

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ANC23LA051

ENGINE EXAMINATION

August 21, 2023

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A. ACCIDENT

Location: Ninilchik, AK
Date: July 12, 2023
Time: 1530

Airplane: N97719

B. ENGINE EXAMINATION

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C. DETAILS OF THE EXAMINATION

1.0 Engine Examination

Removal of the No. 1 Cylinder. The No. 1 cylinder was completely fractured around the middle of the cylinder. It was still attached to the intake manifold and the exhaust tubes. Both the top and bottom sparkplug insert helicoils were loose from impact forces; metal fragments were present on the No. 1 spark plug. The piston rings were visible sticking out from between the two halves of the fractured cylinder. The piston and valve were not located. Only a small portion of the attachment point of the intake valve was still attached. Inside top part of the cylinder showed signs of multiple impacts.

The intake valve spring was overextended, which pushed the rocker arm outward. No anomalies were noted on the rocker. The intake push tube was not bent; the exhaust push tube housing was slightly bent. The valve stem was fractured about an inch from the interior base of the valve. The valve stem shaft moved freely when pushed inward from the rocker. There was extensive damage to the valve stem surfaces. Fragments of the piston, intake valve stem head were not located.



Figure 1 View of the left side of the engine, note cylinder No. 1 partially separated.

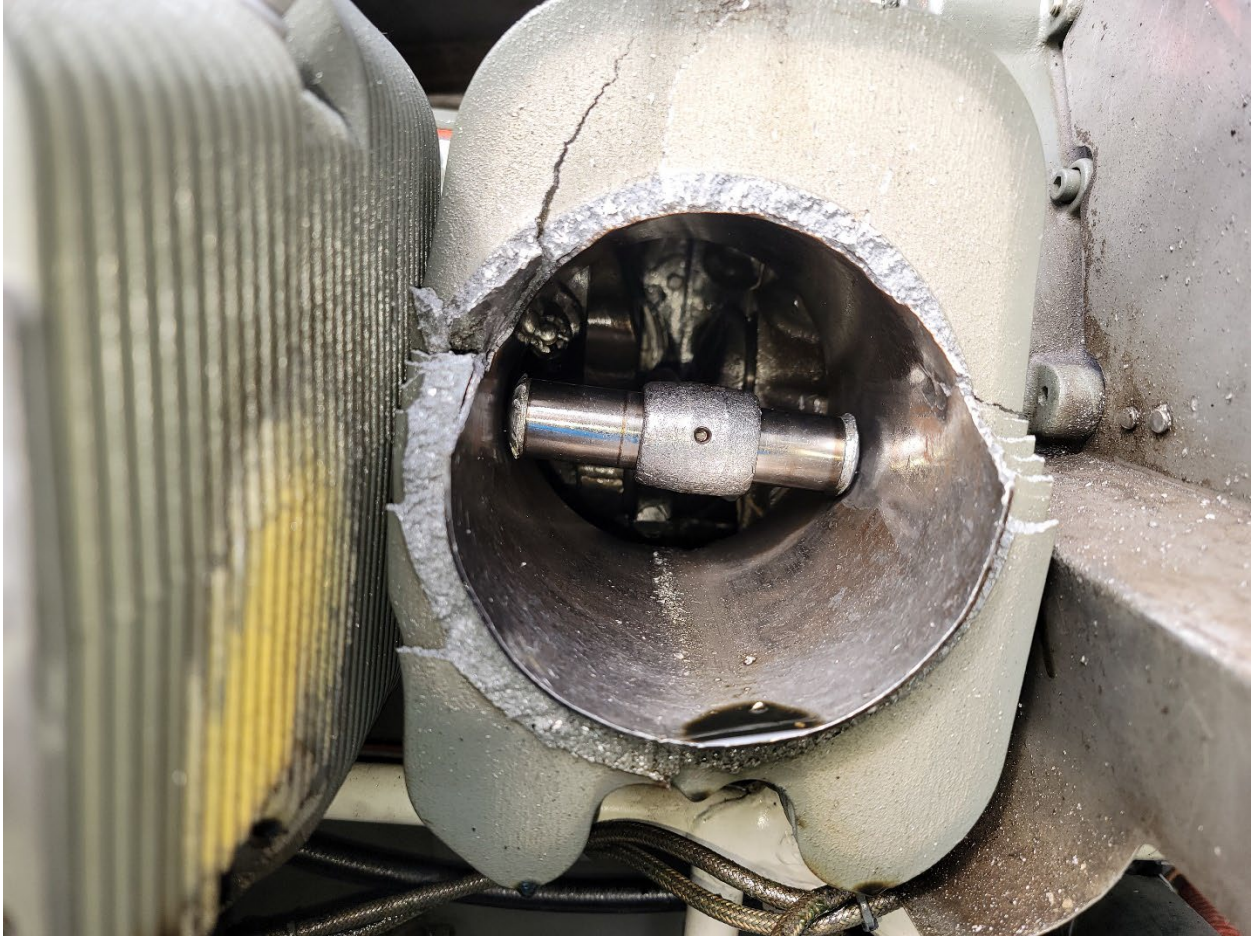


Figure 2 View inside the attached portion of the No. 1 cylinder.



Figure 3 View into the engine case from the No. 1 cylinder.



Figure 4 No. 1 top sparkplug, the bottom sparkplug remained loosely attached to the cylinder.



Figure 5 View of the No. 1 cylinder piston rings after being removed from the engine.



Figure 6 View inside the No. 1 cylinder after removal from engine, note the remaining portion of the exhaust valve stem.

Submitted by:

Mark Ward
ASI