National Transportation Safety Board
Aviation Accident Final Report

Location:	Mount Airy, MD	**Accident Number:**	ERA15LA368
Date & Time:	09/19/2015, 1200 EDT	**Registration:**	N714CW
Aircraft:	CESSNA 150M	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The private pilot reported that, about 10 minutes after departure, when the airplane was at 2,500 ft mean sea level, the engine was not producing full power. He adjusted his course to be near an airport as a precaution. Shortly after, the engine began to run roughly, then lost more power. The pilot declared an emergency and found a field for landing; during the approach, he adjusted his path to avoid power lines and attempted a downwind approach and landing to the opposite direction. He realized he could not make the field, so he landed on an adjacent field of mature corn. As his airplane touched down, it flipped over, which resulted in substantial damage to the airframe. Postaccident examination of the airplane revealed that the No. 4 cylinder had fractured at the barrel portion of the cylinder, separating from the bottom of the cylinder attach point. Examination of the fracture surfaces revealed a fatigue crack that emanated from a corrosion pit on the outer surface of the barrel portion. The fatigue failure of the No. 4 cylinder barrel led to the loss of engine power.

Probable Cause and Findings

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

The in-flight fatigue failure of the No. 4 cylinder barrel, which resulted in a total loss of engine power.

Findings

Aircraft	Recip eng cyl section - Fatigue/wear/corrosion (Cause)
	Recip eng cyl section - Damaged/degraded (Cause)

Factual Information

On September 19, 2015, about 1200 eastern daylight time, a Cessna 150M, N714CW, was substantially damaged following a precautionary landing in a field near Mount Airy, Maryland. The private pilot was not injured. The airplane was operated under the provisions of 14 *Code of Federal Regulations* Part 91 as a personal flight. Visual meteorological conditions prevailed about the time of the accident and a visual flight rules (VFR) flight plan was filed for the flight that departed Clearview Airpark (2W2), Westminster, Maryland at 1130 and was destined for Leesburg Executive Airport (JYO), Leesburg, Virginia.

The pilot reported that 10 minutes after takeoff, at an altitude of 2,500 feet, the engine was not making full power. The pilot monitored the situation and adjusted his path to put him over Davis Airport (W50), Laytonsville, Maryland, in the event he needed to land. He continued to monitor the situation and noted that the engine "was a little sluggish," and became progressively worse, then it started to run rough before losing more power. All engine instrument indications were normal. He declared an emergency and observed a field to land on. As he circled to land, he saw electrical wires on the approach end, so he flew downwind for a landing in the opposite direction. During the turn to final, there was not enough altitude to make the landing site, so he landed on an adjacent field planted with mature corn. As the airplane settled into the corn, it touched down, then flipped over.

According to Federal Aviation Administration (FAA) airworthiness and airplane maintenance records, it was powered by a Continental O-200-A, 100-horsepower engine, driving a McCauley metal two-blade fixed pitch propeller. The pilot reported the engine had 3,567 hours total time and 1,800 hours total time since overhaul. The airplane accrued 15.7 hours since the last annual inspection on October 23, 2014. According to the Major Repair and Authorization form OMB No. 2120-0020, the engine had 4 Superior-SA10200 series cylinders installed on May 10, 1995 during the last engine overhaul.

Carroll County Regional Airport/Jack B Poage Field (DMW) Westminster, Maryland was located about 8 miles north of the accident site. The DMW recorded weather at 1230 included wind from 200° at 9 kts gusting to 14 kts, visibility 10 statute miles, clear sky, temperature 27°C, dewpoint 17 ° C, and the altimeter setting was 29.96 inches of mercury.

An inspector with the FAA responded to the accident site and examined the wreckage. The airplane and all major components were accounted for at the scene. There was substantial damage to the underside of the fuselage where the nose landing gear was sheared off and damage to the firewall and engine mounts. Both wing spars were damaged and the vertical stabilizer was bent. In addition, there was damage to the no. 4 cylinder and oil streaks were observed on the underside of the engine cowling and fuselage. The propeller was intact and undamaged.

Subsequent detailed examination of the engine revealed that the no. 4 cylinder (part # SA10200) fractured at the barrel portion about 2 inches out from the engine case, completely separating from the bottom portion of the cylinder that remained attached to the case. The no. 4 piston was gouged and missing a large amount of material. There was a substantial amount

of oil and fragments of metal discovered in the engine compartment. The no. 4 cylinder, piston and wrist pin were removed and sent to the NTSB Materials Laboratory for additional examination. A microscopic examination of the upper fracture face revealed a dark thumbnail mark consistent with a fatigue crack that emanated from the outer surface of the barrel. The fatigue crack originated from a corrosion pit and propagated through the thickness of the barrel and extended about 2 ½ inches to each side of the fatigue origin area. The piston exhibited a rough texture on a slant plane typical of overstress separation.

History of Flight

Enroute-cruise	Loss of engine power (partial) (Defining event)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Collision with terr/obj (non-CFIT) Nose over/nose down

Pilot Information

Certificate:	Private	**Age:**	47, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With Waivers/Limitations	**Last FAA Medical Exam:**	12/19/2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	620 hours (Total, all aircraft), 570 hours (Total, this make and model), 544.4 hours (Pilot In Command, all aircraft), 7.6 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	**Registration:**	N714CW
Model/Series:	150M	**Aircraft Category:**	Airplane
Year of Manufacture:	1976	**Amateur Built:**	No
Airworthiness Certificate:	Utility	**Serial Number:**	15079083
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	10/23/2014, Annual	**Certified Max Gross Wt.:**	1601 lbs
Time Since Last Inspection:	16 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	8300 Hours as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	C91 installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-200-A
Registered Owner:	On file	**Rated Power:**	100 hp
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	KDMW, 789 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	1630 UTC	**Direction from Accident Site:**	320°
Lowest Cloud Condition:	Clear	**Visibility**	10 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots / 14 knots	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.96 inches Hg	**Temperature/Dew Point:**	27°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	WESTMINSTER, MD (2W2)	**Type of Flight Plan Filed:**	VFR
Destination:	LEESBURG, VA (JYO)	**Type of Clearance:**	VFR
Departure Time:	1130 EDT	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	39.345833, -77.216667 (est)

Administrative Information

Investigator In Charge (IIC):	Lawrence A Mccarter	**Report Date:**	04/13/2020
Additional Participating Persons:	David Cumberbatch; FAA- Baltimore FSDO; Baltimore, MD John Kent; Continental Motors; Mobile, AL		
Publish Date:	04/13/2020		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=92035		