



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Madison, South Dakota	Accident Number:	CEN18LA329
Date & Time:	August 14, 2018, 08:00 Local	Registration:	N6341K
Aircraft:	Cessna 150	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (partial)	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The student pilot reported that he was flying north of the departure airport when the airplane's engine began running roughly. He attempted to return to the airport but was unable to reach the airport and landed in a cornfield. The airplane nosed over in the 7-ft-tall corn and sustained substantial damage to both wings. Examination of the airplane revealed that the engine's No. 3 cylinder exhaust valve was stuck in its valve guide, and the No. 3 exhaust valve rocker arm was fractured. A maintenance record entry indicated that the Nos. 1, 3, and 4 cylinders had experienced valves sticking and had been sent back to the overhaul vendor for service. The cylinders were reinstalled 3 days before the accident. Based on the available evidence, the partial loss of engine power was likely due to the No. 3 cylinder exhaust valve becoming stuck, which resulted in a secondary overload failure of the associated rocker arm and a substantial reduction in engine power output.

Probable Cause and Findings

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

A stuck No. 3 cylinder exhaust valve, which resulted in failure of the associated rocker arm, a partial loss of engine power, and the subsequent forced landing into tall vegetation.

Findings

Aircraft	Recip eng cyl section - Malfunction
Aircraft	Recip eng cyl section - Failure
Environmental issues	High elevation - Contributed to outcome

Factual Information

History of Flight

Maneuvering	Loss of engine power (partial) (Defining event)
Landing	Collision with terr/obj (non-CFIT)
Landing	Nose over/nose down

On August 14, 2018, about 0800 central daylight time, a Cessna 150M, N6341K, sustained substantial damage during a landing to a corn field near Madison, South Dakota, following a loss of engine power during cruise flight. The student pilot was not injured. The aircraft was registered to an individual and operated by the pilot under the provisions of 14 *Code of Federal Regulations* Part 91 as a solo instructional flight. Visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The local flight originated from the Madison Municipal Airport (MDS), Madison, South Dakota, about 0710.

The student pilot reported he was flying north of MDS when the airplane's engine began running rough. He attempted to return to MDS but was unable to reach the airport and landed in a corn field. The airplane nosed over during the forced landing and sustained substantial damage to both wings.

The airplane came to rest inverted in corn standing about 7 ft tall. Due to the location of the airplane in the middle of the corn field, the airplane was not recovered until 6 weeks after the accident after the crop had been harvested. Examination revealed that the engine's No. 3 cylinder exhaust valve was stuck in its valve guide and the No. 3 exhaust valve rocker arm was fractured.

Maintenance records showed that the airplane engine's most recent overhaul was completed on March 12, 2018. The most recent engine maintenance record entry dated August 11, 2018, indicated that the Nos. 1, 3, and 4 cylinders had been removed and sent back to the vendor that had completed the engine overhaul due to sticking valves. The cylinders were then reinstalled on the engine. According to the tachometer times noted in the maintenance entries, the engine had accumulated 207 hours since the overhaul as of the maintenance entry.

Pilot Information

Certificate:	Student	Age:	38,Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	May 16, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N6341K
Model/Series:	150 M	Aircraft Category:	Airplane
Year of Manufacture:	1975	Amateur Built:	
Airworthiness Certificate:	Utility	Serial Number:	15077654
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	July 10, 2018 Annual	Certified Max Gross Wt.:	1600 lbs
Time Since Last Inspection:	7 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	as of last inspection	Engine Manufacturer:	Continental
ELT:	C91 installed, activated, did not aid in locating accident	Engine Model/Series:	O-200A
Registered Owner:		Rated Power:	100 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:	MDS,1718 ft msl	Distance from Accident Site:	
Observation Time:	12:55 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Few / 8000 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	150°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.95 inches Hg	Temperature/Dew Point:	21°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Madison, SD (MDS)	Type of Flight Plan Filed:	None
Destination:	Madison, SD (MDS)	Type of Clearance:	None
Departure Time:	07:10 Local	Type of Airspace:	Class G

Airport Information

Airport:	Madison Muni MDS	Runway Surface Type:	
Airport Elevation:	1718 ft msl	Runway Surface Condition:	Vegetation
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	44.016387,-97.085556

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	Dwight Pladsen; Rapid City FSDO; Rapid City, SD
Original Publish Date:	September 27, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98066

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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](#).