



# The National Transportation Safety Board

Office of Aviation Safety  
Central Region  
Memorandum for the Record  
Engine Examination Findings  
CEN19FA009  
Fulton Missouri  
October 17 2018

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## General Accident Scene

The helicopter wreckage was found in a grassy area in a slight depression in the Potowatami recreational area near Fulton, MO. Initial examination of the wreckage at the accident site showed evidence that the helicopter impacted in a nose-low, left skid down attitude. Most of the helicopter wreckage was found resting on its left side, in a 6-foot wide, 2-foot deep crater. Portions of the wreckage were partially embedded in the dirt. All components were identified at the accident site, with small pieces of debris and plexiglass from the windshield located within 30-feet of the main wreckage. The wreckage was transported to a secure facility in Fulton, Missouri, for detailed examination.

## Engine

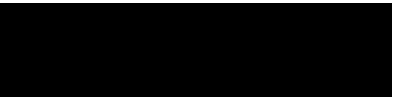
A portion of the engine oil sump was broken away from the remainder of the engine case. There were both imprint marks and score marks on the oil cooler from the starter ring gears. The score marks were slightly angled and aft of the imprint marks. There were imprints on the cooling panels adjacent to the ring gear on the engine right (aircraft left side). There was no evidence of contact between the alternator fan and the engine. There were no rotational score marks on the fan or fan scroll. There was a dent on the left side of the upper frames adjacent to the upper sheave, but no evidence of rotational scoring. There were two strike marks on the front of the upper sheave and one of the aft side of the sheave. There was no damage to the lower sheave.

The engine was successfully rotated from the crank to the gearbox. Thumb compression was confirmed on all 4 cylinders. Engine continuity was confirmed from the crank to the engine accessory gears to the fan. The dowel pin (locator pin) on the crankshaft gear was not sheared.

The left magneto produced a spark on all leads when rotated by hand. The right magneto sustained impact damage. Disassembly of the right magneto revealed that the carbon bush which is normal held in contact with the secondary tang on the coil was worn. The carbon brush would move freely but would not stay in contact. One bolt on the right magneto case was sheared from impact damage. The spark plugs exhibited normal wear.

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