Aviation Investigation Final Report

Location:	Lago Vista, Texas	**Accident Number:**	CEN18LA250
Date & Time:	July 1, 2018, 20:10 Local	**Registration:**	N2469C
Aircraft:	Cessna 180	**Aircraft Damage:**	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airline transport pilot was conducting a personal flight when the airplane rolled left during the landing flare and then landed hard on the left main landing gear (MLG). The airplane bounced and landed hard and then bounced again on the left MLG. The left MLG spring separated from the fuselage on the third contact with the runway. The airplane subsequently ground looped to the left and came to rest heading about 180° from the original runway direction. The left main wing spar was substantially damaged when the left wingtip impacted the runway.

Postaccident materials examination of the fractured left MLG spring revealed a multiple-origin fatigue crack where the landing gear fixation hardware contacted the landing gear spring. The maintenance logbooks were not complete; therefore, it could not be determined if the left MLG spring had been replaced or overhauled since new. The separation of the left MLG gear spring during landing was likely due to the fatigue crack that reduced the overall strength of the landing gear spring.

Probable Cause and Findings

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

The separation of the left main landing gear spring during landing due to a preexisting fatigue crack.

Findings

Aircraft	Main landing gear - Failure
Aircraft	Main landing gear - Fatigue/wear/corrosion

Factual Information

History of Flight

Landing-flare/touchdown	Miscellaneous/other
Landing-flare/touchdown	Hard landing
Landing-flare/touchdown	Sys/Comp malf/fail (non-power) (Defining event)
Landing-flare/touchdown	Loss of control on ground
Landing-flare/touchdown	Part(s) separation from AC
Landing-flare/touchdown	Collision with terr/obj (non-CFIT)

On July 1, 2018, about 2010 central daylight time, a Cessna 180 single-engine airplane, N2469C, was substantially damaged while landing at Rusty Allen Airport (RYW), Lago Vista, Texas. The airline transport pilot and passenger were not injured. The airplane was registered to and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91. Day visual meteorological conditions prevailed for the personal flight that departed Childress Municipal Airport (CDS), Childress, Texas, about 1740 with RYW as the intended destination.

According to the pilot, the surface wind was from 120° magnetic at 7 knots, gusting 17 knots, when he entered the traffic pattern for runway 15 at RYW. He noted that the wind direction became variable between 090° magnetic and 170° magnetic while the airplane was on the downwind leg. The pilot made a normal approach for three-point landing with a left crosswind correction; however, the airplane rolled left during the landing flare and landed hard on the left main landing gear. The pilot reported that the airplane bounced and that he was unable to regain roll control before the airplane landed hard again on the left main landing gear. The airplane bounced a second time and the left main landing gear spring separated from the fuselage on the third contact with the runway. The airplane subsequently ground-looped to the left and came to rest heading about 180° from the original runway direction. The left main wing spar was substantially damaged when the left wingtip impacted the runway.

The fractured left main landing gear spring was examined by the National Transportation Safety Board Materials Laboratory to determine if preexisting damage had contributed to its separation during the accident. The laboratory examination revealed a fracture surface that exhibited a relatively flat surface with a distinct shear lip along the periphery. Further examination of the fracture surface revealed a chevron pattern indicating the direction of crack propagation from a thumbnail shaped initiation point. The location of the fatigue crack was adjacent to where the landing gear fixation hardware contacted the landing gear spring. The initiation point exhibited features consistent with a multiple-origin fatigue crack. The approximate dimension of the fatigue crack was 0.14 inch wide and 0.04 inch deep.

The pilot stated that the airplane logbooks are not complete; however, there was no documented work on the left landing gear since the logbooks began in 1993. Based on the available information, the pilot estimated that the airplane had accumulated a total service time of about 4,101 hours. Based on a lack of complete maintenance documentation, it is unknown if the left main landing gear spring had been replaced or overhauled since new.

Pilot Information

Certificate:	Airline transport	**Age:**	73,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	May 21, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 29, 2018
Flight Time:	(Estimated) 16267 hours (Total, all aircraft), 270 hours (Total, this make and model), 14749 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N2469C
Model/Series:	180	**Aircraft Category:**	Airplane
Year of Manufacture:	1954	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	30769
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	April 23, 2018 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	37 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4101 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-470-J
Registered Owner:		**Rated Power:**	225 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:	RYW,1230 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	20:15 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots / 16 knots	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	33°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Childress, TX (CDS)	**Type of Flight Plan Filed:**	None
Destination:	Lago Vista, TX (RYW)	**Type of Clearance:**	None
Departure Time:	17:40 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Rusty Allen Airport RYW	**Runway Surface Type:**	Asphalt
Airport Elevation:	1230 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	15	**IFR Approach:**	None
Runway Length/Width:	3808 ft / 50 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	30.498611,-97.969444(est)

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	Arnold Turner; Federal Aviation Administration; San Antonio, TX
Original Publish Date:	November 6, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=97673

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