



Aviation Investigation Final Report

Location:	Denver, Colorado	Accident Number:	CEN21LA009
Date & Time:	October 2, 2020, 10:35 Local	Registration:	N7798M
Aircraft:	Mooney M20F	Aircraft Damage:	Substantial
Defining Event:	Landing gear collapse	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that during takeoff the cabin door opened and during the climb and on raising the landing gear, he failed to receive the gear “UP” light. The passenger attempted to close the door while the pilot recycled the landing gear. The pilot reported that gear had likely not retracted based on the airplane’s failure to climb and gain airspeed as it would have, had the gear retracted. The pilot decided to return to the airport and contacted the air traffic control tower to visually assess the gear position. While maneuvering for the air traffic control tower to verify the gear, the pilot continued to cycle the gear up and down receiving no indications of a change in the gear position. The pilot reported the floorboard landing gear position indicator showed “GEAR DOWN” giving him the indication that the landing gear was down. The air traffic controller advised the pilot the gear appeared to be in the down position and cleared the airplane to land. The airplane touched down near the 1,000-foot marker on the runway on the two main wheels. A “split second” later, the right main and nose landing gear collapsed, and the airplane slid off the right side of the runway impacting a runway light with the right wing. The airplane’s right wing sustained substantial damage. A postaccident examination of the landing gear showed the landing gear motor would engage for about 5 seconds and then stop leaving the landing gear in an intermediate position. A subsequent bench test of the landing gear motor resulted in the motor failing to engage or move, indicative of it being inoperative.

Probable Cause and Findings

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

Failure of the landing gear motor that prevented the gear from extending fully to the down and locked position, which resulted in a gear collapse on landing and a subsequent loss of directional control.

Findings

Aircraft

Gear extension and retract sys - Failure

Factual Information

History of Flight

Landing	Landing gear collapse (Defining event)
----------------	--

Pilot Information

Certificate:	Commercial	Age:	39, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	November 13, 2019
Occupational Pilot:	No	Last Flight Review or Equivalent:	June 24, 2020
Flight Time:	467 hours (Total, all aircraft), 114 hours (Total, this make and model), 405 hours (Pilot In Command, all aircraft), 101 hours (Last 90 days, all aircraft), 27 hours (Last 30 days, all aircraft)		

Passenger Information

Certificate:		Age:	
Airplane Rating(s):		Seat Occupied:	Right
Other Aircraft Rating(s):		Restraint Used:	3-point
Instrument Rating(s):		Second Pilot Present:	No
Instructor Rating(s):		Toxicology Performed:	
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	Registration:	N7798M
Model/Series:	M20F NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	1974	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	22-0040
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	June 19, 2020 Annual	Certified Max Gross Wt.:	2740 lbs
Time Since Last Inspection:	118.13 Hrs	Engines:	Reciprocating
Airframe Total Time:	3286.85 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	C91A installed, not activated	Engine Model/Series:	IO-360-A1A
Registered Owner:	On file	Rated Power:	200 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:	KAPA, 5885 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	10:53 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 22000 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.24 inches Hg	Temperature/Dew Point:	19°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Denver, CO	Type of Flight Plan Filed:	None
Destination:	Denver, CO	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class D

Airport Information

Airport:	CENTENNIAL APA	Runway Surface Type:	Asphalt
Airport Elevation:	5884 ft msl	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	10001 ft / 100 ft	VFR Approach/Landing:	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	39.58,-104.85(est)

Administrative Information

Investigator In Charge (IIC): Liedler, Courtney

Additional Participating Persons:

Original Publish Date: July 15, 2021

Last Revision Date:

Investigation Class: [Class 4](#)

Note: The NTSB did not travel to the scene of this accident.

Investigation Docket: <https://data.ntsb.gov/Docket?ProjectID=102105>

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](#).