



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

January 28, 2021

AIRFRAME / ENGINE EXAMINATION SUMMARY

WPR19FA124

This document contains 4 embedded photos.

A. ACCIDENT

Location: La Center, Washington
Date: April 29, 2019
Aircraft: Vans RV-6, N90LK
NTSB Investigator-in-Charge: Michael Huhn

B. SUMMARY

Examination of the recovered wreckage was conducted at the facilities of AvTech, Auburn, Washington. The examination revealed no evidence of any preexisting malfunction that would have precluded normal operation of the airplane. The examination did reveal bird remains embedded within the engine compartment, engine mounts, and engine accessories. The remains were sent to the Smithsonian Bird Identification Laboratory for further examination.

C. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

Examination of the recovered wreckage revealed that both wings were cut off the fuselage to facilitate wreckage transportation. The flaps and ailerons on both wings remained attached. The empennage was mostly intact, and the horizontal stabilizers, elevators, vertical stabilizer, and rudder remained attached. Flight control continuity was established from the cockpit controls to all primary flight control surfaces.

Recovered portions of plexi glass, consistent with the airframe canopy and rear windows were examined. While a majority of the plexiglass was recovered, there was an unmeasured portion that appeared to not have been recovered.



Figure 1: Recovered canopy fragments

The engine was separated from the airframe to facilitate wreckage transport.

2.0 Engine and Propeller Examination

The engine remained attached to the engine mount. A considerable amount of dry mud/dirt covered a majority of the engine. During removal of the dirt from the engine, evidence of bird remains were located in multiple areas, including feathers embedded into the upper right engine mount attachment bolt area, and surrounding the engine driven fuel pump. The bird remains were retained for further examination.



Figure 2: View of the recovered engine



Figure 3: View of recovered bird remains



Figure 4: View of recovered bird remains

The propeller remained attached to the engine crankshaft, however, was mostly fractured (about 95 to 98% of the circumference was fractured) just aft of the propeller flange. The separation area exhibited 45° shear lips, consistent with overload. A hole in the cylinder no. 2 / 4 side of the crankcase was observed directly behind the propeller assembly, consistent with impact.

Utilizing a handtool attached to an accessory pad, partial rotation of the crankshaft was obtained. Holes were drilled into the crankcase and the internal areas of the engine were visually examined using a lighted borescope. Visual continuity of the throughout the engine and valve train was established.

The upper spark plugs were removed, and the cylinders were examined using a lighted borescope. All four cylinders exhibited evidence of corrosion and were full of dirt debris. The upper spark plugs exhibited a heavy amount of corrosion and debris within the electrode area.

The left and right magnetos were removed. When the driveshafts were rotated, both magnetos did not produce spark on any ignition post. Both magnetos were disassembled and exhibited corrosion and dirt debris within the internal area of the magnetos, otherwise all internal components were unremarkable.

The induction system and exhaust system were impact damaged.

The carburetor was displaced from the engine at the mounting flange, consistent with impact, and was covered in dirt/mud. The mixture shaft was impact damaged and separated. The throttle arm and throttle plate partially moved by hand. The carburetor was disassembled and inspected. The metal floats were intact, the venturi was intact, and the internal areas of the float bowl had some dirt debris. The needle valve was intact. The fuel inlet screen was free of debris.

The engine driven fuel pump was intact. The pump was removed from the engine, and actuated by hand, and appeared to function normally. The pump was disassembled, and the internal diaphragm was intact.

Submitted by: Joshua Cawthra