



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Umatilla, Florida	Accident Number:	ERA18LA178
Date & Time:	June 14, 2018, 09:50 Local	Registration:	N56213
Aircraft:	Piper PA 34-200	Aircraft Damage:	Substantial
Defining Event:	Loss of control on ground	Injuries:	1 Minor, 1 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The pilot receiving instruction and the flight instructor were conducting an instructional flight. During the approach to the destination airport, the pilot receiving instruction lowered the landing gear, and the instructor confirmed that the down-and-locked indications were all green. After touchdown and during the landing roll, the airplane suddenly entered an uncommanded and violent right swerve, which the pilot receiving instruction could not correct with full left brake, rudder, and aileron inputs. Subsequently, the airplane departed the runway and impacted a drainage ditch.

Postaccident examination of the airplane revealed that the upper and lower torque links of the right main landing gear (MLG) were undamaged and not attached; the attachment hardware was not in place nor recovered. Examination of the left MLG revealed that the upper and lower torque links remained connected, but a cotter pin was not found installed through the castellated nut and drilled bolt.

A review of the airplane's maintenance logbooks revealed that, about 1 month before the accident, the attachment hardware for the left and right torque links was replaced, which included the installation of cotter pins. The mechanic who signed off the inspection stated that, during subsequent maintenance, both torque links' cotter pins were removed and that, although the attachment hardware at both torque links was subsequently tightened, neither of the torque link's cotter pins were installed before the airplane was approved for return to service. Therefore, it is likely that the right MLG torque link attachment hardware loosened over time due to the lack of a cotter pin and eventually separated from the airplane, which resulted in the torque link becoming disconnected and led to the pilot's subsequent inability to maintain directional control during landing.

Probable Cause and Findings

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

Maintenance personnel 's failure to complete and verify the proper installation of the main landing gear (MLG) torque links' attachment hardware, which resulted in the right MLG torque link disconnecting and the pilot's subsequent inability to maintain directional control during the landing roll.

Findings

Aircraft	Main gear strut/axle/truck - Incorrect service/maintenance
Aircraft	Main gear strut/axle/truck - Inadequate inspection
Personnel issues	Installation - Maintenance personnel
Personnel issues	Post maintenance inspection - Maintenance personnel
Personnel issues	Forgotten action/omission - Maintenance personnel
Aircraft	Directional control - Attain/maintain not possible

Factual Information

History of Flight

Prior to flight	Aircraft maintenance event
Landing-landing roll	Loss of control on ground (Defining event)
Landing-landing roll	Attempted remediation/recovery
Landing-landing roll	Runway excursion
Landing-landing roll	Collision with terr/obj (non-CFIT)

On June 14, 2018, about 0950 eastern daylight time, a Piper PA-34-200, N56213, was substantially damaged during a runway excursion while landing at Umatilla Municipal Airport (X23), Umatilla, Florida. The flight instructor was not injured while the pilot undergoing instruction (PUI) sustained a minor injury. The airplane was owned by Elite Florida AC LLC, and operated by Spaceport Aviation under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed, and no flight plan was filed for the instructional flight, which originated from Space Coast Regional Airport (TIX), Titusville, Florida, about 0845, and was destined for X23.

The PUI and/or the flight instructor stated that the flight proceeded to X23 where the downwind leg of the airport traffic pattern was extended, and the required before landing checks were performed. The PUI stated that he extended the landing gear, and the flight instructor confirmed there were 3 green lights displayed indicating all landing gears were down and locked. After touchdown on runway 01 at 80 miles-per-hour, the airplane suddenly began an uncommanded and violent swerve to the right, which the PUI could not correct with full left brake, rudder, and aileron inputs. The airplane departed the runway and impacted a drainage ditch. The PUI stated that while assessing the airplane with the mechanic from X23, they noticed the securing hardware for the upper and lower torque links of the right main landing gear was not in place.

According to a Federal Aviation Administration inspector who responded to the accident site, a search was made for the missing right main landing gear hardware and it was not located. He inspected both disconnected torque links and did not see damage to either, nor did he see scoring damage to the inner diameter of the right main landing gear torque link brass sleeve that the attachment bolt passes through to secure the torque links together. The brass sleeve was measured and found to be round and not elongated. He also inspected the left main landing gear and found its torque link secured with the bolt, washer and castellated nut, but the cotter pin was missing.

A review of the airframe maintenance records revealed during the airplane's last annual inspection which was signed off as being completed on May 16, 2018, new hardware was installed in both main landing gear torque links. The mechanic who signed off the inspection stated that as part of the new hardware at the torque links, cotter pins were installed, but because of clearance issues during subsequent gear retraction testing, the hardware at both torque links was loosened to adjust each brake hose, then the hardware was tightened after adjustment, but the cotter pins at both gear torque links were not installed.

A review of the airplane's Pilot's Operating Handbook revealed that as part of the preflight inspection, it specified a visual inspection of the right main landing gear for leaks, the tires for inflation and wear, and the landing gear strut piston for proper extension. There was no direct mention to inspect the torque links for security.

Flight instructor Information

Certificate:	Airline transport; Commercial; Flight instructor	Age:	54, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	August 30, 2017
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	September 1, 2016
Flight Time:	6922 hours (Total, all aircraft), 84 hours (Total, this make and model), 5339 hours (Pilot In Command, all aircraft), 154 hours (Last 90 days, all aircraft), 47 hours (Last 30 days, all aircraft), 5.3 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Commercial	Age:	56, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Unknown
Instrument Rating(s):	Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	March 28, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	9307 hours (Total, all aircraft), 20 hours (Total, this make and model), 8015 hours (Pilot In Command, all aircraft), 20 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N56213
Model/Series:	PA 34-200 200	Aircraft Category:	Airplane
Year of Manufacture:	1973	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	347350304
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	May 16, 2018 Annual	Certified Max Gross Wt.:	4000 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	4031.44 Hrs as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	LIO-360-C1E6
Registered Owner:		Rated Power:	200 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KLEE, 76 ft msl	Distance from Accident Site:	10 Nautical Miles
Observation Time:	09:53 Local	Direction from Accident Site:	234°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	Unknown / Unknown
Wind Direction:	140°	Turbulence Severity Forecast/Actual:	Unknown / Unknown
Altimeter Setting:	30.12 inches Hg	Temperature/Dew Point:	27°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Titusville, FL (TIX)	Type of Flight Plan Filed:	None
Destination:	Umatilla, FL (X23)	Type of Clearance:	None
Departure Time:	08:45 Local	Type of Airspace:	

Airport Information

Airport:	Umatilla Municipal Airport X23	Runway Surface Type:	Asphalt
Airport Elevation:	107 ft msl	Runway Surface Condition:	Dry
Runway Used:	01	IFR Approach:	None
Runway Length/Width:	2500 ft / 60 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor, 1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 1 None	Latitude, Longitude:	28.924165,-81.65139(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Donald R Andrews; FAA/FSDO; Orlando, FL
Original Publish Date:	November 6, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=97564

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](#).