

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24FA185

EXAMINATION

March 19, 2024

A. ACCIDENT

Location: Gila Bend, Arizona
Date: March 17, 2024
Time: 0942L
1642Z
Airplane: N4425L

B. EXAMINATION

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C. SUMMARY

On March 17, 2024, about 0942 mountain standard time, experimental amateur-built Air Creation, N4425L, sustained substantial damage when it was involved in an accident in Gila Bend, Arizona. The aft right section of the delta wing fabric showed forward, aft, and lateral tears. The majority of the impact damage was sustained to the right side of the aircraft structure. The propeller blades showed rotational signatures on each of the four blades.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The EAB aircraft was traveling south to north about 10 ft agl and collided with the initial point of impact. The initial point of impact was a mesquite tree located about 88 ft south of the main wreckage, and about 85 ft to the right of the runway 04 asphalt surface. The mesquite tree was largely intact and contained witness marks comprised of missing branches with 45° cut signatures, and appeared fresh given their white in color, core, and the tensile strength of the severed pieces. The height of the tree was about 10 ft, and the width was about the same. The initial witness mark

began on the south side of the tree, about 7 ft in height and carried through from south to north. The mesquite tree was located perpendicular to and just before the taxiway echo.

After colliding with the mesquite tree, the weight shift control aircraft traveled about 80 ft north on the north side of taxiway echo and impacted the ground about in a nose down manner and came to rest on its right side. The nosewheel appeared to impact the ground first as indicated by the separation of control pedals located about 5 ft south of the main wreckage. The main wreckage consisted of the delta-wing structure, the engine, fuel cell and the carriage.

2.0 Airframe Examination

2.1 Carriage

The carriage consisted of tandem seats. The engine mounts remained attached with no visible deformation. The nose wheel and front seat floor control pedals separated from the carriage keel at their attachment points. As viewed from the front of the aircraft, the front tube bowed to the right but remained attached to the carriage wing attachment (hang point) and carriage keel attachment point. The carriage keel was fracture-separated midpoint, just aft of the seat frame attachment point (Figure 1). The carriage mast remained attached to the hang point and aft carriage keel.



Figure 1: View from aft to forward, of the carriage keel left bending impact signature

The left and right shock struts, and main struts remained attached to the carriage mast and their respective wheel hubs. The left and right drag strut remained attached to their respective wheel hubs, but the struts separated from the carriage keel attachment point, as the polymer bracket failed at the attachment bolt. The seat frame was fracture-separated at the carriage strut bracket attachment points, and sustained impact damage to the right side of the frame when viewed from the nose wheel to the aft airframe. The wing keel fracture separated below the hang point and revealed no scuffing or corrosion signatures to its forward most attachment points. The rear seat steering rod and fork remained attached to the carriage keel. The control frame remained attached to the hang points with no signatures of deformation.

Training bars affixed to the control bar used for instruction, were not installed on this aircraft.

2.2 Delta Wing

The nose plate and fabric were present. The fabric was removed and the triangle shaped nose plate bracket, was not secured to the right wing leading-edge tube, and just aft where the bolt fits through the plate, was fracture-separated. The left and right leading-edge tube were present, and no structural damage was observed. The left and right crossbars remained attached to the hang point affixed to the wing keel with an aft bending deformation about midspan. The king post remained affixed to the carriage mast with all three upper post wires attached to the leading-edge tube, with no deformations. The two front, two rear, and two left and right lower flying wires remained attached to their respective crossbar clevises and down tube clevises. However, as viewed when seated in the aircraft, the right-side rear flying wire attached to the right crossbar and right downtube was found intact but taught and wrapped twice around the propeller flange (Figure 2).



Figure 2: View of right side, rear flying wire wrapped twice around propeller flange

The left wing reflex cables, battens, pockets and leading-edge stiffeners were present and unremarkable, with exception to the three inboard battens which are believed to have sustained impact damage. The washout strut was present, secure

and unremarkable. The outboard and center section of the sail was intact and unremarkable.

