

National Transportation Safety Board

Office of Aviation Safety
Central Region



CEN23FA270

WRECKAGE EXAMINATION SUMMARY

ACCIDENT

Location: Onamia, MN
Date: June 30, 2023
Time: 1349 local
Airplane: Icon A5, Registration No. N239BA

PARTICIPANTS

Investigator-In-Charge	John Brannen National Transportation Safety Board Aurora, Colorado
Group Member	Brian Rutt National Transportation Safety Board Aurora, Colorado
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ACCIDENT SYNOPSIS

On June 30, 2023, at about 1349 central daylight time, an Icon A5 airplane, N239BA, was destroyed during an accident on Mille Lacs Lake near Onamia, Minnesota. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* (CFR) Part 91 personal flight.

WRECKAGE EXAMINATION TIMELINE

On Saturday, July 1, 2023, the National Transportation Safety Board (NTSB) Investigator-In-Charge arrived at the accident site and conducted an onsite investigation. The NTSB IIC was assisted by representatives with the Federal Aviation Administration.

AIRPLANE DESCRIPTION

The airplane was a 2019 Icon A5, serial number (s/n) 00096, registration number N239BA. It was an amphibious airplane designed for two occupants and was powered by a 100 horsepower, normally aspirated, fuel injected, Rotax 912 iS, engine, s/n 7704665. The fuselage of the airplane housed the occupants and acted as a hull for flotation while on water. There was a tricycle retractable landing gear system.

The airplane was of carbon fiber construction and the wings were manually foldable for ground transportation with the ailerons and flaps connecting automatically. The airplane's empty and maximum takeoff weights were 1080 lbs and 1,510 lbs, respectively. The airplane's minimum gross weight is 1,510 lbs.

The airplane was equipped with a 20.1-gallon capacity (20 gallons usable) fuel system. The fuel selector valve has two positions: ON and OFF.



Exemplar airplane

MAINTENANCE SUMMARY

Previous Maintenance

There was no logbook documentation made available during the onsite investigation.

WRECKAGE EXAMINATION AT ACCIDENT SITE (JULY 1, 2023)

Accident Site Description

The airplane impacted the surface of Millie lacs Lake near Onamia, Minnesota. The airplane debris was found submerged in about 26 feet of water about 1.5 miles from the west shore of the lake. Debris was scattered on the surface of the water and on the lake floor.

The airplane was recovered by law enforcement personnel and placed in a secure facility for examination.

Fuselage

The forward fuselage, consisting of the hull and main cabin, was fragmented from the nose to a position about even with the wing trailing edge. The seats were impact separated and fragmented. The canopy was not located at the time of the onsite examination.

The empennage and aft fuselage were separated from the forward fuselage. The vertical tail was an integral part of the aft fuselage. The rudder was separated from the vertical tail.

The horizontal tail remained attached to the vertical tail and the elevator remained attached to the horizontal tail.

Flight Controls

The flight control system was examined and found to be intact except for separations attributable to impact. The details of the control system examination follow.

Ailerons: The aileron control system consisted of a cable system within the cabin and center wing section. The cables were attached to the control sticks and routed around pulleys attached to the airframe, leading to bellcranks located at the juncture of the outer wing panels and the center section. From those bellcranks, there were pushrods travelling outboard to another bellcrank further outboard and then another pushrod to the aileron control surface. The cables within the cockpit were intact with no breaks, however the cables were cut during the examination to facilitate layout of various components. Several of the cable pulleys were separated from the fuselage structure. The pushrod in the right wing from the wing to center section juncture to the outer bellcrank was intact. The pushrod from the outer bellcrank to the aileron

was separated at the aileron. The right aileron was separated from the wing. The left wing pushrod was separated at the outer bellcrank, which was separated from the wing structure. The pushrod from the outer bellcrank remained attached to the bellcrank but was separated from the left aileron. The left aileron was separated from the wing.

ELEVATOR: The elevator control system consisted of cables that travelled from the control sticks aft through the fuselage and then to a bellcrank at the top of the vertical stabilizer. From this bellcrank, a pushrod extended to the elevator control surface. Both cables were separated just forward of the break in the aft fuselage. Both cable breaks were consistent with overload failure of the cables. The pushrod in the top of the vertical tail was separated from the elevator.

RUDDER: The rudder control system consisted of cables from the adjustable rudder pedals to a pair of torque tubes. From the torque tubes, 2 cables were routed to a bellcrank in the aft fuselage, and a pushrod from the bellcrank to the rudder. The forward cables from the adjustable rudder pedals to the torque tubes were intact. The cables from the torque tubes to the aft bellcrank were separated with signatures consistent with overload. The pushrod from the bellcrank to the rudder was separated from the rudder. The rudder itself was separated from the vertical tail.

FLAPS: The left and right flaps remained attached to the wings at the hinges. The left flap pushrod remained intact but was separated from the forward spar attachment point. The right flap push rod was impact separated from the control surface. The flap switch was found in the 0° position. The flap jackscrew position was noted.

Wings

Both wings remained attached to the engine mount and center wing section. Both wing-fold locking arms were in the locked position. The right wing was intact with little external damage except for the separated right aileron. The left wing was predominately intact, but the outboard portion was fragmented. Portions of the left wing were recovered in the debris field. The left and right ailerons were impact separated.

Landing Gear

The main landing gear assembly was impact separated and located with the main wreckage. The nose landing gear was impact separated and located with the main wreckage. The landing gear position could not be determined due to impact damage. The landing gear selector was found in the UP position.

Cockpit

The cockpit was impact damaged and located with the main wreckage. The upper console was separated from the lower console, tethered by wires. The instruments were undamaged. The detachable GPS head unit was not located at the time of examination. A flight data recorder was located and retained for further analysis.

Fuel/Fuel System

Portions of the fuel system were destroyed which prevented functional testing of the complete system. The fuel selector was found in the ON position.

Engine Examination

The engine remained attached to the mount and was recovered with the main wreckage. The top spark plugs were removed and exhibited normal wear. The oil tank contained oil and water. Water was purged from the cylinders and thumb compression was confirmed on all cylinders. The valve cover on cylinder #1 was removed and valve action was noted during rotation of the crankshaft. No anomalies were detected when the propeller was turned by hand.

The engine had an electronic fuel injection system. The engine was controlled by an Engine Control Unit (ECU) that was reportedly located on the aft side of the seat back bulkhead. The wiring for the ECU was found, but the ECU was not located during the examination and had separated during the accident sequence. Due to the nature of these systems and the missing ECU, on-site functional test of the ignition or fuel injection could not be performed.

Propeller Examination

The carbon fiber propeller blades were connected at the hub; however, the blade tips were impact separated. One blade tip was recovered from the debris field at the time of the onsite examination.

Pilot Information

There were no pilot documents located during the onsite examination.

PHOTOGRAPHS

All photographs and videos were exchanged with participants at the completion of the on-scene investigation.