



# Aviation Investigation Final Report

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<b>Location:</b>	Provo, Utah	<b>Accident Number:</b>	DEN02LA035
<b>Date &amp; Time:</b>	March 19, 2002, 13:55 Local	<b>Registration:</b>	N5381A
<b>Aircraft:</b>	Cessna 310B	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

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## Analysis

According to the instructor, the landing gear failed to fully retract after takeoff. He stated that after lift-off, and with "no more usable runway," we "retracted the landing gear, looking for a green light gear indicator." The light did not come on. He looked outside at the mirror on the left main tank and identified the "gear malfunction." They continued the local flight to burn off excess fuel and then made a precautionary landing at Provo. During the landing roll, the nose landing gear collapsed. The airplane sustained substantial damage to the left and right forward nose landing gear well former (keel beam) assemblies. The manufacturer states that the Cessna 310B, is equipped with a landing gear position light system. Two landing gear position lights are provided, one above and one below the landing gear switch. The "upper light is red, and is on at all times when the gear is retracted." The "lower light is green, and illuminates only when the landing gear is fully extended and locked." If the landing gear is not fully extended and locked, the green light will not illuminate, and if neither light is on, the landing gear is in an intermediate position.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Failure of the nose landing gear retraction/extension assembly for an undetermined reason, which resulted in collapse of the nose landing gear on landing.

## Findings

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Occurrence #1: GEAR COLLAPSED

Phase of Operation: LANDING - ROLL

### Findings

1. (C) LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY - FAILURE
2. REASON FOR OCCURRENCE UNDETERMINED
3. (C) LANDING GEAR,NOSE GEAR - COLLAPSED
4. TERRAIN CONDITION - RUNWAY

## Factual Information

On March 19, 2002, at approximately 1355 mountain standard time, a Cessna 310B, N5381A, was substantially damaged when its nose landing gear collapsed during landing roll at Provo Municipal Airport (PVU), Provo, Utah. The airline transport instructor pilot and commercial pilot receiving instruction were not injured. Visual meteorological conditions prevailed for this local training flight being conducted under Title 14 CFR Part 91. The flight originated at approximately 1130.

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### Flight instructor Information

<b>Certificate:</b>	Airline transport; Flight instructor	<b>Age:</b>	50, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<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 multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--w/ waivers/lim	<b>Last FAA Medical Exam:</b>	November 8, 2001
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 13, 2001
<b>Flight Time:</b>	2100 hours (Total, all aircraft), 50 hours (Total, this make and model), 2000 hours (Pilot In Command, all aircraft), 60 hours (Last 90 days, all aircraft)		

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	35, Male
<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>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	August 28, 2001
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	August 24, 2001
<b>Flight Time:</b>	1042 hours (Total, all aircraft), 324 hours (Total, this make and model), 881 hours (Pilot In Command, all aircraft), 122 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N5381A
<b>Model/Series:</b>	310B	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	35581
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	5
<b>Date/Type of Last Inspection:</b>	November 21, 2001 100 hour	<b>Certified Max Gross Wt.:</b>	4700 lbs
<b>Time Since Last Inspection:</b>	98.8 Hrs	<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	4538.3 Hrs	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-470-M
<b>Registered Owner:</b>	Twin C Enterprises, L.L.C.	<b>Rated Power:</b>	240 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KPVU,4494 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	13:55 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	3 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	270°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.26 inches Hg	<b>Temperature/Dew Point:</b>	5°C / -8°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Provo, UT (PVU )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Provo, UT (PVU )	<b>Type of Clearance:</b>	Unknown
<b>Departure Time:</b>	11:30 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>	Provo Municipal PVU	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	4497 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	18	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	6937 ft / 150 ft	<b>VFR Approach/Landing:</b>	Precautionary landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<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>	40.220275,-111.727775

## Administrative Information

<b>Investigator In Charge (IIC):</b>	STRUHSAKER
<b>Additional Participating Persons:</b>	Mark M Rushton; FAA Flight Standards District Office; Salt Lake City, UT
<b>Original Publish Date:</b>	April 1, 2003
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=54434">https://data.nts.gov/Docket?ProjectID=54434</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](#).