



MEMORANDUM OF RECORD

Eric Alleyne
Air Safety Investigator
National Transportation Safety Board
Office of Aviation Safety - Eastern
Region

NTSB Case Number: ERA18LA038

NTSB investigator oversight: Eric
Alleyne

Party Representative: Mike Council
(Continental Motors)

Place: Atlanta Air Recovery

Examination date: 1/30/2018

Subject: Engine examination
summary

Examination of the engines was performed under supervision of the NTSB Investigator. The engines did not reveal any catastrophic failure or any pre-impact anomalies that would have prevented their ability to produce rated horsepower.

Both engines had been removed from the airframe and were hoisted by a lift to facilitate a thorough inspection. After the inspection the Left and right engine will be retained to be shipped to the Continental Motors Facility for a test cell examination and further inspection.

LEFT ENGINE

All four engine mounts were broken. The only other physical damage noted for this engine were minor dents in the engine oil sump. The oil rod was removed, wiped then reinserted. When removed again, the oil level appeared to be slightly over 12 quarts. This engine utilized a 12-quart capacity sump. The left, right and rear engine induction components were undamaged as were the left and right exhaust components. No external physical damage was noted for any of the six cylinders. The top sparkplugs were removed and inspected. When compared to a Champion Spark Plug "Check-A-Plug" chart, the condition appeared to be "Normal" but were dark in color. Each electrode and center insulator were dark and sooty indicating a rich mixture. An electronic borescope inspection was performed. All piston domes,

cylinder walls, intake and exhaust valves exhibited normal wear patterns and combustion signatures. All six cylinders produced thumb compression when the engine was manually rotated. The left and right magnetos produced a bright blue spark at the individual ignition leads when the engine was manually rotated. The magneto impulse couplers could be heard to release normally as the engine was manually rotated. The fuel control fuel screen was removed and inspected. Fuel was released when the screen was removed from the body of the fuel control. No contamination was noted. The individual fuel injectors were removed and inspected. All six fuel injectors were uncontaminated.

The Hartzell three-blade, fully feathering propeller remained attached to the crankshaft propeller flange. All three blades remained secured in the propeller hub. The propeller spinner exhibited minor impact damage. The propeller blades were marked with the letter "A, B, or C" for photo identification. Blade A exhibited a smooth rearward bend beginning approximately 17 inches outboard of the blade root which continued until approximately 21 inches outboard of the propeller root then remained straight to the blade tip. Leading edge scratching and paint transfer was exhibited on the final outboard 12 inches of the blade. Blade B exhibited no physical damage except a very slight rearward bend along the entire length of the blade. Blade C exhibited a smooth rearward bend beginning at approximately 8 inches of the blade root continuing to approximately 20 inches outboard then nearly straight all the way to the blade tip. Significant paint transfer and lengthwise scratching was noted on the cambered face and leading edge of Blade C. At this point, the examination of this engine ended and the NTSB IIC requested a shipping crate be sent so that a CMI factory test cell examination.

RIGHT ENGINE

All four engine mounts were broken. No other physical damage noted for this engine. The oil rod was removed, wiped then reinserted. When removed again, the oil level appeared to be slightly over 10 quarts. This engine utilized a 12-quart capacity sump. The left, right and rear engine induction components were undamaged as were the left and right exhaust components. No external physical damage was noted for any of the six cylinders. The top sparkplugs were removed and inspected. When compared to a Champion Spark Plug "Check-A-Plug" chart, the condition of each sparkplug appeared to be "Normal" for wear and coloration. All six cylinders produced thumb compression when the engine was manually rotated. The left and right magnetos produced a bright blue spark at the individual ignition leads when the engine was manually rotated. The magneto impulse couplers could be heard to release normally as the engine was manually rotated. The fuel control fuel screen was removed and inspected. Fuel was released when the screen was removed from the body of the fuel control. No contamination was noted. The individual fuel injectors were removed and inspected. All six fuel injectors were uncontaminated.

The Hartzell three-blade, fully feathering propeller remained attached to the crankshaft propeller flange. All three blades remained secured in the propeller hub. The propeller spinner exhibited minor impact damage. The propeller blades were marked with the letter "A, B, or C" for photo identification. Blade A exhibited a sharp rearward bend beginning approximately 20 inches outboard of the blade root. After the termination of this sharp bend at approximately 22 inches outboard of the blade root, the blade was nearly straight all the way to the blade tip. The cambered blade surface exhibited significant cordwise damage and paint transfer and leading-edge scratching from the end of the rearward bend to the blade tip. Blade B exhibited a smooth, constant rearward bending motion beginning approximately 12 inches outboard of

the blade root continuing to the blade tip. Significant cordwise scratching and paint transfer was exhibited on the cambered face of Blade B on the smooth bend area. Blade C exhibited a smooth rearward bending motion beginning at approximately 12 inches outboard of the blade root until approximately 22 inches outboard of the blade root then straight until the blade tip. At this point, the examination of this engine ended and the NTSB IIC requested a shipping crate be sent so that a CMI factory test cell examination.