



MEMORANDUM FOR RECORD

Todd Gunther
Air Safety Investigator
Eastern Region

Date: March 1, 2021
Subject: Accident Site and Wreckage Examination
NTSB Case Number: ERA21FA140

Examination of the accident site revealed that the airplane initially contacted the top of an approximately 50-foot-tall tree about 0.66 NM southwest of the approach end of Runway 5 at GVL. It then traveled on a northerly magnetic heading (about 004°), contacting another tree about 30 feet above ground level with the left wing and fuselage. The left wing separated from the fuselage, with the outboard half of the wing remaining in the tree while the inboard half fell through the roof of a mobile home. Parts continued to separate from the airplane, including the outboard portion of the right wing and the empennage. The cabin area, engine, and the remainder of the right wing were found approximately 550 feet from the initial impact point with the tree. Examination of the airplane revealed that the flaps remained attached to their respective wings, and the inboard half of each aileron remained attached to the wing. The outboard aileron hinges had also remained attached to each wing. The right aileron had separated from its wing and was found in multiple pieces along the wreckage path. The right fiberglass wing tip and the remains of its navigation light were found near the start of the wreckage path. Both aileron direct cables had separated near the firewall, and the aileron interconnect cable had separated in the cabin overhead.

Both elevator torque tubes had separated from the aft bellcrank. The left horizontal stabilizer was found in two pieces; the inboard piece remained attached to the empennage, the outboard portion was found near the start of the wreckage path. The left elevator was found in two pieces along the first half of the wreckage path. The right elevator remained attached to the right horizontal stabilizer apart from the counterweight, which was found embedded in the ground near the end of the wreckage path.

All the flight control cables exhibited signatures of tension overload with their associated cable ends attached to the cockpit flight controls and flight control surfaces. The rudder cables, upper elevator cable and both elevator trim cables had separated in tension overload at the bottom of the firewall. The lower elevator cable had separated near the aft bellcrank.

Fuel came out of the fuel strainer when it was removed from the firewall. The electric boost pump screen was clear of debris and fuel was found inside. The fuel selector valve was found lying near the right wing at the end of the wreckage path. The shaft was bent and exhibited impact damage. The valve was in an intermediate position though ports were observed at all holes. A strong fuel smell was present in the mobile home that contained the inboard section of the left wing.

The attitude indicator was disassembled, and rotational scoring was present on the gyro rotor and the rotor housing. The vacuum pump was opened, and the composite drive assembly, carbon rotor and carbon vanes were intact. The aircraft was equipped with a radar altimeter which indicated an altitude of 200 feet. The standby vacuum pump switch was in the "OFF" position. The throttle control, mixture control, and carburetor heat control were all fully forward, and a needle slap mark was observed at the 25 inHg line on the manifold pressure gauge.

Examination of the propeller and engine revealed that the propeller had remained attached to the engine crankshaft flange. The propeller spinner was partially crushed. One propeller hub socket was fractured, and the corresponding propeller blade was displaced aft about 50° and was free to rotate in the hub. About the outboard 8-inches of that blade was bent aft about 90°. The blade tip was broken off, and the trailing edge of the bent portion exhibited "S" bending. Another blade was also free to rotate in the hub. The tip of that blade was bent forward slightly. The remaining blade tip was twisted slightly toward the blade face. The governor control arm had separated from the governor. The governor drive spline was rotated freely by hand. The governor oil screen was absent of debris.

The engine had remained attached to the airplane firewall through the tubular engine mount. The intake and exhaust tubing were partially crushed. The exhaust mufflers were partially crushed and separated from the engine.

The engine crankshaft was rotated by turning the propeller and continuity of the crankshaft to the rear gears and to the valve train was confirmed. Compression and suction were observed from all cylinders except from the No. 4 cylinder which was impact damaged.

The carburetor was fractured across the throttle bore and separated from the engine. The throttle and mixture control cables remained attached to the carburetor throttle and mixture control arms and the arms remained attached to the carburetor. The carburetor was partially disassembled and no damage to the internal components was noted. Fuel was observed in the carburetor float bowl. The carburetor fuel inlet screen was absent of debris.

The engine driven fuel pump remained attached to the engine and no damage was noted. Fuel drained from the pump as it was removed. No damage was noted to the internal rubber diaphragms or check valves.

The magneto housing remained attached to the engine and was fractured over the left condenser. Spark was produced from all 12 ignition towers. The ignition harness was impact damaged. The spark plug electrodes exhibited dark gray coloration and worn normal condition. The No.1 top and the No.4 bottom sparkplugs were impact damaged.

Oil was observed in the engine. The oil suction screen was unobstructed. The oil filter media exhibited a few silver-colored flakes consistent in appearance with aluminum flakes.