



Aviation Investigation Final Report

Location:	Broomfield, Colorado	Accident Number:	CEN18LA162
Date & Time:	May 7, 2018, 11:39 Local	Registration:	N3292Y
Aircraft:	Cessna 182	Aircraft Damage:	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	Injuries:	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot had conducted a personal flight to a grass airstrip, where he completed two uneventful full-stop landings before returning to the departure airport for a final landing. The pilot reported that on the final landing the airplane initially touched down on the main landing gear, but when the nose gear contacted the runway, the airplane immediately swerved right and nosed over in the grass beside the runway, resulting in substantial damage to the vertical stabilizer, rudder, and right wing strut. A witness reported seeing the airplane on final approach with its nose wheel rotated about 75° from its normal alignment.

The upper link arm of the nose landing gear torque link assembly had fractured near its upper end, which allowed the nose wheel to rotate freely on the landing gear strut. A laboratory examination revealed evidence of a downward bending overstress failure. Although the examination also identified an isolated area of preexisting fatigue on the right flange and a closed crack on the left flange, they did not contribute to the bending overstress failure of the upper torque link. Based on the available evidence, the upper link arm fractured earlier in the flight, and the pilot would have been unaware of the damage to the nose gear before the final landing.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The overstress fracture of the upper link of the nose landing gear torque link assembly, which resulted in the pilot's inability to maintain directional control during landing.

Findings

Aircraft	Nose/tail gear strut/axle - Failure
Aircraft	Nose/tail gear strut/axle - Capability exceeded
Aircraft	Directional control - Attain/maintain not possible

Factual Information

History of Flight

Other	Sys/Comp malf/fail (non-power) (Defining event)
Landing-flare/touchdown	Loss of control on ground
Landing-landing roll	Runway excursion
Landing-landing roll	Nose over/nose down

On May 7, 2018, about 1139 mountain daylight time, a Cessna 182E airplane, N3292Y, was substantially damaged when it was involved in an accident near Broomfield, Colorado. The commercial pilot sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot departed and flew to his private grass airstrip, where he made two uneventful full-stop landings before returning to the departure airport. The pilot reported that he conducted a normal approach to runway 30L, and that the airplane initially touched down on the main landing gear, but when the nose landing gear contacted the runway, the airplane immediately swerved right and nosed over in the grass beside the runway.

A witness reported seeing the airplane on final approach to runway 30L with its nose wheel rotated about 75° from its normal alignment. The airplane initially touched down on its main landing gear; however, when the nose wheel contacted the runway, it did not realign with the runway heading; the airplane immediately swerved to the right. The nose landing gear separated from the airplane about 100 yards into the right swerve. The airplane subsequently departed the right runway edge and nosed over.

An onsite examination revealed that the vertical stabilizer, rudder, and right wing strut were substantially damaged. The nose landing gear torque link assembly had fractured, which allowed the nose wheel to rotate freely on the landing gear strut. The fractured scissor assembly and associated hardware were retained for additional examination at the National Transportation Safety Board (NTSB) Materials Laboratory in Washington D.C.

The NTSB laboratory examination of the torque link assembly revealed a fracture of the upper link arm near its upper end. The fracture exhibited features consistent with a downward bending overstress failure. The examination also identified an isolated area of preexisting fatigue on the right flange and a closed crack on the left flange, neither of which contributed to the bending overstress failure of the upper torque link.

Pilot Information

Certificate:	Commercial; Flight engineer	Age:	86,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Lap only
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Waiver time limited special	Last FAA Medical Exam:	February 2, 2011
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 10000 hours (Total, all aircraft), 800 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N3292Y
Model/Series:	182 E	Aircraft Category:	Airplane
Year of Manufacture:	1962	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	18254292
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	Unknown	Certified Max Gross Wt.:	2348 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	O-470-R
Registered Owner:		Rated Power:	230 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	BJC,5673 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	11:45 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 12000 ft AGL	Visibility	30 miles
Lowest Ceiling:	Broken / 20000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	170°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.17 inches Hg	Temperature/Dew Point:	18°C / 5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Denver, CO (BJC)	Type of Flight Plan Filed:	None
Destination:	Denver, CO (BJC)	Type of Clearance:	VFR
Departure Time:	10:00 Local	Type of Airspace:	Class D

Airport Information

Airport:	Rocky Mountain Metropolitan BJC	Runway Surface Type:	Asphalt
Airport Elevation:	5673 ft msl	Runway Surface Condition:	Dry
Runway Used:	30L	IFR Approach:	None
Runway Length/Width:	7002 ft / 75 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	39.908889,-105.117225(est)

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew		
Additional Participating Persons:	Joshua L Pritchard; Federal Aviation Administration - Denver FSDO; Denver, CO		
Original Publish Date:	May 25, 2021	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=97192		

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