



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	KING SALMON, AK	<b>Accident Number:</b>	ANC01LA136
<b>Date &amp; Time:</b>	09/02/2001, 1430 AKD	<b>Registration:</b>	N177BM
<b>Aircraft:</b>	Cessna 185F	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The commercial certificated pilot was back-taxiing on a runway in preparation for takeoff, and then began a 180 degree turn on the runway. During the turn, the pilot said he heard a scraping sound, the airplane wobbled and shimmied, and the right brake was not functioning. The right main landing gear strut collapsed near the axle attach point, and the right main wheel and tire rolled away from the airplane. The right wingtip and the propeller struck the ground, and the right gear strut was torn loose from its upper attach point. A postexamination of the right wheel and strut by the owner revealed the axle assembly separated from the lower end of the landing gear strut. There are four hex head bolts utilized to secure the axle to the landing gear strut. Each are inserted through the axle assembly and gear leg, and have a nut threaded and then torqued onto the bolt shaft. All four of the bolts were bent. Two of the nuts were stripped off their respective bolt shafts. The remaining two bolts were broken about mid-shaft. The owner of the airplane reported that about five days before the accident, new brake assemblies were installed on the airplane. The original bolts were re-used for the installation. One of the broken bolts was submitted to the National Transportation Safety Board's Materials Laboratory for examination. According to an NTSB materials engineer, the bolt was bent about 35 degrees, it had necking deformation adjacent to the fracture, and displayed features consistent with an overstress fracture in bending.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An overload failure of the main axle attaching bolts, and subsequent separation of the axle from the landing gear strut.

## Findings

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Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: TAXI - TO TAKEOFF

### Findings

1. (C) MISCELLANEOUS, BOLT/NUT/FASTENER/CLAMP/SPRING - OVERLOAD
2. (C) LANDING GEAR, AXLE - SEPARATION

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Occurrence #2: MAIN GEAR COLLAPSED  
Phase of Operation: TAXI - TO TAKEOFF

### Findings

3. LANDING GEAR, MAIN GEAR ATTACHMENT - OVERLOAD

## Factual Information

On September 2, 2001, about 1430 Alaska daylight time, a tundra tire-equipped Cessna 185F airplane, N177BM, sustained substantial damage while taxiing for takeoff at the King Salmon Airport, King Salmon, Alaska. The airplane was being operated as a visual flight rules (VFR) cross-country personal flight under Title 14, CFR Part 91, when the accident occurred. The airplane was operated by Bill Martin, Fish Alaska Inc., King Salmon. The commercial certificated pilot, and the sole passenger, were not injured. Visual meteorological conditions prevailed. VFR company flight following procedures were in effect.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on September 7th, the pilot reported that he was preparing to depart and was back-taxiing on runway 11 at King Salmon. He then began a 180 degree turn to depart on runway 29. During the turn, the pilot said he heard a scraping sound, the airplane wobbled and shimmied, and the right brake was not functioning. The right main landing gear strut collapsed near the axle attach point, and the right main wheel and tire rolled away from the airplane. The right wingtip and the propeller struck the ground, and the right gear strut was torn loose from its upper attach point.

A postexamination of the right wheel and strut by the owner revealed the axle assembly separated from the lower end of the landing gear strut. There are four hex head bolts utilized to secure the axle to the landing gear strut. Each are inserted through the axle assembly and gear leg, and have a nut threaded and then torqued onto the bolt shaft. All four of the bolts were bent. Two of the nuts were stripped off their respective bolt shafts. The remaining two bolts were broken about mid-shaft.

The owner of the airplane reported that about five days before the accident, new brake assemblies were installed on the airplane. The original bolts were re-used for the installation.

One of the broken bolts was submitted to the National Transportations Safety Board's Materials Laboratory for examination. According to an NTSB materials engineer, the bolt was bent about 35 degrees, it had necking deformation adjacent to the fracture, and displayed features consistent with an overstress fracture in bending.

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	63, Male
<b>Airplane Rating(s):</b>	Single-engine Land; Single-engine Sea	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	06/21/2000
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	12000 hours (Total, all aircraft), 2500 hours (Total, this make and model), 70 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N177BM
<b>Model/Series:</b>	185F	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	18504157
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	100 Hour	<b>Certified Max Gross Wt.:</b>	3800 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	IO-520
<b>Registered Owner:</b>	BILL MARTIN FISH ALASKA INC.	<b>Rated Power:</b>	300 hp
<b>Operator:</b>	BILL MARTIN FISH ALASKA INC.	<b>Operating Certificate(s) Held:</b>	On-demand Air Taxi (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	B61C

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PAKN, 57 ft msl	Distance from Accident Site:	
Observation Time:	1452 ADT	Direction from Accident Site:	
Lowest Cloud Condition:	Few / 2500 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 3600 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	11 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.54 inches Hg	Temperature/Dew Point:	17° C / 8° C
Precipitation and Obscuration:			
Departure Point:	KING SALMON, AK (PAKN)	Type of Flight Plan Filed:	Company VFR
Destination:	YANTARNI, AK	Type of Clearance:	None
Departure Time:	1430 ADT	Type of Airspace:	Class E

## Airport Information

Airport:	KING SALMON (PAKN)	Runway Surface Type:	Asphalt
Airport Elevation:	57 ft	Runway Surface Condition:	Dry
Runway Used:	11	IFR Approach:	None
Runway Length/Width:	8500 ft / 150 ft	VFR Approach/Landing:	None

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	58.676944, -156.649167

## Administrative Information

Investigator In Charge (IIC):	SCOTT ERICKSON	Report Date:	06/18/2002
Additional Participating Persons:	JAY BURTON; FAA-AL-ANC FSDO 03; ANCHORAGE, AK		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).