



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Guthrie, Oklahoma	<b>Accident Number:</b>	CEN24LA317
<b>Date &amp; Time:</b>	August 14, 2024, 20:21 Local	<b>Registration:</b>	N184DC
<b>Aircraft:</b>	Vans RV8	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (total)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot reported that about 40 ft above ground level (agl) during the initial climb from the grass airstrip, engine cylinder Nos. 2 and 3 lost power. About 10 seconds later, engine cylinder Nos. 1 and 4 lost power. The pilot was unable to maintain altitude. He switched fuel tanks in an attempt to regain engine power but noted no change in the engine performance. The airplane impacted trees beyond the departure end of the runway and sustained substantial damage to both wings, fuselage, and empennage.

Postaccident examination of the engine revealed an air filter retaining bracket that was fastened to a fiberglass air snorkel/box had separated and was ingested into the No. 2 cylinder. The separated bracket then jammed the intake valve into the open position, resulting in a loss of engine power. Elongation was noted on the fiberglass where the rivets secured the fabricated retaining bracket.

## Probable Cause and Findings

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

A loss of engine power due to the separation and ingestion of an air filter retaining bracket into the engine cylinder.

## Findings

<b>Personnel issues</b>	Fabrication - Owner/builder
<b>Aircraft</b>	(general) - Failure
<b>Aircraft</b>	Recip eng cyl section - Failure

# Factual Information

## History of Flight

Initial climb	Loss of engine power (total) (Defining event)
Emergency descent	Controlled flight into terr/obj (CFIT)

On August 14, 2024, about 2021 central daylight time, a Vans RV-8A airplane, N184DC, sustained substantial damage when it was involved in an accident near Guthrie, Oklahoma. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, about 40 ft agl during the initial climb from the grass airstrip, engine cylinder Nos. 2 and 3 lost power. About 10 seconds later, engine cylinder Nos. 1 and 4 lost power. The pilot was unable to maintain altitude. He switched fuel tanks in an attempt to regain engine power but noted no change in the engine performance. The airplane impacted trees beyond the departure end of the runway. The airplane sustained substantial damage to both wings, fuselage, and empennage.

Postaccident examination of the engine revealed no compression was noted on the No. 2 cylinder. The air filter was removed from the fiberglass air snorkel/box, and one of the four fabricated retaining brackets was separated and missing (see Figure 1). Elongation was noted on the fiberglass where the rivets secured the fabricated retaining bracket.



Figure 1. Air filter retaining brackets; one bracket separated and missing.

The No. 2 cylinder intake tube was removed, and a foreign metal piece, consistent with the separated retaining bracket, was observed within the cylinder. The bracket was jammed in the cylinder and under the intake valve seat. The intake valve and retaining bracket were removed from the cylinder and photo documented (see Figures 2 and 3).

