



MEMORANDUM FOR RECORD

Brian C. Rayner
Senior Air Safety Investigator
Eastern Region

Date: September 25, 2023

Persons:

NTSB Accident Number: ERA22LA039 Zelienople, PA

Subject: Bell 47

Narrative:

Examination of Federal Aviation Administration (FAA) and maintenance records revealed the helicopter was manufactured in 1951 and was powered by a Franklin 6U-335-A, 210-horsepower, carbureted engine. Its most recent annual inspection was completed October 21, 2021, at 3,863.2 total aircraft hours.

The pilot stated that there was nothing wrong with the performance and handling of the helicopter prior to the loss of engine power.

Examination of the helicopter by FAA aviation safety inspectors revealed the 28-gallon fuel tank contained approximately 5 gallons of fuel. The accessory drive case at the "bottom" of the vertically mounted engine was found fractured. The tachometer generator, the engine-driven oil pump, and one magneto were all separated from the engine, but remained attached to the helicopter by their associated wires and hoses. The FAA inspectors reported that the fractured case resulted in the separation of vital engine accessories which contributed to the loss of engine power. Therefore, the fractured pieces of the accessory case were collected and forwarded to the NTSB Materials Laboratory in Washington, DC for examination.

Examination of the accessory case fragments by the NTSB Materials Laboratory's Chief Technical Advisor revealed that the features displayed by the fracture surfaces were consistent with overstress fracture due to impact. Other than the fractured accessory case, the initial wreckage exam revealed no preimpact mechanical anomalies. Those examinations were conducted by several inspectors over several visits until a single FAA coordinator was identified by the acting supervisor of the Flight Standards District Office (FSDO).

Numerous plans to perform a more comprehensive examination of the helicopter's engine under FAA supervision were coordinated over the months following the accident; however, due to FAA staffing and scheduling challenges, physical challenges (snow), as well as COVID restrictions, examination of the engine could not be arranged or completed before the helicopter's owner ultimately blocked access to the wreckage.

Examination of the weather reported in the area at the time of the accident revealed atmospheric conditions conducive to the accumulation of carburetor icing at any power setting.