



Aviation Investigation Final Report

Location:	Glendale, Arizona	Accident Number:	WPR18LA044
Date & Time:	December 4, 2017, 18:35 Local	Registration:	N47536
Aircraft:	Piper PA 34-200T	Aircraft Damage:	Substantial
Defining Event:	Loss of control on ground	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor reported that, during touchdown, the left wing "dipped" and the instructor initiated an aborted landing. After determining that the airplane would not climb, the instructor reduced engine power and attempted to stop the airplane, which veered off the runway surface, impacted a sign, and came to rest in the dirt adjacent to the runway. The instructor later reported that the left main landing gear had "malfunctioned" upon touchdown.

Examination of the accident site revealed that the airplane landed left of the runway centerline with all three landing gear extended; the first indication of the collapsed gear was visible in a dirt area on the left side of the runway behind a runway distance marker.

Although examination of the left main landing gear revealed a small area of fatigue, the majority of the fracture surface exhibited signatures consistent with overstress failure; therefore, it is likely that the gear fractured due to overstress following the runway excursion and impact with a sign.

Probable Cause and Findings

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

The pilot's failure to maintain directional control of the airplane during the landing roll. Contributing to the accident was the fatigue of the left main landing gear assembly.

Findings

Aircraft	Directional control - Not attained/maintained
Personnel issues	Aircraft control - Pilot
Aircraft	Main landing gear - Fatigue/wear/corrosion

Factual Information

History of Flight

Landing-flare/touchdown	Loss of control on ground (Defining event)
Landing-landing roll	Loss of control on ground
Landing-landing roll	Collision with terr/obj (non-CFIT)

On December 5, 2017, about 1835 mountain standard time, a Piper PA-34-200T, N47536, was substantially damaged when it was involved in an accident near Glendale, Arizona. The flight instructor and the commercial pilot were not injured. The airplane was as a Title 14 Code of Federal Regulations Part 91 personal flight.

The instructor reported that the commercial pilot receiving instruction, who was flying the airplane, successfully completed two simulated engine failure maneuvers in the traffic pattern. During the third traffic pattern, the instructor initiated a right engine failure. While on base, the pilot extended the landing gear and verbally confirmed that all three landing gear lights were green, which indicated the landing gear were down and locked. Upon touchdown, the left wing "dipped" and the airplane bounced back into the air. The instructor took the flight controls and, in an attempt to climb, applied full power to both engines; however, the nose of the airplane dropped, and the airplane started to drift toward the left side of the runway. The instructor determined that the airplane would not climb, and he retarded both throttle and mixture controls and attempted to maintain directional control while simultaneously applying brakes to stop. The airplane departed the left side of the runway and came to a complete stop in the adjacent dirt area. The instructor also reported that "the left landing gear malfunctioned" upon touchdown.

Examination of the accident site revealed that the airplane landed with all three-landing gear extended; each tire's skid mark was visible on the runway surface to the left of the centerline. Additionally, the landing gear imprints were visible in the dirt where the airplane veered off the runway. The runway edge light and the 1,000-ft distance marker showed evidence of the left propeller/nose impacts. The left main landing gear collapsed after it impacted the distance marker, as evidenced by wide tire marks as the airplane started to roll on the sidewall of the left tire.

Examination of the left main landing gear fracture surface revealed slant fractures consistent with an overstress failure. One small area of the fracture surface, coincident with the forging flash line, exhibited a flat fracture surface. A sample that contained the flat fracture area was further examined under the scanning electron microscope, which revealed striations consistent with a fatigue fracture.

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	38, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):		Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	March 21, 2017
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	May 2, 2017
Flight Time:	(Estimated) 839 hours (Total, all aircraft), 158.8 hours (Total, this make and model), 745.2 hours (Pilot In Command, all aircraft), 262.2 hours (Last 90 days, all aircraft), 105.5 hours (Last 30 days, all aircraft), 1.2 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	29, Female
Airplane Rating(s):	Single-engine land; Single-engine sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	November 19, 2016
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 8, 2016
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N47536
Model/Series:	PA 34-200T 220T	Aircraft Category:	Airplane
Year of Manufacture:	1977	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	34-7770412
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	December 2, 2017 100 hour	Certified Max Gross Wt.:	4751 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:		Engine Manufacturer:	CONT MOTOR
ELT:	Installed, not activated	Engine Model/Series:	TSIO-360 SER
Registered Owner:	ANGEL AVIATION INC	Rated Power:	200 Horsepower
Operator:	ANGEL AVIATION INC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KGEU,1066 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	16:50 Local	Direction from Accident Site:	77°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Broken / 12000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	170°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.05 inches Hg	Temperature/Dew Point:	18°C / -6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Glendale, AZ (GEU)	Type of Flight Plan Filed:	None
Destination:	Glendale, AZ (GEU)	Type of Clearance:	None
Departure Time:	17:15 Local	Type of Airspace:	Class D

Airport Information

Airport:	GLENDALE MUNI GEU	Runway Surface Type:	Asphalt
Airport Elevation:	1071 ft msl	Runway Surface Condition:	Dry
Runway Used:	01	IFR Approach:	None
Runway Length/Width:	7150 ft / 100 ft	VFR Approach/Landing:	Touch and go;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	33.526943,-112.29528(est)

Administrative Information

Investigator In Charge (IIC):	Smith, Maja
Additional Participating Persons:	Mark Pritchett; FSDO; Scottsdale, AZ
Original Publish Date:	February 2, 2021
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=96439

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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](#).