



# Aviation Investigation Final Report

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<b>Location:</b>	Klawock, Alaska	<b>Accident Number:</b>	ANC05LA055
<b>Date &amp; Time:</b>	April 6, 2005, 14:35 Local	<b>Registration:</b>	N29884
<b>Aircraft:</b>	Britten-Norman BN-2A Islander	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 135: Air taxi & commuter - Scheduled		

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## Analysis

The airline transport certificated pilot was landing a twin-engine airplane on a paved runway. The flight was conducted under Title 14, CFR Part 135, as a scheduled domestic passenger flight. The pilot reported that during the landing roll he noted a significant airframe vibration, and a pronounced rumbling noise as the airplane slowed. As he applied the brakes, the airplane veered to the left, and he was unable to keep the airplane on the runway. The airplane continued off the left side of the runway, and the nose of the airplane struck a drainage ditch. The airplane sustained substantial damage to the fuselage. During a postaccident inspection, maintenance personnel discovered a broken aluminum alloy landing gear oleo attachment bracket on the left main landing gear strut assembly. Operators that use the aluminum alloy landing gear oleo attachment brackets are required to conduct recurring inspections every 500 hours, or every 1,200 landings, whichever ever occurs first. According to the FAA airworthiness inspector that inspected the accident airplane's maintenance records, the aluminum alloy oleo attachment bracket was last inspected about 101.0 hours, and 218 landings before the accident. The FAA inspector commented that there was a substantial accumulation of dirt, grease, and oil on and around the broken oleo attachment bracket.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:  
The fracture of the aluminum alloy landing gear bracket assembly, which resulted in a loss of control during the landing roll.

### Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: LANDING - ROLL

#### Findings

1. (C) LANDING GEAR,MAIN GEAR - FRACTURED  
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Occurrence #2: LOSS OF CONTROL - ON GROUND/WATER  
Phase of Operation: LANDING - ROLL

#### Findings

2. DIRECTIONAL CONTROL - NOT POSSIBLE - PILOT IN COMMAND  
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Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER  
Phase of Operation: LANDING - ROLL

#### Findings

3. TERRAIN CONDITION - DITCH

## Factual Information

On April 6, 2005, about 1435 Alaska daylight time, a twin-engine Britten-Norman BN-2A Islander airplane, N29884, sustained substantial damage following a main landing gear component failure and subsequent loss of control while landing at the Klawock Airport, Klawock, Alaska. The flight was conducted under Title 14, CFR Part 135, as a scheduled domestic passenger flight operated by LAB Flying Service, Haines, Alaska, as Flight 609. The airline transport certificated pilot and the two passengers were not injured. Visual meteorological conditions prevailed, and VFR company flight following procedures were in effect. The accident flight originated at the Ketchikan Airport, Ketchikan, Alaska, about 1400.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on April 7, the pilot reported that during the landing roll on runway 02, he noted a significant airframe vibration, and a pronounced rumbling noise as the airplane slowed. He said that as he applied the brakes, the airplane veered to the left, and he was unable to keep the airplane on the runway surface. The airplane continued off the left side of the runway, and the nose of the airplane struck a drainage ditch. The airplane sustained substantial damage to the fuselage.

During a postaccident inspection, maintenance personnel discovered a broken landing gear oleo attachment bracket on the left main landing gear strut assembly.

The accident airplane's broken landing gear oleo attachment bracket, part number NB-40-0075, is the subject of a repetitive inspection procedure outlined in the Federal Aviation Administrations (FAA) airworthiness directive (AD) 2002-02-11, which allows two methods of compliance; the part may be replaced or the bracket must be inspected more frequently. The manufacturer has changed the design of the oleo attachment bracket which is made of aluminum alloy. The newly designed oleo attachment bracket, part number NB-40-0479 is made of steel. Installation of the newly designed, steel oleo attachment bracket significantly reduces the number of repetitive inspections required. Operators that elect to utilize the old style aluminum alloy oleo attachment brackets are required to conduct recurring inspections every 500 hours, or every 1,200 landings, whichever ever occurs first.

According to an FAA airworthiness inspector from the Juneau Flight Standards District Office (FSDO), who inspected the accident airplane's maintenance records, the aluminum alloy oleo attachment brackets were last inspected about 101.0 hours, and 218 landings before the accident. The FAA inspector noted that there was a substantial accumulation of dirt, grease, and oil on and around the broken oleo attachment bracket. The FAA inspector said that during the last main landing gear overhaul, the operator elected to install the old style aluminum alloy oleo attachment brackets, primarily due to the cost of the new style steel oleo attachment brackets.

## Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	54, Male
<b>Airplane Rating(s):</b>	Single-engine sea; 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>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 With waivers/limitations	<b>Last FAA Medical Exam:</b>	November 1, 2004
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	13000 hours (Total, all aircraft), 3000 hours (Total, this make and model), 12600 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Britten-Norman	<b>Registration:</b>	N29884
<b>Model/Series:</b>	BN-2A Islander	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	847
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	5
<b>Date/Type of Last Inspection:</b>	March 1, 2005 AAIP	<b>Certified Max Gross Wt.:</b>	6200 lbs
<b>Time Since Last Inspection:</b>	25.7 Hrs	<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	9145.9 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-540-E4CS
<b>Registered Owner:</b>	L & A Bennett, Family Trust	<b>Rated Power:</b>	260 Horsepower
<b>Operator:</b>	L A B FLYING SERVICE INC	<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	LABA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	PAKW,80 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	14:53 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 5000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.75 inches Hg	<b>Temperature/Dew Point:</b>	11°C / 1°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Ketchikan , AK (PAKT)	<b>Type of Flight Plan Filed:</b>	Company VFR
<b>Destination:</b>	Klawock, AK (PAKW)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	14:00 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Klawock AKW	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	80 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	02	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	5000 ft / 100 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>	2 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	55.566665,-133.066665

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Johnson, Clinton
<b>Additional Participating Persons:</b>	Larry D West ; Federal Aviation Administration; Juneau, AK
<b>Original Publish Date:</b>	January 31, 2006
<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=61279">https://data.nts.gov/Docket?ProjectID=61279</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](#).