



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

December 13, 2021

EXAMINATION SUMMARY

ERA22FA085

A. ACCIDENT

Location: Crab Orchard, Kentucky
Date: December 10, 2021
Time: 1651 EST
Airplane: Beech V35, N5704V

B. INVESTIGATION PARTICIPANTS

Ralph E. Hicks - IIC
Eastern Region Aviation (ERA)
National Transportation Safety Board
Marietta, Georgia

Henry Soderlund
Textron Aviation
Wichita, Kansas

Sean Smith
Principal Maintenance Inspector
FAA Louisville FSDO
Louisville, Kentucky

Stephen Travis
Front Line Manager - Airworthiness
FAA Louisville FSDO
Louisville, Kentucky

C. SUMMARY

On December 10, 2021, about 1651 eastern standard time, a Beech V35, N5704V, was substantially damaged when it was involved in an accident near Crab Orchard, Kentucky. The private pilot and one passenger were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

1.0 Wreckage Examination

The examination of the wreckage was performed at the accident site, Crab Orchard, Kentucky, on December 11-12, 2021, and at the facilities of AMF Aviation LLC, Springfield, Tennessee, on December 13, 2021.

General

The accident site consisted of a heavily-wooded area on rising terrain. The coordinates of the accident site were N 37.429529, W 84.560773 and the elevation of the accident site was 1,154 ft. Initial examination of the accident site and wreckage revealed that all major structural components of the airplane were accounted for at the scene. The airplane struck the top of a 50-ft-tall oak tree before colliding with terrain. The measured descent angle from the tree breaks to the initial impact crater was about 75° nose down and the magnetic heading at impact was about 105°. There was no fire.

Fuselage

The fuselage, aft of the entry door, was intact and exhibited buckling signatures in several areas. The cabin, at and forward of the entry door, was opened and exposed by impact forces.

Left Wing

The left wing was intact and exhibited forward-to-aft crushing signatures throughout its length. The flap came to rest against a tree. The left aileron remained attached to the wing, and continuity was confirmed from the control surface attachment to the main spar in the cockpit. The flap remained attached to the wing, and the actuator was found extended about 2 inches, which equated to a flap setting between 0° and 5°.

Right Wing

The right wing was intact and exhibited forward-to-aft crushing signatures throughout its length. The outboard ½ of the wing came to rest against fallen trees. The right aileron remained attached to the wing, was bent in a downward direction, and continuity was confirmed from the control

surface attachment to the main spar in the cockpit. The flap remained attached to the wing, and the actuator was found extended about 2 inches, which equated to a flap setting between 0° and 5°.

Empennage

The v-tail assembly remained intact and exhibited light impact damage. Control continuity was confirmed from the ruddervators to the cockpit. The ruddervator trim actuator was found extended about 1 inch, or 5° tab up.

Fuel System

Both fuel tanks were compromised by impact forces and only residual fuel remained. The fuel strainer screen and bowl were both clear and free of obstructions. There was residual fuel in the bowl. The fuel selector handle and valve were both in the “RIGHT” tank positions. The fuel boost pump was in the “OFF” position.

Landing Gear

All three landing gear were found in the retracted positions. The landing gear selector was in the “UP” position and the emergency landing gear handle was stowed.

Engine and Controls

The throttle, mixture, and propeller controls were in the full forward positions. The engine mount was fractured in several places and the engine remained partially attached to the airframe. The propeller remained attached to the engine.

The engine was raised with a forklift for further examination. The engine was turned manually using the propeller. Compression and suction were observed on all six cylinders and continuity was confirmed to the aft accessory section. Valve movement was correct on all cylinders.

The engine-driven fuel pump was removed for examination. The pump drive shaft was intact. The fuel control inlet screen was clean and unblocked. A small amount of residual fuel was observed. All six fuel injectors were unobstructed. The fuel distribution valve screen and clean and the diaphragm was supple and undamaged.

Both magnetos were turned and spark was produced at all leads. All six top spark plugs were examined; the electrodes were normal in color and wear when compared to a Champion inspection chart.

The engine-driven vacuum pump was removed and opened for examination. The plastic drive shaft was broken and separated. The pump was forwarded to the NTSB Materials Laboratory for further examination.

The aircraft was equipped with a Precise Flight, Inc. standby vacuum system (SVS). The SVS control was found in the OFF position. Due to the general destruction of the instrument panel, the vacuum pump inoperative light was not located.

Instruments

The attitude gyro was located and disassembled; there were no rotational scoring signatures observed inside the rotor housing or on the rotor.

Propeller

All three propeller blades were bent aft. Two of the three blades exhibited “s” bending signatures.