The right wing reflex cables, battens, pockets and leading-edge stiffeners were present and unremarkable. The washout strut was present, secure, and unremarkable. The sail remained intact and unremarkable, up to the inboard second batten pocket. The No. 3 inboard batten and pocket were unremarkable, but the sail, revealed damage with forward, aft, and lateral tears near the aft section and separated the reflex cable (Figure 3). The resulting damage liberated the inboard No. 2 batten from its pocket, and trailing edge of the sail.



Figure 3: Top view of the delta wing damage to the inboard aft right section above the engine

2.3 Landing Gear

The nose landing gear wheel and control pedals were liberated from the forward carriage keel. The right and left tires and wheel remained attached to their respective wheel hubs. The hydraulic brake lines remained intact. The right wheel pants sustained impact damage and rotated about the wheel hub attachment points. The left and right shock struts, and main struts remained attached to the carriage

mast and their respective wheel hubs. The left and right drag strut remained attached to their respective wheel hubs, but the struts separated from the carriage keel attachment point, as the polymer bracket failed at the attachment bolt.

2.4 Cockpit

The open cockpit was equipped with an emergency ballistic parachute handle (red) secured by a pin with a circular ring that contained a flag that stated, "remove before flight." The pin was observed in its orifice at the accident site. Cockpit instrumentation consisted of a plastic instrument panel which sustained impact damage. The panel was equipped with a water temperature, RPM, and EGT gages. Additionally, a 12-volt auxiliary power port was located on the lower left side of the instrument panel. Four separate toggle switches labeled Aux, Strobe, Mag, and Mag were located in the center of the instrument panel under the RPM gauge, which were reportedly all turned to the off position by first responders. A green indicator light was located in the bottom right section of the instrument panel below the EGT gauge. An electrical junction box, with a plastic cover labeled Inst, Aux, Strobe, and Main, appeared undamaged. A Flytec Switzerland 4005 flight computer contained a digital altimeter, vertical speed indicator and clock. The flight computer was not damaged, did not contain non-volatile memory, and the clock was not accurate.

The left side seat frame was equipped with a hand lever operated brake, and the right side was equipped with a hand throttle. Each remained connected and continuity was observed.

2.5 Survivability

The seat frame was separated above the carriage keel. The ballistic recovery system (BRS) parachute was not deployed, and the pin remained in its orifice, albeit placarded with a tag stating, "Remove Before Flight." The seatbelts were not cut, severed, and appeared functional.

