



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Eastern Region

ENGINE EXAMINATION

CASE NUMBER: ERA26LA018

AIRCRAFT: Cessna 177

EXAMINATION PARTICIPANTS:

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National Transportation Safety Board

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Air Safety Investigator
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SUMMARY

Examination of the recovered engine was conducted on 11/3/2025 at AMF Aviation LLC, Springfield, TN.

DETAILS OF THE INVESTIGATION

Engine Examination

The engine remained attached to the fuselage and was examined to determine the feasibility of an engine test run. Rotation of the propeller through 360 degrees revealed that the crankshaft was bent at the propeller flange. Based on this observation, an engine test run could not be performed.

The fuel, ignition, and valvetrain systems were subsequently examined. The fuel line from the electric fuel pump to the carburetor was removed; no fuel was observed in the line. Compressed air passed through the line, and it was found clear of obstructions. There was no fuel staining anywhere on the airplane or in the engine compartment.

The electric fuel pump was removed, and fuel lines were attached to the inlet and outlet fittings. Clean 100LL fuel was supplied to the inlet side, and voltage was applied to the pump. The pump operated normally and produced free fuel flow. The engine-driven mechanical fuel pump was also removed and tested with 100LL fuel supplied to its inlet. When manually actuated, the pump operated normally and produced free fuel flow.

The carburetor was removed, and the fuel bowl was disassembled. A trace amount of fuel was present in the bowl, and no anomalies were noted. The valve covers were removed to observe valvetrain movement during propeller rotation. When the propeller rotated through 720 degrees, all valves operated normally. The upper spark plugs were removed and examined; all exhibited normal coloration consistent with the Champion Spark Plug Inspection Chart. Cylinder compression testing produced pressure in all cylinders. The lower spark plugs were then removed and inspected; all exhibited normal wear and coloration. Additional rotation of the propeller confirmed normal valvetrain and accessory drive operation. No anomalies were noted.

The engine was equipped with one mechanical magneto and one electronic magneto, each supplying ignition to one spark plug per cylinder. The mechanical magneto was rotated to engage the impulse coupler, and spark was observed at all terminal leads.

The oil sump screen was removed and found clean and free of debris. Approximately seven quarts of oil were drained from the sump. The oil filter was opened for examination; no debris was observed in the paper element. The filter housing was marked with a change date of May 30, 2025, at 5,810.04 tachometer hours.

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