



# Aviation Investigation Final Report

<b>Location:</b>	BROOMFIELD, Colorado	<b>Accident Number:</b>	DEN01LA031
<b>Date &amp; Time:</b>	December 13, 2000, 11:58 Local	<b>Registration:</b>	N2386C
<b>Aircraft:</b>	Cessna R182	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## Analysis

The airplane was cleared to land on runway 11L. The flight instructor said that despite the wind 'shifting directions,' correct wind correction was applied and the airplane landed. During the rollout, the nose started shaking and full up elevator was applied. The propeller struck the ground and the airplane came to a halt. But according to the airplane owner who witnessed the accident, the airplane 'was too high for normal glidepath...the plane suddenly descended in a near level flight attitude from an altitude of approximately 40 feet above the runway...the plane hit in a full stalled configuration,' which drove the landing gear into the fuselage. The airplane was destroyed.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the flight instructor's inadequate supervision of the dual student, which resulted in a hard landing. Contributing factors were the dual student flaring the airplane prematurely, resulting in an inadvertent stall/mush.

## Findings

Occurrence #1: HARD LANDING  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

1. (C) AIRSPEED - NOT MAINTAINED - DUAL STUDENT

2. (F) FLARE - PREMATURE - DUAL STUDENT
3. STALL/MUSH - INADVERTENT - DUAL STUDENT
4. (C) SUPERVISION - INADEQUATE - PILOT IN COMMAND(CFI)

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Occurrence #2: GEAR COLLAPSED

Phase of Operation: LANDING - FLARE/TOUCHDOWN

## Factual Information

On December 13, 2000, at 1158 mountain standard time, a Cessna R182, N2386C, operated by McAir Aviation, Inc., was destroyed during a hard landing at Jeffco Airport, Broomfield, Colorado. The commercial certificated flight instructor and her private certificated student were not injured. Visual meteorological conditions prevailed at the time, and no flight plan had been filed for the instructional flight being operated under Title 14 CFR Part 91. The flight originated at Pueblo, Colorado, approximately 45 minutes before the accident.

According to the accident report submitted by the flight instructor, they were cleared to land on runway 11L. Despite the wind "shifting directions," proper wind correction was applied and the airplane landed. During the rollout, the nose started shaking and full up elevator was applied. The propeller struck the ground and the airplane came to a halt.

According to the airplane owner who witnessed the accident, the airplane "was too high for normal glidepath...the plane suddenly descended in a near level flight attitude from an altitude of approximately 40 feet above the runway...the plane hit in a full stalled configuration."

Postaccident inspection revealed the airframe was extensively damaged, particularly around the cabin doors when the main landing gear was driven up into the fuselage. The airplane was subsequently declared to be a total loss.

### Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	23,Female
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	February 8, 2000
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	906 hours (Total, all aircraft), 5 hours (Total, this make and model), 729 hours (Pilot In Command, all aircraft), 21 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N2386C
<b>Model/Series:</b>	R182 R182	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	R18200173
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	October 3, 2000 100 hour	<b>Certified Max Gross Wt.:</b>	3100 lbs
<b>Time Since Last Inspection:</b>	71 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	5589 Hrs	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-540-J3C5D
<b>Registered Owner:</b>	R AND R AVIATION, INC.	<b>Rated Power:</b>	235 Horsepower
<b>Operator:</b>	MCAIR AVIATION, INC.	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	BJC ,5670 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	11:45 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Scattered / 4000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 12000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	160°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29 inches Hg	<b>Temperature/Dew Point:</b>	-4°C / -10°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	PUEBLO , CO (PUB )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	(BJC )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	11:00 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	JEFFCO BJC	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	5670 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	11L	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	9000 ft / 100 ft	<b>VFR Approach/Landing:</b>	Full stop

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	39.940105,-105.059257(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Scott, Arnold
<b>Additional Participating Persons:</b>	MICHAEL F DAVEY; DENVER , CO
<b>Original Publish Date:</b>	September 30, 2003
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=50814">https://data.nts.gov/Docket?ProjectID=50814</a>

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](#).