National Transportation Safety Board
Office of Aviation Safety
Washington, DC 20594

ERA23FA200

SURVIVAL FACTORS

Specialist's Factual Report

August 15, 2023

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A ACCIDENT

Location: London, OH
Date: April 18, 2023
Time: 1820 eastern daylight time (EDT)
1120 universal time coordinated (UTC)
Airplane: Cessna 172N Skyhawk, N734GB

B SURVIVAL FACTORS SPECIALIST

Specialist Amanda Taylor
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C SUMMARY

The flight departed Madison County Airport (UFY) at about 1705 eastern daylight time to conduct various maneuvers at different airports around the area. The airplane was substantially damaged when it was involved in an accident near UFY.

D DETAILS OF THE INVESTIGATION

On April 20, 2023, a survival factors specialist was assigned to review postcrash photos and measurements taken of the airplane's restraints.

1.0 Airplane Configuration

The airplane was a Cessna 172N Skyhawk, tail number N734GB (see figure 1), a non-pressurized single piston engine airplane. It was configured with three seats, two in front and one two-place bench seat in the back. The interior was accessed through two automotive-style doors (one on each side of the airplane) which rotated forward.

Figure 1. Pre-accident photograph (Source: American Aviation Inc Facebook page)

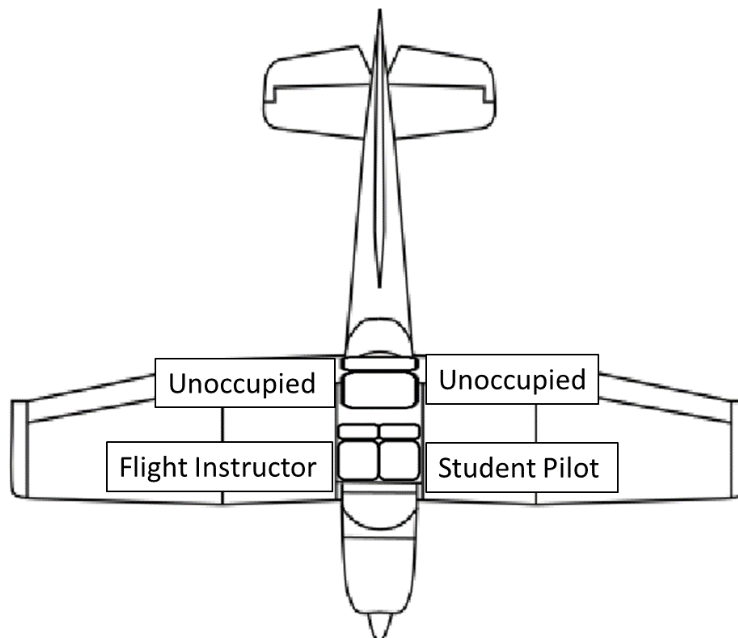

Figure 2. The seating configuration of N734GB.

2.0 Airplane Documentation

2.1 Airplane Exterior

The airplane was found in an inverted position in a field by first responders. The engine compartment was crumpled rearward toward the cabin (see figure 3).

Figure 3. Post-crash photo of N734GB.

2.2 Cabin interior and Seats

Measurements were taken at multiple locations in the cabin to document any loss of occupiable volume. The cabin interior measured about 36 inches across at the front seats. The distance from the seat back cushion to the instrument panel was 18 inches for the front, right seat (see figure 4). A similar measurement for the front, left seat could not be obtained because it had been removed by the medical examiner after the accident. The measured distance from top of the front, left seat to the ceiling was about 33 inches.

The seats were adjustable forward or aft on the seat rails to accommodate the occupant (see figure 5). According to first responders the pilot and copilot seats remained attached to the seat rails which were attached to the floor.

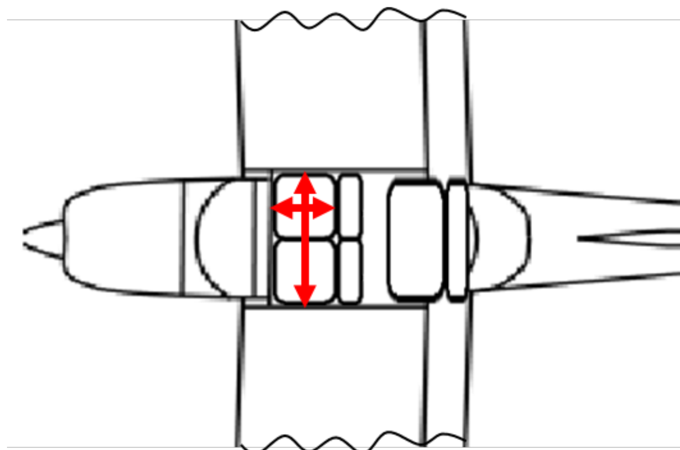

Figure 4. Line drawing showing measurements taken for the front right seat place.

Figure 5. Right hand pilot seat.

2.3 Restraints

Both seats had a three-point restraint system manufactured by Aero Fabricators of Lyons, WI as an FAA-Parts Manufacturer Approval (PMA) part with a "rated strength of assembly [of] 1500 pounds." The data tags found on the webbing indicated the model number of the restraint were simply "R" (indicating it had been repaired) with a date of repair of January 21, 2022.

The restraint system consisted of an adjustable lift latch-style lap belt that was secured to attachment points anchored directly to the floor (see figure 6). The shoulder belt was adjustable and routed over the occupant's outboard shoulder to an attachment anchored to structure above, and slightly behind the occupant (see figure 7). The

shoulder belt webbing was routed through the anchor point then stitched back on itself to secure it.

Figure 6. Lap belt inboard anchor points.

Figure 7. Right shoulder belt anchor point.

According to first responders, the lap belts did not become detached from their anchor points and were buckled when emergency responders arrived; however, both shoulder belt webbing had come unstitched (see figure 8). The buckles were latched and released normally when examined by investigators postaccident. Both belt webbings were lost during transport to the NTSB, preventing further examination.

Figure 8. Left and right shoulder belts stitching.

3.0 Injury Information

The autopsy reports from the Montgomery County Coroner's Office indicated that the cause of death for both pilots was "multiple blunt force trauma" to the head, torso, and extremities.

3.1 Injury Table

Type of injury	Crew	Passengers	Total
Fatal	2	0	2
Serious	0	0	0
Minor	0	0	0
None	0	0	0
TOTAL	2	0	2

Submitted by:

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