



Aviation Investigation Final Report

Location:	Ontario, Oregon	Accident Number:	WPR21LA362
Date & Time:	March 28, 2021, 12:00 Local	Registration:	N235X
Aircraft:	Maule MX-7-235	Aircraft Damage:	Substantial
Defining Event:	Dragged wing/rotor/float/other	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that, when he applied brakes during the landing roll, there was no pressure on the right brake pedal. The airplane veered left and ground looped, resulting in substantial damage. The pilot reported that he observed hydraulic fluid on the right main landing gear after the accident.

The accident was not reported until several months later. An examination of the parts retained by the pilot's mechanic, including the brake, brake disc, and fittings did not reveal any preimpact mechanical anomalies or failures that would have precluded normal operation. The hydraulic fluid observed on the landing gear suggests the brake failure may have resulted from a leak at either the hydraulic line or the hydraulic inlet fitting to the brake; however, these items were discarded or replaced before the event was reported and could not be examined. The cause of the leak and right brake failure could not be determined due to a lack of available evidence.

Probable Cause and Findings

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

A loss of hydraulic fluid and failure of the right brake for reasons that could not be determined due to a lack of available evidence.

Findings

Not determined	(general) - Unknown/Not determined
Aircraft	Brake - Failure
Aircraft	Hydraulic fluid - Fluid level

Factual Information

History of Flight

Landing-landing roll	Dragged wing/rotor/float/other (Defining event)
Landing-landing roll	Sys/Comp malf/fail (non-power)

On March 28, 2021, about 1200 Pacific daylight time, a Maule MX-7-235, N235X, was substantially damaged when it was involved in an accident near Ontario, Oregon. The private pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations (CFR)* Part 91 personal flight.

According to the pilot, he pressed the left and right toe brakes to decelerate the airplane during landing roll following an uneventful touchdown. The left brake pedal functioned normally, while the right brake pedal provided no resistance and depressed to the floor. The airplane immediately veered to the left, the right wing contacted the ground, and the airplane ground looped. After the pilot exited the airplane, he observed hydraulic fluid on the right main landing gear wheel.

The ground loop was not reported to the NTSB until about 6 months after the accident.

Photos provided by the accident pilot revealed substantial damage to the right aileron and elevator.

The pilot reported that he was ferrying the airplane from Utah to his home after purchasing it when the accident occurred. One month before the accident, he told the owner that the right brake pedal on the pilot’s side didn’t work. He reported that the pedal movement was similar to what occurred during the accident. The owner informed the pilot that he would have his mechanic look at it; however, when the pilot arrived the day before the accident to take the airplane, he discovered that the brake issue had not been resolved. The owner’s mechanic then bled the brake, which seemed to resolve the issue at the time. The pilot then flew for 2 hours that day and did not experience any anomalies or failures with the brake system when he landed. He stated that he taxied the airplane the length of the runway twice and brought the airplane to a full stop to test the brakes before departing on the accident flight and noted that each pedal had equal pressure.

The airplane’s brake system comprised both master and slave cylinders at the pilot and front seat passenger’s rudder pedal positions, connected to brake lines that feed into the brake through the hydraulic inlet port. The system is actuated by hydraulic pressure that extends the brake piston at the brake. This applies pressure to the brake disc on the wheel, which slows the airplane.

The last annual inspection was completed 8 months before the accident.

An examination of the brake system did not reveal any preimpact mechanical anomalies with the retained parts. The examination did not include the original inlet fitting from the accident airplane or hydraulic brake lines, as those parts had been discarded by the mechanic before the accident was reported. The original master and slave cylinders were not replaced but were successfully tested by the mechanic after new brake system components were installed.

Pilot Information

Certificate:	Private	Age:	63,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:	
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	April 9, 2020
Occupational Pilot:	No	Last Flight Review or Equivalent:	March 27, 2021
Flight Time:	524 hours (Total, all aircraft), 75 hours (Total, this make and model), 524 hours (Pilot In Command, all aircraft), 5.9 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Maule	Registration:	N235X
Model/Series:	MX-7-235	Aircraft Category:	Airplane
Year of Manufacture:	1987	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	10054C
Landing Gear Type:	Tailwheel	Seats:	4
Date/Type of Last Inspection:	July 1, 2020 Annual	Certified Max Gross Wt.:	2500 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3141 Hrs as of last inspection	Engine Manufacturer:	Lycoming Engines
ELT:	C126 installed, not activated	Engine Model/Series:	IO-540
Registered Owner:	On file	Rated Power:	235 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:	KONO,2193 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	11:53 Local	Direction from Accident Site:	1°
Lowest Cloud Condition:	Clear	Visibility	4 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	170°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.09 inches Hg	Temperature/Dew Point:	17°C / 1°C
Precipitation and Obscuration:	Moderate - None - Haze		
Departure Point:	Brigham City, UT (BMC)	Type of Flight Plan Filed:	None
Destination:	Ontario, OR	Type of Clearance:	None
Departure Time:	08:30 Local	Type of Airspace:	

Airport Information

Airport:	ONTARIO MUNI ONO	Runway Surface Type:	Asphalt
Airport Elevation:	2193 ft msl	Runway Surface Condition:	Dry
Runway Used:	15/33	IFR Approach:	None
Runway Length/Width:	5006 ft / 100 ft	VFR Approach/Landing:	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:	44.019361,-117.01302(est)

Administrative Information

Investigator In Charge (IIC):	Stein, Stephen
Additional Participating Persons:	Ken Bradshaw ; Federal Aviation Administration; Portland, OR Charles Dermyre; Maule Air; Moltrie, GA
Original Publish Date:	January 31, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=104075

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](#).