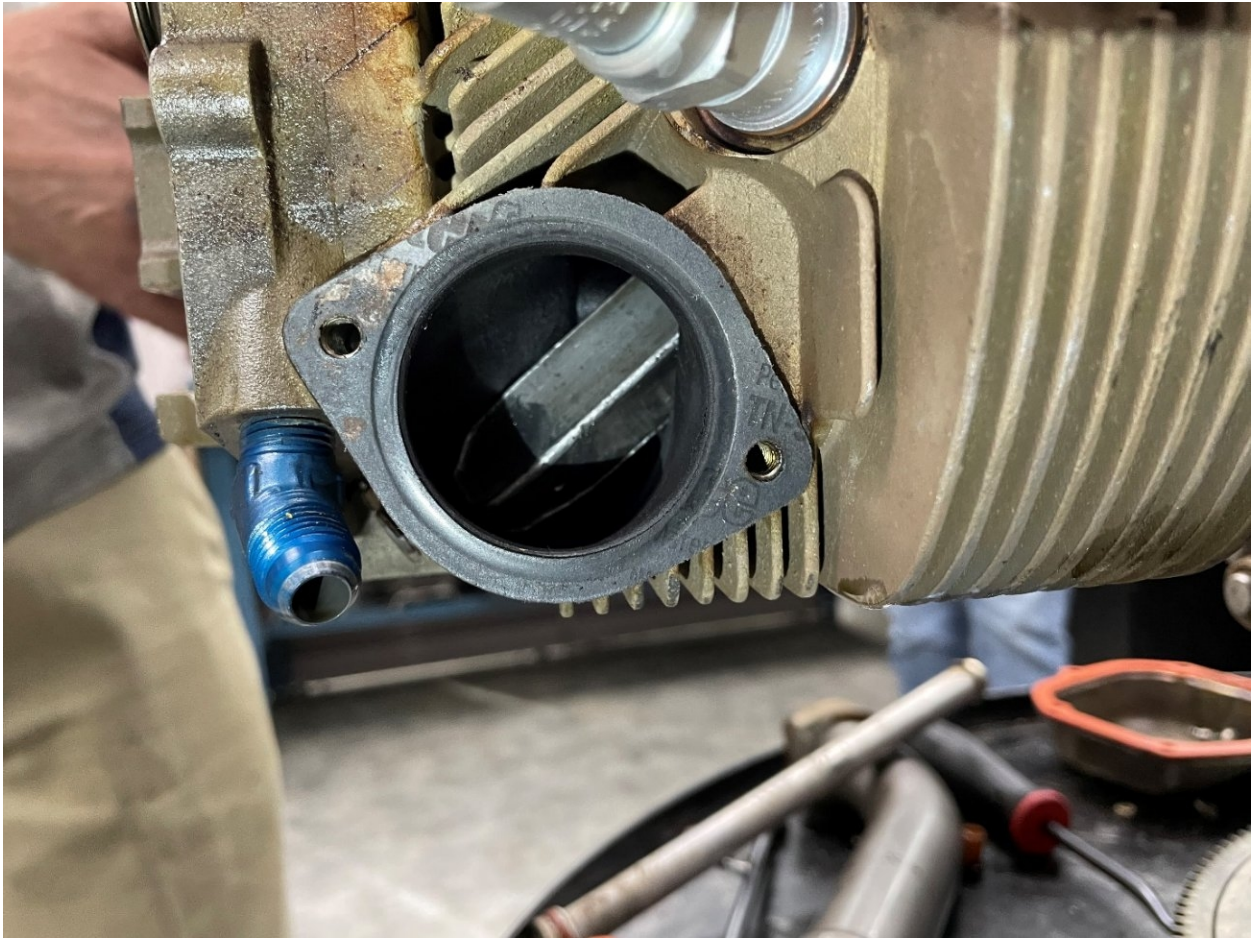


Figure 2. No 2. cylinder intake and separated retaining bracket.



