

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA24LA241

ENGINE EXAMINATION

June 18, 2024

TABLE OF CONTENTS

A. ACCIDENT.....	3
B. PARTICIPANTS.....	3
C. HISTORY OF FLIGHT.....	3
D. ENGINE INFORMATION.....	4
E. INITIAL EXAMINATION.....	5
F. DETAILED EXAMINATION	5
G. SUMMARY AND TEST RUN	7

A. ACCIDENT

Location: Terryville, CT
Date: June 3, 2024
Registration: N906B
Model: Cessna 172K

B. ENGINE EXAMINATION PARTICIPANTS

IIC	Robert Gretz NTSB ERA - NJ
Party Coordinator	Joshua Cline FAA FSDO Enfield, CT
Party Coordinator	Peter Basile Textron Aviation Wichita, KS
Party Coordinator	Russel Gait Lycoming Engines Williamsport, PA

C. HISTORY OF FLIGHT

On June 3, 2024, about 1055 eastern daylight time, a Cessna 172K, N78445, was substantially damaged when it was involved in an accident near Terryville, Connecticut. The student pilot incurred minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

The student pilot reported that the fuel tanks were full prior to her departure on a solo cross-country flight. About halfway during the flight, at 5,500 ft mean sea level, the engine rpm began to decrease until the engine lost all power, and the propeller was not windmilling. She then tried to restart the engine, but the propeller would not turn. The student pilot diverted and attempted to glide the airplane to a nearby airport, but it impacted wooded terrain about 1 mile from the airport.

D. ENGINE INFORMATION

Engine Manufacturer: Lycoming
Engine Model Number: O-320-E2D
Engine Serial Number: L-21219-27A
Recent Inspection: 100-hr 5/29/24
Recent Recorded Tachometer Time: 5,226.77 (at 100-hr)

The powerplant is a four-cylinder, air cooled, direct drive, horizontally opposed, carbureted, naturally aspirated engine with a rating of 150 hp at 2700 rpm.



Figure 1 - Main Wreckage (NTSB)

E. INITIAL EXAMINATION

The wings and empennage had been separated for transport to a recovery facility:

- The engine remained attached to the airframe through all engine mounts.
- The two-bladed propeller remained attached to the crankshaft flange.
 - One blade appeared undamaged, and the other was bent forward near the blade tip.
- The cylinders remained attached to the crankcase.
 - The No. 2 cylinder exhaust pushrod exhibited impact damage but continued to operate when tested.
- Engine crankshaft rotation was accomplished when force was applied to the propeller.

F. DETAILED EXAMINATION

Fuel System

The carburetor remained intact, and fuel was observed in the carburetor bowl. The fuel was blue, clear, and absent of visible contamination. The carburetor fuel screen was also absent of debris. Similar fuel was also drained from the airplane's fuel sump. Continuity was confirmed from both wing fuel tank fuel lines to the carburetor.



Figure 2 - Carburetor, Separated from Engine (NTSB)

Magnetos

The magnetos remained intact, and the impulse coupling could be heard during hand rotation of the propeller.

Spark Plugs

The top spark plugs were removed. Their electrodes were intact and light gray in color.



Figure 3 - Top Spark Plugs, Removed from Cylinders (Courtesy of Lycoming)

Starter

The engine's starter remained intact and activated via the key in the cockpit.

Alternator

The alternator remained attached and operated during subsequent engine test run. The alternator belt was found loose and was tightened for engine run.

Oil System

Oil was present throughout the engine.

Cylinders and Valve Train

Thumb compression was attained on all cylinders during hand rotation of the propeller. Crankshaft, camshaft, and valve train continuity was confirmed to the rear accessory section of the engine.

G. SUMMARY AND TEST RUN

No anomalies were noted during the cursory examination. The removed components were subsequently reinstalled for a test run. Fuel was supplied to the left fuel tank fuel line via a portable container. The engine started without hesitation and ran continuously at idle power. Due to propeller damage and vibration, higher engine power settings were not attempted.



Figure 4 - Screenshot From Engine Run Video (Courtesy of FAA)

The wreckage will remain in storage at AMF Aviation, Westfield, MA.