

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN24LA317

ENGINE EXAMINATION SUMMARY

November 13, 2024

A. ACCIDENT

Location: Guthrie, OK
Date: 08/14/2024
Time: 2021 CDT
Aircraft: Vans RV-8A; N184DC

B. ENGINE EXAMINATION SUMMARY

IIC	Aaron Sauer NTSB Denver, CO
Party Coordinators	Max Bradley Federal Aviation Administration Oklahoma City, OK
	William Ross Superior Air Parts Coppell, TX

SUMMARY:

On August 14, 2024, about 2000 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 above ground level during the initial climb from the grass airstrip, the engine cylinders No. 2 and 3 lost power. About 10 seconds later, engine cylinders No. 1 and 4 lost power. The pilot was unable to maintain altitude and switched fuel tanks in an attempt to regain engine power. The pilot noted no change in the engine performance, and the airplane impacted trees beyond the departure end of the runway. The airplane sustained substantial damage to both wings, fuselage, and empennage.

ENGINE EXAMINATION:

Initial postaccident examination at the recovery facility of the engine revealed no compression was noted on the No. 2 cylinder. The initial examination was terminated, and the engine was shipped to Superior Air Parts for further examination.

The fiberglass snorkel/air box was retained to the throttle body assembly with 3 of the 4 bolts; the 4th bolt was not installed (in a follow-up telephone call, the owner/builder stated that he did not install the 4th bolt due to difficult access to that attachment area). After removal of the snorkel, elongation was noted on 3 of the 4 snorkel bolt holes (see Figure 1.).



Figure 1. Fiberglass snorkel mount holes to throttle body assembly.

The air filter was removed from the snorkel, and one of the retaining brackets (rear) was missing (see Figure 2.).



Figure 2. Air filter retaining brackets (rear missing).

Elongation was noted on the fiberglass where the rivets secured the fabricated bracket. The subsequent photograph showed a view of another one of the installed brackets for comparison purposes (see Figures 3 and 4.).



Figure 3. Missing air filter retaining bracket and elongation of attachment rivet holes.

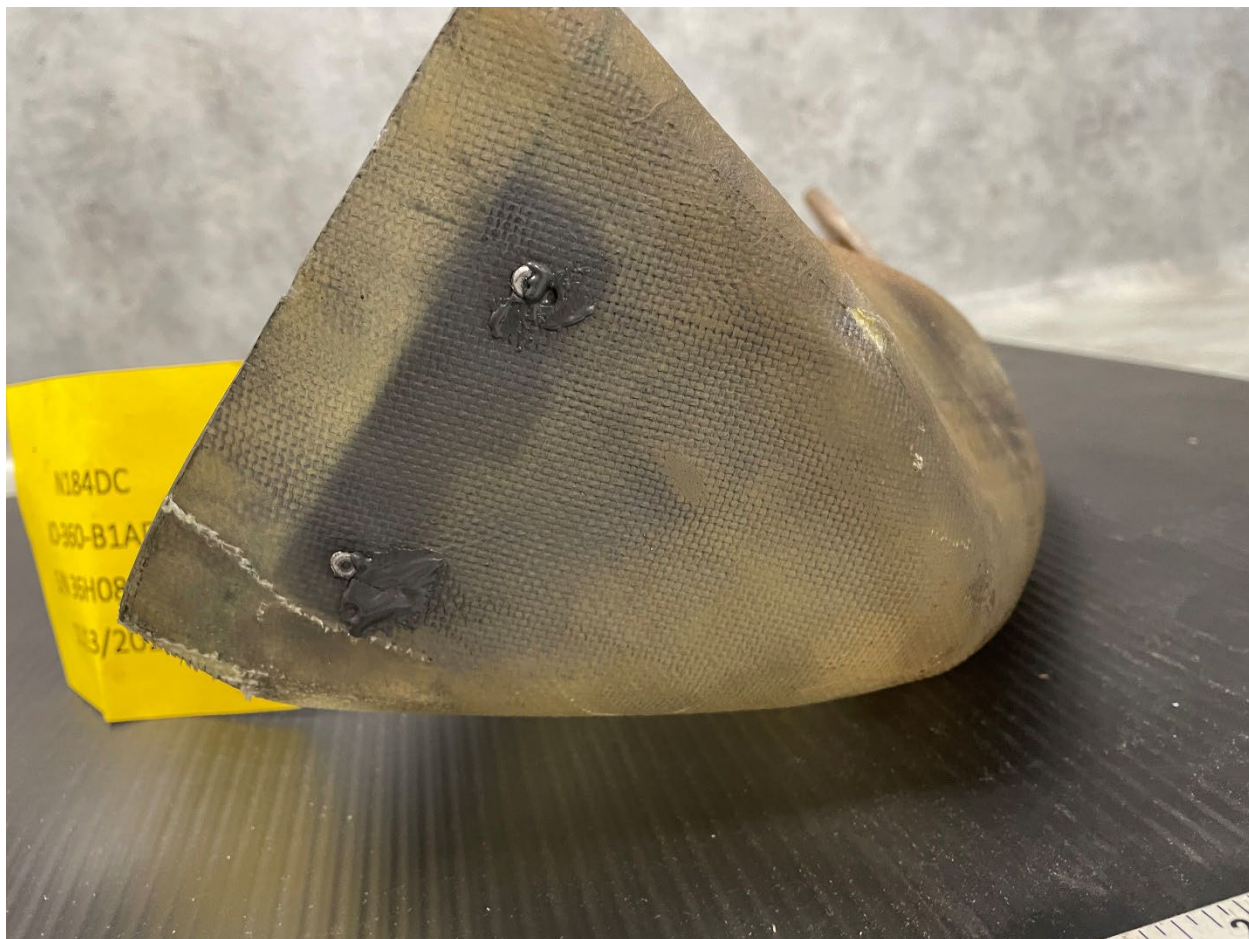


Figure 4. Other installed air filter retaining bracket and snorkel.

