

ACCIDENT REPORT INVESTIGATION STATEMENT FOR AIRCRAFT N87JL

This investigation mainly focused on determining the reason the engine failed in flight. The upper cowling had slight deformation to the area around the spinner and left aft corner. The lower cowling was cracked on the center area. The cowling was removed and a visual check was conducted to determine any obvious component/hardware defects. None were noted.

The engine was intact and had a small dent on the front of the oil pan consistent with a ground impact. The oil pan was not punctured and still contained oil on the dipstick. The left liquid radiator was pushed aft approximately 2 inches to the rear and was $\frac{3}{4}$ inch of contacting the starter flywheel. Coolant loss as indicated by the lack of coolant inside the radiator neck and residual coolant inside the lower cowling. The overflow reservoir did contain approximately 2 inches of coolant in it.

A continuity check of the throttle linkages to the left and right carburetor was completed as well as the choke. These controls operated the carburetor throttles with no binding or unusual feel. The left and right electronic fuel pumps were also energized with the aircraft's main battery and could be heard and felt operating by a tactile check. No unusual noises were noted. The transparent fuel lines from the pumps to the carburetors also contained fuel.

A continuity check of the main internal engine components was accomplished by manually rotating the propeller several revolutions. No unusual noises were heard and normal resistance from cylinder compression was felt. The sparkplugs were then removed from each cylinder and a manual compression check was conducted. No unusual sounds were noted and each cylinder maintained compression. In addition, a visual inspection of each cylinder through the spark plug hole did not show any abnormalities.

A continuity check of the ignition system was conducted next. Because the ignition key was not present, the ignition switch was removed from the instrument panel (with the wires still connected). The spark plugs were reconnected to their respective leads and grounded to the engine block. The battery was reconnected and the ignition switch was bypassed using a jumper wire to close the circuit between the starter and the ignition switch. The spark plugs did not emit a spark as the starter turned the engine over.

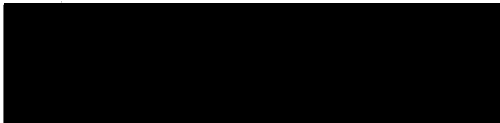
The number 1 coil was tested by removing the ignition harness from the firewall distributor block and connecting a spark plug to the harness. The engine was turned over and a spark was emitted from the grounded spark plug. The same test was performed on the number 2 coil, however no spark was produced. It was also noted that the ignition harness from the number 2 coil to the distribution block had chaffing almost halfway through its diameter. This harness was interchanged with the number 1 coil harness to determine if a spark could be produced and it was established that it could (by performing the spark test as conducted with the number 1 coil). It was later determined a spliced

wire had lost continuity from its mechanical splice from the number 2 coil. This wire was reconnected and a spark from the number 2 coil could be produced.

A visual check of the distributor was conducted by removing the distributor cap. It was noted the rotor was missing the electrode contact and was subsequently found in a vertical position on the outer boundary of the distributor housing. The "melted" plastic portion designed to secure the electrode to the rotor was also found lying inside the distributor housing. This condition would not enable an electric current to pass from the distributor to the spark plugs to sustain engine combustion.

Photographs during the investigation were submitted to NTSB investigator Mr. Todd A. Fox.

I certify this statement and the accounts during this investigation to be true and accurate to the best of my recollection.



4-17-2014

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