

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA22LA265

ENGINE EXAMINATION

July 26, 2022

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A. ACCIDENT

Location: Stockbridge, Georgia
Date: June 11, 2022
Time: 1207 EDT
1607 UTC
Airplane: N3744P; Piper PA-23-180

B. ENGINE EXAMINATION

Party Coordinator/
Federal Oversight Danny Cox
Federal Aviation Administration
Atlanta, GA

Party Coordinator J. Mike Childers
Lycoming Engines
Williamsport, PA

This examination was carried out under the oversight of Danny Cox with the Federal Aviation Administration also in attendance was J. Mike Childers of Lycoming Engines. This summary is based on notes of the examination provided to the NTSB IIC.

C. SUMMARY

On June 11, 2022, about 1207 eastern daylight time, a Piper PA-23, N3477P, was substantially damaged when it was involved in an accident near Stockbridge, Georgia. The pilot and pilot-rated passenger were seriously injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

After completing an engine run-up with no anomalies noted, the pilot stated he positioned the airplane as far back on the runway as possible, held the brakes and applied full power. He stated that he "looked at the engine instruments and all were within the green and producing power," so he released the brakes for take-off. After take-off, airplane started to shake and yaw to the right, and the pilot believed that the right engine had lost power. The pilot applied left rudder to correct and noted the airspeed was below the placarded blue line airspeed (best rate of climb airspeed for single engine operation), so he decreased the airplane's pitch attitude to gain airspeed. He stated, "the airplane was a hand full, I looked up and could see we barely cleared the treetops," The pilot then told the pilot-rated passenger to take the controls, while he feathered the right engine propeller, which he recalled came

to a complete stop. He stated that he then looked at the airspeed indicator and could see that the airplane had slowed to near the red line airspeed but had no altitude to lower the nose and gain airspeed. As he began a radio call to announce his intention to return to 7GA7, he noticed powerlines ahead that obstructed a turn toward the airport. The pilot recalled that as the airplane approached a line of trees it had "minimal airspeed" and he said out loud, "we're going in" just before the airplane impacted the trees.

D. DETAILS OF THE EXAMINATION

1.0 Left Engine Examination

As first viewed, the engine tubular mounts had been cut and the engine was laying inverted on a pallet at the facilities of Atlanta Air Recovery, in Griffin, GA. The engine was suspended from a lift and partially disassembled to facilitate the examination. The engine driven fuel pump pumping section was impact separated from the engine. The engine crankshaft was rotated by turning the propeller. Continuity of the crankshaft to the rear gears and to the valve train was confirmed. Compression and suction were observed from all four cylinders. The interiors of the cylinders were observed using a lighted borescope and no anomalies noted.

A partial copy of the engine maintenance logbook was provided by the FAA. The most recent annual inspection was completed on 06/08/2022. At that time, the engine had accumulated 509.8 hours of time-in-service since the most recent engine overhaul. According to the FAA, the accident flight was the first flight after the annual inspection.

1.1 Induction and Exhaust System

The induction air box was partially crushed. The exhaust system interior was viewed using a lighted borescope and no obstruction noted.

1.2 Magnetos

Both magnetos remained attached to the engine. No damage noted and they produced spark from all ignition towers when rotated by hand.

1.3 Ignition System

The spark plugs electrodes exhibited dark gray coloration and worn normal condition. The #1 upper and the #2 and #4 lower spark plug electrodes were oily.

The ignition harness exhibited minor impact damage.

The starter remained attached to the engine. No damage was noted and it was not removed.

1.4 Fuel System

The carburetor remained attached to the engine oil sump. The aluminum line from the engine driven fuel pump to the carburetor fuel inlet fitting was separated from the pump and remained attached to the carburetor. The throttle control cable remained attached to the carburetor throttle control arm. The mixture control cable remained attached to the carburetor mixture control arm. The induction air box was partially crushed, and the carburetor heat control cable separated from the air box control arm. The carburetor was removed and partially disassembled. No liquid was observed in the carburetor float bowl. The carburetor fuel inlet screen was absent of debris. No other damage was observed to the other carburetor internal parts.

The engine driven fuel pump was fractured across the drive section and the pumping section separated from the engine. The pumping section was partially disassembled and no damage to the rubber diaphragms or internal check valves noted. No liquid was observed in the pump or in the corresponding fuel lines forward of the firewall.

