



# Aviation Investigation Final Report

<b>Location:</b>	Prairieville, Louisiana	<b>Accident Number:</b>	CEN19LA132
<b>Date &amp; Time:</b>	April 3, 2019, 10:00 Local	<b>Registration:</b>	N41AT
<b>Aircraft:</b>	Piper PA28R	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>	Loss of engine power (total)	<b>Injuries:</b>	1 Serious
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot was conducting the airplane's first flight following an annual inspection. About 5 minutes after takeoff, the engine started to run rough and seized. The pilot performed a forced landing, during which he sustained serious injuries. Postaccident examination revealed that the engine oil drain valve was damaged when the nose landing gear contacted the valve during gear retraction after takeoff. This resulted in a loss of engine oil and subsequent engine failure due to oil starvation. Further examination revealed that the installed drain valve did not meet manufacturer specifications; the installed valve protruded about 1-1/8 inches from the engine, while the manufacturer-specified valve protruded about 1/2 inch. A review of the airplane maintenance records revealed that the valve was replaced during the annual inspection because it had been leaking.

The airframe manufacturer had previously issued a service bulletin regarding installation of an incorrect engine oil drain valve. The Federal Aviation Administration subsequently issued an Airworthiness Directive requiring the replacement of any incorrectly installed valves and placement of a warning placard on the engine mount. The airplane maintenance manual also included a cautionary note regarding the engine oil drain valve and noted the requirement for a warning placard. A warning placard was not present on the accident airplane.

## Probable Cause and Findings

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

Installation of an incorrect engine oil drain valve, which resulted in damage to the valve during

landing gear retraction and subsequent engine failure due to oil starvation. Contributing to the accident was the failure of maintenance personnel to comply with the Airworthiness Directive regarding the engine oil drain valve.

## Findings

<b>Aircraft</b>	Recip engine power section - Failure
<b>Aircraft</b>	Recip engine power section - Incorrect service/maintenance
<b>Aircraft</b>	Oil - Fluid level
<b>Personnel issues</b>	Scheduled/routine maintenance - Maintenance personnel

# Factual Information

## History of Flight

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

On April 3, 2019, about 1000 central daylight time, a Piper PA-28R-200 airplane, N41AT, sustained minor damage during a forced landing following a loss of engine power near Prairieville, Louisiana. The pilot was seriously injured. The airplane was registered to and operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Day visual meteorological conditions prevailed. The flight was not operated on a flight plan. The flight originated from Baton Rouge Metropolitan Airport (BTR), Baton Rouge, Louisiana, about 0950 and was destined for the Louisiana Regional Airport (REG), Gonzales, Louisiana.

The pilot reported that he had picked up the airplane after the annual inspection was completed. About 5 minutes after takeoff, the engine started to run rough and almost immediately seized. He setup for a forced landing on an interstate highway; however, on final approach, the airplane struck a semi-tractor trailer. The airplane subsequently contacted the ground adjacent to the highway and impacted a tree.

A postaccident examination performed by a Federal Aviation Administration (FAA) inspector determined that the engine oil drain valve was damaged which had resulted in a loss of engine oil. The valve damage was consistent with contact from the nose landing gear during retraction. Further investigation revealed that the installed drain valve did not correspond to the airframe manufacturer's requirements. The installed valve protruded about 1-1/8 inches from the engine, while the manufacturer specified valve protruded about 1/2 inch. In addition, the required warning placard related to the oil valve installation was not present on the engine mount.

A review of the airplane maintenance records revealed that an annual inspection was completed the day before the accident. The entry noted that the oil valve had "stuck open" during the oil change and a new one was installed. It also noted that "clearance with landing gear [was] verified during retract tests."

In December 1980, Piper Aircraft issued Service Letter No. 910 which notified owner/operators of the installation of incorrect oil drain valves on PA-28R-200 airplanes. The service letter specifically noted the possibility of damage to the valve during nose landing gear retraction and a loss of engine oil during flight. The service letter recommended inspection of the drain valve to ensure that the correct valve was installed and replacement of any incorrectly installed valves. In addition, the service letter provided for the installation of warning placards on each side of the engine mount in the area of the drain valve in order to advise maintenance personnel. In October 1981, the FAA issued airworthiness directive 81-11-02 R1 requiring inspection of the engine oil drain valves and installation of the warning placards as specified in the previously issued service letter.

The current airplane service manual, revision dated January 2008, included a cautionary note regarding the engine oil drain valve. Specifically, the manual advised personnel to verify that the correct valve was installed and warned that the installation of an incorrect valve may damage the sump or the drain valve. It noted the possibility of a loss of engine oil and engine seizure in such instances. The manual also included the warning placard as part of the engine installation diagram.

## Pilot Information

<b>Certificate:</b>	Private	<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 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	April 26, 2017
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	October 22, 2017
<b>Flight Time:</b>	1161 hours (Total, all aircraft), 952 hours (Total, this make and model), 1161 hours (Pilot In Command, all aircraft), 11 hours (Last 90 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N41AT
<b>Model/Series:</b>	PA28R 200	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1975	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	28R-7635146
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	April 2, 2019 Annual	<b>Certified Max Gross Wt.:</b>	2650 lbs
<b>Time Since Last Inspection:</b>	1 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	4754 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	IO-360-C1C
<b>Registered Owner:</b>		<b>Rated Power:</b>	200 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>	REG,14 ft msl	<b>Distance from Accident Site:</b>	11 Nautical Miles
<b>Observation Time:</b>	09:55 Local	<b>Direction from Accident Site:</b>	340°
<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>	5 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	80°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.29 inches Hg	<b>Temperature/Dew Point:</b>	17°C / 8°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Baton Rouge, LA (BTR )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Gonzales, LA (REG )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:50 Local	<b>Type of Airspace:</b>	Class G

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Serious	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Serious	<b>Latitude, Longitude:</b>	30.346389,-91.029441(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Sorensen, Timothy		
<b>Additional Participating Persons:</b>	Randy Durley; FAA Flight Standards; Baton Rouge, LA		
<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=99348">https://data.nts.gov/Docket?ProjectID=99348</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](#).