



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Louisville, Nebraska	Accident Number:	CEN16LA133
Date & Time:	March 27, 2016, 19:10 Local	Registration:	N78RM
Aircraft:	MATHIEU CASSUTT	Aircraft Damage:	Substantial
Defining Event:	Fuel related	Injuries:	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During a local flight, the pilot noticed the engine was running rough when he added power. He attempted to troubleshoot the problem; however, the engine continued to run rough, and the pilot performed a forced landing to a field. The landing gear collapsed, and the airplane came to rest upright. A postaccident examination of the airplane and engine found no mechanical malfunctions or failures that would have precluded normal operation. The pilot reported that he routinely flew with a partially-open carburetor heat setting. Since the weather conditions around the time of the accident were conducive to the formation of carburetor ice at glide and cruise power, it is likely that the partial carburetor heat setting and the lower power setting increased the engine's susceptibility to the formation of carburetor ice, resulting in the rough-running engine. When the pilot changed the throttle setting, full power was not available due to the ice formation.

Probable Cause and Findings

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

The pilot's decision to operate with partial carburetor heat while operating in conditions conducive to the formation of carburetor ice, which resulted in a loss of engine power due to carburetor icing.

Findings

Aircraft	Fuel control/carburetor - Incorrect use/operation
Environmental issues	Conducive to carburetor icing - Effect on operation
Personnel issues	Incorrect action performance - Pilot

Factual Information

History of Flight

Enroute	Fuel related (Defining event)
Emergency descent	Off-field or emergency landing

On March 27, 2016, about 1910 central daylight time, an amateur-built Mathieu Cassutt airplane, N78RM, was substantially damaged during a forced landing to a field near Louisville, Nebraska. The private pilot sustained serious injuries. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no Federal Aviation Administration (FAA) flight plan had been filed for the flight. The local flight departed Millard Airport (MLE), Omaha, Nebraska, about 1850.

The pilot reported that he had been flying for about 20 minutes and decided to return to the airport. He "gave it some throttle" at which time the engine started running rough. The pilot troubleshooted the engine roughness by priming the engine and adjusting the throttle position without resolve. During the forced landing to the field the main landing gear collapsed and the airplane came to rest upright. Both wings and the fuselage were substantially damaged.

A farmer in the area heard the engine "cutting in and out and sputtering". The airplane was observed to circle around a field and the famer lost sight of the airplane after it descended below his view.

The injured pilot was not able to exit the airplane without assistance. First responders cut into the airplane and fuselage to extricate the pilot. Fuel was observed leaking from the airplane.

A post accident examination of the airplane and engine, conducted by an FAA inspector, revealed no preimpact malfunctions or failures that would have precluded normal operation. During the examination the inspector noted that the mixture control was wired in the full rich position. The carburetor heat was supplied by unfiltered air from inside the lower engine cowling. The pilot reported to the inspector that he routinely flew with the carburetor heat 1/2 way out.

The closest weather reporting station was located at Plattsmouth Municipal Airport (PMV), Plattsmouth, Nebraska, 15 miles east of the accident location. The weather report taken at 1915 reported a temperature of 45 degrees Fahrenheit (F) and a dew point temperature of 23 F.

The carburetor icing probability chart from the FAA special Airworthiness Information Bulletin (SAIB): CE-09-35 Carburetor Icing Prevention, illustrated a probability of icing at glide and cruise power at the temperature and dew point temperatures reported at the time of the accident. The FAA Pilot Handbook of Aeronautical Knowledge states that "partial heat or leaving heat on for an insufficient time might aggravate the situation."

Pilot Information

Certificate:	Private	Age:	44, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Single
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	June 27, 2013
Occupational Pilot:	No	Last Flight Review or Equivalent:	June 5, 2014
Flight Time:	525.7 hours (Total, all aircraft), 125.6 hours (Total, this make and model), 461.7 hours (Pilot In Command, all aircraft), 6 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	MATHIEU	Registration:	N78RM
Model/Series:	CASSUTT NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	1978	Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	1978
Landing Gear Type:	Tailwheel	Seats:	1
Date/Type of Last Inspection:	October 1, 2015 Condition	Certified Max Gross Wt.:	800 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	619.44 Hrs at time of accident	Engine Manufacturer:	Continental Motors
ELT:	Not installed	Engine Model/Series:	A75-8F
Registered Owner:	On file	Rated Power:	75 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:	KPMV,1204 ft msl	Distance from Accident Site:	15 Nautical Miles
Observation Time:	19:15 Local	Direction from Accident Site:	90°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots / None	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	30.05 inches Hg	Temperature/Dew Point:	7°C / -5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Omaha, NE (MLE)	Type of Flight Plan Filed:	None
Destination:	Omaha, NE (MLE)	Type of Clearance:	None
Departure Time:	18:50 Local	Type of Airspace:	Class E;Class G

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	40.963611,-96.196945(est)

Administrative Information

Investigator In Charge (IIC): Rodi, Jennifer

Additional Participating Persons: Craig Decker; FAA FSDO; Lincoln, NE

Original Publish Date: October 6, 2016

Last Revision Date:

Investigation Class: [Class](#)

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

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=92902>

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