

CEN19LA127

NTSB Airframe and Engine Examination Report

The six-seat capacity airplane, serial number EH-16, was manufactured in 1957. The airplane was equipped with two 340 horsepower supercharged Lycoming Engines GSO-480 series engines.

The airplane was recovered from the accident site and was transported to a secure location for a future examination of the airframe and both engines.

The airframe and engine examination were conducted at Dawson Aircraft in Clinton, Arkansas. The NTSB investigator-in-charge, an air safety investigator from Textron Aviation, and two Federal Aviation Administration aviation safety inspectors attended. A representative from Lycoming Engines did not attend the examination.

Airframe (total time = 3990.3, Hobbs 585.7)

- The airframe serial number is EH-16.
- All structural components of the airframe were accounted for.
- The only damage sustained to the airframe was the structural area just above the nose wheel housing area. The structural area was pushed up due to the nose wheel impacting and collapsing after impacting terrain.
- No evidence of a fire occurring was observed.
- All of the flight controls remained attached to the aircraft. Flight control continuity was established for the airframe.
- The vents for both of the auxiliary fuel tanks in the left wing and right wing were found blocked by foreign material resembling dried dirt from a mud dauber wasp. Both of the vents for the main fuel tanks were clear and unobstructed. Both fuel caps were found installed on the auxiliary fuel tanks and the main fuel tanks.
- The fuel strainer screen for the right engine was found clean. The fuel strainer screen for the left engine had about 1 teaspoon full of unknown debris.
- The left side fuel tank selector handle was unable to be moved to the auxiliary position from the main tank selection. The right side fuel tank selector handle was very difficult to move to any position from the main tank selection.
- A fuel sample from the left side inboard and right inboard sump was obtained. No debris was observed in each sample. Each sample was tested with Sar-Gel (water finding paste) and no signs of water were observed in each sample.
- Both carburetor heat levers had very limited moved from the cockpit. To actuate the carburetor heat levers from the cockpit, it required an excessive amount of force by the individual. The airplane had a carburetor temperature detection gauge installed. No OAT gauge was found installed in the cockpit.

- The landing gear was a tricycle-retractable configuration. The main landing gear was fully extended and remained fully extended.
- The ELT (NARCO ELT 10) was found installed correctly and was found in the off position. The battery due date was May 20, 2021.
- All seats had a 2-point (lap belt) restraint system installed. All seats were intact and installed correctly.

Engines

Left Side Engine (Time since overhaul 605.7)

- The left side engine serial number is GS-480-B1B6 (L-645-33).
- All components of the engine and engine accessories were accounted for.
- Engine control cable continuity was confirmed.
- The engine was found attached to the engine mount system, which was attached to the airframe. No evidence of a fire occurring was observed. The engine case remained intact.
- The crankshaft was able to rotate. Drivetrain continuity was established. Thumb compression for all cylinder was not established. Compression was not established for the #4 and #6 cylinder.
- The #4 and #6 cylinder was removed and photographed. A hole was observed at the exhaust valve seating point for the #6 cylinder. The #4 cylinder had no internal damage, but the #4 piston had a hole along with damage along the piston head.
- The top row and bottom row of spark plugs were removed and examined.
- No signs of oil starvation to the engine, along with a lack of oil pressure/flow was observed.
- A borescope inspection of the cylinders was conducted.
- The oil screen was full of unknown debris (no oil filter is installed).
- The Bendix carburetor (PSH-78D, 873128) had no observed anomalies.
- Both magnetos produced spark when rotated by an electronic drill.
- The timing of the engine was not checked due to the absence of a flywheel.

Right Side Engine (Time since overhaul 605.7)

- The right side engine serial number is GS-480-B1B6 (L-391-33).
- All components of the engine and engine accessories were accounted for.
- Engine control cable continuity was confirmed.
- The engine was found attached to the engine mount system, which was attached to the airframe. No evidence of a fire occurring was observed. The engine case remained intact.
- The crankshaft was able to rotate. Drivetrain continuity was established. Thumb compression for all cylinder was not established. Compression was not established for the #2 cylinder.
- The #2 cylinder was removed and photographed. A hole was observed at the exhaust valve seating point.
- The top row and bottom row of spark plugs were removed and examined.
- No signs of oil starvation to the engine, along with a lack of oil pressure/flow was observed.
- A borescope inspection of the cylinders was conducted.
- The oil screen was full of unknown debris (no oil filter is installed).

- The Bendix carburetor (Bendix: PSH-7BD, 862204) had no observed anomalies.
- Both magnetos produced spark when rotated by an electronic drill.
- The timing of the engine was not checked due to the absence of a flywheel.

Propellers

Right Side (Hartzell, HC-93Z20-2, E1112A)

- All components of the propeller assembly were accounted for.
- The three-blade metal propeller was found attached to the crankshaft. One propeller blade was bent slightly aft (which was cut during the recovery), the others two blades appeared undamaged.
- The propeller governor was removed for examination. There was no screen installed (there is supposed to be), but some small particles or metal were located in the opening.
- No mechanical malfunctions or failures were observed with the propeller assembly.

Left Side (Hartzell, HC-93Z20-2, E1421)

- All components of the propeller assembly were accounted for.
- The three-blade metal propeller was found attached to the crankshaft. One propeller blade was bent slightly aft (which was cut during the recovery), the others two blades appeared undamaged.
- The propeller governor was removed for examination. There was a screen installed, and small particles or metal were located on the screen.
- No mechanical malfunctions or failures were observed with the propeller assembly.

Maintenance Records

- An examination of the maintenance records revealed no evidence of any uncorrected mechanical discrepancies with the airplane.