

**NATIONAL TRANSPORTATIONS SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594**

SUMMARY OF ENGINE EXAMINATION

-- CEN21LA117 --

A. ACCIDENT

Location: Waller, Texas
Date: January 26, 2021
Time: 1530 central standard time
Aircraft: Zenair Zodiac 601 HDS (s/n 63125), N444PZ

B. PARTICIPANTS

Ramon Reyes
Airworthiness Inspector
Federal Aviation Administration
Houston, Texas

Jordan Paskevich
Chief Accident Investigator
Rotech Flight Safety
Vernon, British Columbia, Canada

C. ACCIDENT SUMMARY

On January 26, 2021, about 1530 central standard time, a Zenair Zodiac 601 HDS airplane, N444PZ, was substantially damaged when it was involved in an accident near Waller, Texas. The pilot was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

D. DETAILS OF EXAMINATION

The NTSB did not respond to the accident site. The airplane was recovered to a private hangar following the accident. A post-recovery engine examination was conducted by an FAA inspector and a representative of the engine manufacturer on February 26, 2021.

Summary of Engine Examination

E. SUMMARY OF EXAMINATION¹

Airframe – Zenair Zodiac 601 HDS (s/n 63125)

The airframe sustained damage to the forward and aft portions of the fuselage, and both wings. The fuel system was compromised at both wing tanks. The header tank installed at the firewall was breached. Both wing fuel tanks and the header tank were empty.

Engine – Rotax 912UL (s/n 4400997)

The engine remained secured to the engine mount. The engine and gearbox assemblies appeared intact. Several engine components were dislocated and sustained minor damage consistent with impact forces. The propeller hub remained attached to the gearbox. Both propeller blades were fractured about 7 inches from the root. The blade roots remained secured to the hub; the fractured portions of the blades were recovered at the accident site.

The gearbox rotated smoothly with no anomalies noted. Internal engine continuity was confirmed via crankshaft rotation. Compression was observed at all cylinders. The ignition modules and harness appeared intact. They were not functionally tested. The spark plugs were intact and displayed normal operating signatures. The exhaust system and oil cooler were damaged consistent with impact. The radiator was deformed consistent with impact forces. The cooling system was compromised, and a small amount of coolant remained in the expansion tank.

Both air filters were attached to the carburetors. They were deformed consistent impact. The filter elements had accumulated some dirt but appeared functional. Both carburetors were dislocated from the mounting boots but otherwise appeared to be intact. The carburetor bowls did not contain fuel. The floats appeared intact. No anomalies were observed. Several rubber fuel lines were brittle and the fuel line to the fuel filter was breached. The fuel filter assembly appeared intact; it was not disassembled. The mechanical fuel pump appeared intact and was actuated by hand with no anomalies noted. The fuel line at the pump inlet was not fully installed.² Both fuel lines to and from the mechanical fuel pump were disconnected from the mating fuel lines.³ One drop of fuel was expelled from the pump. An electric fuel pump was installed and appeared intact. It was not functionally tested. Engine control continuity was confirmed.

----- end of summary -----

¹ Directions related to accident site placement and component damage/deformation are with respect to an intact airframe unless otherwise noted.

² The FAA inspector on-scene reported that the fuel line common to the engine-driven fuel pump inlet was separated. The fuel line at the pump outlet was secure.

³ The connection between the flexible and rigid fuel lines common to the engine-driven fuel pump could not be fully examined on-scene due to the fire sleeve installed on the lines.