

National Transportation Safety Board

Office of Aviation Safety
Central Region



CEN23FA046

ACCIDENT SITE AND WRECKAGE EXAMINATION SUMMARY

ACCIDENT

Location: Wonder Lake, Illinois
Date: November 25, 2022
Time: 1615 central standard time (2215 UTC)
Airplane: Extra EA 300/LC; Registration No. N361LX

PARTICIPANTS

Investigator-In-Charge Andrew Todd Fox
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ACCIDENT SYNOPSIS

On November 25, 2022, about 1615 central standard time, an Extra EA 300/LC airplane, N361LX, was substantially damaged when it was involved in an accident near Wonder Lake, Illinois. The pilot was fatally injured. The aerobatic airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

WRECKAGE EXAMINATION TIMELINE

November 26, 2022 - An onsite examination of the airplane and its engine was completed by a National Transportation Safety Board (NTSB) Investigator-in-Charge (IIC) who was assisted by representatives from the Federal Aviation Administration (FAA) and Lycoming Engines.

AIRPLANE DESCRIPTION

The airplane, an Extra EA 300/LC, serial number LC061, was manufactured on March 1, 2017. The low-wing aerobatic airplane was equipped with a conventional (tailwheel) landing gear. The airplane could seat two individuals in a tandem seating arrangement. The airplane was powered by a 315 shaft-horsepower Lycoming AEIO-580-B1A reciprocating engine, serial number L-494-79E, through a 3-blade, constant speed, MT-Propeller MTV-9-B-C/C198-25 propeller assembly, serial number 161278. The airplane had a maximum allowable takeoff weight of 2,095 lbs. On April 8, 2021, the pilot/owner completed a FAA Aircraft Registration Application when he purchased the airplane.

According to the Extra EA 300/LC Pilot Operating Handbook (POH), the airplane had a 49.9-gallon (49.4 gallon usable) capacity fuel storage system. The fuel system consisted of two interconnected wing tanks totaling 31.7-gallons and a 15.9-gallon center fuel tank that was interconnected with a 2.3-gallon aerobatic fuel tank. The fuel selector could be positioned to OFF, WINGS, or CENTER (ACRO). The wing fuel tanks must be empty during aerobatic flight.

At maximum gross weight (2,095 lbs), the wings-level aerodynamic stall speed was 64 KIAS. The wings-level aerodynamic stall speed was 59 KIAS at 1,800 lbs gross weight. The airplane's maximum lift coefficient ($C_{L_{max}}$) was 1.3.

MAINTENANCE SUMMARY

The airplane was equipped with an electronic tachometer. A current tachometer time was not determined during the examination. A review of the airplane maintenance logbooks revealed the last annual inspection was completed on March 21, 2022, at 461.32 hours total time. As of the annual inspection, the airframe, engine, and propeller all had the same total time since new (461.23 hours). A review of the available maintenance records found no history of unresolved airworthiness issues.

ACCIDENT SITE AND WRECKAGE EXAMINATION

Based on a survey of the wreckage debris path, the airplane descended into 30-40 ft tall trees located about 195 ft from the final recorded ADS-B data point. The trajectory through the trees was on a 270° bearing and was aligned with the runway 27 centerline. The main wreckage was in a wooded area about 225 ft west of the initial tree impact.

The examination of the airplane, engine, and propeller revealed no evidence of a preimpact mechanical malfunction or failure that would have prevented normal operation. There was no evidence of a bird strike during the flight.

Elevator and rudder flight control continuity was confirmed. Both wings separated from the fuselage and were fragmented during impact with trees and terrain. Aileron flight control continuity could not be established due to extensive wing damage; however, all observed control tube separations were consistent with impact-related damage.

The fuel selector valve was using fuel from the center/aerobatic fuel tank at the time of the accident. Fuel was observed leaking from the impact-damaged gascolator at the accident site.

The engine remained partially attached to its engine mount and the firewall. All three wood propeller blades fractured near the blade root, consistent with engine operation at impact. The remainder of each propeller blade was not located in the wreckage debris field or at the main accident site. There was impact-related damage to the engine controls (throttle, mixture, and propeller) and their respective engine components.

All six engine cylinders remained attached to the engine and exhibited little to no impact damage. The No. 5 cylinder pushrods exhibited various impact-related damage. The No. 5 cylinder exhaust pushrod separated from the engine and exhibited impact-related damage. The No. 5 cylinder intake pushrod was also impact damaged but remained attached to the engine and respective cylinder. The intake and exhaust pipes exhibited varying amounts of impact-related damage.

Internal engine and valve train continuity were confirmed as the crankshaft was rotated through the remaining propeller blades. Compression and suction were noted on all six cylinders in conjunction with crankshaft rotation. A lighted borescope inspection of each cylinder did not reveal any anomalies with the cylinders, pistons, valves, valve seats. Both magnetos remained attached to their engine installation points. Both magnetos were removed and rotated using an electric drill which produced spark at each point. The spark plugs exhibited features consistent with normal engine operation.

Five of the six fuel injectors were removed for examination. The removed fuel injectors were not restricted by debris or combustion products. The complete injector assembly for the No. 3 cylinder could not be removed, but its respective nozzle was removed and found to be unrestricted.

No preimpact oil leaks were noted on the engine exterior. The lower left portion of oil sump was impact damaged, which allowed oil to leak from the sump when the engine was lifted from the accident site and while hoisted during the examination. The oil suction screen was found free and clear of any debris.

The fuel servo separated from the engine during impact and remained attached to the engine by its respective fuel supply lines. The fuel injector inlet screen was removed and found to be free and clear of any debris. Fuel was found within the inlet screen port and exited the unit when turned upside down. The fuel manifold was found tightly installed to the top of the engine. The fuel manifold was disassembled, and its diaphragm was found to be free and clear of any debris or tears.