

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA22LA410

ENGINE EXAMINATION SUMMARY

October 28, 2022

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A. ACCIDENT

Location: Anchorage, AK
Date: September 9, 2022
Time: 1530 AKDT
Airplane: Cessna U206

B. ENGINE EXAMINATION SUMMARY

Investigator	Millicent Hill NTSB Anchorage, AK
Investigator	Mark Ward NTSB Anchorage, AK
Operator	Craig Cummings Golden Eagle North Pole, AK

C. DETAILS OF THE INVESTIGATION

On September 9, 2022, about 1530 Alaska daylight time, a Cessna U206 airplane, N8019Z, was substantially damaged when it was involved in an accident near Buckland, Alaska. The commercial pilot and one passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 135 passenger flight.

The purpose of the flight was to transport a passenger and his gear to a gravel bar on the Buckland River. During cruise flight, the engine began to shudder and lose power. He made an immediate turn toward the airport in Buckland and maintained flying airspeed; however, the airplane would not maintain altitude. He attempted a restart without success. The engine continued to run rough until there was a loud “clunk” and the propeller suddenly stopped. The pilot landed the airplane on rough terrain, and it flipped over, inverted.

D. ENGINE EXAMINATION

The engine was removed from the fuselage and placed on a test stand to facilitate examination.

1.0 Engine Examination

The air intake was removed, multiple fragments of metal debris were found in the intake. The spark plugs were removed, an elliptical impact deformation and metal debris was noted on around the top of the No.1 bottom spark plug.

