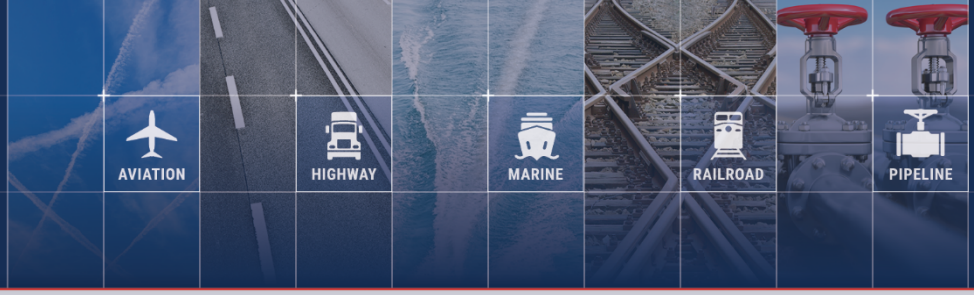

Aviation Investigation Final Report

Location:	Atlanta, Georgia	**Accident Number:**	ERA18LA176
Date & Time:	May 29, 2018, 13:45 Local	**Registration:**	N86507
Aircraft:	Cessna 337	**Aircraft Damage:**	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot was conducting a cross-country, personal flight. He stated that, while on approach to the destination airport, he was unable to extend the landing gear. He declared an emergency and attempted to pump the landing gear down via the emergency gear-extension handle to no avail. He then observed a large puddle of red hydraulic fluid on the floorboards near the hydraulic pump. The pilot realized that he would not be able to extend the gear and conducted a gear-up landing, which resulted in substantial damage to the lower fuselage.

Postaccident examination of the airplane revealed that the hydraulic reservoir was nearly empty. When the emergency handle was activated, a stream of hydraulic fluid sprayed from the surface of the aluminum hydraulic line connecting the emergency handle/pump to the electric hydraulic pump that was mounted under and behind the pilot's instrument panel. Magnified visual examination of the leaking hydraulic line revealed an area of corrosion and pitting on the aluminum surface, which likely resulted in a loss of hydraulic pressure and the pilot's inability to extend the landing gear.

Probable Cause and Findings

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

An area of pitting and corrosion on the surface of the aluminum hydraulic line connecting the emergency handle/pump to the electric hydraulic pump, which resulted in a loss of hydraulic pressure and the pilot's inability to extend the landing gear.

Findings

Aircraft	Hydraulic fluid - Fluid level
Aircraft	Main landing gear - Failure
Aircraft	Main landing gear - Fatigue/wear/corrosion

Factual Information

History of Flight

Approach	Miscellaneous/other
Landing	Sys/Comp malf/fail (non-power) (Defining event)

On May 29, 2018, about 1345 eastern daylight time, a Cessna 337E, N86507, was substantially damaged during a gear-up landing at the DeKalb-Peachtree Airport (PDK), Atlanta, Georgia. The private pilot and the passenger were not injured. The airplane was co-owned and operated by the pilot as a Title 14 Code of Federal Regulations Part 91 personal flight. Visual meteorological conditions prevailed, and no flight plan was filed for the flight that departed North Perry Airport (HWO), Hollywood, Florida, about 0945.

The pilot stated that he was unable to extend the landing gear while on approach to the airport. He declared an emergency and flew north of the airport where he attempted to pump the landing gear down via the emergency gear-extension handle. The pilot was unable to pump the gear down and observed a large puddle of red hydraulic fluid on the floorboards near the hydraulic pump. The pilot realized that he would not be able to extend the gear and made a gear-up landing on runway 21R, which resulted in substantial damage to the lower fuselage.

A postaccident examination of the airplane revealed that when the emergency hydraulic pump actuator, located between the cockpit seats, was activated very little hydraulic resistance was noted when the emergency gear-extension handle was pumped. The hydraulic reservoir was nearly depleted. Further examination revealed that, as the emergency handle was activated, a stream of hydraulic fluid sprayed from the surface of the aluminum line connecting the emergency handle/pump to the electric hydraulic pump that was mounted under and behind the instrument panel of the pilot's side. The line was about 23 inches long. The plastic sheathing protecting the line was intact and removed to facilitate examination of the leaking area. There were no areas of line chafing noted on the line and no adjacent structure where chafing would occur. The leaking hydraulic line was removed and examined. A visual examination using 10x magnification revealed an area of corrosion and pitting on the aluminum surface. The affected area was about 0.75 inches long and covered about half the circumference of the tube.

The pilot held a private pilot certificate with a rating for airplane single-engine land. His last Federal Aviation Administration (FAA) second-class medical was issued on December 12, 2017.

Weather reported at the airport at 1359 included wind from 140° at 9 knots, visibility 10 miles, few clouds at 3,800 ft, scattered clouds at 4,900 ft, broken clouds at 6,000 ft, temperature 26° C, dew point 22° C, and an altimeter setting of 29.82 inHg.

Pilot Information

Certificate:	Private	**Age:**	45,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:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	December 12, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 29, 2018
Flight Time:	3087 hours (Total, all aircraft), 387 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N86507
Model/Series:	337 E	**Aircraft Category:**	Airplane
Year of Manufacture:	1969	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	33701212
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	June 1, 2016 Annual	**Certified Max Gross Wt.:**	4440 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	1925.2 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360 SER
Registered Owner:	On file	**Rated Power:**	210 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:	PDK,998 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	13:59 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Few / 3800 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 6000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	140°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.81 inches Hg	**Temperature/Dew Point:**	26°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Atlanta, GA (PDK)	**Type of Flight Plan Filed:**	None
Destination:	Atlanta, GA (PDK)	**Type of Clearance:**	VFR
Departure Time:		**Type of Airspace:**	Class D

Airport Information

Airport:	Dekalb-Peachtree PDK	**Runway Surface Type:**	Asphalt
Airport Elevation:	998 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	21R	**IFR Approach:**	None
Runway Length/Width:	3746 ft / 150 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:**	33.875556,-84.30194(est)

Administrative Information

Investigator In Charge (IIC):	Read, Leah
Additional Participating Persons:	Vincent English; FAA/FSDO; Atlanta, GA
Original Publish Date:	November 6, 2019
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=97557