



Aviation Investigation Final Report

Location:	BAY CITY, Michigan	Accident Number:	CHI98LA210
Date & Time:	June 21, 1998, 11:45 Local	Registration:	N9753B
Aircraft:	Cessna 180A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that during the landing roll a 'rumbling noise' was heard and the airplane pulled slightly to the left when he applied the brakes. He stated he pulled back on the elevator to no avail, and the airplane nosed down and flipped inverted. Post accident inspection revealed the front wheel on the left float separated from the airplane. The wheel attachment bracket then dug into the sod airstrip which resulted in the airplane nosing over. Metallurgical examination revealed the left caster axis bolt failed due to a fatigue fracture.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: a fatigue failure of the left nose gear caster bolt which resulted in a separation of the nose gear during landing.

Findings

Occurrence #1: MAIN GEAR COLLAPSED
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

1. (C) MISCELLANEOUS, BOLT/NUT/FASTENER/CLAMP/SPRING - FATIGUE
2. LANDING GEAR, NOSE GEAR ASSEMBLY - SEPARATION

Occurrence #2: NOSE OVER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Factual Information

On June 21, 1998, at 1145 eastern daylight time, a float equipped Cessna 180A, N9753B, operated by an airline transport rated pilot, nosed over on landing at a private airstrip in Bay City, Michigan. The pilot and passenger received minor injuries. The airplane was substantially damaged. The 14 CFR Part 91 personal flight was operating in visual meteorological conditions without a flight plan. The flight originated from the private airstrip at 1115 edt.

The pilot reported that during the landing roll a "rumbling noise" was heard and the airplane pulled slightly to the left when he applied the brakes. He stated he pulled back on the elevator to no avail, and the airplane nosed down and flipped inverted.

Post accident inspection of the airplane by an inspector from the Federal Aviation Administration (FAA) Grand Rapids, Michigan, Flight Standards District Office (FSDO), revealed the front wheel on the left float separated from the airplane. He also reported the wheel attachment bracket then dug into the sod airstrip which resulted in the airplane nosing over.

The left and right forward wheel casters and associated hardware were forwarded to the NTSB North Central Regional Office from the Inspector from the Grand Rapids FSDO. It was noted that the axis bolt on the left wheel caster was separated from the caster. These parts were then sent to the NTSB Metallurgical Laboratory, Washington, D.C., for inspection. The metallurgist who inspected the parts reported, "Examination disclosed that about 90 percent of the bolt [left caster] fracture was flat, smooth, and contained crack arrest positions indicative of fatigue crack propagation." "The SEM examination of the separated bolt pieces revealed that both origins of fatigue cracking in the bolt from the left bow gear were located at small steps, apparently created during machining of the transition radius between the thicker head and the thinner median portions of the bolt." See attached Materials Laboratory Factual Report for further details.

Pilot Information

Certificate:	Airline transport	Age:	46, Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	December 18, 1997
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	12000 hours (Total, all aircraft), 500 hours (Total, this make and model), 7000 hours (Pilot In Command, all aircraft), 240 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N9753B
Model/Series:	180A 180A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	50051
Landing Gear Type:	Amphibian	Seats:	4
Date/Type of Last Inspection:	May 24, 1998 Annual	Certified Max Gross Wt.:	2750 lbs
Time Since Last Inspection:	10 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	2249 Hrs	Engine Manufacturer:	Continental
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	O-470-K
Registered Owner:	ALAN W. HAYWARD	Rated Power:	230 Horsepower
Operator:		Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	15 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	135°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	27°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(PVT)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	11:15 Local	Type of Airspace:	Class G

Airport Information

Airport:	HAYWARD FIELD PVT	Runway Surface Type:	Grass/turf
Airport Elevation:	630 ft msl	Runway Surface Condition:	Dry
Runway Used:	9	IFR Approach:	
Runway Length/Width:	2275 ft / 75 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Minor	Latitude, Longitude:	43.59024,-83.879524(est)

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	JOHN MILLER; GRAND RAPIDS , MI
Original Publish Date:	February 16, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=10924

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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](#).