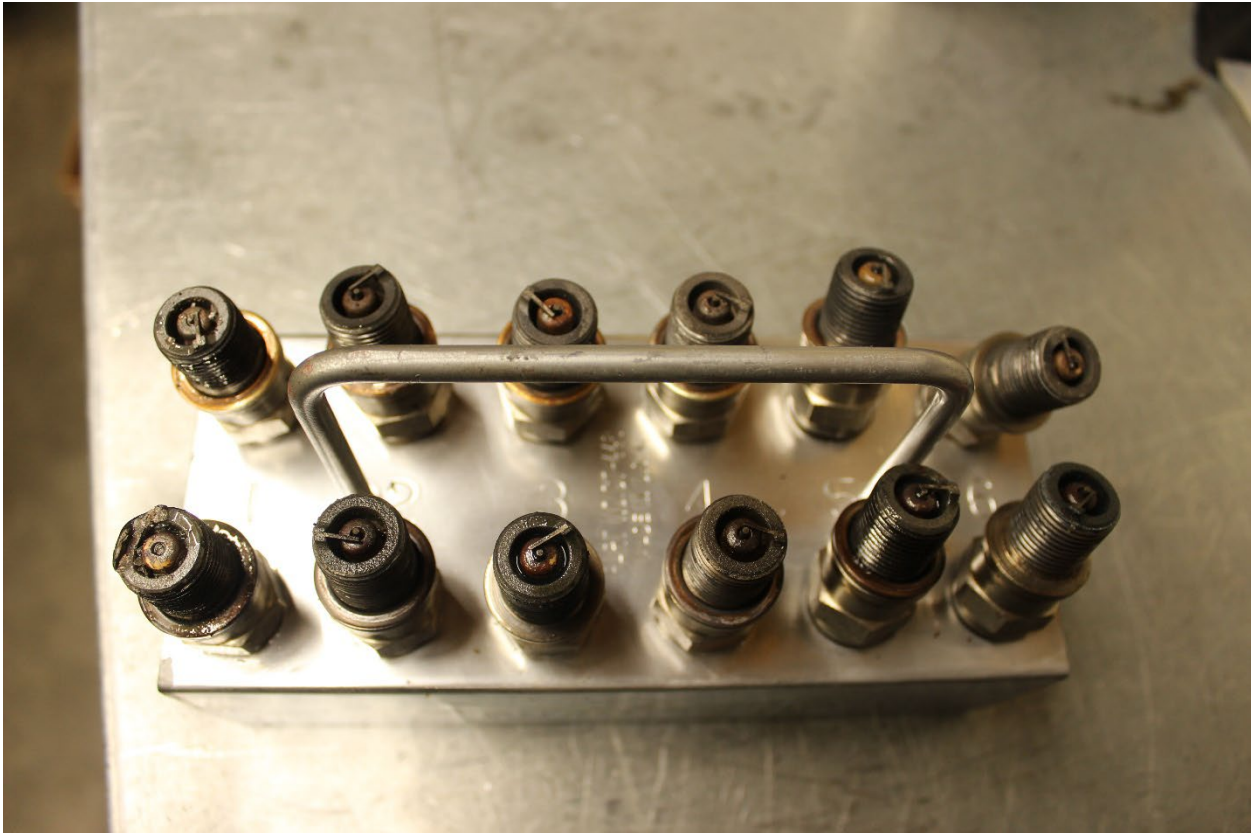


Figure 1 View of the spark plugs

The exhaust nuts were not torqued and easily loosened. The oil pressure indicator intake line was slightly loose.

Fuel was present in the engine fuel line.

The starter adapter was removed and there were metal fragments present around the gears. It spun freely without binding, no anomalies were noted.

The oil pump was removed, rotational scoring was present in the oil pump housing.

