



National Transportation Safety Board

Office of Aviation Safety Central Region

Accident Site and Wreckage Examination Summary

NTSB Accident No: CEN19FA117
Accident Date/Time: Tuesday, 9 April 2019, at 1033 CDT
Accident Location: Harlingen, Texas
26°17'33"N
92°45'54"W
39 ft mean sea level

Aircraft Make/Model: Air Tractor AT-502
Aircraft Registration: N7314D
Aircraft Serial No: 502-0003
Engine Make/Model: Pratt & Whitney PT6A-15AG
Engine Serial No: PCE-14143
Propeller Make/Model: Hartzell HC-B3TN-3D
Propeller Serial No: BUA30488
Airworthiness Date: June 26, 1987
Airplane Time: 10,822.8 hours since new (Annual Inspection, 01 April 2018)
Engine Time: 9,762.6 hours since new (Annual Inspection, 01 April 2018)

Airplane Operator: Rowland Dusters
P.O. Box 72
Lasara, Texas, 78561

Airplane Owner: Bennard Strauss Rowland II
P.O. Box 72
Lasara, Texas, 78561

Examination Dates/Locations: Accident Site (Wednesday, 10 April 2019)
Accident Site (Thursday, 11 April 2019)

Participants: Andrew T. Fox - National Transportation Safety Board
Robert Thomason - Federal Aviation Administration
Victor Lopez - Federal Aviation Administration
Kyle Schroeder - Air Tractor, Inc.
Dakota Lowe - Air Tractor, Inc.
Jeffery Davis - Pratt & Whitney Canada

SUMMARY

An onsite examination of the airplane and its engine was completed by a National Transportation Safety Board (NTSB) investigator who was assisted by representatives from the Federal Aviation Administration, Air Tractor, and Pratt & Whitney Canada. The postaccident examination did not reveal any anomalies that would have precluded normal operation of the airplane before it collided with the high-voltage power transmission lines.

AIRPLANE CONFIGURATION AND MAINTENANCE

The airplane, serial number 502-0003, was powered by a 680 shaft-horsepower Pratt & Whitney Canada PT6A-15AG turbo-propeller engine, serial number PCE-14143, which drove a three-blade, constant-speed, full-feathering, Hartzell HC-B3TN-3D propeller, serial number BUA30488. The single-seat airplane was equipped with a conventional landing gear, flaps, and agricultural application equipment. The airplane had a maximum allowable takeoff weight of 8,000 pounds. The airplane was issued a restricted category airworthiness certificate on June 26, 1987. The airplane's hour meter was destroyed during the postimpact fire, which precluded a determination of the airplane's total service time at the time of the accident. The last annual inspection of the airplane was completed on April 1, 2018, at 10,822.8 total airframe hours. At the last annual inspection, the engine had accumulated 9,762.6 total hours since new. A postaccident review of the maintenance records found no history of unresolved airworthiness issues. The operator reported that the airplane departed with 170 gallons of Jet-A fuel on board and 75 gallons of Malathion pesticide.

ACCIDENT SITE

The accident site was in the cotton field that the pilot intended to spray. The airplane impacted two 1.108-inch diameter, 345-kilovolt power transmission cables strung between two 136 ft tall structures along the eastern border of the field. The airplane subsequently impacted the field about 200 ft west of the powerlines (Figure 1). A fan-shaped wreckage debris field extended about 100 ft from the initial ground impact. The overall distribution of the wreckage was consistent with the airplane traveling west-northwest when it impacted the ground. Red navigation lens material from the left wingtip was found at the initial impact with the ground.

MAIN WRECKAGE

The main wreckage consisted of the fuselage, empennage, right wing, engine, and propeller. The main wreckage exhibited evidence of a prolonged postimpact ground fire. The fuselage was found upright with significant fire damage. All airframe structural components and flight control surfaces were identified at the accident site. Flight control continuity could not be established due to damage; however, all observed separations were consistent with overstress or damage sustained during the postimpact fire. The flap actuator was found in the fully retracted position. The left wing was highly fragmented during impact. There were two transmission cables conjoined with the main wreckage; one wrapped around the engine and propeller shaft, and the other

wrapped around the wing carry-through structure, right wing, and fuselage (Figure 2 and Figure 3). The forward face of the left main wing spar exhibited broad vertical marks 3-6 ft from the airplane centerline that were consistent with contact with a large diameter power transmission cable (Figure 3). The right wing was largely intact with fire damage to the inboard portion of the wing. There was no evidence of a cable strike on the leading edge of the right wing, horizontal stabilizer, or vertical stabilizer.



Figure 1. Main Wreckage and Impact Debris Path



Figure 2 - Power Transmission Cables Conjoined with Main Wreckage (red arrows point to cables)



Figure 3 - Power Transmission Cables Conjoined with Right Wing (Left Image) and Cable Impact Marks to the Forward Face of the Left Main Wing Spar (Right Image)

The preimpact position of the powerplant control levers could not be determined due to impact deformation and fire damage to the cockpit. Engine control continuity could not be established due to impact and fire damage. The engine remained attached to the fuselage mounts. The inlet case struts were fractured during impact and the accessory gearbox had separated from the engine except for external lines and cables. The magnetic chip detector was clean. The first-stage compressor blades exhibited a tip rub and ingested dirt and organic matter. The engine was separated at the C flange to review the turbine section. The downstream side of the compressor turbine disc and blades exhibited rotational scoring from contact with the power turbine vane and baffle. A majority of the power turbine blades had separated from the disc. Several power turbine blade roots and tips were found preceding the main wreckage in the debris field. The remaining turbine blades were displaced forward in the disc and were fractured close to midspan of the airfoil. The disc and blades exhibited rotational scoring on the upstream side from contact with the

power turbine baffle and vane. The downstream side of the power turbine blades and disc exhibited rotational scoring from contact with the exhaust duct.

The propeller remained attached to the engine. The three propeller blades remained attached to the hub and exhibited spanwise twisting. Two blades segmented during the impact sequence and one blade remained intact with leading and trailing edge gouging near the blade tip. The intact blade also exhibited minor chordwise scratches about midspan.

DATA DOWNLOAD

The airplane was equipped with a Satloc G4 agricultural GPS system (p/n 806-1040-000# G, s/n 1417-07640-LN1-001) that provided guidance and analysis for agricultural application operations. The recovered data did not include continuous position information for the flight; the system was configured to only record limited position data while the pilot depressed the spray trigger. Further review of the recovered data established that the pilot had sprayed one field before the accident. The system did not record any position data near the accident site.