The private pilot was taking off in the single-seat, single-engine biplane. A witness described that, during the takeoff roll on the mowed grass beside the paved runway, the airplane veered left into taller grass, but the pilot continued the takeoff toward tall trees. After becoming airborne, the airplane's pitch attitude was "much too severe," and it appeared to "run out of energy" as the wings rocked back and forth. The airplane settled onto the ground in tall weeds off the departure end of the runway, nosed over, and came to rest inverted. A video of the flight depicted a flight profile consistent with that described by the witness. Smooth, continuous engine sounds were heard well into the airplane's descent.

The pilot's decision to depart from the grass runway rather than the paved runway increased the overall takeoff distance required, a distance which increased even more when the airplane traveled into taller vegetation during the takeoff roll. Rather than aborting the takeoff, the pilot chose to continue, and the airplane became airborne at a point from which it could not maintain a climb over the trees at the end of the runway. The pilot responded by increasing the airplane's pitch attitude, resulting in an exceedance of its critical angle of attack and an aerodynamic stall.

Probable Cause and Findings

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

The pilot's failure to maintain adequate airspeed during the initial climb after takeoff, which resulted in the airplane exceeding its critical angle of attack and experiencing an aerodynamic stall. Contributing to the accident was the pilot's decision to conduct the takeoff from a grass runway rather than a paved surface, and his decision to continue the takeoff after the airplane

traveled into taller vegetation, which significantly increased the distance required to clear trees at the end of the runway.

Findings

Aircraft	Airspeed - Not attained/maintained (Cause) Angle of attack - Not attained/maintained (Cause)
Personnel issues	Aircraft control - Pilot (Cause) Decision making/judgment - Pilot (Factor)

Factual Information

On September 19, 2015, about 1150 eastern daylight time, a Clark 1000 biplane, N9018R, was substantially damaged during a forced landing after takeoff from Skylark Airport (7B6), Warehouse Point, Connecticut. The private pilot was not injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local personal flight, which was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

In a written statement, the pilot said the airplane was serviced with 40 gallons of fuel before he completed his preflight inspection. The engine was hand-propped for start, and idled for about 5 minutes before he taxied to a run-up area and completed a "normal" engine run-up. Following the run-up, the airplane idled for several minutes, waiting for other traffic to clear the runway. Prior to takeoff, the pilot performed a second engine run-up, but only checked the magnetos.

The pilot elected to depart from the grass parallel to the asphalt runway. The airplane accelerated and at liftoff "started to turn to the left." The pilot said he corrected for the turn while maintaining the climb, and at 100 feet, the engine began losing power. The pilot said the airplane did not respond when he attempted to lower the nose to avoid an aerodynamic stall, and the engine continued to lose power. The airplane landed in tall weeds off the departure end of the runway, nosed over, and came to rest inverted.

In a telephone interview, the owner said he watched the airplane through its entire run-up, taxi, takeoff, and forced landing. He said that he was upset that another airplane had "cut in front of" his for run-up and takeoff, which resulted in long periods of his airplane idling on the ground prior to takeoff.

The owner stated that takeoff and initial climb both sounded and appeared "normal," until a distinct loss of engine power was heard. He said that the engine never stopped running, but slowly, and smoothly, decreased in engine rpm. The owner watched as the airplane "mushed" towards the ground, touched down, then nosed over.

According to the airport manager, he was standing by the runway to witness "the maiden flight," as the airplane had not flown in the nearly 30 years it had been kept at the airport. During the takeoff roll, the airplane "was losing directional control and going off into the unmowed grass." The airplane continued into tall, unmowed grass, which slowed the takeoff roll. When the tail of the airplane lifted, the airplane's heading was in the direction of tall trees on the south side of the runway.

