



Aviation Investigation Final Report

Location:	Gaithersburg, Maryland	Accident Number:	ERA17LA204
Date & Time:	June 8, 2017, 21:10 Local	Registration:	N3020M
Aircraft:	Piper PA 44-180	Aircraft Damage:	Substantial
Defining Event:	Landing gear collapse	Injuries:	4 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

According to the flight instructor, after an uneventful training flight, the airplane was returning to home base. After touchdown and during the landing roll, the airplane veered to the right of the centerline and stopped. The instructor exited the airplane and discovered that the right main landing gear had collapsed. Postaccident examination of the landing gear revealed that the right aft main landing gear trunnion bracket had failed and that the wing spar web was damaged. A visual examination of the fracture surfaces revealed that the landing gear trunnion bracket failed during an overstress event. A review of the logbooks did not reveal any recent maintenance to the gear assembly. The investigation could not determine when the overstress event occurred that resulted in the failure of right main landing gear trunnion bracket.

Probable Cause and Findings

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

The failure of the right main landing gear trunnion bracket due to an undetermined overstress event.

Findings

Aircraft	Main landing gear attach sec - Failure
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Factual Information

History of Flight

Landing-landing roll	Landing gear collapse (Defining event)
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On June 8, 2017, about 2110 eastern daylight time, a Piper PA-44-180 airplane, N3020M, was substantially damaged during landing rollout at Montgomery County Airpark (GAI), Gaithersburg, Maryland. The flight instructor and two student pilots were not injured. The instructional flight was conducted under the provisions of 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the local flight.

According to the flight instructor, he was returning to home base after a training flight that consisted of basic maneuvers, as well as two takeoffs and landings to a full stop. During the final approach the flight instructor configured the airplane for landing and briefed the student pilot. The touchdown was uneventful and during the landing roll the airplane began veering to the right of centerline. The airplane came to a full stop and the instructor performed an engine shutdown before exiting the airplane. On inspection of the airplane the flight instructor noted that the right main landing gear was collapsed and bent backwards towards the aft of the airplane.

Examination of the airplane by a Federal Aviation Administration inspector revealed that the aft right wing spar web was damaged during the landing sequence. Further examination of the landing gear revealed that the right aft main landing gear trunnion bracket failed. A visual examination of the fracture surfaces by the NTSB Materials laboratory revealed that there were no signs of fatigued failure within the trunnion, and the bracket failed during an overstress event. A review of the logbooks did not reveal any recent maintenance to the landing gear assembly.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	34,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	None
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	Toxicology Performed:	No
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	June 16, 2014
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 3, 2017
Flight Time:	(Estimated) 1281 hours (Total, all aircraft), 1281 hours (Total, this make and model), 1227 hours (Pilot In Command, all aircraft), 282 hours (Last 90 days, all aircraft), 110 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Student	Age:	37,Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):		Restraint Used:	None
Instrument Rating(s):		Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	December 15, 2016
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	600 hours (Total, all aircraft), 490 hours (Pilot In Command, all aircraft), 120 hours (Last 90 days, all aircraft), 94 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:		Age:	Male
Airplane Rating(s):		Seat Occupied:	Rear
Other Aircraft Rating(s):		Restraint Used:	None
Instrument Rating(s):		Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N3020M
Model/Series:	PA 44-180 180	Aircraft Category:	Airplane
Year of Manufacture:	1979	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	44-7995220
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	March 16, 2017 Annual	Certified Max Gross Wt.:	3801 lbs
Time Since Last Inspection:	668 Hrs	Engines:	2 Reciprocating
Airframe Total Time:	9467 Hrs as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	C91A installed, not activated	Engine Model/Series:	LO-360-E1A6D
Registered Owner:		Rated Power:	180 Horsepower
Operator:	On file	Operating Certificate(s) Held:	Pilot school (141)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night
Observation Facility, Elevation:	IAD,313 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	21:52 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:	Few / 8000 ft AGL	Visibility	10 miles
Lowest Ceiling:	Unknown / 10000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.94 inches Hg	Temperature/Dew Point:	22°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	WESTMINSTER, MD (DMW)	Type of Flight Plan Filed:	None
Destination:	GAITHERSBURG, MD (GAI)	Type of Clearance:	None
Departure Time:	20:40 Local	Type of Airspace:	Class G

Airport Information

Airport:	MONTGOMERY COUNTY AIRPARK GAI	Runway Surface Type:	Asphalt
Airport Elevation:	538 ft msl	Runway Surface Condition:	Dry
Runway Used:	14	IFR Approach:	None
Runway Length/Width:	4202 ft / 75 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 None	Latitude, Longitude:	39.168334,-77.166114(est)

Administrative Information

Investigator In Charge (IIC):	Alleyne, Eric
Additional Participating Persons:	Karl J Tubbs; FAA/FSDO; Baltimore, MD
Original Publish Date:	April 13, 2020
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=95358

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).