

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA22LA301

WRECKAGE EXAMINATION

A. ACCIDENT

Location: Cleveland, Georgia
Date: July 8, 2022
Time: 1305 EDT
1705 UTC
Airplane: Kolb Firestar II airplane, N6136Y

B. WRECKAGE EXAMINATION

Party Coordinator Mark Fayerman
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SUMMARY

On July 8, 2022, at 1305 eastern daylight time, an experimental-built Kolb Firestar II airplane, N6136Y, was substantially damaged when it was involved in an accident near Cleveland, Georgia. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* (CFR) Part 91 personal flight.

The pilot/owner held a sport pilot certificate and was based at the Mountain Airpark (OGE5), Cleveland, Georgia. A review of airpark surveillance video revealed that as the airplane began its initial climb, the pitch angle increased, and the airplane entered a steep left bank turn. The airplane turned left about 180 degrees and descended behind trees. The airplane collided with a hangar then terrain before it came to rest in the driveway of a personal residence. The sound of the engine can be heard running smoothly through the entire takeoff up until impact. There was no post-impact fire.

Airframe

The experimental airplane was constructed of mostly tube and fabric and sustained extensive damage from impact. The cockpit area was crushed. Both wings remained attached to the fuselage but were pushed aft with extensive leading-edge damage.



The tail section exhibited minor damage. An FAA inspector responded to the accident site and reported flight control continuity for the left wing, and tail section; however, the right aileron was fractured. A section of the right aileron push/pull tube had separated from the airplane was located in the grass near the wreckage. The section of fractured aileron tube was retained and further examined by the NTSB Investigator-in-Charge. Visual examination of the fractured ends of the tube were consistent with overload.



Engine

The airplane was recovered and taken to a local salvage facility where it had been stored outside. The engine was examined by the manufacturer under the supervision of the FAA on August 9, 2022.

Ignition System

The engine sustained extensive impact damage, and the No. 1 PTO spark plug socket was not attached to the spark plug. The other spark plugs were examined and appeared to be consistent with normal operation.

The engine was rotated via the two-bladed propeller after the exhaust Y pipe removed. The crankshaft rotated freely, and thumb compression was established to each cylinder. The cylinders and pistons were examined for scoring and metal transfer marks. No anomalies were observed.

Fuel System

Due to impact damage, both carburetors were displaced from the intake manifolds. A very small amount of water was noted in the Mag Carb: Main jet #165. Since the engine was heard operating normally in the airport surveillance video, it was determined that the water was most likely due to the airplane being stored outside in the elements. The Mag Carb needle clip was in top position, and the needle was a non-standard #802. Both floats were B type and weighed 7 grams together (over limit). Primer port blocked off. No blockages found in the main jet, and the sieve sleeve was not crushed and was free floating. No other anomalies found with the MAG carb.

Examination of the PTO Carb: Main jet #165 also found a very small amount of contamination in float bowl that was non-liquid. Needle clip was in the #3 (2nd from top) position and was the standard 11G2. Both floats were B type and weighed at 6.7 grams together (within limits). Primer port was not blocked and being used for its intended purpose. No blockages found in the main jet, and the sieve sleeve was not crushed and was free floating. No other anomalies found with the PTO carb.

The airplane was equipped with two fuel pumps (electric and pneumatic) in line with no bypass around the electrical fuel pump. Fuel pump impulse line was measured at 24 7/8th inches long (maximum is 20 inches). The pneumatic fuel pump was not mounted on the engine (correct). Electric facet fuel pump (Posi-flo was installed in series to the pneumatic fuel pump.

Both fuel tanks were approximately $\frac{3}{4}$ full of pre-mix fuel (2-stroke oil and gas).

Lubrication system

Oil injection system removed, and pre-mixed fuel and oil were used.

Cooling System

The cooling system was breached due to impact damage. The water pump housing was from a Mod 90 Rotax 582 with only 1 exit port.

Air Filter system

Rotax Air Filters installed, and the pleats were dark and dirty.

Exhaust system

The exhaust system was removed and inspected. No anomalies found.

Gearbox

The gearbox was rotated by hand, and it operated smoothly. No anomalies found with the gearbox.

Propeller

The two-blade warp drive propeller remained secured to the engine and both blades exhibited leading edge damage. One of the blades was twisted in its hub.

The hub was sitting at -1 degree when placed on the floor of the shop.

No.1 blade was at 19 degrees (Really 18 degrees) 14.5 inches from the clamping point at the hub. No. 2 blade was at 176 degrees (Really 175 degrees) 14.5 inches from the clamping point at the hub.

Discussion with the propeller manufacturer determined that the twisting of the propeller blade was most likely due to impact. If the blade was twisted prior to the accident, it would have been noticeable (sound) in the airport surveillance video. According to the engine manufacturer they have seen this similar blade twist from impact on other investigations as well. The engine manufacturer also indicated that the engine would still function correctly or produce proper thrust even if one blade was twisted.

Examination of the airframe, engine and propeller revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation.

Submitted by:

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