

National Transportation Safety Board

Office of Aviation Safety

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CEN22LA321

N7514N - AIRFRAME AND ENGINE EXAMINATION REPORT

September 14, 2022

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A. ACCIDENT

Location: Bennington, Oklahoma
Date: July 17, 2022
Time: 2000 Local Time
Airplane: N7514N, Just Highlander

B. N7514N - AIRFRAME AND ENGINE EXAMINATION REPORT

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C. DETAILS OF THE EXAMINATION

1.0 Accident Site

An aviation safety inspector (ASI) from the Federal Aviation Administration (FAA) traveled to the accident site on July 18, 2022. Refer to the record of conversation for additional information.

The wreckage was recovered by Lone Star Retrieval on August 6, 2022, and was transported to Air Salvage of Dallas (ASOD) in Lancaster, Texas. During the recovery of the wreckage from the accident site, there was no fuel recovered.

A follow-up examination was conducted on September 13-14, 2022, at ASOD. Present was Mike Hodges and various staff members from ASOD.

2.0 Airframe Examination (Just Highlander, serial number JAESC0102)

- The wreckage was laid out and examined.
- The airframe sustained substantial damage to the fuselage and both wings.
- Flight control continuity was established. There were no signs of the flight controls being jammed or being interfered with.
- Vortex generators were found installed on both wings and the empennage.
- A stall warning device was not observed on the leading edge of the wings.
- There were no fire signatures present.
- The flap position could not be determined. The flap handlebar in the cockpit was found not locked into a position.
- All impact signatures observed were consistent with overstress.
- No signs of snarge were observed in the wreckage.
- All airframe fuel lines were found clear and unobstructed.

- The right fuel tank was found breached and with no fuel present. The right-side fuel tank cap was found installed. No abnormalities were noted with the cap. The tank filter was found clear of debris.
- The left fuel tank was not breached, and a small amount of liquid was found inside. About 15 FL OZ of an unknown white colored liquid was observed inside. The left side fuel tank cap not installed, and it was not found in the wreckage. An onsite photo from the FAA ASI showed that the left side fuel tank cap was installed. The FAA ASI did not remove any components from the wreckage. The tank filter was found clear of debris.
- The auxiliary tank in the cabin was not breached and a small amount of liquid was found inside. About 10 FL of a clear blue liquid, consistent with 100 LL was found.
- The airframe fuel filter was found clear of debris.
- The fuel tank selector was not present, and it was not found in the wreckage. The fuel tank selection at the time of the accident could not be determined. The FAA ASI did not remove any components from the wreckage.
- A fuel sample was obtained from the gascolator. About 8 FL OZ of clear blue liquid, consistent with 100 LL was found. A water finding paste test was conducted, and no signs of water contamination was noted in the sample.
- The gascolator filter was clear of debris.
- The cockpit did not have analog gauges and the airframe was equipped with a Garmin GDU 460 unit.
- The throttle and choke controls sustained impact damage.
- A mixture control was not observed.
- A carburetor heat control was not observed.
- The two seats had impact damage.
- The restraint system (4-point, manufactured by Simspon) was found intact, connected to the airframe, and seemed to function normally when checked. The right-side left shoulder piece appeared to be cut for occupant extraction.
- The right-side main landing gear remained attached, while the left side main landing gear was found detached.
- The tailwheel remained attached.
- The emergency locator transmitter (ELT) was found intact and was connected and to the antenna. The ELT switch was found in the off position.
- There were no large bags or cases found in the wreckage.
- The airplane was equipped with a Garmin autopilot system, using two GSA28 units.
- The pilot's operating handbook for the airplane, including weight and balance sheets, was not found in the wreckage.

3.0 Engine Examination (Rotax 912ULS, serial number 9574398)

- Based off the historical FAA airworthiness records, it was initially believed that a Subaru EA-81 engine was installed in the airplane. Upon arrival at ASOD, a Rotax 912ULS engine was found installed.
- Airframe to engine control continuity was determined.
- There was no fire damage observed with the engine.
- The engine case and cylinders appeared to be intact.
- All 8 spark plugs were removed and examined. All sparkplugs showed signs consistent with the "normal-worn" signatures as shown on the Champion Aerospace Aviation-Check-A-Plug chart.
- Thumb compression could not be obtained due to the crankshaft flange only being able to rotate about a one quarter of a turn.
- The rocker covers were removed to facilitate the examination.
- All four cylinders were removed. The crankshaft could then be fully rotated with no issues and internal engine continuity was verified.
- All valve faces for the four cylinders had signatures consistent with corrosion from water exposure. The airplane sat at the accident site, near a large river, for several weeks before it was recovered.
- All rocker arms, pushrods, valve springs were found to be intact.
- The pistons were intact, connected, and the heads had corrosion consistent with water exposure.
- Both carburetors were found intact.
- The left side carburetor was found attached by the firewall and the right-side carburetor was found attached to the engine.
- Both carburetors were disassembled and appeared to function normally when manipulated by hand. The floats were undamaged, and no debris was noticed in the bowl. The left carburetor bowl and floats had corrosion signatures consistent with exposure to water.
- A carburetor heat function was not noticed on the engine.
- The engine does not have magnetos, but a dual ignition system.
- The starter was removed, and it appeared intact.
- All ignition harnesses were found intact.
- The engine fuel and oil lines were impact damaged.
- The oil tank was damaged, and no oil was observed.
- The oil filter was found removed from the engine. It was cut open and the filter material was examined. No debris was found in the filter material.
- No fuel samples were able to be obtained from the engine.
- Due to oil line leaks and impact damage, the oil level at the time of the accident could not be determined.

- The exhaust tubing sustained impact damage and no signs of deterioration were noticed. There were no signs of blockage or issues with the baffles. The muffler was cut open to examine the diffuser.
- The induction system sustained impact damage.

4.0 Propeller Examination (Kiev Propeller 1900MM, serial number 293426)

- The propeller hub was found intact and was connected to the crankshaft flange.
- Only two out of the three composite blades were found intact.
- Blade 1 serial number was 293426, blade 2 serial number was 293426, and blade 3 was 293426 (all the same number).
- Blade 1 was separated near the hub, and the remains were not accounted for.
- Blade 2 was intact with no chordwise scratching observed on the blade.
- Blade 3 was separated about midspan. No chordwise scratching was observed on the blade.
- A spinner was not observed in the wreckage.
- The propeller sustained no fire damage.

5.0 Maintenance Records Review

- The historical FAA registration and airworthiness records were obtained from the FAA website.
- The maintenance records were not available for review. There have been no updates from the pilot's family members about locating the maintenance records.

Submitted by:

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Investigator-In-Charge