



NATIONAL TRANSPORTATION SAFETY BOARD

**Office of Aviation Safety
Western Pacific Region**

SUMMARY OF AIRPLANE EXAMINATION

April 4, 2020

This document contains 10 embedded photos

A. ACCIDENT

Location:	Andover, New Jersey
Date:	April 23, 2018
Aircraft:	Bellanca 7GCBC
NTSB Investigator-in-Charge	Thomas M. Little

B. EXAMINATION PARTICIPANTS

Thomas Little
Senior Aviation Accident Investigator
National Transportation Safety Board
Federal Way, Washington

Thomas Savickas
Aviation Safety Inspector
Federal Aviation Administration
Allentown, Pennsylvania

David Harsanyi
Air Safety Investigator
Lycoming Engines
Williamsport, Pennsylvania

C. SUMMARY

On April 23, 2018, about 1550 eastern daylight time, a Bellanca 7GCBC, N8737V, was substantially damaged following a loss of engine power and loss of control, followed by impact with water near Aeroflex-Andover Airport (12N), Andover, New Jersey. The airline transport pilot, the sole occupant, was seriously injured. The airplane was registered to United Aerial Advertising of Delaware Inc., Wilmington, Delaware. Visual meteorological conditions prevailed, and a flight plan was not filed. The local flight, which was being operated under the provisions of Title 14 *Code of Federal Regulations* Part 91, was originating at the time of the accident.

The airplane was being relocated to another airport for its annual inspection; this was the first flight of the year after having sat outside for about 6 months. During the first takeoff the pilot encountered an engine problem, at which time he returned to the departure airport. After landing the engine cowling was removed and a fuel line was removed; it appeared this fuel line was one that had been purchased at an auto parts store. As well, the carburetor was checked to ensure that there wasn't a rodent next inside the air intake. The pilot then ran the engine for 1 minute at full power, after which he determined that the engine sounded good; he then performed a second takeoff. Shortly after taking off and during the initial climb, the engine stopped. The pilot, seeing that he could not make it back to the departure airport, elected to land in the lake at the end of the airport. The airplane remained submerged in 44' of water for 24 hours.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site Examination

According to the airport manager, the airplane impacted the water about 300 ft and slightly to the right of the departure end of runway 3. It subsequently sank and came to rest about 44 ft beneath the water's surface. The airplane was recovered about 24 hours after the accident. Upon recovery from the lake the airplane was observed to be primarily intact, although the right wing was partially separated. All components necessary for flight were accounted for at the accident site.



Figure 1 - view of airplane during recovery process

2.0 Follow-up examination notes

A follow-up examination of the airframe and engine, which was overseen by a FAA aviation safety inspector was performed at Aeroflex-Andover Airport, Andover, New Jersey, on May 21, 2018. The results of the examinations revealed the following:

2.0.1 Airframe examination notes

The following airframe examination notes were provided to the NTSB IIC by a FAA IIC for this accident. The inspector reported that he examined the airplane two days after the accident, and as a result of his examination he reported the following:

The airplane had sustained major damage to the underside of the airplane, that there was a large tear in the fabric from the firewall to behind the aft seat. The right wing was barely attached to the fuselage. The front lower side of the airplane was crushed as a result of the impact sequence with the water. The inspector further reported that when he arrived on site that both wings had been removed from the airplane, and that both fuel tanks had been completely drained. The left main landing gear had been separated from the fuselage. The inspector opined that when he inspected the airplane's propeller, he noticed that it was straight with no signs of damage. The aircraft logbooks were located inside the airplane's cabin. The inspector did not report observing any catastrophic anomalies with the airplane that would have precluded normal operation.

2.0.2 Engine examination notes

An examination of the engine was performed on May 21, 2018, at Aeroflex-Andover Airport (12N), Andover, New Jersey by a Lycoming Engines Air Safety Investigator under the oversight of the FAA. The inspector reported no anomalies with the engine that would have precluded normal operation. Subsequent to the completion of the examination, the following notes were provided to the NTSB and FAA IICs, which revealed the following:

The data plate was found attached to the airplane. The engine had 348 hours as of the last annual inspection, which was dated May 4, 2017. Total hours at the time of the accident are unknown.

Limited aircraft records were recovered with the aircraft. Varying degrees of water damage noted. The last overhaul of the engine was recorded to have been completed on May 1, 2015, at a total time of 3080.54 hours.

- **Propeller**

The aluminum Sensenich fixed pitch propeller was found securely installed to the engine crankshaft with blades undamaged.



Figure 2 - view of propeller post recovery

- **Fuel system**

The carburetor was observed securely installed to the engine at the time of the examination. The float bowl was separated and inspected. Water was present within the bowl, and the brass floats showed signs of hydraulic crushing on all sides. It was observed that the throttle arm and throttle plate shaft had a noticeable free play wobble with respect to the throttle body. The carburetor inlet screen was removed and inspected. It was contaminated with a brown material and not allow light from a flashlight to pass through. A small opening on the bottom surface of the screen was open to let light pass through. No other anomalies were noted relative to the fuel system.



Figure 3 - view of carburetor post recovery

- **Magnetos**

While both magnetos were attached to the engine at the time of the examination, each had been removed previously by the FAA IIC, which precluded timing to the engine from being verified. Spark was produced at all points when rotated by using an electric drill. No issues were detected with either magneto during the examination.



Figure 4 - view of right magneto



Figure 5 - view of left magnet

- **Spark plugs**

When examined, the spark plugs showed signs of corrosion, which was consistent with the airplane having been submerged in the water for 24 hours. Cylinders showed high levels of deposits that had separated from the piston face and/or combustion chambers. Much of the deposits were visible within the spark plugs, as well as inside each cylinder.



Figure 6 – view of upper and lower spark plugs

- **Oil/lubrication system**

When the oil pressure screen was removed and inspected, it was observed unobstructed with some particles of orange RTV type sealant material within the screen



Figure 7 - view of oil screen

- **Engine Observations**

As first viewed, the engine showed signatures consistent with being submerged in water for a period of time. Corrosion was present along with signs on water throughout the engine and cylinders. Engine rotation was achieved by rotating the propeller by hand and thumb compression was achieved on all cylinders showing valvetrain continuity. Varying amounts of combustion deposits were noted throughout the engine on piston faces, cylinders, ports, and sparkplugs. All intake and exhaust pipes were open and unobstructed.



Figure 8 - view 1 of #1-cylinder



Figure 9 - view 2 of #1-cylinder



Figure 10 - view 3 of #1-cylinder