



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Great Falls, Montana	<b>Accident Number:</b>	GAA18CA438
<b>Date &amp; Time:</b>	July 22, 2018, 09:15 Local	<b>Registration:</b>	N7845V
<b>Aircraft:</b>	Mooney M20E	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Landing gear not configured	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## Analysis

The pilot reported that they were conducting a "familiarization/instructional flight" in the retractable-gear airplane and that this was his first flight with the instructor.

After practicing commercial maneuvers, they entered the traffic pattern, and the instructor wanted to acquaint himself with the "Johnson bar"-style landing gear system. The "Johnson bar" (manually operated retraction/extension handle) is pulled up to extend the landing gear and pushed down to retract the landing gear. The instructor then pushed the Johnson bar down in what he thought was the landing gear extended position. The pilot added that, although he twice verified that the landing gear was extended, the airplane landed with the landing gear retracted.

The airplane sustained substantial damage to the fuselage.

The flight instructor reported that the flight was briefed as a "familiarization" flight because he was unfamiliar with the airplane. He added that the pilot had time in the airplane, and the intent was for him to become familiar with the performance and limitations of the airplane before he began conducting commercial training for the pilot. He added that he became distracted with the operation of the flaps and did not verify the landing gear position indicator lights located on the left side of the cockpit. He also added that he did not hear the gear warning horn.

The pilot and flight instructor reported that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

## Probable Cause and Findings

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

The flight instructor's incorrect use of the landing gear system and his and the pilot's failure to ensure that the landing gear was extended, which resulted in a gear-up landing. Contributing to the accident was the flight instructor's unfamiliarity with the airplane.

## Findings

<b>Aircraft</b>	Configuration - Incorrect use/operation
<b>Aircraft</b>	Gear extension and retract sys - Incorrect use/operation
<b>Personnel issues</b>	Use of equip/system - Instructor/check pilot
<b>Personnel issues</b>	Monitoring equip/instruments - Student/instructed pilot
<b>Personnel issues</b>	Monitoring equip/instruments - Instructor/check pilot
<b>Personnel issues</b>	Knowledge of equipment - Instructor/check pilot

## Factual Information

### History of Flight

Landing	Landing gear not configured (Defining event)
Landing	Abnormal runway contact

### Pilot Information

Certificate:	Private	Age:	27,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Lap only
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	March 4, 2016
Occupational Pilot:	No	Last Flight Review or Equivalent:	February 1, 2018
Flight Time:	(Estimated) 300.7 hours (Total, all aircraft), 24.3 hours (Total, this make and model), 300.7 hours (Pilot In Command, all aircraft), 36.5 hours (Last 90 days, all aircraft), 19.7 hours (Last 30 days, all aircraft)		

### Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	55,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Lap only
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	July 13, 2017
Occupational Pilot:	No	Last Flight Review or Equivalent:	February 18, 2017
Flight Time:	(Estimated) 2485 hours (Total, all aircraft), 0 hours (Total, this make and model), 2388 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Mooney	<b>Registration:</b>	N7845V
<b>Model/Series:</b>	M20E No Series	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1964	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	466
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	January 12, 2018 Annual	<b>Certified Max Gross Wt.:</b>	2575 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	6447.87 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	IO-360-A2A
<b>Registered Owner:</b>		<b>Rated Power:</b>	200 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KGTF, 3657 ft msl	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>	15:53 Local	<b>Direction from Accident Site:</b>	241°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	4 knots /	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	230°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.25 inches Hg	<b>Temperature/Dew Point:</b>	19°C / 4°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Great Falls, MT (GTF )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Great Falls, MT (GTF )	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	08:00 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	GREAT FALLS INTL GTF	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	3680 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	21	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	10502 ft / 150 ft	<b>VFR Approach/Landing:</b>	Full stop;Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	47.482498,-111.356666(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Swenson, Eric
<b>Additional Participating Persons:</b>	Thomas Hillesland; FAA; Helena, MT
<b>Original Publish Date:</b>	March 18, 2019
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=97881">https://data.nts.gov/Docket?ProjectID=97881</a>

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](#).