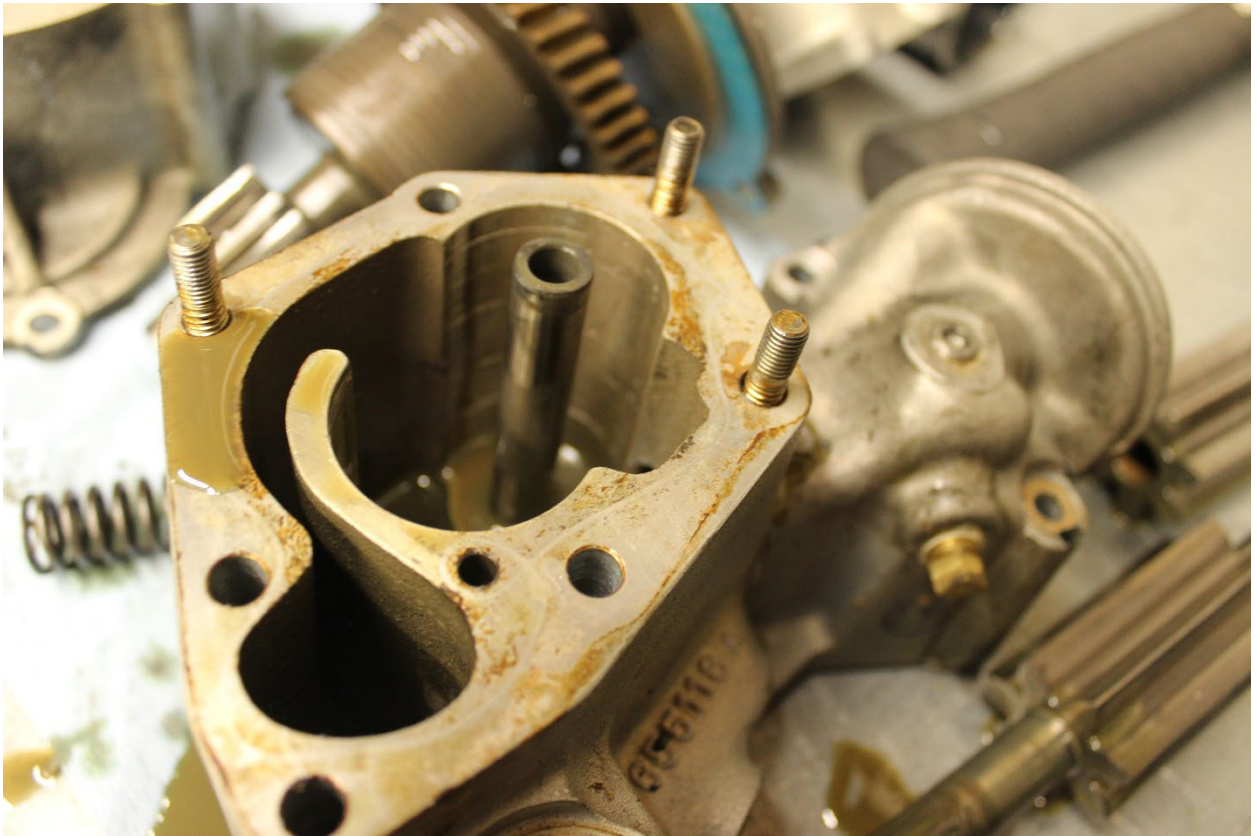


Figure 2 View of the rotational scoring on in the oil pump.

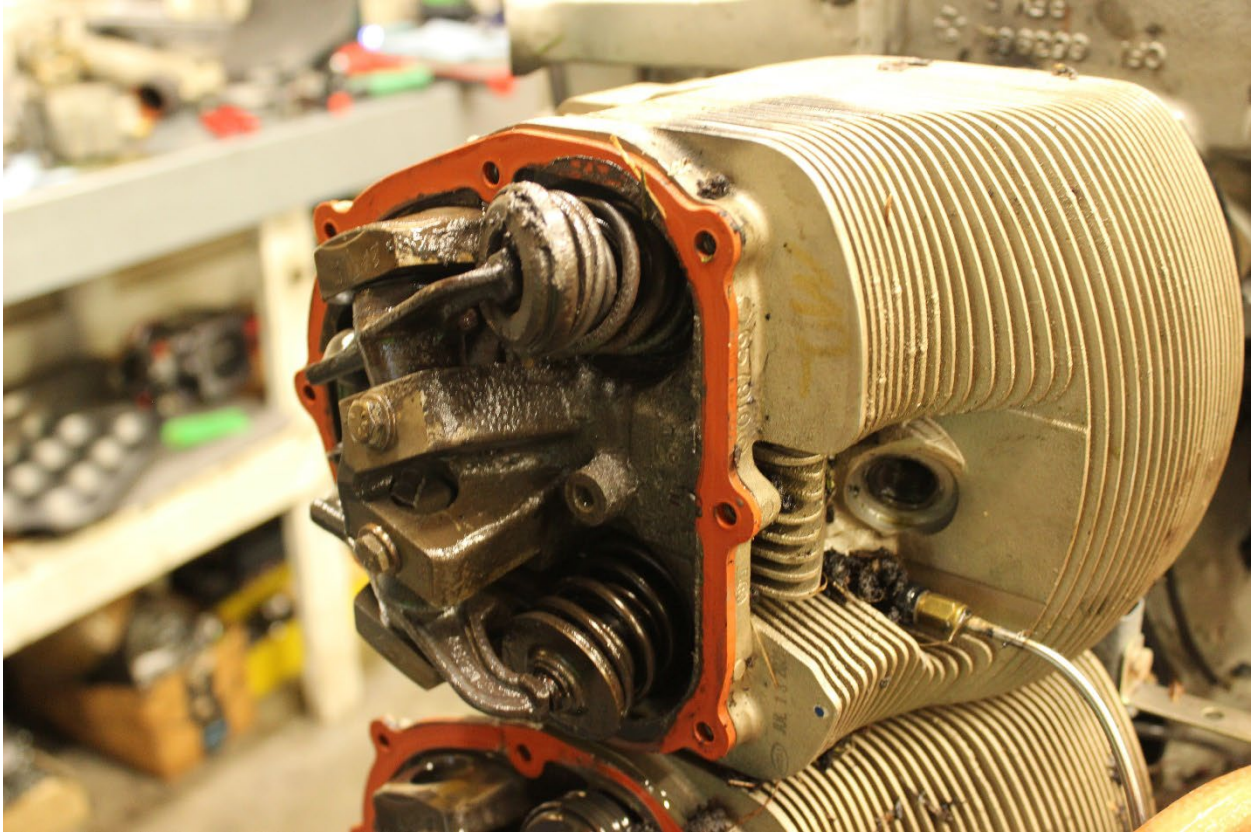


Figure 3 No. 1 cylinder exhaust valve springs were deformed.

