

**NATIONAL TRANSPORTATIONS SAFETY BOARD**  
**Office of Aviation Safety**  
**Washington, DC 20594**

**SUMMARY OF AIRCRAFT EXAMINATION**

-- CEN19FA177 --

**A. ACCIDENT**

Location: Elida, Ohio  
Date: June 20, 2019  
Time: 1612 eastern daylight time  
Aircraft: Beech A36 (s/n E-1961), N6150X

**B. PARTICIPANTS**

Timothy Sorensen  
Senior Aviation Accident Investigator  
National Transportation Safety Board  
Denver, Colorado

Ricardo Ascensio  
Senior Air Safety Investigator  
Textron Aviation  
Wichita, Kansas

Casey Love  
Air Safety Investigator  
Textron Aviation  
Wichita, Kansas

Chris Lang  
Air Safety Investigator  
Continental Aerospace Technologies  
Mobile, Alabama

**C. ACCIDENT SUMMARY**

On June 20, 2019, at 1612 eastern daylight time, a Beech A36 airplane, N610X, was destroyed during a collision with terrain near Elida, Ohio. The pilot and passenger were fatally injured. The airplane was registered to Stevann Farms Ltd. and operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Instrument meteorological conditions prevailed in the vicinity of the accident site. The flight was not operated on a flight plan. The flight originated from the Maquoketa Municipal Airport (OQW), Maquoketa, Iowa about 1255 central daylight time. The intended destination was the Toledo Executive Airport (TDZ), Toledo, Ohio.

## Summary of Aircraft Examination

### D. DETAILS OF AIRCRAFT EXAMINATION

An on-scene airframe examination was conducted on June 21, 2019. The airplane was recovered to the Lima Allen County Airport and post-recovery airframe and engine examinations were completed on June 22, 2019. The examinations were conducted under the direct supervision of the NTSB investigator-in-charge with the assistance of technical representatives from Textron Aviation and Continental Aerospace Technologies as parties to the NTSB investigation.

### E. DESCRIPTION OF ACCIDENT SITE

The accident site was located in an agricultural field at an elevation of about 780 ft. The field was bordered by trees on the east and south sides. The airplane came to rest on an approximate 300° heading about 380 ft from the tree line to the east and about 240 ft to the tree line to the south. No evidence of any tree strikes was observed. The airplane was located at 40.8463° north / 84.1584° west. The debris field extended about 117 feet north-northeast of the main wreckage.

The airplane was upright, with the engine and propeller partially buried in a 10-foot diameter by 3-foot deep impact crater immediately adjacent to the fuselage. The left wing was located in position relative to the fuselage. A linear ground depression extended from near the left side of the fuselage consistent with the impact by an intact left wing. A circular depression was located adjacent to the linear depression consistent with the impact by an intact left-wing tip fuel tank. The right wing remained attached to the fuselage. There was no ground depression associated with the right wing.

### F. SUMMARY OF AIRCRAFT EXAMINATION<sup>1</sup>

#### **Airframe – Beech A36 (s/n E-1961)**

The engine cowling was separated and fragmented. The forward fuselage was deformed consistent with impact forces. The cockpit and cabin areas were compromised. The instrument panel was dislocated, and the cockpit flight controls were similarly deformed, separated and/or dislocated. The center fuselage was deformed and partially separated. The aft fuselage and empennage appeared intact. The forward cabin entry doors were separated and located in the debris field. The forward half of the utility door was separated and located in the debris field. The aft half of the utility door remained attached to the fuselage.

The left wing remained in position relative to the fuselage. It was bent forward approximately 90° beginning near the wing root. The entire wing assembly was deformed and buckled, with localized tearing of the wing skins. Portions of the leading edge were separated and fragmented. The wing skin panel common to the main fuel tank filler cap was separated and located in the debris path. The filler cap was securely installed. The inboard portion of the wing tip fuel tank remained attached to the wing; the outboard portion was separated and lying adjacent to the circular ground depression. The fuel filler cap was securely installed. Both the main and the wing tip fuel tanks were compromised. The left main landing gear was retracted.

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<sup>1</sup> Directions related to accident site placement and component damage/deformation are with respect to an intact airframe unless otherwise noted.

## Summary of Aircraft Examination

### F. SUMMARY OF AIRCRAFT EXAMINATION *(continued)*

The left aileron and flap remained attached to the wing. Both were deformed consistent with the wing damage. Aileron control continuity was confirmed to the forward fuselage. The flap control rod was separated at the control surface consistent with impact forces. The flap extension cable was continuous from the actuator to the flap motor; however, the cable appeared to be dislocated at the flap motor. The actuator extension was measured at 2-1/8".<sup>2</sup>

The right wing remained in position relative to the fuselage. It exhibited localized buckling over the outboard portion of the span, with leading edge crushing damage over the entire span. The main fuel filler cap was securely installed. The inboard portion of the wing tip fuel tank remained attached to the wing; the outboard portion was separated and fragmented. The fuel filler cap was securely installed. Both the main and the wing tip fuel tanks were compromised. The right main landing gear was retracted.

