Aviation Investigation Final Report

Location:	Kennesaw, Georgia	**Accident Number:**	ERA16LA073
Date & Time:	December 13, 2015, 16:33 Local	**Registration:**	N7675Q
Aircraft:	Cessna 310	**Aircraft Damage:**	Substantial
Defining Event:	Landing gear collapse	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot was landing the airplane after conducting a local flight. He reported that, during the landing roll, after a normal touchdown on the concrete runway, the left main landing gear (MLG) collapsed. The airplane then veered left off of the runway onto grass. The airplane sustained substantial damage to the left wing, left horizontal stabilizer, and the bottom fuselage near the tail section.

Examination of the airplane revealed that the left MLG down-lock bellcrank was fractured and had separated from its trunnion. The bellcrank bolt was sheared at the bolt head, consistent with overload. The upper end of the bellcrank remained attached to the outboard push-pull tube. The lower end of the bellcrank that attached to the rod end fitting at the lower side link was broken, consistent with a ductile tension failure. The fracture location was consistent with additional stress that would have been placed on the bellcrank if the landing gear had not been properly rigged. However, the damage to the landing gear precluded the ability to functionally check the gear or verify whether the landing gear system was properly rigged.

According to the airplane service manual, during each annual inspection, the landing gear's down-lock tension is to be checked. Review of the airplane's maintenance logbooks revealed that the last annual inspection was completed 1 year before the accident and that the airplane had been operated for 16 hours since that inspection. The maintenance logbook entries did not indicate that the landing gear system was checked during the inspection.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Inadequate inspection and rigging of the landing gear system, which resulted in the subsequent failure and collapse of the left main landing gear during landing.

Findings

Personnel issues	Scheduled/routine maintenance - Maintenance personnel
Aircraft	Main landing gear attach sec - Incorrect service/maintenance
Aircraft	Main landing gear attach sec - Failure
Personnel issues	Scheduled/routine inspection - Maintenance personnel
Aircraft	Scheduled maint checks - Inadequate inspection
Aircraft	Scheduled maint checks - Incorrect service/maintenance

Factual Information

History of Flight

Prior to flight	Aircraft maintenance event
Landing-landing roll	Landing gear collapse (Defining event)

On December 13, 2015, about 1633 eastern standard time, a Cessna 310Q, N7675Q, operated by a private individual, was substantially damaged following a collapse of the left landing gear during landing roll at Cobb County Airport-McCollum Field, Kennesaw, Georgia. The private pilot and a passenger were not injured. Visual meteorological conditions prevailed and no flight plan was filed for the local flight. The personal flight was operated under the provisions of Title 14 Code of Federal Regulations Part 91.

According to the pilot, he was cleared to land on runway 27, a 6,200 foot-long, by 100 foot-wide, concrete runway. He lowered the landing gear on downwind leg and observed three green indicator lights. After touchdown and during the landing rollout, the gear warning light illuminated and horn activated twice. The airplane continued to decelerate and was three quarters the way down runway 27, at a speed of around 35 knots, when the left landing gear collapsed. It then swerved to the left, departed the runway, and came to rest in the grass adjacent to the runway. The airplane sustained damage to the left wing, left horizontal stabilizer, and the bottom of the fuselage near the tail section, left elevator, and left aileron was bent.

Examination of the airplane by an Federal Aviation Administration inspector revealed that the left main landing gear down lock bellcrank was fractured and had separated from its respective trunnion. The bellcrank bolt was sheared at the bolt head consistent with overload. The trunnion forward attach point for the bellcrank was broken and not recovered. The upper end of the bellcrank remained attached to the outboard push-pull tube. The lower end of the bellcrank, which attached to the rod end fitting at the lower side link was broken consistent with a ductile tension failure.

Damage to the landing gear precluded the ability to functionally check or verify the landing gear system rigging. According to a representative from Cessna, the fracture location would be consistent with the additional stresses that would have been placed on the bellcrank with the landing gear having not been properly rigged. During an annual inspection, the down lock tension check is to be performed to verify the landing gear is adjusted correctly and locks in the down position.

Review of maintenance records revealed that the airplane had been operated for about 16 hours since its most recent annual inspection, which was performed on December 1, 2014. The maintenance log book records do not reflect that the landing gear system was checked.

Pilot Information

Certificate:	Private	**Age:**	69,Male
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	August 4, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 10, 2015
Flight Time:	1485 hours (Total, all aircraft), 153 hours (Total, this make and model), 1372 hours (Pilot In Command, all aircraft), 6 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N7675Q
Model/Series:	310 Q	**Aircraft Category:**	Airplane
Year of Manufacture:	1972	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	310Q0454
Landing Gear Type:	Retractable - Tricycle	**Seats:**	5
Date/Type of Last Inspection:	December 1, 2014 100 hour	**Certified Max Gross Wt.:**	5302 lbs
Time Since Last Inspection:	16 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	4700 Hrs	**Engine Manufacturer:**	CONT MOTOR
ELT:	C91 installed, not activated	**Engine Model/Series:**	IO-470 SERIES
Registered Owner:	On file	**Rated Power:**	260 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:	KRYY,1040 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	21:47 Local	**Direction from Accident Site:**	267°
Lowest Cloud Condition:	Scattered / 3700 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / 14 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	140°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	21°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kennesaw, GA (RYY)	**Type of Flight Plan Filed:**	None
Destination:	Kennesaw, GA (RYY)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class D

Airport Information

Airport:	COBB COUNTY-MC COLLUM FIELD RYY	**Runway Surface Type:**	Asphalt
Airport Elevation:	1040 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27	**IFR Approach:**	None
Runway Length/Width:	6200 ft / 100 ft	**VFR Approach/Landing:**	Full stop

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:**	34.013053,-84.597503(est)

Administrative Information

Investigator In Charge (IIC):	Boggs, Daniel
Additional Participating Persons:	Steven L Davidson; FAA, ATL FSDO; Atlanta, GA
Original Publish Date:	March 14, 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=92468