



Aviation Investigation Final Report

Location:	Cherokee, Oklahoma	Accident Number:	CEN24LA104
Date & Time:	February 2, 2024, 10:42 Local	Registration:	N4284
Aircraft:	Piper PA24	Aircraft Damage:	Substantial
Defining Event:	Unknown or undetermined	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that the engine “began running very rough” while the airplane was in cruise flight about 2,500 feet mean sea level (msl). His efforts to determine the cause of the partial power loss and restore full engine power were not successful. The airport was covered in ground fog, which hindered the approach. He inadvertently landed long and attempted to execute a go-around; however, the airplane did not have sufficient power to climb and went off the end of the runway. Ground-based video depicted the airplane flying over as it neared the airport. The accompanying audio confirmed a rough running engine.

Data recovered from an onboard engine monitor appeared to be stable until about 4 minutes before the accident when several cylinder exhaust gas temperatures decreased abruptly. The fuel flow and fuel pressure parameters remained stable during this time. A postrecovery engine examination was unable to identify the cause of the partial loss of engine power. Although the audio that accompanied the witness video suggested an issue with the ignition system, the postrecovery examination was unable to identify any preaccident anomalies.

Probable Cause and Findings

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

A partial loss of engine power for reasons that could not be determined. Contributing to the accident was the presence of ground fog, which hindered the landing approach and resulted in the pilot inadvertently landing long and impacting a fence during the attempted go-around.

Findings

Not determined	(general) - Unknown/Not determined
Environmental issues	Fog - Contributed to outcome
Aircraft	(general) - Unknown/Not determined

Factual Information

History of Flight

Maneuvering	Unknown or undetermined (Defining event)
Emergency descent	Off-field or emergency landing
Approach-VFR go-around	Collision with terr/obj (non-CFIT)

On February 2, 2024, about 1042 central standard time, a Piper PA-24-260 airplane, N4284, was substantially damaged when it was involved in an accident near Cherokee, Oklahoma. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that the engine “began running very rough” while in cruise flight about 2,500 feet msl. He advanced the mixture, propeller, and throttle controls full forward in an attempt to increase engine power. In addition, the pilot selected the left and right magnetos individually in an attempt to isolate an ignition system problem. However, the engine problems did not disappear during either magneto check. The fuel quantity and fuel selector position were confirmed.

The pilot’s efforts to determine the cause of the partial power loss and restore full engine power were not successful. He diverted to the nearest airport; however, it was covered in ground fog, which hindered the approach. He inadvertently landed long and attempted to execute a go-around; however, the airplane did not have sufficient power to climb. The airplane went off the end of the runway, struck the airport perimeter fence, crossed a road, and impacted a second fence before coming to rest. The airframe sustained damage to both wings, the fuselage, and the empennage.

Ground-based video depicted the airplane flying over as it neared the airport. The accompanying audio confirmed a rough running engine.

ADS-B data depicted the airplane on a southerly course about 2,254 ft msl and 3 1/2 miles southeast of the Cherokee Municipal Airport (405). About 1138:20, the pilot turned right on a direct course for 405. The pilot subsequently entered a modified left downwind before turning final for runway 17. The final ADS-B data point was recorded at 1142:17. The airplane was over runway 17, about 1,014 ft from the departure end of the runway pavement, at an altitude of about 1,180 ft msl. The runway 17 and runway 35 arrival threshold elevations were 1,178 ft and 1,179 ft, respectively.

Data recovered from an onboard engine monitor appeared to be stable until about 1038 when the exhaust gas temperature (EGT) corresponding to cylinder Nos.. 4, 5, and 6 decreased

abruptly. The EGT for cylinders Nos.1 and 3 decreased but to a lesser extent. The EGT for cylinder No. 2 remained stable. The fuel flow and fuel pressure parameters remained stable until 1042.

A postrecovery engine examination was unable to identify the cause of the partial loss of engine power. Internal engine and valvetrain continuity were confirmed. The spark plugs displayed normal combustion signatures. The magnetos were secure, and timing was determined to be approximately 25° before top dead center, which corresponded to the timing specified for the engine. A spark was observed across each ignition lead when the engine crankshaft was rotated. Fuel system continuity was confirmed, and the engine-driven fuel pump was operational. Engine control continuity was confirmed.

Pilot Information

Certificate:	Commercial; Flight instructor; Military	Age:	41, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	February 1, 2024
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	December 6, 2023
Flight Time:	6610 hours (Total, all aircraft), 113 hours (Total, this make and model), 5079 hours (Pilot In Command, all aircraft), 122 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N4284
Model/Series:	PA24 260	Aircraft Category:	Airplane
Year of Manufacture:	1965	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	24-4284
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	November 7, 2023 Annual	Certified Max Gross Wt.:	2900 lbs
Time Since Last Inspection:	48.3 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	6770.4 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	C126 installed, activated, did not aid in locating accident	Engine Model/Series:	IO-540-D4A5
Registered Owner:	On file	Rated Power:	260 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None
Operator Does Business As:	On file	Operator Designator Code:	N/A

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	Condition of Light:	Day
Observation Facility, Elevation:	KWDG, 1167 ft msl	Distance from Accident Site:	36 Nautical Miles
Observation Time:	10:50 Local	Direction from Accident Site:	310°
Lowest Cloud Condition:	Few / 5000 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 20000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	9 knots / 0 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	160°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.77 inches Hg	Temperature/Dew Point:	15°C / 13°C
Precipitation and Obscuration:	Moderate - None - Fog		
Departure Point:	Enid, OK (WDG)	Type of Flight Plan Filed:	None
Destination:	Enid, OK (WDG)	Type of Clearance:	None
Departure Time:	09:55 Local	Type of Airspace:	Class G

Airport Information

Airport:	Cherokee Municipal 405	Runway Surface Type:	Asphalt
Airport Elevation:	1179 ft msl	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	3770 ft / 60 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	36.788308,-98.358431(est)

Administrative Information

Investigator In Charge (IIC):	Sorensen, Timothy
Additional Participating Persons:	James Wirt; FAA Flight Standards; Oklahoma City, OK Troy Helegson; Lycoming Engines; Williamsport, PA
Original Publish Date:	November 7, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=193741

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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](#).