The No. 1 keeper on the exhaust valve was crushed, a portion of the keeper remained around the valve stem. The No. 5 exhaust valve keeper was fractured and bent in.

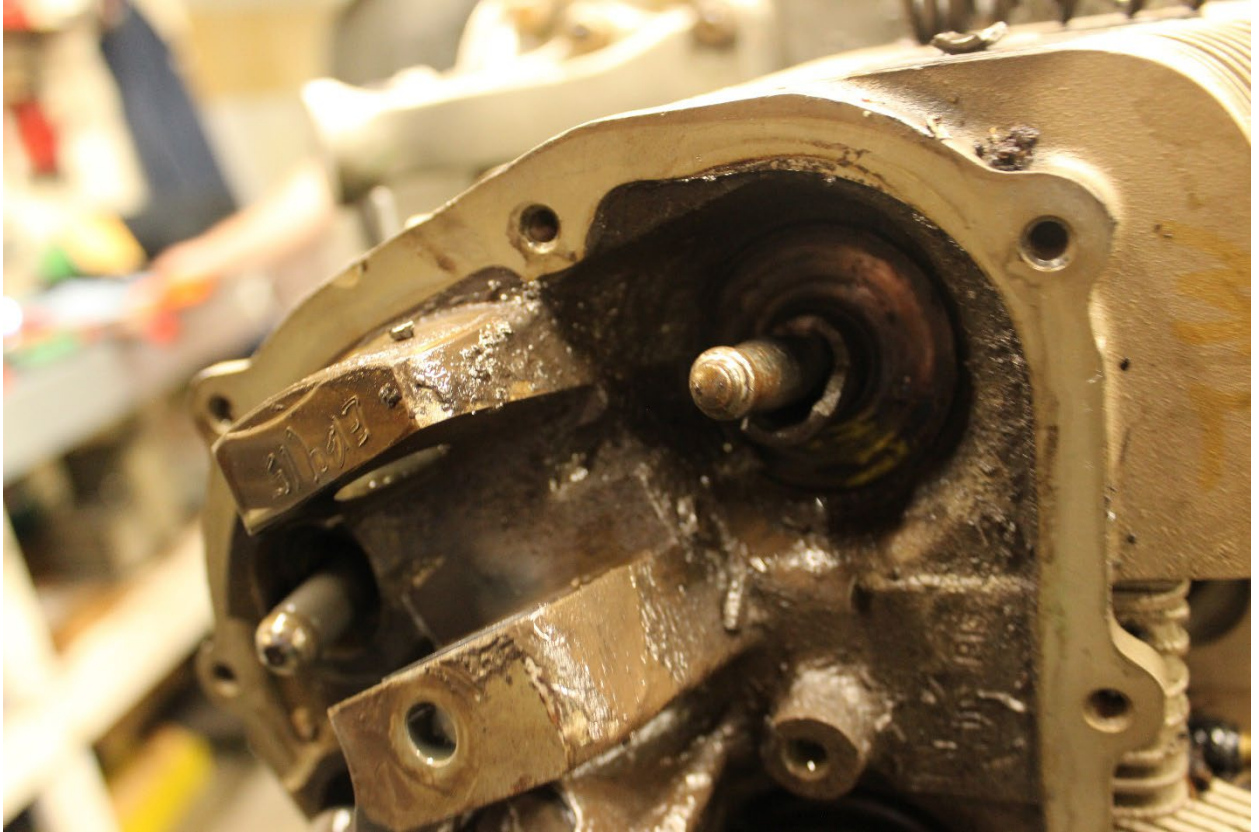


Figure 4 No. 1 exhaust valve pin and the remaining fragments of the key.

