



National Transportation Safety Board Aviation Accident Final Report

Location:	Kalispell, MT	Accident Number:	SEA07LA002
Date & Time:	10/01/2006, 1800 MDT	Registration:	N1920E
Aircraft:	Cessna 340A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None

Flight Conducted Under: Part 91: General Aviation - Instructional

Analysis

While extending the landing gear the pilot heard a "loud bang" in the nose of the airplane. With both main landing gear having extended normally and the nose gear failing to extend, the pilot carried out the emergency landing gear checklist, but was unable to get the nose gear to extend. Air traffic control tower personnel subsequently confirmed that the nose landing gear had not extended after the pilot did two flybys. The pilot then landed the airplane on both main landing gear, letting the aircraft settle onto its nose as airspeed bleed off, and it came to rest approximately 2,000 feet down the runway. A post-accident examination revealed that the adjusting bellcrank was fractured at the upper end where the fork bolt is normally inserted. The fracture features were consistent with overstress, and there was no evidence of any preexisting damage. The deformation and fractures appeared consistent with the bellcrank rotating relative to a stationary fork bolt during nose gear extension, such as could occur as a result of some obstruction or binding in the linkage forward of the bellcrank. The nature and cause of the binding in the linkages could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The fracture of the adjusting bellcrank in overstress due to binding in a linkage forward of the bell crank.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION

Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings

1. (C) LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY - BINDING(MECHANICAL)
2. (C) LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY - FRACTURED

Occurrence #2: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: LANDING - ROLL

Findings

3. TERRAIN CONDITION - RUNWAY

Factual Information

On October 1, 2006, approximately 1800 mountain daylight time, a Cessna 340A, N1920E, sustained substantial damage following an emergency landing as a result of the airplane's nose landing gear failing to extend prior to landing at the Glacier Park International Airport (GPI), Kalispell, Montana. The left seat airline transport-rated student and the right seat commercial-rated flight instructor pilot were not injured. Visual meteorological conditions prevailed for the 14 CFR Part 91 instructional flight, and a flight plan was not filed. The local flight departed GPI about 1630.

In a statement submitted to the NTSB investigator-in-charge (IIC), the pilot-rated student reported that after taking off, the landing gear retracted normally. The pilot-rated student stated that during the subsequent practice instrument approach the landing gear was extended during the initial configuration, and retracted again during the missed approach procedure; the extension and retraction were both normal. The pilot-rated student revealed that while configuring during the second practice instrument approach, and during the landing gear extension sequence, "We heard a loud bang in the nose of the aircraft. I looked at [the instructor] and then at the landing gear lights. We saw the main gear lights come on but no nose gear light, and the [nose] gear unsafe light remained on." The pilot-rated student and instructor then referred to the airplane's Pilot Operating Handbook, carried out the emergency landing gear checklist, but were unable to extend the nose gear to the down and locked position. After doing two flybys in close proximity to the Federal Aviation Administration control tower, tower personnel confirmed that both main landing gear were down, while the nose landing gear remained in the retracted position. After shutting both engines down on short final, the pilot-rated student landed the airplane on Runway 02. The airplane came to rest approximately 2,000 feet down the runway, resting on its nose and both main landing gear.

The IIC retained the adjusting bellcrank from the nose landing gear retraction linkage, which was subsequently sent to the NTSB Materials Laboratory in Washington, D.C., for examination. An NTSB Senior Materials Engineer reported that the bellcrank was fractured at the upper end where the fork bolt is normally inserted, and that the fracture features were uniform light gray and rough, consistent with overstress fracture. The engineer stated that the upper piece of the bellcrank was also cracked and deformed, with the greatest crack opening distance located at the forward end of the bellcrank, with corresponding upward deformation at the upper side of the piece adjacent to the crack. The lower piece of the bellcrank contained portions of the forwardmost 6 threads for attaching the fork bolt, with thread peaks on the lower piece of the bellcrank deformed to the aft. (Refer to the Materials Laboratory Factual Report for a detailed description of the examination.)

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	60, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	06/01/2005
Occupational Pilot:		Last Flight Review or Equivalent:	08/01/2005
Flight Time:	3600 hours (Total, all aircraft), 1200 hours (Total, this make and model), 3500 hours (Pilot In Command, all aircraft), 12 hours (Last 90 days, all aircraft)		

Flight Instructor Information

Certificate:	Flight Instructor; Commercial	Age:	69, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	06/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N1920E
Model/Series:	340A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	340A0669
Landing Gear Type:	Retractable - Tricycle	Seats:	5
Date/Type of Last Inspection:	03/01/2006, Annual	Certified Max Gross Wt.:	5990 lbs
Time Since Last Inspection:	3.4 Hours	Engines:	2 Reciprocating
Airframe Total Time:	6648.2 Hours as of last inspection	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	TSIO-520
Registered Owner:	Northwestern Tire Inc.	Rated Power:	310 hp
Operator:	James D. Roth	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	GPI, 2977 ft msl	Distance from Accident Site:	
Observation Time:	1755 MDT	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	Variable	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.83 inches Hg	Temperature/Dew Point:	19° C / -1° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kalispell, MT (GPI)	Type of Flight Plan Filed:	None
Destination:	Kalispell, MT (GPI)	Type of Clearance:	None
Departure Time:	1630 MDT	Type of Airspace:	

Airport Information

Airport:	Glacier Park Intl Airport (GPI)	Runway Surface Type:	Asphalt
Airport Elevation:	2977 ft	Runway Surface Condition:	Dry
Runway Used:	02	IFR Approach:	ILS; Practice; Visual
Runway Length/Width:	9007 ft / 150 ft	VFR Approach/Landing:	Straight-in

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	48.310556, -114.255000

Administrative Information

Investigator In Charge (IIC):	Thomas M Little	Report Date:	04/25/2007
Additional Participating Persons:	Len Wheeler; Federal Aviation Administration; Helena, MT Bob Speicher; Federal Aviation Administration; 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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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](#).