



# Aviation Investigation Final Report

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<b>Location:</b>	Grangeville, Idaho	<b>Accident Number:</b>	WPR10LA421
<b>Date &amp; Time:</b>	August 23, 2010, 09:45 Local	<b>Registration:</b>	N29100
<b>Aircraft:</b>	Cessna U206	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Sys/Comp malf/fail (non-power)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Positioning		

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## Analysis

The pilot reported that, during the landing roll on a turf airstrip, he noticed rattling and shaking after the nosewheel touched down, but had no problem holding a straight line. After taxiing to the tie-down area and parking the airplane, the pilot inspected the nose gear and found that the upper end of the nose gear scissor had separated from the casting and was lying on the tire. The pilot reported that he walked out to where he touched down and observed tire tracks on the grass, and it appeared that the nosewheel track began after a large ground squirrel hole. The pilot contacted his mechanic, who informed him that he should be able to fly home if he tied the nose gear scissor up. Before departing, the pilot taxied about 1,000 feet on the runway and made two 180-degree turns with no problems encountered. During the landing at his destination, the pilot held the nose gear off of the ground for about 1,500 feet. When the nosewheel contacted the ground, the airplane made a hard left turn that the pilot could not stop with right rudder and brake. When the airplane reached the edge of the runway, it nosed over. The pilot indicated that the nosewheel had evidently cocked 90 degrees prior to the landing.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's decision to fly with a known defective nosewheel assembly, which resulted in a loss of directional control and nose-over on landing after the assembly shifted out of alignment during the flight.

## Findings

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<b>Aircraft</b>	Nose/tail landing gear - Malfunction
<b>Aircraft</b>	Directional control - Attain/maintain not possible
<b>Personnel issues</b>	Decision making/judgment - Pilot

## Factual Information

### History of Flight

Landing-landing roll	Sys/Comp malf/fail (non-power) (Defining event)
Landing-landing roll	Loss of control on ground
Landing-landing roll	Runway excursion
Landing-landing roll	Nose over/nose down

On August 23, 2010, about 0945 Pacific daylight time, a Cessna U206C, N29100, nosed over during landing at Idaho County Airport, Grangeville, Idaho. The pilot/owner was operating the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91 as a positioning flight. The commercial pilot was not injured; the airplane sustained substantial damage to the fuselage, wings, and empennage. The airplane departed Concord airstrip (25 miles southeast of Idaho County Airport) at 0930, en route to Grangeville. Visual meteorological conditions prevailed, and no flight plan had been filed.

The pilot reported that he began the day at Grangeville at 0615, for a 14 CFR Part 135 flight to Campbell's Ferry on the Main Salmon River. After landing and unloading his passenger, he departed for the airstrip at Concord.

The pilot stated that during the landing he noticed that the airplane was rattling and shaking, but he had no problem maintaining a straight line on roll out. He taxied back to the tie down area, and parked the airplane. The pilot inspected the landing gear and observed the nose gear scissor lying on the tire; the upper end had snapped off (separated from the casting). He walked out to where he touched down, and observed good tracks on the grass in the morning dew. He saw that the nose wheel track first appeared after a large ground squirrel hole. The pilot reported that earlier in the summer he had filled in some of the holes.

The pilot contacted his mechanic, who informed him that he should be able to fly home if he tied the nose gear scissor up. After doing that, the pilot taxied about 1,000 feet on the runway, and made two 180-degree turns with no problems encountered. The pilot then departed for Grangeville.

During the landing, the pilot held the nose off for about 1,500 feet, and then eased the nose down. The airplane made a hard left turn that he could not stop with right rudder and brake. When the airplane reached the edge of the runway, it nosed over.

The pilot indicated that the nose wheel had evidently cocked 90 degrees prior to the landing.

## Pilot Information

<b>Certificate:</b>	Commercial; Private	<b>Age:</b>	53, Male
<b>Airplane Rating(s):</b>	Single-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>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	April 1, 2010
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	August 1, 2009
<b>Flight Time:</b>	2770 hours (Total, all aircraft), 955 hours (Total, this make and model), 2700 hours (Pilot In Command, all aircraft), 54 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N29100
<b>Model/Series:</b>	U206 C	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	U206-1072
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	November 1, 2009 Annual	<b>Certified Max Gross Wt.:</b>	3600 lbs
<b>Time Since Last Inspection:</b>	54 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	6146 Hrs at time of accident	<b>Engine Manufacturer:</b>	Teledyne Continental Motors
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	IO-520-F4B
<b>Registered Owner:</b>	Karl E. Urquhart	<b>Rated Power:</b>	300 Horsepower
<b>Operator:</b>	Karl E. Urquhart	<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KLWS, 144 ft msl	<b>Distance from Accident Site:</b>	48 Nautical Miles
<b>Observation Time:</b>	09:56 Local	<b>Direction from Accident Site:</b>	290°
<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>	4 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	30°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.75 inches Hg	<b>Temperature/Dew Point:</b>	22°C / 1°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Concord, ID	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Granville, ID (S80)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:30 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Grangeville Idaho County S80	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	3314 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	07	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	5101 ft / 75 ft	<b>VFR Approach/Landing:</b>	Full stop

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	45.942501,-116.123611(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Plagens, Howard
<b>Additional Participating Persons:</b>	Jim Bening; FAA Spokane FSDO; Spokane, WA
<b>Original Publish Date:</b>	March 20, 2012
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=77049">https://data.ntsb.gov/Docket?ProjectID=77049</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](#).