Aviation Investigation Final Report

Location:	Lake In The Hills, Illinois	**Accident Number:**	CEN11LA373
Date & Time:	June 4, 2011, 10:30 Local	**Registration:**	N5816P
Aircraft:	Mooney M20R	**Aircraft Damage:**	Substantial
Defining Event:	Aerodynamic stall/spin	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

This report was modified on July 29, 2013. Please see the docket for this accident to view the original report.

The pilot had recently purchased the airplane and was receiving flight instruction to become more comfortable operating it. The accident occurred as the pilot performed a simulated forced landing at the end of an instructional flight. The pilot began the landing flare above the region of ground effect and unintentionally induced an aerodynamic stall after his abrupt aft control yoke input. He increased engine power in response to the stall condition, but the airplane landed hard on the main landing gear in a nose-high attitude. The airplane subsequently bounced and began to veer to the left. The pilot and flight instructor were unsuccessful in regaining control. The airplane departed the runway and went down an embankment into a construction site. The fuselage, firewall, and both wings were substantially damaged during the event. A postaccident examination did not reveal any preimpact mechanical malfunctions or failures that would have precluded normal operation of the airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper landing flare and recovery from a bounced landing, which resulted in a loss of control. Contributing to the accident was the certified flight instructor’s inadequate

supervision.

Findings

Aircraft	Landing flare - Incorrect use/operation
Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot
Personnel issues	Lack of action - Instructor/check pilot

Factual Information

History of Flight

Landing	Simulated/training event
Landing-flare/touchdown	Aerodynamic stall/spin (Defining event)
Landing-flare/touchdown	Hard landing
Landing-aborted after touchdown	Runway excursion
Landing-aborted after touchdown	Collision with terr/obj (non-CFIT)

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On June 4, 2011, at 1030 central daylight time, a Mooney model M20R airplane, N5816P, was substantially damaged during a hard landing at Lake in the Hills Airport (3CK), Lake in the Hills, Illinois. The pilot and his flight instructor were not injured. The airplane was registered to and operated by the private pilot under the provisions of 14 Code of Federal Regulations Part 91. Day visual meteorological conditions prevailed for the flight, which was operated without a flight plan. The local instructional flight departed from Southern Wisconsin Regional Airport (KJVL), Janesville, Wisconsin, at 1015.

The pilot reported that he was attempting a simulated forced landing when the accident occurred. The airplane bounced upon touchdown to which he responded by advancing engine power to initiate an aborted landing. He noted that he was unable to establish a climb as the airplane drifted left off the runway and down an embankment. He reported that after the bounced landing he relinquished control of the airplane to his flight instructor who was also unable to regain control of the airplane.

The flight instructor reported that the pilot had recently purchased the accident airplane and was receiving flight instruction to become more comfortable operating the airplane. At the completion of the instructional flight, he asked the pilot to demonstrate a simulated forced landing to runway 26. As the airplane crossed midfield while on the downwind leg to the runway, the pilot reduced engine power to idle and established best glide airspeed as he maneuvered from base to final approach. The flight instructor reported that, after crossing the runway threshold, the pilot began the landing flare above the region of ground effect and unintentionally induced an aerodynamic stall after he "abruptly and quickly" pulled the control yoke aft. The pilot increased engine power in response to the stalled condition, but the airplane landed hard on the main landing gear in a nose-high attitude. The nose wheel subsequently struck the runway resulting in a porpoising effect. The flight instructor noted it was the hardest landing he had ever experienced. The airplane began to veer to the left due to the high engine

power setting, but the flight crew's combined application of full right rudder was not successful in regaining directional control. As they unsuccessfully attempted to rotate the airplane for an aborted landing, the airplane departed the left side of the runway into a grassy area before proceeding down an embankment into a construction site.

The fuselage, firewall, and both wings were substantially damaged during the event. A postaccident inspection did not reveal any preimpact mechanical malfunctions or failures that would have precluded normal operation of the airplane.

The nearest aviation weather observation station with recorded historical weather information was at DuPage Airport (KDPA), about 21.5 miles south of the accident site, which was equipped with an automated surface observing system (ASOS).

At 1052, the KDPA ASOS reported the following weather conditions: wind 260 degrees at 8 knots, gusting 14 knots; visibility 8 miles; sky clear; temperature 31 degrees Celsius; dew point 21 degrees Celsius; altimeter setting 30.02 inches of mercury.

Pilot Information

Certificate:	Private	**Age:**	57,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	September 9, 2010
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 24, 2011
Flight Time:	260 hours (Total, all aircraft), 41 hours (Total, this make and model), 133 hours (Pilot In Command, all aircraft), 24 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	41,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	May 2, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 1, 2011
Flight Time:	761 hours (Total, all aircraft), 648 hours (Total, this make and model), 688 hours (Pilot In Command, all aircraft), 12 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N5816P
Model/Series:	M20R	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	29-0087
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	January 21, 2011 Annual	**Certified Max Gross Wt.:**	3368 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2075 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-550-G5B
Registered Owner:	On file	**Rated Power:**	285 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KDPA,759 ft msl	**Distance from Accident Site:**	19 Nautical Miles
Observation Time:	10:52 Local	**Direction from Accident Site:**	173°
Lowest Cloud Condition:	Clear	**Visibility**	8 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / 14 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	31°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Janesville, WI (KJVL)	**Type of Flight Plan Filed:**	None
Destination:	Lake In The Hills, IL (3CK)	**Type of Clearance:**	None
Departure Time:	10:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Lake in the Hills Airport 3CK	**Runway Surface Type:**	Asphalt
Airport Elevation:	887 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	26	**IFR Approach:**	None
Runway Length/Width:	3801 ft / 50 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

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:**	42.206943,-88.323059(est)

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	Vic Liberatore; Federal Aviation Administration - DuPage FSDO; West Chicago, IL Carolyn Remol; Federal Aviation Administration - DuPage FSDO; West Chicago, IL
Original Publish Date:	February 6, 2012
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=79309