



Aviation Investigation Final Report

Location:	Lone Pine, California	Accident Number:	WPR16LA018
Date & Time:	October 24, 2015, 15:00 Local	Registration:	N3124N
Aircraft:	Cessna 120	Aircraft Damage:	Substantial
Defining Event:	Part(s) separation from AC	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot was taking off from a dirt airstrip for a personal cross-country flight. He reported that, during the takeoff roll, it felt like the left main landing gear had hit soft soil and that the drag had increased. He attempted to correct for the condition, but the left MLG wheel continued to drag. The airplane then suddenly nosed over, which resulted in substantial damage to the wings and empennage.

Postaccident examination of the airplane revealed that the left MLG wheel axle was fractured, which resulted in the separation of the left MLG wheel. A detailed examination of the fracture surface identified a fatigue fracture that emanated from the outer surface of a circumferential weld between the lateral tube portion and the vertical plate portion of the axle. The investigation could not determine what event initiated the fatigue cracking; however, the origin areas were covered in zinc-chromate primer, which indicates that the axle was painted when the circumferential weld contained a preexisting crack.

Probable Cause and Findings

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

The fracture of the left main landing gear (MLG) wheel axle due to fatigue, which resulted in the separation of the left MLG wheel during takeoff from a dirt airstrip.

Findings

Aircraft	Main gear strut/axle/truck - Failure
Aircraft	Main gear strut/axle/truck - Fatigue/wear/corrosion
Environmental issues	Soft surface - Contributed to outcome

Factual Information

History of Flight

Takeoff	Part(s) separation from AC (Defining event)
Takeoff	Nose over/nose down

On October 24, 2015, about 1500 Pacific daylight time, a tailwheel-equipped Cessna 120 airplane, N3124N, sustained substantial damage following a nose over during takeoff at the Lone Pine Airport, Lone Pine, California. The private pilot was not injured. The flight was being operated as a personal cross country flight under the provisions of 14 Code of Federal Regulations Part 91 when the accident occurred. Visual meteorological conditions prevailed and no flight plan had been filed for the flight destined to Tehachapi, California.

In a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge, the pilot stated that he was on his way back home from a weekend trip. During the takeoff roll on the dirt runway, just after raising the tail off the ground, he felt the sensation of hitting soft soil with the left main landing gear. He attempted to correct for the condition, but the left main landing gear wheel continued to drag, and then the airplane suddenly nosed over. During the nose over, the airplane sustained substantial damage to the wings and empennage.

Postaccident examination of the airplane revealed that the left main landing gear wheel axle was fractured. A detailed examination of the fracture surface by the NTSB Materials Laboratory showed a fatigue fracture that emanated from the outer surface of a circumferential weld between the lateral tube portion and the vertical plate portion of the axle. The fatigue crack portions at the origin areas was covered with yellow deposits. The yellow deposits was identified by EDS spectra as zinc chromate, a compound found in primer paint.

Pilot Information

Certificate:	Private	Age:	24, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	June 25, 2012
Occupational Pilot:	No	Last Flight Review or Equivalent:	February 10, 2014
Flight Time:	420 hours (Total, all aircraft), 200 hours (Total, this make and model), 380 hours (Pilot In Command, all aircraft), 90 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N3124N
Model/Series:	120 NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	1947	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	13382
Landing Gear Type:	Tailwheel	Seats:	
Date/Type of Last Inspection:	March 28, 2015 Annual	Certified Max Gross Wt.:	1451 lbs
Time Since Last Inspection:	20 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	4162 Hrs at time of accident	Engine Manufacturer:	CONT MOTOR
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	C85 SERIES
Registered Owner:	On file	Rated Power:	85 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:	KBIH,4145 ft msl	Distance from Accident Site:	49 Nautical Miles
Observation Time:	22:56 Local	Direction from Accident Site:	342°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	160°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.04 inches Hg	Temperature/Dew Point:	24°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lone Pine, CA (O26)	Type of Flight Plan Filed:	None
Destination:	TEHACHAPI, CA (TSP)	Type of Clearance:	None
Departure Time:	15:00 Local	Type of Airspace:	

Airport Information

Airport:	LONE PINE O26	Runway Surface Type:	Dirt
Airport Elevation:	3710 ft msl	Runway Surface Condition:	Dry
Runway Used:	13	IFR Approach:	None
Runway Length/Width:	2391 ft / 90 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	36.58889,-118.0475(est)

Administrative Information

Investigator In Charge (IIC):	Shaver, Christopher
Additional Participating Persons:	FAA Reno FSDO; Reno, NV
Original Publish Date:	August 1, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=92240

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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](#).