

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN23FA095

ENGINE EXAMINATION

December 5, 2023

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A. ACCIDENT

Location: Hooker, Oklahoma
Date: January 28, 2023
Time: 1902 Local
0102 UTC
Airplane: Cessna 172

B. ENGINE EXAMINATION

Investigator	Jason Aguilera National Transportation Safety Board Denver, CO
Party Coordinator	Henry Soderland Textron Aviation Wichita, KS

C. SUMMARY

Following the accident, the airplane was transported to Beegle's Aircraft Services, Greeley, Colorado. The engine examination took place on December 5, 2023, at their facilities. Prior to the examination, the recovery facility removed the engine from the wreckage and placed it on an engine stand. The remainder of the wreckage was not examined during this examination.

D. DETAILS OF THE EXAMINATION

1.0 Engine Examination



Figure 1 Left Side of Engine



Figure 2 Right Side of Engine

The engine was impact and fire damaged. The propeller remained attached to the engine via the propeller flange. The dipstick was not present. The carburetor and vacuum pump were not located. Impact and fire damage was noted to the accessories.

The top ignition harness leads were removed. The top bank of spark plugs were removed and photo documented.



Figure 3 Top Spark Plugs

The engine could not be rotated via the propeller. Portions of the engine shroud appeared to impinge movement of the engine, so the propeller was removed. The propeller hub was crushed rearward into the propeller and rotational scoring was noted on portions of the engine cowling surrounding the hub.



Figure 4 Propeller Hub and Engine Cowling

Further attempts to rotate the engine were not successful. Borescope of the cylinders were unremarkable. The engine's oil sump was impact damaged and the crankshaft could be observed through the opening.

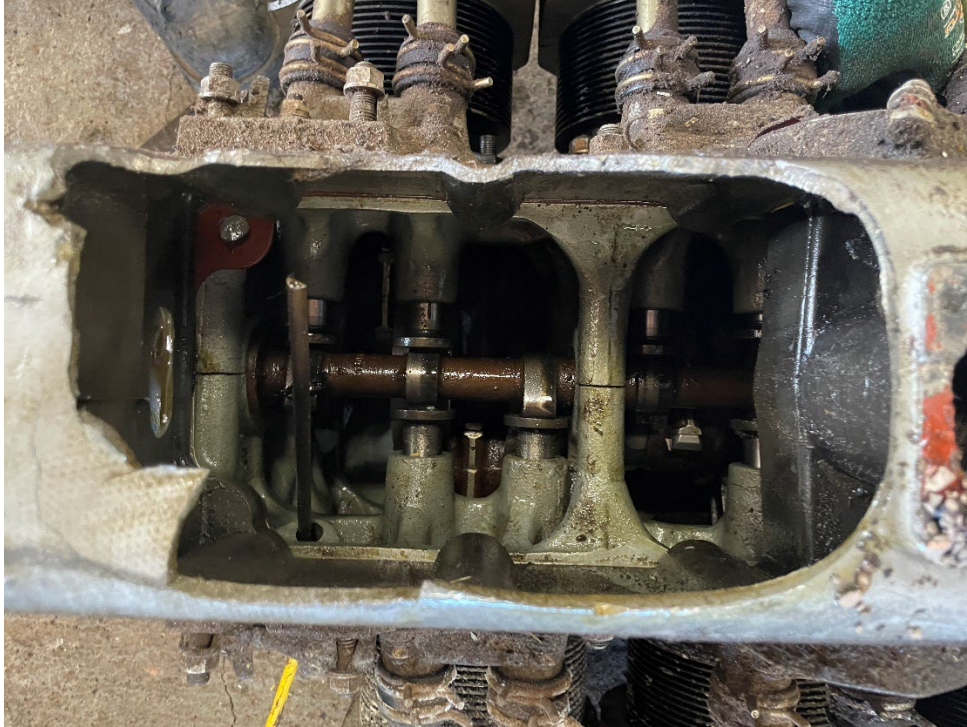


Figure 5 Exposed Crankshaft

There was no evidence of thermal distress on the crankshaft. All counterweights were properly secured, and no failure of engine components were observed. Impact forces had pushed the propeller rearward resulting in displacement of the No. 6 connecting arm back into the No. 5 connecting arm. It is likely the engine would not rotate due to impact damage.

The magnetos were removed from the engine. The ignition harness were impact damaged, so the harness was cut to facilitate examination of the magnetos. Rotating the magnetos by hand, the left magneto sparked at 5 of the 6 terminals, and the right magneto sparked at all 6 terminals.

Submitted by:

Jason Aguilera
Senior Air Safety Investigator