The No. 1 exhaust valve guide was damaged and fragmented. The No. 5 key was deformed inward and cracked. No deformities on other keys were observed.

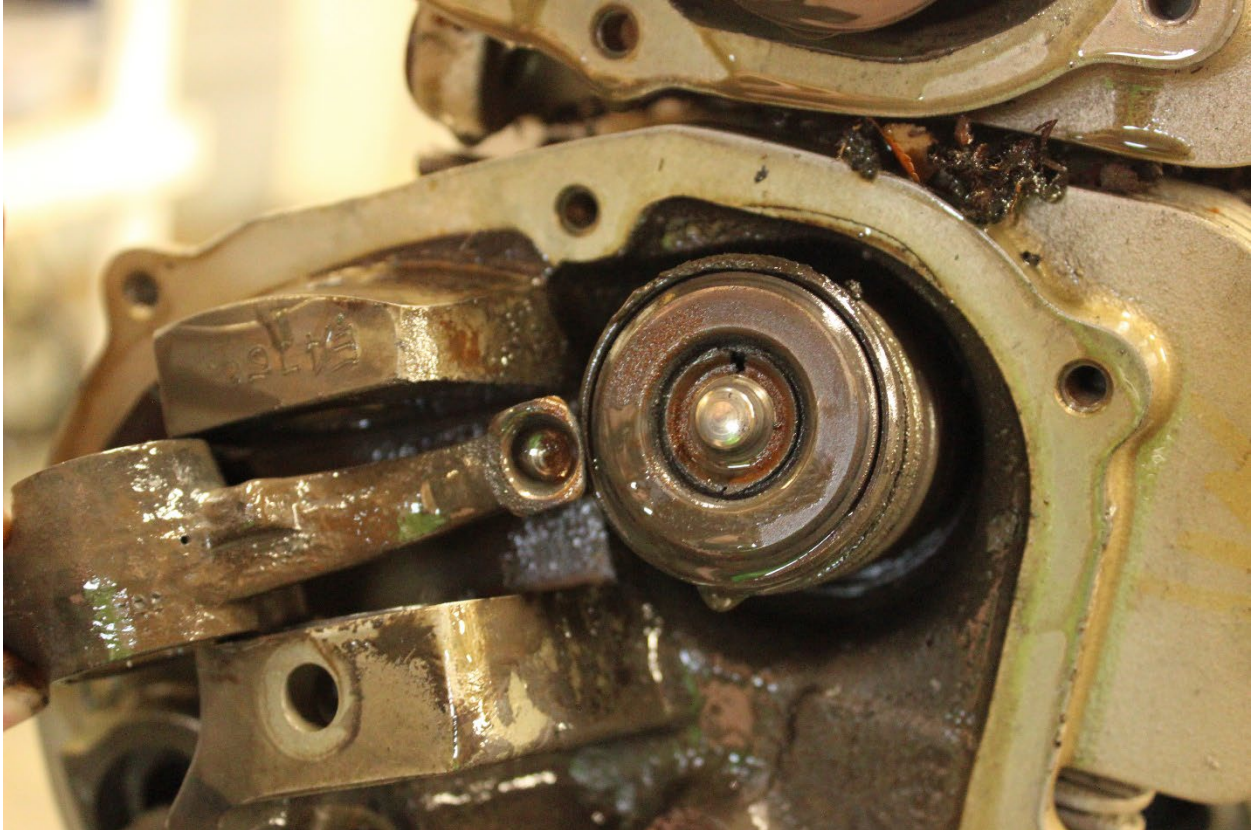


Figure 5 No. 5 exhaust valve stem and key.

There were metal fragments present in both magnetos.

The oil filter was removed and opened, there was metal debris present in the filter.

The thru bolts torque: 1072, 919, 938, 893, 912, 787, 1040, 962.

The magnetos were removed and placed on a test bench, they produced spark on all leads.

The No 1. cylinder had extensive deformation.

