



Aviation Investigation Final Report

Location:	Rockford, Illinois	Accident Number:	CHI06CA054
Date & Time:	December 8, 2005, 12:00 Local	Registration:	N2196B
Aircraft:	Piper PA-44-180	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The airplane sustained substantial damage during a hard landing. The flight instructor and dual student were engaged in an instructional flight at the time of the accident. The flight instructor held a multi-engine airplane instructor rating and was providing training to the other pilot at the time of the accident. The dual student held a commercial pilot certificate with single and multi-engine airplane ratings, and a flight instructor certificate with a single-engine airplane rating. He was obtaining training in preparation for the multi-engine flight instructor rating at the time of the accident. The flight instructor stated that he intended for the student to execute a simulated forced landing on the remaining runway immediately after liftoff. He reported that he instructed the dual student to back taxi the full length of the runway. The tower subsequently cleared the flight for takeoff followed by an immediate landing. He noted that the dual student held the brakes and applied full engine power. Upon reaching full power, the student released the brakes and began the takeoff roll. After liftoff the student established the airplane in a climb at 88 [knots]. The instructor stated that upon reaching an altitude of 200 feet above ground level (agl), he instructed the student to "simultaneously reduce both throttles to idle while pitching for a landing attitude that maintain[ed] 88 [knots]. He reported that the resulting descent rate "did not appear favorable" so about 100 feet agl he "commanded" the dual student to execute a go-around. He noted that full engine power was applied, however, the descent continued until the airplane contacted the runway in a "flat attitude." It subsequently bounced back into the air. He recalled that the stall warning horn sounded shortly before runway contact. The flight instructor stated that he assumed control of the airplane at this point and decided to continue the go-around since the engines seemed to be producing full power. He noted that during the flight around the traffic pattern, the rudder and stabilator were "less responsive than usual." He subsequently executed a no-flap landing on the departure runway. A post accident inspection revealed that the fuselage skin on the left and right sides, forward of the windshield was buckled. The left main landing gear strut was bent aft approximately 90 degrees. Both engine propellers were in the feathered position. The blade tips were curled and twisted consistent with runway contact.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Failure of the commercial pilot (dual student) to maintain a proper descent rate and a safe airspeed during the simulated forced landing. Additional causes were the failure of the flight instructor and the dual student to initiate a go-around in sufficient time to prevent the hard landing and a failure by the flight instructor to provide timely remedial action, which allowed an unsafe condition to develop. A contributing factor was the inadvertent stall encountered prior to runway contact.

Findings

Occurrence #1: HARD LANDING

Phase of Operation: LANDING

Findings

1. (C) PROPER DESCENT RATE - NOT MAINTAINED - DUAL STUDENT
2. (C) AIRSPEED - LOW - DUAL STUDENT
3. (F) STALL - INADVERTENT
4. (C) GO-AROUND - DELAYED - FLIGHTCREW
5. (C) REMEDIAL ACTION - DELAYED - PILOT IN COMMAND(CFI)

Occurrence #2: MAIN GEAR COLLAPSED

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Factual Information

On December 8, 2005, about 1200 central standard time, a Piper PA-44-180 Seminole, N2196B, piloted by a flight instructor and commercial pilot, was substantially damaged during a hard landing on runway 1 (8,199 feet by 150 feet, asphalt) at Greater Rockford Airport (RFD), Rockford, Illinois. The instructional flight was operating under 14 CFR Part 91 without a flight plan. Visual meteorological conditions prevailed at the time. The two pilots reported no injuries. The local flight departed Palwaukee Municipal Airport (PWK), Wheeling, Illinois, about 1050 cst.

The flight instructor held a multi-engine airplane instructor rating and was providing training to the other pilot at the time of the accident. The commercial pilot (dual student) held a commercial pilot certificate with single and multi-engine airplane ratings and a flight instructor certificate with a single-engine airplane rating. He was obtaining training in preparation for the multi-engine flight instructor rating at the time of the accident. The pilots reported that after departing PWK, they conducted airwork for approximately 45 minutes, and then decided to proceed to RFD for pattern work prior to returning to PWK.

The flight instructor stated that he intended for the dual student to execute a simulated forced landing on the remaining runway immediately after liftoff. He reported that he instructed the dual student to back taxi the full length of the runway. The tower subsequently cleared the flight for takeoff followed by an immediate landing. He noted that the dual student held the brakes and applied full engine power. Upon reaching full power, the student released the brakes and began the takeoff roll. After liftoff the student established the airplane in a climb at 88 [knots]. The instructor stated that upon reaching an altitude of 200 feet above ground level (agl), he instructed the student to "simultaneously reduce both throttles to idle while pitching for a landing attitude that maintain[ed] 88 [knots]." He reported that the resulting descent rate "did not appear favorable" so about 100 feet agl he "commanded" the dual student to initiate a go-around. He noted that full engine power was applied, however, the descent continued until the airplane contacted the runway in a "flat attitude." It subsequently bounced back into the air. He recalled that the stall warning horn sounded shortly before runway contact. The flight instructor stated that he assumed control of the airplane at this point and decided to continue the go-around since the engines seemed to be producing full power. He noted that during the flight around the traffic pattern, the rudder and stabilator were "less responsive than usual." He subsequently executed a no-flap landing on the departure runway.

A post accident inspection revealed that the fuselage skin on the left and right sides, forward of the windshield was buckled. The left main landing gear strut was bent aft approximately 90 degrees. The tips of the propeller blades were curled and twisted consistent with runway contact.

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	28, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	June 1, 2005
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	October 1, 2004
Flight Time:	1539 hours (Total, all aircraft), 151 hours (Total, this make and model), 1459 hours (Pilot In Command, all aircraft), 129 hours (Last 90 days, all aircraft), 44 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	23, Male
Airplane Rating(s):	Single-engine land; Multi-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; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	October 1, 2005
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	November 1, 2005
Flight Time:	1090 hours (Total, all aircraft), 31 hours (Total, this make and model), 1010 hours (Pilot In Command, all aircraft), 144 hours (Last 90 days, all aircraft), 47 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N2196B
Model/Series:	PA-44-180	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	44-7995102
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	November 1, 2005 100 hour	Certified Max Gross Wt.:	3800 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	7095 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O-360-E1A6D
Registered Owner:	Seminole Aviation Inc.	Rated Power:	180 Horsepower
Operator:	Windy City Flyers	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	RFD,742 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	11:54 Local	Direction from Accident Site:	
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Broken / 6000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	8 knots / 0 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	90°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.36 inches Hg	Temperature/Dew Point:	-6°C / -11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Chicago/Prospec, IL (PWK)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	VFR
Departure Time:	10:50 Local	Type of Airspace:	

Airport Information

Airport:	Greater Rockford RFD	Runway Surface Type:	Asphalt
Airport Elevation:	742 ft msl	Runway Surface Condition:	Dry
Runway Used:	1	IFR Approach:	None
Runway Length/Width:	8199 ft / 150 ft	VFR Approach/Landing:	Simulated forced 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:	42.195278,-89.097221

Administrative Information

Investigator In Charge (IIC):	Sorensen, Timothy
Additional Participating Persons:	Oscar Bocanegra; FAA-DuPage FSDO; West Chicago, IL
Original Publish Date:	March 28, 2006
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.nts.gov/Docket?ProjectID=63087

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](#).