



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

June 27 , 2017

ENGINE EXAMINATION

CEN18FA235

A. ACCIDENT EXAM

Location: Monmouth, IL (accident site)
Date: June 25, 2018
Aircraft: Ercoupe 415 D, N94070
NTSB IIC: Josh Lindberg

B. EXAMINATION PARTICIPANTS:

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C. SUMMARY

The pilot and pilot rated passenger, who was also the previous airplane owner, departed on a local flight. Witness reported seeing/hearing the airplane stating that the engine was missing, popping, or not sounding right. The airplane flew at a very low altitude over two of the witness before a wing dropped, and the airplane impacted terrain, just before a tree line. A post-crash fire developed.

The engine and airframe was examined at the accident site. The engine came to rest inverted and partly separated from the airframe. The engine/nose wheel landing gear remained attached to the engine along with the airframe's firewall.

The engine was identified as a four cylinder, Continental O-200A; a review of records noted that the engine was installed 1220/1984 via STC SA2628WE.

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D. DETAILS OF THE INVESTIGATION

Discussion of ignition, fuel, etc systems,,,,,

1.1 Exam Photos



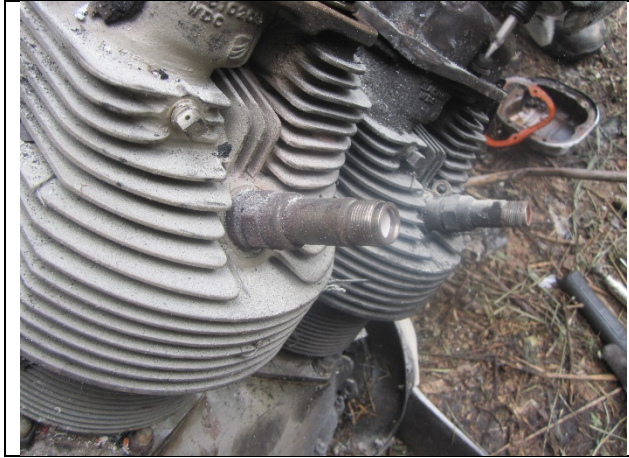
Engine identification plate:
Continental O-200A



The engine as found on site: The engine is upside down, the two-bladed, fixed pitch propeller is still attached. The oil sump was punctured and absent engine oil. Extensive fire damage is noted to the engine and components.



The engine was equipped with two impulse coupled Slick magnetos. The magnetos were removed from the engine, both magnetos rotated and the impulse coupling triggered when the mag was turned by hand. Neither magno produced a ignition spark, however, both magnetos internal components were melted.



The top set of sparkplugs were removed; the plugs had normal wear; two of the four plugs were oil soaked from the presence of engine oil in the cylinders.



The rear mounted alternator was removed. The alternator had heavy thermal and impact damage. The unit would not rotate, by hand.



The accessory drive gears, had a light coating of oil on them. No mechanical abnormalities were noted to the gears.



The four valve covers were removed, the two cylinders on the down side of the engine, as it laid, contained engine oil. When the propeller was rotated by hand, the valves operated: Continuity was confirmed thru the valve train to the accessory section.

A thumb compression and suction test was performed and each cylinder exhibited compress/suction.



The gascolator was found next to the carburetor, and not attached.

The unit was fire damaged and the bowl was open to the environment.

The screen was clear; however, fire debris was found in the bowl.



The carburetor was identified as a Precision MA-3 SPA

The carburetor's mounting flange was broken and the carburetor was on top of the engine, as the engine laid. The carburetor had thermal and impact damage.

The throttle cable was still attached to the carburetor.



The mixture control cable was not attached. The cable end had slight serrated marks on it, but absent stretch marks.



The carburetor finger screen, contained only a small amount of debris.



The carburetor was partly disassembled. The floats were in place, and the bowl was absent contaminants and debris.



The carburetor inlet screen: initially, the inlet was packed full of dirt during the accident sequence. The dirt was removed; the screen was displaced from its original mounting location.



Each cylinder was inspected using a lighted borescope. The cylinders contained normal combustion deposits, engine oil was noted in two cylinders and attributed to the engine position, after the accident. No abnormalities were noted to either the intake or exhaust valves.



The blades on the propeller were labeled as “A” and “B” for identification purposes.

Blade “B” was bent aft, starting about mid-span, the tip had fire damage. The blade was absent twisting, cordwise scratches and leading edge polishing.



Blade “A” as bent aft, outboard. The blade was absent twisting, cordwise scratches and leading edge polishing.

Fire and impact damage to the engine limited the scope of the examination, however, no mechanical abnormalities were noted that would explain a loss of power.