



The National Transportation Safety Board

Office of Aviation Safety
Central Region
Memorandum for the Record
Engine Examination Findings
CEN20LA084
Colorado City, Texas
December 10, 2020

Summary

No pre-impact anomalies were found with the engine. Rotation continuity was established from the engine crank to the main and tail rotor gearboxes. Rotational signatures were present on the engine crankshaft.

Details

The engine was found separated from the airframe, tethered by its V-belts, and sustained severe impact damage. The surfaces of the disconnects in the engine mounts were angular and jagged.

The cooling panels and scroll were crushed, dented and/or shattered.

The oil sump was crushed along with the airbox. The oil sump screen was removed from a portion of fractured sump, it was clear of debris. The carburetor was separated from the sump and airbox and was intact.

The right magneto sustained impact damage and separated from the accessory case. The left magneto remained secure, but the points cover was severely damaged.

The crankshaft was rotated by hand using the cooling fan. Thumb compression and suction was obtained on cylinders 1, 3 and 5. Cylinders 2, 4 and 6 contained a large amount of dirt. All the rockers appeared to move freely.

The engine cooling fan was dented and scored around the outer edges and had score marks around the rear face. The scroll had score marks on its inner surface adjacent to the aft face of the fan. The alternator cooling fan was bent at the 6 o'clock position. The oil cooler did not contact the starter ring gear.

The forward face of the upper sheave had some score marks and some singular dents. The airframe tubes adjacent to the forward face of the upper sheave were dented and scored. The aft face of the upper sheave had contact marks in several areas. The clutch centering strut was disconnected at the outer rod end and had score marks on its hardware. The grooves in the upper sheave had several rotational contact marks.

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