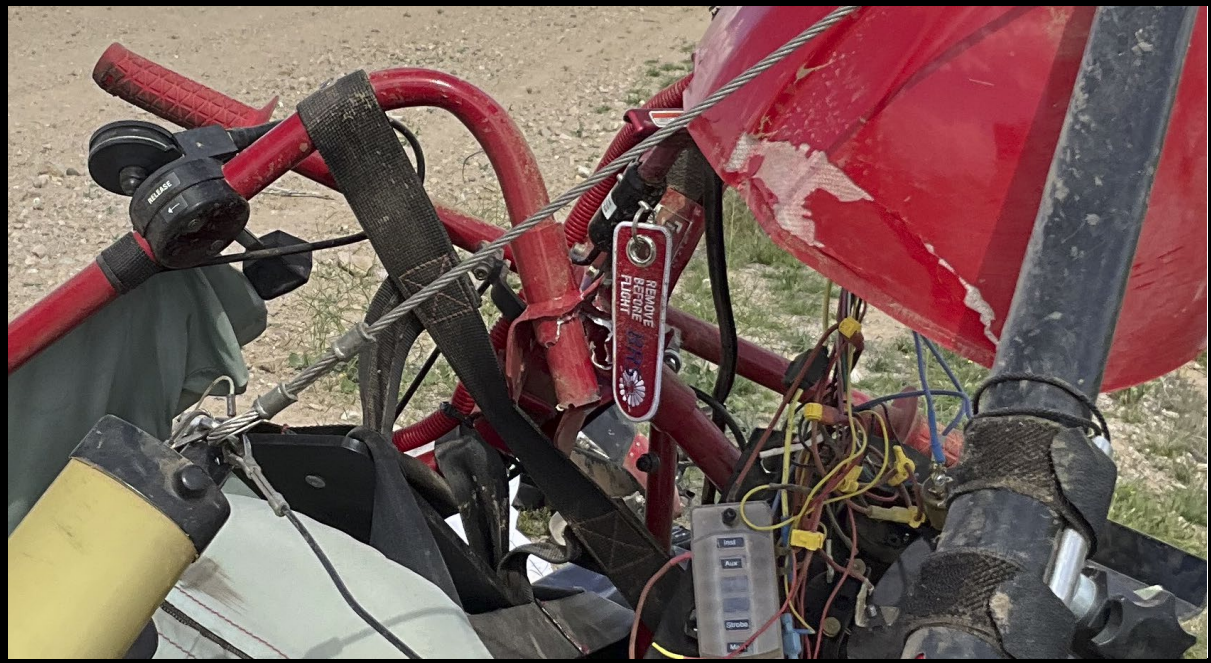


Figure 4: BRS pin still inserted in its orifice

2.6 Fuel/Fuel System

The fuel system remained intact from the pedal throttle control to the hand throttle, through the carburetor control lever. The choke remained attached, the fuel cell was not breached, and the fuel intake lines were unremarkable. The manual on/off fuel selector located behind the pilot's seat and underneath the fuel tank, was found in the off position and believed to be manipulated by first responders. The fuel sump hose remained secure and was not leaking. The fuel pump remained sealed intact, and unremarkable. The fuel cell contained fuel greater than 1/3 tank (Figure 5).



Figure 5: Fuel in the fuel cell is greater than 1/3 full

3.0 Engine Examination

The aircraft was equipped with a 2-cycle carbureted Rotax 528 series engine. Engine examination was not completed due to statement of the passenger receiving flight instruction, and the observation of operational signatures at the time of impact.

4.0 Propeller Examination

Two of the four-blade pusher propeller blades revealed uniform 45° separations, about mid span emanating from the leading edge through the trailing edge (Figure 6). A third blade revealed a 90° separation about mid span, that stopped about the mid-chord. The fourth blade revealed blade tip damage with chordwise striations. The propeller hub remained intact and unremarkable. The propeller flange appeared to have seized resulting from the right-side rear flying wire attached to the right crossbar and right downtube being taught and wrapped twice around the flange. The blade manufacture was not observed, however, a serial number for each blade was stamped on the blade hub.



Figure 6: View of damage to the propeller blades

5.0 Aircraft Information

There were no aircraft maintenance logs located in the mobile trailer which the aircraft was normally stored. No aircraft maintenance logs were provided during this investigation. No airworthiness certificate or FAA registration certificate was located on site. According to FAA records, the last aircraft registration certificate expired November 30, 2023. The last FAA airworthiness certificate was issued February 19, 2015; however, the aircraft operating limitations and a recent condition inspection were not located during this investigation.

6.0 Meteorological Information

Gila Bend Air Force Auxiliary Airport (GXF) was in Gila Bend, Arizona, about 5 nautical miles south-southwest of the accident location at an elevation of about 885 feet. Hourly automated longline weather observations from GXF on March 17, 2024, during the accident period are presented below. During the period the wind was observed to be calm or from the south-southwest or southwest at 3 knots.

KGXF 171355Z AUTO 21003KT 8SM BKN050 08/08 A3003 RMK AO2 SLPNO T00830075 FZANO \$
KGXF 171455Z AUTO 00000KT 9SM BKN050 10/08 A3005 RMK AO2 SLP172 T00960082 52015 FZANO \$
KGXF 171555Z AUTO 00000KT 8SM OVC060 12/09 A3006 RMK AO2 SLP176 T01170093 FZANO \$
KGXF 171655Z AUTO 00000KT 9SM FEW013 SCT065 14/10 A3006 RMK AO2 SLP175 T01360096 FZANO \$
KGXF 171755Z AUTO 23003KT 10SM CLR 15/09 A3005 RMK AO2 SLP172 T01490086 10152 20081 50000 FZANO \$
KGXF 171855Z AUTO 00000KT 10SM CLR 16/08 A3004 RMK AO2 SLP168 T01640076 FZANO \$

Submitted by:

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