



The National Transportation Safety Board

Office of Aviation Safety
Central Region
Memorandum for the Record
Engine Examination Findings
CEN18FA244
Sterling City Texas
June 29 2018

General

There was no evidence of contact with obstructions during the approach. The accident site was located about 200 feet from its intended landing site on the transport trailer. Examination of the accident site showed that the helicopter impacted flat ground and came to rest on its right side. The fuselage sustained impact damage to its lower right side and both pilot and passenger doors were not installed. Three ammunition cans containing tools and several loose shotgun shells (discharged and undischarged) were present within the wreckage area. Several shotgun shells were recovered from the left floor area, the belly area and in the debris field. One shotgun shell had a dent in the plastic shell.

Engine Examination Findings

All components of the engine were located at the accident site. After the wreckage was moved to a hangar, initial external observations showed that the exhaust on cylinders numbers two and four were crushed by impact forces. To facilitate the examination of the engine, it and its components, the following were removed:

The engine was rotated by hand turning the crankshaft sheave. Thumb suction and compression was observed at all cylinders, normal rocker and valve movement was observed. Engine oil was observed pumping from the pushrods during rotation. This confirmed continuity of the oil pump, valve train and crankshaft.

Lubrication

The oil system was complete and intact except for a crack approximately inch long at the oil drain plug of the sump. An undetermined amount of used engine oil was observed in and on the engine during the engine examination.

The oil suction screen was secure in the oil sump. It was removed, examined and observed free of contaminants.

Starter/Alternator/Ignition System/Spark Plugs

Both Magnetos were secure on their mounts they were not removed. Both functioned and furnished spark to the spark plug leads when the engine was rotated at the front sheave by hand. The top spark plugs were removed during the engine examination. It was noted that the number four-cylinder top spark plug was fouled with an unknown substance. The ignition harness connected to the number two and four spark plugs were impact separated at the spark plugs. The ignition harness

was tested to the spark plugs for the cylinders number one and three with positive results. The ignition harness was tested to the fractured ends on the number two and four cylinders with positive results. The starter and alternator was secure in their original mounts and not tested.

Fuel System

The carburetor was impact damaged at the float chamber parting surface. The carburetor floats were not recovered. A trace amount of fuel was observed in the carburetor inlet screen housing. All fuel lines were observed secure and not leaking. An Un-measured amount of fuel was observed in the main and aux fuel tanks. This fuel was tested for water contamination with negative results. The carburetor inlet screen was observed free of contaminants.

No pre-impact engine mechanical anomalies were found during the engine examination.

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