The right aileron and flap remained attached to the wing. The aileron exhibited buckling along the entire span consistent with the wing damage. Aileron control continuity was confirmed to the forward fuselage. The flap control rod attachment fitting was separated from the control surface; it remained attached to the control rod. Continuity from the actuator to the flap motor was confirmed. The actuator extension was measured at 1-7/8", which was symmetric with the left flap position.

The vertical and horizontal stabilizers appeared intact. The rudder and elevators remained attached and exhibited free movement. The trim tabs were attached to the elevators and appeared undamaged. Rudder and elevator control continuity was confirmed from the control surfaces to the cockpit area. Elevator trim continuity was confirmed to the cockpit area. Both trim actuator extensions measured 1-9/16".<sup>3</sup>

The landing gear motor assembly remained secured to the carry-through spar and appeared intact. The extension/retraction control tubes remained attached. The motor position corresponded to a landing gear retracted configuration.

The vacuum pump housing was separated from the base. The rotor was fragmented. One vane was recovered and appeared intact. The base remained securely attached to the engine. The housing cavity was unremarkable.

Fuel selector was separated from the supporting airframe structure. The mating fuel lines were deformed but remained securely attached. The selector housing appeared intact; however, the selector handle was separated, and the arm was bent. The selector was positioned between detents; the selector position at the time of the accident could not be determined. The fuel screen was free of debris or sediment. The electric fuel pump was damaged consistent with impact forces and could not be tested.

The attitude indicator housing was separated from the instrument panel; the face of the unit remained attached to the panel. The gyro axis was fractured, and the cap of the gyro housing was separated. The gyro and housing appeared to be otherwise intact. Both the

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<sup>2</sup> According to the airframe manufacturer, the actuator extension corresponded to a 0° (up) flap deflection.

<sup>3</sup> According to the airframe manufacturer, the trim actuator extension corresponded to an approximate 10° tab down position.

## Summary of Aircraft Examination

### F. SUMMARY OF AIRCRAFT EXAMINATION *(continued)*

gyro and housing cavity exhibited circumferential scoring consistent with gyro rotation at impact. Airspeed indicator remained secured to the dislocated instrument panel. The face and housing of the indicator appeared to be intact. The indicator needle was stuck at approximately 180 knots. The altimeter was separated from the instrument panel. The altimeter setting was about 29.74 inches.

#### **Engine – Continental IO-550-B37B (s/n 682973)**

#### **Propeller – McCauley D3A32C409-C (s/n 971808)<sup>4</sup>**

The engine assembly exhibited damage consistent with impact forces. The crankcase appeared intact and all six cylinders were secured to the crankcase. The intake and exhaust ducting and oil sump were crushed and deformed. All four engine mount fittings were fractured. The engine control cables remained attached to the throttle body/mixture control unit and the propeller governor.<sup>5</sup>

Internal engine continuity was confirmed via crankshaft rotation. Compression and suction were obtained on each cylinder except for cylinder no. 6. The no. 6 pushrod tube was damaged consistent with impact which prevented full movement of the corresponding valves. Borescope examination did not reveal any anomalies consistent with a loss of engine power. All pistons and cylinder valves appeared intact; operating signatures appeared normal. The oil filter was securely attached to the engine. The filter was opened, and the filter media was intact and clear of any sediment or debris.

The left magneto was partially separated from the engine. A portion of the mounting flange was fractured. The input drive turned freely by hand and the impulse coupling engaged normally. The left magneto provided spark on all leads.<sup>6</sup> A SureFly electronic ignition unit was installed in the right magneto position. The unit was not functionally tested. The ignition harness exhibited damage consistent with impact. Each harness lead remained secured to the spark plugs. The upper spark plugs were removed. Each exhibited normal combustion signatures; however, the electrodes were worn and elongated. The lower spark plugs were examined during the borescope inspection and each of the plugs exhibited similar signatures as the upper plugs.

The throttle body/mixture control unit was separated from the engine at the mounting base but was retained by the induction tube and the control cables. The unit exhibited damage consistent with impact. The throttle and mixture control arms rotated freely by hand. The fuel screen was intact and clear of debris.

The engine driven fuel pump was securely attached to the engine. The component was removed and disassembled. The drive coupling was intact. The pump could not be rotated by hand but was able to be rotated using a wrench. The pump components appeared intact and were unremarkable.

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<sup>4</sup> The propeller model and serial numbers were obtained from the maintenance records. They were not compared to the installed propeller.

<sup>5</sup> The engine control cables were cut to facilitate recovery.

<sup>6</sup> The right magneto provided spark to the lower spark plugs on cylinder nos. 1, 3 and 5, and to the upper spark plugs on cylinder nos. 2, 4 and 6.

## Summary of Aircraft Examination

### F. SUMMARY OF AIRCRAFT EXAMINATION *(concluded)*

The propeller governor remained attached to the engine. It was damaged consistent with impact forces. The propeller control cable remained attached. The component was not removed or examined further.

The three-bladed propeller assembly remained attached to the engine. The spinner was attached but was crushed and torn. One blade was separated from the hub and was located at the site under the engine in the ground impact. It was bent aft about 20° near midspan. The second and third blades remained attached to the hub. The second blade was bent aft about 50° at the root. The third blade was bent forward about 40° near one-third span and was twisted toward low pitch.