



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Albuquerque, New Mexico	<b>Accident Number:</b>	WPR21LA323
<b>Date &amp; Time:</b>	August 15, 2021, 14:57 Local	<b>Registration:</b>	N8029G
<b>Aircraft:</b>	Cessna 177RG	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Sys/Comp malf/fail (non-power)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot reported that, shortly after takeoff, the airplane was not performing as expected. He observed that the main landing gear did not fully retract so he diverted to a nearby airport. Despite multiple attempts to cycle the landing gear, which included utilizing the emergency landing gear extension procedures, he was able to extend the nose landing gear, but he was unable to obtain a positive down and locked indication on the main landing gear. As fuel levels decreased, the pilot landed the airplane with the main landing gear in the retracted position.

A postaccident examination of the airplane revealed hydraulic fluid on the undercarriage of the airplane behind the nose landing gear wheel well. The nose landing gear up hydraulic flex line showed signs of leakage. The hydraulic flex line was disconnected, and pressure tested with 200 ft pounds of nitrogen. A leak in the hydraulic flex line was identified near the top of the line, but well below the fitting. It is likely that the identified leak in the hydraulic line led to a loss of hydraulic fluid and did not allow the main landing gear to extend and lock into place. As a result, the pilot made a gear up landing on the runway.

## Probable Cause and Findings

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

The failure of the nose gear hydraulic flex line, which resulted in a loss of hydraulic fluid which prevented the main landing gear from fully extending and locking into place during landing.

## Findings

Aircraft	(general) - Failure
Aircraft	Main landing gear - Inoperative

# Factual Information

## History of Flight

Landing	Sys/Comp malf/fail (non-power) (Defining event)
Landing	Landing gear collapse

On August 15, 2021, about 1457 mountain daylight time, a Cessna C177RG, N8029G, was substantially damaged when it was involved in an accident at Albuquerque International Sunport Airport (ABQ), Albuquerque, New Mexico. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that, shortly after departure from St. Johns Industrial Air Park (KSJN), St Johns, Arizona, the airplane did not perform as expected. The pilot said that he noticed that the main landing gear did not completely retract, so he diverted to ABQ. Despite multiple attempts to cycle the landing gear, which included utilizing the emergency landing gear extension procedures, he was able to extend the nose landing gear, but he was unable to obtain a positive down and locked indication on the main landing gear. As fuel levels decreased, the pilot elected to land the airplane with the main landing gear in the retracted position.

Postaccident examination of the airplane by a Federal Aviation Administration inspector revealed that hydraulic fluid on the undercarriage of the airplane behind the nose landing gear wheel well and the fluid level for the landing gear power pack indicated empty. Hydraulic fluid was added to the landing gear power pack and a landing gear swing test was performed. The landing gear extended but would not retract. The nose landing gear up hydraulic flex line showed signs of leakage. The hydraulic flex line was disconnected, and pressure tested with 200 ft pounds of nitrogen. A leak in the hydraulic flex line was identified near the top of the line, but well below the fitting. During normal operation, the hydraulic flex line is pressurized to about 1,500 ft pounds. No issues were noted with the emergency landing gear extension system.

A review of the airplane’s maintenance records could not determine the age of the landing gear hydraulic flex line or if any maintenance had been performed on the landing gear hydraulic flex line.

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	23,Male
<b>Airplane Rating(s):</b>	Single-engine land; Single-engine sea	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	December 23, 2020
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	July 14, 2020
<b>Flight Time:</b>	(Estimated) 1525 hours (Total, all aircraft), 400 hours (Total, this make and model), 1156 hours (Pilot In Command, all aircraft), 68 hours (Last 90 days, all aircraft), 48 hours (Last 30 days, all aircraft), 8 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N8029G
<b>Model/Series:</b>	177RG	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1970	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	177RG0029
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	June 17, 2021 Annual	<b>Certified Max Gross Wt.:</b>	2800 lbs
<b>Time Since Last Inspection:</b>	8 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2436 Hrs	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>		<b>Engine Model/Series:</b>	IO-360-A1B6D
<b>Registered Owner:</b>	Bryce J. Anderson	<b>Rated Power:</b>	200 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KABQ,5314 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	14:52 Local	Direction from Accident Site:	296°
Lowest Cloud Condition:	Few / 7000 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	7 knots / None	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	190°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.16 inches Hg	Temperature/Dew Point:	29°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	St Johns, AZ (KSJN)	Type of Flight Plan Filed:	
Destination:	Sayre, OK (304)	Type of Clearance:	VFR flight following
Departure Time:	11:50 Local	Type of Airspace:	Class C

## Airport Information

Airport:	ALBUQUERQUE INTL SUNPORT ABQ	Runway Surface Type:	Concrete
Airport Elevation:	5354 ft msl	Runway Surface Condition:	Dry
Runway Used:	21	IFR Approach:	None
Runway Length/Width:	10000 ft / 150 ft	VFR Approach/Landing:	Full stop;Traffic pattern

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	35.038932,-106.60826

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Gutierrez, Eric
<b>Additional Participating Persons:</b>	Vernon Rockett; FAA; Albuquerque, NM
<b>Original Publish Date:</b>	February 24, 2023
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=103708">https://data.nts.gov/Docket?ProjectID=103708</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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](#).