



# Aviation Investigation Final Report

<b>Location:</b>	Waterloo, Illinois	<b>Accident Number:</b>	CEN19LA098
<b>Date &amp; Time:</b>	March 12, 2019, 14:42 Local	<b>Registration:</b>	N750R
<b>Aircraft:</b>	Piper PA32R	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (total)	<b>Injuries:</b>	1 Serious, 1 Minor, 1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot reported that he heard a "horrible noise" and that the engine "immediately seized" about 10 minutes from the destination airport. Oil covered the windshield and obstructed his forward field of view. He executed a forced landing to a road by holding the airplane in a right crab so that he could see out of the left side window. The airplane came to rest inverted in the grass adjacent to the road and sustained damage to the fuselage and wings.

A postaccident engine examination revealed that the No. 4 and No. 6 connecting rods had fractured and separated from the crankshaft. Metallurgical examination was unable to determine the source of the initial failure due to secondary mechanical damage. The intact fracture surfaces that were available for examination exhibited features consistent with overstress.

## Probable Cause and Findings

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

The loss of engine power due to a connecting rod failure for reasons that could not be determined due to secondary mechanical damage, which resulted in a subsequent forced landing.

## Findings

**Aircraft**

Recip eng cyl section - Failure

# Factual Information

## History of Flight

Enroute-cruise	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing

On March 12, 2019, at 1442 central daylight time, a Piper PA32R-300 airplane, N750R, was substantially damaged during a forced landing following a loss of engine power near Waterloo, Illinois. The pilot sustained serious injuries, one passenger sustained minor injuries, and the second passenger, a child restrained in a car seat, was not injured. The airplane operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a personal flight.

The pilot reported hearing a "horrible noise" and the engine "immediately seized" about 10 minutes from the destination airport. Oil covered the windshield, obstructing his forward field of view. He executed a forced landing to a road by holding the airplane in a right crab to see out of the left side window. The airplane came to rest inverted in a grass area adjacent to the road with damage to the fuselage and both wings.

A postrecovery engine examination revealed the No. 4 and No. 6 connecting rods had separated from the crankshaft. The no. 4 connecting rod was fractured through the upper rod yoke. The corresponding rod cap and bearing fragments were deformed. The no. 6 connecting rod was fractured across one side of the rod yoke; the opposite side was intact but deformed. The corresponding rod cap was deformed. The connecting rods remained attached to the pistons. The pistons were wedged within the cylinders. The pistons, lower cylinder flanges and connecting rods exhibited secondary mechanical damage. The crankshaft was intact. The crankcase was fractured above the No. 4 and No. 6 cylinders exposing a hole in the upper surface of the crankcase.

Metallurgical examination was unable to determine source of the initial failure due to secondary mechanical damage. The intact fracture surfaces that were available for examination exhibited features consistent with overstress.

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	63,Male
<b>Airplane Rating(s):</b>	Single-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>	No
<b>Medical Certification:</b>	BasicMed With waivers/limitations	<b>Last FAA Medical Exam:</b>	May 21, 2017
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	December 21, 2018
<b>Flight Time:</b>	3350 hours (Total, all aircraft), 2639 hours (Total, this make and model), 3105 hours (Pilot In Command, all aircraft), 13 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N750R
<b>Model/Series:</b>	PA32R 300	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1976	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	32R-7780067
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	June 20, 2018 Annual	<b>Certified Max Gross Wt.:</b>	3600 lbs
<b>Time Since Last Inspection:</b>	53 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	5950.8 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	C126 installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	IO-540-K1G5D
<b>Registered Owner:</b>		<b>Rated Power:</b>	300 Horsepower
<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>	CPS,413 ft msl	<b>Distance from Accident Site:</b>	13 Nautical Miles
<b>Observation Time:</b>	14:53 Local	<b>Direction from Accident Site:</b>	347°
<b>Lowest Cloud Condition:</b>	Few / 12000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	150°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.2 inches Hg	<b>Temperature/Dew Point:</b>	10°C / -1°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Mobile, AL (BFM )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Cahokia, IL (CPS )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	11:18 Local	<b>Type of Airspace:</b>	Class E;Class G

## Airport Information

<b>Airport:</b>	St Louis Downtown CPS	<b>Runway Surface Type:</b>	Asphalt;Grass/turf
<b>Airport Elevation:</b>	413 ft msl	<b>Runway Surface Condition:</b>	Dry;Vegetation
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Serious	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Minor, 1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Serious, 1 Minor, 1 None	<b>Latitude, Longitude:</b>	38.362777,-90.10028

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Sorensen, Timothy		
<b>Additional Participating Persons:</b>	Andrew Slater; FAA Flight Standards; St. Ann, MO James M Childers; Lycoming Engines; Williamsport, PA		
<b>Original Publish Date:</b>	January 28, 2021	<b>Investigation Class:</b>	3
<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=99099">https://data.nts.gov/Docket?ProjectID=99099</a>		

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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](#).