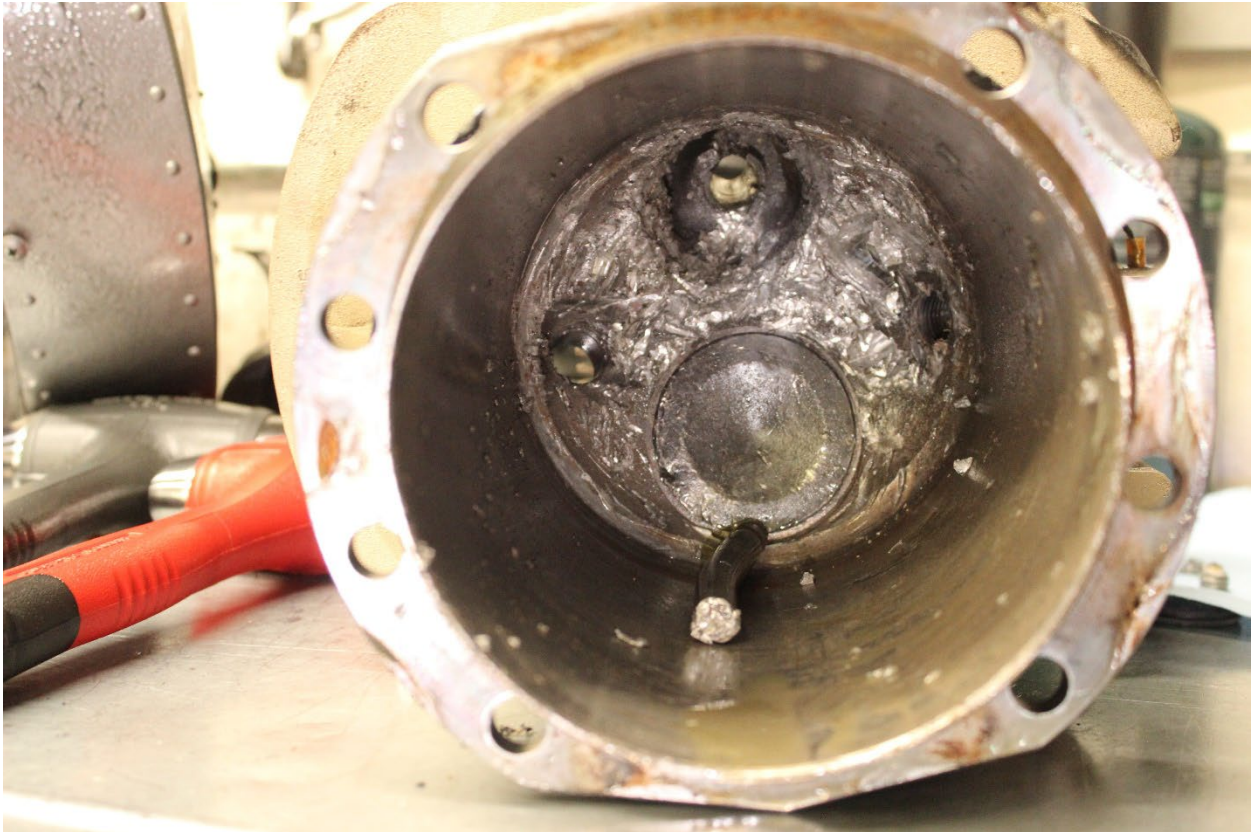


Figure 6 Damage to the No. 1 cylinder.

The No 4. cylinder had a small metal fragment.

The oil sump was removed and there were numerous metal fragments present.



Figure 7 Metal fragments found in the oil sump.

The exhaust valve rocker arms on cylinder Nos. 1 and 5 were deformed, along with the Nos. 1 and 5 valve stems.



Figure 8 Exhaust valve stems from cylinders Nos. 3 and 1.

Figure 8 shows the No. 1 stem compared to the No. 3, which was not deformed.



Figure 9 Exhaust valve rocker arms, Nos. 5, 1.

Submitted by:

Millicent Hill
Aviation Accident Investigator