



# Aviation Investigation Final Report

<b>Location:</b>	Fort Wayne, Indiana	<b>Accident Number:</b>	CEN18LA174
<b>Date &amp; Time:</b>	May 15, 2018, 14:55 Local	<b>Registration:</b>	N9058F
<b>Aircraft:</b>	Cessna 177	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Powerplant sys/comp malf/fail	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot reported that he had departed on a local flight and leveled the airplane at 2,600 ft mean sea level when he observed a drop in engine rpm and heard a "thumping" sound from the engine. The pilot reversed course to return to the airport; the noise increased, he smelled burning oil, and the engine subsequently quit. The pilot conducted a forced landing to a field, during which the nose landing gear collapsed and the wings sustained substantial damage.

An examination of the airplane revealed no oil on the engine dipstick; however, oil was coming out of the oil cooler, and oil was visible on the right side of the cowling. Maintenance records indicated that the engine, including the oil cooler, was new and had been installed about 8 hours before the accident flight. An examination of the oil cooler revealed that the leak came from between the plates forming the oil circuit; it was likely due to a defect in the brazed joint between the plates. The engine lost power due to oil starvation.

## Probable Cause and Findings

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

The failure of the oil cooler due to a defect in the brazed joint, which resulted in a loss of engine power due to oil starvation.

## Findings

Aircraft	Cooler - Failure
Aircraft	(general) - Failure

# Factual Information

## History of Flight

Enroute-cruise	Powerplant sys/comp malf/fail (Defining event)
Enroute-climb to cruise	Loss of engine power (total)
Landing-flare/touchdown	Collision with terr/obj (non-CFIT)

On May 15, 2018, at 1455 eastern daylight time, a Cessna 177 airplane, N9058F, was substantially damaged during a forced landing near Fort Wayne, Indiana. The commercial pilot and passenger were not injured. The airplane was registered to and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, which was operated on an instrument flight rules flight plan. The local flight originated from the Smith Field Airport (SMD), Fort Wayne, Indiana, at 1453.

The pilot reported that shortly after takeoff as he leveled the airplane at 2,600 ft mean sea level, the engine rpm began decreasing and he heard a "thumping" noise in the engine. He lowered the nose of the airplane to maintain 80 mph and turned back toward the airport. The thumping noise increased, and he smelled burning oil just before the engine quit. The pilot selected a field for a forced landing and as he approached the field, he banked to the left to avoid overrunning the field. As he banked, the left wingtip contacted the ground and the airplane slid sideways collapsing the nose landing gear. Both wings sustained substantial damage.

According to the responding Federal Aviation Administration Inspector, an examination of the engine revealed no oil on the engine oil dip stick. Oil was visible on the right side of the cowling and oil was coming from the oil cooler. According to the maintenance records, the engine, including the oil cooler, was new and had been installed about 8 hours prior to the accident flight.

The oil cooler was sent to the National Transportation Safety Board Materials Laboratory in Washington, DC, for further examination. Examination of the oil cooler revealed that the leak came from between the plates forming the third oil circuit from the bottom. There was no evidence of mechanical damage from an external source and no evidence of bulging or other distortions.

## Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	65, Male
<b>Airplane Rating(s):</b>	Single-engine land; Single-engine sea; 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>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	October 19, 2017
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	August 26, 2016
<b>Flight Time:</b>	3255 hours (Total, all aircraft), 1405 hours (Total, this make and model), 3193 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N9058F
<b>Model/Series:</b>	177	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1967	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	17700304
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	April 21, 2018 Annual	<b>Certified Max Gross Wt.:</b>	2350 lbs
<b>Time Since Last Inspection:</b>	8 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	3844 Hrs	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	C91 installed, not activated	<b>Engine Model/Series:</b>	O-320
<b>Registered Owner:</b>		<b>Rated Power:</b>	
<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>	SMD,836 ft msl	<b>Distance from Accident Site:</b>	2 Nautical Miles
<b>Observation Time:</b>	14:54 Local	<b>Direction from Accident Site:</b>	135°
<b>Lowest Cloud Condition:</b>	Scattered / 6000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 10000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.95 inches Hg	<b>Temperature/Dew Point:</b>	23°C / 18°C
<b>Precipitation and Obscuration:</b>	Light - Thunderstorm - Rain		
<b>Departure Point:</b>	FORT WAYNE, IN (SMD )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	FORT WAYNE, IN (SMD )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	14:53 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>	Smith Field SMD	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	834 ft msl	<b>Runway Surface Condition:</b>	Rough
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	41.169998,-85.18

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Sullivan, Pamela
<b>Additional Participating Persons:</b>	Dan Keen; FAA; Indianapolis, IN
<b>Original Publish Date:</b>	June 8, 2020
<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=97261">https://data.nts.gov/Docket?ProjectID=97261</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](#).