Aviation Investigation Final Report

Location:	Everett, Washington	**Accident Number:**	SEA03LA037
Date & Time:	February 9, 2003, 15:40 Local	**Registration:**	N912LB
Aircraft:	Cessna 172S	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The private pilot under instruction (PUI) was engaged in training towards an instrument rating with a flight instructor pilot (IP) and had just executed a missed approach. During the missed approach maneuver, following his first instrument approach in IMC, the aircraft began picking up rime ice. The IP chose to terminate the flight and the aircraft was cleared via radar vectors for the ILS Runway 16R approach to the 9,010 foot long runway. The IP briefed the PUI on the procedures for the approach, specifically the need to maintain higher than normal airspeeds down to touchdown. On short final, about 10-15 feet above ground, and as the PUI retarded power and began decelerating to 70-75 knots, the left wing dropped and the aircraft landed hard on the left main gear and bounced. The IP then took control of the aircraft but was unable to regain directional control. The aircraft continued off the left side of the runway and into soft terrain, during which the nose gear dug in and the aircraft nosed over.

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 and the instructor's inadequate supervision of the flight. Contributing factors were the rime icing conditions, and the soft terrain encountered on the off runway rollout.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: APPROACH

Findings
1. (F) WEATHER CONDITION - ICING CONDITIONS

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
2. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
3. STALL - INADVERTENT
4. (F) SUPERVISION - INADEQUATE - PILOT IN COMMAND(CFI)

Occurrence #3: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Occurrence #4: NOSE OVER
Phase of Operation: LANDING - ROLL

Findings
5. (F) TERRAIN CONDITION - SOFT

Factual Information

On February 9, 2003, at 1540 Pacific standard time, a Cessna 172S, N912LB, registered to and being operated/flown by a private pilot, accompanied by a flight instructor, sustained substantial damage during a hard landing on flare/touchdown at the Snohomish County airport (PAE), Everett, Washington. Both pilots were uninjured. Instrument meteorological conditions (IMC) existed and an instrument flight rules (IFR) flight plan was in effect. The local flight, which was instructional, was operated under 14CFR91, and had originated from Boeing Field, Seattle, Washington, at 1440.

The private pilot under instruction (PUI) reported that he was engaged in training towards an instrument rating with his flight instructor pilot (IP). He reported that he had acquired surface observations and terminal area forecast information for the area of the intended flight and had obtained an abbreviated weather briefing from Seattle Flight Service, and there was no reference to icing conditions.

After their departure from Boeing Field and approaching the area of Paine Field both pilots overheard a radio report from another aircraft (location unknown) of icing conditions and the IP noted the formation of light rime ice on the non-icing certified aircraft's wings.

The PUI initiated the VOR-B approach and broke out about 500-600 feet above ground after which a missed approach was executed. During the missed approach maneuver, approximately 1,000 feet altitude and in IMC, both pilots noted that the aircraft had begun picking up ice. The IP chose to terminate the flight and requested an "abbreviated" approach with radar vectors to the instrument landing system (ILS) runway 16R approach to a full stop landing on the 9,010 foot long runway. The aircraft was cleared for the approach and the IP briefed the PUI on the procedures for the approach i.e., "...higher speeds than normal at all times, no flaps, and fly the airplane onto the runway/no flare...."

On short final, about 10-15 feet above ground, the left wing dropped and the aircraft landed hard on the left main gear and bounced. The pilot added power in an attempt to stabilize the aircraft and the flight instructor then took control of the aircraft but was unable to regain directional control. The aircraft continued off the left side of the runway and into soft terrain, during which the nose gear dug into soft terrain and the aircraft nosed over.

The aircraft broke out about 500-600 feet above ground and the PUI reported that about 150-200 feet above ground approaching the threshold he began to slow his approach speed to 80-85 knots. As he crossed the threshold and 10-15 feet above the runway he "...pulled the power out and slowed up to about 70-75 knots..." at which time the IP felt the airframe shudder, the left wing "stalled," and the aircraft began a left roll/yaw. The aircraft's left wheel contacted the runway and the aircraft bounced. The IP took control of the aircraft, ensured that the power

was cut and attempted to maintain directional control as the aircraft departed the left side of the runway rolling onto soft, wet grass during which it nosed over.

The PUI remarked, "...after impact, I noted there was ice along most of the leading edges of both wings. I picked up one piece about 8-10 inches long, which had fallen off, and noted it had wrapped around the shape of the leading edge to form a flat face, perpendicular to the direction of the airflow. In its thickest part, it was about 0.75 - 1" thick, and about 0.25 - 0.5" in its thinnest part...."

Pilot Information

Certificate:	Private	**Age:**	47,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 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	August 26, 2001
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	February 19, 2002
Flight Time:	191 hours (Total, all aircraft), 189 hours (Total, this make and model), 106 hours (Pilot In Command, all aircraft)		

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	53,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Rear
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 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 29, 2001
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	June 2, 2001
Flight Time:	2109 hours (Total, all aircraft), 286 hours (Total, this make and model), 2054 hours (Pilot In Command, all aircraft), 9 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N912LB
Model/Series:	172S	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	172S8609
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	January 31, 2003 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	6 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	730 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-360-L2A
Registered Owner:	Maritz, Paul L.	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PAE,606 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	15:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:		**Visibility**	4 miles
Lowest Ceiling:	Overcast / 700 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.2 inches Hg	**Temperature/Dew Point:**	2°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Seattle, WA (BFI)	**Type of Flight Plan Filed:**	IFR
Destination:		**Type of Clearance:**	IFR
Departure Time:	14:40 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	Snohomish County (Paine Field) PAE	**Runway Surface Type:**	Asphalt
Airport Elevation:	606 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	16R	**IFR Approach:**	ILS
Runway Length/Width:	9010 ft / 150 ft	**VFR Approach/Landing:**	None

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:**	47.914165,-122.284446

Administrative Information

Investigator In Charge (IIC):	McCreary, Steven
Additional Participating Persons:	David May; FAA FSDO; Renton, WA
Original Publish Date:	November 25, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=56462