The No. 2 cylinder intake tube was removed. Inside the cylinder intake was a piece of foreign metal, consistent with the missing air filter retaining bracket (see Figure 5.).

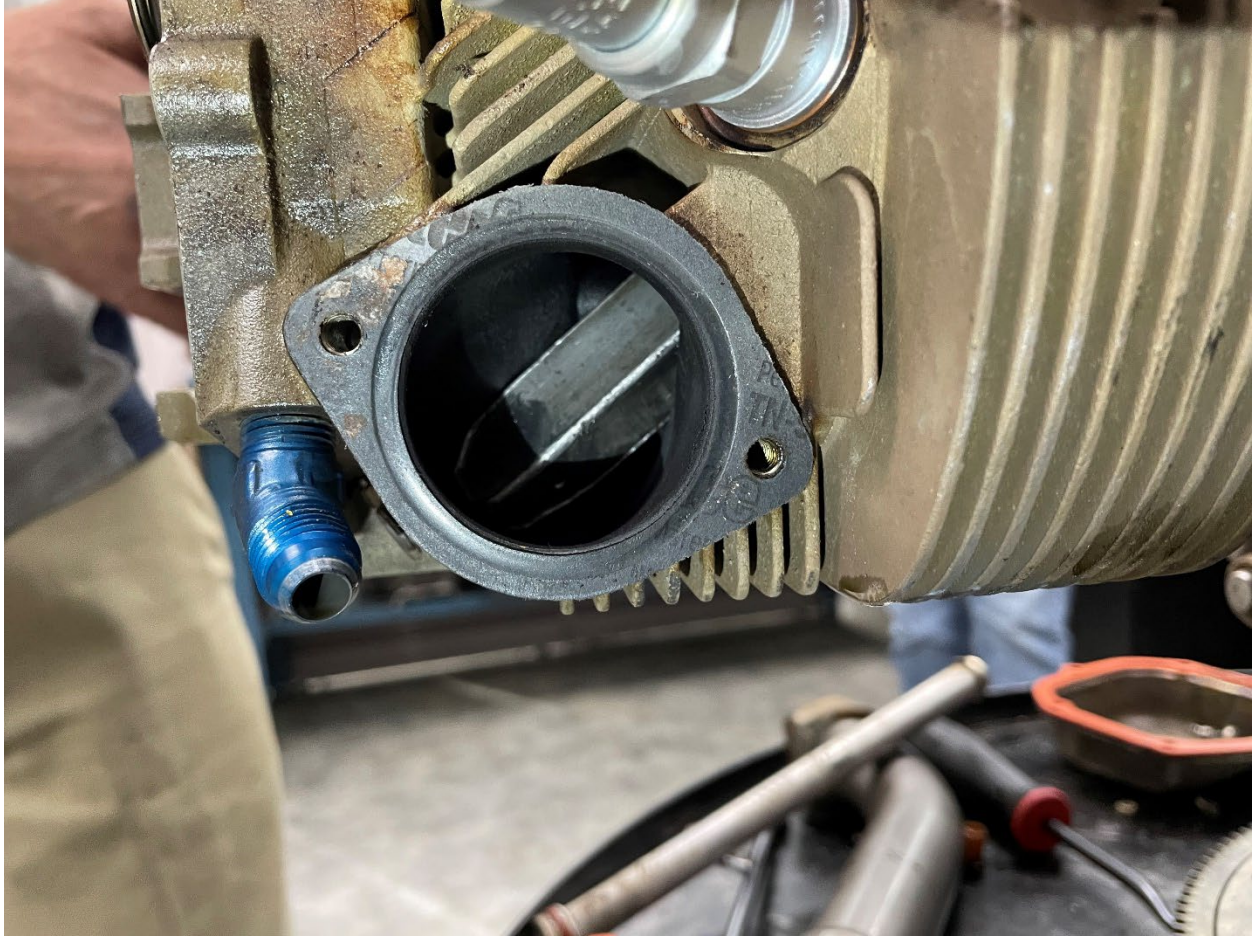


Figure 5. Foreign metal debris in No. 2 cylinder intake.

The bracket was jammed and could not be removed. The cylinder was then removed, and the bracket was jammed in the intake valve (see Figure 6.).



Figure 6. Separated air box bracket found jammed under intake valve seat.

The intake valve was removed, and the air filter retaining bracket was removed from the cylinder (see Figure 7.). The bracket rivets were not located.



Figure 7. Missing air filter retaining bracket located in No. 2 cylinder.

A review of the engine logbook revealed that on June 24, 2024, at 575.6 hours total engine time, the following entry was noted: "Oil Change Repaired Airbox and Step." (see Figure 8.). At the time of the accident, the engine had accumulated 17.1 hours since the noted repair. The owner/builder stated the repair was related to another aspect of the air box assembly and not the retaining brackets.

GASKETS AND		
6-24-24	575.6	OIL Change Repaired Airbox and step.
7-31-24	590.1	Replaced nose gear leg Aug Chapman - cert
8-2-24	591.0	Replaced Spark Plugs Aug Chapman - cert

Figure 8. Excerpt from engine logbook.

In addition, the starter ring support was improperly installed on the engine crankshaft (see Figure 9.). The support was installed incorrectly on the engine crankshaft bushings in about the 180° position. The improper installation did not adversely affect engine operation; however, magneto timing with reference to the support gear was off by 180°. Crankshaft to magneto timing was found to be correct.



Figure 9. Damage from crankshaft bushing on the rear of the starter ring support.

END OF SUMMARY