



NATIONAL TRANSPORTATION SAFETY BOARD
Central Region - Denver, Colorado

MEMORANDUM OF RECORD

Subject: Engine Examination Notes (CEN15FA426, Ama, LA)

The engine, a Lycoming O-235-C1, S/N 5544-15, remained partially attached to the airframe through the tubular mount. Both magnetos were impact separated from the engine and the accessory case was fractured. The starter was impact separated and the exhaust system was impact damaged.

The engine was rotated by turning the propeller. Continuity was confirmed from the crankshaft to the rear gears and to the valve train. Compression and suction were observed from all four cylinders. The interiors of the cylinders were examined using a lighted borescope and no anomalies were noted.

A review of copies of airframe and engine logbooks revealed the engine was last overhauled on 01/18/1965. It was installed on the accident aircraft on the accident aircraft on 05/22/2012 with 72.77 hours since that overhaul and had accumulated a total of 227.73 hours time in service and more that 50 calendar years since overhaul at the time of the accident. Lycoming Engines Service Instruction 1009AW states:

“Engine deterioration in the form of corrosion (rust) and the drying out and hardening of composition materials such as gaskets, seals, flexible hoses and fuel pump diaphragms can occur if an engine is out of service for an extended period of time. Due to the loss of a protective oil film after an extended period of inactivity, abnormal wear on soft metal bearing surfaces can occur during engine start. Therefore, all engines that do not accumulate the hourly period of TBO specified in this publication are recommended to be overhauled in the twelfth year.”

The engine was equipped with a Warp Drive 3-blade composite propeller, S/N T7872. The propeller spinner was fragmented. The propeller and two propeller blades remained attached to the crankshaft flange. The remaining propeller blade was separated from the hub at the blade root.

The carburetor air box was impact damaged and the position of the carburetor heat valve undetermined. The carburetor heat knob in the cockpit was in a full forward position. The carburetor remained attached to the engine. The throttle and mixture control cables were impact damaged. The throttle cable remained attached to the carburetor throttle control arm and the arm was observed in a full throttle position. There were two controls labeled “throttle” in the cockpit. The left control was over extended aft. The right control was full

forward. The mixture control cable remained attached to the carburetor mixture control arm. The arm was observed in a full lean position. The cockpit mixture control knob was fully forward.

The carburetor was removed and partially disassembled. No damage was noted to the carburetor internal components. A few drops of liquid were observed in the carburetor fuel bowl. The liquid had an odor consistent with aviation fuel. A check of the liquid with water finding paste was negative for water. The carburetor fuel inlet screen was unobstructed. The aircraft fuel strainer/gascolator bowl was separated and found among the wreckage. The fuel screen was not observed.

The aircraft fuselage fuel tank was partially crushed and empty. The tank on/off valve and screen assembly was removed. Debris was observed on the outer surface of the screen. A hole was observed in the screen mesh. A fuel vent tube was observed in the upper corner of the fuel tank. No hose was attached to the tube and a bolt was observed driven into the tube, obstructing the opening. The fuel tank cap appeared to be an automotive type "screw on" oil cap drilled for a float and rod type fuel level indicator. The float was observed about ½ full of liquid. The liquid from the float was not examined.

No switch for an airframe electric fuel pump was observed on the instrument panel of the low wing aircraft and the engine was not equipped with an engine driven fuel pump.

The left magneto was impact separated from the engine. The right magneto mounting flange was fractured and it remained partially attached to the engine. Both magnetos produced spark from all ignition towers when rotated by hand.

The starter was impact fractured and separated from the engine.

The alternator Remained attached to the engine and no damage was noted. The alternator belt remained in place.

Oil was observed in the engine. No debris was observed in the engine oil screen.

Dan Baker
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