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Subject: Memorandum for the Record CEN23FA187
Engine Examination Findings

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Summary

No pre-impact anomalies were found with the engine. Rotation continuity was established from the engine crank to the accessory case. The propeller flange was separated from the crankshaft and exhibited forward torsional deformation consistent with engine rotation at impact. Damage to the propeller was consistent with rotation at impact.

Details

- The engine was found separated from the airplane and located near the main wreckage. Impact damage was noted to the engine. The tubular engine mount was fragmented. Forward deformation was noted to the fracture surfaces of the crankshaft propeller flange.
- The six top sparkplugs were removed, and their electrodes were unremarkable. Crankshaft continuity to the rear gears, and compression and suction was attained from all six cylinders during hand rotation of the crankshaft. Oil was observed in the engine sump during examination, and no evidence of damage from oil starvation or lack of oil was observed. The oil filter remained attached to the engine. The date displayed on the filter was 07/12/2020 with a tach time of 248.0. The filter was cut open and residual nonferrous material was observed within the oil filter media.
- Both magnetos remained attached to their respective mounting locations. Upon removal, both magnetos produced spark from all ignition towers during hand rotation of their attached drive gears.
- The carburetor was separated from the engine from impact forces. The throttle and mixture cables were impact separated from their respective attach points. The throttle and mixture controls were found in the full forward position, open and full rich respectively in the cabin. The fuel inlet screen contained a residual amount of an unknown organic material. Upon disassembly, the carburetor's floats were unremarkable, and no fuel was observed within its bowl. The induction air filter was crushed, and the airbox was destroyed from impact forces. The carburetor heat control in the cabin was forward/off. However, impact damage to the

airbox precluded verification of pre-accident position of the carburetor heat. Impact damage was noted to the exhaust system. No carbon tracking was noted to either heat muff. No restrictions were observed in the exhaust system.

- The McCauley 2 bladed fixed pitch propeller was impact separated from the engine. Both blades exhibit polishing and curling. One blade was observed with leading edge damage. The spinner was crushed.

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