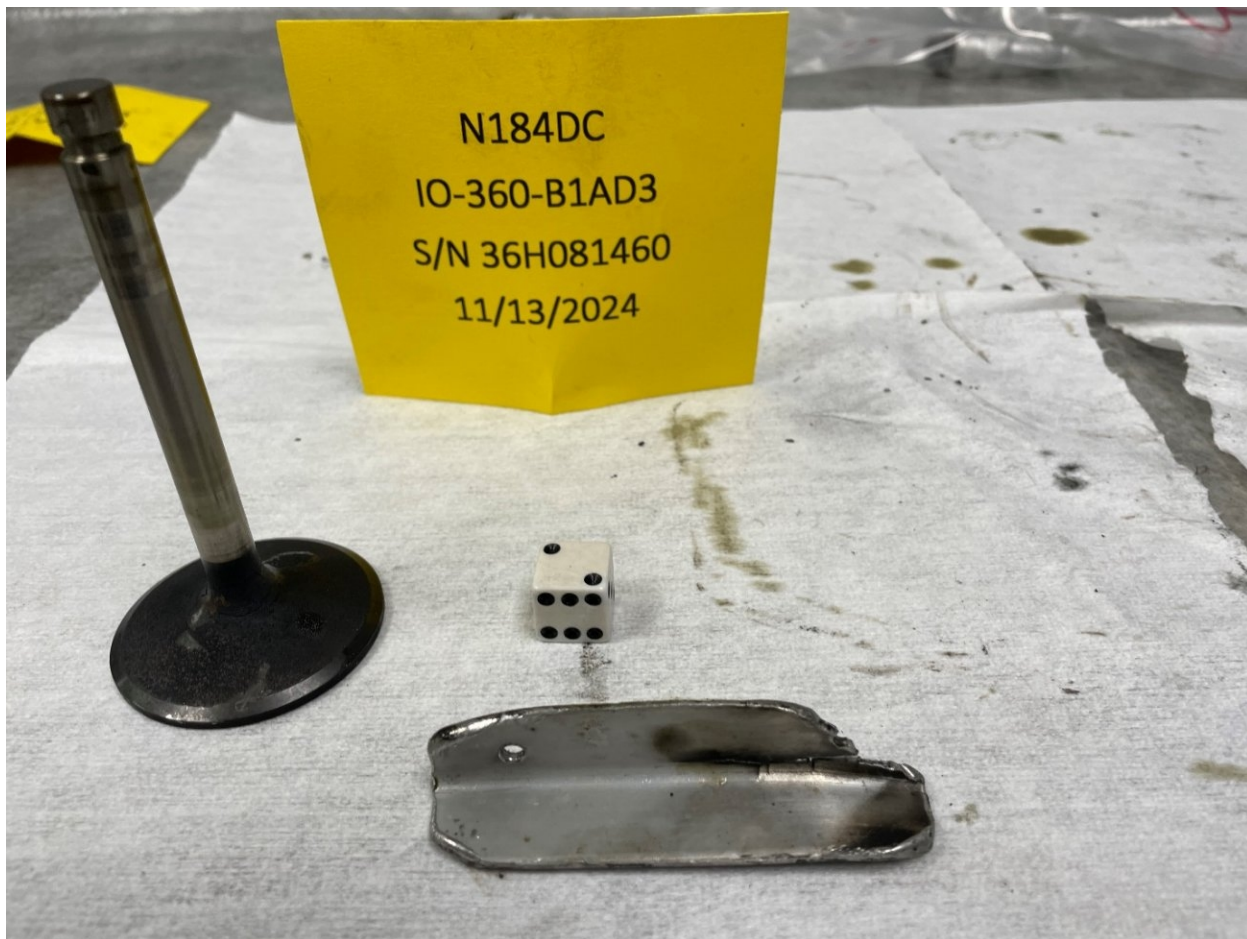


Figure 3. Separated air filter retaining bracket located in the No. 2 cylinder intake.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	69,Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	BasicMed Without waivers/limitations	<b>Last FAA Medical Exam:</b>	September 17, 2023
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	June 19, 2024
<b>Flight Time:</b>	1666 hours (Total, all aircraft), 598 hours (Total, this make and model), 1666 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Vans	<b>Registration:</b>	N184DC
<b>Model/Series:</b>	RV8 A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2018	<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	80744
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	November 15, 2023 Condition	<b>Certified Max Gross Wt.:</b>	1800 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	592.7 Hrs at time of accident	<b>Engine Manufacturer:</b>	Superior
<b>ELT:</b>	C126 installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	XP-IO-360-B1AD3
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	185 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>	Night
<b>Observation Facility, Elevation:</b>	KGOK, 1065 ft msl	<b>Distance from Accident Site:</b>	2 Nautical Miles
<b>Observation Time:</b>	19:53 Local	<b>Direction from Accident Site:</b>	163°
<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>	11 knots / 17 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	160°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.87 inches Hg	<b>Temperature/Dew Point:</b>	33°C / 22°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Guthrie, OK	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Newalla, OK (2OK2)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	ELLIS/HARVEY 00K6	<b>Runway Surface Type:</b>	Grass/turf
<b>Airport Elevation:</b>	1220 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	18	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	2400 ft / 90 ft	<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	35.879462,-97.42425(est)



## Administrative Information

<b>Investigator In Charge (IIC):</b>	Sauer, Aaron
<b>Additional Participating Persons:</b>	Maxwell Bradley; FAA; Oklahoma City, OK William Ross; Superior Air Parts; Coppell, TX
<b>Original Publish Date:</b>	April 1, 2025
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<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=194935">https://data.nts.gov/Docket?ProjectID=194935</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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](#).