The manager stated that after the airplane lifted off, it appeared that the pilot was attempting to clear the trees in its path, off the side of the runway, as the airplane's pitch attitude was "much too severe." The airplane then appeared to "run out of energy," and the wings rocked "back and forth" as it settled back onto the ground. The airplane continued beyond the departure end of the grass runway and into a thicket of tall brush south of the paved runway overrun. When asked about the sound of the engine, he said it "sounded fine," but by the time

the airplane was descending and touching down, it was 2,000 feet away and it couldn't be heard clearly from that distance.

A video of the accident flight provided to a Federal Aviation Administration (FAA) aviation safety inspector, depicted a flight profile consistent with that described by the airport manager.

The pilot held a private pilot certificate with a rating for airplane single-engine land, and a tailwheel endorsement. His most recent second-class FAA medical certificate was issued on August 3, 2015, at which time he reported 684 total hours of flight experience. The pilot stated he had no flight experience in the accident airplane.

The single-seat, single-engine, fixed landing gear biplane was manufactured in 1959 and was powered by a Lycoming 9-cylinder radial engine. According to the airplane's maintenance records, the most recent annual inspection was completed on November 7, 2014, at 3,672 total aircraft hours. According to the FAA inspector, the owner reported the airplane had not flown during the year that he had owned it, or for the 26 years prior to that.

Examination of photographs revealed that the airplane sustained substantial damage to the wings, the vertical fin, the engine mounts, and the engine firewall.

At 1151, the weather reported at Bradley International Airport (BDL), 5 miles west of the accident site, included wind from 190 degrees at 8 knots. The temperature was 25 degrees, the dew point was 20 degrees, and the altimeter setting was 29.27 inches of mercury.

According to the Civil Aviation Authority of New Zealand, Takeoff and Landing Performance, "Dry grass can increase takeoff distance by up to 15 percent."

According to FAA Advisory Circular AC-61-23C, Pilot's Handbook of Aeronautical Knowledge:

"The effect of torque increases in direct proportion to engine power, airspeed, and airplane attitude. If the power setting is high, the airspeed slow, and the angle of attack high, the effect of torque is greater. During takeoffs and climbs, when the effect of torque is most pronounced, the pilot must apply sufficient right rudder pressure to counteract the left-turning tendency and maintain a straight takeoff path."

History of Flight

Takeoff

Aerodynamic stall/spin (Defining event)

Pilot Information

Certificate:	Private	Age:	48, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Single
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	08/03/2015
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	684.1 hours (Total, all aircraft), 0.1 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	CLARK	Registration:	N9018R
Model/Series:	1000 NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	1959	Amateur Built:	No
Airworthiness Certificate:	Restricted	Serial Number:	10006
Landing Gear Type:	Tailwheel	Seats:	
Date/Type of Last Inspection:	11/07/2014, Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3672 Hours as of last inspection	Engine Manufacturer:	LYCOMING
ELT:		Engine Model/Series:	R680
Registered Owner:	On file	Rated Power:	300 hp
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	BDL, 190 ft msl	Distance from Accident Site:	5 Nautical Miles
Observation Time:	1151 EDT	Direction from Accident Site:	270°
Lowest Cloud Condition:	Scattered / 3400 ft agl	Visibility	10 Miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	190°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.74 inches Hg	Temperature/Dew Point:	25° C / 20° C
Precipitation and Obscuration:	No Precipitation		
Departure Point:	Warehouse Point, CT (7B6)	Type of Flight Plan Filed:	None
Destination:	Warehouse Point, CT (7B6)	Type of Clearance:	None
Departure Time:	1149 EDT	Type of Airspace:	Class G

Airport Information

Airport:	SKYLARK AIRPARK (7B6)	Runway Surface Type:	Asphalt
Airport Elevation:	120 ft	Runway Surface Condition:	Dry
Runway Used:	28	IFR Approach:	None
Runway Length/Width:	3242 ft / 60 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	41.928333, -72.576389 (est)

Administrative Information

Investigator In Charge (IIC):	Brian C Rayner	Report Date:	07/20/2017
Additional Participating Persons:	Herman Carvache; FAA/FSDO; Enfield, CT		
Publish Date:	07/20/2017		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=92006		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).