



National Transportation Safety Board Aviation Accident Final Report

Location:	Billings, MT	Accident Number:	SEA07LA133
Date & Time:	05/19/2007, 0400 MDT	Registration:	N950AA
Aircraft:	Beech B-99	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The pilot reported that about 40 nautical miles into the flight, he heard a "clunk" and the red unsafe light in the gear handle came on. He verified that all systems were functioning normally, and he cycled the landing gear up and down to see if that would solve the problem. The unsafe light remained illuminated. The pilot returned to the departure airport and circled for several hours to burn his fuel load down. He said that at one point he flew low over the runway so the company mechanic, with the aid of a light from an airport vehicle, could visually check the nose gear position. It was hanging out of the wheel well at approximately a 45-degree angle. Upon landing, the airplane settled to its nose during landing rollout. Examination of the airplane revealed that the nose gear actuator mount bracket area was bent and wrinkled. The nose gear actuator shaft had fractured just above the clevis bolt, which attaches to the drag brace. The failed actuator had been installed on July 26, 2006. The Beech B-99 maintenance manual states that the hydraulic actuator needs to be overhauled or replaced every 10,000 hours; maintenance records indicate that this one had 231.4 hours on it at the time of the accident. Metallurgist examined the failed actuator and concluded that all of the fractures were overstress, and no preexisting fatigue signatures were evident. The airframe had accumulated 34,613.2 hours of flying time, at the time of the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The total failure of the nose landing gear actuator and the subsequent nose gear collapse during landing.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE - NORMAL

Findings

1. (C) HYDRAULIC SYSTEM,ACTUATOR - FAILURE,TOTAL

Occurrence #2: NOSE GEAR COLLAPSED
Phase of Operation: LANDING - ROLL

Findings

2. TERRAIN CONDITION - RUNWAY

Factual Information

On May 19, 2007, at 0400 mountain daylight time, a Beech B-99, N950AA, was substantially damaged when the nose wheel landing gear collapsed during landing roll at Billings Logan International Airport (BIL), Billings, Montana. The airline transport pilot, the sole occupant in the airplane, was not injured. Alpine Aviation Inc., Provo, Utah, was operating the airplane under Title 14 CFR Part 135. Night visual meteorological conditions prevailed for the cross-country flight, which had originated at 0100. The pilot was flying on an activated instrument flight rules (IFR) flight plan, which had an intended destination of Kalispell, Montana.

The pilot said that he had departed from Billings, Montana, and had climbed to 12,000 feet. About 40 nautical miles northwest of Billings, he heard a "clunk" and the red unsafe light in the gear handle came on. He verified that all systems were functioning normally, and he cycled the landing gear up and down to see if that would solve the problem. The unsafe light remained illuminated. The pilot returned to Billings and circled for several hours to burn his fuel load down. He said that at one point he flew low over the runway so the company mechanic, with the aid of a light from an airport vehicle, could visually check the nose gear position. It was hanging out of the wheel well at approximately a 45-degree angle. Upon landing at Billings, the airplane settled to its nose during landing rollout.

Examination of the airplane by an FAA inspector revealed that the nose gear actuator mount bracket area was bent and wrinkled. The nose gear actuator shaft had fractured just above the clevis bolt, which attaches to the drag brace. The failed actuator had been installed on July 26, 2006. The Beech B-99 maintenance manual states that the hydraulic actuator needs to be overhauled or replaced every 10,000 hours; maintenance records indicate that this one had 231.4 hours on it at the time of the accident. Metallurgists from both the National Transportation Safety Board and Hawker Beechcraft Corporation examined the failed actuator. Both concluded that all of the fractures were overstress, and no preexisting fatigue signatures were evident.

The airframe had accumulated 34,613.2 hours of flying time at the time of the accident.

Pilot Information

Certificate:	Airline Transport; Flight Instructor	Age:	51, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	06/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	03/01/2007
Flight Time:	11360 hours (Total, all aircraft), 2490 hours (Total, this make and model), 11053 hours (Pilot In Command, all aircraft), 240 hours (Last 90 days, all aircraft), 79 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Beech	Registration:	N950AA
Model/Series:	B-99	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	U-159
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	04/01/2007, AAIP	Certified Max Gross Wt.:	10900 lbs
Time Since Last Inspection:	130 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	34613 Hours	Engine Manufacturer:	Pratt & Whitney
ELT:	Installed, not activated	Engine Model/Series:	PT-6A
Registered Owner:	Alpine Aviation Inc.	Rated Power:	680 hp
Operator:	Alpine Aviation Inc.	Air Carrier Operating Certificate:	None
Operator Does Business As:	Alpine Air	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	BIL, 3652 ft msl	Observation Time:	0353 MDT
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	12 °C / 8 °C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	5 knots, 20°	Visibility (RVR):	
Altimeter Setting:	29.99 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Billings, MT (BIL)	Type of Flight Plan Filed:	IFR
Destination:	Kalispell, MT (GPI)	Type of Clearance:	IFR
Departure Time:	0100 MDT	Type of Airspace:	

Airport Information

Airport:	Billings Logan Intern Arpt (BIL)	Runway Surface Type:	Asphalt
Airport Elevation:	3652 ft	Runway Surface Condition:	Dry
Runway Used:	10L	IFR Approach:	None
Runway Length/Width:	10518 ft / 150 ft	VFR Approach/Landing:	Full Stop

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	45.807778, -108.542778

Administrative Information

Investigator In Charge (IIC):	James F Struhsaker	Adopted Date:	02/28/2008
Additional Participating Persons:	Rick Koffman; FAA FSDO; Helena, MT		
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 pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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