

NTSB Airframe and Engine Examination Notes

Airframe

On May 12, 2019, the NTSB investigator-in-charge (IIC), two air safety investigators (ASI) from Air Tractor, and a field service representative from Pratt & Whitney Canada (PWC) were escorted by the Colorado County (Texas) Sheriff's Department to the accident site. The accident site, about 155 ft amsl, was located about 0.30 miles south and 0.60 miles east of the Colorado River in a remote, sparsely populated area. The accident site was about 7.75 miles northeast of the operator's airstrip and about 4.50 miles north of Garwood, Texas.

The accident site was located on private land in an open, flat, grass field that is used for ranching purposes. The wreckage was found about 250 ft directly east of the western corner of the field. The trees in the vicinity of the accident site did not display any evidence of impact. There were no towers, power lines, or buildings in the vicinity of the accident site.

The investigative team members documented the wreckage and accident site and conducted an examination of the airframe. There was no evidence of a pre or postimpact fire. All structural components of the airplane were found at the accident site. The wreckage was highly fragmented. A 20 ft long ground scar was found with a heading of 293°. At the westernmost point of the ground scar was a 15 ft long (east to west), 7 ft wide, and 3 ft deep impact crater. The crater contained two propeller blades.

The fuselage was found resting on its left side. The area of the fuselage forward of the cockpit was separated from the cockpit and was heavily damaged. The firewall, engine, engine mount, and hopper were crushed and segmented. The cockpit was fractured in several locations. The instrument panel, cockpit floor, and seat had separated from the cockpit.

The top portion of the cockpit consisting mostly of instrument indications was separated from the lower portion of the cockpit consisting mostly of switches and circuit breakers. The pitot-static system was fragmented and damaged.

The airplane's seat was equipped with a four-point restraint system. Each of the steel anchor points for the restraints were found intact with the appropriate hardware installed. The lap belt remained attached to the seat points. The shoulder harness webbing had separated just forward of the anchor point. A white Gentex HGU-33 airplane flight helmet was found near the seat.

The preimpact position of the powerplant control levers could not be determined due to the deformation of the wreckage.

The aft fuselage near the empennage was found bent upward toward the top of the airplane.

Both main landing gear wheels separated from the gear legs. The tail gear was found attached to the fuselage attachment point.

The wings separated from the fuselage during the impact sequence and were found about 50 ft northwest of the fuselage. The right wing skins and ribs were substantially fragmented along the debris path. The right aileron was found separated from the wing just south of the fuselage wreckage. The right aileron counterweight was found lodged in the ground near the easternmost point of the ground scar. The right aileron boost tab was found separated from the wing and aileron between the fuselage and the aileron. The right flap was found separated from the wing and fuselage, adjacent to the fuselage wreckage.

The left wing was largely intact with damage to the leading edge, wing tip, and inboard portion. The left aileron and flap were found separated from the wing. The left aileron counterweight was found lodged in the ground near the initial impact marks.

Each of the wings were equipped to hold 108 gallons of fuel in the integral wing fuel tanks. Both fuel tanks ruptured during the impact sequence with no fuel remaining in the tanks. The area surrounding the impact crater and the wreckage emitted a strong odor consistent with Jet A fuel. Both fuel caps were found properly secured.

While the vertical stabilizer and rudder remained relatively undamaged, both horizontal stabilizers exhibited crushing damage to the inboard leading edge. Both horizontal stabilizers remained attached to the aft fuselage. The right stabilizer brace had separated from inside the horizontal stabilizer. The left horizontal stabilizer was relatively undamaged. Both elevators remained attached to the horizontal stabilizers.

Flight control continuity was established for the airframe. All observed separations in the wreckage were consistent with overstress signatures. During the examination, no preimpact mechanical malfunctions or failures were noted with the airframe.

Propeller

The engine was equipped with a five-bladed constant speed, fully reversable, Hartzell HC-B5MP-3C propeller. All five metal blades were accounted for in the wreckage. Four blades exhibited spanwise twisting. Three blades were found separated from the hub. One blade had segmented into various pieces during the impact sequence. During the examination, no preimpact mechanical malfunctions or failures were noted with the propeller.

Engine

The PWC PT6A-45 turbine engine remained loosely attached to the engine mount and firewall portion of the fuselage.

The wreckage was recovered and transported to a secure facility for a future examination of the engine. On May 29, 2019, the NTSB IIC and an ASI from PWC traveled to Lancaster, Texas, for an examination of the engine.

The investigative team members documented the engine. The engine displayed rotational signatures on the compressor turbine, the power turbine vane, and the power turbine. The 1st stage compressor rotor blades exhibited rolled-over material from contact with their respective shroud. The propeller shaft exhibited a torsional overload fracture.

The rotational signatures and fractured shaft indicated the engine was rotating under power during the impact with terrain. During the examination, no preimpact mechanical malfunctions or failures were noted with the engine.

Maintenance Records

An examination of the airplane's airframe and engine maintenance records submitted by the airplane's owner showing the most recent inspections of the airframe and engine, revealed no evidence of uncorrected mechanical discrepancies.