

**NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594**

SUMMARY OF ENGINE EXAMINATION

-- CEN22LA230 --

A. OVERVIEW

On June 2, 2022, about 1803 central daylight time, a Cessna 172P, N65497, was substantially damaged when it was involved in an accident near Ennis Municipal Airport (F41), Ennis, Texas. The flight instructor and pilot were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

B. PARTICIPANTS

Federal Aviation Administration inspectors and a Lycoming safety representative conducted the examination at the recovery location.

C. SUMMARY OF EXAMINATION

The engine remained attached to the airframe and its respective engine mount. The accident sequence (tree strike to right wing) did not cause damage near the engine area.

The engine was in a condition suitable to conduct an engine run, but broken cylinder hold down studs were found on the No. 1 cylinder which prevented an engine run.

In total, 4 smaller diameter studs and 1 larger diameter stud were fractured. The fractured cylinder hold down studs exhibited overload that was consistent with improper torquing.

Both magnetos were found tightly installed to the accessory section and timing found at approximately 24 degrees.

Engine continuity was confirmed and valve timing was correct providing suction and compression on each cylinder as the propellor was rotated by hand.

The carburetor was present and found to have plastic floats that were unremarkable. There was no sediment within the float bowl and the inlet screen was free and unobstructed. The needle and seat did not appear to leak when air pressure was applied to the inlet port and the floats raised and lowered through normal travel range.

All sparkplugs were removed and had coloration and wear consistent with normal engine operation when checked to a Champion Check-a-plug chart.