

Engine Observations

The wreckage of N42333 was recovered by the accident team to Rising Sun Fire Department, Rising Sun, IN, where an engine and airframe examination was conducted under the auspices of the National Transportation Safety Board Investigator In Charge (NTSB IIC) on July 11, 2011.

Present at the examination were representatives from the FAA, the NTSB, Robinson Helicopters Inc, and this ASI.

As first viewed, the aircraft wreckage was placed on the floor at the Rising Sun Fire Department garage.

This ASI removed the engine from the airframe to facilitate the engine examination.

The exhaust system was cut to facilitate the engine removal.

All spark plugs were removed and examined, it was noted that all spark plugs displayed a low service life and a color consistent with normal combustion when compared to the Champion Spark Plug "Check-A-Plug" Chart, P/N AV-27, except for the number five cylinder top spark plug and the number one, three, and five cylinder lower spark plugs, that were observed oil wet.

The fuel injector was secure on its mount. It was removed and examined. The throttle lever moves freely, the mixture arm was impact damaged and would not move. The inlet fuel screen was removed and examined for debris. None was observed.

The engine driven fuel pump was secure on its mount. It was removed and examined. It displayed no damage. It was actuated by hand and it furnished suction and compression.

The fuel flow divider was secure on its mount. It was removed and dismantled. No defects were noted.

This aircraft has the rubber "crash worthy" fuel system installed (Rubber bladders), the system was not breached.

Fuel was observed in the flow divider, in the fuel injector, and the engine driven fuel pump. The recovered fuel was tested for water contamination using Kolor Kut water disclosing paste, with negative results.

Both magnetos were secure on their respective mounts. They were removed and their armatures were rotated using an electric drill. The left magneto furnished spark at all but one outlet (The left magneto was not tested further). The right magneto armature was rotated, it furnished spark at all outlets.

The oil system was intact. The oil quick drain was broken off during transport.

An unmeasured amount of used oil was observed in the engine.

The oil suction screen was removed and examined. It was observed clear of contaminants:

The engine was rotated by hand. Crankshaft and camshaft continuity was observed all valve train components were operating normally. The accessory gear section was observed rotating.

All cylinders were inspected using a lighted bore scope, no defects were noted.

