

From: [REDACTED]
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Subject: Re: Salisbury, NC Accident - N8440F (NTSB Case No. WPR18LA194) - Examination
Date: Wednesday, October 17, 2018 10:28:17 AM
Attachments: [N8440F 02.jpg](#)
[N8440F 03.jpg](#)
[N8440F 04.jpg](#)

Good afternoon all,

The following list outlines my involvement and observations concerning the examination of N8440F on 10/16/2018;

- At my first observance, the aircraft fuselage was situated on the hangar floor at Anglin Aircraft in Clayton Delaware supported by shoring timbers under the fuselage. The wings, stabilator, majority of the interior and the top cowling were previously removed. Two of the propeller blades that were bent. The nose gear was pushed backwards and folded up against the bottom of the fuselage. The battery was installed but disconnected.
- I removed the lower engine cowling to observe the integrity of the engine mount and engine controls from a stand point of determining if the engine was capable of physically being able to be run safely. Engine controls were intact and full travel of the throttle and mixture were verified. The lower portion of the engine mount had sustained substantial damage from the nose gear displacement, however, the engine was still adequately supported and other then the propeller there were no obvious external defects to the engine or accessories that would inhibit engine operation. I attached a battery charger to the battery.
- Kathryn Whitaker sumped the fuel gascolator bowl and then removed and disassembled the fuel selector. I observed the residual fuel she sampled from the bowl and witnessed that the fuel screen and fuel selector exhibited no obvious defects. The fuel selector was placed in a Ziploc bag and ultimately placed back in the aircraft.
- The fuel system lines down stream of the electric fuel pump were opened in sequence starting at the inlet to the engine driven pump and then the inlet to the fuel servo. No presence of any liquid fuel was detected at either connection.
- The damaged propeller was removed and a visual inspection of the crankshaft flange noted no obvious defects to the flange or the ring gear assembly.
- A test club propeller provided by Anglin Aircraft was installed. It is important to note that during hand rotation of the propeller during installation that the left magneto impulse coupling could be heard to be operating (only the left mag has an impulse coupling starting feature).
- The fuel line at the electric fuel pump inlet was disconnected and a portable fuel container containing 100LL was plumbed in at that connection.
- During prior disassembly of the aircraft for ground transportation, it became necessary for the recovery crew cut the electric fuel pump fuel out line at the wing spar box to allow for wing removal. I spliced the line back together temporarily with a piece of

rubber hose and hose clamps.

- The circuit breaker was pulled feeding the EDM to preclude any further engine monitoring information gathering so as to not overwrite any existing data.
- The battery charger was removed and the battery was reconnected. The master switch was checked and electrical power was available on the aircraft.
- The aircraft was lifted from its support timbers and placed on a trailer with the engine and propeller hanging off the back of the trailer to allow for propeller ground clearance.
- Electrical power was activated. The electric boost pump was energized and the pump functioned normally with no abnormal sounds or leakage observed. The engine was primed with mixture and throttle full forward. Fuel flow and fuel pressure were indicated on the respective instruments.
- The engine starter was engaged and the engine rotated normally, however, the engine did not start. This procedure was repeated several times with the same results. Electrical power was shut down.
- The engine fuel system lines were opened in sequence starting at the inlet to the engine driven pump, then the inlet to the fuel servo and then the inlet to the fuel divider. All points had liquid fuel present.
- The lower spark plugs were removed and fuel was found to be present on all of them. The spark plugs did show some signs of some carbon/lead build up that I would consider normal for spark plugs that had not been recently cleaned. The build up was not severe enough to affect normal operation or cause the plug not to fire.
- The engine was cranked with the starter while the lower spark plugs were removed and no spark was detected on any of the spark plugs.
- A magneto synchronometer (timing light) was connected to the left and right magneto p-leads with the magneto switch in the both position. The propeller was rotated by hand and no magneto contact point closing could be detected by the timing light. The mag switch operation was tested with the timing light and was found to function correctly.
- The left and right magneto timing plugs were removed and the crankshaft was positioned at Top Dead Center (TDC) on #1 cylinder compression stroke and then advanced to 20 degrees before TDC. Magneto to engine physical timing was determined to be correct by evidence of the red mark on the distributor gear aligned in the timing port window.
- The rocker covers were removed and valve action was observed with no defects noted.
- The left and right magneto ignition harnesses and contact points covers were removed. Upon loosening of the contact points cover, water was discovered in both the left and right hand magnetos. It is important to note that the aircraft salvage has been stored outside and the area the salvage is located in has experienced persistent amounts of heavy rain fall. Upon removal of contact point covers the contact points were found to be corroded from being immersed in water.
- An attempt was made to clean the contact points of both the left and right mags while

the mags were installed, however, due to extremely limited access this attempt was not successful.

- The left magneto with the impulse coupling was removed due to its necessity during the starting process. With the Left magneto removed the point contacts were able to be cleaned with success. Point contact was verified with the timing light while the mag was still removed and was found to correctly indicate on the timing light. The left magneto was reinstalled in the original position and the spark plugs were reinstalled in their original position.
- The starting process was repeated and the engine started. Once the engine consumed the excess fuel from the previous unsuccessful engine starts, the engine ran smoothly and responded normally to throttle and mixture control commands. The engine was ran at various engine rpms between idle and 1800 rpm. Engine indications concerning oil pressure, fuel pressure, fuel flow, manifold pressure, alternator output, and pneumatic pressure were all observed to have normal indications.
- The engine ran normally and fuel pressure indications were normal with the electric fuel pump on or off.
- The engine was shut down by placing the mixture control in the idle cut off position and the engine shut down cleanly.
- The rocker covers were reinstalled.
- Kathryn Whitaker removed the JPI EDM for data download at a later date.
- The fuel servo was initially removed for further investigation but later deemed unnecessary and ultimately not taken. The unit was placed in a Ziploc bag and placed back in the aircraft.
- The test club prop was removed. The battery was disconnected. The recovery crew prepared the aircraft for return to storage.

If I can be of any further assistance please do not hesitate to contact me.

Sincerely,

Tim Monroe
QC Inspector
Summit Aviation

