

Report of Findings

Date of accident: August 2nd 2023
Location of the accident: Van Nuys, CA
Aircraft registration: N384SC
Aircraft type: Czech Sport, Sport Cruiser
Engine type and S/N: Rotax 912ULS2 S/N 6782973
NTSB file number: WPR23FA299
Date of Report: August 13th 2024

Original Accident Location:

Van Nuys, California

Preliminary engine inspection:

Inspection took place at: Air Transport, Phoenix, AZ

Date of inspection: August 13th, 2024

Persons in attendance

- NTSB Investigator – Michael Hicks
- RFS – Jordan Paskevich

ENGINE

Rotax Engine Model Number: Rotax 912ULS2

Rotax engine serial number: 6782973

OVERVIEW

See NTSB Preliminary Report

Initial condition of Engine as presented before the detailed inspection

The engine was substantially damaged from the post-impact fire. Multiple components were not attached to the engine and were not available for examination.

- The ignition system was not attached or available for inspection.
- The intake manifolds were not attached to the engine or available for examination.
- The oil pump and oil filter were not attached to the engine but were found in a bag and available for examination. The oil system components, including the oil tank, oil lines, and oil cooler, were not attached to the engine or available for examination.
- The water pump was not attached to the engine but was found in a bag and available for examination. The coolant system components, including the coolant lines, expansion tank, and coolant radiator, were not attached to the engine or available for examination.
- The carburetors were not attached to the engine but were found in a bag and available for examination.
- The fuel pump was not attached to the engine but was placed in a bag and available for examination.
- The reduction gearbox was not attached to the engine or available for examination.
- The exhaust system was not attached to the engine or available for examination.

Detailed Engine Inspection

Spark Plugs & Spark Plug Caps

The spark plug caps were not available for examination. The spark plugs were removed from the cylinder heads and placed in a holding tray.

All spark plugs were of the correct ROTAX type. The plug electrodes exhibited a yellow tinge and a slight buildup of lead, which is consistent with the use of 100LL Avgas. The top spark plugs for cylinders #2 and #4 were damaged due to impact.

Aside from the yellow tinge on the plug ground electrodes and the impact damage, the plugs appeared normal.

Ignition System

The ignition system was not available for examination.

Fuel System including carb inspection and fuel lines

The fuel system such as fuel lines was not available for examination.

The carburetors were no longer attached to their respective intake manifolds and were damaged by the post-impact fire.

1/3 carburetor: the piston slide was found slightly misaligned when viewed through the venturi. The top of the carburetor was disassembled, and the piston slide was removed from the carburetor body. The diaphragm index tabs were not aligned with the indentation slots on the top of the carburetor housing, indicating incorrect assembly of the carburetor. This misalignment of the piston slide could affect the overall performance of the engine. The main jet was stock (number 155) and unobstructed.

2/4 carburetor: the piston slide was found more misaligned than the #1/3 carburetor when viewed through the venturi. The top of the carburetor was disassembled, and the piston slide was removed from the carburetor body. The diaphragm was consumed by the post-impact fire, so the alignment of the index tabs with the indentation slots in the carburetor body could not be verified. This misalignment of the piston slide could impact the overall performance of the engine. The main jet was stock (number 155) and unobstructed.

Lubrication system

The oil cooler and oil lines were not available for examination. During the disassembly of the engine, evidence of oil was found throughout, indicating that proper lubrication was present. There were no signs of oil starvation or excessive heat signatures that would suggest a lack of lubrication.

Cylinder and cylinder head

The valve covers were removed from the cylinder heads, and the rocker arms, valve springs, and pushrods were examined. No anomalies were observed with any of these components.

The cylinder heads were then removed from the cylinders and inspected. All intake and exhaust valves were intact and appeared to be in good condition. A slight buildup of yellow-tinged lead on the surfaces of the cylinder heads and valves indicated that the engine had been operating with 100LL Avgas. The rocker arm shafts moved freely with finger pressure, suggesting that the cylinder heads had not been overheated during operation.

No anomalies were noted with any of the cylinder heads or their components.

The cylinders were removed from the engine and examined. All cylinders were in good condition, with cylinder bores showing a proper cross-hatching pattern. No signs of overheating, lack of lubrication, scoring, or seizure marks were observed in any of the cylinder bores.

No anomalies were observed with any of the cylinders.

Pistons:

The #1 and #2 pistons were positioned just below TDC and were accessible for removal from their connecting rods. In contrast, the #3 and #4 pistons were slightly above BDC and mostly inside the crankcase, making them inaccessible due to the immovable crankshaft and blocked wrist pins. All pistons were found to be in good condition, with a slight yellow-tinged lead buildup consistent with 100LL Avgas. The piston rings moved freely within their ring lands.

No anomalies were observed with the pistons.

Crankcase:

The crankcase sustained significant damage from both the impact and post-impact fire. A large hole was found in the area in front of the #2 cylinder due to the impact, and the top section of the crankcase, which houses the reduction gearbox, was broken off and unavailable for inspection.

Crankshaft:

The crankshaft could not be rotated within the crankcase due to damage from the impact and post-impact fire. Examination through the piston bore revealed no broken components or signs of heat damage from a lack of lubrication. The crankshaft could not be removed from the crankcase because the #3 and #4 pistons obstructed the case from being split.

Camshaft:

The camshaft could not be rotated within the crankcase due to impact and post-impact fire damage. Inspection through the piston and lifter bores showed no heat damage from a lack of lubrication, and the cam lobes were in good condition. The camshaft could not be removed because the #3 and #4 pistons obstructed the case from being split.

Hydraulic Lifters:

The hydraulic lifters were removed from the lifter bores and examined. They were in good condition, with no pitting, scoring, or unusual markings on the contact surfaces.