1.5 Lubrication System

The engine was resting inverted on a pallet when investigators arrived. Oil was observed on engine internal parts. The oil dipstick cap was broken off at the top of the oil dipstick tube. The oil suction screen and the oil filter media were absent of debris.

1.6 Vacuum Pump/System

The vacuum pump remained attached to the engine and no damage was noted. The drive assembly was rotated freely by hand. The pump was partially disassembled, and the rotor and carbon vanes were observed unbroken.

2.0 Left Propeller Examination

The propeller remained attached to the engine crankshaft flange. The propeller spinner was impact damaged. The propeller blade labeled "A" was bent aft about 20 degrees at about 10 inches from the blade tip. The tip exhibited impact damage and span-wise scratches. The propeller blade labeled "B" was curved aft about 45 degrees and exhibited chord-wise scratches and trailing edge damage.

The propeller governor remained attached to the engine and no damage was noted. The propeller control cable remained attached to the governor control arm. The governor was removed, and the drive spline rotated freely by hand. The governor oil screen was absent of debris.

3.0 Right Engine Examination

As first viewed, the engine tubular mounts had been cut and the engine was laying inverted on a pallet at the facilities of Atlanta Air Recovery, in Griffin, GA. The engine was suspended from a lift and partially disassembled to facilitate the examination. The engine driven fuel pump pumping section was impact separated from the engine.

The engine crankshaft was rotated by turning the propeller. Continuity of the crankshaft to the rear gears and to the valve train was confirmed. Compression and suction were observed from all four cylinders. The interiors of the cylinders were observed using a lighted borescope and no anomalies noted.

A partial copy of the engine maintenance logbook was provided by the FAA. The most recent annual inspection was completed on 06/08/2022. At that time, the engine had accumulated 911.4 hours of time-in-service since the most recent engine overhaul. According to the FAA, the accident flight was the first flight after the annual inspection.

3.1 Induction and Exhaust System

The induction air box was crushed.

The exhaust system was removed, and no obstruction noted.

3.2 Magnetos

Both magnetos remained securely attached to the engine and no external damage was noted. The left magneto produced spark from all ignition towers when rotated by hand. The right magneto did not produce spark from any tower when rotated by hand. Oil was observed on the magneto distributor block, in the ignition contact points compartment and on the ignition coil and the coil high tension contact.

3.3 Ignition System

The spark plugs electrodes exhibited dark gray coloration and worn normal condition. The #2 and #4 upper spark plug electrodes were oily.

The ignition harness was impact damaged.

The starter remained attached to the engine. No damage was noted and it was not removed.

3.4 Fuel System

The carburetor remained attached to the engine oil sump. The aluminum line from the engine driven fuel pump to the carburetor fuel inlet fitting was separated from the pump and remained attached to the carburetor. The throttle control cable remained attached to the carburetor throttle control arm. The mixture control cable was separated from the carburetor mixture control arm. The induction air box was crushed, and the carburetor heat control cable separated from the air box control arm. The carburetor was removed and partially disassembled. No liquid was observed in the carburetor float bowl. The carburetor fuel inlet screen was absent of debris. Heavy wear was observed to the rubber tip of the needle in the needle and seat assembly. No other damage was observed to the other carburetor internal parts.

The engine driven fuel pump was fractured across the drive section and the pumping section separated from the engine. The pumping section was partially disassembled and no damage to the rubber diaphragms or internal check valves noted. No liquid was observed in the pump or in the corresponding fuel lines forward of the firewall.

3.5 Lubrication System

The engine was resting inverted on a pallet when investigators arrived. Oil was observed on engine internal parts. No oil level indication was observed on the oil dipstick. The oil suction screen and the oil filter media were absent of debris.

3.6 Vacuum Pump/System

The vacuum pump remained attached to the engine and no damage was noted. The composite drive assembly was rotated freely by hand. The pump was partially disassembled, and the carbon rotor and carbon vanes were observed unbroken.

4.0 Right Propeller Examination

The propeller remained attached to the engine crankshaft flange. The propeller spinner was impact damaged. No damage was noted to the propeller blade labeled "A." The propeller blade labeled "B" exhibited trailing edge damage.

The propeller governor remained attached to the engine and no damage was noted. The propeller control cable remained attached to the governor control arm. The governor was removed, and the drive spline rotated freely by hand. The governor oil screen was absent of debris.

Submitted by:

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