Aviation Investigation Final Report

Location:	Chouteau, Oklahoma	**Accident Number:**	CEN23LA327
Date & Time:	July 21, 2023, 13:50 Local	**Registration:**	N730WL
Aircraft:	Vans RV10	**Aircraft Damage:**	Substantial
Defining Event:	Powerplant sys/comp malf/fail	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The amateur-built experimental airplane was in cruise flight when the pilot noticed that a red warning light in the cockpit was illuminated. The “oil pressure gauge” was “pegged” at 320°F. The pilot immediately reduced engine power and initiated a glide profile to “take all the load off the engine” so it could cool down. While setting up for the approach to land at the closest airport, the engine “seized up” and sustained a total loss of power. The pilot performed a forced landing to a flat grass field. The airplane sustained substantial damage to the fuselage and both wings.

Postaccident examination of the experimental automotive engine revealed that the positive crankcase ventilation (PCV) valve had failed. The pilot reported that the failed PCV valve caused the engine to suck “too much oil” out of the crankcase and into the intake section. He additionally reported that over the “long slow climb” to the cruise altitude of 6,000 ft, this caused the oil level to get “too low,” eventually causing the oil to overheat, and that once the oil overheated, the engine then stopped operating.

Probable Cause and Findings

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

The total loss of engine power as a result of a failed positive crankcase ventilation (PCV) valve and a subsequent impact with terrain.

Findings

Aircraft	(general) - Failure
Aircraft	Recip eng liquid cooling - Failure

Factual Information

History of Flight

Enroute-cruise	Powerplant sys/comp malf/fail (Defining event)
Enroute-cruise	Attempted remediation/recovery
Landing	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

On July 21, 2023, about 1350 central daylight time, a Van's Aircraft RV-10 airplane, N730WL, sustained substantial damage when it was involved in an accident near Chouteau, Oklahoma. The pilot and the passenger sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal cross-country flight.

The purpose of the flight was for the two occupants to travel in the amateur-built experimental airplane to the Experimental Aircraft Association AirVenture at the Wittman Regional Airport (OSH), Oshkosh, Wisconsin. The airplane stopped at the Muskogee-Davis Regional Airport (MKO), Muskogee, Oklahoma, where it was refueled with about 35 gallons of 100 low lead fuel. The airplane departed to the north and, after being established in cruise flight at 6,000 ft, the pilot, who is also the owner of the airplane, noticed that a red warning light in the cockpit was illuminated. He noticed "the oil pressure gauge" was "pegged" at 320°F. The pilot immediately reduced engine power and initiated a glide profile to "take all the load off the engine" so it could cool down.

The pilot decided to land at the closest airport, which was the Mid-America Industrial Airport (H71), Pryor, Oklahoma. While setting up for the approach to runway 36, the engine "seized up" and sustained a total loss of power. The pilot performed a forced landing to a flat grass field about 3 miles south of the threshold for runway 36. The airplane came to rest upright, and both occupants were able to egress from the airplane without further incident. The airplane sustained substantial damage to the fuselage and both wings.

The airplane was recovered from the field and the experimental General Motors LS-3 (V-8)automotive engine was examined. The examination revealed that the positive crankcase ventilation (PCV) valve had failed for undetermined reasons. The pilot reported that the failed PCV valve caused the engine to suck "too much oil" out of the crankcase and into the intake section. He additionally reported that over the "long slow climb" to the cruise altitude of 6,000 ft, this caused the oil level to get "too low," eventually causing the oil to overheat, and that once the oil overheated, the engine then stopped operating.

Pilot Information

Certificate:	Private	**Age:**	67,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	July 31, 2020
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 26, 2023
Flight Time:	(Estimated) 178 hours (Total, all aircraft), 30 hours (Total, this make and model), 100 hours (Pilot In Command, all aircraft), 23 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Vans	**Registration:**	N730WL
Model/Series:	RV10 No Series Exists	**Aircraft Category:**	Airplane
Year of Manufacture:	2009	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	40227
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 2, 2022 Condition	**Certified Max Gross Wt.:**	2800 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	240 Hrs as of last inspection	**Engine Manufacturer:**	General Motors
ELT:	C91A installed, not activated	**Engine Model/Series:**	LS-3 (V-8)
Registered Owner:	N730WL LLC	**Rated Power:**	375 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None
Operator Does Business As:	None	**Operator Designator Code:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KGCM,725 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	13:35 Local	**Direction from Accident Site:**	316°
Lowest Cloud Condition:	Scattered	**Visibility**	10 miles
Lowest Ceiling:	Broken / 1600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	24°C / 23°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Muskogee-Davis Regional Airport, OK (MKO)	**Type of Flight Plan Filed:**	None
Destination:	Pryor, OK (H71)	**Type of Clearance:**	None
Departure Time:	13:42 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	36.175387,-95.329857(est)

Administrative Information

Investigator In Charge (IIC):	Hodges, Michael
Additional Participating Persons:	Timothy Wells; FAA Will Rogers FSDO; Oklahoma City, OK
Original Publish Date:	April 18, 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=192721