



# Aviation Investigation Final Report

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<b>Location:</b>	York, Pennsylvania	<b>Accident Number:</b>	ERA23LA034
<b>Date &amp; Time:</b>	October 22, 2022, 14:20 Local	<b>Registration:</b>	N36ZN
<b>Aircraft:</b>	Cessna A185E	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (total)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The pilot had just purchased the airplane and was flying it to his home airport. He made a stop, added fuel, checked the oil, and continued to his home airport. About an hour after departure, he noticed a drop in oil pressure and then heard a clanking sound in the engine before it lost total power. He diverted to the nearest airport but landed short of the runway in a field. The airplane slid into the airport perimeter fence, resulting in substantial damage to the left wing.

Postaccident examination of the engine revealed that it contained only 2 quarts of oil out of a total capacity of 12 quarts. There were oil leaks around all the cylinder pushrod housings, with the leak around the No. 1 cylinder being the worst. All spark plugs were dark, indicating oil burn. The No. 1 connecting rod was fractured and separated from the crankshaft, and the connecting rod bearings were destroyed. Heat distress signatures were found on the crankshaft connecting rod location and the No. 1 connecting rod bearings displayed significant scoring consistent with a lack of oil lubrication. Based on this information, it is likely the loss of engine power was the result of oil starvation to the connecting rod bearings.

## Probable Cause and Findings

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

Oil starvation of the number 1 connecting rod bearings, which resulted in a total loss of engine power.

## Findings

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Aircraft	Oil - Fluid level
Aircraft	Recip eng cyl section - Failure

## Factual Information

### History of Flight

<b>Enroute-cruise</b>	Powerplant sys/comp malf/fail
<b>Enroute-cruise</b>	Loss of engine power (total) (Defining event)
<b>Emergency descent</b>	Off-field or emergency landing
<b>Landing</b>	Collision with terr/obj (non-CFIT)

On October 22, 2022, at 1420 eastern daylight time, a Cessna A185E, N36ZN, was substantially damaged when it was involved in an accident near York, Pennsylvania. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, he purchased the airplane a few days before the accident flight and was flying it back to Cottonwood Farm Airport (87VA), Crozet, Virginia. He took off from Auburn/Lewiston Municipal Airport (LEW), Auburn/Lewiston, Maine, and flew to Kingston-Ulster Airport (20N), Kingston, New York, for fuel. He stated that he topped off the fuel tanks and checked the oil before departing 20N. About 1 hour into the flight, the engine started running rough, and he noticed a drop in oil pressure. He then heard “clanking” in the engine, and it lost total power. He diverted to York Airport (THV), York, Pennsylvania, but landed short of the runway, in a field, and the airplane slid into the airport perimeter fence.

Postaccident examination of the airplane by a Federal Aviation Administration inspector revealed that the airplane sustained substantial damage to the left wing. The left main landing gear separated, and the right main landing gear was bent aft 90°.

Examination of the engine by an airframe and powerplant mechanic revealed that the engine oil indicated 2 quarts on the engine dipstick (the engine held 12 quarts of oil). There were small oil leaks around all cylinder push rod housings, with the leak around the No. 1 cylinder housing being the worst. All the spark plugs were dark, indicating oil burn. The No. 1 connecting rod was fractured off the crankshaft. The No. 1 crankshaft journal was black and discolored. No other anomalies were noted. The most recent annual inspection was completed on August 25, 2022.

## Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	49, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	June 7, 2022
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 19, 2022
<b>Flight Time:</b>	17000 hours (Total, all aircraft), 11 hours (Total, this make and model), 14000 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N36ZN
<b>Model/Series:</b>	A185E	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	18501830
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	August 25, 2022 Annual	<b>Certified Max Gross Wt.:</b>	3350 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	4410 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	C126 installed	<b>Engine Model/Series:</b>	IO-520-D
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	300
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	THV,464 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	14:53 Local	<b>Direction from Accident Site:</b>	296°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.21 inches Hg	<b>Temperature/Dew Point:</b>	21°C / 3°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Kingston, NY (20N)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	New Market, VA (8W2)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	11:00 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	YORK THV	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	494 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	35	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	5188 ft / 100 ft	<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	39.917644,-76.873411(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Boggs, Daniel
<b>Additional Participating Persons:</b>	William Gossley; FAA/FSDO; Harrisburg, PA
<b>Original Publish Date:</b>	January 31, 2024
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=106179">https://data.nts.gov/Docket?ProjectID=106179</a>

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](#).