

From: Shepler, Nicholas P [REDACTED]
Sent: Friday, August 30, 2019 6:49 AM
To: Scott Arnold [REDACTED]
Cc: Kevin.Harvey [REDACTED]
Subject: Olathe Spray Service Bell 47G-3B1 - Montrose, Colorado - Exam Summary

Hello Arnold,

Here is a summary of the wreckage exam conducted Wednesday (28-Aug-2019):

The pilot stated that he was performing agricultural spray operations in 4 areas that were separated by distances in such a manner that required returning to their ops base after each area (field) to replenish chemical (product) and to take on fuel. They were not working off of a locally positioned field "nurse" truck. Each chemical & fuel resupply are performed "hot", i.e. with the helicopter running rather than shutting down each time. Prior to departing for the 4th location, the pilot took on a replenished chemical load but not additional fuel, which was different from the previous 3 departures. The pilot stated that each spray pass is performed at approximately 85 mph and fairly low to the crop in order to achieve the optimal spray coverage and application of the product. According to the pilot, the configuration of the helicopter at that speed is such that it flies in a nose low attitude. The fuel delivery port/tube on both tanks is located at the aft, lower end of each tank and both tanks deliver fuel to the engine simultaneously. There is no pilot controlled fuel selector valve in the cockpit.

During the wreckage examination approximately 2/3 to 3/4 gallon of clean, clear, odor free fuel was drained out of the right hand tank and 2-1/2 out of the left hand tank. The aircraft ended up on its right hand side in a corn field. It was unclear as to whether or not fuel had drained/spilled out of the right hand tank perhaps thru a vent line, loose filler cap, breached tank, etc. Fuel was detected from the inlet side of the airframe mounted fuel filter all the way to the inlet of the fuel spray nozzle on the engine. Both the airframe & engine fuel filter bowls contained clean fuel and both filters were void of contamination. The fuel spray nozzle was normal in appearance with no sign of excessive carbon build up or blockage.

Initially, full continuity of both N1 (gas producer) and N2 (power turbine) rotors could not be established due to impact damage and the engine shifting (bound up) in its compartment and breaking loose from various mounts. After freeing the engine, both rotors turned smoothly by hand and were continuous. Cockpit controls from the throttle & collective back to the engine fuel control unit & power turbine governor were free and continuous. The engine oil system was checked (filter, mag plugs, etc.) and was deemed unremarkable.

In conclusion, examination of the wreckage revealed no evidence of mechanical malfunction or failure of the engine. No pre-existing conditions were found with the engine that would have precluded normal operation.

Let me know if you have any questions or require additional information.

Thanks

Nick Shepler
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