



Aviation Investigation Final Report

Location:	Bar Harbor, Maine	Accident Number:	CEN19LA204
Date & Time:	June 22, 2019, 10:30 Local	Registration:	N63WC
Aircraft:	Waco YMF-5C	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	3 None
Flight Conducted Under:	Part 91: General aviation - Aerial observation		

Analysis

About 15 minutes into the air tour flight, the pilot heard a loud “crack/bang” from the front of the airplane, followed by a total loss of engine power. The pilot performed a forced landing to wet, marshy terrain, during which the left wing impacted a tree and the airplane nosed over and came to rest inverted, resulting in substantial damage to the wings.

One of the radial engine’s cylinders was fractured at the barrel head joint, which resulted in the loss of engine power. The airplane was operated without engine cowling installed. According to the airplane’s owner, the cowling assists with engine cooling in vintage radial engines. The airplane was not examined after the accident and the reason for the cylinder failure was not determined.

Probable Cause and Findings

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

A total loss of engine power due to a cylinder failure for undetermined reasons.

Findings

Aircraft	Recip eng cyl section - Failure
Environmental issues	Wet/muddy terrain - Contributed to outcome

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (total) (Defining event)
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On June 22, 2019, about 1030 eastern daylight time, a Waco YMF airplane, N63WC, sustained substantial damage when it was involved in an accident near Bar Harbor, Maine. The pilot and two passengers sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 air tour flight.

The flight departed for a 25-minute sightseeing tour of Acadia National Park. The pilot reported that the flight was normal until he heard a loud "crack/bang" from the front of the airplane, followed by a steady noise for about 10 seconds that sounded "similar to a helicopter," and the propeller subsequently stopped turning. The pilot conducted a forced landing to wet, marshy terrain, during which the left wing impacted a tree and the airplane nosed over and came to rest inverted, resulting in substantial damage to the upper and lower wings.

The airplane owner reported that one of the engine cylinders was fractured at the barrel head joint. The airplane was operated without engine cowling installed. According to the airplane's owner, the cowling assists with engine cooling in vintage radial engines.

Pilot Information

Certificate:	Commercial	Age:	23, Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Center
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	March 22, 2019
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 7, 2019
Flight Time:	357.6 hours (Total, all aircraft), 81.6 hours (Total, this make and model), 307.8 hours (Pilot In Command, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:	Age:	Male
Airplane Rating(s):	Seat Occupied:	Front
Other Aircraft Rating(s):	Restraint Used:	
Instrument Rating(s):	Second Pilot Present:	No
Instructor Rating(s):	Toxicology Performed:	
Medical Certification:	Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:
Flight Time:		

Passenger Information

Certificate:	Age:	Female
Airplane Rating(s):	Seat Occupied:	Front
Other Aircraft Rating(s):	Restraint Used:	
Instrument Rating(s):	Second Pilot Present:	No
Instructor Rating(s):	Toxicology Performed:	
Medical Certification:	Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:
Flight Time:		

Aircraft and Owner/Operator Information

Aircraft Make:	Waco	Registration:	N63WC
Model/Series:	YMF-5C NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	1997	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	F5C-077
Landing Gear Type:	Tailwheel	Seats:	3
Date/Type of Last Inspection:	100 hour	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	Reciprocating
Airframe Total Time:		Engine Manufacturer:	Jacobs
ELT:	Installed	Engine Model/Series:	R755A2
Registered Owner:	On file	Rated Power:	300 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:	KBHB,88 ft msl	Distance from Accident Site:	8 Nautical Miles
Observation Time:	09:56 Local	Direction from Accident Site:	302°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	100°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.65 inches Hg	Temperature/Dew Point:	20°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Trenton, ME (KBHB)	Type of Flight Plan Filed:	None
Destination:	Trenton, ME (KBHB)	Type of Clearance:	None
Departure Time:	10:15 Local	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	44.379249,-68.209838(est)

Administrative Information

Investigator In Charge (IIC):	Liedler, Courtney
Additional Participating Persons:	Jim Edwards; FAA; Portland, ME
Original Publish Date:	March 16, 2022
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=99768

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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](#).